

CHAPTER 5

Regional Productivity: Trends, Explanations, and Policies

Even before the COVID-19 pandemic delivered a severe shock to emerging market and developing economies (EMDEs), a broad-based labor productivity growth slowdown had been underway since the 2007-09 global financial crisis (GFC). The slowdown was particularly severe in East Asia and Pacific, Europe and Central Asia, and Sub-Saharan Africa amid slowing investment growth, financial market disruptions, and a post-GFC commodity price slide. Productivity growth in Latin America and the Caribbean and the Middle East and North Africa, already sluggish prior to the global financial crisis, stagnated thereafter, reflecting political uncertainty, episodes of financial stress in major economies, falling commodity prices, and market distortions. In several regions, the productivity gap with advanced economies has widened. The shocks related to COVID-19 may exacerbate the productivity growth slowdown in EMDEs. A well-targeted reform agenda is needed to reignite productivity, in particular to address key obstacles, such as lack of economic diversification, weak governance and institutions, widespread informality, shortcomings in education, and lack of integration through trade.

Introduction

Even before the COVID-19 pandemic, emerging market and developing economies (EMDEs) had experienced a broad-based slowdown in labor productivity growth. In the years following the global financial crisis (GFC), the slowdown was most pronounced in regions that are closely integrated into advanced-economy supply chains and those with a large number of commodity exporters. In several regions, the slowdown occurred in the context of already sluggish productivity growth. Weaker productivity growth has resulted in a widening productivity gap with advanced economies in some EMDE regions and made achieving the Sustainable Development Goals more difficult. A well-targeted reform agenda is needed to reignite productivity growth, especially in light of the possible persistent economic effects of COVID-19.

This chapter draws out differences in regional productivity trends and policy priorities.¹ Specifically, it addresses the following questions:

- How has the evolution of productivity varied across the six EMDE regions?
- What factors have been associated with productivity growth?
- What policies should be prioritized in order to boost productivity growth?

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¹For the purposes of this chapter, productivity is defined as labor productivity—that is, real GDP per worker (at 2010 prices and exchange rates).

Contributions

The chapter makes several contributions to the literature and policy debate on productivity at the regional level:

- *EMDE focus.* The chapter uses a larger, more diverse sample of EMDEs relative to previous studies and to other chapters in this book.² It starts with a discussion of the evolution, sources, and bottlenecks to productivity growth and challenges across the six EMDE regions.
- *Factor decomposition.* For each of the six regions, the chapter decomposes productivity growth into contributions from human capital, physical capital, and total factor productivity (TFP). For some regions, this analysis is extended to include natural capital.
- *Sectoral decomposition.* Using a nine-sector database, the chapter measures the within-sector and between-sector contributions to productivity growth in each of the six regions and calculates the contribution of each of the sectors to productivity growth, employment, and value added.
- *Policy options.* The chapter contains a detailed discussion of the policy options for boosting productivity growth, including some of the policies that may be effective in offsetting the adverse effects of the COVID-19 pandemic on productivity.

Key findings

The chapter offers several key findings:

- *Heterogeneous productivity slowdown across regions.* Although the post-GFC productivity slowdown affected all EMDE regions, it was most pronounced in East Asia and Pacific (EAP), Europe and Central Asia (ECA), and Sub-Saharan Africa (SSA) amid slowing investment growth, financial market disruptions, and a major commodity price slide. The recent productivity growth slowdown occurred in the context of already weak productivity growth in some regions. Productivity growth in Latin America and the Caribbean (LAC) and the Middle East and North Africa (MNA), already sluggish before the global financial crisis, was stagnant in the post-GFC period, reflecting political uncertainty, episodes of financial stress in major economies, falling commodity prices, and ongoing market distortions.
- *Slowing pace of productivity catch-up to advanced-economy levels.* As a result of the productivity growth slowdown during the post-GFC period, the pace of catch-up to

²To be as representative of each region as possible, this chapter uses a broader sample (129 EMDEs) than the other chapters (74 EMDEs), resulting in a shorter time horizon under consideration. Unless otherwise stated, regional productivity statistics are GDP-weighted averages.

advanced-economy productivity levels slowed in most EMDE regions, and fell further behind advanced-economy levels in LAC, MNA, and SSA. This means that in these regions, it will now take longer to reach the level of productivity, or real GDP per worker, observed in advanced economies, all else equal. In MNA, labor productivity averaged 40 percent of the advanced-economy level in the post-GFC period, down from 49 percent pre-GFC. In SSA, productivity relative to that in advanced-economies dropped to 12 percent, from 13 percent pre-GFC, and in LAC stalled at 22 percent.

- *Fading support from total factor productivity (TFP) growth.* While the contribution of human capital to productivity growth was relatively stable, capital deepening contributed less to productivity growth in the post-GFC period compared to the pre-GFC period in all regions except SSA. All regions experienced a weaker contribution from TFP—especially LAC and SSA, where TFP contracted post-GFC.
- *Declining gains from sectoral reallocation.* Productivity gains from the reallocation of labor between sectors faded in four regions (EAP, ECA, LAC, and SSA) during the post-GFC period. LAC and SSA were particularly affected. Yet within-sector productivity enhancements also slowed. Only one region, EAP, achieved within-sector productivity gains during the post-GFC period.
- *Need for well-targeted policies to boost productivity growth.* A well-targeted reform agenda is needed to reignite productivity growth, especially in light of the possible persistent effects of COVID-19 on productivity. In particular, policies are needed to address key obstacles common across multiple regions, such as lack of economic diversification, weak governance and institutions, widespread informality, shortcomings in education, and lack of integration through trade.

Evolution of productivity across regions

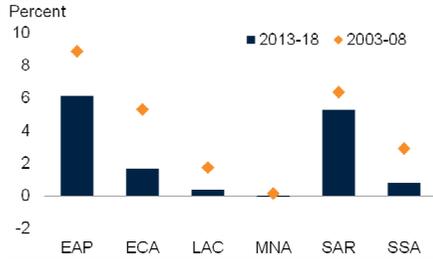
Slowing labor productivity growth across EMDE regions. Prior to the GFC, EMDEs experienced an exceptional and broad-based surge in productivity, with productivity growing faster than the advanced-economy average in more than 50 percent of economies in all regions except MNA (Rodrik 2011; Roy, Kessler and Subramanian 2016; Figure 5.1). In the period following the GFC (2013-18), productivity growth slowed from pre-GFC (2003-08) rates in all EMDE regions. The COVID-19 pandemic may lead to a significant further setback in productivity growth.

The post-GFC slowdown was particularly steep in ECA, and to a lesser degree in EAP and SSA. In these regions, investment growth declined sharply from pre-GFC levels amid a financial system disruptions associated with the Euro Area debt crisis (ECA), policy-guided public investment slowdown in China (EAP), and the commodity price collapse of 2014-16 (ECA, SSA). However, in all three regions, there were important exceptions to the sharp slowdown. In EAP, the slowdown was concentrated in China while productivity and investment growth continued to be robust in other major economies, such as the Philippines and Vietnam. In ECA, the slowdown was muted in agricultural economies in Central Asia that shifted their economic ties towards China

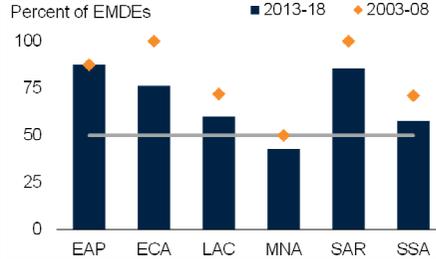
FIGURE 5.1 Evolution of regional productivity in EMDE regions

The slowdown in productivity growth following the global financial crisis affected all regions but was particularly severe in EAP, ECA, and SSA. Productivity levels fell further behind advanced-economy levels in some regions during the post-GFC period. In all regions, TFP contributed less to productivity growth in the post-GFC period.

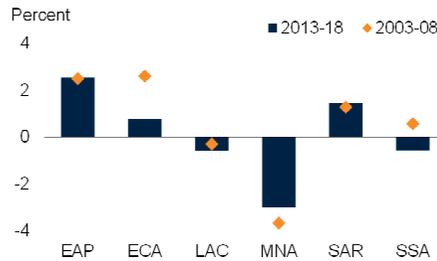
A. Productivity growth



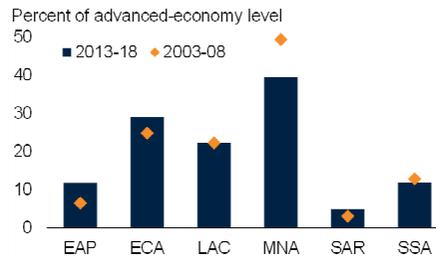
B. Share of economies with faster productivity growth than the average advanced economy



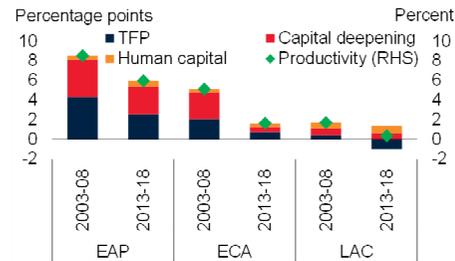
C. Rate of convergence to advanced-economy productivity levels



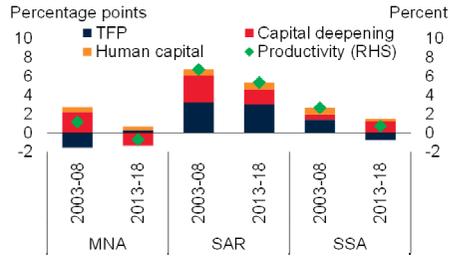
D. Productivity levels



E. Factor contributions to regional productivity growth: EAP, ECA, LAC



F. Factor contributions to regional productivity growth: MNA, SAR, SSA



Source: Barro and Lee (2015); The Conference Board; Groningen Growth Development Center database; Haver Analytics; ILOSTAT; International Monetary Fund; OECD STAN; Penn World Table; United Nations (Human Development Reports); Wittgenstein Centre for Demography and Global Human Capital; World KLEMS; World Bank (World Development Indicators).

Note: Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data.

A.-D. Sample includes 35 advanced economies and 129 EMDEs, including 16 in EAP, 21 in ECA, 26 in LAC, 14 in MNA, 7 in SAR, and 45 in SSA.

B. Horizontal line indicates 50 percent.

C. Rate of convergence is calculated as the difference in productivity growth rates with the average advanced economy divided by the log difference in productivity levels with the average advanced economy.

E.F. Productivity growth is computed as log changes. Sample includes 93 EMDEs, including 8 in EAP, 21 in ECA, 20 in LAC, 12 in MNA, 2 in SAR, and 30 in SSA.

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and in Central European economies that continued to integrate into Western European supply chains and benefited from investment financed by European Union structural funds. In SSA, productivity growth accelerated in agricultural commodity exporters.

Productivity growth in LAC and MNA was sluggish even before the global financial crisis, and slowed further in the post-GFC period as investment collapsed amid political uncertainty, episodes of financial stress in major economies, and falling commodity prices. The slowdown was mildest in MNA, where productivity in energy exporters was contracting in the pre-GFC period and productivity picked up moderately in energy importers. South Asia (SAR) experienced the second-mildest slowdown, in part because the region is the least open EMDE region to global trade and finance, has urbanized rapidly, and, as a commodity-importing region, benefited from the commodity price slide in 2014-16.

Slower convergence to advanced-economy levels in most regions. As a result of the slide in productivity growth during the post-GFC period, the pace of catch-up to advanced-economy productivity levels slowed in ECA, and productivity fell further behind advanced-economy levels in LAC, MNA, and SSA. The COVID-19 crisis is likely to further weaken productivity growth as the crisis delivers a decisive blow to regions grappling with large domestic outbreaks (ECA, LAC, SAR), the dual shock of the pandemic and collapse in industrial commodity prices (ECA, LAC, MNA, and SSA), and severe disruptions to international trade, particularly for those dependent on global value chains (EAP, ECA) and tourism (ECA, LAC; World Bank 2020a).

Among EMDE regions, productivity was highest in MNA (40 percent of the advanced-economy average), followed by ECA and LAC (29 and 22 percent, respectively), and lowest in EAP and SSA (both 12 percent) and SAR (5 percent). However, there was wide dispersion within some regions, especially MNA, ECA, and SSA. In some Gulf Cooperation Council (GCC) countries, for example, productivity was 60 percent or more of the advanced-economy average in 2013-18, whereas in heavily agricultural economies such as the Arab Republic of Egypt and Morocco, it amounted to less than 9 percent of the advanced-economy average. Within ECA, deepening global trade integration and major reforms since the collapse of the Soviet Union helped raise the productivity level to the second highest among EMDE regions. Yet while productivity in Poland was 36 percent of the advanced-economy average in 2013-18, in some agricultural economies in Central Asia, it was just 3 or 4 percent. LICs, most of which are in SSA, had productivity of less than 2 percent of the advanced-economy average in 2013-18, whereas Gabon, an oil exporter, reached 36 percent.

Progress on convergence in productivity levels is likely to be interrupted by the COVID-19 pandemic as attempts to limit the spread of the virus disrupt activity around the world. The pandemic is projected to push 71 to 100 million people into extreme poverty in 2020, with a large share of the new extreme poor expected to be concentrated in SAR and SSA, the regions that already accounted for the majority of extreme poverty (Lakner et al. 2020).

Capital deepening versus TFP growth, by region. Productivity growth can be decomposed into factor inputs (human and physical capital) and the effectiveness of their use (TFP; Figure 5.1). In EAP and ECA, the post-GFC slowdown in productivity growth reflected both a slower pace of capital deepening and weaker TFP growth, albeit to varying degrees. Two-fifths of the slowdown in EAP reflected slowing capital deepening, and the remainder the result of slowing TFP growth. In EAP, a policy-guided move towards more sustainable growth in China and trade weakness weighed on investment and capital deepening. In ECA, about two-thirds of the productivity growth slowdown reflected a collapse in investment growth as conflict erupted in parts of the region, sanctions were imposed on Russia, political and economic shocks unfolded in Turkey, financial systems transformed after the Euro Area debt crisis, and the commodity price collapse hit commodity exporters (Arteta and Kasyanenko 2019).

The slowdown in labor productivity was the least pronounced in SAR and MNA. In SAR, TFP continued growing at roughly the pre-GFC pace but capital deepening slowed sharply. Persistent post-GFC investment weakness—in part due to disruptive policy changes and a slowing pace of FDI inflows—was offset by productivity-enhancing sectoral reallocation, as labor moved out of agriculture into more productive sectors amid rapid urbanization. In MNA, TFP stabilized after earlier contractions, while capital deepening reversed. The oil price collapse of 2014-16 weighed heavily on investment in oil exporters, while political tensions discouraged investment in commodity importers. However, macroeconomic stabilization and structural reform efforts helped stem pre-GFC contractions in TFP.

Conversely, in SSA and LAC, TFP contracted during the post-GFC period. In major LAC economies, continued credit extension or intensifying economic distortions (such as trade restrictions and price controls) allowed unproductive firms to survive to a greater extent than pre-GFC. In SSA, the contraction in TFP was partly offset by accelerating capital deepening as a number of countries invested heavily in public infrastructure. Across EMDE regions, the COVID-19 pandemic is likely to erode investment prospects further amid substantial uncertainty and, for energy exporters, the unprecedented collapse in oil demand and prices (IEA 2020; UNCTAD 2020; World Bank 2020a).

Sources of regional productivity growth and bottlenecks

A range of factors have weighed on productivity growth since the GFC, but their relative role differs across regions. In most regions, productivity gains from reallocation from low-productivity (usually agriculture) sectors to high-productivity sectors slowed, as did the pace of improvement in various aspects of the supporting environment for productivity growth. Productivity levels in all regions remained less than half of those in advanced economies, providing significant scope for faster productivity growth. Significant bottlenecks to productivity convergence remain, many of which differ across regions and are expected to be further exacerbated by the COVID-19 pandemic.

Sectoral reallocation

Declining gains from sectoral reallocation. Switching employment from low-productivity sectors to sectors with above-average productivity levels supported between-sector productivity growth during the pre-GFC period in all regions except MNA, especially in EAP, ECA, and SSA (Figure 5.2). In SSA, the transition of employment between sectors accounted for nearly three-quarters of productivity growth in the median economy during 2003-08 (Diao, McMillan, and Rodrik 2017).

After the global financial crisis, productivity gains from sectoral reallocation faded in all regions except MNA. In commodity-reliant regions such as LAC and SSA, this in part reflected lower absorption of labor by services and construction sectors as real income losses in resource sectors spilled over into weaker demand. In EAP, it reflected slowing labor reallocation as overcapacity was gradually unwound. In ECA, high-productivity manufacturing, financial, and mining sectors suffered during the Euro Area debt crisis and the post-GFC commodity price collapse. In SAR, however, the movement of labor out of low-productivity agriculture into more productive sectors accelerated as rapid urbanization continued and strong consumption growth fueled employment in higher-productivity trade services. At the same time, within-sector productivity enhancements also slowed after the global financial crisis. Only one region, EAP, achieved within-sector productivity gains during the post-GFC period.

Looking ahead, further sectoral reallocation continues to have the potential to lift productivity growth in SAR and SSA, where low-productivity agriculture accounts for around 50 percent of employment but less than 20 percent of output. Substantial gaps in productivity between sectors remain, offering the potential for further aggregate productivity gains from resource reallocation between sectors. In the short term, however, the mobility restrictions implemented as part of the policy response to COVID-19 may hinder sectoral reallocation.

Bottlenecks to productivity growth

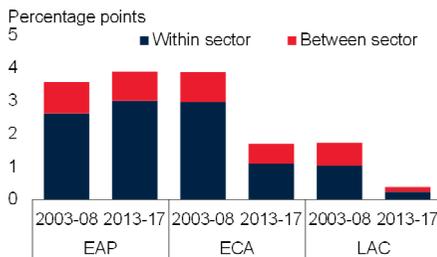
Several bottlenecks to higher productivity are shared, to varying degrees, by multiple EMDE regions. These include commodity reliance, widespread informality, poor education, and weak governance. Other bottlenecks are more region-specific.

Lack of diversification. In LAC, MNA, and SSA, commodities account for over 20 percent of exports on average. In ECA, they account for 30 percent of exports, largely due to Russia, where around 60 percent of exports are (mostly energy) commodities. Widespread subsistence agriculture in SSA holds back productivity in SSA's large agricultural sector. Economies that are highly reliant on a narrow range of commodity exports can also suffer from misallocation and procyclical trends for productivity growth (Frankel 2010). Conversely, producing across a broad range of sectors can insulate economies from external shocks, and can facilitate knowledge transfer to strengthen productivity (Kraay, Soloaga, and Tybout 2002; Schor 2004). In EAP, for example, high pre-GFC productivity growth was spurred by rapid integration into global supply chains

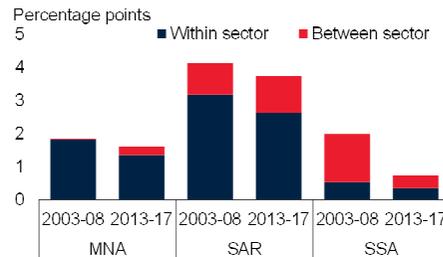
FIGURE 5.2 Sectoral contributions to regional productivity growth in EMDE regions

Since the global financial crisis, productivity gains from reallocation of labor across between sectors have faded in most regions. In SAR and SSA, around half of employment is in the agricultural sector, which accounts for less than one-fifth of output, reflecting low productivity in this sector. The wide dispersion of sectoral productivity levels within regions demonstrates the importance of introducing measures to reduce misallocation and boost productivity in the weakest sectors.

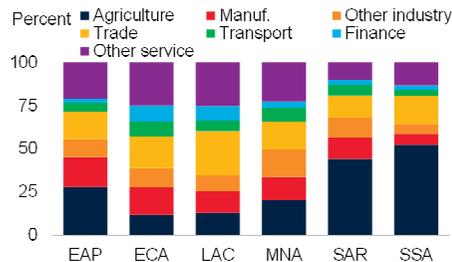
A. Within- and between-sector contributions to regional productivity growth: EAP, ECA, LAC



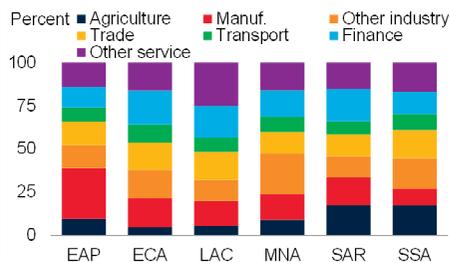
B. Within- and between-sector contributions to regional productivity growth: MNA, SAR, SSA



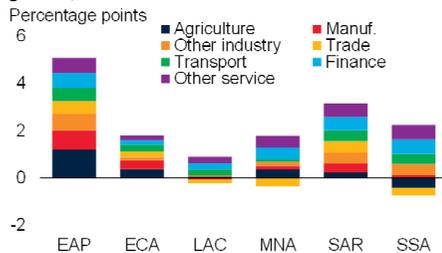
C. Composition of employment, by sector, 2017



D. Composition of value-added, by sector, 2017



E. Sectoral contribution to aggregate productivity growth, 2013-17



F. Sectoral productivity levels dispersion within regions, 2017



Source: APO productivity database; Expanded African Sector Database; Groningen Growth Development Center Database; Haver Analytics; ILOSTAT; OECD STAN; United Nations; World KLEMS; World Bank.

Note: Sample includes 69 EMDEs, of which 9 are in EAP, 11 in ECA, 17 in LAC, 6 in MNA, 4 in SAR, and 22 in SSA.

A.B.E.F. Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates).

A.B. Median contribution for each region. "Within-sector" shows the contribution of initial real value added-weighted productivity growth rate of each sector and "between sector" shows the contribution arising from changes in sectoral employment shares.

C.-E. "Other industry" includes mining, utilities, and construction; "other service" includes government and personal services. "Manuf." indicates manufacturing.

E. Median contribution to productivity growth.

F. Range of (regional averages of) sector-specific productivity levels relative to advanced-economy average productivity for the same sector in 2015, valued at 2011 purchasing power-adjusted exchange rates. The range for MNA excludes sectoral productivity for mining, which is more than 1,000 percent of the advanced-economy average.

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and inflows of FDI, which enabled a substantial increase in the range and sophistication of production in the region (Wei and Liu 2006). The COVID-19 pandemic and subsequent plunge in oil prices present an opportunity for the revival of diversification efforts to reduce reliance on the energy sector and spur private-sector development, which could yield productivity gains as employment in energy exporters tends to be concentrated in lower-productivity jobs (OECD 2020a; World Bank 2020a).³

Weak governance and institutions. In most EMDE regions, governance and business climates are less favorable than in advanced economies. The most business-friendly climates are in SSA, SAR, and LAC, but also in pockets of ECA (Central Asia and Eastern Europe). In all regions, a large majority of EMDEs fall below the global average for tackling corruption. Poor institutions have been associated with weak firm productivity and inefficient government investment in productivity-augmenting infrastructure (Cirera, Fattal-Jaef, and Maemir 2019).

Informality. Informality is pervasive in EMDEs, although there are large differences in the productivity of informal sectors across regions. Across EMDE regions, the informal sector accounts for 22-40 percent of official GDP, but it accounts for a much wider range of employment (22-62 percent), in part reflecting heterogeneity in productivity (World Bank 2019a). Informal firms are less productive than those in the formal sector and, by competing on more favorable terms, can deter investment and erode the productivity of formal firms (Amin, Ohnsorge, and Okou 2019). Moreover, several of the key vulnerabilities linked to informality, such as lack of access to financial systems, weak social safety nets, and deficient medical resources, have amplified the economic shock of COVID-19 (World Bank 2020a). These aspects may make an acceleration of productivity growth more challenging in EMDEs with high informality.

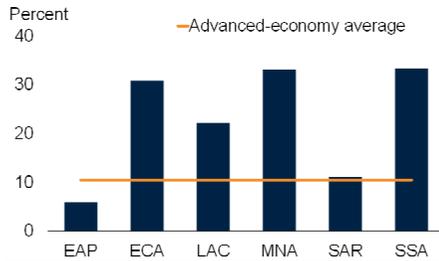
Limited human capital. With schools closed in an unprecedented number of countries for a prolonged period as part of the policy response to COVID-19, learning progress is expected to be set back, while dropout rates are likely to rise, and students may face adverse effects on their lifetime education achievement and earnings (Armitage and Nellumns 2020; Azevedo et al. 2020; Burgess and Sievertsen 2020; Wang et al. 2020; World Bank 2020b). Disruptions to school feeding programs could also lower long-term productivity, as malnutrition early in life can permanently impair learning abilities. The education shocks related to the pandemic build on existing vulnerabilities in education in EMDEs. In EAP and ECA, expected years of schooling for children are now within one year of advanced economies on average, but SAR and SSA lag more than three years behind the advanced-economy average (Figure 5.3). Even where years of schooling are on par with advanced economies, education can be ineffective where learning outcomes

³ Following the 2014-16 oil price plunge, many energy exporters embarked on efforts to boost macroeconomic resilience and diversify their economies by putting in place measures that reduce labor market rigidities (Oman, Qatar, Saudi Arabia), support foreign and private investment (Saudi Arabia), expand infrastructure investment (Malaysia), improve the business environment (Algeria, Brunei Darussalam, the GCC countries, Kazakhstan, Nigeria, Russia), expand deeper trade integration within the Eurasian Economic Union (Russia), and increase strategic investment plans in renewables energy (Azerbaijan, the GCC countries). See World Bank (2020a) for further details.

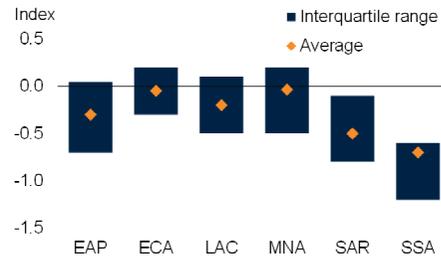
FIGURE 5.3 Potential bottlenecks to productivity growth in EMDE regions

Several bottlenecks to higher productivity are shared, to varying degrees, by EMDE regions. These include undiversified economies, weak governance, widespread informality, poor learning outcomes, low trade and financial openness, and poor business environments.

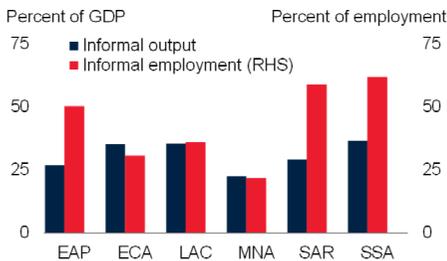
A. Share of commodities in total exports, 2013-18



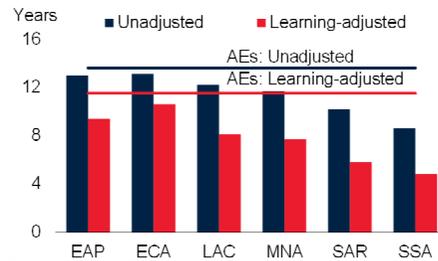
B. Government effectiveness, 2013-18



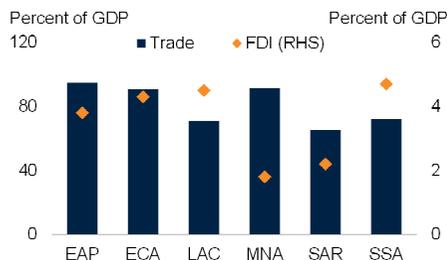
C. Informality, 2016



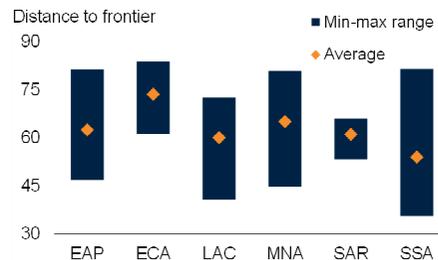
D. Educational attainment, 2017



E. Trade and financial openness, 2013-18



F. Business climate, 2020



Source: United Nations; World Bank (Doing Business, Human Capital Project, World Development Indicators, Worldwide Government Indicators).

A. Exports of metals, agricultural and energy products in percent of total exports. GDP-weighted average for each region for each year. Simple average during 2013-18.

B. The government effectiveness index captures perceptions of the quality of public services, quality of the civil service and the degree of its independence from political pressures, quality of policy formation and implementation, and credibility of the government's commitment to such policies. Index is on a scale of -2.5 (weak) to 2.5 (strong).

C. Average informal output (DGE-based estimates, percent of official GDP) and employment estimate (self-employment, percent of total employment) in each region. Based on World Bank (2019a).

D. Expected years of schooling and learning-adjusted years of schooling from the World Bank's Human Capital Project. Learning-adjusted years of schooling use harmonized cross-country test scores to adjust average years of schooling.

E. Unweighted average of trade (exports plus imports) in percent of GDP and net foreign direct investment inflows in percent of GDP.

F. Unweighted average distance to frontier measure of the ease of doing business score from the 2020 Doing Business Indicators. A higher value indicates a business climate that is closer to best practices.

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are poor (World Bank 2018a). In learning-adjusted terms, which controls for the quality of education in addition to years of attainment, SAR and SSA lag substantially (six or more learning-adjusted years) behind advanced economies. Higher-skilled and better-educated labor forces tend to adopt new technologies, including new ICT and manufacturing technologies, more readily and more effectively (World Bank 2019b).

Trade integration. LAC, SAR, and SSA could receive a productivity boost from more participation in global trade, particularly through deeper integration into global value chains (GVCs). EAP, meanwhile, faces maturing supply chains and has the challenge of maintaining the productivity gains it achieved through rapid trade integration in the 2000s. Regions deeply integrated into GVCs linkages (EAP, ECA) may also experience weaker productivity should companies reassess the existing production networks, or even re-shore production, in the context of COVID-19 (Freund 2020; World Bank 2020a).

East Asia and Pacific

Prior to the COVID-19 pandemic, East Asia and Pacific (EAP) had the fastest productivity growth of the six regions, averaging 6.1 percent a year in 2013-18. Nevertheless, productivity levels remain below the EMDE average in most EAP economies. Factor reallocation toward more productive sectors, high levels of investment, and trade integration promoted above-average productivity growth. Most of these drivers are expected to become less favorable in the future, however, and the pandemic could further weaken investment and the supply chain linkages that have been an important conduit for productivity gains in the region over the past decade. A comprehensive set of reforms to liberalize services sectors, improve corporate management, level the playing field for private firms, enhance human capital, facilitate urban development, foster innovation, and build resilience against future unexpected shocks is needed to support robust productivity growth.

Evolution of regional productivity

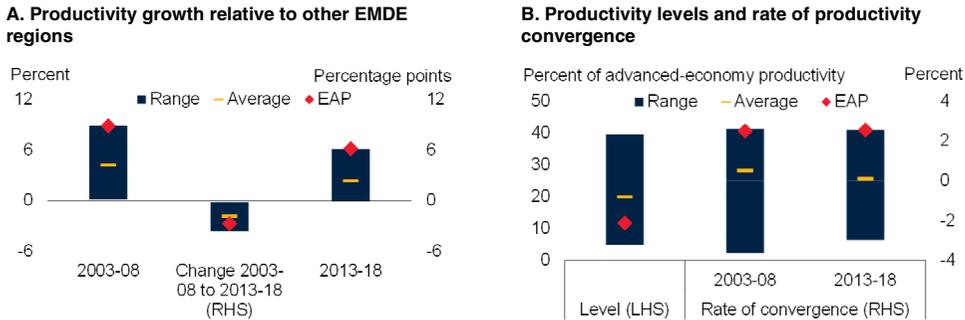
Rapid productivity growth. Labor productivity growth in EAP rose from an average of 4.3 percent a year in the 1980s to 6.3 percent in the 1990s and 8.9 percent in 2003-08 (Figures 5.4, 5.5).⁴ Although productivity growth in the region remained the highest of the six EMDE regions, it slowed decisively following the global financial crisis, averaging 6.1 percent per year during 2013-18.⁵ The post-GFC productivity growth slowdown was also accounted for largely by China, in particular its policy-guided move towards

⁴Productivity data are available for 16 EAP countries: Cambodia, China, Fiji, Indonesia, Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, Papua New Guinea, the Philippines, Samoa, the Solomon Islands, Thailand, Tonga, Vanuatu, and Vietnam. EAP averages are heavily influenced by China, which accounts for 80 percent of EAP output in 2013-18. That said, even the median productivity level in EAP is below that of the median EMDE region.

⁵For studies using country-level data, see APO (2018); IMF (2006, 2017); and World Bank (2018b, 2019a). For studies using firm-level data, see Di Mauro et al. (2018); de Nicola, Kehayova, and Nguyen (2018); OECD (2016); and World Bank and DRCSC (2019). For studies of how product and labor market reforms have increased output and productivity, see Adler et al. (2017); Bouis, Duval and Eugster (2016); Chen (2002); Nicoletti and Scarpetta (2005); and Timmer and Szirmai (2000).

FIGURE 5.4 Productivity in EAP in regional comparison

EAP remains the region with the fastest productivity growth, at 6.1 percent a year in 2013-18, notwithstanding the second-largest post-GFC slowdown among EMDE regions. Nevertheless, productivity levels remain below the EMDE average in most EAP economies.



Source: The Conference Board; Penn World Table; World Bank (World Development Indicators).

Note: Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data. A. Blue bars show the range of average productivity across the six EMDE regions. Yellow dashes denote the average of the six EMDE regional aggregates. Red diamonds denote simple average of EAP economies. Sample includes 16 EAP economies and 129 EMDEs. B. Rate of convergence is calculated as the difference in productivity growth rates over the log difference in productivity levels between EAP and advanced economies. Blue bars and yellow dashes show the range and average of the six EMDE regional aggregates. "Level" of productivity refers to the GDP-weighted average of regional productivity as a share of the average advanced economy during 2013-18. LHS refers to left-hand side. RHS refers to right-hand side. Sample includes 16 EAP economies, 129 EMDEs, and 35 advanced economies.

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more sustainable growth after a period of exceptionally rapid expansion of investment and exports. Productivity growth in the region's other major economies was broadly stable. Around two-thirds of EAP economies in 2013-18 were still experiencing labor productivity growth above their long-run average.

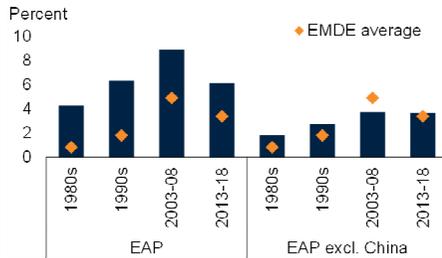
Within-region productivity growth trends. Relative to other EAP countries, productivity growth was particularly fast in China during the post-GFC period, followed by several large Association of Southeast Asian Nations (ASEAN) economies, including Vietnam. Several of these countries were among the ten percent of EMDE economies with the fastest productivity growth in the period. They benefited from improvements in human capital, and trade and investment openness, technology transfer and adaptation, high investment rates, and an industrial base that was rapidly becoming more sophisticated (Andrews et al. 2015). Productivity growth was slowest among EAP economies in some Pacific Islands, partly reflecting their exposure to periodic natural disasters and their relatively undiversified economies. Still, productivity growth was more homogeneous within EAP than within other EMDE regions, possibly reflecting particularly close regional integration, including through regional supply chains.

Low productivity levels. Notwithstanding rapid productivity growth, average productivity levels in EAP (12 percent of the advanced-economy average in 2013-18), including China, remained below the EMDE average of 18 percent of the advanced-economy average (APO 2018; Di Mauro et al. 2018). Malaysia, with the highest

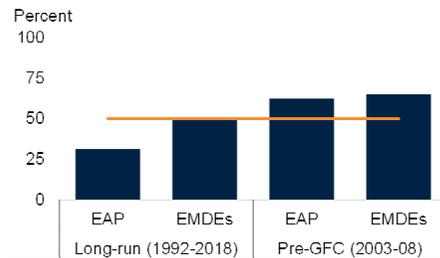
FIGURE 5.5 Evolution of productivity in EAP

The post-GFC slowdown in EAP’s productivity growth reflects slowing TFP growth, especially in China. Slowing TFP growth accounted for two-thirds of the post-GFC slowdown in the region’s labor productivity growth, compared to about half in all EMDEs. Notwithstanding still rapid productivity growth, average productivity levels in EAP remain below the EMDE average.

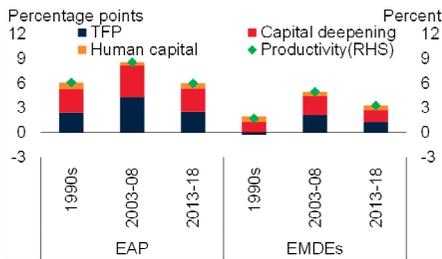
A. Productivity growth



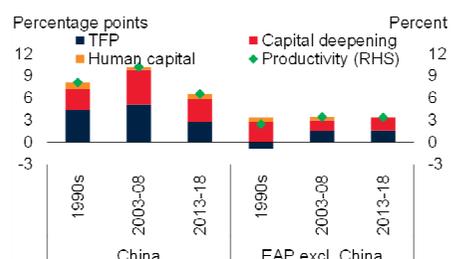
B. Economies with 2013-18 average productivity growth below long-run and pre-GFC averages



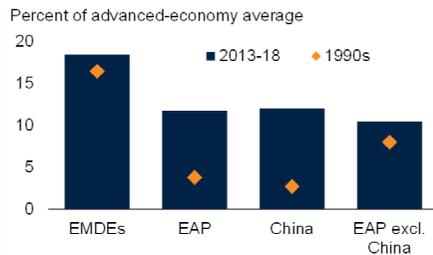
C. Factor contributions to productivity growth



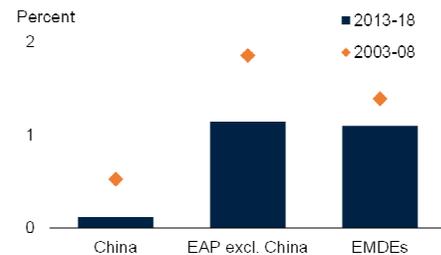
D. Factor contributions to productivity growth, by subregions



E. Productivity levels relative to advanced-economy average



F. Labor force growth



Source: Barro and Lee (2015); Haver Analytics; ILOSTAT; International Monetary Fund; Penn World Table; United Nations; Wittgenstein Centre for Demography and Global Human Capital; World Bank (World Development Indicators).

A.-E. Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data.

A.B. Sample includes 16 EAP economies and 129 EMDEs.

B. Orange line denotes 50 percent.

C.D. Productivity growth is computed as log changes. Sample includes 8 EAP economies and 93 EMDEs.

E. Sample includes 16 EAP economies, 129 EMDEs, and 35 advanced economies.

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productivity level in EAP (24 percent of the post-GFC advanced-economy average), has benefited from several decades of sustained high growth rates reflecting its diversified production and export base and sound macroeconomic policies (Munoz et al. 2016).

Labor productivity convergence. Whereas convergence of productivity toward advanced-economy levels in most other EMDE regions slowed following the global financial crisis, it remained robust in EAP. The sustained productivity growth in EAP was supported by macroeconomic stability, strong fundamentals, still high investment rates, and diversified and competitive production bases in the region's major economies. About two-fifths of economies in the region are still on course to halve their productivity gap relative to advanced-economy averages over the next 40 years, assuming regional productivity growth swiftly recovers from the fallout of the pandemic and is sustained around its post-GFC rates. Historically, countries in the region that have successfully converged, such as Singapore and the Republic of Korea, experienced high and sustained productivity growth differentials relative to established advanced economies over several decades.

Sources of productivity growth

Decomposing productivity growth into factor accumulation (human and physical capital) and increases in the efficiency of factor use (TFP) shows that slowing TFP growth accounted for two-thirds of the post-GFC slowdown in labor productivity growth in EAP, compared to about half in the average EMDE. This followed a decade of surging TFP growth in EAP, when China's accession to the World Trade Organization in 2001 was followed by rapid trade integration, large FDI inflows into the region, and rapid technological adaptation (Mason and Shetty 2019; Tuan, Ng, and Zhao 2009; Xu and Sheng 2012). These reforms were accompanied by improvements in macroeconomic policies, strengthening institutions, and higher investment in infrastructure and human capital in several countries (China, Indonesia, Malaysia, the Philippines, Vietnam). The post-GFC slowdown in the region's TFP growth partly reflected a moderation in the pace of global integration (Ruta, Constantinescu, and Mattoo 2017). About another one-third of the slowdown in labor productivity growth in EAP was accounted for by weaker investment, which subsided in its immediate wake, especially in response to policy guided moderation in China (Kose and Ohnsorge 2019).

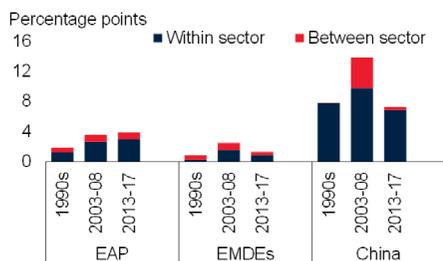
The slowdown in EAP productivity growth was not universal across the region. Whereas TFP growth and capital deepening slowed in China between 2003-08 and 2013-18 amid a policy-guided investment slowdown, it accelerated elsewhere, especially in some ASEAN countries (the Philippines and Vietnam), reflecting high rates of investment partly financed by significant FDI inflows. The decline in China's TFP growth was attributed to both the slowdown in investment growth, and its associated embodied technical progress, as well as to fading gains from global trade integration and institutional reforms.⁶

⁶See Baldwin (2013); Subramanian and Kessler (2013); World Bank (2019a); and World Bank and DRCSC (2014).

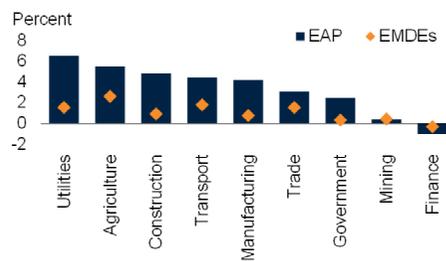
FIGURE 5.6 Factors underlying productivity growth in EAP

Factor reallocation toward more productive sectors, high investment, trade integration with product upgrading, and rapid innovation have all contributed to above-EMDE-average productivity growth in EAP. Productivity growth in the manufacturing sector has been a driving force behind overall productivity growth in most EAP countries.

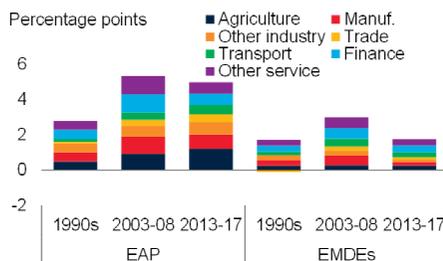
A. Within- and between-sector contributions to regional productivity growth



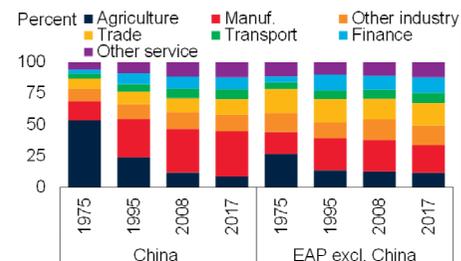
B. Sectoral productivity growth, 2017



C. Sectoral contribution to aggregate productivity growth



D. Composition of value-added, by sector



Source: APO productivity database; Expanded African Sector Database; Groningen Growth Development Center Database; Haver Analytics; ILOSTAT; OECD STAN; United Nations; World Bank; World KLEMS.

Note: Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Medians of county-specific contributions. Sample includes 69 EMDEs, of which 9 are EAP economies.

A. Within-sector contribution shows the contribution to overall productivity growth of initial real value added-weighted sectoral productivity growth; between-sector contribution shows the contribution of intersectoral changes in employment shares.

C.D. "Other industry" includes mining, utilities, and construction; "other service" includes government and personal services. "Manuf." indicates manufacturing.

D. Values are calculated using constant U.S. dollars at constant 2010 market exchange rates.

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Productivity growth through sectoral reallocation. Strong pre-GFC productivity growth in EAP was supported by policies that encouraged resource reallocation from low- to high-productivity sectors, as well as within-sector upgrades (IMF 2006). During the post-GFC period, as in other EMDE regions, gains from factor reallocation toward more productive sectors slowed sharply, as the pace of urbanization decelerated (in most cases well before reaching Organisation for Economic Co-operation and Development—average levels) and overcapacity in China weighed on the efficiency of investment. During 2013-17, sectoral reallocation accounted for less than one-quarter of EAP productivity growth, slightly less than in 2003-08 (Figure 5.6).

In East Asia, structural transformation, in the form of the movement of people and capital from agriculture to manufacturing and services, was a key driver of productivity growth as countries rose from low- to middle-income status. Once countries reached middle-income levels, within-sector productivity gains became a more important driver of productivity growth and cross-sectoral shifts less important (de Nicola, Kehayova, and Nguyen 2018; Mason and Shetty 2019). However, there was considerable heterogeneity across the region. In recent years, sectoral reallocation stalled in Thailand, proceeded slowly in Malaysia, and continued apace in Indonesia, Vietnam, and the Philippines (World Bank 2018c). In Vietnam, intersectoral reallocation continued to account for approximately half of labor productivity growth, with no sign of deceleration (World Bank and MPIV 2016).

Productivity growth in the manufacturing sector was a major driving force behind overall productivity growth in most EAP countries (APO 2018; Figure 5.6). Since the 2000s, the contribution of services to productivity growth increased, albeit from a low base, as innovations in this sector took hold.⁷ For example, e-commerce accelerated sharply in China, with e-commerce firms having 30 percent higher productivity, as well as being more export-oriented than other firms (Kinda 2019). Recent advances in information and communication technology bolstered productivity growth in wholesale and retail trade, hotels, and restaurants; transport, storage, and communications; and finance, real estate, and business activities. It is likely that the growth in value-added generated by intangible services is underestimated to the extent they are incorporated in the production of manufactured goods (ADB 2019).

In contrast to other EMDE regions, EAP achieved within-sector productivity gains in the post-GFC period. China was an exception: there, within-sector productivity growth slowed amid increased overcapacity, declining firm dynamism, and increasing financial constraints, including as a result of rising leverage (IMF 2018a). This was notwithstanding considerable in-house research and development (R&D) and domestic and foreign technology transfers (Hu, Jefferson, and Jinchang 2005).

Drivers of productivity. Fundamental drivers of productivity have improved more rapidly in EAP than in the average EMDE (Figure 5.7). Favorable initial conditions, such as strong human capital, allowed China and Vietnam to achieve higher productivity growth than other economies in the region. Productivity in EAP economies also benefited from high investment (IMF 2006; World Bank 2019c). Other supporting factors were trade integration, including through global supply chains; foreign investment, which supported rapid technology adoption from abroad; and progress toward more complex products with higher value-added (World Bank 2019d).⁸ Macroeconomic stability encouraged investment, while trade and investment openness and above-EMDE-average R&D supported innovation (Kim and Loayza 2019).

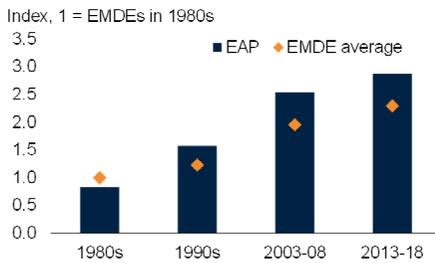
⁷ See APO (2018); ADB (2019); Cirera and Maloney (2017); and Kinda (2019).

⁸ In EAP, 35 percent of firms are large (compared with 25 percent in the average EMDE) and 16 percent are exporters (compared with 12 percent). Exporting firms, which tend to have higher productivity, as they are exposed to frontier knowledge and best managerial practices that help them make better decisions regarding investment, input selection, and production processes (Hallward-Driemeier, Iarossi, and Sokoloff 2002).

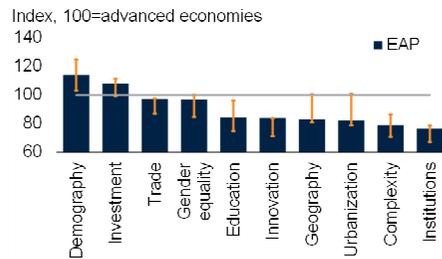
FIGURE 5.7 Drivers of productivity growth in EAP

Fundamental drivers of productivity have improved more rapidly in EAP than in the average EMDE. Compared to many other EMDEs, productivity growth in EAP economies benefited from high investment and trade integration.

A. Index of productivity drivers



B. Drivers of productivity growth, 2017



Source: Freedom House; Haver Analytics; International Country Risk Guide; Organisation for Economic Co-operation and Development; Observatory of Economic Complexity; Penn World Table; United Nations Educational, Scientific, and Cultural Organization (Institute for Statistics); United Nations Population Prospects; World Integrated Trade Solution; World Bank (Doing Business, Enterprise Surveys, and Global Financial Development Database).

A. For each country, index is a weighted average of the normalized value of each driver of productivity. Refer to Chapter 2 for weights. Drivers include the ICRG rule of law index, patents per capita, non-tropical share of land area, investment as percent of GDP, ratio of female average years of education to male average years, share of population in urban area, economic complexity index, years of schooling, share of working-age population, and inflation. Regional and EMDE indexes are GDP-weighted averages. Sample includes 7 EAP economies and 54 EMDEs.

B. Unweighted average levels of drivers normalized as an average of advanced economies as 100 and standard deviation of 10. Blue bars represent average within EAP economies. Orange whiskers represent the range of the average drivers for the six EMDE regions. Horizontal line indicates 100. Variables are defined as: Education = years of education, Urbanization = share of population living in urban areas, Investment = investment as share of GDP, Institutions = government effectiveness, Complexity = economic complexity index of Hidalgo and Hausmann (2009), Gender equality = share of years of schooling for females to males, Demography = share of population under age 14, Innovation = log patents per capita, and Trade = (exports+imports)/GDP. Sample includes 7-16 EAP economies and 65-127 EMDEs, depending on the driver, and 32 advanced economies.

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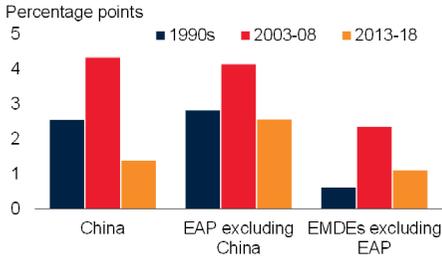
Growth of the drivers most strongly associated with productivity growth, including labor force growth and investment, slowed in EAP after 2008. The slowdown in investment growth in the largest EAP economies was policy-led and aimed at moderating credit expansion. In addition, earlier favorable demographic trends in China, Thailand, and Vietnam have waned as populations have started to age. Other factors that had previously helped to spur EAP productivity growth have also deteriorated since the global financial crisis. For example, the trend toward broadening production to a more diverse range of products at more upstream stages of the value chain slowed partly because of a stagnation in global value chains after 2008 (World Bank 2019c).

Prospects for productivity growth. Productivity gaps were still substantial between advanced economies and EAP countries in 2018, suggesting potential for further significant productivity gains. However, although EAP productivity growth remained solid in 2013-18 relative to long-run historical rates, it is likely to soften further in the future, some fundamental drivers of productivity become less favorable (Figure 5.8). Thus, trade and investment growth are expected to continue to ease in an environment of weakening global demand, heightened global policy uncertainty, and a continued policy-guided slowdown in investment growth in China. Slowing global trade growth may also lower incentives to innovate or upgrade products and processes (World Bank

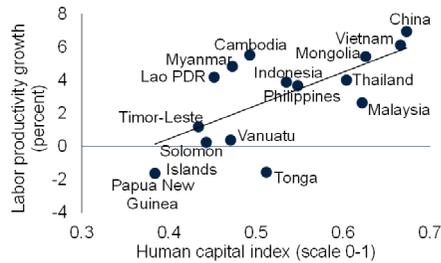
FIGURE 5.8 Prospects for productivity growth in EAP

Being less able to rely on export growth than in the past, EAP countries need to unleash domestic sources of productivity growth. Priority areas include reforms to enhance human capital, address informality, foster innovation, and facilitate urban development. In addition, achieving long-term sustainable development calls for debt overhangs to be addressed and excessive leverage to be avoided.

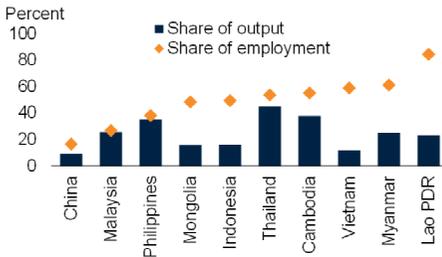
A. Contribution of export growth to GDP growth



B. Human capital index and productivity growth



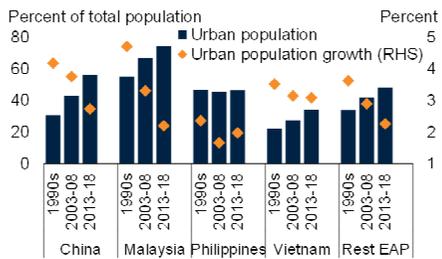
C. Informality



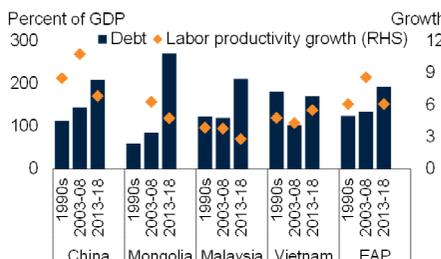
D. Research and development expenditure



E. Urbanization



F. Debt and labor productivity



Source: Elgin et al. (forthcoming); Haver Analytics; World Bank (Human Capital Project, World Development Indicators).

A,B,F. Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates).

A. Exports include goods and non-factor services.

B. The Human Capital Index calculates the contributions of health and education to worker productivity. The final index score ranges from zero to one and measures the productivity as a future worker of a child born today relative to the benchmark of a child with full health care and complete education. Human Capital Index data are for 2017. Labor productivity growth data are for 2018.

C. Blue bars show the share of informal output in total output based on the dynamic general equilibrium (DGE) model. The diamonds show the share of informal employment in total employment.

E. Urbanization levels denote share of urban population in total population.

F. Total debt comprises bank credit to households, non-financial corporations, and general government debt (broad definition).

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2019c). Structural declines in working-age populations in major economies will also weaken growth momentum (World Bank 2016a, 2018a). In addition, the pandemic will likely further slow productivity growth in the region by weakening investment and supply chain linkages (World Bank 2020a). The negative impact is expected to be broad-based and will add to the long-term slowdown from deteriorating demographic and other structural trends (World Bank 2020a).

Policy implications

A comprehensive set of policy efforts can help countries in EAP swiftly recover from the pandemic fallout and accelerate their productivity growth and their income convergence with the advanced economies. These policies fall into four broad categories: improving factors of production, including through human capital development; encouraging productivity at the firm level, including by leveling the playing field for private relative to state-owned firms and improving corporate governance; removing obstacles to between-sector reallocation, including through continued urban development; and fostering a productivity-friendly business environment. Specific policies within these four broad categories depend on country-specific circumstances (Kim and Loayza 2017; Munoz et al. 2016; World Bank 2018d).

Improving factors of production

Improve public investment. A range of policy efforts is needed to lift investment, especially in countries with particularly large investment needs (Cambodia, Indonesia, Lao PDR, Myanmar; World Bank 2018a). Access to adequate infrastructure in EAP remains fragmented, particularly in water and sanitation and transport, and in several lower-middle-income economies (World Bank 2018a). In these countries, strengthening the efficiency of public investment management and fiscal transparency could boost productive public investment (World Bank 2018d).

Remove obstacles to private investment. Private investment could be spurred by higher FDI inflows that could offer knowledge and technology transfers, deeper regional trade integration and better institutional environments (World Bank 2018d, 2019c). In China, private investment could be lifted by improved market access, increased competition, policies that provide a more level playing field relative to state-owned enterprises (SOEs), greater financial discipline, stronger intellectual property rights, lower barriers to entry, and a gradual opening of China's financial system to international investors (World Bank 2018a, 2018e; World Bank and DRCSC 2019). Other major economies in the region, including Indonesia, Malaysia, Thailand, and Vietnam, could boost private investment by increasing private sector participation in major infrastructure projects and by changing their funding policies to provide more opportunities for international and domestic private investors.

Increase human capital. Children born in EAP today are expected, by age 18, to be only 53 percent as productive as they would be in the presence of best practices in education and health (World Bank 2019c). Several economies, such as Cambodia and Lao PDR, have below-average educational attainment. Reforms that augment human capital

through strengthening the quality and flexibility of education systems and improving education outcomes are critical to achieving and sustaining high productivity growth.

Boosting firm productivity

Reduce market distortions and level the playing field for private firms. A gradual transfer from public to private firm ownership in many cases, and greater involvement of international firms, as well as reforms to lower entry costs and encourage fair competition, including in trade and innovation, can help level the playing field for private firms and state-owned enterprises. Curbing preferential lending agreements with state-owned enterprises and easing the access of private firms to long-term funding can improve the allocative efficiency of capital and raise productivity. Greater product market competition would spur innovation (Cusolito and Maloney 2018).

Encourage innovation. Effective policies to promote innovation begin with strengthening managerial and organizational practices (Cirera and Maloney 2017). Strengthening the effectiveness of research and development (R&D) spending and measures to raise productivity in the services sectors are also key (World Bank 2016b). Fiscal incentives for R&D are in place in some EAP countries (China, Malaysia), but in many others R&D spending is small relative to GDP (Figure 5.8). Strengthening intellectual property rights while avoiding undue limitations on competition could encourage R&D. These reforms could be complemented by efforts to facilitate moving up the value chain through innovation, especially in R&D-intensive sectors, and enabling new business processes, including through digitization and energy efficiency.

Address informality. The share of informal output in the EAP region is below the EMDE average, while the share of informal employment is above average (World Bank 2019a). Within the region, informality is higher in lower-income countries. However, even higher-income economies in EAP have urban informality (China, Malaysia, Thailand). To address challenges associated with informality, higher-income countries can prioritize urban planning along with the provision of essential social protection to informal workers. Lower-income countries can focus on policies that encourage investment and reduce costs of regulatory compliance.

Encouraging sectoral reallocation

Liberalize service markets and shift out of agriculture. A gradual liberalization of service sectors, including education, health care, the financial sector, communications, transport, and utilities, could encourage job creation in these sectors (Beverelli, Fiorini, and Hoekman 2017). It could also boost manufacturing productivity, as services sectors provide important inputs into manufacturing.

Design policy to support labor mobility. The reallocation of factors, especially labor, from low-productivity agricultural activities to higher-productivity manufacturing and services could accelerate the convergence of EAP to the productivity frontier. Clarification of land ownership rights and transferable social benefits could encourage

such labor movement (Fuglie et al. 2020). Urban planning can encourage a reallocation of labor towards more productive sectors by improving access to jobs, affordable housing, public transportation, health care, education, and other services (World Bank 2015a). Urban planning can also reduce road congestion, which is a major problem in many large cities, and may discourage job switching (World Bank 2018f, 2019a). Accelerated productivity growth will also require improved management of country and regional transportation, telecommunications, and utility infrastructure in urban areas.

Creating a growth-friendly environment

Safeguard macroeconomic stability. In the long term, strong and sustained productivity gains require financial stability. Elevated corporate debt, especially in China, weighs on investment and productivity in exposed corporations. Policy measures to rein in financial risks are therefore critical. The region will need to strengthen its resilience to future unexpected shocks, including pandemic preparedness (World Bank 2020a).

Europe and Central Asia

Prior to the COVID-19 pandemic, productivity growth in Europe and Central Asia (ECA) suffered the steepest decline of any EMDE region following the global financial crisis (GFC), falling to an average of 1.7 percent in 2013-18, from 5.3 percent during 2003-08. There was wide heterogeneity within the region, however, with productivity growth below zero over 2013-18 in the Western Balkans and above 2.5 percent in Central Europe. The productivity slowdown in ECA predominantly reflected weaker within-sector productivity growth and weaker total factor productivity (TFP) growth in Eastern Europe, the South Caucasus, and the Western Balkans. Weakness in private investment and schooling disruptions at all levels during the pandemic will likely further weigh on productivity. The policy response to COVID-19 can be complemented with a comprehensive reform agenda to boost investment in physical and human capital, address continuing demographic pressures, and raise innovation. Reforms are also needed to improve business climates and governance, reduce the role of the state in the economy, and promote the diversification of commodity-dependent economies.

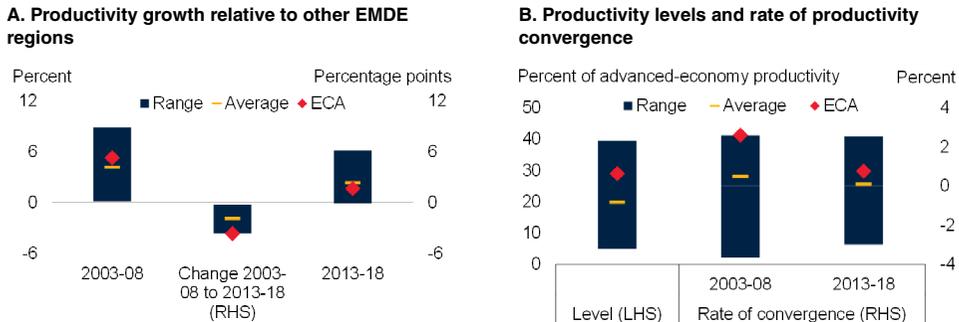
Evolution of regional productivity

Sharp post-global financial crisis productivity growth slowdown. Prior to the COVID-19 pandemic, productivity growth in Europe and Central Asia (ECA) fell from an above-EMDE-average pre-GFC (2003-08) rate of 5.3 percent to a below-average post-GFC (2013-18) rate of 1.7 percent—the steepest decline of any EMDE region (Figure 5.9).⁹ This slowdown was broad-based across the region, affecting nearly all economies, with post-GFC productivity growth below longer-term (1992-2018) averages in roughly two-thirds of the region's economies (Figure 5.10).

⁹Productivity data is available for 21 ECA economies. Central Europe includes Bulgaria, Croatia, Hungary, Poland, and Romania. Western Balkans includes Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia. Eastern Europe includes Belarus, Moldova, and Ukraine. South Caucasus includes Armenia, Azerbaijan, and Georgia. Central Asia includes Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan. Kosovo, Turkmenistan, and Uzbekistan are excluded in some analysis due to limited data availability.

FIGURE 5.9 Productivity in ECA in regional comparison

Productivity growth in ECA fell from a pre-GFC rate of 5.3 percent, above the EMDE average, to a post-GFC rate of 1.7 percent—the steepest decline of any EMDE region. Convergence toward advanced economies slowed in the post-GFC period, after having been the fastest among EMDE regions in the pre-GFC period. Productivity levels in ECA were still above the EMDE average in the post-GFC period.



Source: The Conference Board; Penn World Table; World Bank (World Development Indicators).

Note: Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data.

A. Blue bars show the range of average productivity across the six EMDE regions. Yellow dashes denote the average of the six EMDE regional aggregates. Red diamonds denote simple average of ECA economies. Sample includes 21 ECA economies and 129 EMDEs.

B. Rate of convergence is calculated as the difference in productivity growth rates over the log difference in productivity levels between ECA and advanced economies. Blue bars and yellow dashes show the range and average of the six EMDE regional aggregates. "Level" of productivity refers to the GDP-weighted average of regional productivity as a share of the average advanced economy during 2013-18. LHS refers to left-hand side. RHS refers to right-hand side. Sample includes 21 ECA economies, 129 EMDEs, and 35 advanced economies.

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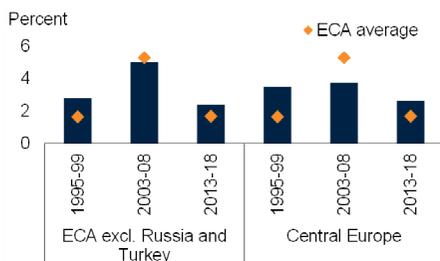
The COVID-19 crisis is likely to further exacerbate the weakness in regional productivity growth as the pandemic has dented private investment, particularly foreign direct investment inflows, and has disrupted the education of nearly 90 million schoolchildren (Shmis et al. 2020; World Bank 2020a). The pandemic could also pose medium-term risks, especially if global value chain linkages are lost or if protracted flights of safety or ratings downgrades trigger cascading debt defaults and financial stress. A more subdued outlook for commodity prices could also weigh on extractive investment and activity in the region's commodity exporters.

Within-region trends following the global financial crisis (2013-18). The post-GFC productivity growth slowdown was particularly steep in the South Caucasus and Russia, as well as in the Western Balkans. The slowdown reflected bouts of conflict and violence (South Caucasus, Eastern Europe), a plunge in commodity prices (Russia, South Caucasus), and disruptions to financial intermediation during the Euro Area debt crisis of 2010-12 (Western Balkans) amid already elevated unemployment rates. In contrast, the deceleration was milder in Central Europe, which is well integrated into Western European supply chains, and Central Asia, which insulated itself somewhat from the impact of the oil price slump of 2014-16 and recession in Russia during 2015-16 by pivoting its exports toward China.

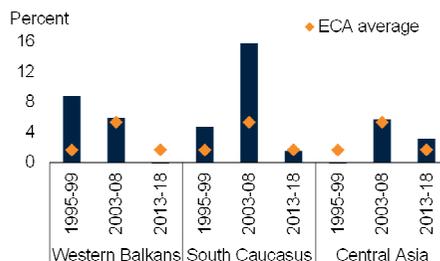
FIGURE 5.10 Evolution of productivity in ECA

The post-GFC slowdown in productivity growth affected nearly all the economies in ECA. There was wide heterogeneity within the region, however, with productivity growth below zero in the post-GFC period in Russia and the Western Balkans but above 2.5 percent in Central Asia and Central Europe. The post-GFC productivity growth slowdown reflected a sharp deceleration in TFP growth in Eastern Europe, the South Caucasus, and the Western Balkans but investment weakness in Russia and Central Europe.

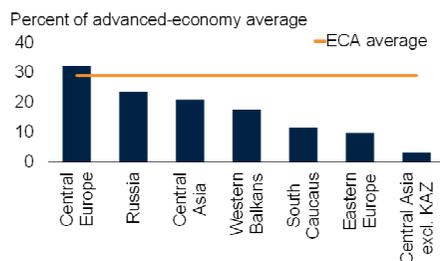
A. Productivity growth in non-major ECA economies and Central Europe



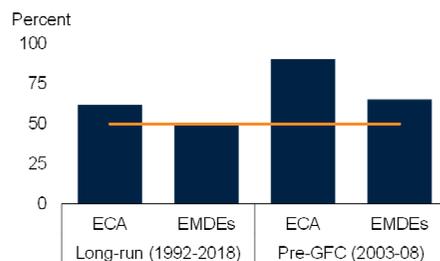
B. Productivity growth in Central Asia, the South Caucasus, and the Western Balkans



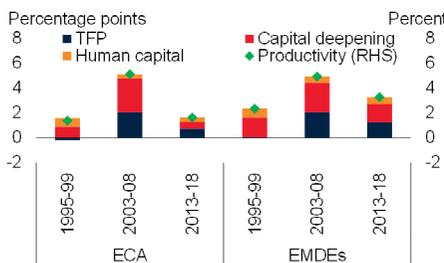
C. Productivity levels relative to advanced-economy average, 2013-18



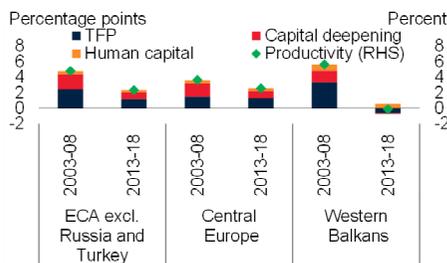
D. Economies with 2013-18 average productivity growth below long-run and pre-GFC averages



E. Factor contributions to productivity growth



F. Factor contributions to productivity growth, by subregion



Source: Barro and Lee (2015); Haver Analytics; International Monetary Fund; Penn World Table; United Nations; Wittgenstein Centre for Demography and Global Human Capital; World Bank (World Development Indicators).
 Note: Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data.
 C. KAZ = Kazakhstan. Figure shows sub-regional productivity levels as a share of 2013-18 advanced-economy weighted average. Sample includes 35 advanced economies and 21 ECA economies.
 D. Sample includes 129 EMDEs, of which 21 are ECA economies.
 E.F. Productivity growth is computed as log changes. Samples are unbalanced due to data availability, and include up to 21 ECA economies and 93 EMDEs.
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High productivity levels relative to EMDEs, but with a wide range. Partly as a result of rapid productivity growth in 2003-08, the average productivity level in ECA in 2013-18 was nearly 30 percent of the advanced-economy average—roughly one-half above the EMDE average. However, there was wide divergences across subregions. Agricultural commodity exporters, most of which are in Central Asia (excluding Kazakhstan) and Eastern Europe, had the lowest productivity levels, ranging from 3 to 14 percent of the advanced-economy average over 2013-18. In contrast, productivity in Poland and Turkey was more than 35 percent of the advanced-economy average over 2013-18, reflecting integration into global value chains and roles as regional financial centers (World Bank 2014; World Bank 2019e). Central Europe, which is deeply embedded in Western European supply chains and where countries have benefited from the absorption of EU structural funds, had the highest productivity of the ECA subregions. Following the global financial crisis, the pace of convergence to advanced-economy productivity levels in the ECA region slowed sharply, to average 0.8 percent per year over 2013-18—about one-third of the rate in 2003-08.

Sources of regional productivity growth

Decomposing labor productivity growth into factor accumulation (human and physical capital) and advances in the efficiency of factor use (TFP) indicates that about two-thirds of the post-GFC slowdown in productivity growth in ECA was due to slowing capital accumulation—partly reflecting weak investment amid lower foreign direct investment (FDI) inflows and declining commodity prices—and one-third to slowing TFP growth, compared with about equal contributions in all EMDEs.

In Russia and in Central Europe, particularly Bulgaria and Romania, slowing capital accumulation accounted for most (about three-quarters) of the slowdown in productivity growth in the post-GFC period. In Russia, international sanctions, combined with the 2014-16 oil price plunge, deterred investment (Russell 2018). Although EU structural funds buoyed overall investment in Central Europe, they did not fully offset weakness in machinery and equipment investment, which was due partly to reduced commercial credit supply (Gradzewicz et al. 2018; Levenko, Oja, and Staehr 2019).

In contrast, reduced TFP growth accounted for most (about three-quarters) of the productivity growth slowdown in Eastern Europe, the Western Balkans, and the South Caucasus, reflecting pockets of conflict and violence (Armenia, Georgia, Ukraine) and weak private and public investment. As a result of weak investment, these subregions face large infrastructure gaps, particularly in transport and telecommunications, limiting the capacity for regional integration and, in energy-reliant economies, for diversification (IMF 2014). Private sector shortcomings, such as corporate over-indebtedness and market concentration in the Western Balkans, also constrained TFP in these subregions (EBRD 2018a). In Turkey and Central Asia, the sources of the productivity deceleration were broad-based, reflecting a slowdown in physical capital deepening and human capital improvements, as well as in TFP growth. Reform momentum slowed in Central Asia, Eastern Europe, and the Western Balkans, where many economies did not completely transition to competitive and inclusive markets.

Post-global financial crisis productivity slowdown across all sectors. Pre-GFC productivity growth in ECA was mostly driven by shifts of resources from agriculture and industry to higher-productivity services sectors, partly as a result of reforms to address resource misallocation inherited from central planning (World Bank 2008). The decade that followed the global financial crisis, however, was marked by weakness of growth across all sectors as a slowdown in manufacturing, exacerbated by dwindling global trade growth and a collapse in commodity prices, affected the services sector (Figure 5.11; Orlic, Hashi, and Hisarciklilar 2018).

Sectoral reallocation as a source of productivity growth in ECA. Resource reallocation toward more productive sectors accounted for one-third of ECA's productivity growth in the 1990s, as output of the region's services sectors increased by nearly 15 percentage points of GDP (Arnold, Javorcik, and Mattoo 2011; World Bank 2008, 2015b). In contrast, the surge in productivity growth of 2003-08 mostly reflected within-sector growth, as firms in Central Europe became integrated into Euro Area supply chains, technology transfer accelerated, and the services sectors were liberalized.¹⁰

After the global financial crisis, within-sector productivity growth slowed sharply, to less than one-third of the pre-GFC average. This may have reflected investment declines in physical capital, particularly in commodity exporters amid the collapse of commodity prices, as well as stalled structural reforms to improve business environments (EBRD 2018b; Georgiev, Nagy-Mohacsi, and Plekhanov 2017). Between-sector shifts in resources to productivity growth also declined in ECA. The fall may have partly reflected a larger shift out of agriculture into lower-productivity sectors post-GFC (trade services) than pre-GFC (manufacturing), such as was the case in Kazakhstan (World Bank 2019f). More broadly, spillovers from the Euro Area debt crisis, slowing global trade growth, and the oil price plunge dampened growth in sectors with higher levels of productivity—finance, manufacturing, and mining—limiting their ability to continue to absorb additional labor from other sectors with lower productivity (ILO 2017).

Continued differences in productivity levels across sectors imply scope for further overall productivity gains from resource reallocation. In sectors such as agriculture, mining, and utilities, ECA's productivity lagged about 50 percent behind advanced-economy averages over 2013-17, and in mining it lagged even EMDE averages. On average in ECA, productivity in agriculture was about two-thirds of productivity in other low-skilled sectors such as construction and trade and around one-quarter of productivity in high-skilled services such as finance.

Waves of reform momentum

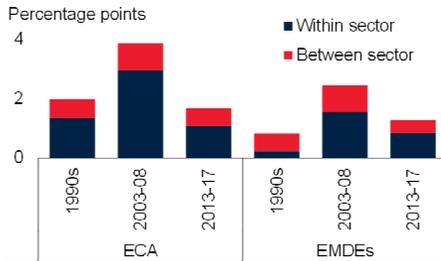
Two waves of reform spurred productivity growth in ECA prior to the global financial crisis. During the first wave, in the wake of the collapse of the Soviet Union in the early

¹⁰ See Bartelsman and Scarpetta (2007); Brown and Earle (2007); Georgiev, Nagy-Mohacsi, and Plekhanov (2017); Shepotylo and Vakhitov (2015); and World Bank (2008) for further detail.

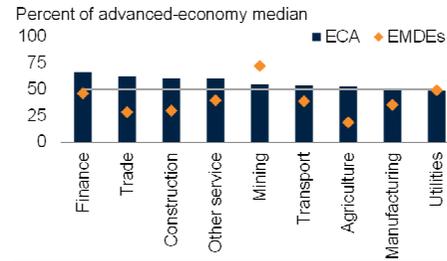
FIGURE 5.11 Factors supporting productivity growth in ECA

Within-sector productivity growth—the main driver of pre-GFC productivity growth in ECA—fell sharply in the post-GFC period, and productivity gains from sectoral reallocation halved as economies moved to services sectors with relatively low productivity levels.

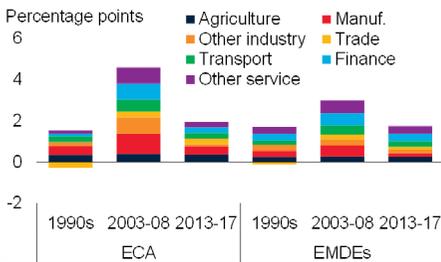
A. Within- and between-sector contributions to regional productivity growth



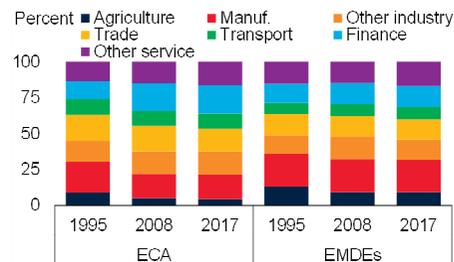
B. Sectoral productivity levels, 2017



C. Sectoral contribution to productivity growth



D. Composition of value-added, by sector



Source: APO productivity database; Expanded African Sector Database; Groningen Growth Development Center Database; Haver Analytics; International Country Risk Guide; ILOSTAT; Observatory of Economic Complexity; Organisation of Economic Co-operation and Development STAN; Penn World Table; United Nations; World Bank; World KLEMS.

A.B. Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Data for multiyear spans shows simple averages of the annual data.

A.-D. The sample includes 69 EMDEs, of which 11 are ECA economies.

A.D. Aggregates calculated using GDP weights at 2010 prices and market exchange rates.

A. Growth “within sector” shows the contribution to aggregate productivity growth of each sector holding employment shares fixed. The “between sector” effect shows the contribution arising from changes in sectoral employment shares.

B. Figure shows the median of country groups. Horizontal line indicates 50 percent.

C.D. “Other industry” includes mining, utilities, and construction; “other service” includes government and personal services. “Manuf.” indicates manufacturing.

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1990s, central planning was dismantled and replaced by more market-based approaches (Falcetti, Lysenko, and Sanfey 2006). ECA economies were opened up to international trade and capital markets, prices and interest rates were liberalized, and state-owned enterprises were privatized to a degree (Georgiev, Nagy-Mohacsi, and Plekhanov 2017). These reforms helped boost productivity growth in the mid-1990s, particularly the South Caucasus (World Bank 2018g).

In the early 2000s, a second wave of reforms related to Central European countries’ accession to the EU accelerated international integration and propelled institutional

improvements, privatization, and capital market deepening (Bruszt and Campos 2016). FDI and private investment surged as reforms were anchored externally, with many ECA economies rapidly becoming integrated into global value chains with Western Europe, accelerating the adoption of new technologies and practices (Aiyar et al. 2013; EBRD 2014). The growing international integration of financial and banking systems helped deepen capital markets, particularly in Central Europe.¹¹

In the decade that followed the global financial crisis, ECA faced multiple headwinds to productivity-enhancing reforms, including the legacy of the crisis, the collapse of oil prices in 2014-16, heightened geopolitical tensions, and international sanctions on Russia. Continued progress on reforms are needed, particularly in Central Asia and Eastern Europe—which are not anchored to an EU accession process—and the Western Balkans.¹² Many commodity exporters in the region continue to suffer from structural constraints, including a lack of export diversification, large state presence in firms, unfavorable business environments, and weak international competitiveness (EBRD 2017; Funke, Isakova, and Ivanyina 2017).

Post-GFC slowdown in drivers of productivity. The key drivers of productivity in ECA were decreasingly supportive during the post-GFC period of 2013-18 (Figure 5.12). Demographic pressures intensified in nearly all ECA economies. Working-age population growth had long lagged the average for EMDEs as a result of significant migration to western European countries in the EU and to Russia and sharp declines in fertility rates. Particularly in Central Europe, the Western Balkans, and Eastern Europe, there were declines in the urban population, in turn discouraging dissemination of knowledge and technologies that lift TFP (World Bank 2017a, 2018h).

Additionally, more than four-fifths of ECA economies experienced post-GFC slowdowns in investment rates, reflecting adverse shifts in investor sentiment amid conflicts and financial pressures in the region, as well as weak external economic growth. Low innovation rates—which partly stem from weak competitiveness, inadequate control of corruption, and a high presence of state-owned enterprises—continued to dampen the business environment and hinder investment in the region, particularly in the absence of progress with other reforms (EBRD 2018a, 2019b). Finally, the rate of extraction of natural capital (such as oil, metals, and agricultural land) declined in some economies following the boom and as commodity prices fell, dampening TFP growth. This followed a pre-GFC boost to productivity growth in ECA from increased natural capital extraction during the commodity price boom (Khan et al. 2016).

The COVID-19 pandemic is likely to amplify the slowdown in investment in ECA, particularly FDI (UNCTAD 2020). The most vulnerable economies are expected to be

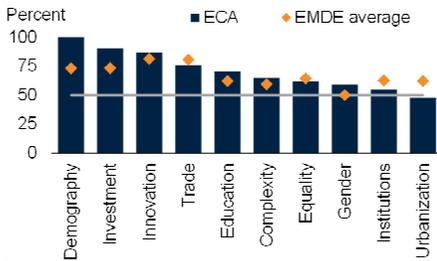
¹¹ A rise in foreign currency borrowing, however, increased exposure to external vulnerabilities, such as capital flow reversals, and deepened the recession following the global financial crisis as economies faced a credit crunch and a period of deleveraging (de Haas et al. 2015; de Haas and van Lelyveld 2006; Zettelmeyer et al. 2010).

¹² See EBRD (2013); Lehne, Mo, and Plekhanov (2014); Georgiev, Nagy-Mohacsi, and Plekhanov (2017); Rovo (2019); and World Bank (2019g).

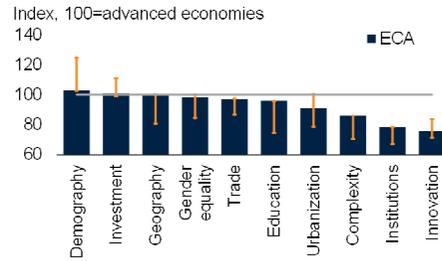
FIGURE 5.12 Drivers of productivity growth in ECA in regional comparison

Decelerating productivity in ECA reflects slowing improvements in a broad range of fundamental drivers in recent years. ECA performs poorly relative to other EMDE regions in measures of demography and investment but favorably in terms of drivers such as trade and education.

A. Share of EMDEs with slowing post-GFC improvement in underlying drivers of productivity



B. Drivers of productivity growth, 2017



Source: Freedom House; Haver Analytics; International Country Risk Guide; Organisation for Economic Co-operation and Development; Observatory of Economic Complexity; Penn World Table; United Nations Educational, Scientific, and Cultural Organization (Institute for Statistics); United Nations Population Prospects; World Integrated Trade Solution; World Bank (Doing Business, Enterprise Surveys, and Global Financial Development Database).

A, B. Variables are defined as: Education = years of education, Urbanization = share of population living in urban areas, Investment = investment as share of GDP, Institutions = government effectiveness, Complexity = economic complexity index of Hidalgo and Hausmann (2009), Equality = income equality defined as $(-1) \times \text{Gini}$, Gender equality = share of years of schooling for females to males, Demography = share of population under age 14, Innovation = log patents per capita, and Trade = $(\text{exports} + \text{imports}) / \text{GDP}$.

A. Post-GFC slowdown defined as a decline in the growth of each variable during 2008-17 compared to growth in the pre-GFC period, defined as 1998-2007. The blue bars represent the share of 21 economies in ECA where improvements in each driver of productivity were lower during 2008-17 than in 1998-2007 or changes in 2008-17 were below zero. Orange diamond is the corresponding values for EMDE countries. Horizontal line indicates 50 percent. Sample includes 17-21 ECA economies, depending on the driver, and 79-128 EMDEs.

B. Unweighted average levels of drivers normalized as an average of advanced economies as 100 and standard deviation of 10. Blue bars represent average within ECA economies. Orange whiskers represent the range of the average drivers for the six EMDE regions. Horizontal line indicates 100. Sample includes 16-21 ECA economies and 65-127 EMDEs, depending on the driver, and 32 advanced economies.

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those that suffered from large domestic outbreaks or supply chain disruptions, as well as those with a heavy presence of travel and transport industries and capital-intensive sectors, such as energy and high-value manufacturing industries (World Bank 2020a). Many multinational enterprises have issued profit warnings. This is expected to dampen reinvested earnings—an important source of FDI for ECA economies. The impact could also weigh on the labor market, particularly in Central Europe where foreign-owned firms can account for a quarter of jobs in the private sector.

Policy options

While confronting the COVID-19 pandemic is the primary focus of policy efforts, these measures can be complemented by structural reforms to rekindle productivity growth. A four-pronged policy approach is needed to improve the provision and quality of factors of production, boost firm productivity, promote productivity-enhancing sectoral reallocation, and improve business environments. Some policies, such as changes in state-owned enterprise ownership and improvements in the investment climate, would offer relatively short-term productivity gains, while others, such as efforts to improve

human capital or adjust migration policies, would lay the foundation for longer-term gains. Policy priorities need to be tailored to country-specific circumstances, however.

Improving factors of production

Addressing investment and infrastructure gaps. Investment growth fell sharply in ECA in the post-GFC period as commodity prices declined sharply and investor sentiment deteriorated amid conflict, international sanctions, and financial pressures (Figure 5.13). In response to the COVID-19 pandemic, investment prospects in ECA have further deteriorated. Reforms to boost private-sector development and transition to competitive and inclusive markets are needed to attract private investment and capital flows to ECA, particularly to economies outside the EU (EBRD 2018a; World Bank 2019g).

Public investment was also constrained over the past decade as many governments faced a collapse in commodity revenues amid the sustained decline in commodity prices over 2011-16. The COVID-19-related downturn in oil prices, however, provides a window of opportunity to put in place mechanisms that permanently eliminate costly and poorly targeted energy subsidies, including in Central Asia and Eastern Europe (World Bank 2020a). Fiscal savings generated by lower subsidies could instead fund productivity-enhancing investment in education and infrastructure, or directed toward medium-term measures that build climate resilience, such as investment in technology to improve agricultural productivity and increase food security during years of severe drought.

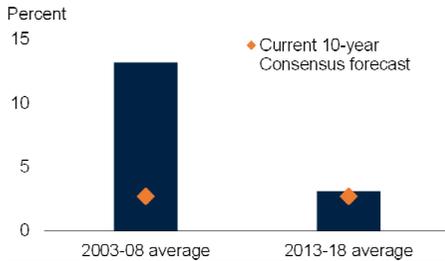
In some subregions within ECA, particularly Central Asia, removing key bottlenecks to private-sector development, such as inadequate infrastructure, is key to accelerating the absorption of technology and lifting productivity growth (Gould 2018). Insufficient infrastructure, particularly transport and electricity, remains a critical constraint in some of the region. Although the percentage of firms experiencing electrical outages is lower in ECA than in other EMDE regions, related losses for affected firms in Central Asia can exceed 9 percent of annual sales (Blimpo and Cosgrove-Davies 2019; IMF 2019a). In surveyed manufacturing firms in Uzbekistan, for instance, smaller firms report more interruptions of electricity, gas, and water supply than larger firms (Trushin 2018). Appropriate land use planning and urbanization policies can substantially reduce the cost of meeting transport needs while minimizing carbon footprints (ITF 2018; Rozenberg and Fay 2019). The COVID-19 pandemic, however, threatens to further disrupt critical infrastructure sectors in ECA as the sharp decline in firm revenues has generated unprecedented financial pressures.

Raising human capital. Boosting human capital investment, including through education and health, could help remove bottlenecks to productivity growth. In a few economies in ECA, particularly in Central Asia, inadequate investment in human capital left parts of the workforce poorly equipped for rapid technological change even prior to the COVID-19 pandemic (Flabbi and Gatti 2018). Despite having the highest years of schooling among the EMDE regions, educational attainment and skills acquisition are lower in some ECA economies than expected given the level of school enrollment and the average years of schooling (Altinok, Angrist, and Patrinos 2018). Low educational

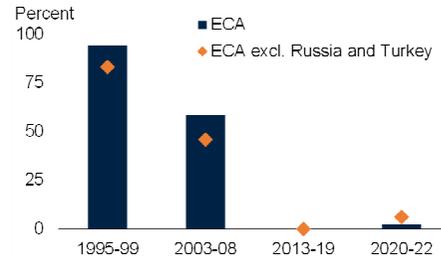
FIGURE 5.13 Drivers of productivity growth in ECA

Investment growth in ECA has fallen in the post-GFC period, reflecting external headwinds, such as a commodity price plunge, and idiosyncratic factors, including conflict in pockets of the region and financial pressures in large economies. The workforce is aging, and the working-age share of the population is declining. The role of the state remains large, and control of corruption weak.

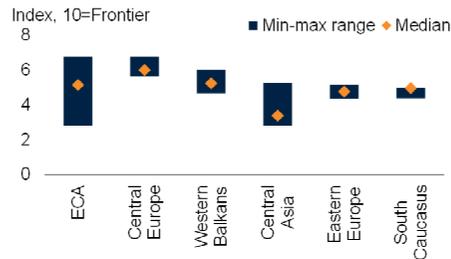
A. Investment growth: Actual versus Consensus Economics forecasts



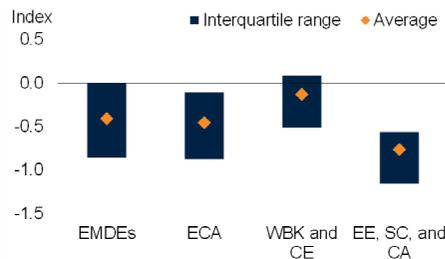
B. Share of regional GDP accounted for by economies with growing working-age populations



C. Assessment of transition to a competitive market economy, 2019



D. Control of corruption, 2017



Source: Consensus Economics; European Bank for Reconstruction and Development; Kraay (2018); United Nations; World Bank.

A. Investment is measured as gross fixed capital formation. Actual growth aggregate calculated using GDP weights at 2010 prices and market exchange rates. Consensus forecasts aggregate calculated as a simple average of surveys for periods indicated based on data availability. Unbalanced sample includes 8 ECA economies, due to data availability.

B. The working-age population is defined as people aged 15-64. Unbalanced sample includes 23 ECA economies.

C. Figure shows the distance to the frontier for achieving a full transition to a competitive market economy, as measured by EBRD (2019). Economies with higher index levels are closer to the frontier, where scores range from 1 to 10, with 10 denoting the synthetic frontier. Sample includes 24 ECA economies.

D. The indicator reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests, as measured by the Worldwide Governance Indicators. Index is on a scale of -2.5 (weak) to 2.5 (strong). CE = Central Europe, CA = Central Asia, EE = Eastern Europe, SC = South Caucasus, and WBK = Western Balkans. Sample includes 23 ECA economies and 150 EMDEs.

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attainment among the work force, large gender gaps in education, and inadequate skills are often cited as constraints for doing business, firm growth, job creation, and innovation in ECA (Brancatelli, Marguerie, and Brodmann 2020; World Bank 2019a).

Human capital development in ECA, however, is likely to slide as a result of the COVID-19 pandemic due to the severe disruption to schooling at all levels, which has affected nearly 90 million schoolchildren. In previous crises, the number of out-of-school

children doubled in some ECA countries despite declining demographic trends, while income disparities increased as vulnerable groups faced higher rates of dropout and depressed skills development (Schmis et al. 2020). Extended school closures are expected to reduce the learning-adjusted years of schooling in ECA from 10.4 years to between 9.3 to 10.1 years—the steepest among EMDE regions—which, combined with the de-skilling associated with prolonged unemployment, could also lead to sizable future earnings losses (Azevedo et al. 2020; Fasih, Patrinos, and Shafiq 2020). The COVID-19 crisis underscores the critical need for investment in digital skills and technology to ensure educational continuity, as well as for resources to upgrade ICT infrastructure to support virtual learning, particularly for more vulnerable households.

On the health front, the pandemic has laid bare the need to detect rapidly and respond to public health emergencies (World Bank 2020c). Aging populations in the region and the greater vulnerability of the elderly to many infectious diseases make this an even greater priority. Addressing and minimizing the health risks of high rates of obesity, smoking, and heavy drinking in the region are also important, not only for limiting the impact of noncommunicable diseases, but also for minimizing the loss of lives associated with major outbreaks of infectious diseases.

Counteracting unfavorable demographic trends. An aging workforce, a declining working-age population share, and high emigration rates among young and skilled workers in ECA highlight the need for education to help workers adapt to new job requirements and technologies (Aiyar, Ebeke, and Shao 2016; Hallward-Driemeier and Nayyar 2018; World Bank 2018a). Generating stronger productivity growth will require measures to mitigate the decline in skilled workforces. Implementing more flexible immigration policies could help relieve skilled labor shortages by attracting skilled foreign workers in an orderly way (Delogu, Docquier, and Machado 2014; World Bank 2019g).

Boosting firm productivity

Leveling the playing field. In Eastern Europe and Central Asia, and to some extent Russia, the state's presence in the economy remains large, with state ownership accounting for more than 10 percent of firms surveyed in some cases, and with ECA ranking second overall among EMDE regions, after Sub-Saharan Africa (World Bank 2019h). In Ukraine, firms with at least partial state presence account for roughly 20 percent of total turnover by firms and over 25 percent of firms' assets (Balabushko et al. 2018). State-owned enterprises also have a large presence in Moldova, accounting for one-third of GDP (World Bank 2019i). Yet efficiency in state-owned enterprises is lower than in private-sector firms, suggesting that restructuring or privatizing state-owned enterprises therefore still presents an opportunity to raise economy-wide productivity in several countries across the region, if it is accompanied by effective regulation and improvements in management, corporate governance, and the business environment (Brown, Earle, and Telegdy 2006; EBRD 2019; Funke, Isakova, and Ivanyna 2017; World Bank 1995). For some economies, including in Eastern Europe, the removal of price controls for various goods could improve competition and productivity.

Financial market development and financial inclusion. Small and medium enterprises (SMEs) have the largest potential for productivity catch-up with advanced economies. Yet growth of SMEs in ECA continues to be hindered by insufficient access to finance and regulatory barriers, among other factors (Ayyagari, Demirgüç-Kunt, and Maksimovic 2017; Cusolito, Safadi, and Taglioni 2017; Wang 2016). The largest gaps in financial inclusion for SMEs in ECA are in Central Asia and the South Caucasus (excluding Georgia), where access to financial services is nearly as limited as in the Middle East and North Africa, South Asia, and Sub-Saharan Africa (IMF 2019b).

Policies that promote more widespread adoption of digital technologies, including in the delivery of financial and public sector services, could bolster financial inclusion and boost productivity by helping spread innovation and improving private sector and government efficiency (Baldwin 2019). In economies with large informal sectors, more widespread adoption of these technologies could also help expand tax bases through the fiscalization of informal sector transactions (World Bank 2019a). Increasing SMEs' access to finance could help these firms increase their average size and reduce their reliance on retained earnings to fund investment, which in turn would support job creation (Ayyagari, Demirgüç-Kunt, and Maksimovic 2017; Ayyagari et al. 2016).

The COVID-19 pandemic, however, is likely to intensify the challenges, as the crisis generates cashflow issues for SMEs, which are more vulnerable to financing fluctuations. In turn, this could render the banking sector vulnerable, especially in economies with rising levels of nonperforming loans (World Bank 2020c). In the immediate term, ensuring liquidity during the COVID-19 crisis could help banks provide relief to sound borrowers via loan restructuring, debt service deferment, or bridge financing. Strengthening the frameworks to bolster resilience in the financial system, such as having measures to identify stressed assets and support a smooth insolvency process, could also help avert serious impairment to future balance sheets and ensure a smooth recovery.

Encouraging sectoral reallocation

Diversifying economies. Before the COVID-19 pandemic and subsequent plunge in oil prices, hydrocarbon activity represented more than one-third of GDP in some ECA energy exporters (World Bank 2020a). Energy-exporting economies, including those in ECA, are characterized by generally low levels of diversification in terms of exports and fiscal revenue (Grigoli, Herman, and Swiston 2017; World Bank 2020a).¹³ Although energy sector production tends to be capital-intensive, with relatively high labor productivity, productivity growth, was more tepid in ECA's energy-exporting countries than in the region overall, with post-GFC (2013-18) growth at 0.7 percent versus 1.7 percent, reflecting weaker TFP growth (Aslam et al. 2016; Danforth, Medas, and Salins 2016; Stocker et al. 2018). Diversification presents an opportunity to boost TFP and productivity growth, as well as macroeconomic stability (Brenton, Newfarmer, and

¹³ However, on the fiscal front, Russia has made strides in anchoring fiscal policy by implementing a fiscal rule that targets a primary balance of zero at the benchmark oil price of \$40 per barrel. Any excess fiscal reserves that are generated from higher oil prices are saved in the National Welfare Fund.

Walkenhorst 2009; Papageorgiou and Spatafora 2012). Diversification, combined with private-sector development, could also help support higher-productivity job creation since the bulk of employment tends to be concentrated in low-productivity sectors in some of ECA's energy exporters (OECD 2020a). Diversification of resource-based economies can be promoted by reforms that increase capital and skill accumulation, innovation, and reduce transaction costs.¹⁴

Enhancing a growth-friendly environment

Growth-friendly governance. Over the long term, institutional quality is one of the most important determinants of productivity growth. In ECA, productivity catch-up to advanced economies was particularly pronounced in Central Europe during the pre-GFC period, reflecting the anchoring of structural and institutional reforms to the EU accession process (Rodríguez-Pose and Ketterer 2019). ECA continued to face governance challenges prior to the COVID-19 crisis, however, with over 75 percent of the countries below the global average in terms of control of corruption in 2017, including almost all of the economies of Central Europe, Eastern Europe, and the South Caucasus (Kaufmann, Kraay, and Mastruzzi 2010).

Structural reforms to improve governance can lead to sizable productivity gains, particularly in countries that are farthest from best practices (Acemoglu, Johnson, and Robinson 2005; Cusolito and Maloney 2018). Major governance and business reforms in EMDEs have been associated with higher growth rates in output, TFP, and investment (Divanbeigi and Ramalho 2015; Hodge et al. 2011; World Bank 2018a). The detrimental effects of corruption on firm productivity can be exacerbated by excess or complex regulation (Amin and Ulku 2019). Anticorruption campaigns, as well as reductions in the number of regulations and tax complexity, have helped some economies tackle corruption (IMF 2019c).

Growth-friendly business climates. Lack of exposure to international competition—including from non-tariff barriers and complex trade rules—as well as restrictive product market and services regulation, remain structural bottlenecks in the region, hindering the ability to attract domestic and foreign investment in Kazakhstan, Russia, and Ukraine (Shepotylo and Vakhitov 2015; World Bank 2016c). While significant improvements in business environments in Central Europe, the Western Balkans, and the South Caucasus have occurred over the past decade, Eastern Europe and Central Asia lag the ECA average, with the latter trailing the EMDE average in access to electricity and the ease of trading across borders (World Bank 2019f). For example, in Ukraine, the largest economy in Eastern Europe, the average worker takes one year to produce the same output that the average worker in Germany produces in 17 days (World Bank 2019j). At current growth trends, Ukraine is unlikely to converge to Poland's per capita income, despite having had similar income levels in 1990; this partly reflects Ukraine's relatively low ratio of capital stock to GDP. Removing market distortions and improving resource

¹⁴ See Beck (2018); Gylfason (2018); Hesse (2008); IMF (2016a); and Lederman and Maloney (2007).

allocation could triple manufacturing productivity and help improve prospects in Ukraine (Ryzhenkov 2016). Although Turkey has high productivity levels, it lags well behind the ECA average for resolving insolvency, which could dampen overall productivity as less productive firms are more likely to remain in the market (World Bank 2019e). To address this, Turkey has recently introduced a more streamlined procedure that focuses on business continuation instead of liquidation.

Latin America and the Caribbean

Even before it was hit by severe health and economic impacts from COVID-19, labor productivity growth in Latin America and the Caribbean (LAC) had stalled. Productivity growth in the region averaged 0.4 percent in 2013-18, the second lowest of the six EMDE regions, and well below 1.7 percent in the lead-up to the global financial crisis (GFC), in 2003-08. In more than one-third of LAC economies, productivity growth was negative during 2013-18. Sluggish productivity growth during 2013-18 reflects negative total factor productivity (TFP) growth in some large LAC economies, as the commodity price slump and market distortions allowed unproductive firms to continue operating. Although the level of productivity in LAC remains higher than the EMDE average, this is a legacy of gains made decades ago. Shocks related to COVID-19 are likely to further set back productivity growth in the region. To boost productivity, targeted policy actions are needed to improve competition and innovation, deepen trade linkages, improve the quality of education, reduce labor market inefficiencies, strengthen institutional quality, and raise infrastructure investment.

Evolution of regional productivity

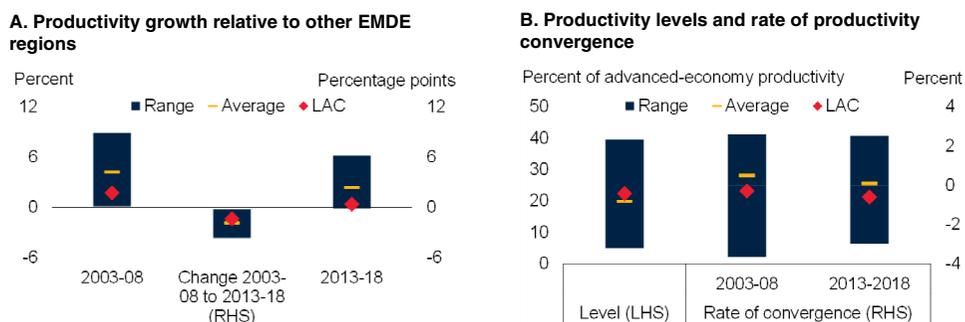
Post-GFC productivity growth slowdown to near zero. For decades, productivity growth in LAC has been anemic (Fernández-Arias and Rodríguez-Apolinar 2016). After a burst during the pre-GFC period (2003-08), the second-longest period of positive productivity growth since 1980, productivity growth fizzled out again during the post-GFC years. Relative to a pre-GFC (2003-08) average of 1.7 percent, productivity growth in the region dropped to 0.4 percent during 2013-18—a slowdown broadly in line with the EMDE average but from a lower starting rate (Figure 5.14).¹⁵

The productivity growth slowdown in the post-GFC period was broad-based, affecting three-fifths of LAC countries. In 10 of 26 countries, nearly all of which are in South America and the Caribbean, productivity growth contracted in 2013-18. In most cases, productivity growth was also lower than both the pre-GFC and long-term averages, as major economies in the region struggled with poor business climates, political tensions, regulatory burdens, and plunging commodity prices. Over the course of the past four decades, troughs in productivity growth have broadly coincided with major adverse

¹⁵ Labor productivity data is available for nine EMDEs in South America (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, and Uruguay), seven EMDEs in North and Central America (Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, and Panama), and 10 EMDEs in the Caribbean (the Bahamas, Barbados, Belize, the Dominican Republic, Guyana, Haiti, Jamaica, St. Lucia, St. Vincent and the Grenadines, and Suriname).

FIGURE 5.14 Productivity in LAC in regional comparison

Productivity growth in LAC fell from 1.7 percent in 2003-08 to 0.4 percent in 2013-18. The level of productivity in LAC is still higher than that in other EMDE regions, yet sluggish productivity growth in the post-GFC period has caused the region to lose ground in converging toward the level of productivity in advanced economies.



Source: The Conference Board; Penn World Table; World Bank (World Development Indicators).

Note: Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data. A. Blue bars show the range of average productivity across the six EMDE regions. Yellow dashes denote the average of the six EMDE regional aggregates. Red diamonds denote simple average of LAC economies. Sample includes 26 LAC economies and 129 EMDEs.

B. Rate of convergence is calculated as the difference in productivity growth rates over the log difference in productivity levels between LAC and advanced economies. Blue bars and yellow dashes show the range and average of the six EMDE regional aggregates. "Level" of productivity refers to the GDP-weighted average of regional productivity as a share of the average advanced economy during 2013-18. LHS refers to left-hand side. RHS refers to right-hand side. Sample includes 26 LAC economies, 129 EMDEs, and 35 advanced economies.

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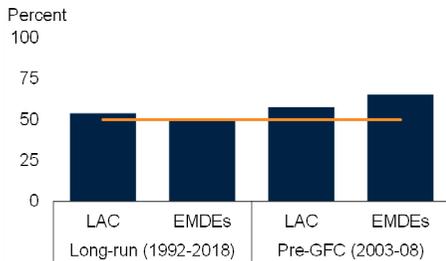
economic events, including a series of severe debt crises in the 1980s that spawned the region's "lost decade," the global financial crisis, and periodic commodity price slumps.

Within-region productivity growth trends. Notwithstanding weak labor productivity growth at the aggregate level in LAC during 2013-18, there was considerable heterogeneity across countries (Figure 5.15). Bolivia, Costa Rica, the Dominican Republic, and Paraguay featured the highest labor productivity growth, measuring well above pre-GFC and long-term regional averages. The improvement in the Dominican Republic reflects greater contribution from capital deepening and higher TFP growth; this arose from increased foreign direct investment (FDI) inflows, which were encouraged by reforms that opened most sectors to foreign investment, and by tax incentives for foreign investment (World Bank 2018i). Bolivia and Paraguay benefited from population migration from rural to urban areas, which coincided with a shrinking share of agriculture as a share of employment (IMF 2016b; World Bank 2018j). In Costa Rica, continued policy reforms and positive spillovers from FDI inflows supported a broad-based rise in productivity growth across sectors (OECD 2018a). Four of the six LAC economies with the highest productivity growth during 2013-18 (Bolivia, the Dominican Republic, Panama, and Peru) benefited from the steepest declines in the share of informal activity in the region during the decade to 2016 (World Bank 2019a).

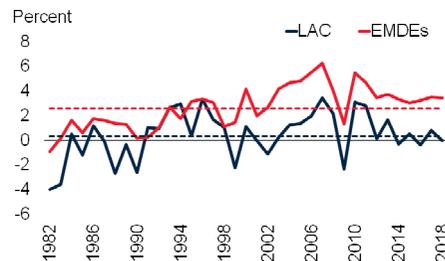
FIGURE 5.15 Evolution of labor productivity growth in LAC

Despite weak aggregate productivity growth in the region, some countries, including Bolivia, Costa Rica, the Dominican Republic, and Paraguay, achieved productivity growth in line with the EMDE average during 2013-18.

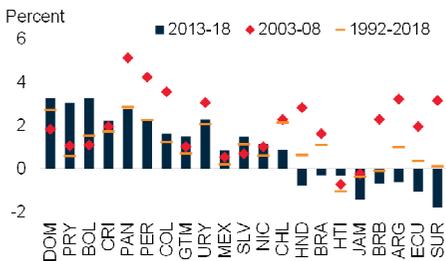
A. Economies with 2013-18 average productivity growth below long-run and pre-GFC averages



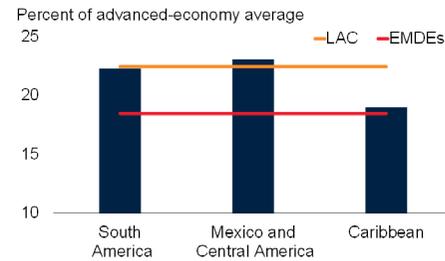
B. Productivity growth, by year



C. Productivity growth, by country



D. Productivity levels, 2013-18



Source: The Conference Board; Penn World Table; World Bank (World Development Indicators).
 Note: Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data. Sample includes 26 LAC countries and 129 EMDEs.
 A. Orange line represents a 50 percent threshold.
 B. Dotted lines show 1981-2018 averages.
 C. DOM = the Dominican Republic, PRY = Paraguay, BOL = Bolivia, CRI = Costa Rica, PAN = Panama, PER = Peru, COL = Colombia, GTM = Guatemala, URY = Uruguay, MEX = Mexico, SLV = El Salvador, NIC = Nicaragua, CHL = Chile, HND = Honduras, BRA = Brazil, HTI = Haiti, JAM = Jamaica, BRB = Barbados, ARG = Argentina, ECU = Ecuador, and SUR = Suriname.
 D. Sample includes 9 economies in South America, 7 in Mexico and Central America, 10 in the Caribbean, and 129 EMDEs.
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Higher productivity level than the EMDE average but slowing convergence with advanced economies. The level of productivity in LAC (22 percent of the advanced-economy average) was slightly higher in 2013-18 than the EMDE average (18 percent of the advanced-economy average). However, this outcome is a legacy of productivity growth advances made in the region decades ago. Since the 1980s, labor productivity in LAC relative to the level in advanced economies has fallen (Fernández-Arias and Rodríguez-Apolinar 2016; Ferreira, de Abreu Pessoa, and Veloso 2013). The pre-GFC rise in productivity growth halted this divergence only briefly. This is in stark contrast to the narrowing labor productivity gap between the broader group of EMDEs and advanced economies since the 1990s.

Sources of regional productivity growth

Decomposing labor productivity can into factor accumulation and the efficiency with which labor and capital are used during production (TFP) shows that the post-GFC productivity growth slowdown predominantly reflected a return to negative TFP growth rates, as had prevailed in LAC during the 1990s (Figure 5.16; Busso, Madrigal, Pagés 2013). However, the post-GFC (2013-18) average disguises a steep slowdown in investment growth during 2016-18, as Brazil struggled to exit a deep recession, the effects of the commodity price slump rippled through the region's many commodity-reliant economies, and numerous economies experienced bouts of policy uncertainty.

As the region experiences its deepest economic contraction in decades in 2020, productivity growth is likely to weaken further in the short term. The region experienced severe capital outflows in the first half of the year, which together with deep uncertainty about the trajectory of the pandemic will contribute to a sharp investment contraction, and labor markets have been severely disrupted (World Bank 2020a). Widespread school and workplace closures may adversely impact productivity in the medium term due to loss of learning opportunities and setbacks in workforce skill development.

- *South America.* The post-GFC labor productivity slowdown was most pronounced in South America, where productivity growth averaged only 0.1 percent, compared to 2.1 percent in the pre-GFC period. The subregion was deeply impacted by the commodity price slump and country-specific constraints in large economies. TFP growth in South America was continually negative during 2013-18, in part reflecting growing directed credit in Brazil (Dutz 2018; Calice, Ribiero, and Byskov 2018). It also reflected intensifying economic distortions (such as trade restrictions and price controls) in Argentina during the early part of the period, which allowed unproductive firms to survive.
- *Mexico and Central America.* The early impacts of the global financial crisis in 2007 and 2008 weighed on TFP in Mexico during 2003-08. Although post-GFC TFP growth was subdued, and capital deepening weakened during this period in the context of the repeated bouts of policy uncertainty, the removal of the crisis effects in Mexico allowed slightly higher productivity growth of 1.0 percent in the Mexico and Central America subregion during 2013-18, versus 0.7 percent in 2003-08.
- *The Caribbean.* In the Caribbean, TFP growth accelerated during the post-GFC period, to 1.5 percent, from 1.0 percent in 2003-08, largely reflecting capital deepening in the largest economy in the subregion, the Dominican Republic.

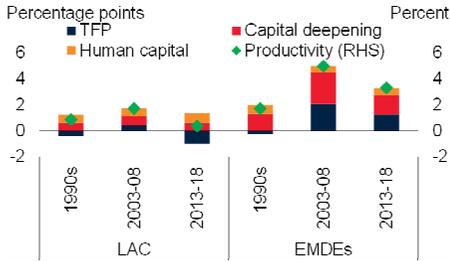
Post-GFC productivity growth slowdown across sectors. As in most other EMDE regions, manufacturing made a sizable sectoral contribution to productivity growth in LAC during the pre-GFC period. The post-GFC period in LAC was marked by a broad-based slowdown in productivity growth across sectors, particularly in the trade sector.

Stalling between-sector labor productivity growth. For most large LAC economies with available sectoral data, within-sector productivity gains have historically been greater

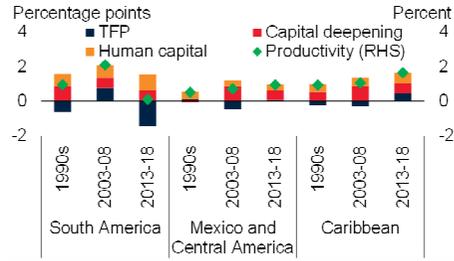
FIGURE 5.16 Sources of productivity growth in LAC

Sluggish productivity growth in LAC during the post-GFC period predominantly reflected a negative contribution from TFP. The TFP contraction was especially pronounced in South America. In recent years, capital deepening has made a slowing contribution to productivity growth.

A. Factor contributions to productivity growth



B. Factor contributions to productivity growth, by subregion



Source: Barro and Lee (2015); International Monetary Fund; Penn World Table; United Nations (Human Development Reports), Wittgenstein Centre for Demography and Global Human Capital; World Bank.

A.B. Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data.

A.B. Productivity growth is computed as log changes. Sample includes 20 LAC economies and 93 EMDEs.

B. Sample includes 9 economies in South America, 6 in Mexico and Central America, and 16 in the Caribbean.

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than between-sector gains from labor reallocation from low-productivity to higher-productivity sectors (Figure 5.17). This is consistent with other studies of the region (Brown et al. 2016; Diao, McMillan, and Rodrik 2017). During the 1990s, a substantial part of labor productivity growth was due to within-sector growth as LAC countries liberalized trade policy in the second half of the 1980s and the early 1990s (Rodrik 2016a). The 1990s and early 2000s were a period of significant change in LAC's manufacturing industry. Faced with increasing foreign competition as the result of globalization, domestic manufacturing firms implemented more efficient processes that required less labor, and uncompetitive firms ceased operating. As workers were displaced from manufacturing, they shifted toward lower-productivity services and informal activities (McMillan, Rodrik, and Verduzco-Gallo 2014; Pagés-Serra 2010).

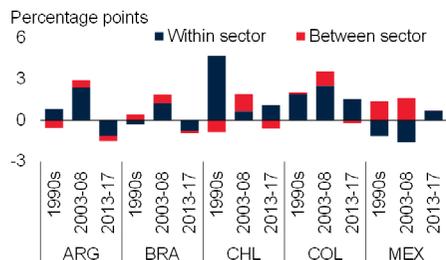
As the manufacturing sector in LAC transformed during the 1990s and early 2000s, the agricultural sector became more productive relative to other sectors, with a shrinking share of agricultural employment accounting for a stable share of output between 1995 and 2008. The trade sector, however, became less productive, accounting for a growing share of employment and the same share of output.

Since 2013, between-sector productivity gains have stalled in the two largest regional economies, Brazil and Mexico. Within-sector productivity growth at the region level collapsed to near zero as multiple structural constraints (e.g., inefficient provision of credit in Brazil and trade restrictions and price controls in Argentina) were compounded by an inability to adjust to adverse events, including unfavorable policy choices, a commodity price collapse, and financial stress episodes. In the short term, changes in

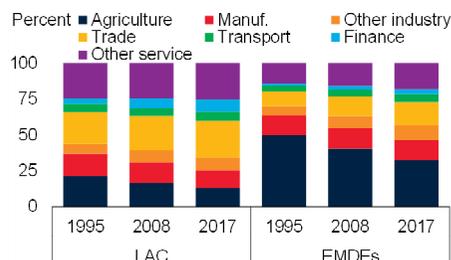
FIGURE 5.17 Sectoral productivity in LAC

Within-sector productivity growth, the main driver of productivity growth in LAC during the pre-GFC period, was much lower during the post-GFC period in several large economies, while between-sector productivity growth slowed in all economies with available sectoral data.

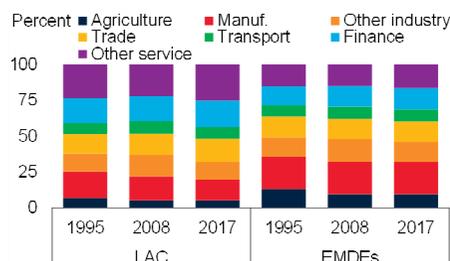
A. Within- and between-sector contributions to productivity growth



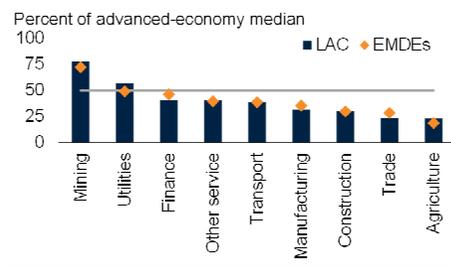
B. Composition of employment, by sector



C. Composition of value-added, by sector



D. Sectoral productivity levels, 2017



Source: Groningen Growth Development Center database; Haver Analytics; ILOSTAT; OECD STAN; United Nations; World KLEMS; World Bank.

A.D. Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data.

A. The within-sector productivity contribution shows the initial real value added-weighted productivity growth; the between-sector contribution measures the productivity growth from a cross-sectoral shift of employment. ARG = Argentina, BRA = Brazil, CHL = Chile, COL = Colombia, and MEX = Mexico.

B.C. "Other industry" includes mining, utilities, and construction; "other service" includes government and personal services. "Manuf." indicates manufacturing. Sample includes 69 EMDEs, of which 17 are LAC economies.

D. Horizontal line indicates 50 percent.

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consumer behavior and mobility restrictions implemented as part of the policy response to COVID-19 may hinder sectoral reallocation.

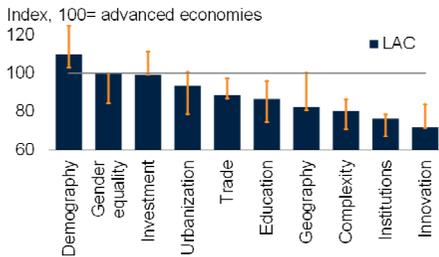
Sectoral productivity levels in LAC relative to EMDEs. In most sectors, productivity levels in LAC are close to the EMDE average, although productivity in trade and finance lags that in all EMDEs slightly. Removing productivity barriers in these sectors would benefit aggregate regional productivity.

Key drivers of productivity. LAC has long lagged other EMDE regions in several key drivers of productivity—investment, innovation, and trade—and performs only about

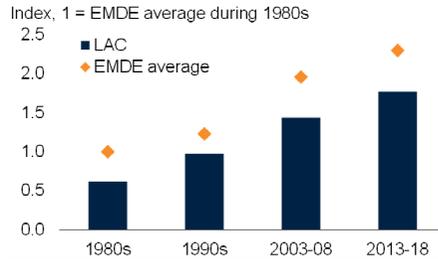
FIGURE 5.18 Drivers of productivity growth in LAC in regional comparison

Multiple structural constraints contribute to low productivity growth in LAC. The region performs particularly poorly relative to other EMDE regions in measures of investment, innovation, and trade. In other drivers, LAC is a mediocre performer relative to other regions. The drivers of productivity growth have become more supportive over time but at a slower pace than the EMDE average.

A. Drivers of productivity growth, 2017



B. Index of productivity drivers



Source: Freedom House; Haver Analytics; International Country Risk Guide; Organisation for Economic Co-operation and Development; Observatory of Economic Complexity; Penn World Table; United Nations Educational, Scientific, and Cultural Organization (Institute for Statistics); United Nations Population Prospects; World Integrated Trade Solution; World Bank (Doing Business, Enterprise Surveys, and Global Financial Development Database).

A. Unweighted average levels of drivers normalized as an average of advanced economies as 100 and standard deviation of 10. Blue bars represent average within LAC economies. Orange whiskers represent the range of the average drivers for the six EMDE regions. Variables are defined as: Education = years of education, Urbanization = share of population living in urban areas, Investment = investment as share of GDP, Institutions = government effectiveness, Complexity = economic complexity index of Hidalgo and Hausmann (2009), Gender equality = share of years of schooling for females to males, Demography = share of population under age 14, Innovation = log patents per capita, and Trade = (exports+imports)/GDP. Sample includes 16-25 LAC economies and 65-127 EMDEs, depending on the driver, and 32 advanced economies.

B. For each country, index is a weighted average of the normalized value of each driver of productivity. Refer to Chapter 2 for weights. Drivers include the ICRG rule of law index, patents per capita, non-tropical share of land area, investment as percent of GDP, ratio of female average years of education to male average years, share of population in urban area, economic complexity index of Hidalgo and Hausmann (2009), years of schooling, working-age share of population, and inflation. Regional and EMDE indexes are GDP-weighted averages for single years and simple averages for time periods. Sample includes 18 LAC economies and 54 EMDEs.

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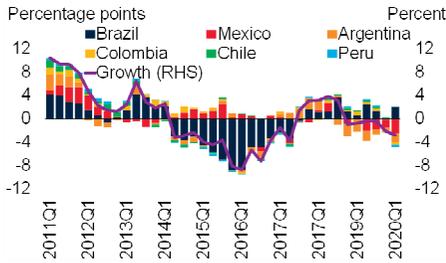
average in other drivers (Figure 5.18). Over time, the drivers of productivity in LAC have improved but the improvement has not kept pace with that in EMDEs. Cyclical factors, such as weak investment in large economies in the region and gyrations in global commodity price trends, are also linked to weak productivity growth in LAC. Investment growth weakened substantially in the post-GFC period (Figure 5.19).

Limited innovation and technology adoption. Innovation, achieved through dedicating resources to research and development (R&D) or introducing new processes or products, has been a key driver of labor and firm productivity in LAC (Crespi and Zuniga 2011; Grazi and Jung 2016). Likewise, adoption of new technologies can reduce information costs and facilitate market access, thereby increasing productivity and expanding output in the region (Dutz, Almeida, and Packard 2018). LAC has missed key opportunities to raise productivity through these channels. R&D expenditure as a share of GDP is low in LAC relative to that in comparator EMDEs, as is the likelihood of firms in LAC introducing product innovations (Lederman et al. 2014).

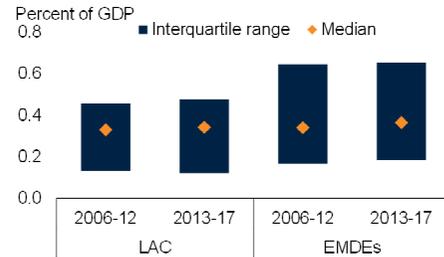
FIGURE 5.19 Drivers of productivity growth in LAC

A sustained period of contracting investment growth in LAC has held back productivity gains in recent years. Lower R&D spending relative to other regions, weak trade linkages in several large economies, and inadequately educated workers also hinder productivity growth.

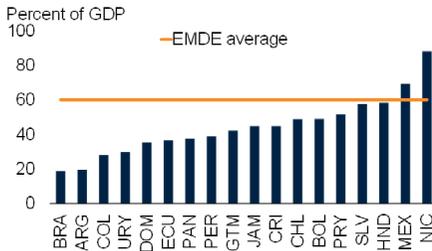
A. Investment growth



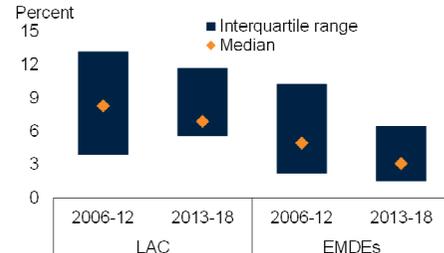
B. Research and development spending



C. Trade, 2015-17



D. Firms indicating inadequately educated workers as their biggest obstacle



Source: Haver Analytics; World Integrated Trade Solution; World Bank (Doing Business, Enterprise Surveys, and Global Financial Development Database).

A. Bars show investment-weighted averages. Last observation is 2020Q1. Investment growth is year-on-year.

B. Sample includes 16 economies for LAC and 94 for EMDEs.

C. Bars show 2015-17 average of exports plus imports as a share of GDP. BRA = Brazil, ARG = Argentina, COL = Colombia, URY = Uruguay, DOM = the Dominican Republic, ECU = Ecuador, PAN = Panama, PER = Peru, GTM = Guatemala, JAM = Jamaica, CRI = Costa Rica, CHL = Chile, BOL = Bolivia, PRY = Paraguay, SLV = El Salvador, HND = Honduras, MEX = Mexico, NIC = Nicaragua. Sample includes 96 EMDEs.

D. Sample includes 30 LAC economies and 113 EMDEs.

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Weak trade linkages. In three large economies in the region (Argentina, Chile, Mexico), deeper participation in global value chains is associated with positive effects on firm productivity (Montalbano, Nenci, and Pietrobelli 2018). Yet nearly all LAC economies trade less (as a share of their GDP) than EMDEs overall, and global value chain (GVC) participation is lower than in the East Asia and Pacific region and in Europe and Central Asia. Even the LAC countries most integrated in GVCs (Chile, Costa Rica, and Mexico) are not among the most integrated EMDEs, and may suffer the economic consequences of GVC disruptions as a result of COVID-19 (OECD 2018b; World Bank 2020a). The opportunity for regional productivity gains through trade is further hindered by the structure of intra- and extra-regional trade relationships. Although LAC countries are

party to numerous trade agreements, there is little harmonization of rules of origin and non-tariff measures across agreements, and there is no region-wide agreement. These characteristics result in fragmentation of trading priorities and, together with weak diversification of traded goods in many countries, limit the development of intraregional GVCs. Rules of origin imposed under preferential trade agreements in the region are estimated to negate more than 15 percent of the positive trade effect of the agreements, while the costs of non-tariff measures imposed by LAC countries are estimated to equate to a 15 percent tariff for intermediate goods (Cadestin, Gourdon, and Kowalski 2016).

Poor-quality education and labor market constraints. At a median of 9.2 years in 2018, the duration of schooling in LAC compares favorably with 7.7 years in the average EMDE, and the gap between the median years of schooling in LAC and advanced economies narrowed from 3.5 years in 2008 to 2.9 years in 2018. However, learning outcomes in LAC fall short of their potential, as indicated by international standardized test results and high dropout rates at the tertiary level (World Bank 2017b). Moreover, in most LAC countries, education outcomes are highly correlated with socioeconomic conditions, a scenario reinforced by persistently elevated income inequality (World Bank 2018a). The prolonged, widespread school closures during the COVID-19 may set back long-term education achievement and earnings, while unequal access to technology may exacerbate existing education inequalities (Azevedo et al. 2020).

Ultimately, skills deficiencies and mismatches and low-quality education have negative implications for labor productivity and labor market functioning. The incidence of youth who are neither in school nor working is high (de Hoyos, Rogers, and Székely 2016). An estimated half of firms are unable to find local workers with the skills they need, and consequently turn to foreign labor (OECD 2018b). Firm-level survey data for 2013-18 indicate that 7 percent of firms in LAC perceive an inadequately educated workforce as their biggest obstacle, more than double the share in all EMDEs. The poor functioning of labor markets due to skills deficiencies is compounded by longstanding regulatory rigidities that prevent efficient worker allocation and mobility (Kaplan 2009).

High informality. The informal sector in LAC averages about one-third of GDP, higher than in all other EMDE regions except Sub-Saharan Africa (World Bank 2019a). Informality in LAC is associated with lower aggregate and firm-level productivity (Chong, Galdo, and Saavedra 2008; Loayza, Servén, and Sugawara 2010; de Paula and Sheinkman 2011). In Paraguay, for example, informal firms are not only less productive than formal firms, but have negative productivity spillovers on formal firms (Vargas 2015). Importantly, informality is considered a key vulnerability that made LAC susceptible to the health and economic effects of COVID-19 (OECD 2020b).

Policy options

A range of options, targeted to country experiences, can be pursued to boost productivity in LAC and put the region on a path toward closing the productivity gap with advanced economies. Productivity in the region stands to benefit most from policy reforms to boost TFP, rather than to improve factors of production.

Improving factors of production

Increase the volume and efficiency of infrastructure investment. Relative to the pre-GFC period, capital deepening was the main source of productivity growth in large parts of the region during the post-GFC period. However, it has slowed sharply in the most recent years, and large infrastructure gaps remain. Although access to water and electricity in LAC is high relative to all EMDEs, the region underperforms in transportation and sanitation (Fay et al. 2017). To address this, transport network development is underway in several countries, such as Colombia. In addition, across the region, there is significant capacity to reduce infrastructure gaps by improving infrastructure spending efficiency—in particular, through improvements at the appraisal and evaluation stages of public investment projects and in public procurement systems.

Boosting firm productivity

Pursue well-targeted competition and innovation policies. Reducing barriers to entry for firms and the rigidity of labor regulations, on which LAC performs poorly compared to other EMDE regions and which encourages informal operation, is critical for promoting entrepreneurship and productivity. In Peru, for example, the elimination of subnational barriers to entry is found to have boosted firm productivity (Schiffbauer and Sampi 2019). Boosting low R&D spending and low technology-related innovations can also improve financial inclusion through development of secure digital payment systems and fintech regulatory frameworks (World Bank 2017c). Improving the speed of uptake of new technologies in LAC, where firms adopt new technologies with a significant lag relative to the United States, would also boost productivity (Eden and Nguyen 2016).

Deepen trade linkages and reduce trade barriers. Trade relationships can boost productivity by facilitating knowledge exchange and innovation for the participating firms (Bown et al. 2017). Significant productivity gains could be made by reducing barriers to trade in LAC. The landmark European Union-Mercosur trade agreement, finalized by negotiators in June 2019 but not yet ratified, holds significant promise for decreasing trade barriers and deepening trade flows between Latin America and Europe. In addition, there have been some recent efforts to reduce trade barriers within the region; for instance, the Pacific Alliance eliminated tariffs among its members (Chile, Colombia, Mexico, and Peru) in May 2016. With global trade linkages disrupted by the COVID-19 pandemic, now may be a particularly good time to undertake structural reforms that would allow the region to better integrate into GVCs (World Bank 2020a).

Boost quality of education and implement labor market reforms. In the short term, the use of technologies and innovative, offline solutions may help offset human capital losses and reduce education inequalities stemming from prolonged school closures in the region due to COVID-19 (Cobo, Hawkins, and Rovner 2020).

With the working-age share of the population on the cusp of the downward trajectory that East Asia and Pacific and Europe and Central Asia have already begun, the

contribution of additional labor to productivity growth in LAC will fade. Advancing human capital through education and skills development will become increasingly important in the medium term. On-the-job training is an important element of boosting worker productivity, especially in the context of rapidly changing technologies. Programs that engage youth who are neither working nor studying are also critical (Almeida and Packard 2018). Skills training programs such as Jovenes en Acción in Colombia and ProJoven in Peru have had positive impacts on employment and productivity among the target populations and could be replicated. (Attanasio et al. 2015; Diaz and Rosas 2016). Apprenticeship programs also hold potential. For many countries, including Brazil, adapting labor markets to shifting economic opportunities in the strongly integrated global economy requires revision of dated labor market regulation (Dutz 2018). This could include reducing restrictions on use of term contracts, not allowing minimum wages above market equilibrium, and reducing penalties for redundancy.

Encouraging sectoral reallocation

Given that within-sector productivity gains in several large economies in LAC have stalled since the global financial crisis, and may be further held back by shocks stemming from the COVID-19 pandemic, policymakers in the region should rekindle efforts to implement policies that reallocate capital and labor towards more productive firms within the sectors. Policies could aim to strengthen competition, including through trade, and reform labor markets to facilitate the movement and productivity of labor. The longstanding weakness in the region's between-sector productivity growth in the region calls for policies that reduce misallocation of capital and labor toward sectors with low productivity. In particular, with limited opportunity for further industrialization, LAC countries should target lack of competition in services industries, including transport, finance, trade, and information and communications technology, and ensure that workers have sufficiently strong skills to thrive in occupations being transformed by technology (Araujo, Vostroknutova, and Wacker 2017; World Bank 2019k).

Creating a business-friendly environment

Implement supportive governance and business climate reforms. Institutional quality is a key driver of productivity over the long term. For instance, fair contract enforcement, straightforward and transparent legal processes, and contained political risk have all been shown to support productivity gains (Acemoglu et al. 2019; Rodrik 1999; Rodrik, Subramanian, and Trebbi 2004). Relative to other regions, however, LAC is a mediocre performer on measures of governance. Moreover, the region's performance has deteriorated during the post-GFC period in measures of government effectiveness, control of corruption, and regulatory quality (Kaufmann, Kraay, and Mastruzzi 2010). Especially when the burden of regulation is high, as it tends to be in LAC, corruption is detrimental for productivity (Amin and Ulku 2019). On measures of doing business, no country in LAC is among the top 50 performers in the world (World Bank 2020d). Business environment reforms can also help reduce the size of the informal sector, where productivity is lower than in the formal sector. The process of institutional reforms could

be spearheaded through productivity commissions such as those created in Chile, Colombia, and Mexico. Colombia, for example, is implementing a series of structural reforms as part of its Productive Development Policy 2016-2025.

Middle East and North Africa

Labor productivity growth in the Middle East and North Africa (MNA) was the weakest among EMDE regions before and after the global financial crisis. It averaged –0.1 percent between 2013-18, although with wide heterogeneity across economies within the region. Weak productivity growth has widened the region’s productivity gap with advanced economies. Large public sectors, underdeveloped private sectors, and lack of economic diversification hold back productivity growth. Although recent reform initiatives in many countries in the region are promising, the COVID-19 pandemic may hinder productivity in the short and medium term. A multipronged policy effort is needed to reliably raise productivity growth in the region, including raising the quality of human capital and boosting private sector investment, increasing firm productivity, removing obstacles to sectoral reallocation, and creating business-friendly environments.

Evolution of regional productivity

Low labor productivity growth. From an already weak pre-GFC rate (0.1 percent during 2003-08), labor productivity growth in MNA decelerated further, to about –0.1 percent during 2013-18, the weakest among EMDE regions (Figure 5.20).¹⁶ This slowdown affected more than half of EMDEs in the region, and was strongest among energy exporters, where productivity growth has been severely constrained by weak investment (Figure 5.21). Moreover, continued reliance on commodity exports in many economies means that they have not experienced the diversification or expansion of other sectors that helped drive high productivity growth in regions such as East Asia and the Pacific. Weak post-GFC productivity growth in the region continues a long-standing trend that featured productivity growth below the EMDE average for the past two decades. The disruptions spurred by the COVID-19 pandemic put the productivity prospects of the region at substantial risk, especially combined with the negative oil price shock.

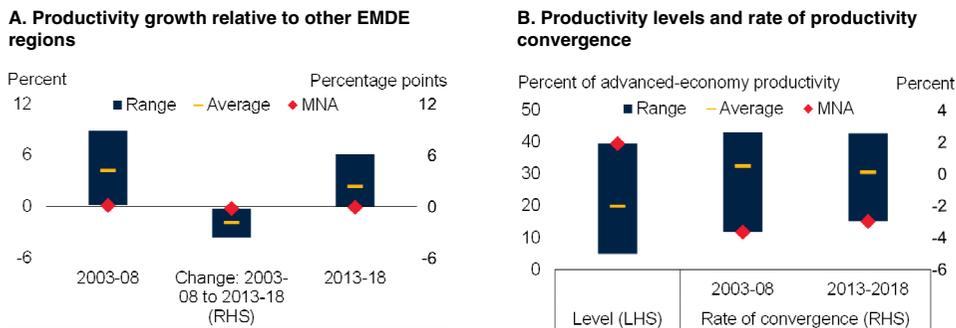
Within-region heterogeneity. Within-region productivity trends differ considerably. Energy-exporting economies experienced a 0.5 percent productivity contraction in 2013-18, amid a 50 percent plunge in oil prices from a mid-2014 peak. In energy importers, productivity growth rose to 1.9 percent in 2013-18, from 1.3 percent in 2003-08.

Wide dispersion in labor productivity levels. At two-fifths of advanced-economy productivity, MNA has the highest productivity level of any EMDE region. Yet relative to the advanced-economy average, the level was lower in 2013-18 than in 2003-08. Moreover, productivity levels in MNA differ widely within the region, with substantially

¹⁶The primary sample under which regional labor productivity trends are discussed is based on 14 MNA economies: Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, and the United Arab Emirates.

FIGURE 5.20 Productivity in MNA in regional comparison

Labor productivity growth in MNA has been the weakest among EMDE regions, both pre-GFC and post-GFC, averaging -0.1 percent during 2013-18. Despite a high average productivity level relative to other EMDE regions, weak productivity growth has recently widened MNA's productivity gap with advanced economies.



Source: The Conference Board; Penn World Table; World Bank (World Development Indicators).

Note: Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data. A. Blue bars show the range of average productivity across the six EMDE regions. Yellow dashes denote the average of the six EMDE regional aggregates. Red diamonds denote simple average of MNA economies. Sample includes 14 MNA economies and 129 EMDEs. The 14 MNA economies in the sample are Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, and the United Arab Emirates.

B. Rate of convergence is calculated as the difference in productivity growth rates over the log difference in productivity levels between MNA and advanced economies. Blue bars and yellow dashes show the range and average of the six EMDE regional aggregates. "Level" of productivity refers to the GDP-weighted average of regional productivity as a share of the average advanced economy during 2013-18. LHS refers to left-hand side. RHS refers to right-hand side. Sample includes 14 MNA economies, 129 EMDEs, and 35 advanced economies.

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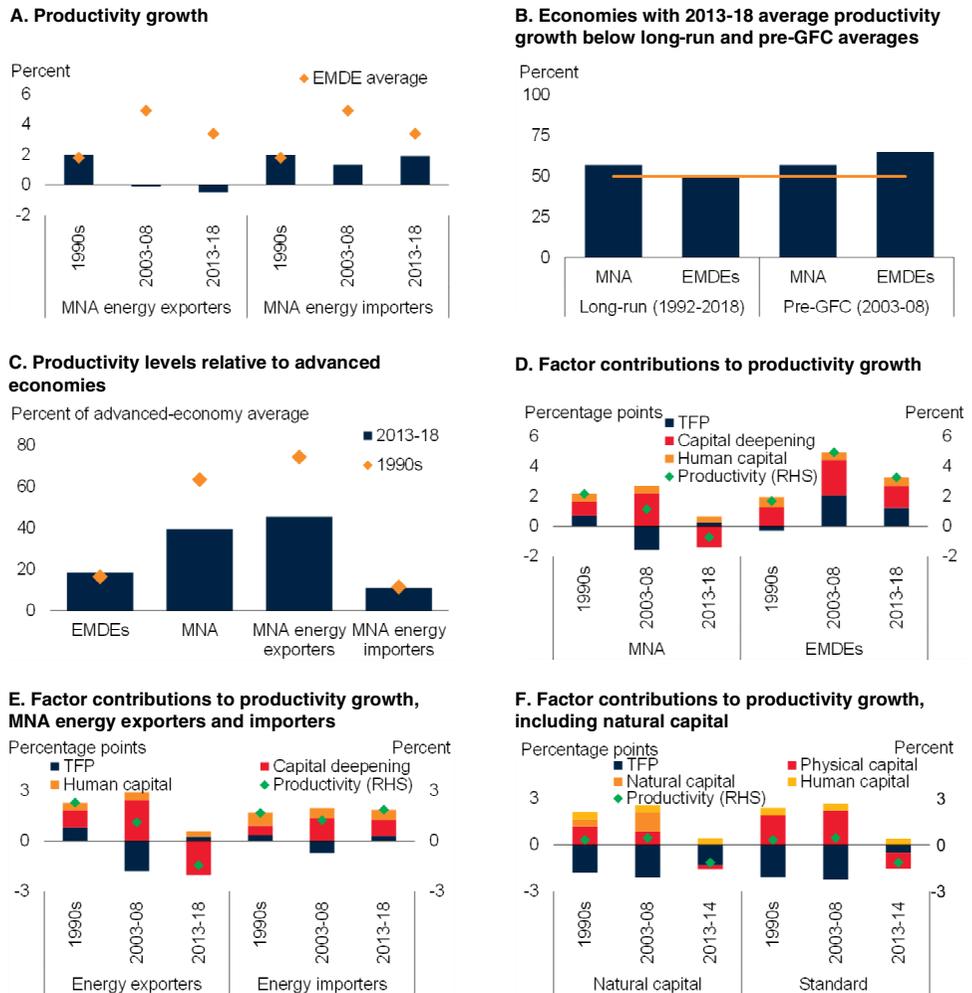
higher levels in the Gulf Cooperation Council (GCC) economies than in energy importers. This disparity reflects the variation in natural resource endowments between lower-middle-income energy importers such as Egypt, Morocco, and Tunisia, and high-income energy exporters such as Saudi Arabia and the United Arab Emirates.

Sources of labor productivity growth. In the two decades prior to the oil price collapse of 2014-16, labor productivity growth in the region was primarily supported by capital deepening, driven by capital investment by energy exporters (IMF 2012, 2015; Malik and Masood 2018). In an alternative decomposition that also incorporates natural resources (similar to Brandt, Schreyer, and Zipperer 2017), natural resource activity appears to drive MNA productivity growth significantly. Its average contribution to productivity growth shrank from about 1.2 percentage points during 2003-08 to essentially zero during 2013-14.

The commodity sector is capital intensive. As a result, oil prices and capital expenditures are closely linked in the MNA region (Albino-War et al. 2014; IMF 2018b). Foreign direct investment is also highly undiversified and heavily concentrated in the commodity sector (World Bank 2003). After the global financial crisis, investment growth in the region slowed sharply. Among energy exporters, this slower growth has been attributed

FIGURE 5.21 Evolution of labor productivity growth in MNA

The post-GFC productivity growth slowdown was concentrated in energy exporters and affected about half of the region's economies. Productivity contracted by 0.5 percent in energy exporters and grew by 1.9 percent in energy importers. Falling productivity growth in the region has been largely driven by shrinking capital stock, especially in energy exporters. Productivity levels in exporters remain much higher than in importers, however. The contribution of natural capital to productivity growth fell significantly relative to the pre-GFC period.



Source: Barro and Lee (2015); Haver Analytics; International Monetary Fund; Penn World Table; United Nations (Human Development Reports), Wittgenstein Centre for Demography and Global Human Capital; World Bank.

Note: Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data.

A-C. The sample includes 14 MNA economies (Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, and the United Arab Emirates) and 129 EMDEs.

B. Horizontal line indicates 50 percent.

D-F. Productivity growth is computed as log changes.

D.E. Sample includes 12 MNA economies (same as in A but excluding Algeria and the United Arab Emirates) and 93 EMDEs.

F. Sample includes 10 MNA economies with data for natural capital: Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, and Tunisia. The post-GFC time period differs from E and F due to natural capital data availability.

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to tight financial constraints associated with lower oil prices. Among energy importers, the legacies of the Arab Spring movements led many economies to increase investment on defense at the expense of infrastructure and other productivity-enhancing projects and initiatives (Ianchovichina 2017).

Pre-GFC capital deepening was partly offset by contractionary TFP growth, the longstanding weakness of which has been widely documented.¹⁷ The inverse relationship between capital accumulation and TFP growth suggests inefficient investment, and may be attributed to two factors. First, predominantly public investment combined with the large economic role of state-owned enterprises crowds out private investment and job creation. Second, fiscal policy tends to be procyclical—just like public investment—as countries often pursue expansionary fiscal policy during oil price booms (Abdih et al. 2010). During periods of high capital investment and oil price booms, technology-enhancing-oriented reform momentum tends to be weaker, weighing on TFP growth. Negative TFP growth in MNA before the global financial crisis stands in sharp contrast to the robust pre-GFC TFP growth in the broader group of EMDEs. TFP growth started to pick up as oil prices bottomed out in 2016, however.¹⁸

Heterogeneity in sources of labor productivity growth. While labor productivity growth in the MNA region as a whole has long been anemic and continues to be weak, there is wide divergence in the driving forces. For energy exporters, productivity growth decelerated markedly from 2003-08 to the post-GFC period of 2013-18 due to sharply declining investment activity. For energy importers, productivity growth improved modestly from a weak base, largely due to the recovery from negative average TFP growth rates during 2003-08 to slightly above zero percent during 2013-18.

Sources of regional labor productivity growth

High barriers to factor reallocation. Factor reallocation toward more productive activity has played a limited role in driving productivity growth in MNA. This reflects high barriers to entry and distortions such as the lack of competitive markets (Arezki et al. 2019a). Small exporting firms are hesitant to scale up their operations and benefit little from global value chain integration (World Bank 2016d). In the North Africa subregion, evidence from Egypt and Morocco suggests that within-sector productivity gains have been the main source of productivity growth for their economies, both before and after the global financial crisis (Figure 5.22). In Saudi Arabia, employment appears to have moved towards sectors with relatively low productivity in the past (Fayad and Rasmussen 2012). These trends imply distortions in the economy exist that prevent more efficient

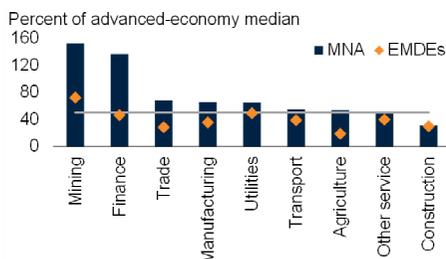
¹⁷ Weak or negative TFP growth is found to be a prevalent feature in the MNA region during the past three decades. For regional and country-specific studies that highlight TFP growth in MNA, see Baier, Dwyer, and Tamura (2006); Bisat, El-Erjan, and T. Helbling (1997); Callen et al. (2014); IMF (2012); Keller and Nabli (2002); Malik and Masood (2018); World Bank (2017d); and Yousef (2004).

¹⁸ TFP growth can be affected by non-technology factors, such as capital and labor utilization. Hence, TFP growth estimates may overstate or understate the true change in the influence of technology on productivity (Dieppe, Kindberg-Hanlon, and Kiliç Celik forthcoming).

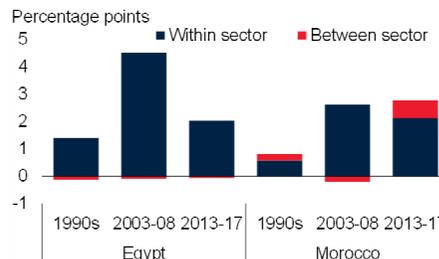
FIGURE 5.22 Factors supporting productivity growth in MNA

Productivity levels relative to advanced economies are the highest in MNA's capital-intensive mining sector. Evidence for Egypt and Morocco suggests that productivity growth in North Africa has been largely limited to within-sector productivity gains.

A. Sectoral productivity levels, 2017



B. Within- and between-sector contributions to productivity growth



Source: Groningen Growth Development Center Database; Haver Analytics; International Labour Organization; Penn World Table; World Bank.

Note: Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data.

A. Medians across economies in each sector. Horizontal line indicates 50 percent. Sample includes 12 MNA economies.

B. The within-sector productivity contribution shows the initial real value added-weighted productivity growth contribution, holding employment share fixed; the between-sector contribution measures the productivity growth from a cross-sectoral shift of employment.

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reallocation of resources across sectors. High capital intensity of the commodity sector accounted for high average productivity levels in MNA, and scope for productivity improvement in the private sector remains large. Moreover, employment is concentrated in the services sector, reflecting an exceptionally high proportion of the workforce (about one-fifth) employed in the public sector (Tamirisa and Duenwald 2018).

Other drivers of labor productivity growth. Weak productivity in the MNA region has been associated with underdevelopment of the private sector, overreliance on the public sector, and lack of economic diversification (Devarajan and Mottaghi 2015).

- *Large public sector.* On average, about one-fifth of the region's workforce is employed in the public sector, and public-private sector wage gaps are among the highest in the world (Purfield et al. 2018; Tamirisa and Duenwald 2018). The education system is targeted towards government employment, with few high-quality private sector jobs (World Bank 2018k). These dynamics hold back the adoption of technology from abroad (Mitra et al. 2016; Raggl 2015; Samargandi 2018). In the Gulf Cooperation Council, weak productivity growth has been associated with low mobility of high-skilled foreign workers (Callen et al. 2014).

- *Restrictive business climate.* Poor governance quality, large informal sectors, and cumbersome tax policy and administration hampered the reallocation of resources from low-productivity to higher-productivity firms (Nabli 2007; World Bank 2016d). Non-GCC economies in MNA rank especially low in the World Bank's Worldwide Governance Indicators, such as regulatory quality and government effectiveness. Private

firms often face challenges in access to finance; yet, providing access to formal finance is associated with labor productivity growth being 2 percentage points higher in MNA firms (Blancher et al. 2019).

- *Anemic private sector.* Firm productivity in MNA has been restricted by low firm turnover and creation. Only six limited liability companies were created annually for every 10,000 working-age people in MNA during 2009-12—considerably less than in other EMDEs (Schiffbauer et al. 2015).
- *Lack of diversification.* Trade openness and export diversification remain low among MNA. Lack of diversification is partly the result of exchange rate misalignments associated with high reliance on extractive industries or low technological content of exports (Benhassine et al. 2009). In the region's large economies, low export diversification has been found to hinder productivity growth.¹⁹ Although research and development, as measured by the number of patent applications per capita, is above the EMDE average, it is well below advanced-economy averages, holding back productivity growth and diversification (Rahmati and Pilehvari 2017; Samargandi 2018).
- *Conflict.* Armed conflicts in countries such as Syria and Yemen continue prevent productivity gains domestically and within the region.

In the GCC, a series of reforms include measures to improve productivity and diversify away from the energy sector. Efforts to boost small- and medium-sized enterprise (SME) growth and encourage private-sector development include the establishment of an SME agency in Saudi Arabia and SME delicensing in the United Arab Emirates. Among energy importers, measures to improve the business and private sector climate have been enacted in Egypt, Morocco, and Tunisia (World Bank 2019). Initial market responses to these developments suggest that efficiency gains have been generated. Many GCC economies have implemented policies to relax foreign investment restrictions (e.g., the United Arab Emirates' relaxation of restriction in 13 sectors in 2019). These changes have been associated with foreign investment inflows, which in EMDEs often catalyze productivity-enhancing private investment (Henry 2007).

Policy reforms have also made it easier to raise international capital, which has already helped finance fiscal and balance-of-payments needs in MNA (IMF 2019d). Egypt's macroeconomic reforms since 2016, including the liberalization of the exchange rate, business climate reforms, and energy subsidy reforms, have been perceived positively by investors and may have raised the country's export and investment prospects (Youssef et al. 2019). In some cases, however, reforms are subject to high risk of implementation delay, especially in non-GCC economies, where political fragmentation and budget irresolution frequently hold back multiyear reform plans and social tensions underscore the fragility associated with reform progress. Moreover, the COVID-19 pandemic has also created higher uncertainty about the pace of reforms, and their prospects are contingent on how reform initiatives are integrated with COVID-19 policy responses.

¹⁹ See IMF (2013, 2015); Morsey, Levy, and Sanchez (2014); and Samargandi (2018).

Policy options

Concerted and multipronged efforts are required to reliably raise productivity growth. Policies need to be directed at raising the quality of human capital and boosting private sector investment, increasing firm productivity, removing obstacles to sectoral reallocation, and creating business-friendly environments. Within these broad themes, specific policies need to be tailored to a country's specific circumstances.²⁰

In practice, the effectiveness of reform is contingent on the health of each economy and the timing of political events (Alesina et al. 2019). In some circumstances, a targeted approach that leverages synergies may be warranted. Deep institutional reforms to raise market contestability, for example, may bring a variety of collateral benefits, such as higher technological progress (Arezki et al. 2019a). Well-designed deployment of fintech could help garner broad-based support for institutional reforms (World Bank 2019l).

Improving factors of production

Boosting private investment. While capital deepening has been a main driver of productivity growth in MNA, it has been primarily supported by large public spending (for example, the commodity sector in the GCC; IMF 2018b). This suggests large scope to boost private investment. A wide range of reforms is needed to encourage private investment, including expanding access to finance, improving business climates and governance, reducing the wage premium of government employment, and leveling the playing field with state-controlled enterprises (Arezki et al. 2019a).

Raise human capital. The contribution of human capital to labor productivity growth has been modest in the past two decades, amounting to only about half a percentage point. The region's human capital challenge is to improve educational access for youth and women, improve the connection between educational attainment and private sector jobs, and to shift its bias in educational training away from the public sector (World Bank 2018k). These measures would help the productivity potential of its large youth population. More educational programs to improve the skills match between workers and employers can enhance the quality of jobs in MNA (Gatti et al. 2013).

Boost firm productivity

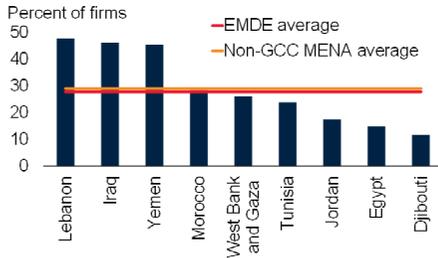
Improve access to finance. Access to finance is a large obstacle for firms in MNA, particularly for non-GCC economies, as lack of financing hinders their ability to invest and innovate (Figure 5.23). Better access to credit, supported by broader credit bureau coverage and stronger insolvency resolution regimes, appears to yield sizable benefits to productivity growth in MNA (Ghassibe, Appendino, and Mahmoudi 2019). New insolvency resolution laws adopted in Djibouti, Egypt, Jordan, and Saudi Arabia are promising for facilitating debt resolution between creditors and debtors. New minority investor protection regulation in Egypt aims to improve corporate governance and investor confidence.

Address informality. Informality, although low by average EMDE standards, presents a challenge to businesses in non-GCC economies. Competition from the informal sector is

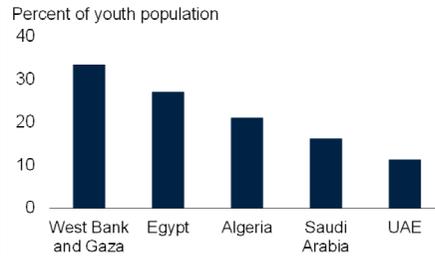
FIGURE 5.23 Policy challenges in MNA

Multipronged and sustainable reforms that improve governance and boost private sector development are crucial in MNA. Reforms could lift the potential of its young population and relieve constraints to firm productivity, such as access to finance.

A. Firms indicating access to finance as a major obstacle



B. Youth not in education or employment



Source: World Bank.

A. Based on World Bank's Enterprise Surveys. Latest available survey year for each economy denoted. Non-GCC MENA denotes average of all economies shown in the figure.

B. Share of youth not in education, employment, or training, as a percent of youth population. Latest available data since 2015.

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a major obstacle for formal sector businesses in several large economies (Morocco, Tunisia), and a higher share of informal workers in SMEs is associated with lower wages and more limited export potential (Elbadawi and Loayza 2008). Aligning tax systems to international best practices (e.g., harmonized electronic filing systems in Morocco) and reducing regulatory hurdles for firms can help attract informal firms to more productive formal activity while raising revenue collection.

Encouraging efficient resource reallocation

Diversification through trade. Reforms in investment, trade, and tariff policies could help MNA move up the export value chain and encourage greater product variety, which currently lags behind international benchmarks. Regional integration efforts (e.g., Compact with Africa) could help promote diversification and raise productivity.

Diversification from commodity dependence. For energy exporters, including the GCC, stronger fiscal management could help promote diversification by broadening the revenue base (Diop and Marotta 2012; World Bank 2019m). For energy importers, options for diversification may include investment in renewable energies via public-private partnerships (e.g., Egypt; Vagliasindi 2013), or initiatives to boost the private services sector (e.g., tourism initiatives in oil importers). Efforts to expand the reach of firms to the global market can also help boost productivity growth (World Bank 2016d).

Creating a growth friendly environment

Improve business climates. Business climate reforms, such as the reduction of regulatory hurdles to start businesses or the removal of particularly distortionary taxes, can help

boost private investment and productivity. They can also provide firms easier access to critical inputs, such as improved electricity supply. They can support productivity through better allocation of resources (e.g., more efficient taxation systems) and stronger entrepreneurship activities (e.g., lower cost to start a business). In MNA, reforms that move an economy one unit higher in the Global Competitiveness Index have been estimated to raised productivity potential significantly (Mitra et al. 2016). Many MNA economies have adopted broad-based business climate reforms recently, including improved electricity connection in Bahrain, enhanced electronic tax filing in Jordan, and easier property registration in Kuwait.

Improve governance. Governance quality in MNA, especially non-GCC economies, lags behind other EMDEs and has improved little over the past decade. Weak governance has discouraged private sector activity and investment (Nabli 2007). Reforms such as streamlining public service delivery and strengthening legal frameworks in areas like procurement laws can increase productivity growth by encouraging more efficient allocation of resources. They can also increase investment prospects through improved investor confidence. Reforms for state-owned enterprises in telecom industries can also enhance productivity via higher efficiency (Arezki et al. 2019b).

Improve gender equality. Women comprise only about one-fifth of the labor force in MNA. Bridging the gender gap in a number of areas, including workforce development and access to digital and financial services, is especially relevant for MNA. Closing these gaps can raise productivity growth through more vibrant entrepreneurship and private sector participation. Legislation to reduce economic discrimination against women in Tunisia is an example of a recent reform in this area.

South Asia

In contrast to other regions, labor productivity growth in South Asia (SAR) slowed only mildly after the global financial crisis (GFC). During 2013-18, productivity growth remained the second fastest among the six EMDE regions, at 5.3 percent a year. Although this has helped reduce the region's wide productivity gap with the advanced-economy average, the level of productivity in SAR remains the lowest among EMDE regions, in part reflecting widespread informal economic activity and struggling manufacturing sectors. Low human capital, poor business environments, inefficient resource allocation, and limited exposure to foreign firms and foreign investment also weigh on productivity. Moreover, SAR economies are likely to face a broad-based decline in labor productivity growth due to the COVID-19 shock. Increasing openness, by enhancing foreign direct investment (FDI) inflows and participation in global and regional value chains, could support technology and information transfer to the region and boost productivity growth. Promoting access to finance and improving infrastructure could lift productivity in the region at the firm level.

Evolution of regional productivity

Robust productivity growth. In contrast to other EMDE regions, productivity growth in SAR slowed only mildly after the global financial crisis, to 5.3 percent a year during

2013-18, from 6.4 percent in 2003-08 (Figure 5.24).²⁰ This followed a steady rise from anemic rates in the mid-1980s when heavily state-directed economic policy strategies dampened investment and innovation. In the post-GFC period, a slight moderation in India's productivity growth was partially offset by pickups in Bangladesh and Pakistan. The region's resilience reflected three main elements: SAR's limited exposure to external headwinds, continued rapid urbanization, and an improving business environment that supported productivity gains from the continuing shift away from agriculture toward more productive services sectors (APO 2018; World Bank 2016e). As a result, in the post-GFC period, the share of economies with productivity growth below long-run and pre-GFC averages was lower than in other EMDEs. However, the COVID-19 shock and the related plunge in global forecasts present a substantial risk of slowing productivity growth in the region (World Bank 2020a, 2020e).

- In *India*, disruptions to economic activity due to cash shortages in 2016 and transitional costs related to the introduction of the new Goods and Services Tax (GST) system in 2017 contributed to a slowing of productivity growth to 5.6 percent a year during 2013-18, from the 2003-08 average of 7.1 percent a year. Nevertheless, India's post-GFC productivity growth remained in the highest decile among EMDEs. It was supported by investment in the energy and transport sectors, improvement in the ease of doing business, and ongoing structural reforms.
- In *Pakistan*, annual productivity growth picked up from a pre-GFC average of 2.5 percent to 3.5 percent during 2013-18. During the post-GFC period, productivity growth benefited from strong foreign direct investment (FDI) inflows and infrastructure projects which supported private sector activity.
- In *Bangladesh*, post-GFC productivity growth benefited from improved macroeconomic and political stability which supported both public and private fixed investment. As a result, productivity growth in Bangladesh was robust during 2013-18, at 5.1 percent, slightly above the pre-GFC average of 4.7 percent and in the top decile of EMDEs.
- Productivity growth in the rest of the region either stalled or declined in the post-GFC episode in line with the global trend. The factors behind the slowdown included natural disasters, macroeconomic and political instability, and weaker growth of global trade and manufacturing activity.

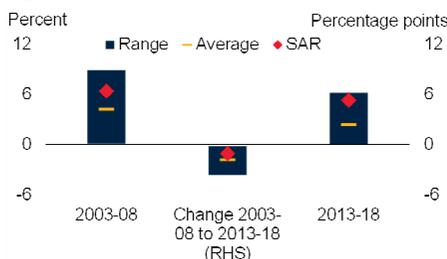
SAR's robust productivity growth through the 2000s is in stark contrast to its weakness during the 1980s and 1990s, even though in those decades also it was mostly stronger than in other EMDEs. In the 1980s, India's state-directed economy generated minimal productivity growth as heavy regulation and widespread corruption (the "license raj") stifled manufacturing, investment, and technology adoption. Following India's 1991

²⁰Data for labor productivity at the national level, as well as for the three main production sectors (agriculture, manufacturing and mining, and services) are available for seven EMDEs in SAR: Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

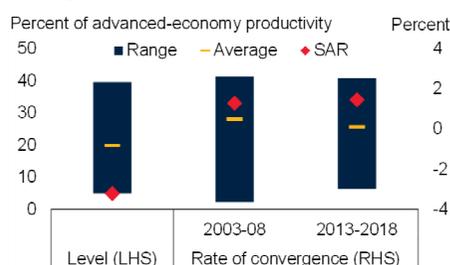
FIGURE 5.24 Evolution of productivity growth in SAR

Productivity in SAR expanded by 5.3 percent a year during 2013-18, substantially higher than the EMDE average but lower than in 2003-08. The catch-up to advanced economy productivity levels starts from a low base, as productivity levels in the region were about 5 percent of the advanced-economy average in 2013-18. Although productivity growth is high in several large economies, there is significant dispersion across the region.

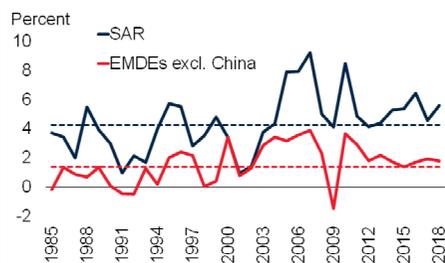
A. Productivity growth relative to other EMDE regions



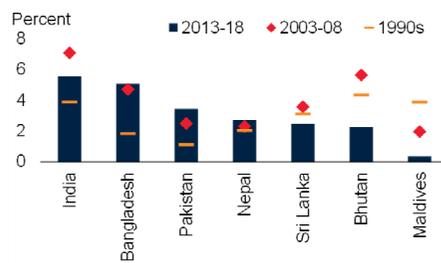
B. Productivity levels and rate of productivity convergence



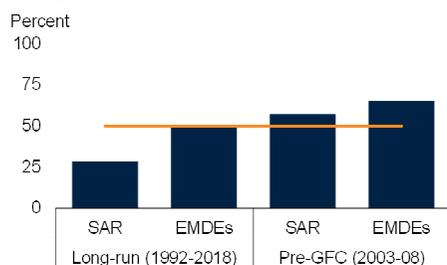
C. Productivity growth, by year



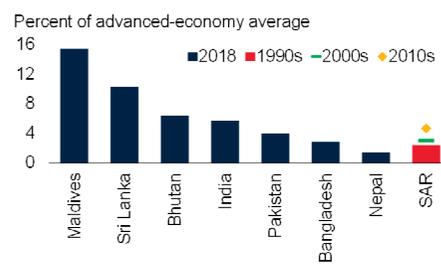
D. Productivity growth, by country



E. Share of economies with 2013-18 average productivity growth below long-run and pre-GFC averages



F. Productivity level relative to advanced economy average, by country



Source: The Conference Board; Haver Analytics; Penn World Table; World Bank (World Development Indicators). Note: Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data. Sample includes 7 SAR economies and 129 EMDEs unless otherwise indicated.

A.B. Blue bars show the range of average productivity across the six EMDE regions. Yellow dashes denote the average of the six EMDE regional aggregates. Red diamonds denote simple average of SAR economies.

B. Rate of convergence is calculated as the difference in productivity growth rates over the log difference in productivity levels between SAR and advanced economies. Blue bars and yellow dashes show the range and average of the six EMDE regional aggregates.

“Level” of productivity refers to the GDP-weighted average of regional productivity as a share of the average advanced economy during 2013-18. Sample includes 7 SAR economies, 129 EMDEs, and 35 advanced economies.

C. Dashed lines indicate 1981-2018 averages.

E. Horizontal line indicates 50 percent.

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balance of payments crisis, major reforms reduced restrictions on product and factor markets and allowed more trade, catalyzing a surge in productivity growth (Rodrik and Subramanian 2004; Virmani and Hashim 2011). In Pakistan, productivity growth was limited by macroeconomic instability (Amjad and Awais 2016; Lopez-Calix et al. 2012).

Low productivity levels. Despite strong productivity growth over the past three decades, the average level of labor productivity in SAR during 2013-18 was still only 5 percent of the advanced-economy average, and the lowest among EMDE regions, compared to around 18 percent of the advanced-economy average in all EMDEs. In contrast to other EMDE regions, though, the pace of convergence has picked up since the global financial crisis. At the recent rate of convergence (2013-18), however, only one-eighth of economies in SAR would halve their productivity gap with advanced economies over the next 40 years.

Within-region dispersion in productivity levels. Productivity differences across countries are very large in SAR. Nepal had the lowest productivity levels in 2013-18, at around 1 percent of the advanced-economy average, partly reflecting natural disasters. Bhutan, Maldives, and Sri Lanka have higher productivity levels, in the range of 6 to 15 percent of the advanced-economy average, reflecting the benefit of relatively large service sectors, in particular tourism activity. Productivity levels in the three largest economies of SAR—India, Bangladesh, and Pakistan—are lower, ranging between 3 and 5 percent of the advanced-economy average, reflecting their relatively large informal sectors, low urbanization rates, and weak financial development.

Slowing contribution from capital deepening. Decomposing labor productivity growth into contributions from increases in other factors of production and efficiency with which the factors are used (TFP) shows that nearly all of the productivity growth slowdown in SAR during the post-GFC period was due to less accumulation of capital. This decomposition is possible only for India and Sri Lanka, however. The contributions to labor productivity growth of TFP growth and human capital growth remained approximately the same as in the pre-GFC period (Figure 5.25). Weakening investment growth in part reflected the economic disruptions in India around the currency exchange of 2016 and the introduction of the GST in 2017. Slower global trade in the most recent years has weighed further on investment. The slowdown of investment growth was from high pre-GFC rates that were fueled partly by large FDI inflows after financial liberalization reforms in the 1990s (Fujimori and Sato 2015; Park 2010).

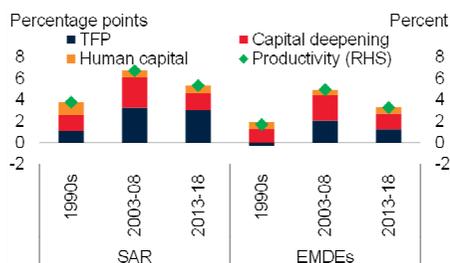
Sources of regional productivity growth

The slight deceleration in SAR's post-GFC productivity growth was accounted for mainly by India, and by weaker growth in the industrial sector. The median productivity level of the industrial sector in SAR was less than two-thirds of the EMDE median in 2017. In part, manufacturing productivity reflects limited integration into international trade networks and global value chains, which has limited the region's interaction with more productive foreign firms and reduced opportunities to benefit from technology transfer. However, post-GFC productivity growth in this sector remained higher than

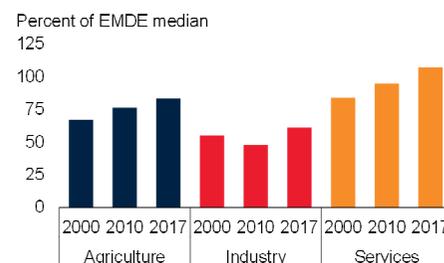
FIGURE 5.25 Sectoral productivity and employment in SAR

Productivity gains in SAR benefited from improvements in TFP growth and capital deepening, albeit from low levels. Productivity levels in the services sector are higher than in the industrial sector, and have grown significantly over the past decade. Within-sector productivity growth has accounted for a much larger share of aggregate productivity growth than between-sector productivity growth. The share of employment in trade and other services sectors has increased over time as workers have shifted away from low-productivity agricultural production to these sectors.

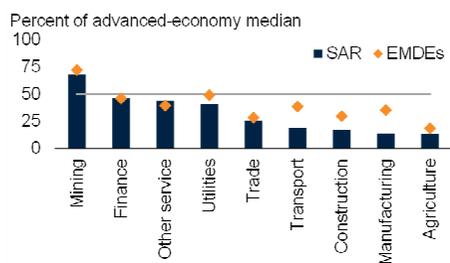
A. Factor contributions to productivity growth



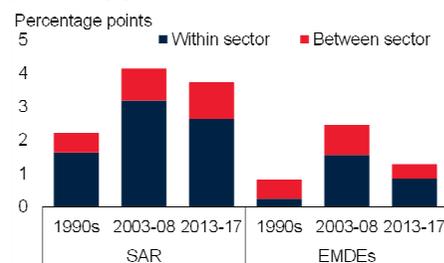
B. Sectoral productivity levels in SAR



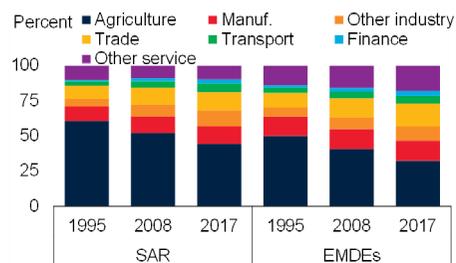
C. Sectoral productivity levels, 2017



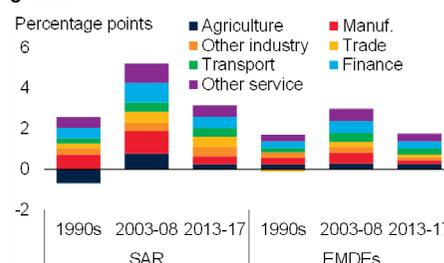
D. Within- and between-sector contributions to productivity growth



E. Composition of employment, by sector



F. Sectoral contribution to aggregate productivity growth



Source: APO productivity database; Expanded African Sector; Groningen Growth Development Center database; ILOSTAT; OECD STAN; United Nations; World KLEMS.

Note: Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates).

A. Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data. SAR sample includes India and Sri Lanka. EMDE sample includes 93 economies. Productivity growth is computed as log changes.

C.D. Sample includes EMDE 3 SAR economies (India, Pakistan, Sri Lanka) and 129 EMDEs.

C. Horizontal line indicates 50 percent.

D. Growth within sector shows the contribution of initial real value added-weighted productivity growth rate of each sector, holding employment shares fixed, and "between sector" effect shows the contribution arising from changes in sectoral employment shares. Median of the county-specific contributions.

E.F. "Other industry" includes mining, utilities, and construction; "other service" includes government and personal services. "Manuf." indicates manufacturing. Sample includes 69 EMDEs, of which 5 are SAR economies (Bangladesh, India, Nepal, Pakistan, Sri Lanka).

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the EMDE average, reflecting improvements in the business environment as well as ongoing public investment in transportation and energy infrastructure.

Most productivity gains from within-sector reallocation. Factor reallocation from low-productivity to high-productivity sectors and firms has historically not been an important source of productivity gains in SAR, accounting for less than one-fifth of productivity growth (Dougherty et al. 2009; Goretti, Kihara, and Salgado 2019; Mallick 2017; World Bank 2017e). However, this has shifted since the global financial crisis. Between-sector reallocation accounted for about 30 percent of productivity growth in 2013-17, up from less than one-quarter in 2003-08. Meanwhile, the contribution of within-sector productivity growth slowed.

Most of the post-GFC productivity gains from sectoral reallocation reflected a shift from agriculture, which accounted for less than 20 percent of SAR GDP in 2017 but almost half of employment, into services, which accounted for more than half of GDP but roughly one-third of employment. Agriculture, the region's lowest-productivity sector (with median productivity 13 percent of advanced economies), has less than one-third the productivity of financial services (46 percent of advanced economies) in the region. In the post-GFC period, the contribution of services sectors to productivity in SAR has declined along with that of agriculture and manufacturing.

Other drivers of productivity. In SAR, the contributions of most of the long-run drivers of productivity to productivity growth have remained low compared to other EMDEs and advanced economies (Figure 5.26). Measures of gender equality and trade openness are below other EMDE regions, as demonstrated by very low female participation rates and weak integration with global value chains. In the post-GFC period, the pace of improvement in several of the long-run determinants of productivity slowed, including average years of schooling, labor force participation, investment, urbanization and economic complexity. Nonetheless, improvements in these drivers continued. Despite a slowdown in the post-GFC period, investment continued to contribute to productivity growth more than in other EMDEs and advanced economies. By contrast, limited global integration, weakness in control of corruption, low research and development activity, and pervasive informality continued to weigh on productivity growth.

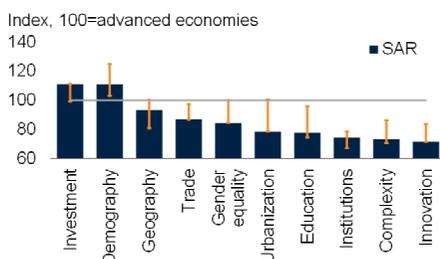
- *Limited global integration.* Export-oriented firms in SAR are more productive than non-exporters (Figure 5.27). However, the largest regional economies are less open to trade than the average EMDE. Moreover, while FDI inflows have grown, they remain below the EMDE average. Both of these trends limit the potential for technology and information transfer that could boost regional productivity growth (Fujimori and Sato 2015; Maiti 2019; Topalova and Khandelwal 2011).

- *Lack of supporting infrastructure.* Many firms cite infrastructure gaps as important obstacles to their business activities. In Pakistan and Bangladesh, these firms are found to be less productive than others (Fernandes 2008; Grainger and Zhang 2017). The environment has also become decreasingly supportive in terms of access to finance with

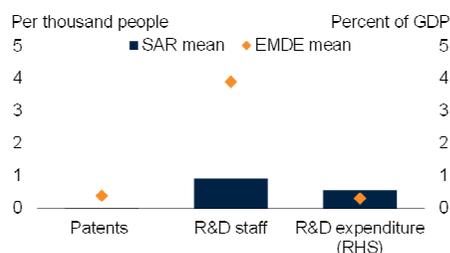
FIGURE 5.26 Drivers of productivity growth in SAR

Many of the drivers of productivity in SAR remain at the low end of the EMDE regional range, suggesting scope for further improvements. The labor force dedicated to research and development lags significantly behind that in other regions.

A. Drivers of productivity growth, 2017



B. Research and development, 2017



Source: Freedom House; Haver Analytics; International Country Risk Guide; Organisation for Economic Co-operation and Development; Observatory of Economic Complexity; Penn World Table; United Nations Educational, Scientific, and Cultural Organization (Institute for Statistics); United Nations Population Prospects; World Integrated Trade Solution; World Bank (Doing Business, Enterprise Surveys, and Global Financial Development Database).

A. Unweighted average levels of drivers normalized as an average of advanced economies as 100 and standard deviation of 10. Blue bars represent average within SAR economies. Orange whiskers represent the range of the average drivers for the six EMDE regions. Horizontal line indicates 100. Variables are defined as: Education = years of education, Urbanization = share of population living in urban areas, Investment = investment as share of GDP, Institutions = government effectiveness, Complexity = economic complexity index of Hidalgo and Hausmann (2009), Gender equality = share of years of schooling for females to males, Demography = share of population under age 14, Innovation = log patents per capita, and Trade = (exports+imports)/GDP. Sample includes 4-7 SAR economies and 65-127 EMDEs, depending on the driver, and 32 advanced economies.

B. Aggregates are calculated using constant 2010 U.S. dollar GDP weights.

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state-owned banks dominating banking system assets (e.g., roughly 70 percent in India) and their balance sheets encumbered by elevated nonperforming loan ratios (usually around 10 percent).

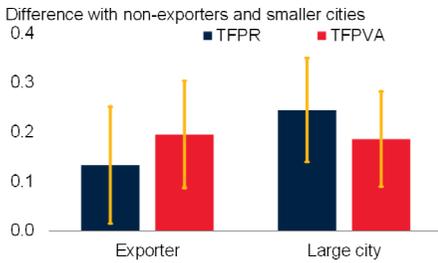
- *Firm characteristics.* Heavy regulatory restrictions have prevented firms from becoming more productive in SAR (Cirera and Cusolito 2019; Kanwar and Sperlich 2019). Complicated tax systems, labor regulations, and licensing requirements have been factors containing the productivity of smaller firms, and have encouraged widespread informality. The informal sector accounts for roughly one-third of GDP and 70 percent of total employment in SAR (World Bank 2019a). The potential for productivity gains from resource reallocation from less productive to more productive firms stands to be large (Lall, Shalizi, and Deichmann 2003).²¹

²¹ For example, equalizing the efficiency of capital and labor allocation across firms to the level of the United States would have increased TFP in India as much as 50 percent in the 1990s (Hsieh and Klenow 2009). Similarly, a one-standard deviation decrease in the misallocation of land and buildings in India was estimated to have improved labor productivity by 25 percent between 1989 and 2010 (Duranton et al. 2015). The direct and indirect contribution of services to the total value added of manufacturing sector varies between 33 and 50 percent in South Asia as of 2017 (Mercer-Blackman and Ablaza 2018).

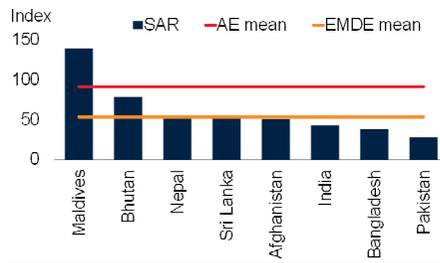
FIGURE 5.27 Policy challenges in SAR

Low trade openness remains a major constraint for productivity growth in SAR. Low FDI inflows hold back positive spillovers from productive foreign firms. Low productivity among state banks weighs on financial sector productivity. Small firms face obstacles in accessing finance, and their TFP is lower relative to large firms.

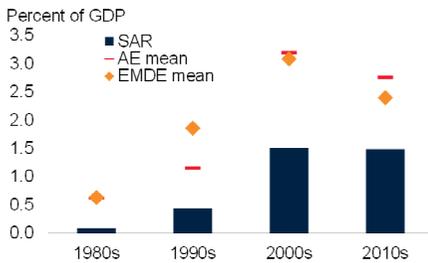
A. Exporter status, location, and TFP



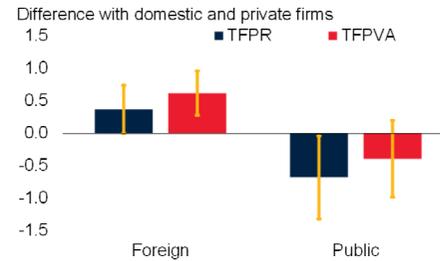
B. Trade openness



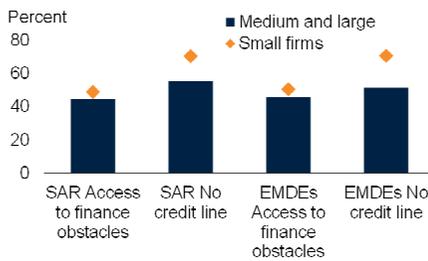
C. FDI inflows



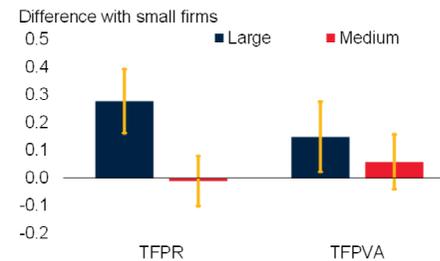
D. Firm ownership status and TFP



E. Access to finance



F. Firm size and TFP



Source: World Bank.

Note: Firm-level TFP is computed using a Cobb-Douglas production function, assuming elasticities of output with respect to inputs are the same across countries in a given income group. SAR = South Asia region. EMDE = emerging and developing economies. AE = advanced economies.

A.D.E.F. Calculations are based on World Bank Enterprise Surveys. TFPR = Log total factor productivity based on revenues. TFPVA = Log total factor productivity based on value added. The bars represent estimated coefficients of dummy variables for “exporter,” “located in a city with population larger than 1 million,” “foreign owner,” and “public enterprise” in a regression where dependent variable is log TFP and independent variables are the aforementioned dummy variable, country dummy variables, and year dummy variables. Survey weights are used in all calculations. Sample includes 15,248 firms in 109 EMDEs, including 20 LICs, for 2007-17.

B. Trade openness index is defined as the ratio of imports plus exports to GDP. Aggregates are calculated using constant 2010 U.S. dollar GDP weights. Sample includes 155 EMDEs and 35 AEs.

C. FDI = foreign direct investment. Aggregates are calculated using constant 2010 U.S. dollar GDP weights. Sample includes 155 EMDEs and 35 AEs.

E. The vertical axis shows the percentage of responses indicating access to finance as a moderate/major/very severe obstacle.

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- *Weak human capital.* SAR has lagged most EMDE regions in educational enrollment and attainment, as well as in mortality indicators. In addition, poor operations and human resource management quality has reduced firm productivity (Bloom et al. 2012).
- *Gender gaps.* South Asia's female labor force participation rate is far below comparable economies, and progress in this area is mixed across the region (Goretti, Kihara, and Salgado 2019). Gender gaps in workforce participation, education, and financial inclusion restrain the region's long-term growth potential (Khera 2018).

Productivity outlook. The forecast plunge in global output due to COVID-19, presents a heightened risk globally and in SAR economies of a broad-based productivity slowdown, if the global recession is prolonged (World Bank 2020a). COVID-19 shock is particularly disappointing given the region's already large productivity gaps with advanced economies and other EMDE regions.

Many of the drivers of productivity in SAR are at the low end of the EMDE range, indicating scope for substantial improvements. Increasing rates of school enrollment would lift human capital and improve productivity (Figure 5.28). In the long term, urbanization in the region is set to rise, potentially bringing productivity benefits that other regions have experienced. Recent reforms, such as the new GST system in India and the Inland Revenue Act in Sri Lanka, are expected to broaden the tax base and make resources available for human capital and infrastructure investments. A range of business reforms implemented in recent years, such as shortening approval times for trademarks and patents, lowering restrictions on foreign direct investment, and accelerating investment in energy and transport infrastructure, are expected to yield productivity benefits over time (World Bank 2017f). On the other hand, the region is highly vulnerable to natural disasters, and environmental deterioration and climate change risks weigh on the productivity growth outlook. An improved productivity outlook will require the resolution of financial sector issues to unlock credit for investment, along with further business environment improvements.

The working-age share of the population is expected to increase in SAR until 2045, providing a larger and more prolonged demographic dividend than in all other regions except SSA. Against the backdrop of improving human capital and continued urbanization, this increase in the labor force is expected to lift productivity growth.

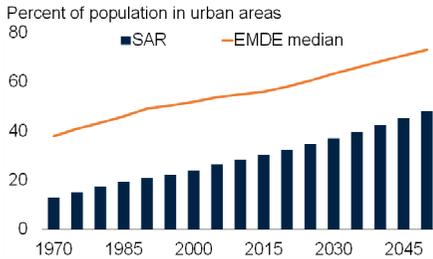
Policy options

The post-GFC productivity slowdown in SAR was milder than in other EMDE regions. The COVID-19 shock poses a significant risk for productivity growth, however. A range of policy actions could prevent persistent negative effects. Notwithstanding the potential significant benefits from productivity-enhancing reforms, such policies need to be well directed. Key areas of focus should be improving the quality and quantity of human and physical capital, increasing firm productivity, encouraging efficient sectoral reallocation, and creating business-friendly environments.

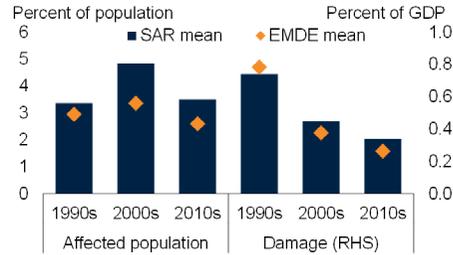
FIGURE 5.28 Productivity prospects in SAR

Increasing urbanization, accompanied by sectoral reallocation, could support productivity in the region. However, the region is highly vulnerable to natural disasters, and environmental deterioration and climate change risks weigh on the productivity growth outlook.

A. Urbanization projections



B. Impact of natural disasters



Source: United Nations; World Bank.

Note: Aggregates are calculated using constant 2010 U.S. dollar GDP weights.

A. Sample includes 8 SAR economies and 159 EMDEs. Last projection year is 2050.

B. Simple average during year spans of aggregate regional damages per year.

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Improving factors of production

Support physical capital accumulation, especially infrastructure investment. The post-GFC slowdown in SAR productivity growth mostly reflected weaker capital accumulation. A large share of firms cite infrastructure gaps as their biggest obstacle (Figure 5.29). Firms facing infrastructure obstacles have been found to be less productive than others in Pakistan and Bangladesh (Fernandes 2008; Grainger and Zhang 2017). Improved infrastructure in the energy and transportation sectors, as well as technology-oriented capital accumulation, can promote productivity growth and boost international competitiveness (Calderón, Moral-Benito, and Servén 2015).

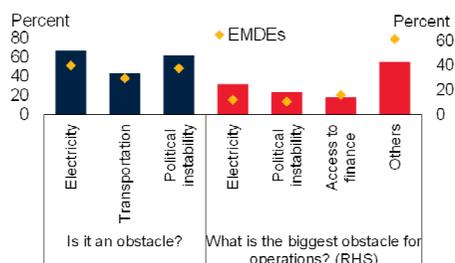
Strengthen investment in human capital. While the region has benefited from raising life expectancy, reducing mortality, and expanding access to education over the past three decades, there is still significant capacity for further human capital development. With the increasing working-age share of the population in the region, delivering strong output growth and improvements in human capital will be key to progress in productivity growth (Goretti, Kihara, and Salgado 2019). A better educated and healthier workforce can have better and more stable jobs and be more productive (World Bank 2018a). Policies to expand school attendance and support nutrition programs for early childhood development can boost educational outcomes in SAR (Beteille 2019; Torlese and Raju 2018; World Bank 2018l).

Reduce gender gaps. Addressing constraints on economic opportunities for women can provide significant gains in long-term growth (Khera 2018). Key policies such as increasing access to childcare, improving financial inclusion, and ensuring public safety

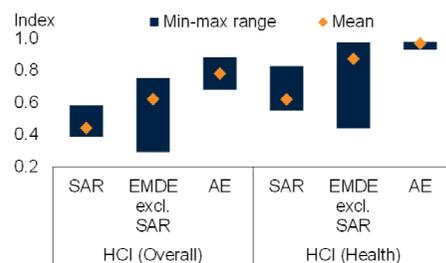
FIGURE 5.29 Constraints to productivity growth in SAR

Many firms experience obstacles in their operations due to infrastructure gaps and political instability. The region is behind other EMDEs in terms of some business environment indicators, as well as human capital development, limiting opportunities to improve productivity. Financial development is also weaker compared to other EMDEs, which is reflected in low credit to GDP ratios. Many of these obstacles to doing business contribute to the high levels of informality in the region.

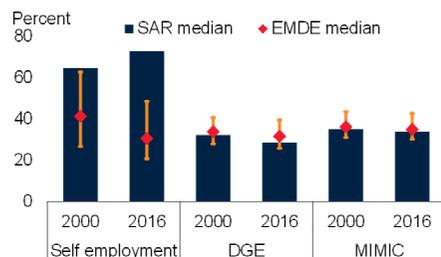
A. Obstacles to firm operations



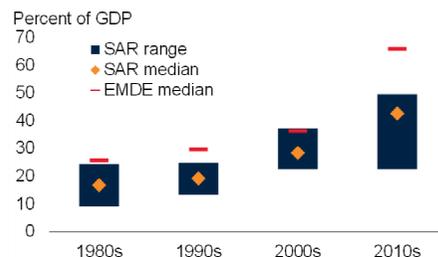
B. Human capital



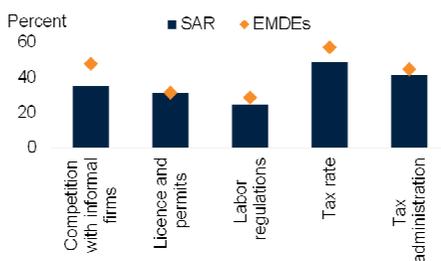
C. Informality



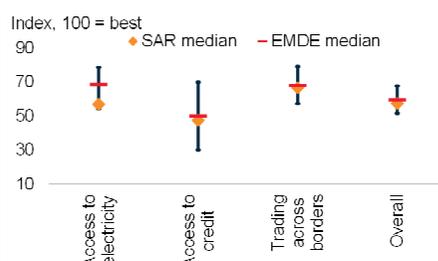
D. Domestic credit



E. Obstacles related to regulations



F. Doing business, distance to frontier



Source: Elgin and Oztunali (2012); United Nations; World Bank.

A. Calculations are based on World Bank Enterprise Surveys. Survey weights are used in calculations. Left section represents the responses to "How much of an obstacle?" The vertical axis shows the percentage of responses which indicate moderate/major/very severe obstacle. Right section represents the responses to "What is the biggest obstacle affecting the operations of this establishment?" Vertical axis shows the percentage of responses.

B. HCI = Human Capital Index. Range reflects the minimum and maximum of the distribution across countries. Higher values of the index reflect better human capital development. See World Bank (2018b) for methodology. Aggregates are calculated using U.S. dollar GDP weights at 2010 prices and exchange rates. EMDE = emerging market and developing economies. AE = advanced economies.

C. DGE = dynamic general equilibrium model. MIMIC = multiple indicators multiple causes model. Both DGE and MIMIC estimates measure the informal output in percent of official GDP.

E. Calculations are based on World Bank Enterprise Surveys and represent responses to "How much of an obstacle?" The vertical axis shows the percentage of responses which indicate moderate/major/very severe obstacle.

F. Sample includes 8 SAR economies and 159 EMDEs. The blue whiskers indicate interquartile range of EMDEs.

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and sanitation can promote gender equality and boost productivity in SAR (Sharafudheen 2017; World Bank 2016f).

Enhancing firm productivity

Increase the region's integration into the global economy. SAR's participation in international trade remains substantially less than that of other regions (Gould, Tan, and Emamgholi 2013), and the COVID-19 shock poses risk of further deterioration in the region's integration to global value chains. While both imports and exports in SAR, relative to GDP, are lower than in comparable economies, the gap in exports—both within and outside the region—is much larger (World Bank 2019n). The empirical evidence on positive productivity spillovers from international trade and FDI inflows indicates that measures to foster FDI and participation in global and regional value chains can lift productivity in SAR. SAR may benefit from shifting FDI flows in the context of recent shifts in global manufacturing activity.

Bangladesh's apparel sector benefited substantially from tailored policies during the 1990s and 2000s, which lifted barriers to international trade and investment and enhanced participation in global value chains. The interaction with foreign firms lifted productivity of local suppliers through the demand for inputs with higher standards and quality. Similarly, Bangladesh's duty-free access to the European Union from 2001 boosted knitwear exports to the EU between 2000 and 2004, enhanced the productivity of producers, and helped them expand to other export markets (World Bank 2019d).

Improve corporate management practices. Lack of information and training on best management practices seems to limit progress in productivity at the firm level. Governments can help improve the quality of management in the region through training programs dissemination and dissemination of information on best management practices. In India, for example, productivity in firms that provided management training increased by 17 percent in the first year of the intervention (Bloom et al. 2013). The low number of patents granted and the limited number of staff engaged in research and development in SAR firms have also been in part attributed to limited management capacity (Cirera and Maloney 2017). Policies that ensure property rights and create technology hubs can increase firm participation in product innovation and expand their business in foreign markets.

Address informality. Self-employment accounts for around 70 percent of employment in SAR, which could amplify the economic effects of COVID-19 (World Bank 2020a). The level of output informality (DGE and MIMIC) and some obstacles related to business operations are comparable to other EMDEs. This sector is associated with lower productivity and weaker access to finance, a barrier to productive investment and a constraint on firms. Encouraging participation in global value chains and enhancing a business-friendly regulatory and tax environment can promote resource reallocation from less productive informal activities to more productive formal ones in SAR (Amin, Ohnsorge, and Okou 2019; Artuc et al. 2019).

With sizable rural populations employed informally in agriculture and large shares of self-employment in the workforce, productivity in the region could benefit significantly from improvements in the productivity of the informal sector. Policies to promote such improvements could include efforts to improve labor force skills and enhance the functioning of agricultural markets (Goretti, Kihara, and Salgado 2019).

Promoting efficient sectoral reallocation of resources

Optimize between- and within-sector allocation of resources. SAR has continued to be supported by intersectoral reallocation of resources since the global financial crisis. A policy challenge will be to maintain this momentum. The productivity gains from sectoral reallocation from agriculture to more productive sectors can be increased if accompanied by improved local services and urban planning (Ellis and Roberts 2016; World Bank 2019o). Such policies should be complemented by measures to increase agriculture sector productivity (Cusolito and Maloney 2018).

The contribution of within-sector productivity growth has weakened substantially since the global financial crisis. This calls for a renewed effort to promote the reallocation of capital and labor to more productive firms within sectors. By one estimate, such interfirm reallocation could unlock 40–60 percent productivity gains in India (Hsieh and Klenow 2009). Productivity-enhancing interfirm reallocation could be encouraged by policies to foster competition and by reducing regulatory burdens that discourage firm growth (Duranton et al. 2016).

Encourage intersectoral linkages. Intersectoral linkages play an important role in improving productivity through value chains in SAR. For instance, information and communication technology progress provides positive productivity spillovers to broader services sectors (Krishna et al. 2016). Reducing barriers to trade and encouraging intersectoral and regional linkages can lift productivity through technology spillovers. For example, in India, Bangladesh, and Sri Lanka, special economic zones have helped expand exports and product diversification (Aggarwal, Hoppe, and Walkenhorst 2019).

Creating a growth-friendly environment

Unlock access to finance. Infrastructure spending in recent years has eased supply-side bottlenecks in SAR. However, poor access to finance remains a hindrance for the region, particularly given the weaknesses on corporate and financial sector balance sheets. Weak access to finance constrains small- and medium-sized firms—especially women-owned businesses—and holds back firm-level productivity gains in India (Schiantarelli and Srivastava 1997; World Bank 2013a).

Improve business environments. Despite improvements in recent years, SAR is still among the least business-friendly EMDE regions. India's economic reforms during the early 1990s enhanced openness and eased regulatory burdens in the services sector, and were followed by a significant expansion in domestic and foreign investment. The entry of foreign service providers in India was associated with more competitive business services, which supported productivity gains in the manufacturing sector (Arnold et al. 2016).

Ensure macroeconomic and political stability. Economic and financial crises have proven to hold back productivity in the region, as observed after the global financial crisis and in economic downturns in India and Pakistan in the 1990s. Political instability seems to be a more severe obstacle to the operations of South Asian firms than in other EMDE regions (World Bank 2013b, 2013c). Strengthening economic policy institutions, improving monetary and fiscal policy frameworks, and enhancing financial regulation and supervision can help to provide a stable macroeconomic framework for firms, reduce uncertainty, and boost productivity.

Sub-Saharan Africa

Prior to the COVID-19 pandemic, Sub-Saharan Africa (SSA) had already experienced a broad-based slowdown in labor productivity growth. In the period prior to the global financial crisis (GFC), productivity growth benefited from strengthening institutions, stronger investment, infrastructure development, improving human capital, and better macroeconomic policy frameworks. By 2013-18, productivity in the region was less than two-thirds that of the EMDE regional average and roughly one-tenth that of advanced economies, amid a commodity price plunge, weakening external demand, and growing domestic fragilities. The COVID-19 pandemic will most likely weigh further on productivity. Ambitious policy efforts will be needed to generate the productivity growth required for per capita incomes in SSA to reach those of other emerging market and developing economy (EMDE) regions, let alone those of advanced economies. To stimulate labor productivity growth, policies are needed to boost agricultural productivity, increase resilience to climate change, diversify economies, accelerate adoption of digital technologies, and continue human capital development.

Evolution of regional productivity

Stalling post-GFC productivity. Labor productivity growth slowed sharply in SSA after the global financial crisis, to 0.8 percent during 2013-18, from about 2.9 percent during the pre-GFC period of 2003-08 (Figure 5.30).²² TFP growth, which accounted for more than half of productivity growth pre-GFC, contracted in the post-GFC period, and the contribution of TFP to productivity growth shrank by more than in any other region during the post-GFC period. Oil- and metal-exporting countries experienced the steepest slowdown, amid the commodity price slump of 2014-16, as productivity growth fell to 0.4 percent in the post-GFC period, from 3.2 percent growth pre-GFC. The COVID-19 pandemic is likely to have markedly accelerated this slowing trend, with activity in the region expected to contract sharply in 2020 and remain well-below its pre-pandemic trend in 2021 (World Bank 2020a).

²²Data are available for 45 EMDEs in SSA, of which 21 are oil or metals exporters, 19 are exporters of agricultural commodities, and 6 are commodity importers. An economy is defined as a commodity exporter when, on average in 2012-14, either (1) total commodities exports accounted for 30 percent or more of total goods exports or (2) exports of any single commodity accounted for 20 percent or more of total goods exports. Economies for which these thresholds are met as a result of re-exports are excluded. Commodity importers are economies not classified as commodity exporters. Chad is classified as both an oil and an agricultural-commodity exporter.

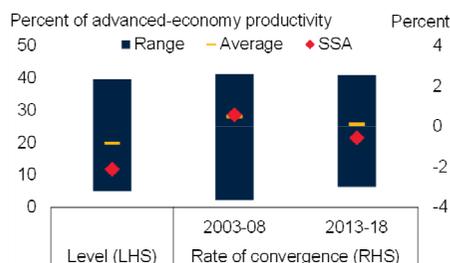
FIGURE 5.30 Productivity in SSA in regional comparison

Productivity growth in SSA averaged 2.9 percent in the pre-GFC period, reflecting a favorable external environment and improvements in key drivers of productivity. Post-GFC, productivity growth in the region slowed to 0.8 percent. The region's productivity levels have, on average, diverged from advanced economy levels during the post-GFC period.

A. Productivity growth relative to other EMDE regions



B. Productivity levels and rate of productivity convergence



Source: The Conference Board; Penn World Table; World Bank (World Development Indicators).

Note: Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data. Blue bars show the range of average productivity across the six EMDE regions. Yellow dashes denote the average of the six EMDE regional aggregates. Red diamonds denote simple average of SSA economies. Sample includes 45 SSA economies and 129 EMDEs. B. Rate of convergence is calculated as the difference in productivity growth rates over the log difference in productivity levels between SSA and advanced economies. "Level" of productivity refers to the GDP-weighted average of regional productivity as a share of the average advanced economy during 2013-18. LHS refers to left-hand side. RHS refers to right-hand side. Sample includes 45 SSA economies, 129 EMDEs, and 35 advanced economies.

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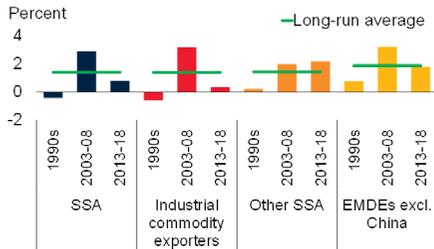
Post-GFC productivity growth in agricultural commodity-exporters and commodity importers was more resilient, particularly among the former, where it strengthened to 2.2 percent. Despite the sharp fall in agricultural commodity prices during the commodity price slump—albeit less severe than the drop in industrial commodity prices—sustained productivity growth was supported by improving macroeconomic policy frameworks, investment in infrastructure, and continuous efforts to improve business environments. Country-specific trends also helped lift productivity among agricultural commodity exporters. In Rwanda, for example, productivity growth was boosted by continued reforms to strengthen institutions and governance, upgrade infrastructure, increase access to education, and improve the business environment, to attract private investment (World Bank 2019p). In Côte d'Ivoire, a return to stability following the end of decade-long civil strife in 2011 has since enabled a sharp rise in productivity, amid increased public investment, recovering FDI inflows, an improving business environment and rising export activity (Klapper, Richmond, and Tran 2013; World Bank 2015c).

The post-GFC productivity slowdown in SSA follows a favorable pre-GFC trend, when productivity benefited from a supportive external environment, including a commodity price boom that fueled foreign capital inflows and unprecedented investment and benefited the region's low-income countries (Figure 5.31; Khan et al. 2016; Steinbach

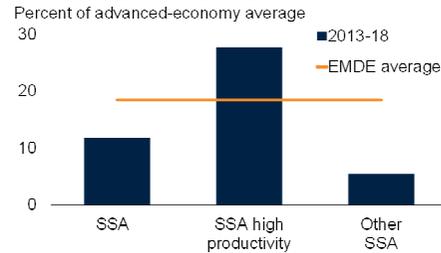
FIGURE 5.31 Evolution of labor productivity growth in SSA

The sharp slowdown in SSA's productivity growth during the post-GFC period was concentrated among exporters of industrial commodities. Rapid productivity growth in the leadup to the global financial crisis reflected improvements in human capital, deepening physical capital, and rising TFP. Following the commodity price slump, TFP slowed sharply among industrial-commodity exporters. TFP has contracted in recent years, but the decline was less severe when accounting for the contribution from slowing extraction of natural capital.

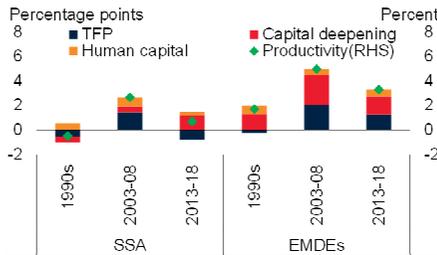
A. Labor productivity growth



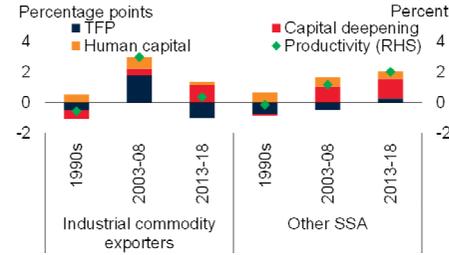
B. Productivity levels



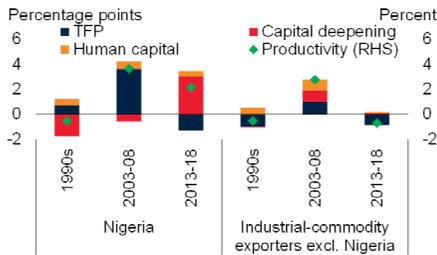
C. Factor contributions to productivity growth



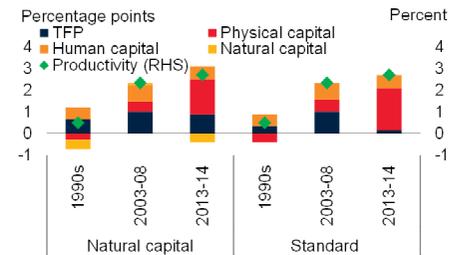
D. Factor contributions to productivity growth according to export composition



E. Factor contributions to productivity growth in Nigeria



F. Factor contributions to SSA productivity growth, with and without natural capital



Source: Barro and Lee (2015); International Monetary Fund; Penn World Table; United Nations (Human Development Reports); Wittgenstein Centre for Demography and Global Human Capital; World Bank.
 Note: Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates). Country group aggregates for a given year are calculated using constant 2010 U.S. dollar GDP weights. Data for multiyear spans shows simple averages of the annual data.
 A. Long-run averages are 1981-2018 for SSA and 1990-2018 for EMDEs excluding China. "Other SSA" includes agriculture exporters and commodity importers. Sample includes 45 SSA economies and 129 EMDEs.
 B. "SSA high productivity" includes Equatorial Guinea, Gabon, Mauritius, Seychelles, and South Africa. Sample includes 45 SSA economies and 129 EMDEs.
 C.-F. Productivity growth is computed as log changes. Sample includes 30 SSA economies and 93 EMDEs.
 D. "Industrial-commodity exporters" includes metals and oil exporters. "Other SSA" includes agricultural commodity exporters and commodity importers.
 F. For comparability, the sample for both the natural and standard decomposition includes 22 SSA economies.
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2019; World Bank 2019a). Improvements in education, health care, infrastructure, financial access, and trade openness also played a role (Calderón and Servén 2010; Cole and Neumayer 2006; Shiferaw et al. 2015; World Bank 2018a, 2019q).

Low productivity levels. The level of productivity in SSA is the second-lowest of all EMDE regions, but still roughly twice that of South Asia. However, if the five most productive economies are excluded (Equatorial Guinea, Gabon, Mauritius, Seychelles, South Africa), productivity in SSA is on par with that in SAR, at about 5 percent of the advanced-economy average in 2013-18. Higher productivity levels in these five economies—at 28 percent of the advanced-economy average—is roughly one-half above the EMDE average. The better performance than in other SSA economies is in part due to significant oil wealth (Equatorial Guinea, Gabon), dominant tourism sectors in island states (Mauritius, Seychelles), and mineral wealth along with a considerably higher capital stock (South Africa). Absent major policy efforts to lift productivity growth, stagnation in productivity levels suggest dim prospects for the nearly 60 percent of the global extreme poor that currently reside in SSA. With the number of extreme poor in SSA expected to rise sharply due to the COVID-19 pandemic, while potential growth is expected to slow, wide-ranging policy actions to lift productivity growth have become even more urgent (Lakner et al. 2020; World Bank 2020a). If recent rates of productivity growth persist, less than 5 percent of economies in SSA will halve their productivity gap with advanced economies over the next 40 years.

Post-GFC TFP decline. The slowdown in SSA's productivity growth following the global financial crisis reflected less effective use of factor inputs, as captured by TFP.²³ TFP growth, which accounted for more than half of productivity growth pre-GFC, contracted in the post-GFC period. The sharp post-GFC decline in TFP was pronounced in industrial commodity exporters, following the commodity price collapse of 2014-16 and the accompanying collapse in investment, FDI inflows, and exports, compounded by somewhat weaker business environments. In Liberia and Sierra Leone, the post-GFC fall in TFP was exacerbated by the devastating Ebola outbreak of 2014-16 (World Bank 2019r).

In contrast, TFP has remained resilient, or even strengthened, among some exporters of agricultural commodities and commodity importers during 2013-18 (Côte d'Ivoire, Kenya, Mauritius, Togo). Agricultural commodity prices fell less steeply, on average, than industrial commodity prices during the 2011-16 commodity price slump, and beneficial terms of trade supported activity among commodity importers. Faster TFP growth in these economies was also underpinned by sustained public investment in infrastructure, continued efforts to improve business environments, and more robust macroeconomic policy frameworks.

²³From a long-term perspective, World Bank (2019z) finds that the significant difference between productivity in SSA and that of the productivity frontier (United States) largely reflected weak factor accumulation between 1960 and the 1990s, as the index of human capital in SSA relative to that of the United States declined sharply from 1960 to 1980, while the relative accumulation of physical capital remained subdued. In contrast, from 2000, the gap in efficiency (or TFP) became the major contributor to difference in productivity between SSA and the frontier. This TFP gap widened further from 2010 onwards.

Post-GFC acceleration of capital deepening. The contraction in TFP growth offset the post-GFC boost to productivity growth generated from capital deepening. Labor productivity in agricultural commodity exporters benefited from heavy public investment. In Nigeria, investment was fueled by large FDI inflows into the energy, banking, manufacturing, and telecommunications sectors (although investment slowed sharply after 2014 as oil prices collapsed; World Bank 2019s). In contrast, investment has fallen sharply in other industrial commodity exporters in SSA—by 7 percentage points of GDP in the median economy—following the 2014-16 commodity price slump, compounding the already slowing TFP growth.

Impact of natural resource extraction on productivity measurement. Standard productivity decompositions subsume the extraction of natural capital (such as oil, metals, and agricultural land) into TFP and, to a lesser extent, physical capital, biasing their estimated contributions to productivity growth (Brandt, Schreyer, and Zipperer 2017; Calderón and Cantu 2019; World Bank 2019q). During the pre-GFC commodity price boom, the increased extraction of natural capital lifted productivity growth in SSA (Khan et al. 2016). As the boom ended, natural capital extraction declined accordingly, and its contribution detracted from overall productivity growth. When considering natural capital, it appears that the post-GFC fall in TFP was likely less severe than the standard decomposition suggests.²⁴

Sources of regional productivity growth

Productivity growth through sectoral reallocation. The post-GFC slowdown in productivity growth from pre-GFC rates reflects slowing gains from reallocation of labor from low-productivity sectors (mostly agriculture) to higher-productivity sectors. In contrast, within-sector productivity growth has continued apace (Figure 5.32).²⁵

Productivity differs widely across sectors in SSA. Productivity in agriculture—the least productive sector that employs more than half of the workforce and accounts for less than 20 percent of GDP—is between 3 and 5 percent of the productivity in mining and finance, the two most productive sectors at the nine-sector level. Relative to the wider EMDE sample, agricultural productivity in SSA is about three times lower, on average. Low agricultural productivity in SSA reflects the prevalence of subsistence farming, sub-optimal crop selection, poor land quality amid unfavorable climates, limited uptake of modern technologies and production methods to improve yields, and small farm sizes (Adamopoulos and Restuccia 2014, 2018; Caselli 2005; Sinha and Xi 2018). Moreover, the use of price controls—a widespread practice across particularly low-income countries in the region—often distort the allocation of resources and adversely affect incentives to invest in human capital or adopt new technologies (Chen 2017; Chen and Restuccia

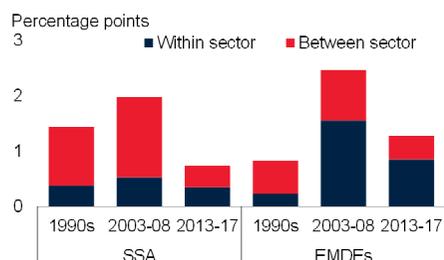
²⁴ Direct comparisons between the standard decomposition and the decomposition including natural capital are complicated, however, by different country samples. In the natural capital decomposition, the sample includes 22 countries (72 percent of SSA GDP), compared to 30 countries (83 percent of SSA GDP) in the standard decomposition. Furthermore, the decline in natural capital may capture a lower valuation of natural capital.

²⁵ Sectoral productivity data are available for only about half the SSA economies with data for aggregate productivity, however.

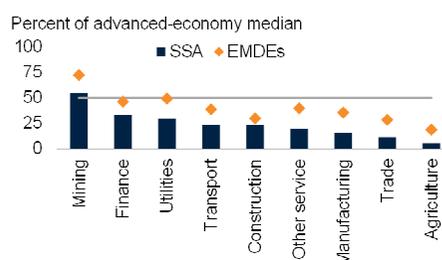
FIGURE 5.32 Sectoral productivity growth in SSA

The sectoral reallocation of labor in SSA has been an important driver of regional productivity growth; however, its contribution dwindled during 2013-18 relative to 2003-08. Agriculture in SSA has the lowest productivity, while productivity is highest in mining and finance. Low aggregate productivity in the region is partly explained by the agricultural sector’s significant contribution to value added, combined with the disproportionate share of employment devoted to the sector.

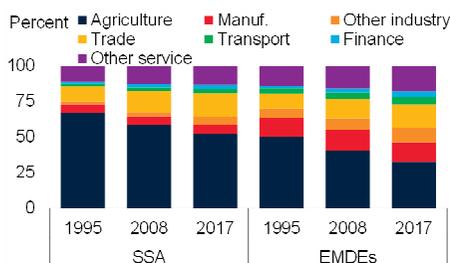
A. Within- and between-sector contributions to regional productivity growth



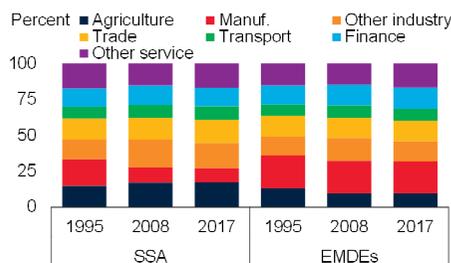
B. Sectoral productivity levels, 2017



C. Composition of employment, by sector



D. Composition of value-added, by sector



Source: APO productivity database; de Vries, Timmer, and de Vries 2013; Expanded Africa Sector Database; Groningen Growth Development Center database; Haver Analytics; ILOSTAT; Mensah and Szirmai (2018); Mensah et al. (2018); OECD STAN; United Nations; World Bank; World KLEMS.

A.B. Productivity is defined as real GDP per worker (at 2010 market prices and exchange rates).

A. Growth within sector shows the contribution of initial real value added-weighted productivity growth rate of each sector and between sector effect shows the contribution arising from changes in sectoral employment shares. Median of the county-specific contributions. Sample includes 69 EMDEs, of which 22 are SSA economies.

B. Figure shows the median of country groups. Horizontal line indicates 50 percent. The sample includes 19 SSA economies and 46 EMDEs.

C.D. “Other industry” includes mining, utilities, and construction; “other service” includes government and personal services. “Manuf.” indicates manufacturing. Sample includes 69 EMDEs, of which 22 are SSA economies.

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2018; World Bank 2019q). The agricultural sector’s significant contribution to value added, combined with the disproportionate share of employment devoted to the sector, helps explain SSA’s low aggregate productivity relative to other EMDE regions.

Other drivers of productivity growth. Although SSA has long lagged well behind other EMDEs in some key drivers of productivity, rapid improvements during the pre-GFC period supported productivity growth until the global financial crisis; since then, the pace of improvement has lost momentum. Productivity drivers with particularly

prominent slowdowns in improvements include innovation, gender equality, education, health, trade openness, institutional quality, and investment (Figure 5.33).

Institutional quality and the business environment. Although various aspects of governance and institutional quality improved in the region from the late 1990s into the pre-GFC period, this progress has mostly stalled, and even deteriorated in some instances. On average, business climates have also regressed during the post-GFC period; today, almost two-thirds of SSA countries still rank in the lowest quartile of countries by business climates, and one-half do so for poor governance. Poor business climates and governance, as well as distortions caused by price controls, have not only constrained productivity by distorting the efficient allocation of resources, but have also deterred private sector investment (Cirera, Fattal Jaef, and Maemir 2017; World Bank 2019q).

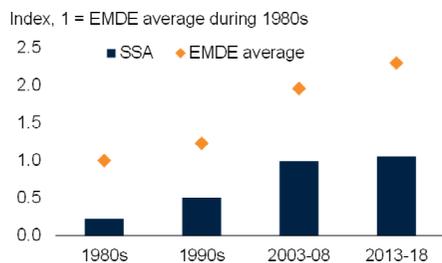
Integration with the global economy. Between the mid-1990s and 2008, the region's openness to trade—that is, the sum of imports and exports relative to the size of the economy—rose 16 percentage points to 81 percent of GDP, helping to boost productivity. However, as commodity prices fell and external demand from SSA's largest trading partners (China and the Euro Area) slowed, trade integration partially unwound, with openness falling to 74 percent of GDP by 2017. The region's heavy dependence on commodity extraction sectors manifests in a smaller share of exporting firms compared to the EMDE average. Although the share of foreign-owned firms—which are generally more productive than their domestically owned counterparts—is high, such firms tend to cluster in extractives sectors with limited links to other sectors (Liu and Steenberg 2019; World Bank 2018m). Greater manufacturing sector participation in international trade and global value chains has been constrained by the sector's relative lack of international competitiveness, in part due to high productivity-adjusted labor costs (Gelb et al. 2017) and an array of non-tariff barriers, including the region's disadvantageous geography (Christ and Ferrantino 2011; Raballand et al. 2012).

Prospects for productivity growth slowdown. Although wide sectoral productivity differentials offer ample potential for productivity gains through sectoral reallocation away from agriculture, headwinds to productivity growth are substantial and expected to persist. SSA's agricultural sector faces increasing productivity constraints as mean temperatures rise and extreme weather events occur more frequently (IPCC 2014; Steinbach 2019; World Bank 2019a, 2019t). Moreover, commodity demand growth is expected to moderate in the long term as growth in China—the largest source of commodity demand—slows and shifts toward less resource-intensive sectors (World Bank 2018n). Widespread school closures and disruptions to school feeding programs amid the COVID-19 pandemic are also expected to have lasting adverse impacts on human capital formation, particularly for vulnerable groups (Azevedo et al. 2020; World Bank 2020a). Prior to the pandemic, a 20 percentage-point rise in government indebtedness between 2013 and 2019, on average, to 60 percent of GDP, had already reduced fiscal space for productivity-enhancing infrastructure, health, and education initiatives, and for research and development. The significant fiscal burden of the pandemic will further reduce the fiscal space needed for growth-enhancing spending (World Bank 2020a). The pandemic is also expected to weigh heavily on potential growth prospects. In addition,

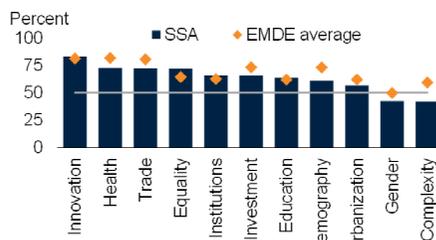
FIGURE 5.33 Drivers of productivity growth in SSA

Despite significant improvements, key productivity drivers remain significantly below those of advanced economies and EMDEs. Moreover, their pace of improvement has slowed in recent years. On average, business environments in SSA are more challenging than in other regions.

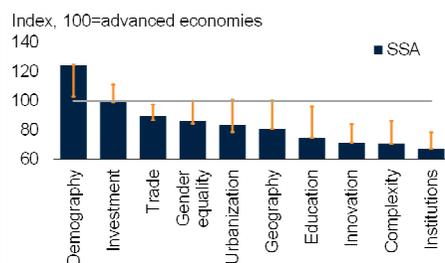
A. Index of productivity drivers



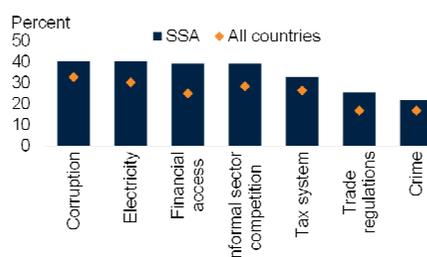
B. Share of EMDEs with a post-GFC slowdown in improvement of underlying drivers of productivity



C. Levels of drivers across regions, 2017



D. Obstacles to doing business



Source: Freedom House; Haver Analytics; International Country Risk Guide; Organisation for Economic Co-operation and Development; Observatory of Economic Complexity; Penn World Table; United Nations Educational, Scientific, and Cultural Organization (Institute for Statistics); United Nations Population Prospects; World Integrated Trade Solution; World Bank (Doing Business, Enterprise Surveys, and Global Financial Development Database).

A. For each country, index is a weighted average of the normalized value of each driver of productivity. Refer to Chapter 2 for weights. Drivers include the ICRG rule of law index, patents per capita, non-tropical share of land area, investment as a percent of GDP, share of years of schooling for females to males, share of population in urban areas, economic complexity index of Hidalgo and Hausmann (2009), years of schooling, share of working-age population, and inflation. Regional and EMDE indexes are GDP-weighted averages. Samples include 11 SSA economies and 54 EMDEs.

B. Blue bars represent share of 48 economies in SSA economies where improvements in each driver of productivity were lower during 2013-17 than in the pre-GFC period 1998-2007, or changes in 2008-17 were below zero. Orange diamond is the corresponding values for 152 EMDE countries. Horizontal line indicates 50 percent. Variables are defined as: Institutions = government effectiveness; Innovation = patents per capita; Investment = investment to GDP ratio; Equality = income equality defined as (-1)*Gini; Urbanization = share of population in urban areas; Complexity = economic complexity index of Hidalgo and Hausmann (2009); Education = years of schooling; Demography = share of working-age population; and Gender equality = share of years of schooling for females to males. Samples include 26-48 SSA economies.

C. Unweighted average levels of drivers normalized as an average of advanced economies as 100 and standard deviation of 10. Blue bars represent average within SSA economies. Orange whiskers represent the range of the average drivers for the six EMDE regions. Horizontal line indicates 100. Variables are defined as: Education = years of education, Urbanization = share of population living in urban areas, Investment = investment as share of GDP, Institutions = government effectiveness, Complexity = economic complexity index of Hidalgo and Hausmann (2009), Gender equality = share of years of schooling for females to males, Demography = share of population under age 14, Innovation = log patents per capita, and Trade = (exports+imports)/GDP. Sample includes 10-44 SSA economies and 65-127 EMDEs, depending on the driver, and 32 advanced economies.

D. Unweighted averages. Variables corresponding to the concepts are follows: Corruption = percent of firms identifying corruption as a major constraint; Electricity = percent of firms identifying electricity as a major constraint; Financial access = percent of firms identifying access to finance as a major constraint; Informal sector competition = percent of firms identifying practices of competitors in the informal sector as a major constraint; Tax system is the average of tax rates (percent of firms identifying tax rates as a major constraint) and tax administration (percent of firms identifying tax administration as a major constraint); Trade regulations = percent of firms identifying customs and trade regulations as a major constraint; Crime = percent of firms identifying crime, theft and disorder as a major constraint.

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high levels of informality—around 40 percent of official GDP and 90 percent of total employment—may inhibit faster productivity growth, as productivity among informal firms are only one-seventh of that in their formal counterparts (La Porta and Shleifer 2014; World Bank 2019a). The challenges faced by informal firms have been exacerbated by the COVID-19 pandemic (World Bank 2020a).

Policy options

Coordinated policy efforts are required to achieve stronger productivity growth, reduce poverty, and narrow the significant income gap with the rest of the world. Four strands of policies could support more robust productivity growth.

Improving factors of production

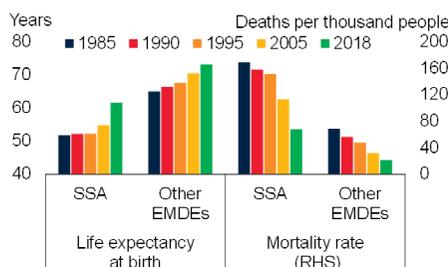
Boosting human capital and leveraging demographic dividends. Continued investment and increased spending on health care, including greater provision of treatment for highly prevalent conditions such as malaria and HIV/AIDS, could raise productivity of the labor force and life expectancy in general (Figure 5.34; Asiki et al. 2016; Barofsky, Anekwe and Chase 2015; Ferreira, Pessoa and Dos Santos 2011). The COVID-19 pandemic has underscored the need for and importance of investing in health sector capacity (World Bank 2020a, 2020f). Increased life expectancy due to improved health care also generates incentives to invest in education (Cervellati and Sunde 2011). In Ethiopia, a rapid decline in fertility rates between 1995 and 2015, rising incomes, and falling poverty rates reflected an approach combining improvements in education and health, family planning, and increased economic opportunity (World Bank 2019u). Harnessing the region's potential demographic dividend from declining fertility rates and falling dependency ratios requires policies that support female empowerment, including education, health care, and greater labor market access for women (Bloom, Kuhn and Prettnner 2017; Groth and May 2017; Kalemli-Ozcan 2003). As the youth dependency ratio declines in SSA, resources could be freed up to invest in the health and education of the young, boosting the productivity of the future labor force and spurring per capita growth (Ashraf, Weil, and Wilde 2013).

Narrowing the gender gap. Although the gender gap in labor force participation has been narrowing, on average, significant gaps in earnings of women relative to men persist (World Bank 2012). This reflects gender disparity in secondary and tertiary education, differing occupations, and greater time devoted by women to housework and childcare (World Bank 2019u). Moreover, improvements in the ratio of average years of education of females to males have been slowing in the post-GFC period. This is reflected by lower productivity of females in agriculture, as well as female entrepreneurs (Campos et al. 2019; O'Sullivan et al. 2014). Widespread school closures amid the COVID-19 pandemic could further exacerbate gender inequality in the region, as evidence from the Ebola epidemic in West Africa in 2014 suggests that school closures were associated with wider gender gaps in educational attainment (UNDP 2015; World Bank 2020a). Policies to empower women and boost their productivity include promoting skills building beyond traditional training programs, such as a greater focus on developing an entrepreneurial mindset; this approach has been found to lift sales and profits in Togo

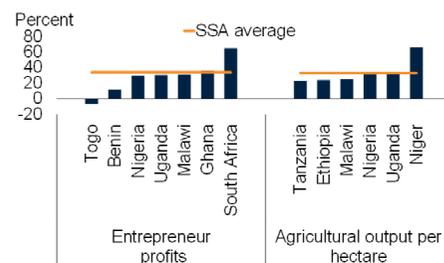
FIGURE 5.34 Prospects for productivity growth in SSA

Continued improvements in health care could raise life expectancy and the overall productivity of the labor force, as rising life expectancy also generates incentives to invest in education. Owing to limited access to resources and training, crops tended by women yield one-third less per hectare than those of men; a similar margin applies to profits earned by female entrepreneurs. Meeting the infrastructure-related Sustainable Development Goals will require investment spending of about 7 percent of GDP per year. Reducing trade costs would accelerate regional and global integration.

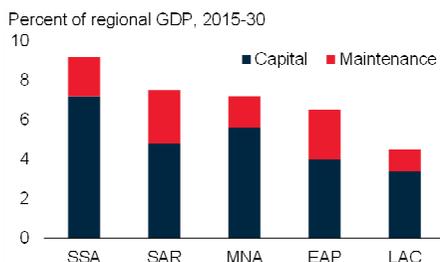
A. Human capital development



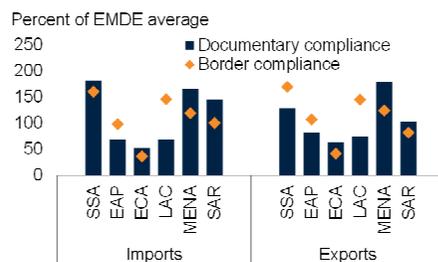
B. Shortfalls in profits and agricultural output of females relative to males



C. Infrastructure spending needs



D. Import and export compliance costs



Source: Armed Conflict Location and Event Data Project database; Campos et al. (2019); O’Sullivan et al. (2014); Rozenberg and Fay (2019); United Nations; World Bank (Doing Business).

- A. Unweighted averages. “Mortality rate” refers to under-five mortality.
- B. “Entrepreneur profits” measures the extent to which profits for male-owned firms exceed those of female-owned firms using data from impact evaluations. “Agricultural output per hectare” measures the extent to which agricultural output per hectare of male-managed plots exceeds that of female-managed plots. Entrepreneur profits in Ghana reflect the average of the Grants for Micro-Enterprises Survey and the Tailoring Survey; Entrepreneur profits in Nigeria reflect the average of both the Growth and Employment Survey and the Business Plan Competition Survey. Agricultural output per hectare accounts for differences in plot size and geographic factors. Agricultural output in Nigeria reflects a simple average of gaps for northern Nigeria (46 percent) and southern Nigeria (17 percent).
- C. Bars show average annual spending needs during 2015-30. Estimates are generated using policy assumptions that cap investment needs at 4.5 percent of lower- and middle-income countries’ GDP per year.
- D. Unweighted averages. Sample includes 156 EMDEs and 47 SSA economies. EMDE average excludes SSA.

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(Campos et al. 2017; World Bank 2019u). Relieving capital constraints faced by females and addressing social norms that constrain women’s economic opportunities and earnings, such as perceptions about the type of work that is suitable to men or women, may also help.

Closing infrastructure gaps. Capital deepening has slowed considerably among most industrial commodity exporters, and severe infrastructure deficiencies remain

throughout the region. Meeting the infrastructure-related Sustainable Development Goals in 2030 will require additional investment spending between 2015–30 of roughly 7 percent of GDP per year in SSA (excluding maintenance spending)—the highest of all EMDE regions (Rozenberg and Fay 2019). Stronger productivity growth—through both capital-deepening investment and improved TFP—is contingent on boosting the availability of electricity and improving access in a sustainable manner that strikes a balance between affordable provision for consumers, particularly the poor, and cost recovery for utilities (Blimpo and Cosgrove-Davies 2019; Vorisek and Yu 2020). In addition to closing infrastructure gaps, improvements to the resilience of existing infrastructure are needed to limit frequent disruptions, particularly in power, water and sanitation, transport, and telecommunications (World Bank 2019v). These efforts should be supported by public investment management frameworks that include strong cash management and procurement processes.

Boosting firm productivity

Boosting productivity in agriculture. Given the large share of activity and employment accounted for by agriculture, measures to raise agricultural productivity—especially in staple crops—can yield significant development gains (Beegle and Christiaensen 2019). These include ensuring secure land tenures, better access to markets and finance, better crop choices, more effective and increased use of fertilizers, improved irrigation, diffusion and adoption of new technologies, as well as targeted training to help small farmers reap the benefits of cutting-edge knowledge and practices (Chen 2017; Fuglie et al. 2020; Sinha and Xi 2018; World Bank 2019u). For example, text messages providing information to sugarcane farmers in Kenya helped boost fertilizer use and crop yields (Casaburi et al. 2014; Fuglie et al. 2020). Ensuring gender equality in access to resources could further boost agricultural productivity; giving women in Malawi and Ghana the same access to fertilizers and other inputs as men could boost maize yields by one-sixth (World Bank 2012). Gains from faster productivity growth in agriculture will free up workers to transition to other, more productive, sectors.

Addressing informality. Informal firms in SSA often brim with potential, and the transition formality is found to be shorter than in other EMDEs (World Bank 2019a). Policies to unlock informal firms' potential include upgrading skills of workers and ensuring better access to financial services, transport and communications connectivity, health services, land and property rights, and product markets (Oosthuizen et al. 2016). Removing barriers to enter the formal sector can further accelerate the transition out of informality: lowering registration costs by half could double the share of formal enterprises through formalization of informal firms and new entrants (Nguimkeu 2015; World Bank 2019u). Regulatory and institutional reforms to build public trust and support youth entrepreneurship can strengthen incentives for firms to operate formally and reduce youth unemployment. In Rwanda, entrepreneurship has been introduced as a secondary school subject to help prepare the youth to be successful entrepreneurs or to compete in the formal labor market (Choi, Dutz, and Usman 2020).

Leveraging digital technologies. Firm productivity in SSA could benefit significantly from the proliferation of digital technologies (Choi, Dutz, and Usman 2020; Hjort and

Poulsen 2019). SSA's comparatively low levels of human capital and high degree of informality are ideally suited for the adoption and development of productivity-enhancing, low-skill-biased digital technologies. In some countries, the use of digital technologies has been found to boost firm productivity by facilitating process and product innovation (Democratic Republic of Congo, Tanzania; Cirera, Lage, and Sabetti 2016). Digital technologies can also support financial inclusion. Kenya's mobile money service, M-Pesa, boosted the financial savings of female-headed households and enabled women to move out of agriculture into more productive sectors (Suri and Jack 2016). Digital loans offered through mobile money platforms, which are growing in popularity, may help individuals without credit scores or sufficient collateral access financing, as digital loan providers use alternative credit scores based on telecommunications data (Cook and McKay 2015; Francis, Blumenstock, and Robinson 2017; World Bank 2019u). With digital solutions enabling some industries to quickly adapt to working from home, investments in these technologies have become even more critical as the region adjusts to the COVID-19 shock and builds greater resilience to possible future pandemics (Choi, Dutz, and Usman 2020).

Accelerating trade openness and global integration. The African Continental Free Trade Area (AfCFTA) has the potential to boost regional trade and bolster firm productivity by facilitating investment, international competitiveness, the transfer of technology and new innovations, and participation in regional and global value chains (Berg and Krueger 2003; Calderon and Cantú 2019; Del Prete, Giovannetti, and Marvasi 2017; Laget et al. 2018; World Bank 2020g). To maximize the potential productivity gains from the free trade area, infrastructure—particularly transport networks—must be expanded and business climates improved. Productivity gains from AfCFTA also depend on the implementation of trade facilitation measures and addressing significant non-tariff barriers to trade (World Bank 2019d).

Encouraging sectoral reallocation

Enabling factor mobility. Productivity gains from sectoral reallocation of labor in the region can be reignited by policies aimed at reducing the barriers to factor mobility. These barriers include low human capital of the labor force, weak infrastructure (such as inadequate transport systems in urban areas), low access to finance, and disadvantageous trade policies. In Nigeria, tariff structures have been shown to reduce incentives for sectoral reallocation to higher-productivity sectors, as tariffs systematically boosted profitability of the least productive sectors but not the most productive sectors (World Bank 2017g).

Diversification. Policies aimed at shifting the production base toward a wider and more complex array of export goods, across a range of manufacturing and services sectors, will enable greater participation in value chains and help insulate economic activity from the destabilizing effects of large international commodity price swings. In Côte d'Ivoire—the world's largest supplier of cocoa beans—diversification along the cocoa value chain through the expansion of domestic grinding and processing facilities has allowed the country to also produce a diverse array of value-added cocoa products and overtake the

Netherlands as the world's leading cocoa-processing country (World Bank 2016g). AfCFTA could also contribute to economic diversification if it leads to the establishment of regional value chains. However, successful diversification requires several supporting measures, including improved human capital, better infrastructure, stronger governance, and deeper financial markets (Fosu and Abass 2019).

Creating a growth-friendly environment

Protection from climate change. The adverse effects of climate change could be partially mitigated through land-use planning and investment in climate-smart infrastructure (Collier, Conway, and Venables 2008; World Bank 2019a). Effective social protection policies, possibly financed with energy taxes or the removal of fuel subsidies, could provide resources to support livelihoods during extreme events (Hallegatte et al. 2015). Climate adaptation could be strengthened by building capacity in policy implementation, boosting access to adaptation financing, and raising public awareness of climate change (Adenle et al. 2017; World Bank 2019w).

Reducing violence. SSA has experienced many conflicts, particularly between the 1970s and early 2000s. These not only took heavy human tolls, but shook the stability of the affected countries by weakening institutions and severely damaging or destroying infrastructure. Conflicts in Burundi, the Democratic Republic of Congo, Liberia, Rwanda, and Sierra Leone inflicted losses of human life equivalent to between 1 and 10 percent of their populations (Steinbach 2019; World Bank 2019a). In recent years, violence against civilians has increasingly weighed on activity in several countries and forcibly displaced large populations. Efforts to achieve lasting peace can strengthen growth and boost productivity through stronger investment and increased TFP (Chen, Loayza, and Reynal-Querol 2008).

Strengthening institutional quality and business environments. Limited access to reliable electricity, poor transport infrastructure, and high levels of corruption are often cited as key constraints to business in SSA. High non-infrastructure costs, such as high prices of transport goods within countries and across borders, tend to exacerbate the burden of weak infrastructure. In many instances, high road-transport costs reflect excessive market power of trucking companies. Competition-enhancing deregulation can help alleviate this business constraint and boost productivity. For example, in landlocked Rwanda, deregulation in the transport sector led to an abrupt fall in transport costs (Barrett et al. 2017). Business environment deficiencies can be further addressed by increasing access to finance, simplifying tax systems, reducing regulatory burdens and compliance requirements, addressing corruption, and liberalizing labor and product markets (Bah and Fang 2015; World Bank 2019a). Strengthening institutional quality by improving judicial systems can help address corruption—a leading obstacle to doing business—and strengthen contract enforcement. Such structural reforms can bolster firm productivity (Kouamé and Tapsoba 2018). Reforms aimed at improving the business environment can also help reduce the size of the informal economy, which tends to have lower productivity than the formal economy.

Conclusion

Even prior to the severe global recession induced by COVID-19, productivity growth was slowing across the six EMDE regions. The slowdown in productivity growth was particularly severe in EAP, ECA, and SSA, while productivity growth in LAC and MNA, which had already been low prior to the GFC, fell to near-zero in the post-GFC period amid political uncertainty, episodes of financial stress in major economies, and falling commodity prices. As a result, catch-up to advanced-economy productivity levels has slowed in most regions and, in some regions, the gap with advanced economies has widened.

Productivity levels in EMDEs were about 18 percent of those in advanced economies in 2013-18 (using GDP-weighted averages), pointing to significant scope for faster productivity growth. In all regions, productivity levels remain less than half of those in advanced economies, although there is significant disparity across and within regions. While productivity in MNA is 40 percent of that in advanced economies, in EAP and SSA it is only 12 percent, and in SAR a mere 5 percent.

In five of the six EMDE regions—all except MNA—a slowdown in TFP growth contributed to slowing productivity during the post-GFC period. Slowing capital deepening contributed to weaker productivity growth in all regions except SSA.

The sectoral analysis in the chapter finds that productivity gains from the reallocation of labor from low-productivity to higher-productivity sectors slowed sharply during the post-GFC period relative to the pre-GFC period in all most regions, and particularly so in LAC and SSA. Falling gains from sectoral reallocation have been accompanied by weaker within-sector productivity gains during the post-GFC period in all regions except EAP, most severely in ECA and LAC.

Alongside this failure to reap within- and across-sector productivity gains, a range of other longstanding factors have weighed on productivity growth in recent years. Continued heavy reliance on commodities in some EMDEs, weak governance and institutions, widespread informality in some regions, poor education and job skills, and lack of integration into global value chains are some of the most common bottlenecks. Future analysis should focus on identifying, describing, and quantifying the types of reform that EMDEs can implement to boost productivity growth, especially in the context of possible long-lasting negative effects of COVID-19 on human capital development, investment in physical capital, and trade linkages.

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