Overview

EUROPE AND CENTRAL ASIA STUDIES

TIDES of Change

Igniting Productivity Growth in Europe and Central Asia

Leonardo Iacovone
Henry Aviomoh
Matias Belacin
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Contents

FIGURES

Acknowledgments

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Main Messages

This report finds that the prolonged growth slowdown in Europe and Central Asia (ECA) presents an opportunity to refocus on three key areas:

1. **Productivity first:** ECA's growth challenge centers on productivity—since the global financial crisis, gains from capital and labor have remained stable, but total factor productivity growth has halved.
2. **Investments are necessary but not sufficient:** Increasing investment alone is not enough to accelerate growth—addressing efficiency gaps is now more important than overcoming capital shortages alone. Without productivity improvements, the returns to additional capital investments yield less output than they used to.
3. **Reforms are central:** Renewed reform momentum is needed—recently stalled progress has allowed distortions to persist and resources have not been allocated where they can yield the highest returns, limiting the region's potential.

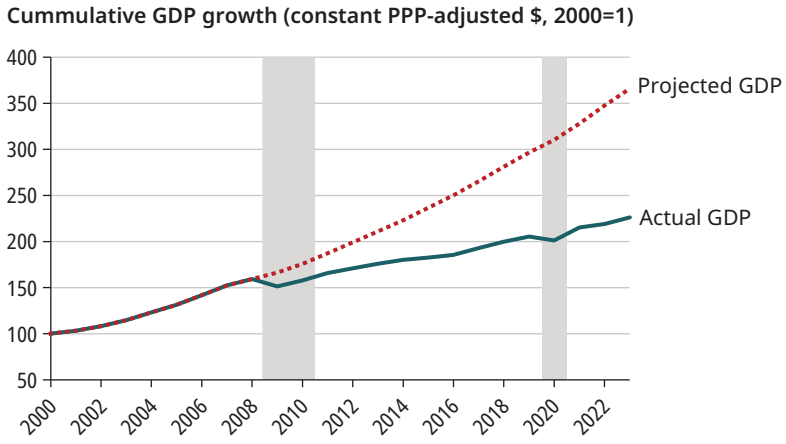
Together, these findings underscore the urgent need for a revitalized reform agenda to boost productivity, through targeted action across trade, investment, digitalization, efficiency, and skills (TIDES).

This report uses new and unique firm-level data to offer new insights into ECA's productivity challenges. A novel data exercise underpins the report's core diagnostics and policy simulations. More than 40 million firm-level observations were assembled from national statistical offices, tax revenue offices, and complementary sources, and then harmonized. Spanning 2008–23, multiple sectors, and more than 15 countries, allows original analysis of the magnitude and drivers of ECA's productivity challenge.

Why does productivity matter? Welfare and jobs.

Boosting productivity ultimately leads to increased welfare, more jobs, and higher wages. If ECA's post-2008 TFP growth had matched its pace before the global financial crisis, the region's GDP would be roughly 62 percent

FIGURE MM.1 ECA economies have not regained the rate of GDP growth experienced before the global financial crisis



Source: Analysis based on data from World Bank, World Development Indicators.

Note: Projected GDP assumes that economic growth would have continued with the same growth trend as observed prior to the global financial crisis. ECA = Europe and Central Asia; PPP = purchasing power parity.

higher today (figure MM.1). Therefore, reforms that close efficiency gaps can generate large welfare dividends over the medium term. Furthermore, a 10 percent increase in productivity could add close to 2 million jobs in the ECA region. Estimates suggest that the effects are strongest among frontier and exporting firms that scale.

What happened? The growth downshift is a productivity story.

After the global financial crisis, the region's productivity growth collapsed, but factor accumulation did not. Compared with 2000–08, TFP's contribution to growth fell sharply over 2008–23, explaining about 91 percent of the regionwide growth slowdown. In contrast, East Asia broadly maintained its growth drivers.

While investments continued, returns waned, indicating a lower efficiency of capital. Despite a faster rise in the real capital stock after 2008, gross domestic product growth slowed, and the incremental capital-output ratio rose. These are classic signs of diminishing returns when efficiency lags. Simple counterfactuals underscore the point: If capital alone explained income gaps relative to the United States, many ECA economies would have already converged, but they have not.

Efficiency gaps are in fact the binding constraint. A benchmarking analysis shows that ECA workers operate with about 60 percent of US-level capital per

worker and achieve about 62 percent of US efficiency in using that capital—evidence that how resources are allocated and used matters at least as much as the amount of capital.

The collapse in productivity has overlapped with stalled market-oriented reforms. Since circa 2010, indicators of regulatory efficiency and open markets have plateaued or declined, mirroring a weaker competitive environment and slower financial sector reforms that hamper an efficient allocation of capital, which impede efficient credit allocation.

Why has productivity stalled? Misallocation has been the main cause.

Structural change has delivered too little. Over the past 25 years, in most ECA economies, labor has reallocated from industry to services, but the economic gains have been modest. Granular evidence shows that much of the reallocation has been toward low-skill, nontradable services rather than higher-productivity tradables, limiting the payoff from sectoral reallocation.

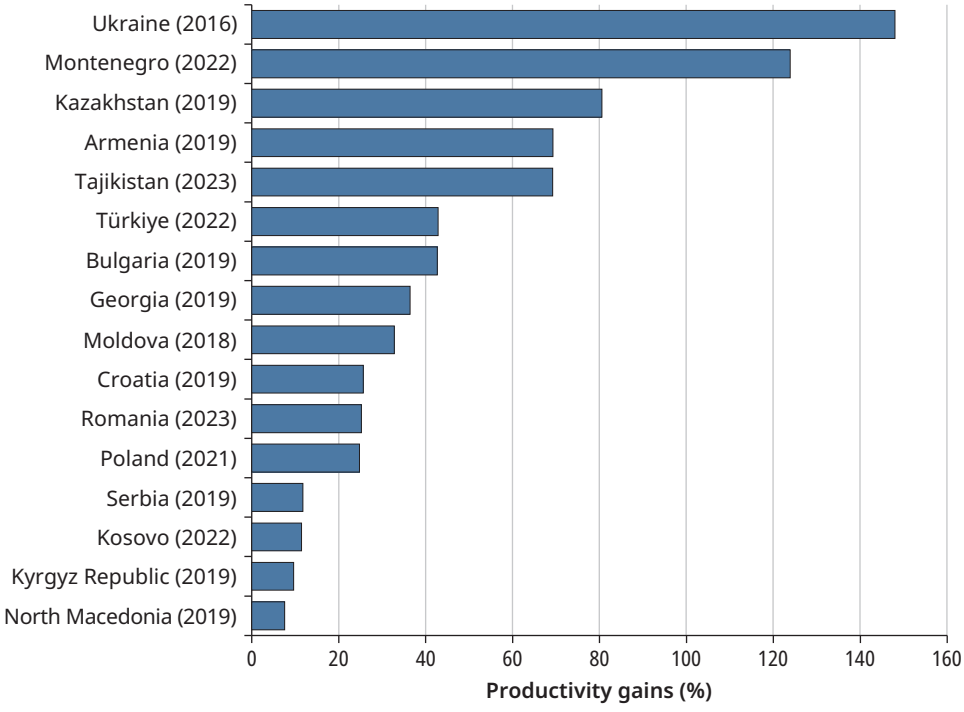
At the micro level, distorted markets have blunted selection and scaling. The large state footprint, concentrated market structures, and restricted access to finance have reduced competitive pressure and slowed the reallocation of capital and labor toward more productive firms. As a result, inefficient firms have survived or even expanded, while productive firms have been constrained from growing. *Removing these distortions to a level observed in advanced economies (eight European countries and the United States) could lift aggregate productivity by 10 to 70 percent in most of ECA*, with especially large potential in the region's less developed economies (figure MM.2).

State-owned enterprises (SOEs) and weak competition have depressed market dynamism. Sectors with heavier SOE presence are more concentrated, less allocatively efficient, and less dynamic. SOEs have been markedly less productive than private firms and foreign-owned firms have been substantially more efficient than domestic ones. Uncompetitive public procurement and distorted access to finance have further skewed outcomes in ways that can hamper an efficient allocation of resources.

Trade and investment can be leveraged more fully to drive productivity and growth. Trade patterns have remained inward-looking, with "missing trade" in higher-value markets and insufficient export diversification, while foreign direct investment (FDI) spillovers have been uneven because of weak domestic links and absorptive capacity. Evidence shows that, when competitive conditions and capabilities are in place, trade and FDI activate four reinforcing productivity pathways: structural transformation, within-sector reallocation, creative destruction, and incumbent firm upgrading.

FIGURE MM.2 ECA countries could improve productivity significantly by achieving the allocative efficiency of advanced economies

Productivity gains, by country, latest data available for 2016–23



Sources: Estimates based on firm-level data from national statistical offices, Ministries of Finance, and Orbis.

Note: Productivity gains are reported relative to eight European advanced economies and the United States, based on Cusolito et al. (2024) and Hsieh and Klenow (2009). Relative productivity gains are calculated as the ratio between the country-year gains $\frac{Y_E^c}{Y^c}$ and the EU and US average $\frac{\overline{Y_E}}{Y}$ as follows: $relative\ gain = \frac{Y_E^c / Y^c}{Y^E / Y} \times 100$. The included advanced European economies are Austria, Estonia, Finland, France, Germany, Italy, Norway, and Spain. For the date ranges and national sources of the data, refer to table 1A.1 in online annex 1A, available at https://hdl.handle.net/10986/43788. The sample includes manufacturing firms with at least 10 employees.

New digital technologies have been widely accessible for firms, yet thin in use. Most firms have access to enabling digital technologies, but few have used advanced digital tools at scale and thus have missed out on the associated productivity benefits. The analysis in this report shows that convergence to the EU average cloud uptake is associated with productivity gains of up to 7 percent, and convergence to the European frontier is associated with gains of up to 25 percent. However, translating access into intensive use requires complementary skills, managerial capabilities, greater competition through facilitated entry of more domestic and foreign firms, and correct incentives through price signals (including energy pricing).

While low-carbon technologies align efficiency and productivity, energy subsidies have lowered the incentives to upgrade. The findings reveal that More productive firms have consistently demonstrated higher energy efficiency. However, fossil fuel subsidies and low electricity tariffs have dampened the incentives to upgrade equipment and optimize energy use, thus slowing the diffusion of resource-efficient technologies that raise productivity.

Workforce skills have also been misallocated and underdeveloped. Despite increasing educational attainment, proficiency in cognitive skills among the population has not improved. Furthermore, a significant share of the workforce—exceeding 30 percent in many ECA countries—have been employed in jobs for which they are overqualified. Returns to experience—a proxy for human capital accumulation in the workplace—have been low and, in some ECA countries, the returns to experience have been nearly flat across worker's life cycle. The poor quality of education, lack of robust demand, and frictions in the labor market have been some of the drivers of this skill misallocation.

What to do? Riding TIDES to higher productivity.

Restoring productivity growth is the region's most powerful lever for prosperity. The evidence assembled in this report suggests that tackling misallocation and catalyzing firm upgrading through the TIDES reforms could unlock large welfare gains, reverse the post–global financial crisis slide, and put ECA back on a convergence path—one with more and better jobs, faster wage growth, and greater resilience. The region is not constrained by a lack of capital or connectivity, but by how effectively these are used. Addressing this is now the central task.

Trade: Reconnect to dynamic markets and reduce trade costs.
Igniting trade-led productivity in ECA requires a renewed reform push to deepen the region's integration into global and regional value chains. The focus should shift from simply expanding trade volumes to enhancing firms' ability to connect, compete, and move up the value chain. This entails reducing the costs of cross-border commerce, aligning trade frameworks with the realities of digital trade, and ensuring that export promotion efforts foster firm-level learning and survival in global markets. By tackling barriers at and behind the border, governments can unlock the reallocation, scale, and learning effects that drive sustained productivity growth.

Investment: Anchor FDI and amplify spillovers.
A credible, predictable investment climate—combined with open and well-regulated service sectors—can attract high-quality investors.

However, reclaiming productivity momentum from foreign investment requires not only attracting more FDI but also turning it into a catalyst for domestic upgrading. This means integrating foreign investors into the domestic economy so that competition and collaboration drive innovation and productivity gains. At the same time, strengthening domestic capabilities, supplier networks, and innovation ecosystems ensures that foreign investment drives broader structural transformation rather than creating isolated enclaves. By anchoring FDI and amplifying its spillovers, ECA economies can accelerate firm-level upgrading and push frontier practices deeper into domestic production networks.

Digitalization: Diffuse frontier technologies, strengthen capabilities, and deepen effective use.

Realizing the benefits of closing the region's digitalization gap requires more than improving connectivity. It demands stronger firm capabilities, better incentives, and a more competitive environment that encourages technology adoption. Governments should shift from policies that simply subsidize technology purchases toward those that promote the effective and intensive use of digital tools. Equally important are complementary investments in human capital, competition, and finance, which enable firms to absorb and deploy new technologies productively. By creating the right incentives, skills, and market conditions, ECA countries can turn connectivity into competitiveness.

Efficiency: Level the playing field and unleash reallocation.

Policies to promote efficiency should focus on removing distortions that trap resources in low-productivity firms and enabling markets where productive firms can enter, grow, and replace less efficient ones. This translates into making markets contestable, eliminating distortions that shield incumbents and restrict new entrants. Ensuring competitive neutrality for the state itself is equally critical. For instance, SOEs engaged in commercial activities should compete on equal terms with private firms. Efficient reallocation of resources also depends on mitigating a misallocation of finance. Governments should promote modern and inclusive financial systems that direct financing toward productive and innovative firms. Strengthening the core enabling environment for access to finance can deliver significant impact with limited fiscal costs. These reforms can be complemented with well-designed, targeted, and proven financial interventions. These interventions often carry significant fiscal costs and can introduce distortions. Careful design and selection are therefore critical, since each intervention has unique characteristics that influence its impact and feasibility.

Skills: Align talent and drive lifelong upskilling.
Policies to enhance skills should focus on rebuilding foundational competencies, improving the alignment of talent with labor market needs, and fostering lifelong learning. Education systems should ensure strong foundational skills, while also promoting competency-based, flexible learning that adapts to evolving labor market demands. Complementary measures can encourage continuous upskilling to enable firms and workers to fully leverage productivity-enhancing technologies and practices. By aligning talent with private sector needs and embedding lifelong learning, ECA countries can boost firm-level productivity and drive economywide growth.

Overview

Years of reform-driven growth have given way to a persistent slowdown, leaving the Europe and Central Asia (ECA) in need of new ways to regain economic momentum. Once buoyed by the transformative effects of postsocialist transitions and early waves of global integration, the region has experienced a marked slowdown in economic growth over the past 15 years. Weaker productivity, coinciding with a deceleration in reforms, is at the core of this slowdown. Capital deepening alone is no longer sufficient to fuel income convergence with high-income countries. This report argues that the path forward lies in igniting productivity growth through better resource allocation, greater technology adoption, deeper international integration, and more effective use of human capital. Three findings presented in this report support this overarching message:

First, productivity growth has been the main contributor to sustained economic growth and income convergence in ECA. As is true for many other countries around the world, the growth engine of ECA countries has decelerated because of low-productivity growth and falling returns to capital accumulation. After nearly a decade of robust growth in the early 2000s, growth in ECA slowed with the global financial crisis (GFC) of 2008–09, more than in all other regions. What caused the sharp deceleration? Nearly 91 percent of the decline in growth stems from falling productivity growth.

Second, the misallocation of resources, both across and within sectors, is key to understanding productivity growth in the region. This misallocation, where labor and capital flow to less productive activities and firms, is a key factor dragging down aggregate productivity growth while also reducing incentives for firms to invest in capabilities.

Online annexes for this report are available at https://hdl.handle.net/10986/43788.

Structural changes in most ECA countries over the past 25 years, with manufacturing sectors contracting and service sectors expanding their labor shares, have contributed little to productivity gains. The contribution of such resource reallocation between sectors has been more limited in ECA than in other regions. Although labor shifts from the manufacturing sector to the service sector could have enhanced productivity, because of higher average levels of productivity in services, a more granular sectoral disaggregation reveals that this has not been the case in the region. For example, in several economies, high-productivity industries like manufacturing have contracted, while less productive sectors, such as low-skill, nontradable services, have expanded.

Substantial gains in productivity are possible by reducing resource misallocation through reforms shrinking the state's economic footprint and strengthening competition in domestic markets. Priority measures include boosting competition, enhancing capital allocation, redesigning labor institutions and public procurement, limiting the role of state-owned enterprises (SOEs), and reducing skill mismatches. Sectors with a larger SOE presence are less competitive, have lower allocative efficiency, and are less dynamic (lower job and firm turnover). In addition, SOEs are crowding out access to finance for more productive private enterprises. Overall, ECA needs to remove distortions to complete the transition to market economies and pave the way for aggregate gains in productivity and welfare. Most ECA countries could increase aggregate productivity by 10 to 70 percent by removing market distortions to the level of advanced economies (eight European countries and the United States). The potential gains would be largest for the less advanced economies in the region, as shown by the analysis in this report, which relies on a novel firm-level data set covering more than 40 million observations across 15 years (2008–23).

Policies to reduce misallocation and strengthen competition need to be accompanied by appropriate incentives and programs to increase firms' managerial and technical capabilities. Although removing distortions is a necessary condition for productivity growth, past work by the World Bank and others has shown that it may not be a sufficient condition (Cusolito and Maloney 2018; Iacovone et al. 2025). Studies have highlighted the importance of firm upgrading to face the competition unleashed by more efficient markets. Recent evidence from ECA has shown that the region's middle-income countries, which represent the majority of ECA, are struggling to boost within-firm productivity (Iacovone et al. 2025). If firms' capabilities are not strengthened, competition- and entry-enhancing policies might eliminate not only inefficient incumbents but also high-potential firms that lack managerial skills or sufficient skilled workers to grow their business. Chapters 3, 4, and 5 of the report shed more light on this firm upgrading channel by providing evidence on the importance of technology adoption and skills development for productivity growth.

Third, boosting productivity growth is key to creating more and better jobs. Firms in ECA countries grow less on average and more slowly than firms in the United States, for example. ECA start-ups are smaller than their US peers and grow less over their life cycle, generating fewer jobs. Firms that are more productive have higher employment growth rates, and productivity increases have larger effects on job creation in higher-productivity firms than in lower-productivity firms. Productivity growth also contributes to higher wages (both higher levels and higher growth rates) and thus helps create better jobs. Estimates indicate that a 10 percent increase in productivity could add close to 2 million jobs in the ECA region.

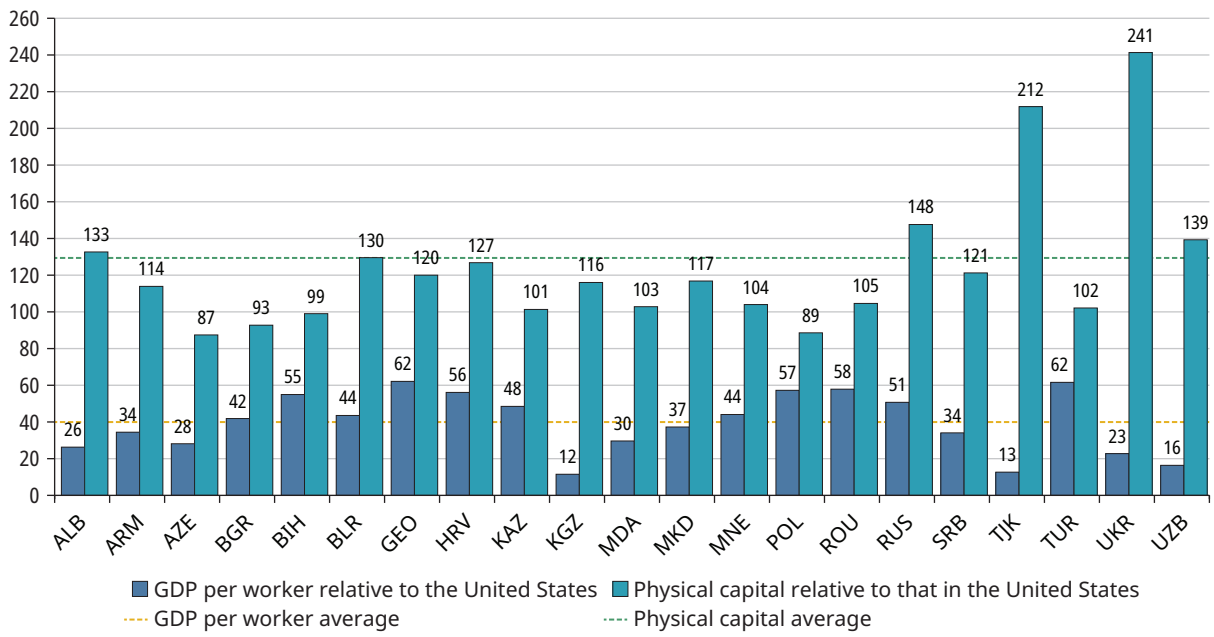
Productivity is Essential for Economic Growth

Per capita income in most ECA countries has been constrained mainly by low levels of efficiency (efficiency gaps) rather than low levels of accumulation of productive factors (capital gaps). Comparing the gap in gross domestic product (GDP) per worker between ECA countries[1] and the United States with the gap in the capital-output ratio provides a clear message: ECA countries' capital-output ratio gap cannot explain the gap in GDP per worker (figure O.1). Estimates of the gaps for ECA countries show that, on average, not only do workers in ECA countries have about 60 percent of the human and physical capital per worker as a US worker (capital gap), but the efficacy of their use of those factors is only 62 percent of that in the United States (efficiency gap). Because both human and physical capital are highly susceptible to changes in efficiency, the capital gap and the efficiency gap contribute to the overall productivity gap. To close the efficiency gap with the United States, ECA countries need to improve both factor allocation and factor efficiency.

The large contraction in the contribution of total factor productivity (TFP) to growth after the GFC explains the region's weaker growth performance compared to East Asia. The combined contribution of capital and labor to economic growth in ECA remained constant between 2000–08 and 2008–23, but TFP's contribution to growth fell by half. Over the same period, countries in the East Asia and Pacific (EAP) region, excluding China, maintained roughly similar contributions of capital, labor, and TFP to their growth. Including China makes the contribution of TFP to EAP countries' growth proportionally less pronounced, but not to the extent of the contraction in the ECA region. If the ECA region had maintained the same TFP growth after the GFC as before, its growth in the later period would have been comparable to that of the EAP region including China. It would in fact have been stronger than that of the EAP region excluding China. Even more important, GDP in 2023 would have been 62 percent higher.

FIGURE O.1 For countries in ECA, efficiency gaps with the United States are larger than capital gaps, 2022

Relative GDP per worker and relative capital-output ratio



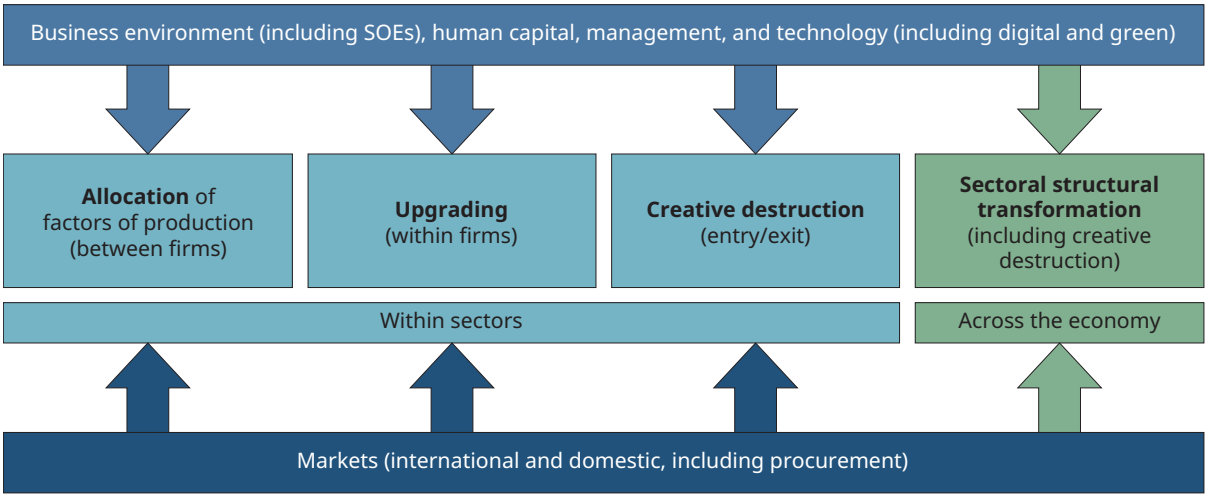
Source: Estimates based on Penn World Table Data 11.0 (Feenstra, Inklaar, and Timmer 2015).

Note: The dark blue bars show GDP per worker relative to the United States, and the turquoise bars represent the capital-output ratio relative to the United States. The dashed lines indicate the unweighted means for all countries displayed. For a list of country codes go to https://www.iso.org/obp/ui/#search. ECA = Europe and Central Asia; GDP = gross domestic product.

The Pathways to Productivity Growth

Four main pathways are essential to understanding ECA's productivity challenge. Aggregate changes in productivity growth can occur through these pathways, which operate within or across sectors (figure O.2). Within sectors, productivity growth can take place through three channels. The first pathway is market reallocation between firms, which can occur through shifts in the market shares across incumbents, toward more productive firms. The second pathway is within-firm upgrading and refers to changes in a firm's productivity level over time, which could be driven by efficiency- or quality-improving investments in technology, organization, or skills. The third pathway is firm selection, through the entry of more-productive firms and the exit of less productive firms, often referred to as *creative destruction*. Finally, aggregate productivity can grow through a fourth mechanism: structural transformation. In this pathway, shifts in

FIGURE O.2 Markets and the business environment affect productivity growth in several ways



Source: World Bank based on Cusolito and Maloney 2018.

Note: SOEs = state-owned enterprises.

the relative weights of sectors over time can lead to higher aggregate productivity if more resources are allocated to sectors with higher levels of productivity.

These four pathways do not operate in isolation but interact with each other. For example, Greater misallocation within sectors can negatively affect the entry and exit of firms, as distortions affect which firms survive. Misallocation can also reduce the returns to upgrading investments, thus reducing the incentives for firms to invest in new skills or technologies.

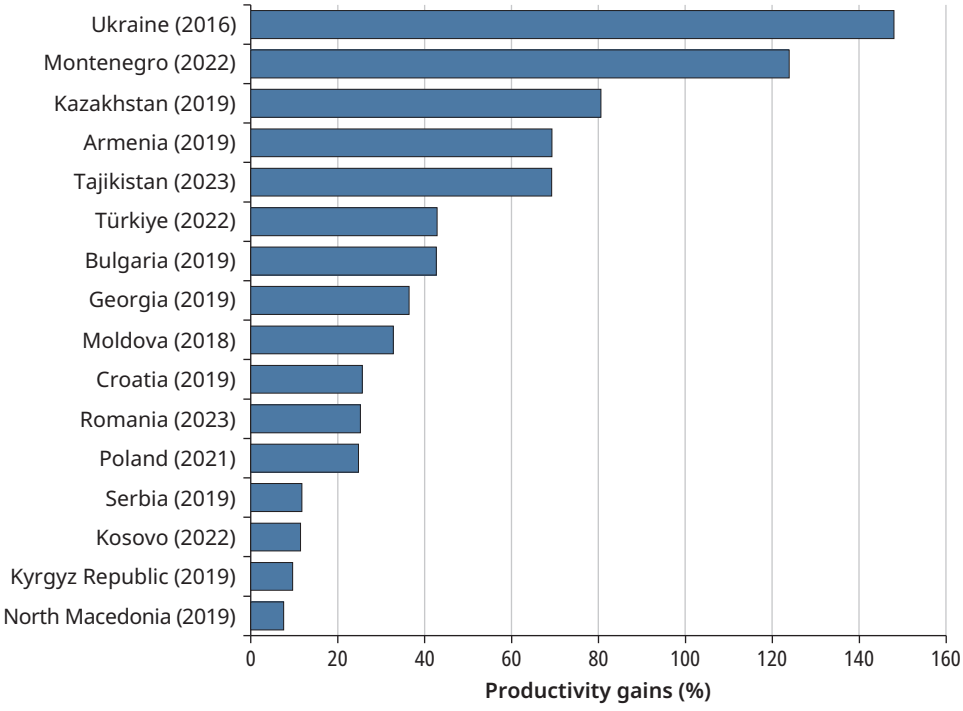
Misallocation: The Productivity Killer

Misallocation of resources—between and within sectors—stands at the heart of the region's underwhelming productivity performance. Structural change in ECA has not always been productivity-enhancing. Rather than shifting toward high-productivity tradable sectors, labor has often moved into low-skilled, nontradable services. These changes have resulted in limited aggregate gains, particularly when compared to more dynamic regions like East Asia. Within sectors, the picture is even starker. Despite decades of market-oriented reforms, many ECA economies continue to exhibit features of incomplete transitions. Large SOEs, concentrated market structures, and restricted access to finance have dampened competition and hindered the reallocation of labor and capital to more productive firms. As a result, inefficient firms survive and expand, while productive firms are held back.

A novel firm-level data set reveals large potential gains from reducing resource misallocation. Firm-level data covering more than 40 million observations across 15 years (2008–23) reveal a sobering reality: If ECA achieved the efficiency of advanced economies (eight European countries and the United States), it could raise aggregate productivity by 10 to 70 percent in most countries (figure O.3). The gains would be especially pronounced in the region's less advanced economies, where market frictions are more pervasive and the state footprint is larger.

FIGURE O.3 ECA countries could improve productivity significantly by achieving the allocative efficiency of advanced economies

Productivity gains, by country, latest data available for 2016–23



Sources: Estimates based on firm-level data from national statistical offices, Ministries of Finance, and Orbis.

Note: Productivity gains are reported relative to eight European advanced economies and the United States, based on Cusolito et al. (2024) and Hsieh and Klenow (2009). Relative productivity gains are calculated as the ratio between the country-year gains $\frac{Y_E^c}{Y^c}$ and the EU and US average $\frac{\overline{Y_E}}{Y}$ as follows: $relative\ gain = \frac{Y_E^c / Y^c}{Y^E / Y} \times 100$. The included advanced European economies are Austria, Estonia, Finland, France, Germany, Italy, Norway, and Spain. For the date ranges and national sources of the data, refer to table 1A.1 in online annex 1A, available at https://hdl.handle.net/10986/43788. The sample includes manufacturing firms with at least 10 employees.

Structural transformation and misallocations across sectors

In the early 1990s, as many countries in the ECA region began to transition to a market economy, the sectoral structure of their economies changed. During the first 10 years of the transition, the employment and output shares of industry, the largest employment sector in most ECA countries, declined, while the shares of services expanded. Over the following 10 years, the shares of services in employment continued to expand relative to those of industry, although at a slower pace, while agriculture gradually shrunk. Most ECA country groups have experienced the same falling-industry dynamic, except for the agricultural and less advanced Eastern European groups, and the concurrent rise in the share of labor in services, except for the less advanced Eastern European group. However, the pace of the shift toward services has varied across country groups.

Structural change has played a positive but limited role in driving productivity growth across both the formal and informal sectors. Productivity growth within sectors has accounted for most of the growth in overall labor productivity (GDP per worker) in ECA, whereas the effects of labor shifts between sectors (structural change) have contributed only minor shares. The effect of structural change on labor productivity growth has been larger in EAP than in ECA, and the difference has widened in recent years.

The service sector has led structural transformation across ECA, driving both labor productivity and wage growth. In all the ECA country groups, the service sector has been the main driver of structural change and, thus, the main reason for the contribution of structural change to labor productivity growth. However, the service sector encompasses subsectors with heterogeneous skill requirements. Furthermore, it is evident from firm-level data that low-skill services have driven the growth in labor productivity in services, whereas high-skill services have driven wage growth. Thus, the labor shifts that underpin structural change are dominated by employment shifts toward low-skill services, stunting the productivity growth potential of the service sector and its contribution to the overall labor productivity gains from structural change.

A more granular sectoral analysis of the formal economy, based on firm-level data, reveals a consistent story of limited contribution of structural change to productivity growth. The minor role of sectoral shifts in driving productivity growth across ECA countries is observed not only at the broad sectoral level but also at a more granular level. The correlation between changes in sectoral labor shares and initial value added per worker over 2006–24, although positive in many countries, was weak and close to zero. This correlation implies a limited contribution of the reallocation of labor between sectors (structural change) to productivity growth.

Economic distortions can also reduce the productivity growth arising from structural change by allowing economies to deindustrialize prematurely. Two factors could account for the contraction in industry's shares of employment and output: the natural forces of structural transformation, as resources shift from industry to services, and policy distortions that disproportionately burden industrial firms and workers.

The expansion of low-skill services in ECA, combined with a contraction of the industrial sector, suggests that the structural shift to services has not been entirely productivity-inducing. In a majority of ECA countries, the share of labor in low-skill services increased in the period after the GFC. On average, technological change, specifically digitalization, has been labor-augmenting for both high- and low-skill workers. However, technological change has been biased toward high-skill workers in the manufacturing sector and biased toward low-skill workers in the service sector. Thus, technological change has resulted in higher wages in the manufacturing sector, reduced demand for labor in manufacturing, and reallocated labor to the service sector.

Misallocation among firms and activities

Resource misallocation affects aggregate economic outcomes through three main mechanisms: resource allocation across firms, firm entry and exit, and technology upgrading and innovation. First, distortions can result in resources such as labor and capital not being directed to the most productive firms in a sector. Second, by affecting firms' entry and exit decisions, distortions can influence which firms survive and operate. Third, distortions can lower the returns to firms from technology adoption and innovation.

Removing misallocations in labor and capital markets could achieve the largest gains in economic growth. Eliminating distortions is the quickest way to increase the value of the marginal product of workers and capital without increasing labor and capital costs. Removing distortions in factor and output markets that lead to misallocations could increase productivity by 10 to 70 percent in most ECA countries, if they moved to the levels of allocative efficiency observed in advanced economies (eight European countries and the United States). Ukraine, and other countries at earlier stages of development, could increase productivity on average by more than 90 percent. This increase would be over three times more than the average gains from removing distortions in EU accession countries. These productivity gains are also nearly 60 percentage points higher than those from removing factor market distortions in Estonia, France, Germany, and the United States. Countries in the Caucasus and Central Asia, including Armenia, Georgia, and Kazakhstan, could increase productivity by 35 to 80 percent if they moved to the efficiency levels observed in advanced economies.

The higher prevalence of distortions in less advanced ECA economies implies that a better reallocation of resources would lead to higher gains in lower-income countries. Using the correlation between revenue-based TFP and quantity-based TFP as a measure of allocative efficiency (a higher correlation indicates less allocative efficiency) shows that misallocation at the economywide level is greater in less advanced ECA economies than in those that are more advanced. Therefore, the potential productivity gains from reducing misallocation would be larger in less advanced ECA economies.

Removing distortions, especially those related to the state's footprint in the economy, is key to fostering productivity growth in the region. Although ECA countries started shifting from planned economies to market economies in the early 1990s, a strong state footprint remains in many countries, and this incomplete market transition affects productivity growth today. Three developments have recently reignited the debate about the distortionary effect of SOEs. First, the state is present in competitive sectors where no economic rationale exists for state economic involvement. Second, SOEs underperform private enterprises on average. Third, there is a need to rebuild fiscal buffers in several economies that have limited fiscal space or are in debt distress.

Not only does the presence of SOEs reduce market dynamism, but SOEs themselves are also less productive than private companies. On average, a worker in an SOE produces only about 60 percent of the value added produced by a domestic private company, even when the companies operate in the same sector and geographic region, are the same size and age class, and display similar capital intensity (capital per worker). The differential is similar for foreign-owned firms, which are nearly 60 percent more efficient than domestic firms. Market concentration—a proxy for weak competition and measured as the combined market share of the five largest companies in each sector (at the 3-digit level)—negatively correlates with the labor productivity of firms. Therefore, in addition to the negative association between SOE presence and market dynamism, SOEs are less productive than their private counterparts.

As firms in ECA mature, on average they do not become more productive. In competitive, well-functioning markets, selection mechanisms coupled with learning, should make continuing firms increasingly productive, following an up-or-out dynamic as less productive firms exit. In highly competitive sectors, businesses innovate and upgrade to beat the competition, reducing marginal costs relative to noninnovative firms. However, the average productivity of firms tends to decline faster in older cohorts in less advanced ECA economies, compared to a less pronounced decline in the more advanced ECA economies. This tendency suggests that firms in ECA, especially in less advanced economies, struggle to become more productive as they mature and market forces are unable to weed out less efficient firms.

Productivity differences are larger for younger cohorts and shrink only slowly as firms age, supporting the idea that selection mechanisms can increase resource misallocation. In more advanced ECA economies, especially high-income ones, the relationship is negative between productivity dispersion and age, but this pattern does not hold in less advanced ECA economies (except the Kyrgyz Republic, where the relationship is negative and initial dispersion is high). Productivity dispersion typically declines during the first five years of a firm's life and then flattens. Patterns in productivity dispersion suggest that market selection mechanisms and expected postentry growth of incumbents do not work to benefit more productive firms. In other words, misallocation, driven by inefficient market functioning, seems to be dampening aggregate productivity growth in ECA.

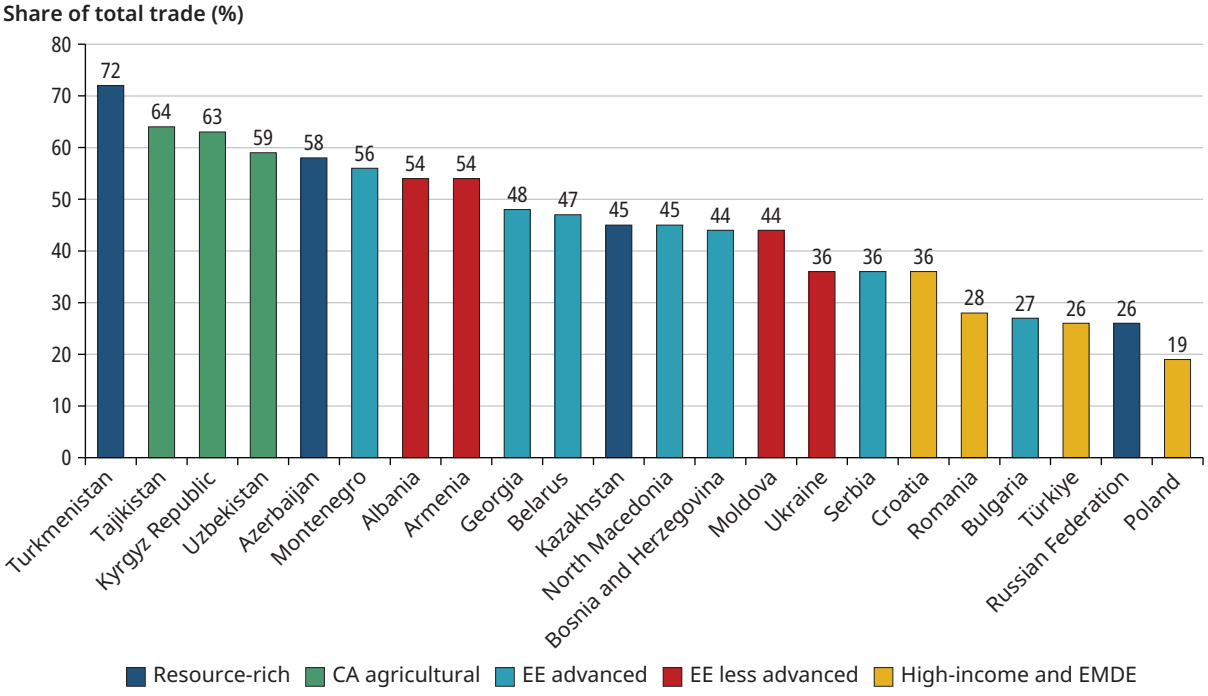
Unleashing Productivity—Through Trade and Foreign Direct Investment

Global economic integration—through trade and foreign direct investment (FDI)—offers some of the most powerful yet underused levers for productivity growth in ECA. ECA's trade patterns are not fully aligned with what would maximize productivity. Exports are not diverse enough and are tilted toward lower-complexity products and nearer markets, suggesting unexploited opportunities to "trade up" in quality and reach. Although recent shocks have reshaped trade flows (including a shift toward intraregional trade and "friendshoring"), ECA still trades below its potential with the most dynamic global markets (figure O.4).

Many countries—particularly resource-dependent and Central Asian agricultural economies—export less than expected to key partners such as Organisation for Economic Co-operation and Development (OECD) members and China, largely because of weak trade logistics and restrictive trade policies. Much of this unrealized trade lies in manufacturing, limiting the region's ability to leverage the four channels of growth and innovation.

ECA countries' substantial missing trade reflects the challenges that firms face in engaging in international markets and the forgone opportunities of not serving foreign markets. After all, it is not countries that export, it is firms, and those that export show an outstanding performance. Despite being few, ECA exporters disproportionately contribute to their countries' value added, employment, salaries, and fixed assets and are the main drivers of growth in these performance measures (figure O.5). In other words, exporters can be key pillars for creating new and better opportunities and enhancing productivity across the region.

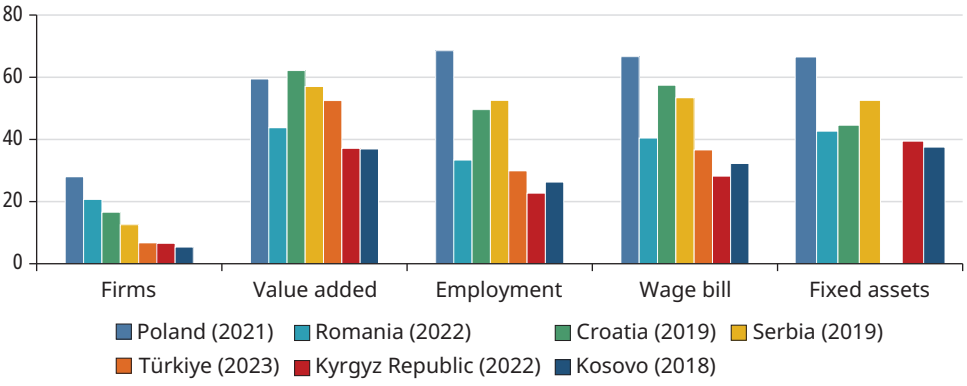
FIGURE O.4 Missing trade is pervasive among ECA countries



Source: World Bank based on data from UN Comtrade database, United Nations Statistics Division (accessed October 30, 2024), https://comtrade.un.org/.

Note: The estimates are from a gravity model. For a description of this model, refer to online annex 2B, available at https://hdl.handle.net/10986/43788. CA = Central Asia; ECA = Europe and Central Asia; EE = Eastern Europe; EMDE = emerging markets and developing economies.

FIGURE O.5 Exporters in ECA contribute disproportionately to key economic indicators



Sources: World Bank estimates based on firm-level data from national statistical offices and Orbis.

FDI inflows, often concentrated in a few sectors, are not sufficiently embedded in the domestic economy. Although FDI holds the potential to boost domestic firm performance, whether these benefits materialize depends on specific conditions. In ECA, there are additional untapped productivity gains because the presence of foreign firms in the region does not lead to significant improvement in performance for domestic companies, at least for those in the supplying sectors.

Four interconnected pathways highlight the multifaceted ways in which trade and FDI can enhance productivity. A robust competitive environment facilitates creative destruction and incumbent upgrading. Foreign investment plays a role across these channels. The overall productivity impact depends on these linked effects and supportive domestic policies and institutions. For ECA, this means continued structural reforms, competition-friendly regulation, flexible labor markets, and accessible finance. Investments in education, skills, and innovation empower firms to learn and upgrade. When these conditions are in place, the gains from trade and FDI can be substantial. Conversely, domestic barriers can mute these benefits. Given current global uncertainties, getting the domestic basics right is crucial. Adapting to shifting trade patterns may require finding new markets or investment sources. A flexible, productivity-oriented economy can navigate these shifts. By strengthening the enabling environment for the pathways, ECA countries can better harness trade and FDI for growth, leading to more competitive, innovative, and dynamic economies.

To leverage structural transformation (pathway 1), policies should facilitate resource mobility across sectors. To address the challenge that resources are trapped in low-productivity sectors, policies should facilitate the mobility of labor and capital toward more productive sectors. Doing so involves removing distortions that trap labor or capital in unproductive areas, such as reducing subsidies for declining industries and enhancing labor market flexibility for retraining and relocation. Similarly, improving infrastructure to connect lagging regions with dynamic economic centers can help reallocate resources.

To translate the benefits of integration through reallocation of resources between firms (pathway 2), policies should unlock constraints to firms' growth. Resource reallocation requires pro-competition reforms—for example, streamlining business licensing, simplifying regulations, and breaking up monopolies—that complement trade by enabling the growth of efficient new firms that challenge incumbents. Removing reallocation barriers is crucial, including improving access to finance for high-performing small and medium enterprises and phasing out support for failing ("zombie") firms. Flexible labor markets and adequate schemes for reskilling also assist workers' transitions to expanding firms.

To maximize the benefits from integration through creative destruction (pathway 3) requires a dynamic business environment with easy entry for new firms and orderly exit for inefficient ones. Policy makers should reduce bureaucratic hurdles for start-ups (including by enabling foreign investments) and reform insolvency frameworks to expedite the exit or restructuring of unviable firms. Strengthening bankruptcy laws and removing barriers that discourage firm exit are vital in many ECA countries. Flexible labor market policies, supporting retraining and relocation, enable quicker replacement of shrinking firms with expanding ones. Fostering access to risk capital is also key for firm creation. Active labor market policies can cushion displaced workers during trade liberalization, maintaining support for openness. Overall, a policy framework prioritizing economic flexibility and innovation ensures that global integration yields net positive productivity effects.

To foster the benefits of firm upgrading from integration (pathway 4), policies should facilitate firms' learning and absorptive capacities. Promoting upgrading requires investing in human capital and encouraging technology adoption (for example, through tax incentives for research and development). Building domestic capacity is essential for local firms to partner with and learn from foreign companies. Supplier development programs linking domestic suppliers with multinationals can amplify FDI spillovers. A competitive services market (for example, telecommunications and logistics) provides manufacturers with better inputs. Trade facilitation (simplifying customs and improving airports) reduces the costs of engaging in importing and exporting. For export promotion, targeted support, like helping firms meet international standards, can be beneficial, as can addressing information externalities through targeted interventions such as "meet-the-buyer" events and providing information about prospective market opportunities.

Technologies for Productivity—Digital and Low-Carbon

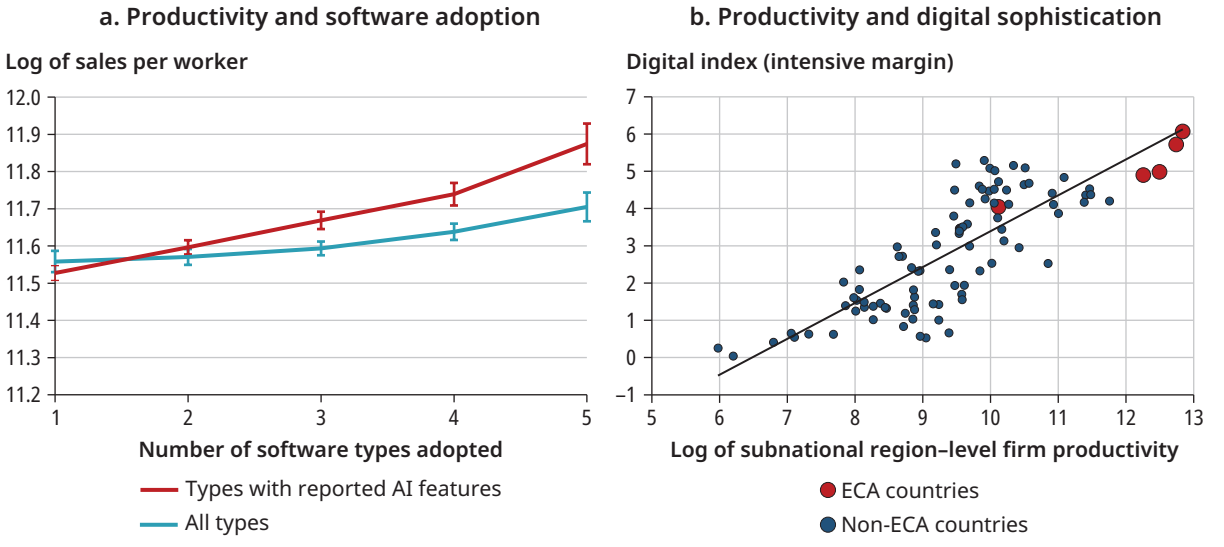
The adoption and intensive use of modern technologies are another important driver for productivity growth and complementary to the gains from reallocation. Digital and modern low-carbon technologies can be sources of within-firm upgrading (figure O.2), because they enhance the efficiency of operations and resource use inside the firm or provide access to new markets. At the same time, removing market distortions can foster technology adoption because doing so increases firms' incentives to invest.

Digital technologies—productivity engines within reach

Digital technology can boost within-firm productivity growth in ECA. Although most firms have access to digital enablers such as broadband and computers, the promise of digital transformation in the ECA region has been largely unrealized. The gap is not one of access but of effective utilization and integration of digital technologies into core business processes. Addressing this gap requires upgrading firms' organization, expanding investments in digital skills, and removing barriers to growth to sharpen the incentives to invest and increase the returns to those investments.

First, digital technology adoption is clearly associated with higher productivity growth. Both sector- and firm-level evidence confirms significant productivity benefits from greater digital technology adoption (figure O.6). A simulation at the country level suggests that if ECA economies reached the EU average in cloud adoption, productivity could rise by up to 7 percent, and by up to 25 percent if they reached the European frontier.

FIGURE O.6 The positive relationship between productivity and firm digitalization is visible at the firm level



Sources: Panel a: Orbis and Spiceworks Ziff Davis; panel b: World Bank Firm-level Adoption of Technology survey.

Note: In panel a, the regression controls for firm size, ownership (foreign or domestic), and two types of fixed effects (sector at the 1-digit statistical classification of economic activities [NACE] and country levels). In panel a, AI–related software is software that has publicly reported AI features. In panel b, the digital index indicates whether the most frequently used technology to perform tasks across six general business functions (administration, planning, sourcing, marketing, sales, and payments) is manual (value of 0), basic digital (value of 1), or advanced digital (value of 2). The values on the y axis are the regional averages of the digital index. Subnational region-level firm productivity is the average value added per worker in each subnational region, after controlling for sectoral differences, adjusted by purchasing power parity. AI = artificial intelligence; ECA = Europe and Central Asia.

Second, despite almost universal access to basic digital enablers (such as internet, personal computers, and smartphones), a significant gap remains in the use of these technologies, and it has been widening in most ECA countries. ECA firms struggle with the effective incorporation of digital technologies into their routine and productive processes. Although firms may initially purchase and adopt new technologies, they often do not use them intensively in their core business functions. Simply promoting access to and adoption of new technologies might not be enough, because firms might require complementary managerial or technical skills to make full use of these technologies.

Third, the adoption and use of digital technologies depends on two enabling and connected channels: within-firm upgrading and more efficient markets. Within-firm upgrading through digital technology adoption requires both workforce and managerial skills. Wider availability of digital skills in the workforce is associated with lower labor costs and higher adoption levels. Similarly, higher levels of managerial skills are associated with more intensive use of advanced digital technologies, because skilled managers enable firms to integrate new solutions into their workflows successfully. In addition, more efficient market conditions play an equally important role in digital technology adoption. Higher levels of competition, whether through lower market concentration or greater exposure to trade, correlate with increased investments in digital technologies. Conversely, greater presence of SOEs in a sector is associated with lower levels of digital technology adoption. One potential explanation for lower technology adoption in more distorted markets is that firms perceive lower returns to investment.

Firms in ECA are becoming more digital, but they need to speed up their use of digital technologies to avoid falling further behind the frontier and to reap important productivity benefits. The productivity gains from digitalization can be significant. Catching up to the European frontier in cloud services would boost productivity between 18 and 25 percent; however, firms may need to overcome a variety of barriers to integrate novel technologies into their business processes. Skills, market competition, and access to finance stand out as the three main facilitators to promote the digitalization process. What can governments do to lower these barriers and help firms digitalize faster and more deeply? Concrete policy solutions require a deeper understanding of each country's context, the country-specific constraints that firms face, and how different firms react to these challenges.

Subsidizing access and adoption of digital technology alone is insufficient, because governments need to incentivize its widespread use within firms. The report shows that universal access to basic digital enablers, like the internet or computers, does not guarantee the widespread use of more advanced digital technologies in firms. Policy instruments that solely incentivize the purchase of

digital technologies might thus fall short, because companies could have difficulties in integrating more advanced technologies into their routine processes. Policy makers should also prioritize results-based support for technology adoption—focusing not just on access but also on effective use. This support includes conditional subsidies tied to performance outcomes and tailored advisory services for firms navigating the digital transition.

Different policies are needed across different countries and firms because constraints differ. The considerable variation in terms of digitalization across different types of firms suggests the need for tailored solutions. For example, the distance to the frontier in the intensive use of digital technologies is driven more by older firms than younger ones, suggesting that firms that are more mature have greater difficulties in digitalizing their business functions. Similarly, in the use of basic digital enablers (such as the cloud or e-commerce), smaller firms in less advanced ECA countries struggle to catch up with the frontier countries, although this is not the case for Croatia and Poland.

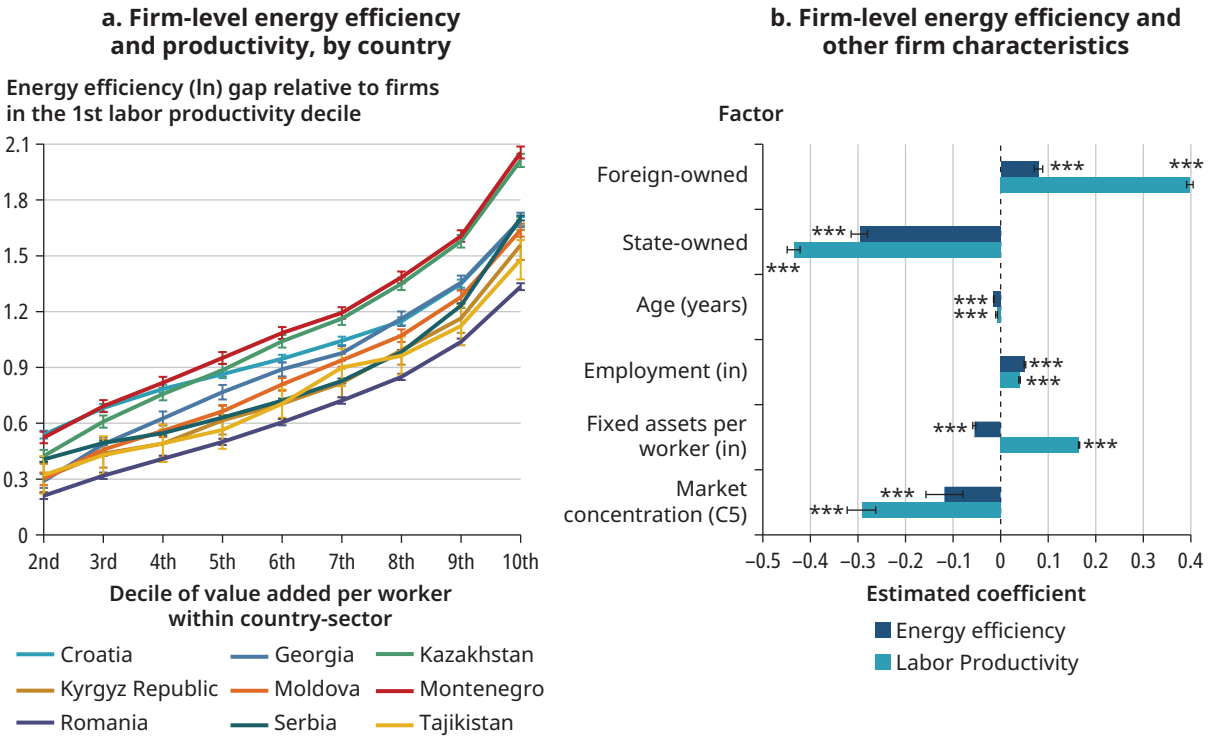
Low-carbon technologies—aligning resource efficiency with productivity

Becoming more energy efficient is strongly linked with firm-level productivity. Energy is an essential input for production and a key cost component for firms. More productive companies (those using production inputs more efficiently) also use energy more efficiently (figure O.7, panel a). Moreover, firm attributes that are positively associated with higher productivity (such as foreign ownership or larger size) are also correlated with greater energy efficiency (figure O.7, panel b). Similarly, factors that are negatively associated with productivity (such as state ownership or operating in highly concentrated markets) tend to correlate negatively with energy efficiency.

Energy efficiency and low-carbon technologies offer a dual benefit for ECA countries, which lag in aligning their climate and economic strategies. Modern low-carbon technologies can both mitigate environmental impact and improve firm productivity. However, fossil fuel subsidies, artificially low electricity prices, and weak carbon pricing provide perverse incentives for firms. ECA has some of the world's highest fossil fuel subsidies. Paired with low, subsidized electricity prices, these subsidies introduce strong distortions by decreasing production costs for fossil fuel–based technologies and reducing overall incentives for resource efficiency because of low energy prices.

Firms that adopt resource-efficient technologies—whether cleaner machinery, smart lighting, or energy monitoring—tend to be more productive. Although they create up-front costs for firms, technologies or processes that are more energy efficient ultimately pay off through higher productivity. However, these gains are largely achieved through within-firm

FIGURE O.7 Energy efficiency and productivity are closely linked



Source: Calculations based on firm-level data from national statistical offices.

Note: Energy efficiency is measured as sales divided by energy costs. Labor productivity is measured as value added per worker. The cross-country sample covers 2006–23 (different time periods per country). C5 = joint market share of the five largest firms in a sector; LP = labor productivity; VA = value added.

improvements rather than market-driven reallocation. The market dynamics in many ECA countries often move in the wrong direction, rewarding less efficient firms, because of price signals that distort incentives. The result is a misalignment between efficiency and competitiveness. SOEs and highly concentrated sectors perform worse both environmentally and economically.

Improved resource allocation toward productive sectors and firms would not only benefit productivity but also foster resource efficiency, by altering firms' incentives to adopt more efficient technologies. Policy reforms must start by rationalizing fossil fuel subsidies and moving toward cost-reflective pricing. Doing so creates a level playing field for clean technologies. At the same time, investment in public research and development, access-to-finance tools, and green innovation programs can accelerate technology uptake. Evidence from countries like Georgia shows that even modest tariff reforms can spark significant efficiency improvements and lead to equipment upgrading.

Reforms of the policy mix are crucial. ECA must also improve the targeting of its environmental spending and shift toward first-best instruments such as

emissions pricing, rather than relying solely on command-and-control measures. A consistent and credible green policy framework would improve resource efficiency and boost productivity and economic resilience.

People for Productivity—Jobs, Skills, and Human Capital

Start-ups and other new firms tend to enter the market at a small scale in ECA, at less than half the size of new firms in the United States. Although smaller firm size at entry may suggest lower entry barriers firm creation can be the result of entry due to necessity rather than opportunity. Although the share of necessity-driven entrepreneurs in ECA is similar to the share in OECD countries, the share of purely opportunity-driven founders is slightly lower in ECA. Firms created because of necessity tend to remain in a low-growth, subsistence equilibrium and contribute little to jobs and productivity. Creating an enabling business environment that rewards productive firms and investment by improving access to finance and increasing trade integration is key to encouraging larger, capital-intensive, and innovative companies.

Boosting the entry of high-productivity firms matters for job creation and job quality. When firms are more productive, they can decide to rely less on workers, because their efficiency is higher. They are also likely to have larger output, which may lead them to expand their workforce. Which of these forces dominates is an empirical question. This report's firm-level analysis suggests that the positive output effect dominates, because the average five-year employment growth rate has a strong positive association with the initial productivity of the firm. For instance, a firm whose productivity is within the first quintile of the distribution displays an average employment growth rate that is substantially lower than that among firms in higher productivity quintiles. Frontier companies (those in the fifth quintile) exhibit average employment growth that is two times higher than that of firms in the fourth quintile and 10 times higher than that of firms in the first quintile. Promoting the entry of innovative, more capital-intensive firms is good for economic growth and employment creation. Similarly, wages rise faster in frontier firms than in lower-productivity firms, although the relationship is weaker than for job creation.

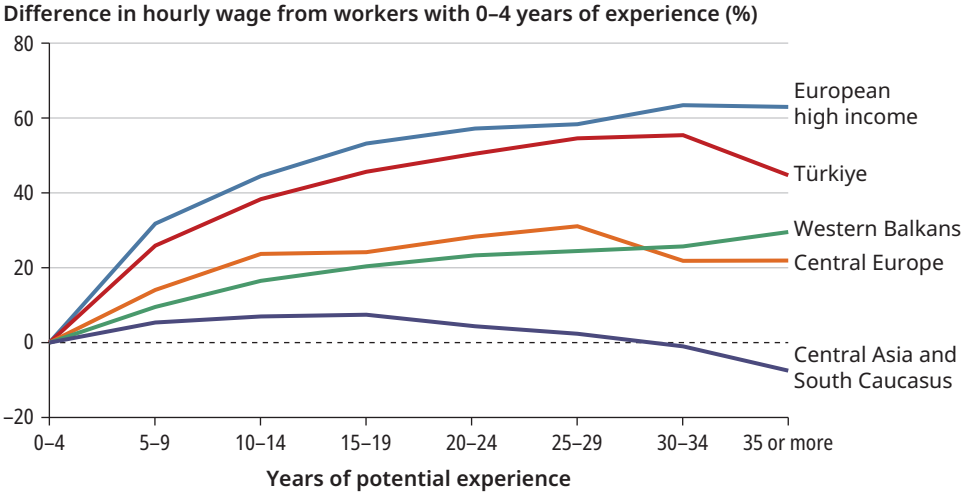
Productivity growth drives job creation, and this link is stronger among high-productivity firms. Productivity growth can be labor-reducing if efficiency is achieved through the adoption of labor-saving technologies. However, productivity growth may also lead to labor expansion as output expands and the firms scale up. On the basis of firm-level analysis, the report finds a positive association between productivity growth and employment creation. Firms with larger productivity gains tend to have greater employment growth in the long term (over five years). Although this finding could be interpreted as smaller firms

making larger efficiency improvements and employment changes, these job-growth patterns are robust to the initial employment of the firm and its position in the productivity distribution.

Human capital—not only the stock but also the match between worker skills and job demands—is both a source of strength and a critical constraint across ECA countries. Skills gaps have been constraining, and several key findings should guide policy makers to improve productivity in the region in the coming years:

- *There is significant skill misallocation*, particularly in middle- and low-income ECA countries. Skilled workers are often not placed in larger, more productive firms, and vertical skill mismatches—such as, for example, when workers' education differs from what their jobs require—are common, especially with overqualification.
- *The misallocation results in considerable productivity losses.* Overqualified workers are approximately 12 percent less productive than their well-matched counterparts. Furthermore, returns to experience—an indirect measure of learning on the job—are significantly lower in middle- and low-income ECA countries than in advanced European economies, suggesting ineffective skill accumulation in the workplace (figure O.8).

FIGURE O.8 ECA countries display moderate returns to experience at best, especially compared to countries in Western Europe



Sources: Bossavie, de Hoyos, and Torre 2025, based on data from national labor force surveys and the Organisation for Economic Co-operation and Development's Programme for the International Assessment of Adult Competencies.

Note: The sample includes only wage employees. The data correspond to 2010–23 (different time periods per country).

- *Underwhelming proficiency in foundational skills is both a drag on productivity and a critical reason for skill misallocation.* Proficiency in foundational skills among ECA workers is low, and learning outcomes for 15-year-olds on international assessments, such as the Programme for International Student Assessment (PISA), have stagnated or declined in many countries, threatening future human capital development. This low proficiency has a direct effect on productivity, because poorly skilled workers are, per se, less productive. It also has a compounding effect on workplace learning, because only workers with high levels of proficiency in foundational skills experience substantial skill accumulation, reflected in a steep earnings-experience profile.
- *Insufficient demand for skills plays a significant role in skill misallocation.* In some ECA countries, a large public sector may be restricting the private sector's demand for high-skill workers. Furthermore, employment in small firms and low-skill service sectors does not foster human capital accumulation throughout a professional career. Although on-the-job training can enhance workplace productivity, it remains underused in ECA relative to high-income countries.
- *Structural characteristics of the labor market matter as well.* Although some institutional features of the labor market—such as minimum wage laws and strict employment protection—do not have a clear relationship with efficient skill allocation, structural characteristics, such as the extent of informal employment, are linked to higher levels of mismatch and lower returns to experience.
- *Poor managerial skills and inefficient firm organization can lead to weak labor outcomes.* Overall managerial skills across firms in ECA are lacking, which contributes to both skill misallocation and poorer firm performance.

These findings point to a multipronged policy approach. First, education systems should focus on building strong foundational skills to ensure a steady pipeline of adaptable, trainable workers. Second, firm-level policies should expand access to on-the-job training and promote skills development through modular certifications and cost-sharing partnerships between the public and private sectors. Last, labor market policies should foster an environment that supports skill use and accumulation by minimizing mismatches, encouraging job mobility, and enabling integration into dynamic, innovation-driven markets.

Education reforms should guarantee that all students attain mastery in essential competencies such as literacy and numeracy at an early stage. This mastery is especially critical given the rise of automation and the increasing complexity of tasks in labor market dynamics. Effective interventions might include high-dosage tutoring, personalized instruction, and strategies to enhance teacher effectiveness, especially in underperforming school systems.

Reforms should target all levels of education, particularly vocational training and higher education. ECA countries' education systems are characterized by a large footprint of vocational education in upper secondary and high enrollment rates in higher education. These subsystems are usually not the focus of reform efforts aimed at improving foundational skill proficiency. However, graduates from both vocational and tertiary education have disappointing levels of cognitive skills, indicating the need to address these skills gaps even at these levels of education.

Credentialing systems require reform to reflect actual competencies more accurately. Excessive reliance on formal degrees obscures significant disparities in skill proficiency among graduates and contributes to overqualification. By transitioning to modular, competency-based certification frameworks that acknowledge both formal and informal learning, policies should enhance labor market signaling and promote lifelong learning. Such reforms would not only help mitigate skill mismatches but also enable workers to acquire and demonstrate their skills in more flexible and job-relevant ways.

Policies should enhance workplace learning by increasing access to training opportunities. Although most firms provide limited on-the-job training, productivity gains are significant when such training is available, particularly for workers with stronger foundational skills. Governments can support cost-sharing initiatives for training, promote diagnostic assessments of skills to tailor programs to workers' specific needs, and ensure that foundational skills gaps are addressed before investing in more advanced technical training. When implementing these policies, it is important to include mechanisms such as retention incentives and strong certification systems: Without them, firms' investment in broad-based training will remain limited.

Improving managerial practices can enhance skill allocation and firm performance. Global experiences indicate that governments can assist firms in enhancing their managerial practices cost-effectively, especially by using both individual and group-based consulting services.

Labor markets require improved tools to address the mismatches between workers' skills and job requirements. Enhancing labor market observatories that monitor skill demand and wage returns—together with modern, data-driven public and private employment services—can assist job seekers, especially youth, in making more informed decisions about training and employment opportunities. Implementing better-matching mechanisms is crucial for reducing both the prevalence and persistence of skill mismatches and overqualification.

Policy Agenda for Productivity and Prosperity

ECA countries need to complete the transition to market-based economies and address the misallocation of resources across and within sectors, while also strengthening firms' capabilities through technology adoption and skills development. They need to complete the transition to market economies and embrace a productivity-centered development strategy. To do so, reforms must address distortions, support technology adoption, and equip people and firms to adapt. Removing frictions and distortions in labor and financial markets would facilitate the reallocation of economic resources to more productive firms and increase productivity. In labor markets, governments should increase flexibility in labor market regulations, by eliminating preferential treatment for SOEs and any type of preference not based on fundamentals, such as size-based subsidies. Modernizing insolvency regimes can also support the reallocation of resources to the most productive firms and activities. Welcoming FDI (both public and private, with know-how and expertise in key upstream sectors) can increase aggregate productivity. These business environment reforms need to be accompanied by policies and programs that increase the use of digital and resource-efficient technologies and strengthen the foundational skills of workers and managers.

This report lays out priority actions for trade, investment, digitalization, efficiency, and skills—to ride the "TIDES" to higher productivity.

Priority 1: Ignite trade-led productivity by launching a fresh reform push that deepens ECA's integration into regional and global value chains.

Trade—connect and compete. Igniting trade-led productivity growth in ECA requires a renewed reform push to deepen the region's integration into global and regional value chains. The focus should shift from simply expanding trade volumes to enhancing firms' ability to connect, compete, and move up the value chain. This entails reducing the costs of cross-border commerce, aligning trade frameworks with the realities of digital trade, and ensuring that export promotion efforts foster firm-level learning and survival in global markets. By tackling barriers at and behind the border, governments can unlock the reallocation, scale, and learning effects that drive sustained productivity growth.

Depending on country context, specific recommendations may include:

- **Lower trade costs** by, for example, simplifying customs procedures, harmonizing standards, and improving logistics infrastructure, especially to help smaller and first-time exporters.
- **Modernize trade frameworks** to enable digital trade and cross-border data flows, positioning firms to compete in knowledge-intensive services.

- **Facilitate value chain integration** by, for example, advancing regional cooperation and streamlining border processes.

Priority 2: Maximize the benefits from foreign investment by improving links with and spillovers to the domestic economy.

Investments—anchor FDI and amplify spillovers. A credible, predictable investment climate—combined with open and well-regulated service sectors—can attract high-quality investors. But reclaiming productivity momentum from foreign investment requires not only attracting more FDI, but also turning it into a catalyst for domestic upgrading. This means integrating foreign investors into the domestic economy so that competition and collaboration drive innovation and productivity gains. At the same time, strengthening domestic capabilities, supplier networks, and innovation ecosystems ensures that foreign investment drives broader structural transformation rather than creating isolated enclaves. By anchoring FDI and amplifying its spillovers, ECA economies can accelerate firm-level upgrading and push frontier practices deeper into domestic production networks.

Depending on the country context, specific recommendations may include:

- **Enhance the investment climate** through, for example, transparent rules, efficient administrative processes, and predictable incentives that attract and retain high-quality FDI.
- **Deepen services liberalization** in, for example, digital, logistics, and finance, to support the operations of multinational firms in the local economy and improve local market efficiency.
- **Foster strong linkages** between foreign investors and domestic firms, for instance through supplier development programs, partnership platforms, and targeted capacity-building support.
- **Align fiscal incentives with productivity goals** by, for example, redirecting tax breaks toward initiatives supporting innovation, research and development partnerships, and workforce mobility that spread foreign know-how across the economy.

Priority 3: Foster investments in upgrading and technology adoption through incentives.

Digitalization—diffuse frontier technologies, strengthen capabilities, and deepen use. Realizing the benefits of closing the region's digitalization gap requires more than improving connectivity. It demands stronger firm capabilities, better incentives, and a more competitive environment that encourages

technology adoption. Governments should shift from policies that simply subsidize technology purchases toward those that promote the effective and intensive use of digital tools. Equally important are complementary investments in human capital, competition, and finance, which enable firms to absorb and deploy new technologies productively. By creating the right incentives, skills, and market conditions, ECA countries can turn connectivity into competitiveness.

Depending on the country context, specific recommendations may include:

- **Address market distortions** that discourage private investments in digital solutions, for example, by strengthening competition.
- **Integrate digital skills into educational and training systems** to better align them with evolving labor market needs.
- **Pair digital technology support with management and organizational capacity building support** to help firms use new tools effectively and improve internal processes.[2]
- **Promote responsible adoption of digital financial services** to expand access to finance—especially for underserved firms—enhance financial management practices, and support broader business digitalization.

Priority 4: Remove distortions and misallocation of resources by fostering competitive domestic markets.

Efficiency—level the playing field and unleash reallocation. Policies to promote efficiency should focus on removing distortions that trap resources in low-productivity firms and enabling markets where productive firms can enter, grow, and replace less efficient ones. This requires making markets contestable and removing distortions that shield incumbents and restrict new entrants. Ensuring competitive neutrality for the state itself is equally critical. For instance, SOEs engaged in commercial activities should compete on equal terms with private firms. Efficient reallocation of resources also depends on mitigating a misallocation of finance. Governments should promote modern and inclusive financial systems that direct financing toward productive and innovative firms. Strengthening the core enabling environment for access to finance can yield substantial impact with limited fiscal costs. These reforms can be complemented with well-designed, targeted, and proven financial interventions. These interventions often carry significant fiscal costs and can introduce distortions. Careful design and selection are therefore critical, since each intervention has unique characteristics that influence its impact and feasibility.[3]

Depending on country context, specific recommendations may include:

- **Promote contestability** by, for example, conducting systematic reviews of regulations, licenses, tax incentives, and procurement rules to identify measures that protect incumbents or restrict market entry, exit, and expansion.

- **Ensure competitive neutrality for SOEs** by, for example, requiring SOEs to operate under market-based financing, transparent governance, and clear accountability mechanisms, while also phasing out preferential treatment such as subsidies.
- **Strengthen the enabling environment for finance,** drawing on international and regional good practices by, for instance, enhancing credit infrastructure, diversifying the range of financial providers and products, and leveraging fintech innovation, while ensuring associated risks are adequately managed.
- **Improve the effectiveness of targeted financial interventions** by, for example, improving targeting of beneficiaries and financial intermediaries, financial additionality, especially through private capital mobilization, and accountability through robust monitoring and evaluation systems.

Priority 5: Unlock productivity through foundational learning by aligning talent and driving lifelong upskilling.

Skills—align talent and accelerate learning. Policies to enhance skills should focus on rebuilding foundational competencies, improving the alignment of talent with labor market needs, and fostering lifelong learning. Education systems should ensure strong foundational skills, while also promoting competency-based, flexible learning that adapts to evolving labor market demands. Complementary measures can encourage continuous upskilling to enable firms and workers to fully leverage productivity-enhancing technologies and practices. By aligning talent with private sector needs and embedding lifelong learning, ECA countries can boost firm-level productivity and drive economywide growth.

Depending on country context, specific recommendations may include:

- **Strengthen foundational skills** by, for example, ensuring universal early mastery of literacy, numeracy, and digital reasoning, tracked through national assessments benchmarked internationally. This effort should also include interventions in underperforming vocational and higher education.
- **Support lifelong learning** by, for example, supporting on-the-job skill development, especially in digital and technical areas.
- **Enhance education–employer linkages** by, for example, facilitating collaboration between firms and education providers.
- **Support better labor market matching** by, for example, strengthening mechanisms that connect workers with opportunities, ensuring that skills are fully utilized.

Gains from improved resource allocation and firm capabilities are often interdependent, highlighting the importance of addressing holistically all five elements of TIDES. Building capabilities alongside competition is key.

Without investments in technical and managerial skills and new technologies, domestic firms might struggle to respond to new competition unleashed by market reforms and improved integration. Empirical evidence suggests that, without firm capabilities, even the least distorted economies might fail to reap the benefits of reallocation (Cusolito and Maloney 2018). However, this interdependence runs both ways: Eliminating misallocation also increases firms' incentives to invest in technologies and skills, because the returns to these investments tend to be higher in more efficient markets (Bloom et al. 2022).

Beyond these priorities, it is crucial to mainstream the productivity agenda in countrywide growth strategies, underpinned by strong institutions and robust statistical data and analytics, alongside an independent national productivity board empowered to keep score. Every ECA government issues multiyear development plans, yet few make productivity their organizing principle. Each new plan should contain a dedicated productivity pillar with hard targets for TFP growth, misallocation reductions, and skills upgrading, to be monitored with the same rigor as fiscal rules. OECD experience has shown that national productivity boards work when they are independent, multidisciplinary, and data rich. Their toolkits should include a "red-flag" mechanism requiring ministries to justify measures that harm productivity, a public dashboard tracking key indicators, and peer reviews with other national productivity boards to share lessons. Delivering this agenda hinges on statistical upgrades, especially richer business microdata and modern data service functions, to enable timely and high-quality diagnostics to guide policymaking and improve accountability. With these enablers, ECA can convert reform blueprints into measurable productivity gains.

Notes

1. For the purpose of this report, ECA economies were classified into five groups using k-means clustering based on a variety of economic, geographic, and institutional factors (GDP share of agriculture, natural resource rents [percent of GDP], trade openness, distance to the geographic center of the European Union, and Bertelsmann Stiftung's Transformation Index): (1) high-income and emerging markets and developing economies (Croatia, Poland, Romania, and Türkiye), (2) Eastern Europe advanced economies (Belarus, Bosnia and Herzegovina, Bulgaria, Georgia, Kosovo, Montenegro, North Macedonia, and Serbia), (3) Eastern Europe less advanced economies (Albania, Armenia, Moldova, and Ukraine), (4) natural resource–rich economies (Azerbaijan, Kazakhstan, the Russian Federation, and Turkmenistan), and (5) agricultural Central Asia economies (the Kyrgyz Republic, Tajikistan, and Uzbekistan). However, completeness of groups may vary due to data availability. Notes below figures list the exact countries included in each group.
2. Strengthening managerial practices increases firms' capabilities to integrate and intensively use new technologies (Cirera, Comin, and Cruz 2024; Cirera and Maloney 2017). For a detailed review of policy instruments to build firm capabilities and accelerate technological catch-up, refer to Cirera et al. (2020).
3. See Carvajal and Didier (2024) for specific recommendations based on an assessment of the effectiveness of policies to improve access to finance for under-served businesses.

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Europe and Central Asia (ECA) is at a turning point. After a period of convergence and reform-driven growth during the first decade of the 2000s, the region's productivity engine has lost momentum. Total factor productivity growth has halved since the global financial crisis, and the gains from capital deepening and labor expansion are no longer sufficient to sustain economic growth. If pre-2008 trends in productivity growth had continued, average incomes would be around 60 percent higher today. Instead, misallocated resources, incomplete integration into global markets, and weak firm capabilities during a period of stalled reforms have left the region below its potential.

This report lays out a new agenda for boosting productivity. Drawing on unique firm-level data from across the region, it shows how deeper trade integration, smarter investment, and adoption of technology, coupled with improved firm capabilities and investments in workers' skills, can unlock significant productivity gains. The report highlights the need to face the challenges of the unrealized potential of exports and foreign direct investment, insufficient level of digital technology adoption, and limited investment in skills training (offered by only one in five firms in ECA today), coupled with weak foundational skills. The evidence is clear: Addressing these challenges through targeted reforms in improving market functioning, technology adoption, export promotion, and skills development is crucial for unlocking the region's productivity potential.

The path forward is captured by the policy framework of trade, investment, digitalization, efficiency, and skills (TIDES)—the levers that can help boost the region's productivity. This flagship report is not just a diagnosis of what went wrong; it is a call to action for what must come next. Focusing on TIDES, with the right policies and political will, ECA can reclaim its momentum and deliver a new era of shared prosperity.

Sustained economic growth can't happen without productivity growth, and this report explains in detail where it has happened, where it has not (yet), and—importantly—what can be done to improve it for a broad set of economies in the ECA region.

— *Chad Syverson, Professor of Economics, University of Chicago*

Productivity growth requires seizing trade and investment opportunities at a time of rapid digital transformation that needs efficient institutions and life-long skill development. This report lays out how countries in Europe and Central Asia can ride the TIDES to turn their lagging productivity growth.

— *Kalina Manova, Professor of Economics, University College London*

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