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MOLDOVA

COUNTRY ECONOMIC MEMORANDUM
ACHIEVING THE EUROPEAN UNION'S STANDARD OF LIVING WITHIN A GENERATION

WORLD BANK GROUP

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CONTENTS

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ACRONYMS AND ABBREVIATIONS

ANRCETI	National Regulatory Agency for Electronic Communications and Information
ASD	State Road Administration
BOS	Businesses of the State
CBAM	Cross-Border Adjustment Mechanism
CEM	Country Economic Memorandum
CGF	Credit Guarantee Fund
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
ECA	Europe and Central Asia
ENTOSO-E	European Network of Transmission System Operators for Electricity
ES	Enterprise Survey
EU	European Union
FDI	Foreign Direct Investment
FEZ	Free Economic Zone
GCI	Global Competitiveness Index
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GVC	Global Value Chains
ICT	Information and Communication Technology
ILO	International Labour Organization
IMF	International Monetary Fund
LMIC	Lower Middle-Income Country
LNG	Liquified Natural Gas
LTGM	Long-Term Growth Model
MSMEe	Micro, Small, and Medium Enterprises
MW	Megawatts

NBS	National Bureau of Statistics
NEET	Not in Education, Employment, or Training
NIA	National Integrity Authority
NPLs	Non-Performing Loans
OECD	Organisation for Economic Cooperation and Development
PCI	Product Complexity Index
PP	Percentage Points
PPPs	Public-Private Partnerships
PPP	Purchasing Power Parity
SMEs	Purchasing Power Parity
SOEs	State-Owned Enterprises
TFP	Total factor Productivity
UMIC	Upper Middle-Income Country
USPs	Unsolicited Proposals
WB	World Bank
WDI	World Development Indicators

EXECUTIVE SUMMARY

Two decades of strong economic growth have improved standards of living.

Between 2000 and 2021, per capita GDP expanded at an average annual pace of almost 5 percent, helping Moldova reach about 15 percent of the EU average per capita GDP[1] from about 3 percent in the early 2000s. In this period, labor productivity almost tripled resulting in a substantial reduction in poverty, from close to a staggering 90 percent in 2000 to just above 10 percent by 2021. As a result, Moldova has transitioned from a low-income country to an upper middle-income country. The strong growth was driven by a sixfold increase in output per worker in agriculture which led to a movement of abundant workers from agriculture to low-skill manufacturing and services sectors, as employment in agriculture declined from 19.5 percent in 2004 to 5.5 percent in 2021. This sectoral reallocation was a key driver of economic growth as the average labor productivity in the low-skill manufacturing and services sectors absorbing these workers such as trade, transport, or personnel services was still higher at the time. Given the strong catch-up of agriculture productivity, however, workers' productivity has become more similar across sectors, eliminating the past source of growth from structural change.

Catching up to European Union's standard of leaving has become more challenging.

The "remittances- financed" growth model that yielded high growth and poverty reduction has increasingly failed to nurture productivity in non-agriculture sectors, competitiveness in the tradable sector, and the creation of good jobs especially in manufacturing. Despite strong past growth, the productivity of Moldovan workers remains low compared with their regional peers. Faster convergence is held back by slow labor productivity growth in manufacturing and services: at current rates, the non-agricultural productivity gap with Romania is expected to widen, calling for structural reforms to free up the productivity potential of manufacturing and services firms. Moreover, remittances, which was previously an important source of income and consumption for many households, declined steady since its peak in 2007. As a result, Moldova's income convergence with average EU levels has started to decelerate as real GDP growth slowed to 4.2 percent in 2010–2019. Demographic pressures due to a shrinking and aging population are expected to further weigh on growth, which is projected to slow down to an average of 3.9 percent over the period 2023–2040 and fall below 3 percent after 2040. Under the projected growth path shaped by current policies and demographic trends, Moldova will not achieve convergence with EU average GDP per capita levels by 2070.

Policies and institutional reforms that enable a new growth model based on private sector productivity and competitiveness can lift incomes to the average EU level within a generation.

The World Bank Long-Term Growth Model (LTGM) is used in this report to estimate Moldova's growth path until 2070 under current trends and reform scenarios in different policy areas comparable to advances in other countries in the region. The simulations reveal that reforms raising the productivity of private firms, improving the quality of infrastructure services, and raising the skills of the workforce of the next generation would boost economic growth above 5 percent in the medium term so that Moldova achieves convergence with average EU income levels within three decades. This scenario is based on reforms allowing Moldova to achieve an average level of total factor productivity (TFP) growth comparable to Slovakia's or Lithuania's in 2000–2019, by boosting public investment to 7 percent over the medium term, and reaching Moldovan peers' median education levels of 13 years of schooling and an education quality of 80 percent of the best performers. This strong reform impetus targeting higher in domestic private sector productivity is also expected to help reverse outmigration trends by making Moldova a more attractive place in which to work, gradually raising labor force participation rates. The reforms are estimated to raise Moldova's growth by an additional 1.4 percentage points (pp) by 2030 and maintain a 1 pp higher growth rate in the long term as compared to the current trends and policies (i.e. baseline). Notably, this report focuses on reforms boosting private sector productivity and public infrastructure investment which have the strongest medium-term growth impact. Accelerating economic growth by 2030 before it plateaus due to demographic trends is paramount to achieve income convergence withing a generation. While higher equality of opportunity is key to boosting the skills of the future workforce, the effect will take more time to materialize and, as such, an in-depth analysis is left for future work given the focus of this report on more immediate growth drivers.

[1] In terms of PPP (constant 2017 international $), Moldova GDP per capita was about 32 percent of the EU average in 2021 (US$14,000 vs an EU average of US$44,100 in 2021)

Boosting productivity growth requires making markets more contestable and accessible.

The average productivity of Moldovan workers is only 75 percent of the average productivity level of their peers in North Macedonia, 40 percent of their peers in Romania, and 20 percent of their peers in Slovenia. Stagnant private sector productivity growth has been caused in good part by market inefficiencies and slow structural transformation. Less productive firms have hired more workers, revealing distortions in market mechanisms. In recent years, the misallocation of labor has also been caused by workers moving to lower productivity sectors, implying barriers to faster structural transformation. Had the allocation of labor across firms stayed the same as in 2016, for example, cumulative total factor productivity (TFP) growth between 2015 and 2019 would have been 11 pp higher. While firms have become more efficient in recent years and adopted better management practices, **removing regulatory or infrastructure barriers to the adoption of more advanced, foreign technologies and quality standards** can further boost their productivity growth. Firms in Moldova also charge high prices to consumers relative to their marginal production cost, and incumbent market leaders stay on top despite their stagnating productivity. Hence, a large share of unproductive firms enjoys considerable market power—a further sign of market inefficiencies insulating them from competition. Policies aiming to boost productivity and job creation thus need to make markets more contestable, for example, **by reducing barriers to firms' entry, exit, and growth, and ensuring a level playing field.** Improving the economy's allocative efficiency also requires better access to markets by improving connecting infrastructure services, enabling more trade and foreign direct investment (FDI). These reforms are expected to achieve an average level of TFP growth comparable to Slovakia's or Lithuania's in 2000–2019, which would raise annual GDP growth by 0.6 of a pp through to 2050.

Accelerating public investment can address the low quantity and quality of infrastructure services that undermines the returns to private investment.

The poor quality of road transport and railway services limit connectivity, which is key for a small landlocked economy. The poor provision of transport services is due to substantial investment and maintenance backlogs, regulatory challenges, and the presence of inefficient state-owned enterprises (SOEs). **A multimodal strategy, prioritizing railway infrastructure, improving road maintenance practices, and investing in urban transport systems,** is needed to recognize the advantages of different transport modes, develop logistics centers, enhance international connectivity, and achieve a resilient, efficient, and sustainable transport system. Coordinated planning and investment in public transport and alternative mobility solutions are necessary to address congestion, air pollution, and travel time issues. Moreover, energy security, accessibility and affordability continue to be key constraints to the country's competitiveness. Despite recent efforts, the priority in energy remains to reduce the overwhelming dependence on single sources of energy imports and shift towards a more **diversified energy mix both in terms of sources and suppliers, while reducing market concentration, renewing aging power generators, resolving issues of historical debts, and diversifying power-generation mix.** Public funding is not sufficient to finance the infrastructure needs. Private sector financing, including through Public-private partnerships (PPPs), have the potential to bring not only infrastructure financing but also improve the efficiency of service delivery, for instance for road infrastructure, logistics services, and energy. **A review of the current PPP framework and its implementation** is necessary to identify weakness in the framework to attract private investment and remove impediments that restrict or inhibit entry of the private sector. A **solid procurement strategy and market assessment** are also necessary. Public infrastructure investments, including through access to EU funds, can spur GDP growth, on average, by 0.35 of a pp annually over the medium term. Higher public investment is also expected to crowd in private investment raising private investment by 2 pp to 25 percent of GDP a level similar to that of the Republic of Korea's average for the period 2000–2019 would accelerate growth by an additional 0.25 of a pp annually until 2030.

Accompanying policy changes with reforms of public institutions is key to enable productivity growth and investment.

The success of pro-growth policies in Moldova relies on the effectiveness of public institutions to make markets more contestable and accessible. Addressing the inefficiencies of markets that cause resource misallocation and low aggregate productivity growth includes removing preferential policies favoring SOEs over private firms. For example, SOEs' are market leaders in several competitive services sectors including food, real estate, transport, and engineering and architectural services despite being less than half as productive as their fully privately-owned competitors. Policies to level the playing field include **making commercial SOEs subject to private company law, removing public procurement and entry regulations favoring SOEs, and reviewing price controls, state aid and state production for services such as food and pharmaceuticals.** But, despite Moldova's large number of SOEs, they account for only 14 percent of its economy a relatively small share compared with peer countries and are active in about 1 out of 5 4-digit sectors of the economy. Thus, while policies favoring SOEs contribute to the economy's low allocative efficiency, they can only explain part of the market inefficiencies causing it. Specifically, raising Moldova's productivity performance also requires improving the quality of connecting infrastructure services to enable more trade and FDI. This requires reforming critical public institutions that regulate infrastructure sectors often intervene in market structures by issuing or revoking licenses or permits and setting tariffs that affect market entry and competition. Moreover, significant SOE presence in regulated sectors may also hinder effective competition. Moreover, given that significant SOE presence in regulated sectors may also hinder effective competition, **addressing conflicting roles of SOEs as regulators and commercial service providers** in the transport sector for example, where road construction is regulated and enforced by an SOE, would alleviate these concerns and create an unlevel playing field for private companies. Finally, implementing **clear mechanisms to articulate cooperation between sector regulators and the competition authority** in the presence of overlapping mandates may hinder the effective implementation of Moldova's comprehensive competition policy framework.

Sustaining economic growth above 5 percent over three decades would require a steadfast implementation of the new growth strategy assisted by policy and institutional reforms that support a socio-economic transformation.

The experiences of successful countries that have graduated from middle-income status show that such long and sustained growth can only be achieved with a profound transformation of a country's economic and social structure. These countries were well-connected to the global economy and had the capacity to move upwards in terms of technological sophistication, with a leveled playing field across and within sectors that helps spur innovation and productivity. The task at hand is to begin to steer the process of upgrading the current economic model to ensure economic and social convergence, quality of opportunities, and rising productivity throughout the economy. The road to EU integration is long and challenging but opens the opportunity to unlock growth potential and convergence. The current government has the opportunity lay the foundation to set in motion such a long-term growth strategy that future administrations could then build upon.

Striking the balance between measures to mitigate the impact of Russia's invasion of Ukraine on the Moldovan economy and long-term reforms to support the EU integration and convergence is key in the current economic junction.

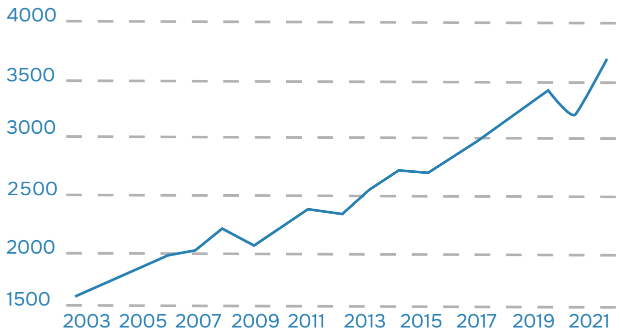
Moldova has been beset by multiple shocks in recent years, from the COVID-19 pandemic to severe droughts. Just as the country was emerging from this series of severe shocks, the social and economic spillovers from Russia's invasion of Ukraine and the energy crisis have put at risk its short-term economic recovery and its long-term economic prospects. These unprecedented challenges are straining Moldova's households, the economy, and its public finances. The macroeconomic conditions have been impacted significantly while energy prices have reached levels that severely stress households and threaten social cohesion. Against this backdrop, implementing a well sequenced and balanced reform plan is key to mitigate the economic impact of Russia's invasion of Ukraine, support short-term economic recovery while maintaining the momentum on the long-term agenda of EU integration.

OVERVIEW

Two decades of strong yet volatile economic growth have substantially improved Moldova's standard of living.

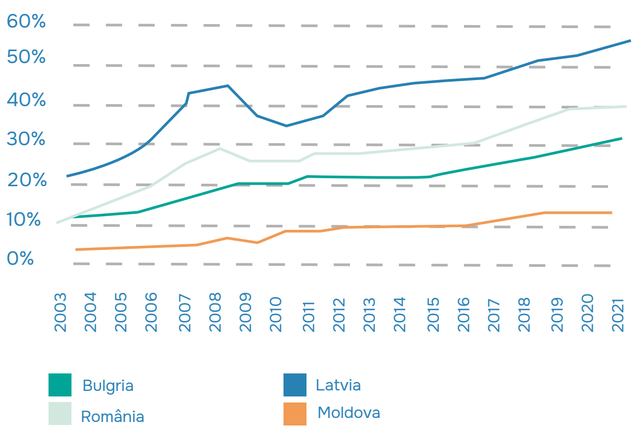
Between 2000 and 2021, per capita GDP expanded at an average annual pace of almost 5 percent, helping Moldova reach about 15 percent of the EU average per capita GDP (US$5,300 vs an EU average of US$38,400 in 2021) from about 3 percent in the early 2000s [2] . This sustained growth has resulted in a massive reduction in poverty, from close to a staggering 90 percent in 2000 to just above 10 percent by 2021 (based on the upper middle-income country [UMIC] poverty line of US$5.5 a day in 2011 purchasing power parity [PPP]).

Figure 1 : Solid growth since the early 2000s
GDP per capita (constant 2015 US$)



Source: WDI, 2021.

Figure 2 : Income convergence to the EU
GDP per capita relative to the EU (%)



Source: WDI, 2021.

Despite this progress, Moldova remains one of the poorest countries in Europe and its prospects of catching up are becoming more challenging.

For more than two decades, the "remittances-financed" growth model that yielded high growth and poverty reduction has increasingly failed to nurture structural transformation and has been detrimental to productivity, competitiveness, and the creation of good jobs, giving rise to a self-perpetuating vicious cycle. A steady flow of remittances, significantly contributing to income growth, and filling the gap of negative domestic savings, has improved living standards of the Moldovan population, but consumption has been met mainly by imports, while the supply response has been limited to agriculture and services. The factors that have limited business opportunities and job creation in the tradable sectors have also affected the incentives of Moldovans to invest in higher education, their desire for full-time positions in the public sector, informality and underemployment in agriculture, and low labor force participation. After 2016, increases in the labor participation rate were mainly driven by self-employment in subsistence agriculture. [3] Further migration has increasingly become the sole valve to release labor market pressure and the increase in real wages despite low productivity growth is a sign of a steady deterioration of Moldova's competitiveness.

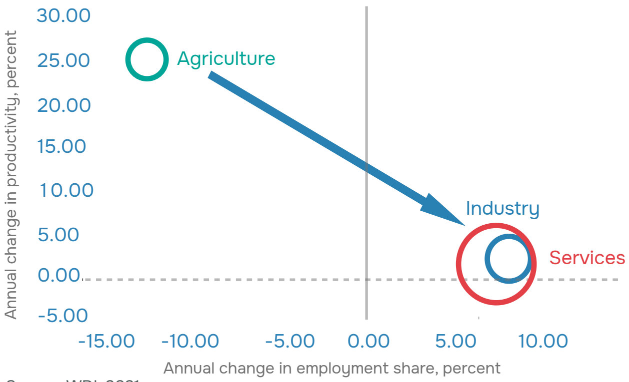
The transition to high-income requires a new engine of growth based on the creation of more productive jobs in manufacturing and services.

Past policies facilitated capital accumulation which implied a catch-up in productivity based on the adoption of basic, readily available imported technologies, often in agricultural production. This supported the strong growth in agricultural productivity that led to a reallocation of workers [4] to low-skill manufacturing and services sectors such as retail trade, transport, or personnel services. This sectoral reallocation was a key driver of economic growth as the average labor productivity in those sectors was initially substantially higher than in agriculture. After the strong catch-up of labor productivity in agriculture, however, workers' productivity has become more similar across sectors, eliminating this past driver of growth from structural change. This pattern of growth and convergence based on the accumulation of capital and labor, and the reduction of the share of labor working in agriculture has been

[2] In terms of PPP (constant 2017 international $), Moldova GDP per capita was about 32 percent of the EU average in 2021 (US$14,000 vs an EU average of US$44,100 in 2021)
[3] The reason for this trend is unknown. The methodology of the LFS did not change between 2014 and 2018. During this period, own-account farmers were only counted as part of the labor force if they worked at least 20 hours per week on their fields. It appears more farmers have been crossing this 20-hour threshold. Though hypothetical, this could be linked to stagnating old-age pensions between 2010 and 2015, and/or the decline in remittances observed over this period.
[4] Employment in agriculture declined from 19.5 percent in 2004 to 5.5 percent in 2021

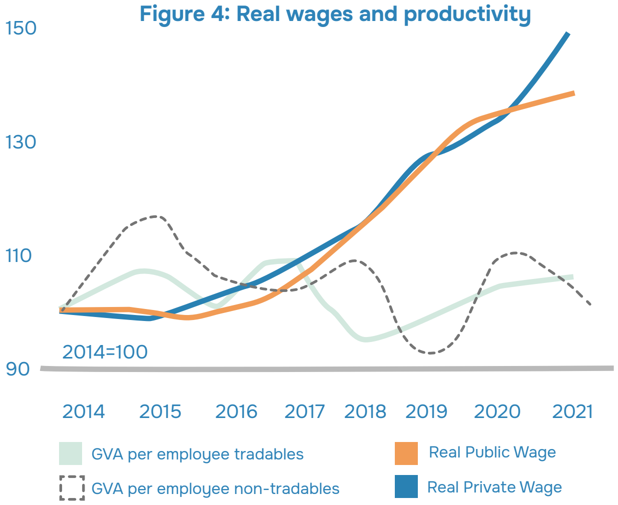
shared by many low- and lower-middle- income countries around the world. Yet factor accumulation runs into diminishing returns when countries become richer. When countries approach high-income thresholds, stronger productivity and human capital gains in manufacturing and services become the main drivers of growth. [5] Thus, as growth through factor accumulation runs out of steam, Moldova needs to boost firms' investment and efficiency to move the economy closer the productivity frontier. In other words, the policies and institutional reforms that served well the transition to its current income level will not carry Moldova to high-income country status.

Figure 3 : Changes in sectoral productivity and employment share (2010–2019)



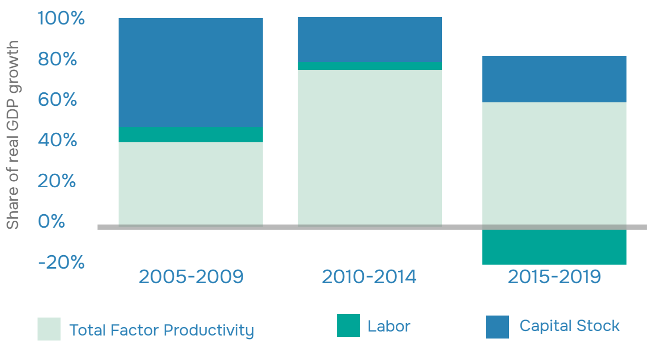
Source: WDI, 2021.
Note: Gross Value Added (GVA) per employee at constant prices in local currency is used as a proxy for labor productivity.

Figure 4: Real wages and productivity



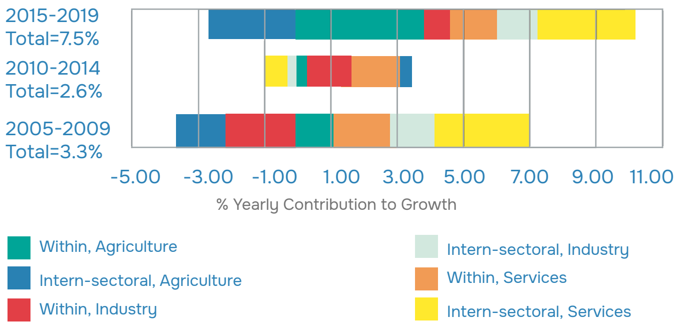
Source: WDI, 2021.
Note: Gross Value Added (GVA) per employee at constant prices in local currency is used as a proxy for labor productivity.

Figure 5: Contribution to growth (2005–2019)



Source: WDI, 2021.

Figure 6: Productivity change decomposition. Annual contribution to per capita value-added growth

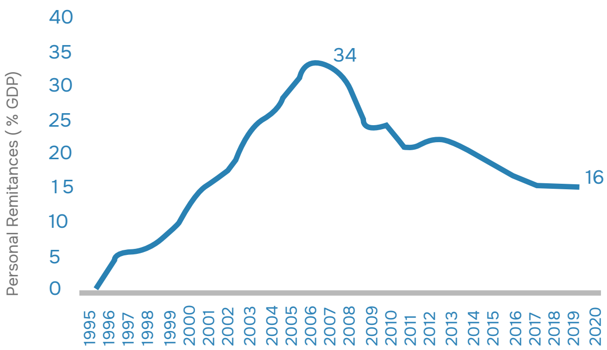


Source: WDI, 2021.

The past growth model had already begun to show signs of waning in strength and low sustainability, calling into question its capacity to support an EU convergence agenda.

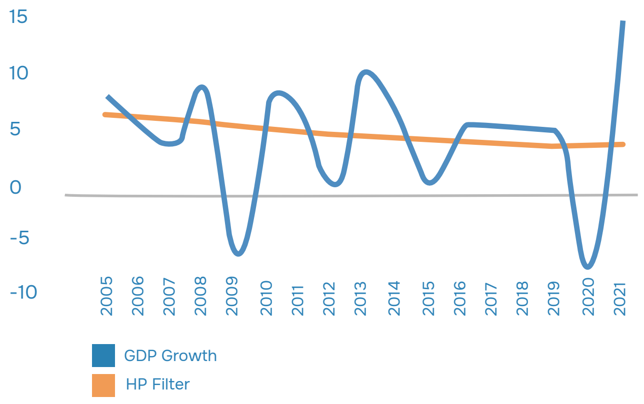
Moldova income convergence with the EU would require a substantial acceleration of economic growth to reach the EU average GDP per capita within a generation. However, potential GDP growth—a measure of the longer-term productive capacity of the economy—has fallen by almost 1 pp over the past decade due to an increasing pressure from structural factors. First, there has been a steep decline in remittances, which was previously an important source of income and consumption for many households. Second, a shrinking labor force and rapidly aging population are offsetting the positive contributions from capital accumulation and a slight increase in the labor participation rate, albeit solely driven by informal self- employment in subsistence agriculture. Over time, capital accumulation has also decreased as returns to investments have declined in the absence of stronger labor productivity growth. These factors, together with Moldova's structural characteristics (the small size of the economy and production base), are expected to suppress productivity and constrain future growth, also including in the non-tradable services that have been the key drivers of recent economic growth. Moreover, net exports are increasingly a drag on growth, widening the current account deficit. These are clear signs that the current growth model has reached its limit. Without structural reforms Moldovans are facing a deterioration of the long-term economic prospects of the country and stagnant standards of living.

Figure 7: Remittances as a share of GDP (1995–2020)



[5] Few countries have achieved and maintained high income levels in recent decades, including the Rep. of Korea, Chile, Uruguay, Poland, Hungary, and the Czech Republic. In contrast, a long list of countries have stayed at high middle-income levels for decades (World Bank 2016, Lessons from Poland, Insights for Poland; Aghion and Howitt 2006, Appropriate Growth Policy: A Unifying Framework).

Figure 8: Potential growth (2011–2021)



Source: WDI, 2021.

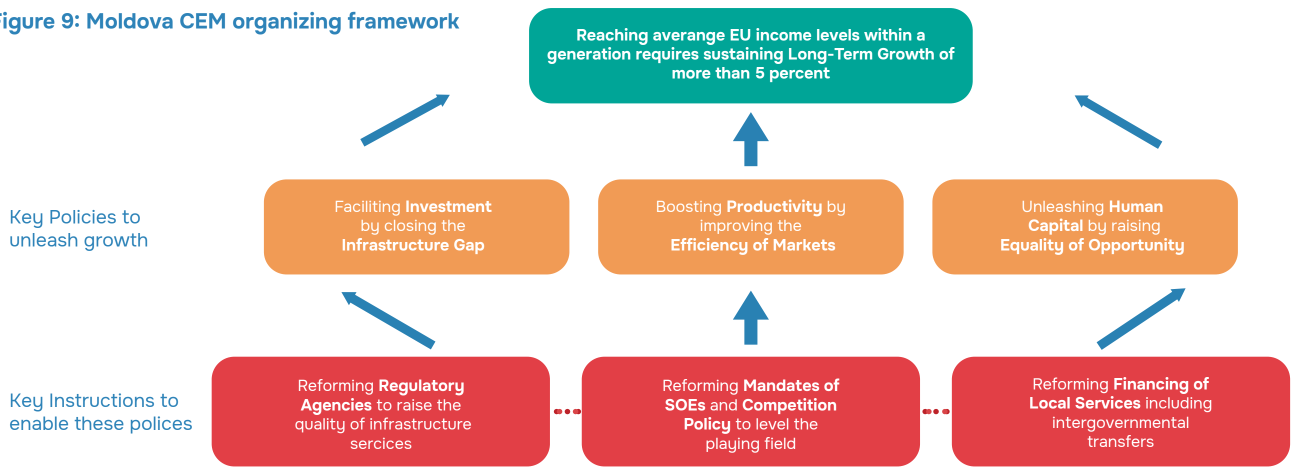
Moreover, the recent series of crises (COVID-19 pandemic, droughts, the energy crisis and Russia's invasion of Ukraine) has further revealed the intrinsic vulnerabilities of the past growth model with limited resilience to shocks.

Moldova's inherent vulnerability associated with a small landlocked economy, its reliance on food and energy imports, and an increasing frequency of natural disasters exacerbated by climate change continue to derail the country from its development path. While the pandemic and Russia's invasion of Ukraine were unexpected events, the 2020 and 2022 droughts have been just the latest in a long and increasingly frequent series of weather-related events that are being exacerbated by climate change. Since 2000, Moldova has witnessed, on average, one major climate-related event occurring every three years. This poses serious risks to long term growth—in part due to the lack of adaptation investments in the agriculture sector, a key sector of the economy—weighing on fiscal balances and, most importantly, on the wellbeing of vulnerable populations. Similarly, the 2021–22 energy crisis has highlighted the country's untenable energy balance, characterized by expensive, volatile and undiversified energy sources, and imports from one single supplier.

Against these looming prospects, the road to EU integration represents the opportunity to unlock the full potential of private sector growth to achieve convergence with EU socio-economic standards.

Seizing the opportunity of integration with the EU would help, leading to more rapid gains in private sector productivity growth, a more competitive economy, and greater job creation. However, this would require amending the growth model across the board. The competitiveness of Moldovan firms remains limited by regulatory uncertainty, high transaction costs, and weak market forces and competition policies. The business environment in which firms operate is hampered by an uneven playing field, gaps in the rule of law, state capture by vested interests, the predominant role and preferential treatment of SOEs, and anticompetitive regulations. First, despite significant improvements in recent years, the state of infrastructure and services remains poor. As a landlocked country with a small domestic market, but strategically located close to the EU, high-quality connectivity is of great importance to reorient the current growth model and successfully integrate firms, consumers, factors, and goods within the country, and with regional and global markets. Ensuring energy and water security, including reliability, affordability, efficiency, predictability, and risk mitigation, also remains a priority not only from the resilience perspective but also for Moldova's long-term competitiveness, as demonstrated by the impact of the recent droughts and the energy crisis. Finally, an adequately skilled workforce is also a critical asset in enhancing productivity and competitiveness among firms in Moldova. However, there is an important skills gap that firms face. More than 30 percent of firms report that skills have become a severe constraint to their growth, a greater constraint than in most peer countries in the region. It is thus important to address large inequities in access to good education, and more broadly of service delivery across the broad spectrum of public services, to help the population to benefit from and contribute to a modern economy.

Figure 9: Moldova CEM organizing framework



Source: World Bank staff.

Against this backdrop, this Country Economic Memorandum (CEM) is organized around the key policy and institutional reforms needed for faster economic growth and income convergence.

This report is organized around the key areas for policy and institutional reforms needed to boost long-term growth and income convergence (Figure 9), as identified by the World Bank Long-Term Growth Model (LTGM).[6]The LTGM estimates a growth path for the Moldovan economy until 2070 under current trends and policies, and explores the conditions under which economic growth would surpass 5 percent in the medium term so that Moldova achieves convergence with average EU income levels over the next three decades. The report builds on and complements existing growth studies (See Box 1), while providing more in-depth analysis where knowledge exists. Chapter 2 identifies misallocation in capital and labor across firms as a key constraint to productivity growth and discusses policy options to overcome it. Chapter 3 estimates Moldova's infrastructure gap and provides policy options how it can be closed. Finally, Chapter 4 tackles key institutional challenges to investment and productivity growth by bolstering competition policy and enforcement, leveling the playing field between SOEs and private firms, and strengthening the regulatory agencies governing infrastructure investments. While higher equality of opportunity is also key to boosting long-term growth by raising the average skills of the future workforce, the effect will take more time to materialize. As such, a more in-depth analysis is left for future work, given the focus of this report on more immediate growth drivers. The report concludes with policy recommendations that may help address identified challenges in the preceding chapters. All chapters of this report are based on in-depth background notes applying innovative methodologies to provide new insights into the different growth constraints and policy options for Moldova. While environmental issues and climate change are discussed throughout the report, the forthcoming Country Climate and Development Reports will provide a more in-depth discussion.

Box 1: Recent growth diagnostics

The CEM complements existing studies on Moldova's binding constraints to growth and development.

Specifically, the recent World Bank Systematic Country Diagnostic Update 2021, the Country Private Sector Diagnostic 2022, and the CEM 2019 highlight the need for stronger and more resilient private sector-led economic growth is highlighted, which is needed to overcome the negative long-term growth effect from falling remittances and demographic trends, namely Moldova's aging population. The reports summarize the literature and provide new insights on key constraints to this new growth model based on private sector productivity growth and investments, including: (i) severe infrastructure bottlenecks, especially in transport, reducing the benefits from trade and private investment; (ii) shortages of skilled labor in urban centers due to a rapidly aging population, continued strong outmigration, and a strong gap in education outcomes among rural residents representing the majority of the population; (iii) slow productivity growth and technology adoption in large parts of the private sector against the backdrop of limited exports and a strong presence of the state in economic activities; and (iv) institutional and governance barriers to growth that result in a business environment that tends to favor few dominant market players over startups and SMEs.

[6] Based on the WB's LTGM, www.worldbank.org/LTGM. More information on the LTGM-PC that was used in the analysis can be found in Devadas, S. and S. Pennings, "Assessing the Effect of Public Capital on Growth: An Extension of the World Bank Long-Term Growth Model". Policy Research working paper, no. WPS 8604.

WHAT WOULD IT TAKE FOR MOLDOVA TO CONVERGE WITH AVERAGE EU INCOME LEVELS WITHIN 30 YEARS?

Without ambitious structural reforms, Moldova's GDP per capita will not converge to average EU income levels in the foreseeable future.

Moldova's income convergence with average EU levels has decelerated due to moderating economic growth rates in recent years. Real GDP growth slowed from 5.7 percent in the period prior to the global financial crisis (2000–08) to 4.2 percent in the post-crisis period in 2010–19. Growth decelerated as capital and labor accumulation leveled off, as returns to investments declined without stronger productivity growth. Demographic pressures are expected to further decelerate growth in coming years. Under the projected growth path shaped by current policies and demographic trends, Moldova will not achieve convergence with average GDP per capita levels in the EU before 2070.

Economic growth is projected to fall below 3 percent after 2040 due to the declining share of its working age population.

The baseline scenario of the long-term growth model for Moldova is designed to capture business-as-usual trend growth.[7] It is based on the continuation of policies and historical trends, assuming no major reforms. This means that it rests on investment rates at recent historical levels, total factor productivity (TFP) growth reverting to average long-term rates,[8] a human capital path shaped by the estimated evolution of Moldova's Human Capital Index, and demographic trends based on UN projections. In this baseline scenario, Moldova's real GDP growth is projected to slow down from 4.4 percent from 2000–2019 to an average of 3.9 percent in 2023–2040, 3 percent in 2041–2050, and 2.3 percent in 2051–2070 (Baseline in Figure 10 and 11).

What type of reforms can raise Moldova's economic growth moving forward?

Structural reforms can boost overall growth above 5 percent in the medium term necessary for convergence.

This report uses the LTGM to simulate Moldova's growth path under different scenarios. For example, investments in access to quality education and other social services today will help address the economy's skill shortages and spur growth in the longer term, while stronger capital investments will boost growth primarily over the next 10 years. Notably, raising investment is only sustainable with higher productivity growth, since it requires new, more productive opportunities preventing private capital investments from running into diminishing returns. The reform scenarios are based on reaching levels of the production factors already achieved by well-performing peers in Europe and Central Asia (ECA). Hence, these scenarios are feasible with the right set of policies and institutional reforms. These reforms are estimated to raise Moldova's growth by an additional 1.4 percentage points (pp) by 2030 and maintain a 1 pp higher growth rate in the long term as compared to the current trends and policies (i.e. baseline). The set of policies and institutional reforms required to steepen the convergence trajectory by boosting the investments and efficiency of the private sector are the focus of this report

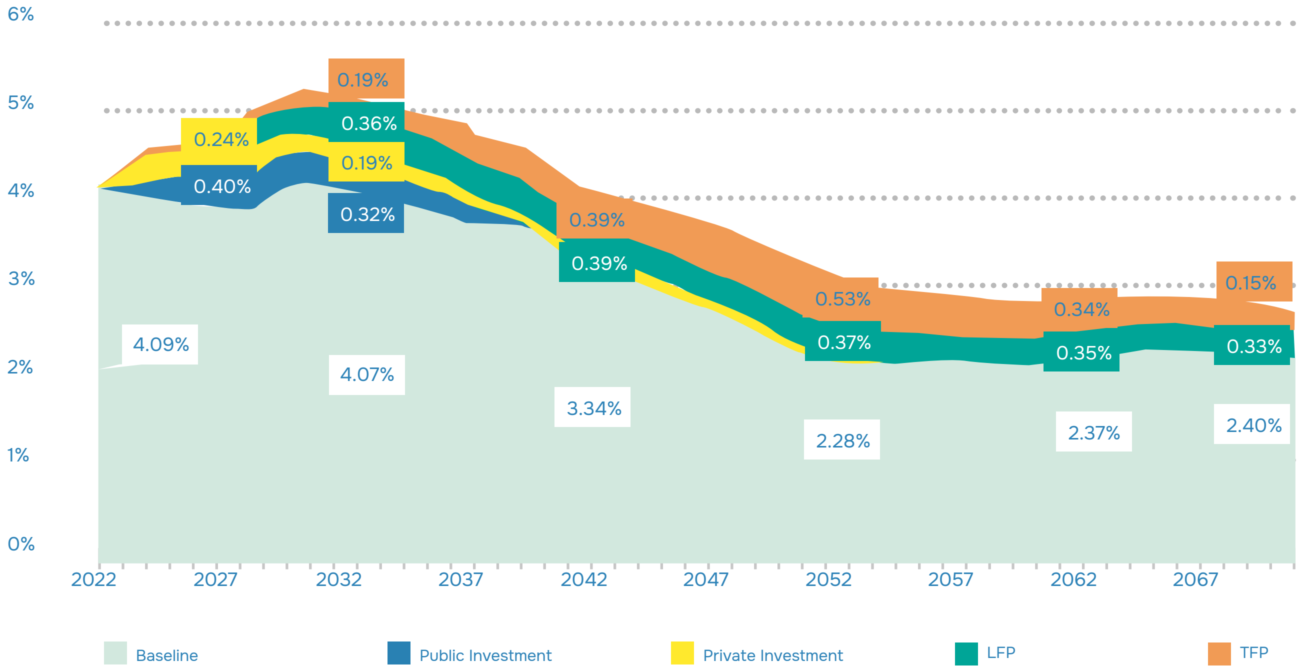
Reforms boosting productivity, skills, and labor force participation have the largest long-term growth impact (Figure 10).

Achieving an average level of TFP growth around 1.7 percent in the next 30 years, which is slightly higher than Slovakia's TFP growth in the period 2000–2019, but somewhat lower than Lithuania's TFP growth for the same period, would imply that GDP growth is 0.6 of a pp higher by 2050 and 0.3 of a pp higher, on average, annually in the period 2023–2070. Reaching Moldovan peers' median education levels of 13 years of schooling and an education quality of 80 percent of the best performers equivalent to a PISA test score of 439-would promote GDP growth, on average, by 0.35 of a pp annually in the period 2023–2070. The reform

[6] Based on the WB's LTGM, www.worldbank.org/LTGM. More information on the LTGM-PC that was used in the analysis can be found in Devadas, S. and S. Pennings, "Assessing the Effect of Public Capital on Growth: An Extension of the World Bank Long-Term Growth Model". Policy Research working paper, no. WPS 8604.

scenario further assumes that, until 2070, Moldova's labor force participation rate gradually rises from its current levels of about 40 percent to the level achieved by Romania in 2019 (69 percent). The higher labor force participation rate would boost average GDP growth over that period by 0.3 of a pp annually.

Figure 10: Under an ambitious reform scenario, GDP growth accelerates to over 5 percent in the medium term



Source: World Bank team, Moldova's LTGM simulations.

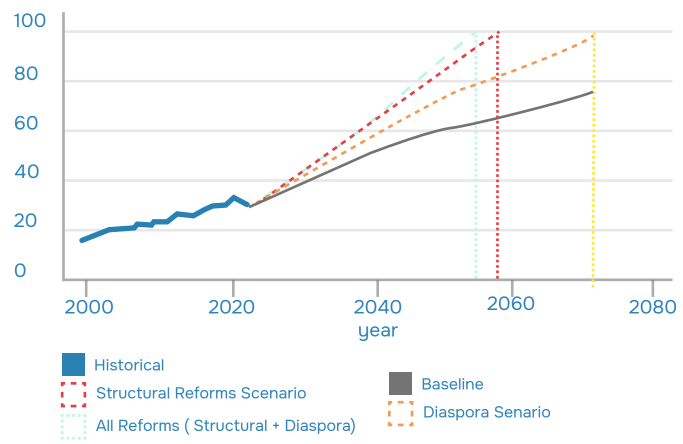
Access to external funding to spur public infrastructure investment over the next 10 years will boost GDP growth, on average, by 0.35 of a pp annually.

To quantify the effect, it is assumed that public investment increases from its current level of 4 percent of GDP to 7 percent by 2026, and is maintained at that level until 2035, before it falls back to its current level by 2040. This scenario would require access to external funding for public infrastructure investment, for instance, through access to pre-accession EU funds coupled with other sources. Notably, this boost of the public investment is projected to raise GDP growth, on average, by 0.35 of a pp annually until 2035. Higher public investment is also expected to crowd in private investment. While Moldova's private investment rate of 23 percent is relatively high compared with that of regional peers, an increase of 2 pp to 25 percent for the next 25 years a level similar to the Republic of Korea's 2000-19 average would accelerate growth by 0.25 of a pp annually until 2030.

The reforms would lift Moldovan incomes to the average EU level within a generation.

Ambitious but feasible structural reforms in these areas would accelerate Moldova's post-COVID-19 growth rate to above 5 percent, or over 6 percent in per capita terms—a level required to achieve income convergence with the average EU level within the next three decades. Under the reform scenario described above, average incomes would converge with EU levels by 2058. Notably, the strong impetus in domestic productivity and skills may also reverse outmigration trends and make Moldova a more attractive place in which to invest and work for the large diaspora of Moldovans living outside of the country, comparably to events in Ireland in the 1990s and 2000s. The above reform scenario is thus expanded to assume a stronger labor force participation rate and private investment rate on the back of stronger links with the Moldovan diaspora (diaspora scenario), bringing the average converge of average incomes with the EU forward to 2054. Overall, the medium-term increase in average incomes is strongest if Moldova implements reforms boosting public investment and private sector productivity growth, while offsetting the declining trend of the baseline until 2040. This report therefore focuses on these two domains, while laying out critical institutional reforms needed to improve the mandate and quality of the public institutions that support higher public investment and private sector productivity.

Figure 11: Ambitious structural reforms to accelerate Moldova's GDP per capita convergence with the EU



Source: World Bank team, Moldova's LTGM simulations for different scenario.

Exploiting comparative advantages and tapping into new sources of growth

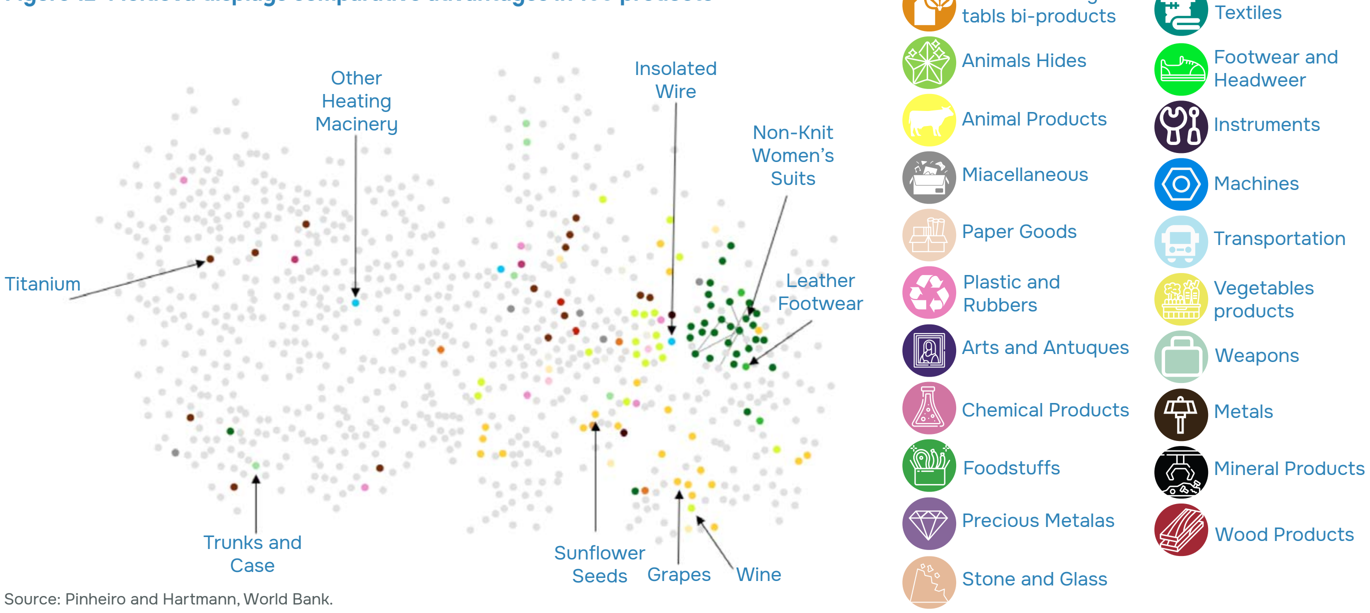
Sustaining economic growth above 5 percent for three decades would require the steadfast implementation of a growth strategy that supports a socio-economic transformation.

The experiences of successful countries that have graduated from middle-income country status show that such long and sustained growth can only be achieved with a profound transformation of a country's economic and social structure. These countries were well-connected to the global economy and had the capacity to move upwards in terms of technological sophistication, with a leveled playing field across and within sectors that helps spur innovation and productivity.

Moldova has slowly started the process of structural transformation.

Moldova exported products worth US$$4.19 billion in 2020, moving activities out of low value-added agricultural products into textiles, followed by electronics/ICT and/or machinery manufacturing. Moldova shows comparative advantages in 160 out of 1,213 products. Moldova has 160 products where it display comparative advantages (black dots in Figure 12) but the top 20 products with highest Revealed Comparative Advantage (RCA) remain low in terms of complexity: sunflower seeds, hot-rolled iron bars, apples and pears, pitted fruits, equine and bovine hides, dried fruits, seed oils, honey, gypsun, grapes, nuts, packaged sewing sets, insulated wires, raw iron bars, wine lees, molasses, glass bottles, rapeseeds, wine, and corn.

Figure 12: Moldova displays comparative advantages in 160 products

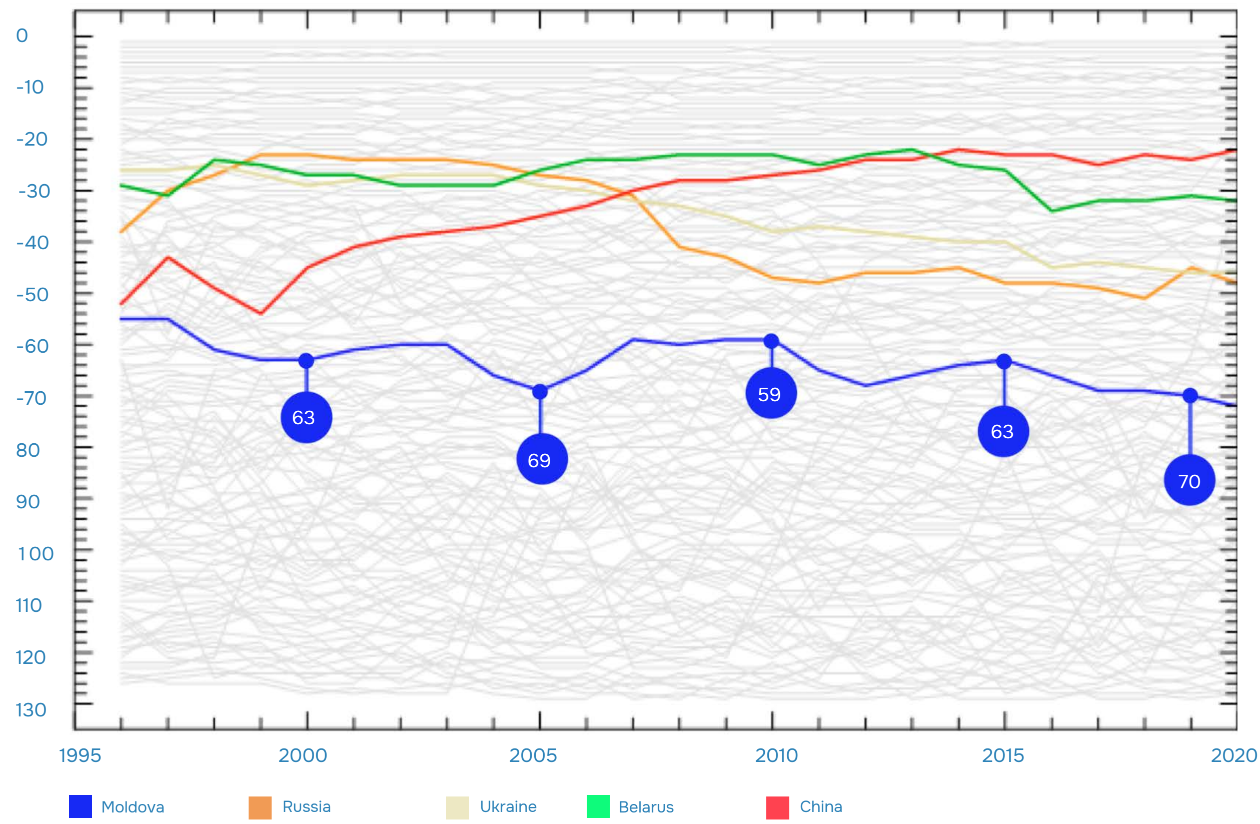


Source: Pinheiro and Hartmann, World Bank.

Moreover, product complexity is declining overtime, constraining Moldova's growth potential.

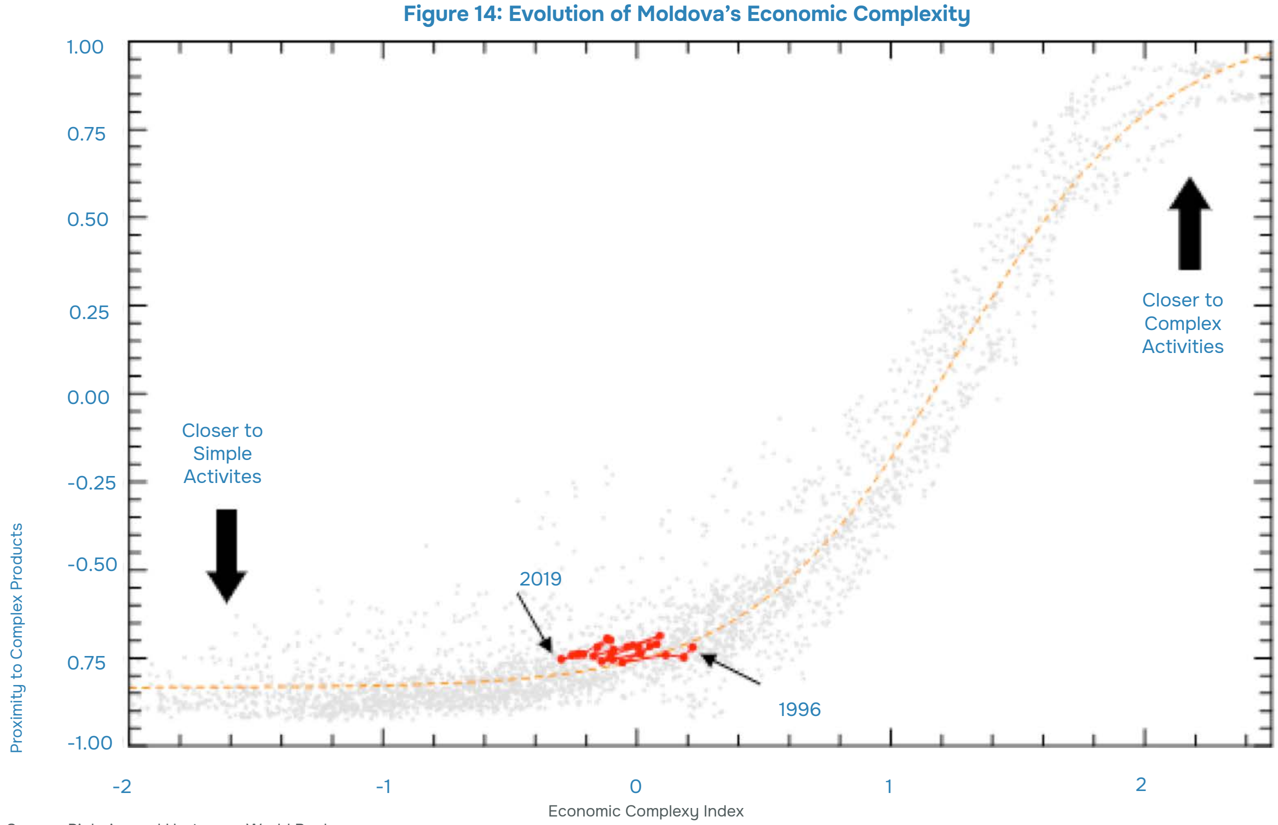
The average Product Complexity Index (PCI[9]) is low and declining, implying an increased dependence on simple products, and a decrease in future smart growth opportunities. The S-Shaped development curve in Figure 14 capture the temporal evolution of Moldova's productive capabilities and development opportunities, which depicts the proximity to complex activities. In this regard, Moldova's economy has experienced a decrease in complexity while maintaining its proximity to simple activities.

Figure 13: Evolution of Moldova's Economic Complexity



Source: Pinheiro and Hartmann, World Bank.

Figure 14: Evolution of Moldova's Economic Complexity



Source: Pinheiro and Hartmann, World Bank.

[9]PRODUCT COMPLEXITY INDEX IS A MEASURE OF THE KNOWLEDGE INTENSITY AND SOPHISTICATION ASSOCIATED WITH A PRODUCT. THE HIGHER THE PCI THE MORE COMPLEX AND SOPHISTICATED THE PRODUCT IS.

Moving into new sophisticated products could bring many opportunities.

Empirical evidence shows that countries cannot randomly jump into new products but tend to move into related activities that require similar product capabilities to the current/previous export portfolio.[10] Therefore, there is a need to quantify the opportunities at the product-level by identifying those products that are relatively close to the current productive capabilities.[11] This then helps to achieve a greater level of economic complexity with significant opportunities for structural transformation in the center of the product space,[12] which comprises higher value-added manufacturing activities such as agricultural machinery (excavation, harvest, and diary machineries), electrical equipment (electrical power accessory, electric motors, central heating boilers), construction products (insulating glass and rock wool) packaged medicaments. There are, however, risks. If Moldova only moves into low-complexity product-related activities, it may end up in a development trap in the periphery of the product space. These low-complexity opportunities includes textiles such as knit and non-knits men's undergarments, knit socks and hosiery, as well as agriculture products such as perfume plants, sheep hides, spice seeds. Moldova also has opportunities to diversify into more advanced products, such as machinery, electric equipment, or packaged medicaments, taking advantage of EU nearshoring and entering products affected by Russia's invasion of Ukraine (see Box 2).

Figure 15: More complex products identified in the center of the product space

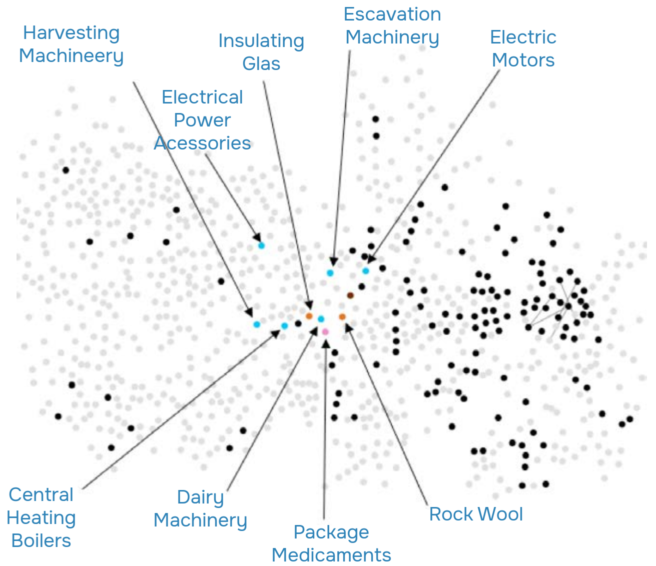
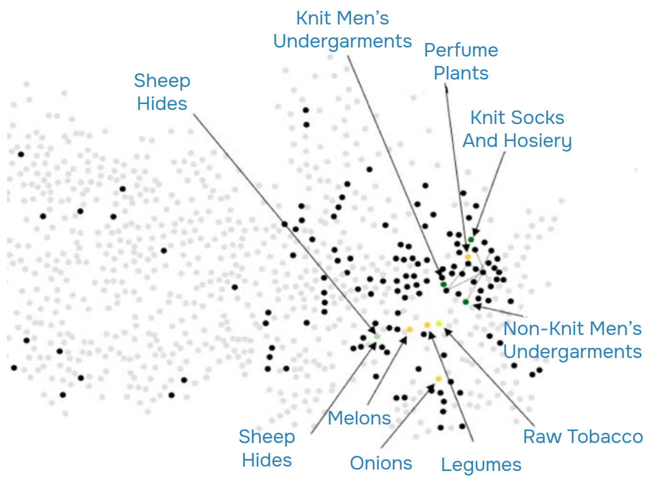


Figure 16: Low-complexity products identified in the periphery of the product space



Source: Pinheiro and Hartmann, World Bank.

Identifying smart diversification opportunities is a necessary but insufficient step.

The "macro" look at potential opportunities – which is presented above - yields a first cut of potential products in which Moldova could move into. This analysis needs to be complemented by a more granular, value-chain/ product level analysis, also drawing on experiences of other countries that have moved into similar products to identify key structural bottlenecks that limit the potential of these products to emerge as drivers of growth in Moldova. Moreover, an analysis is needed to assess the energy intensity of producing such product given the dependency of Moldova on energy imports. Based on this analysis, specific recommendations will be formulated related to reforms necessary to successfully exploit these opportunities by addressing infrastructure and logistics gaps, human resources and skills mismatches, technological upgrades, and the backward and forward linkages necessary to enhance product competitiveness.

[10] Pinheiro, F. L., Hartmann, D., Boschma, R., & Hidalgo, C. A. (2022). The time and frequency of unrelated diversification. Research Policy, 51(8), 104323.
[11] Relatedness is a measure of how close a new potential product is to the current export basket (and production structure) of an economy. It is measured by estimating the density or the number of products in an economy's export basket that are connected to a potential new product.
[12] Hartmann, D., Zagato, L., Gala, P., & Pinheiro, F. L. (2021). Why did some countries catch-up, while others got stuck in the middle? Stages of productive sophistication and smart industrial policies. Structural Change and Economic Dynamics, 58, 1-13.

Box 2: The EU’s nearshoring and Russia’s invasion of Ukraine

Moldova has opportunities to diversify into more sophisticated products, such as agricultural and electrical machinery, packaged medicaments, and textile products.

The COVID-19 pandemic showed the fragility of depending on only a few or one partner in global value chains. As a result, the EU has begun a process of nearshoring activities to reduce dependence on single countries. Moreover, with the destruction of industries in Ukraine and the sanctions imposed on the Russian Federation, Moldova could potentially enter into products previosuly produced by for instance the Russian Federation that can easely produced with small upgrades of Moldova’s current production structure (ie products with high level of relatedness), but also to take advantages to longer-term opportunities by moving into more complex activities. High related products include textiles, simple agricultural products, processed agricultural products (e.g., hides), and iron and plastic products. However, their PCI is below Moldava‘s average PCI (-0.65) and, thus, this strategy would help only in the short term, as it would not support enhancing the sophistication of Moldova’s productive structure. On the contrary, attending nearshoring demands of the EU in the most complex, is a more medium-term growth strategy that would enahnce Moldova’s economic complexity. These related products with high PCI include agricultural machinery, metal products, electrical parts, and packaged medicaments. Most of these products not only help attend long term EU nearshoring but also supply products exported by Ukraine or Russian Federation before Russia’s invasion of Ukraine

Figure 17: Most complex product within Moldova‘s productive capabilities imported by the EU from China and the Russian Federation

EU IMPORTS FROM RUSSIA

Poduct Description	Significant Importers	EU Imports (M USD)	MDA Exports (M USD)	EU MDA Exports (M USD)	RCA	PCI	Relatedness
Excavation Machinery	AUT, FRA, EST	118,65	4,32	1,74	0,16	1,15	0,13
Harvesting Machinery	BGR, LTU, LVA	22,09	1,41	0,49	0,21	0,94	0,13
Packaged Medicaments	LTU, SVN, LVA	45,16	60,41	2,51	0,46	0,91	0,14
Rock Wool	FIN, LTU, POL, EST, LVA	31,84	0,96	0,48	0,99	0,9	0,13
Electric Motors	LTU	14,44	17,52	0,14	0,79	0,85	0,14
Other Iron Products	LTU, POL,LVA, ROU	43,24	16,05	6,24	0,87	0,84	0,15
Elecric Motor Parts	FIN, LVA	10,2	1,15	0,35	0,18	0,79	0,15
Matal Mounting	EST	13,7	2,68	0,47	0,32	0,78	0,13
Refrigerators	BGR, CZE, FIN, LTU, LVA	40,85	1,2	0,49	0,14	0,7	0,15
Large coated Flat-Rolled Iron		10,41	0,29	0	0,13	0,64	0,13

EU IMPORTS FROM CHINA

Poduct Description	Significant Importers	EU Imports (M USD)	MDA Exports (M USD)	EU MDA Exports (M USD)	RCA	PCI	Relatedness
Electrical Power Accessories	FIN	705,71	1,79	0,42	0,13	1,01	0,13
Dairy Machinery	DNK, SWE	18,7	0,83	0,41	0,37	1,01	0,13
Central Heating Boilers	ITA, LTU, NLD	34,04	2,42	0,24	0,45	0,98	0,14
Harvesting Machinery	DEU, DNK, FRA, LTU, POL, SVN, SWE, ESR,HRV	682,52	1,41	0,49	0,21	0,94	0,13
Packaged Medicaments	DNK	766,04	60,41	2,51	0,46	0,91	0,14
Electric Motors	ITA, SVN	2379,69	17,52	0,14	0,79	0,85	0,14
Electric Motor Parts	DNK, SVN, EST	1314,04	1,15	0,35	0,18	0,79	0,15
Metal Mounting	LTU, POL	1738,07	2,68	0,47	0,32	0,78	0,13
Soil Preparation Machinery	BGR, DNK, GRC, ITS, LTU, SWE, ROU	191,03	1.31	0,29	0,76	0,71	0,15
Refrigerators	FRA,POL	2217,27	1,2	0,49	0,14	0,7	0,15

Source: Pinheiro and Hartmann, World Bank.
Note: Revealed Comparative Advantage (RCA) measures the most relevant exports for an economy, by comparing the weight of exports of a specific product in an economy compared with the world share. Product Complexity Index is a measure of the knowledge intensity associated with a product. The higher the PCI the more complex and sophisticated the product is. Relatedness is a measure of how close a new potential product is to the current export basket (and production structure) of an economy. It is measured by estimating the density or the number of products in an economy’s export basket that are connected to a potential new product. More information is also available at: https://atlas.cid.harvard.edu/glossary.

BOOSTING PRODUCTIVITY GROWTH

Stagnant private sector productivity growth in Moldova has, in large part, been caused by market inefficiencies and slow structural transformation.

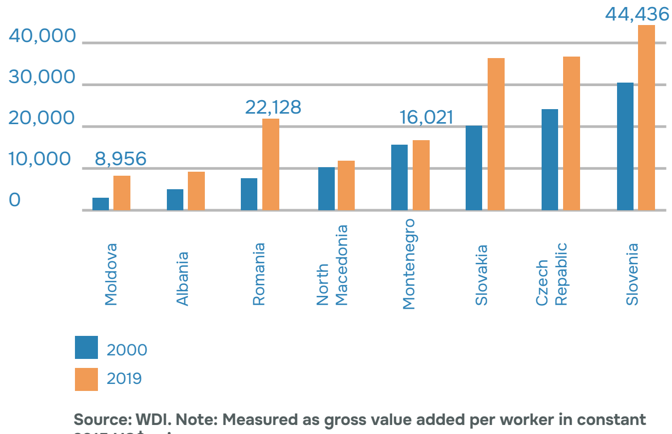
The analysis in this chapter is based on novel firm census panel data from the Moldovan National Bureau of Statistics in the period 2015–2020. New modules on firms' technology adoption and management practices from the 2019 World Bank Enterprise Surveys are also used where noted. The analysis is centered around a productivity growth decomposition to analyze the reasons behind Moldova's weak productivity performance. Productivity growth among firms in the period 2015–2020 is decomposed into two components: (i) changes in the average TFP within incumbent firms (firm upgrading); and (ii) the reallocation of value added across firms with different levels of productivity measuring the efficiency of resource allocation between firms (allocative efficiency). It reveals that Moldova's aggregate productivity growth was held back by misallocation of resources to less productive firms, exposing inefficiencies in market mechanisms and sectors, implying slow structural transformation. The finding of a lack of market contestability is corroborated by other firm dynamics in Moldova, including a low density of firms and high market power among incumbent firms. Policies raising productivity growth should thus focus on facilitating regulations for market entry, bankruptcy, and firms' growth, leveling the playing field between SOEs and private firms, improving the skills of the workforce, removing barriers to trade, and investing in infrastructure connecting markets.

Firms raised their productivity but adopted few foreign technology

Despite strong past growth, the productivity of Moldovan workers remains low compared with their regional peers.

Between 2000 and 2019, the labor productivity of the average Moldovan worker almost tripled. Nonetheless, the labor productivity gap with countries in the region remains large, explaining Moldova's lagging per capita incomes. Specifically, the average productivity of Moldovan workers is only 75 percent of the average productivity level of their peers in North Macedonia, 40 percent of their peers in Romania, and 20 percent of their peers in Slovenia (Figure 18). Faster convergence was held back by the performance of firms in non-agricultural sectors: the labor productivity in agriculture increased sixfold in the period 2000–2019 but only twofold in the rest of the economy. At current rates, the non-agricultural productivity gap with Romania is expected to even widen, calling for structural reforms to free up the productivity potential of Moldovan manufacturing and services sectors.

Figure 18: The productivity of Moldovan workers is only 40 percent of the level of their peers in Romania



Source: WDI. Note: Measured as gross value added per worker in constant 2015 US$ prices.

Firms have become more efficient, which supported aggregate labor productivity growth in Moldova between 2015 and 2019.13

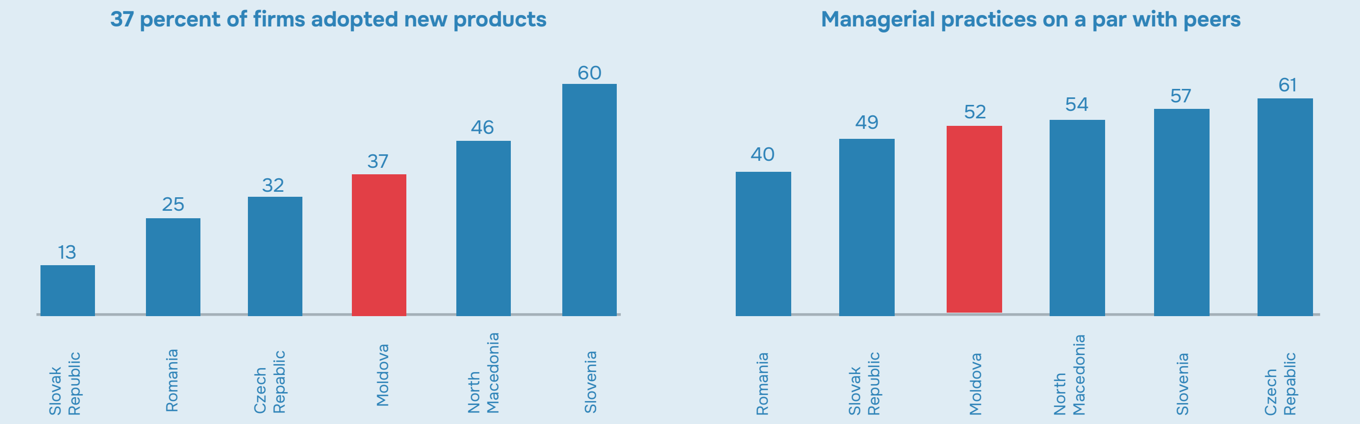
Decomposing aggregate TFP growth into a component capturing changes within average firms' productivity and a component capturing changes in the allocative efficiency of capital and labor between firms in the economy, shows that overall pre-pandemic TFP growth is entirely explained by an increase in the average productivity within incumbent firms.[14] After the first years in operation, firms' growth typically stagnates. While firms became more efficient, for example by optimizing their cost structure to reduce slack, it was not because of the adoption of new, more productive foreign technologies. In fact, productivity growth among incumbent firms, and thus aggregate productivity growth of the economy, could have been stronger if firms had adopted more foreign technologies by licensing from foreign firms or using more international quality certifications (see Box 5).

Box 5 : Moldovan firms lag in the adoption of foreign technology

Moldovan firms perform relatively well in adopting better management practices and products or services new to the firms.

A relatively large share of firms in Moldova (12 percent) compared with several structural peer countries is reporting investments in research and development (R&D). These investments seem to generate some outputs as more than one-third of firms in Moldova report to have introduced a product or service new to their firms in the past three years which exceeds the share of firms in several other countries in the region, including Romania. Nonetheless, only a little more than half of these products or services are also new to the main market in which a firm operates, which is a low share compared with firms in peer countries. Thus, not all R&D expenses seem to translate into significant innovations, suggesting that there is room for innovation to spur productivity growth. Moreover, Moldovan firms perform better than many of their peers in the region in adopting managerial best practices, though firms lag in the adoption of quantifiable key performance indicators.

Figure 19: Firms perform relatively well in adopting new products and better managerial practices



Source: World Bank Enterprise Survey 2019. Note: percentage of firms introducing a product or service new to the firm in last three years (left); Management score (0–100) aggregated from 11 sub-indicators on the quality of managerial practices (right).

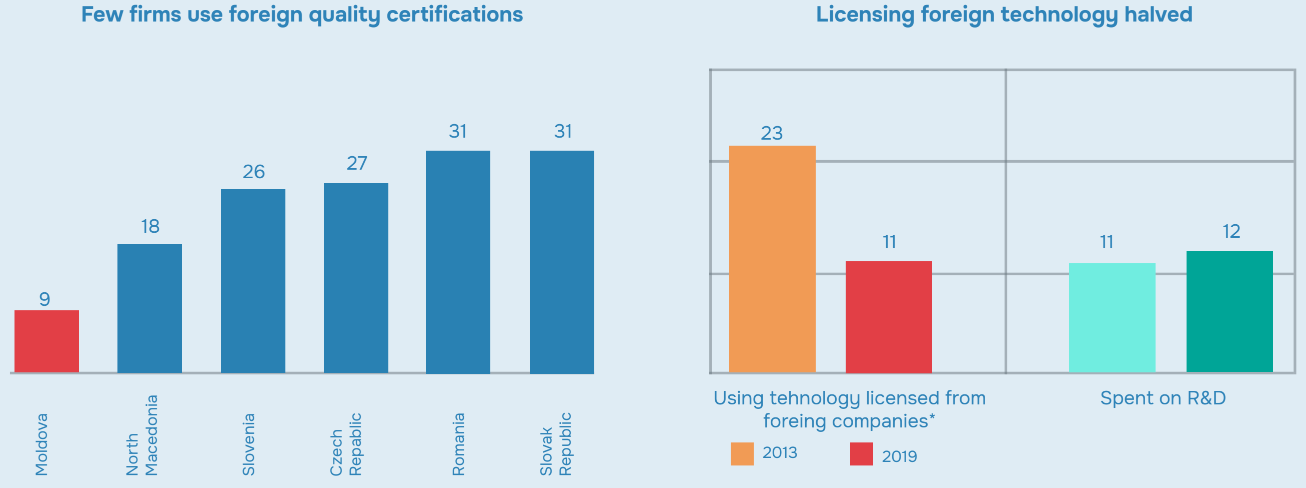
Removing regulatory or infrastructure barriers to the adoption of more advanced, foreign technologies and quality standards can boost firms' productivity growth.

Moldovan firms lag their peers when it comes to the adoption of more advanced, foreign technologies and internationally recognized quality certifications. In 2019, only 9 percent of firms in Moldova reported using an internationally recognized quality certification, which is half of that observed in structural peer countries in the region. Similarly, only 11 percent of firms indicated that they used technology licensed from a foreign-owned company, the second-lowest among Moldova's structural peers and less than half of the share of firms reporting to have licensed foreign technology in 2013. The adoption of foreign technology and internationally recognized quality standards is expected to raise firms' productivity and exports. Policy reforms removing regulatory or infrastructure barriers to the adoption of foreign technology and quality standards can thus promote Moldova's income convergence. Moreover, in selected cases, targeted support for domestic firms to license foreign technology or supply to foreign multinationals for products that have a high export potentially may also be warranted.

[13] The growth in labor productivity in the period 2015–2020 was entirely driven by TFP growth instead of capital accumulation.

[14] Productivity is measures based on revenues physical output times prices rather than on physical output. It thus also captures firms' market power through its effect on prices.

Figure 20: Moldovan firms adopted few foreign technologies and standards



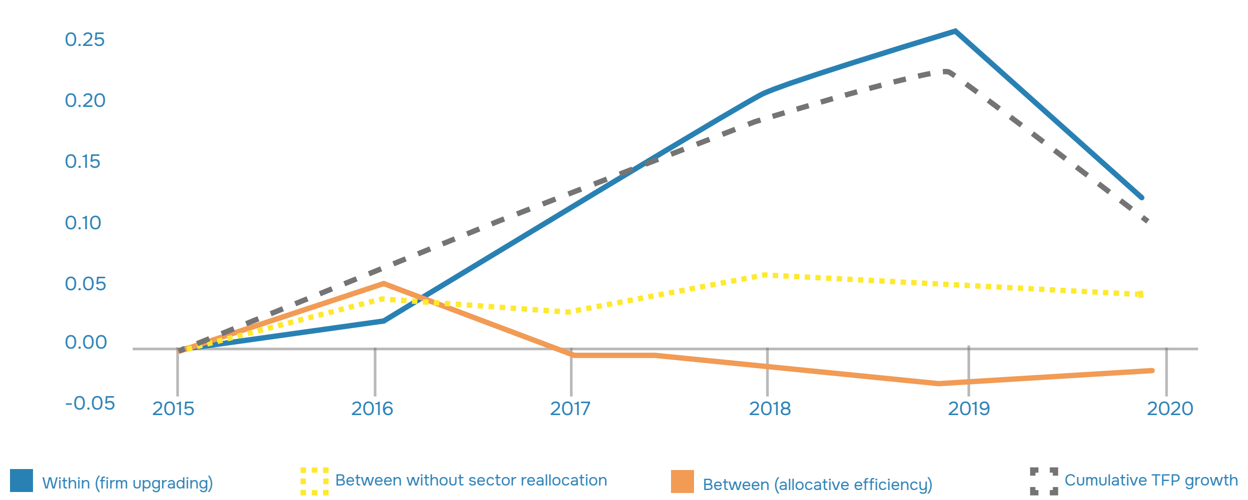
Source: World Bank Enterprise Survey 2019.
Note: percentage of firms using internationally recognized quality certification (left); percentage of firms licensing technologies from foreign firms and investing in R&D (right).

Productivity growth requires more efficient markets and faster structural transformation

Less productive firms have been hiring more workers, revealing that market mechanisms are distorted.

Moldova experienced a positive reallocation of resources to more productive firms in 2016, a recovery year for the economy, suggesting that more productive firms experienced a faster recovery from the 2015 downturn. After 2016, however, the reallocation of labor across firms contributed negatively to TFP growth, implying labor misallocation in that less productive firms hired more workers over time (Figure 21). Had the allocation of labor across firms stayed the same as in 2016, cumulative TFP growth between 2015 and 2019 would have been 11 pp higher. The result suggests that there is room to increase aggregate (productivity) growth by raising competitive pressures on incumbent firms, for example, by reducing barriers to firms' entry, exit, and growth, and ensuring competitive neutrality between SOEs and private firms (see next chapter).

Figure 21: More productive firms cannot expand their market share in the economy

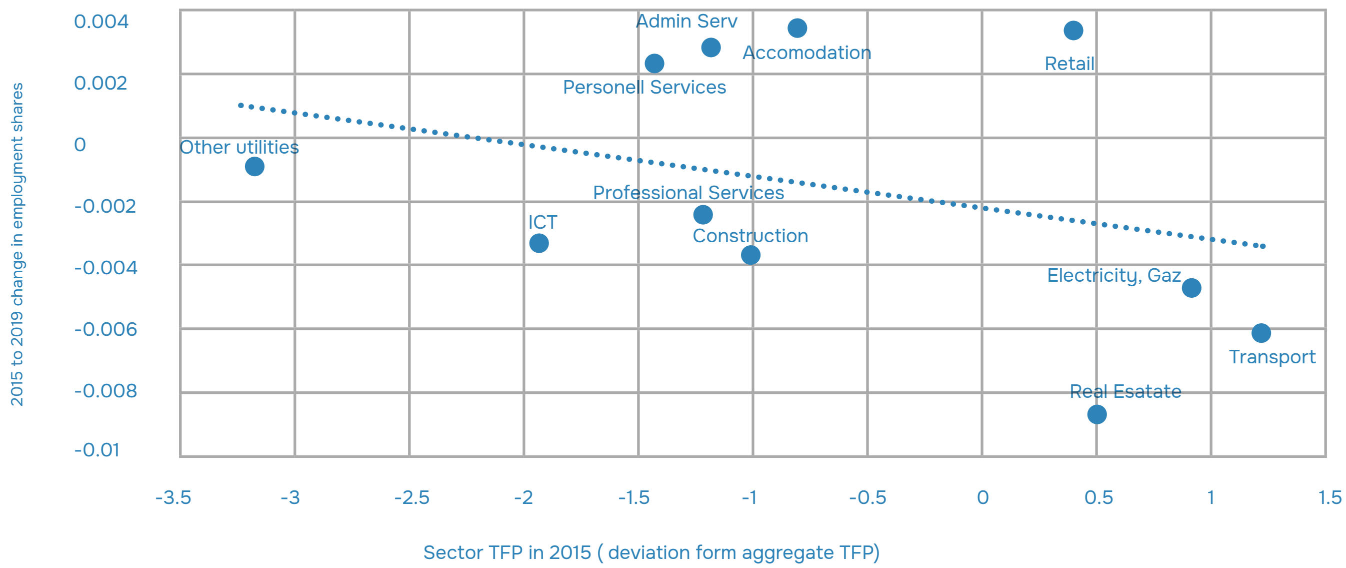


Source: Firm census data from Moldova's statistical agency. Note: Decomposition of TFP growth (cumulative relative to 2015). Cumulative contribution to aggregate TFP growth (relative to 2015) based on decomposing TFP growth into the contributions of changes in the unweighted average TFP among firms (within) and the changes in the allocation of value added across firms with different TFP levels (between).

This misallocation of labor has been caused by workers moving to lower productivity sectors, implying barriers to faster structural transformation.

The decline in the allocative efficiency between 2016 and 2019 is primarily due to the reallocation of resources toward 2-digit sectors with lower average productivity. Though still at a low level, the allocative efficiency of labor across firms was slightly positive in most years once we control for sectoral differences. In other words, within 2-digit sectors, labor tended to be allocated to more productive firms, though the effect was not very strong. The overall low allocative efficiency level of markets in the economy has thus not only been caused by market inefficiencies shielding incumbent firms from competition, but also by the slow structural transformation of the economy in that more productive sectors did not expand fast enough to absorb more workers. Specifically, workers reallocated to less productive, low-skill service sectors such as accommodation, administrative public services, utilities other than energy, and personnel services from 2015–2019 (Figure 22). Given the rapid reduction of the labor share working in agriculture, the results suggest that the more productive parts of the economy were unable to absorb this shift and many workers ended up in low-skill services activities. Policies to boost aggregate (productivity) growth thus also need to focus on removing growth constraints for firms in more productive sectors, for example, by improving the skills of the workforce, and reducing their costs for access to, and interacting with, with global markets.

Figure 22: The labor share of less productive services sectors increased from 2015-2019



Source: Firm census data from Moldova's statistical agency. Note: Change in the labor share between 2015 and 2019 among service sectors relative to these sectors average TFP in 2015.

Markets are not contested

The number of active firms in Moldova is low relative to the size of the population.

While the number has increased in recent years, the density of firms the number of firms relative to a country's population remains low. In 2019, Moldova had 13,394 registered firms per million inhabitants, the lowest level among peer countries. For example, Romania had twice as many firms per million inhabitants (26,124) and Slovenia almost three times as many (46,229). The very low level of firm density points to barriers to firms' entry or growth that limit the competitive pressure faced by incumbent firms, allowing them to increase their market power, driving up prices and reducing overall demand. The low firm density also reduces the potential of the private sector to create more jobs: the non-agriculture private sector in Moldova employs only 157,379 people per million inhabitants, much lower than the 312,045 people employed in Slovenia or the 330,654 people employed in the Czech Republic.

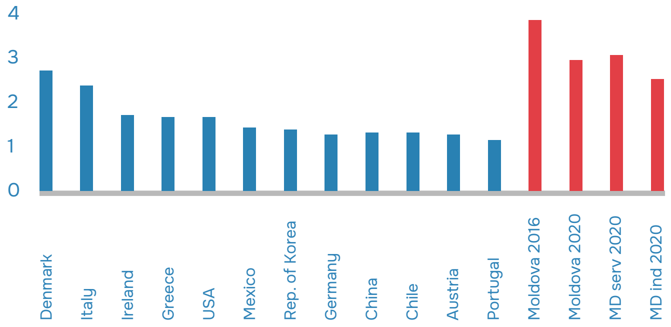
Slow productivity growth over firms' life cycles points to a lack of competition.

In Moldova, the average productivity difference between young firms (1–5 years in operation) and more mature firms (15–19 years in operation) is only 9 percent 11 times lower than in the United States. Productivity growth slows down further after 12 years of operation and turns negative after 16 years, suggesting that mature firms continue to grow in size without adopting new technology or more efficient organizational processes. The competitive pressure faced by initially more productive large incumbent firms seems to be particularly weak. Most productivity growth observed during firms' life cycles stems from the exit or growth among the initially least productive firms. In contrast, the performance of firms at the top of the productivity distribution stagnates or declines over their life cycles, suggesting that they are insulated from the threat of market entry and competition.

Firms in Moldova enjoy considerable market power, a sign of market inefficiencies.

The average (median) markup charged by firms in Moldova the average (median) estimated ratio between the price that firms charge to consumers and their marginal production cost is almost twice as high as the markups charged by firms in other European and developing countries (Figure 23). Notably, average markups in Moldova have declined since 2016, but they remain at a very high level by international comparison. Moreover, the decline was observed across the entire distribution of markups, except for firms charging the highest markups at the top of the distribution. Markups are higher in the services sector but are also very high in the more tradable industry sectors where firms should face more international competition. The high markups suggest that it would be important to focus on reforms to remove barriers to market entry and firms' growth.

Figure 23: Firms in Moldova charge high prices to consumers relative to their marginal production cost

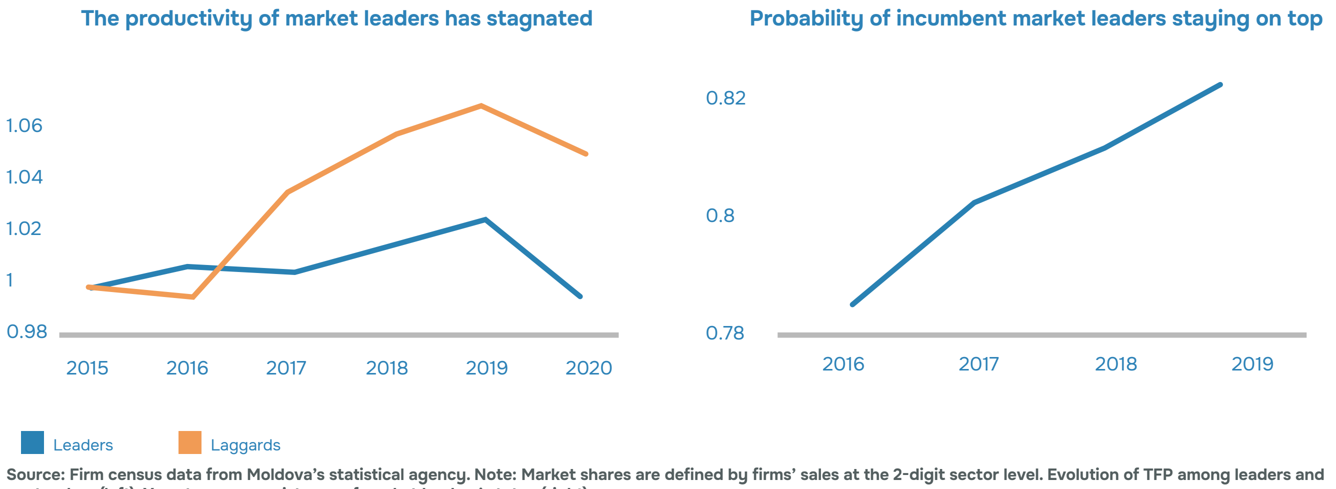


Source: Firm census data from Moldova's statistical agency, World Bank staff, De Loecker and Eeckhout (2018). Note: Markups are the ratio between the price that firms charge to consumers and their marginal production cost Average markups in 2016 for other European countries. Markups are estimated following De Loecker and Warzynski (2012).

Incumbent market leaders tend to stay on top despite their stagnating productivity.

Between 2015 and 2019, the average TFP of market contenders defined as firms in the bottom 95 percent of the distribution of market shares grew faster than the average among all firms, especially faster than the average among market leaders defined as firms in the top 5 percent of the distribution of market shares. While this trend reduced the productivity gap between market leaders and market contenders, the data suggest that the increased productivity of contenders did not pose a direct threat to the position of the incumbent market leaders. The probability that an incumbent market leader maintained its status from one year to the next increased from 79 percent in 2016 to 83 percent in 2019 (Figure 24).

Figure 24: Incumbent market leaders tend to stay on top despite their lack of productivity growth



Source: Firm census data from Moldova's statistical agency. Note: Market shares are defined by firms' sales at the 2-digit sector level. Evolution of TFP among leaders and contenders (left). Year-to-year persistence of market leaders' status (right)

Boosting productivity growth requires making markets more contestable and accessible

Policies aiming to boost productivity and job creation need to make markets more contestable.

Overall, a large share of unproductive firms enjoys considerable market power, with a significant share of incumbent firms insulated from competition, discouraging them from becoming more cost effective or innovative. Market power, albeit decreasing in recent years, remains high and estimated markups are well above the level observed in Western Europe. Competitive pressures seem particularly low for market leaders, having little incentive to invest in upgrading, for example by adopting more advanced foreign technology. Reducing incumbents' market power should not only boost aggregate growth, but also ensure that the returns from higher growth are more equally distributed among the population by benefiting consumers through lower prices, and allowing more entrepreneurs to thrive and create well-paid jobs. While there are signs that things are gradually improving, it is important that the Government takes the necessary measures to speed up this positive change. Policies addressing these frictions should be based on a careful review of the existing regulatory framework, such as business registration regulations and bankruptcy laws, and an in-depth analysis of potential market failures in financial markets. Policies making Moldovan markets more contestable include reducing regulatory barriers to firms' entry, exit, or growth, ensuring competitive neutrality between SOEs and private firms, and enforcing competition policy, and are the focus of the following chapter.

Improving the economy's allocative efficiency also requires more effective education and trade policies to accelerate structural transformation.

The results suggest that addressing resource misallocations across firms not only requires reforms to make markets more contestable and raise competitive pressures on incumbent firms, but also policies that can accelerate structural transformation. For example, it requires policies that allow firms in more productive sectors to grow by improving the skills of the workforce and reducing their costs to trade, which facilitates their exports to global and EU markets and their imports or licensing of foreign technology. Moreover, it requires attracting more FDI to link domestic firms to more productive value chains and global markets. More trade and FDI, in turn, requires better infrastructure services, especially transport infrastructure. Investing in infrastructure connecting local markets and opening the domestic market to international competition can also increase competitive pressure on incumbents. Moldova's infrastructure gap and institutional reforms to improve the quality of infrastructure services are discussed in Chapter 3 of this report.

ACCELERATING PUBLIC INFRASTRUCTURE INVESTMENT

Shortcomings in the quantity and quality of infrastructure capital undermine the returns to private investment.

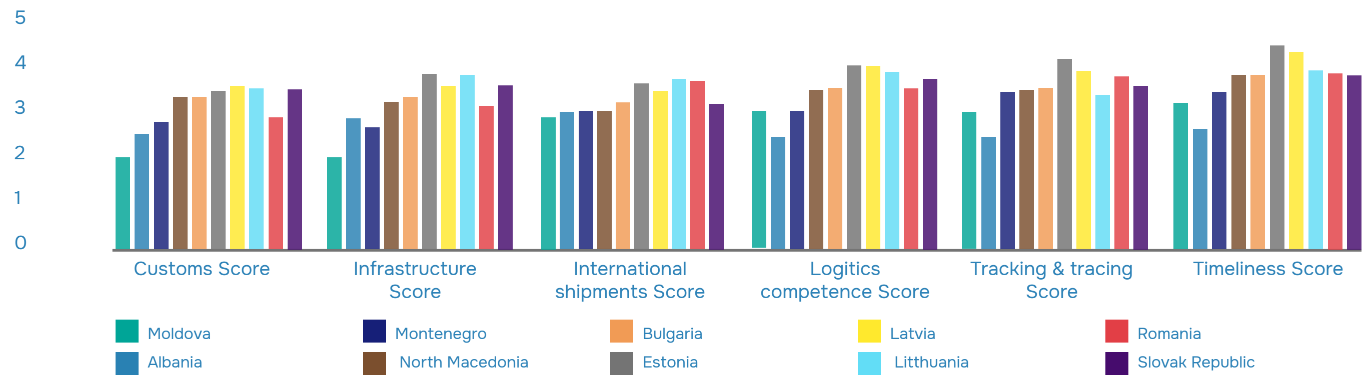
While Moldova has made progress in reducing the complexity of the regulatory environment for businesses, firms still face high operational and investment costs due to inadequate infrastructure services. The weakness of infrastructure and logistics reduces the competitiveness of many participants: (i) exporters, who need to be reliable suppliers offering a satisfactory level of order fulfillment; (ii) importers, who need to limit their inventories without compromising the ability to fulfill orders; (iii) producers/processors, who maintain a lean operation by synchronizing the arrival of inputs with their processing schedule, while still being responsive to individual orders from their clients; and (iv) shippers of transit cargo, who have to coordinate transport services in multiple countries. This chapter assesses infrastructure gaps and the quality of infrastructure services across three infrastructure sectors-energy, transport, and digital development-using the standardized diagnostic of World Bank Infrastructure Assessment (InfraSap).

Ensuring adequate connectivity and mobility is vital for economic growth and productivity

The state of transport infrastructure and services remains poor despite improvements in recent years.

Moldova is a small, landlocked country that is strategically located close to large regional markets. Connectivity to these markets is thus of great importance to attract private sector investment. As such, the country is seeking to use transport and logistics as a catalyst for economic development and trade to integrate with the European transport network and standards. Moldova currently has a reasonable amount of transport network with one primary international river port consisting of one public (owned by the State) and two private terminals, 5,866 km of national roads, 3,520 km of local roads, and 2,001 km of railway track. Moreover, the National Transport and Logistics Strategy 2013–2022 has also focused on improving transportation. However, the state of transport infrastructure and services remains poor despite these recent improvements. This is due to large investment requirements and maintenance backlogs, regulatory challenges, and the presence of inefficient SOEs. Improving the national road and rail networks and the quality of urban public transport are thus critical in raising the competitiveness of the economy. Moreover, investing in rural roads would improve the access to quality local services, which is seen as undermining human capital accumulation. Finally, a new multimodal sector strategy has yet to be developed, and the condition and management of the transport infrastructure is far from efficient. The long-lasting neglect of investment in railways in favor of roads has contributed to the gradual decrease of the quality of rail services. In 2021, Moldova's roads carried 55.6 percent of passenger traffic and 90.5 percent of freight, while rail carried just 0.6 percent of passenger traffic and 9.5 percent of freight . [15]

Figure 25: Moldova lags its peers in providing quality logistics services



Source: Logistics performance Index (LPI), 2023, World Bank. Note: The LPI 2023 ranks countries on six dimensions of trade. The data used in the ranking comes from a survey of logistics professionals answering questions about foreign countries with which they operate. The components include the efficiency of customs and border management clearance (Customs); quality of trade and transport infrastructure (Infrastructure); ease of arranging competitively priced shipments (Shipments); competence and quality of trucking, forwarding, and customs brokerage (Logistics); ability to track and trace consignments (Tracking and tracing); frequency with which shipments reach consignees within delivery times (Timeliness).

Infrastructure gap: Roads

Considering the size of the country and its population, the size of Moldova road network seems adequate, but its quality requires improvement.

Moldova has a public road network totaling about 13,023 km,[16] of which 88.2 percent of total road network is paved. However, road condition is worse than in comparator countries. Although almost all roads are paved, their quality remains poor, hindering efficient transportation. Thanks to efforts to enhance the road network with about 1 percent of GDP spent annually to road maintenance, the quality of road infrastructure has recently improved. The share of the road network in good or fair condition almost doubled to 44 percent in 2019 from 26 percent in 2013. Nevertheless, the improvement is not sufficient. There is a larger gap in the perceived quality of roads in Moldova with that of other ECA countries or UMICs, with more than 50 percent of the national and regional road network being in poor condition.[17] The level of investment required for achieving desired road quality varies significantly, ranging from around 1.4 billion Euros (about 11% of GDP) to achieve acceptable

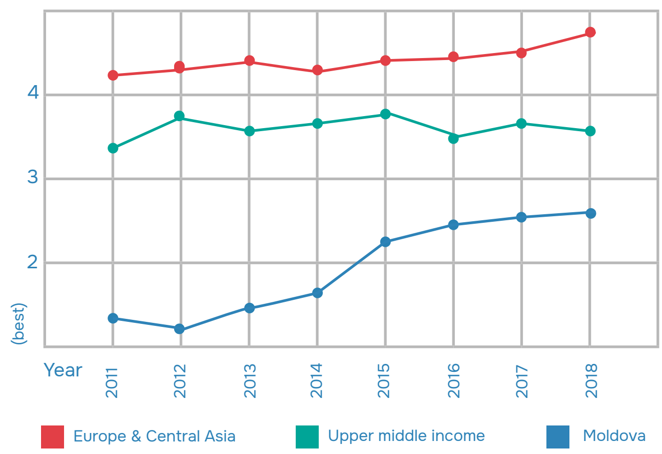
[15] Other means of passenger traffic are air, river and electric public transportation (trolleybus)

quality to approximate of 2 billion Euros (about 15% of GDP) needed to achieve a high-quality standard. With the current budget allocation to maintenance, the percentage of poor quality roads is projected to rise from 3% to 30%, while the proportion of good roads is expected to decline from 34% to 7%.

Improving the quality of roads and the efficiency of transport network is critical, given Moldova's growing level of urbanization and aspiration for regional integration.

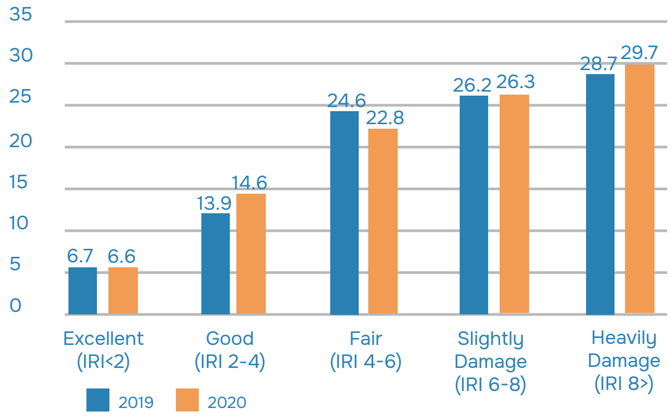
Access to roads can reduce transport time and costs, increase productivity, and reduce poverty. Remarkably, nearly 93% of the rural population in Moldova resides within a mere two-kilometer radius of an all-season road, signifying a high level of accessibility that allows rural households to conveniently access local markets, facilities, and services. Additionally, Moldova's road density is comparable to that of the Baltic states (Estonia, Latvia, and Lithuania) and other Central European countries. However, the existing road infrastructure suffers from subpar quality, impeding the seamless integration of rural areas and small towns into the national economy, ultimately inhibiting overall economic growth.

Figure 26: Quality of road infrastructure



Source: WEF 2019.

Figure 27: Quality of road infrastructure, national and regional roads, IRI, %



Source: Road Fund report 2020.
Note: The international roughness index (IRI) measures longitudinal road profiles

Box 3: Fluvial ports

[16] Of which 3,637 km are located in Transnistria
[17] World Economic Forum

The Giurgiulești International Free Port, which entered into operations in 2006 after 10 years of construction, includes two private and one public (owned by the State) terminals. It is accessible by sea and river vessels and is located in the southern part of the country, about 134 km (73 miles) from the Danube River, and is bordered by Romania and Ukraine. It has a status of Free Economic Zone until 2030 and its facilities include a cereal freight terminal with a capacity of more than 50,000 metric tons, an oil cargo terminal and vegetable oil terminals, and construction materials and general cargo. Being Moldova's first privately held mixed-gauge rail terminal, the facility allows transshipment of oil products from regular-gauge and broad-gauge rail tank cisterns to the Commonwealth of Independent States and the EU, becoming a major logistics hub not only for Moldova, but for the entire region. Further the port can be accessed from the port of Constanta on two routes: on the Maritime route via Sulina channel and on the inland route via the Cernavoda channel. The volume of cargo processed in the Port Complex of Giurgiulești in 2021 was 1.4 mln tons of goods including sand/gravel, cereals, and petroleum products.; 28.1% of the cargo turnover was the export of cereals (about 395,000 tons).

Since the Russian Federation blockaded Ukrainian ports, Giurgiulești Port has also been helping to move grain and fuel in and out of neighboring Ukraine. By May 2022, this was up to 65,000 tons, more than half of which was estimated to be earmarked for onward delivery to Ukraine. Likewise according to EBRD, grain and vegetable exports were at high levels in 2022—309,404 tons and 99,694 metric tons, respectively—with grain transshipment and storage facilities increasingly used for grain from Ukraine.

However, Moldova exported between 1.5-1.9 M t of grain cargo in 2021-2022 through other countries due to lack of transshipment capacity. The existing private terminals only prioritize the shipments of its own goods. Moldovan companies are forced to use mostly Ukrainian Danube ports for agricultural export, which negatively impacts the price and delivery time of the production thus significantly limiting their competitiveness. With current challenges and potential export growth, Moldova severely needs to expand its port transshipment capacity to export its grain directly from Moldova.

Infrastructure gap: Railways

Moldova has a relatively small railway network.

The total length of the network is 2,001 km, of which only 1,150 km are operational (single track with about 74 km double track but none electrified) and connect with Romania in the west and Ukraine in the east. [18] Only 13.9 km of the network has European standard gauge. The network includes 10 cargo border crossings. There are 90 stations, of which 56 also handle freight. The railway system in Moldova is operated by a SOE created in 1992. The density of the rail lines, 32 km of railway line per 1,000 sq-km, is equivalent to the relevant value for neighboring countries. The density of traffic was 882,526 traffic units/km of track in 2018 representing about one-third of the EU-28 railways' average traffic density.

The quality of railway services in Moldova is below European standards due to an outdated fleet that has outlived its economic lifespan, insufficient investment, and a lack of modernization.

Chronic under-investment in railway assets and unbalanced investments in favor of roads has led to an obsolete fleet that requires replacement, contributing to a gradual decrease in the quality of rail services and a loss of market share. Delays and cancellations of trains are common, and the speed of trains (34.5 km/h) is relatively slow compared with other European countries.

As a result, freight and passenger rail transportation has been steadily declining in Moldova since the early 2000s, while road-based modes of transportation have become increasingly dominant.

In just two decades, the share of road freight more than doubled to more than 80 percent, while rail freight contracted from 60 to just above 15 percent. Meanwhile, passengers carried by road surged from 30 to 97 percent, while by railways they fell from 25 to just 3 percent. Bus transportation has been declining, while transportation by private vehicles (taxis) tripled in the past 10 years and air transportation nearly doubled. Overall, railways carried only 0.4 percent of total passenger traffic when air transport is included. This shift toward road transport has been more pronounced in Moldova than in peer countries, where the gap between rail and road transport is much smaller. Moreover, Moldova does not have any significant inland waterways to support freight transportation, further contributing to the growing reliance on roads to meet transportation needs.

Figure 28: Passenger modal split

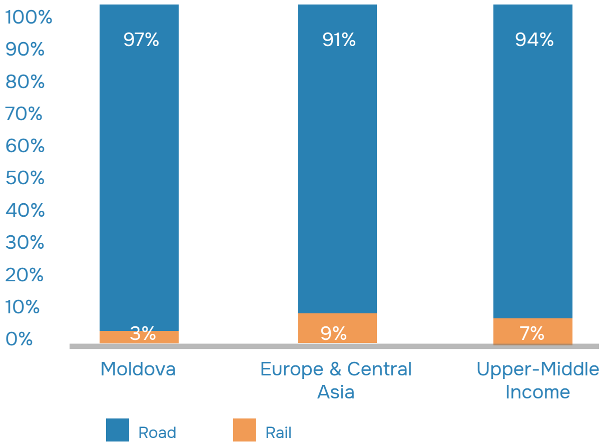
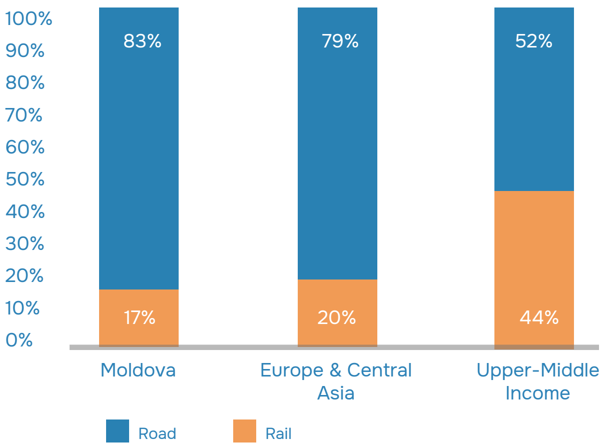


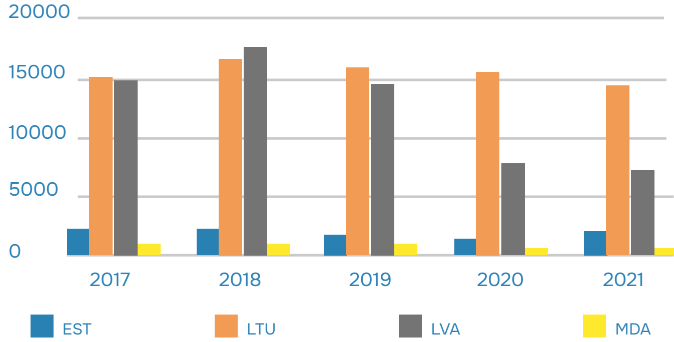
Figure 29: Freight modal split



Most of Moldova's manufactured goods are shipped by road, while most agricultural products are transported by rail, particularly for long-distance destinations.

In addition to grain, most of the rail freight crossing the border is iron ore moving from Ukraine to Romania, with cement and limestone as the principal cargoes crossing on the Ukrainian border. On the other hand, high added value manufacturing exports to the EU are mostly served by roads. Compared with similar countries, such as the Baltic states, Moldova's railway is underutilized and the traffic density is too low, resulting in low revenues and rendering the sector unprofitable. Moreover, any revenue from freight services subsidizes passenger operations as the passenger fares are below the recovery level and there is no compensation from the state, having a critical impact on the finance of the railway company.

Figure 30: Freight transportation (Million tonne-kilometre)



Source: OECD

The poor quality of road transport and declining railway use limit overall connectivity.

Improving quality of transportation infrastructure will be critical to supporting Moldova's changing demographic trends and facilitating economic growth. With increasing urbanization, there arises a pressing demand for efficient and reliable urban transportation systems, requiring the prioritization of policies and measures. In addition, investing in better transport links will help to support rural communities, and facilitate the movement of people and goods to and from these areas.

Moldova's transport sector requires strategic planning and adequate investment.

Recent government actions improved decision-making and harmonization with EU standards. However, a multimodal strategy is needed to recognize the advantages of different transport modes, develop logistics centers, and enhance international connectivity. The strategy should prioritize railway infrastructure, improve road maintenance practices, and invest in urban transport systems to achieving a resilient, efficient, and sustainable transport system. Coordinated planning and investment in public transport and alternative mobility solutions are necessary to address congestion, air pollution, and travel time issues.

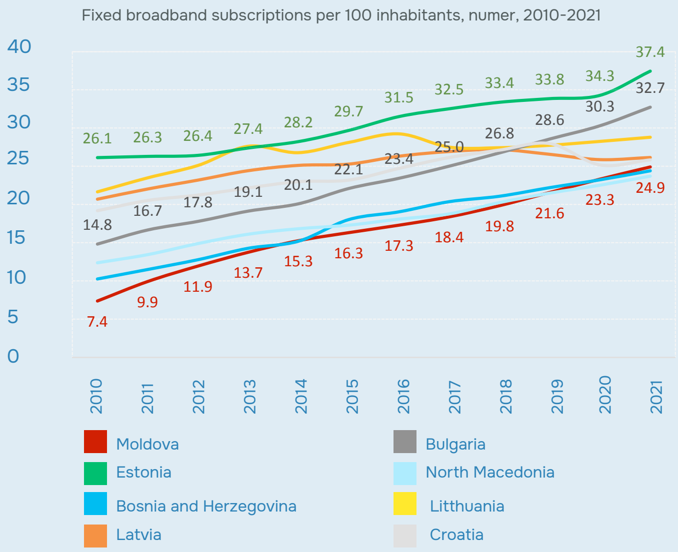
[18] Moldova has 21 railway connections, of which 18 are with Ukraine and three with Romania. Out of the 18 railway connections with Ukraine, three are located in the area of Transnistria: Kobasna – Klimentovo, Novosavitkaia – Kuciurgan, & Livada – Kuciurgan.

Box 4: Digital development connectivity

Moldova's broadband market continues to grow at a steady pace although it is still relatively underdeveloped compared with its peers.

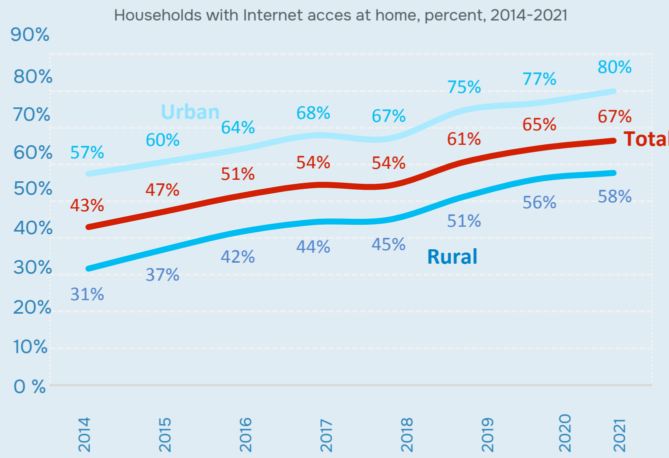
Fixed broadband subscriptions per 100 inhabitants reached about 25 in 2021, which is on a par with countries such as North Macedonia and Bosnia & Herzegovina, but below levels seen in some more developed regional peers such as Estonia, Lithuania and Bulgaria. The fixed broadband infrastructure is most developed in Chişinău and several other major population centers, while in rural areas its development is lagging in part due to high cost and cost recovery issues; geographical areas outside the three main population centers remain relatively underserved. Thus, in 2021, around 80.1 percent of urban households had internet access at home, while in rural households this rate was around 58 percent. The total average share of households with internet at home of 67 percent in 2021 puts Moldova last compared with structural and regional peers. Shortcomings in broadband infrastructure, particularly in rural areas, highlight the difficulties in deriving acceptable returns on investment, while the mobile sector is unable to expand significantly due to saturation.

Figure 31: Fixed broadband subscription per 100 inhabitant



Source: ITU, World Telecommunication/ OCT Indicator Datebase 2022

Figure 32: Households with internet access at home (%)



Source: ITU, World Telecommunication/ OCT Indicator Datebase 2022

Investments in the sector have been on a declining trend since 2014, although they are still higher than in the Baltic states.

According to ITU's data, mobile networks segment of the market has been bringing in around 60 percent of all revenue in the sector between 2012 and 2020. At the same time, annual investment amounts in the telecommunications sector have been decreasing since 2014, recording an average of 13 percent contraction per year. At the same time, when compared with peer countries in the Baltic states, Moldova's investment levels to GDP were, on average, much higher than those in Estonia, Latvia and Lithuania.

Figure 33: Revenue and investment in telecom (MDL, million)

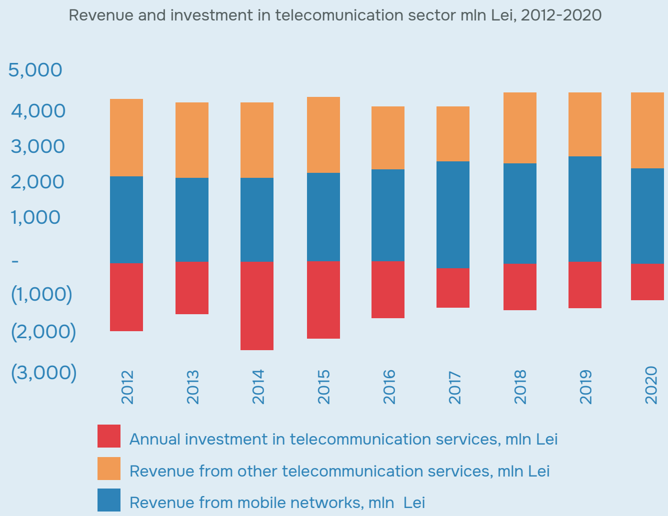
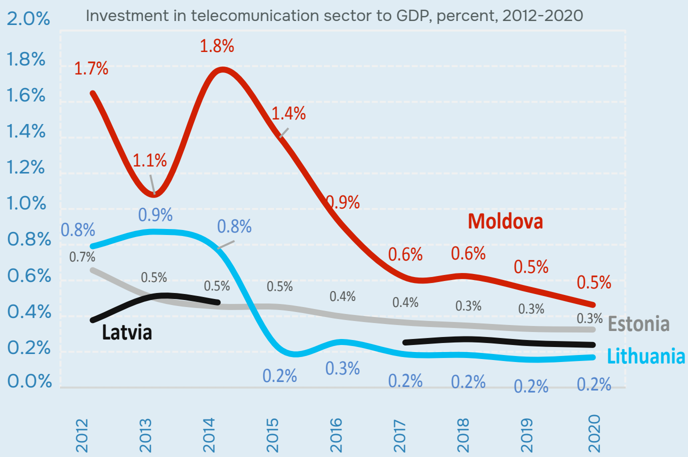


Figure 34: Investment in telecom (% of GDP)



Source: ITU, World Telecommunication/ICT Indicator Datebase 2022

Infrastructure gaps: Energy

Ensuring energy security, reliability, and affordability is also a priority to support Moldova's long-term competitiveness, as demonstrated by the impact of the recent droughts and energy crisis.

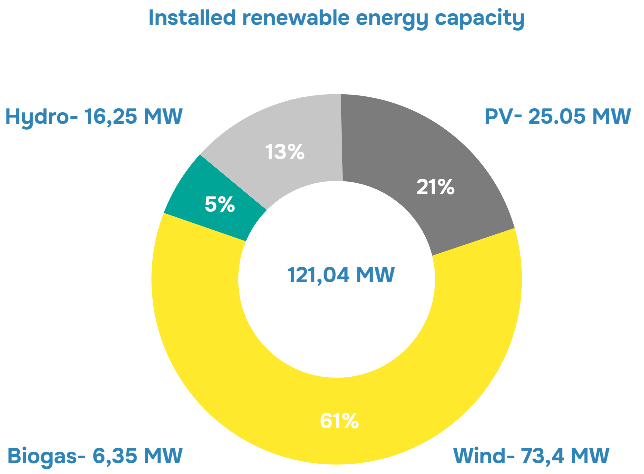
Over the past 20 years, Moldova has undertaken significant reforms of its energy sector through cost-reflective pricing, independent regulation, and the promotion of efficient operations and investments. However, energy security continues to be a central concern due to the country's high dependence on energy imports in total energy supply, and on single-source supply in gas and electricity, highly concentrated gas and electricity markets, aging power generators, unresolved issues of historical debts, and a low diversification of the power-generation mix. The country's energy self-sufficiency is among the lowest globally, with only about 25 percent of its energy demand met by domestic production, mainly from solid biomass and variable renewable sources. The majority of Moldova's energy supply comes from imported fossil fuels, particularly natural gas, and about 80 percent of its electricity from the left bank of Dniester River in Transnistria.

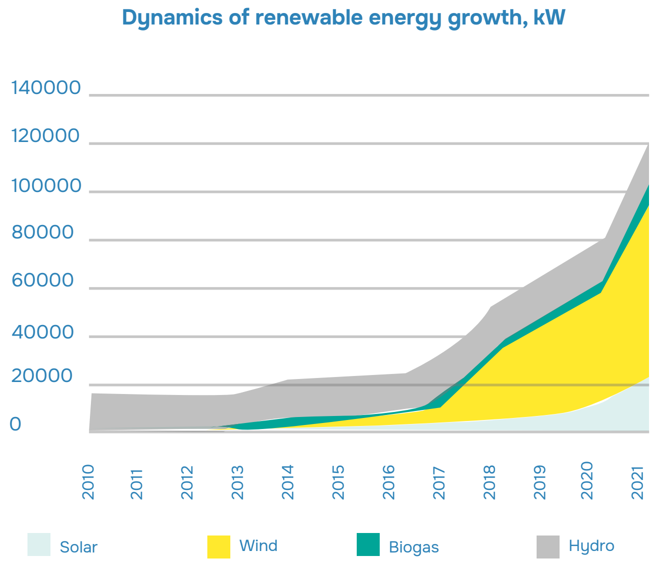
- **Electricity** The synchronization of the transmission power systems of Ukraine and Moldova with the European Network of Transmission System Operators for Electricity (ENTSO-E) is helping Moldova to establish direct access to new sources of electricity and gas supply. As of May 2023, electricity trade capacity from continental Europe to Ukraine/Moldova is expected to reach 1,050 megawatts (MW)—an increase of 200 MW from a previous trade capacity upgrade

- **Gas** A great achievement was the reverse flow of natural gas through the Trans-Balkan Route gas pipeline in 2019 and later through the Ungheni-Chișinău pipeline in October 2021, creating alternative routes of gas supply and connecting it with European Network of Transmission System Operators for Gas (ENTSO-G). Sources to be used to fill the Iasi-Ungheni-Chișinău pipeline might be liquified natural gas (LNG) from global energy markets unloaded in regasification terminals in the EU, and further on filling the gas transportation network of neighboring countries before reaching Iasi-Ungheni-Chișinău pipeline or Trans-Balkan Route in reverse flow (e.g., from South to North).

- **Renewable energy** Moldova is also increasing its renewable energy generation. The Energy Efficiency Agency reports a significant increase in total installed capacity of renewable energy, reaching 207 MW by the end of 2022, compared to 121 MW in 2021 and a mere 62 MW in 2018.In particular, solar PV installations reached 60 MW in 2022, wind installations rose to 115 MW, and biogas cogeneration increased to 15 MW over the past five years. However, the installed capacity of hydropower remained stagnant at 16.3 MW.

Figure 35: Renewable energy deployment in Moldova in the period 2010–2021





Source: Ministry of Infrastructure and Regional Development, 2022.

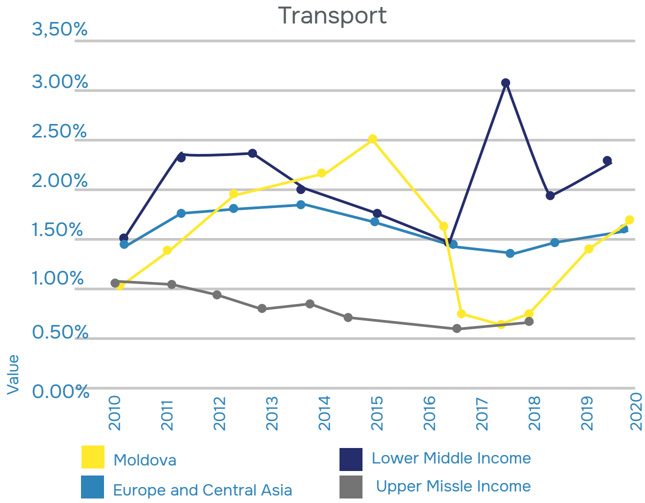
Despite these efforts, continuing the diversification of Moldova's energy mix, and expanding supply and transport options for both gas and electricity, remain a priority.

This could be achieved through the strengthening of links with European power and gas networks, upgrading and increasing of local power generation capacities, further implementing comprehensive reforms in the area of sustainable heating, and promoting well-designed investments in wind and solar power generation. Properly executed, these measures would minimize the risk of supply disruptions, allow the country to access competitively priced electricity and gas and to develop local energy markets, promote a more rational and efficient use of energy within the boundaries of the whole of Moldova, and move toward closer integration with regional and the EU's energy markets.

Enabling environment for private participation in infrastructure

Public investment is low compared with Moldova's needs.

Capital expenditure for infrastructure in Moldova has been lower than in peer countries following a sharp dip after the 2015 crisis. Although there has been a partial recent recovery in capital expenditure for transport infrastructure in Moldova, investment in energy infrastructure remains low. This suggests that the country has been investing more in improving its transportation infrastructure than in its energy infrastructure. But, even on transport, Moldova spent less than 1 percent of its GDP on total inland transport infrastructure annually on average, considerably less than other countries in the region Azerbaijan (2 percent), Belarus (2.8 percent), and Georgia (2.7 percent).



Source: Ministry of Finance, Boost database

Figure 36: Capital expenditure in infrastructure (% of GDP)

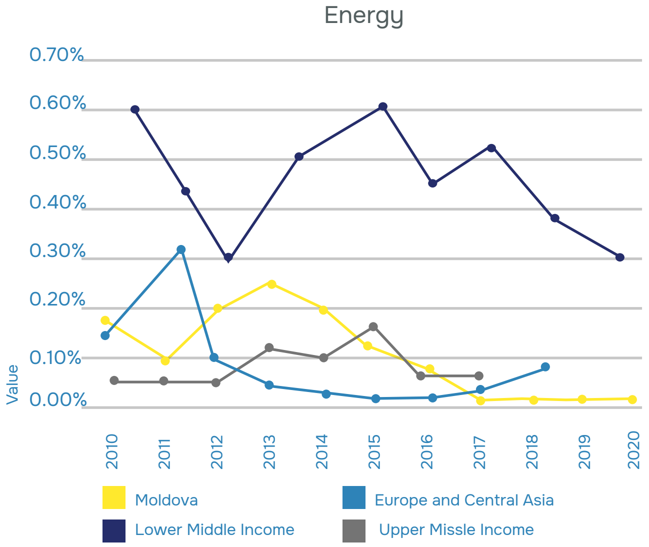
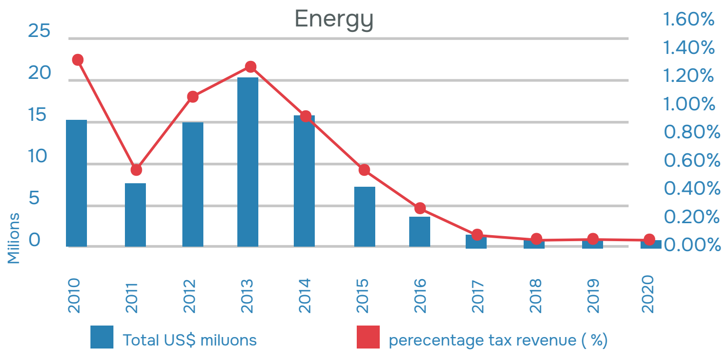
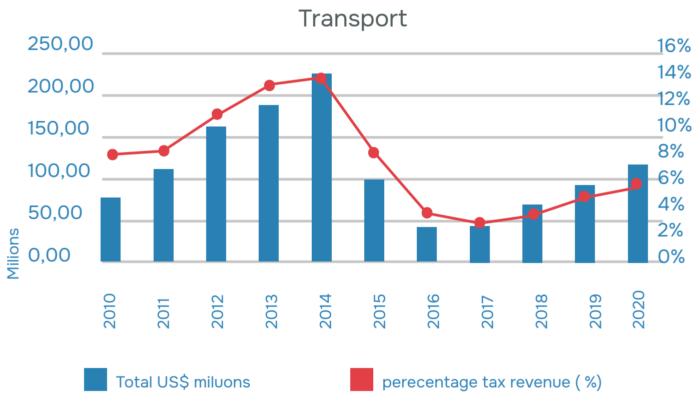


Figure 37: Capital expenditure in infrastructure (US$, % of tax revenue)





Source: Ministry of Finance, Boost database

Given that public sector alone may not be able to meet all infrastructure needs, the private sector would need to be brought in through different modalities, including through PPPs.

Historically, infrastructure development in Moldova has been mainly financed by the Government, with support from international financial institutions. Measures beyond the mere allocation of public funding are required to accelerate infrastructure investments.

It is necessary to explore the potential for public-private partnerships (PPPs), for instance in the area of road infrastructure, logistics services, and energy. While Moldova has a solid PPP legal framework relatively than its peers for the PPP investment cycle (PPP preparation, PPP procurement and contract management), [19]lessons from the implementation of previous PPPs has shown weakness in all stages of the PPP cycle, including preparation, procurement, contract management. Moreover, the system does not have a solid procurement strategy and market assessment to better plan the tendering and identify opportunities for innovation.

Figure 38: Public-private partnerships scoring (PPPs))

Source: Benchmarking Infrastructure Development 2020

Source: Benchmarking Infrastructure Development, World Bank
Note: Public-Private Partnerships (PPPs) Scoring Methodology https://storage.googleapis.com/wb-bid/BID_2020_PPP_methodology.pdf

[19] Benchmarking Infrastructure Development (BID) 2020 report

REFORMING PUBLIC INSTITUTIONS THAT ENABLE PRODUCTIVITY GROWTH AND INVESTMENT

The success of growth policies in Moldova relies on the effectiveness of public institutions to make markets more accessible and contestable.

The analysis in this chapter is based on novel, comprehensive data capturing the businesses of the state (BOS) in the economy, survey data on regulatory barriers to firms' growth in key sectors, and firm census panel data from the Moldovan National Burau of Statistics in the period 2015–2020. This chapter aims to identify shortcomings in specific public institutions that help explain the lack of business dynamics and market contestability identified in Chapter 2, and the low quality of infrastructure services connecting markets in Chapter 3. The identification of detailed policy actions to raise the skills of the next generation workforce and to reduce the costs of trade beyond improving connecting infrastructure services are left for future work. The chapter finds that addressing market inefficiencies that limit Moldova's productivity growth as identified in Chapter 2 includes removing preferential policies favoring SOEs over private firms and removing regulatory barriers to firms' entry and exit. Moreover, the role of public institutions governing infrastructure services can be modernized to achieve and maintain higher quality services in connecting infrastructure, which has been identified as a key growth constrained in Chapter 3.

SOEs account for a relatively small share of Moldova's economy

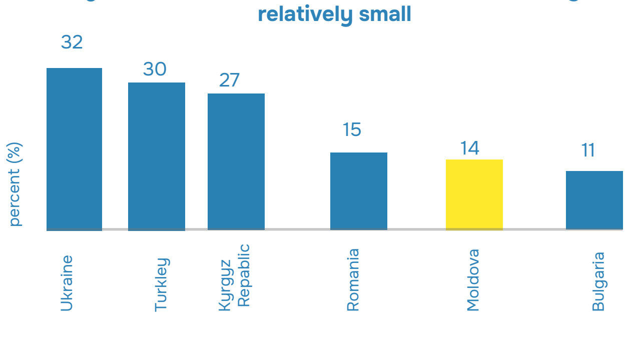
Despite having a large number of SOEs, they account for a relatively small share of Moldova's economy.

As of 2019, 808 SOEs[20] were (co-)owned by the Government with a participation of at least 10 percent, which implies a high density of 30 SOEs per 100,000 inhabitants compared with peer countries such as Croatia (26), Bulgaria (12), Georgia (10), and Albania (6). But SOEs in Moldova are relatively small (Figure 39). Their aggregate revenues in 2019 amounted to US$1.7 billion or 14 percent of GDP, which is below the GDP share in Romania (15 percent), Turkey (30 percent) and Ukraine (32 percent). Similarly, SOEs in Moldova employ about 55,000 people, which accounts for only 5 percent of formal employment in the country.

Most SOEs in Moldova are directly and fully owned, lowering the potential to interfere in markets through vertical integration or cross-subsidization of state-owned firms across different economic activities.

Almost all SOEs in Moldova (98 percent) are directly and fully owned. The Moldovan Government is only an indirect shareholder through a subsidiary in the energy and transportation sectors: about one-third of SOEs in energy are indirectly owned by the state. Moreover, SOEs are primarily fully owned by the state, though minority ownership participations are used in construction, energy, manufacturing, mining, retail trade, transport, accommodation, and real estate. In most cases, however, the Government remains as a majority shareholder with at least 50 percent participation, with the exception being in energy, where the state is a minority shareholder in 40 percent of the SOEs in the sector. The direct and full ownership of the state lowers the potential for state-owned economic conglomerates to vertically integrate operations or cross-subsidize subsidiaries across different economic activities.

Figure 39: The role of SOEs in Moldova's economy is relatively small



Source: World Bank BOS database. Note: BOS domestic revenues as a percentage share of GDP. Revenue data coverage: Ukraine (54%), Turkey (29%), the Kyrgyz Republic (27%), Romania (100%), Moldova (87%), and Bulgaria (68%).

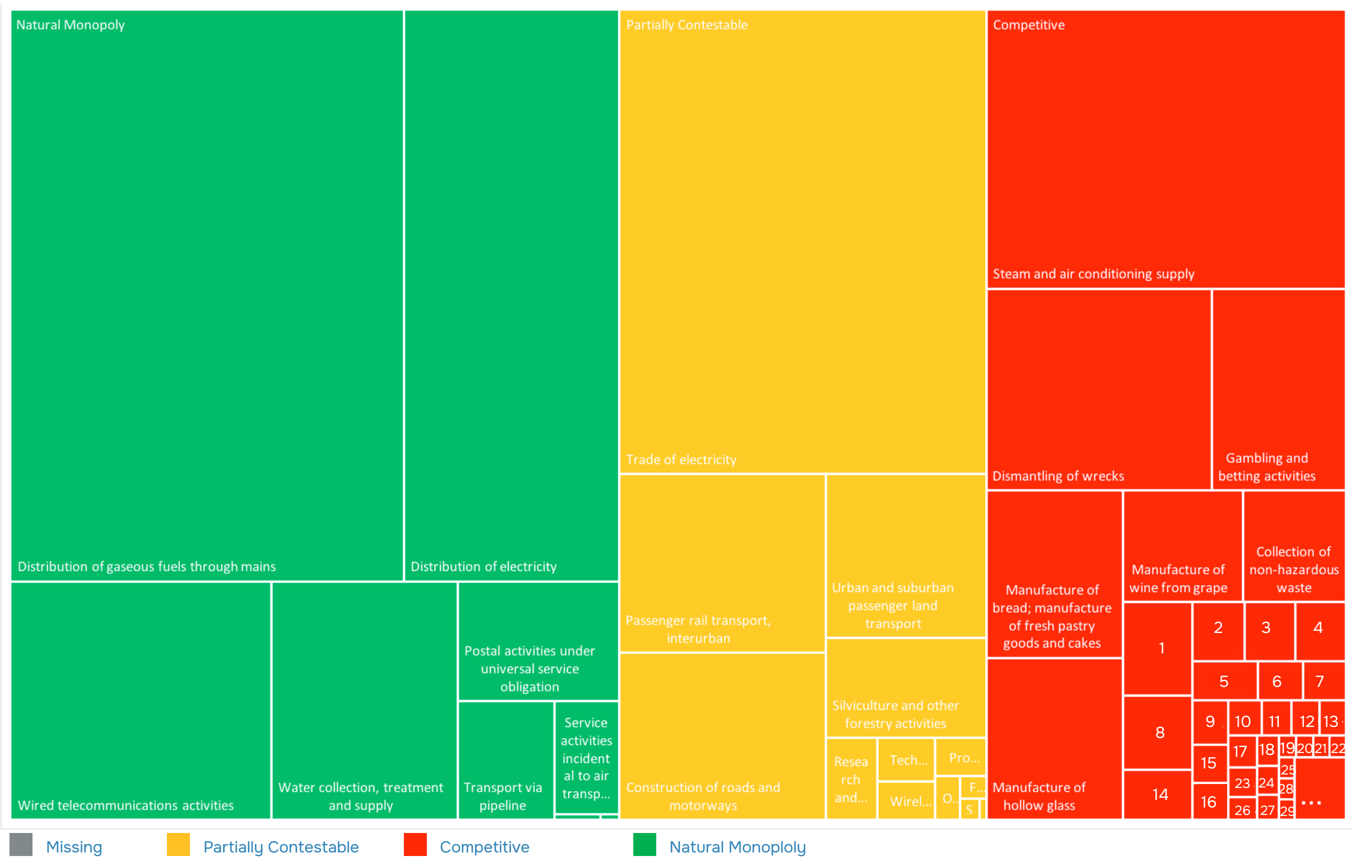
[20] All firms are included with a direct or indirect co-ownership participation of central or local governments of at least 10 percent. The labels domestic Businesses of the State (BOS) firms and SOEs are used interchangeably in this report.

But SOEs are less productive, and several operate in competitive sectors

One-third of SOEs' activities are in competitive sectors, which can reduce market contestability.

The provision of goods and services in competitive sectors is typically private, as it is not associated with significant market failures or information asymmetries. However, in Moldova, SOEs are active in several competitive sectors, including the manufacturing of glass, wine, bread, and fabricated metals, steam and air conditioning supply, real estate, construction, engineering and architectural services, and wholesale trade. The presence of preferential regulations or services to SOEs in these competitive sectors can undermine competition and discourage the entry of private firms into these sectors (see next section). Nonetheless, most SOEs in Moldova operate in natural monopoly sectors where market failures or social externalities provide a rationale for state presence. For example, the presence of SOEs is strongest in the distribution of gaseous fuels, and the trade and distribution of electricity. SOEs are also active in several partially contestable infrastructure sectors such as road construction.

Figure 40: SOEs are active in several competitive sectors, which can unlevel the playing field and reduce contestability



1- Rental and operating of own or leased real estate
2-Wholesale of pharmaceutical goods
3-Distilling, rectifying and blending of spirits
4-Management of real estate on a fee or contract basis
5-Wholesale of pharmaceutical goods
6-Architectural activities
7-Manufacture of other fabricated metal products n.e.c.
8-Other food service activities
9-Manufacture of lifting and handling equipment
10-Printing of newspapers
11-Growing of cereals (except rice), leguminous crops and oil seeds
12-Manufacture of industrial gases
13-Engineering activities and related technical consultancy
14-Manufacture of instruments and appliances for measuring, testing and navigation
15-Site preparation
16-Funeral and related activities
17-Manufacture of agricultural and forestry machinery
18-IOther retail sale in non-specialised stores
19-Inland freight water transport
20-Holiday and other short-stay accommodation
21-Washing and (dry-)cleaning of textile and fur products
22-Restaurants and mobile food service activities
23-Raising of dairy cattle
24-Mixed farming
25-Operation of sports facilities
26-Book publishing
27-Business and other management consultancy activities
28-Raising of swine/pigs
29-Combined facilities support activities

Source: World Bank BOS database. Note: based on 2019 unconsolidated SOEs' revenues by sector engineering, architecture, management of real estate, and technical consultancies and activity; follows the sector taxonomy developed in Dall'Olio et al. (2022).

Almost half of all SOEs are currently generating losses.

In 2019, aggregate net profits of SOEs amounted to US$31 million, accounting for 1.9 percent of their total revenues. While 44 percent of SOEs are generating a combined loss of US$23 million, the 39 percent of profitable SOEs account for combined profits of US$54 million. Most of SOEs' losses accrue in natural monopoly sectors, primarily transportation and distribution of electricity. On the other hand, energy and water, which are primarily natural monopolies, are the most profitable sectors for SOEs. The largest share of profitable SOEs operate in the hospitality sector.

SOEs are larger and pay higher wages, but they are less productive than privately-owned firms in their sectors.

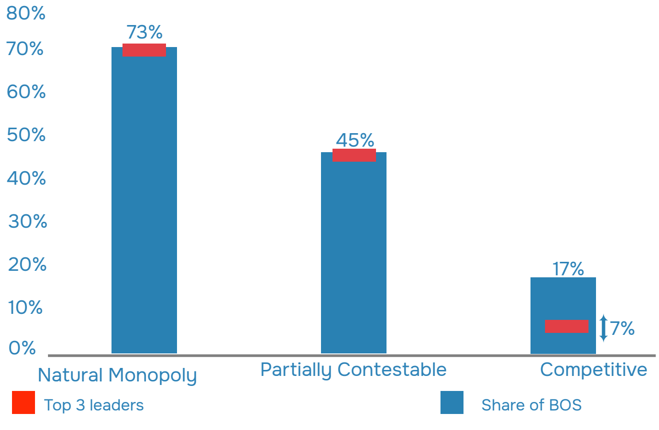
SOEs are larger than their average privately-owned peers in 66 percent of the 4-digit sectors in which they are present. Despite their lower productivity, SOEs pay higher wages in 2019, wages were on average 28 percent higher than those of private firms operating in the same sector. The higher wage bill helps explain SOEs' low markups compared with private firms in their sector. While the largest SOEs tend to be the most productive, these large SOEs tend to become less productive as they age. There is also a negative relationship between productivity and SOE presence at the sector level. Sectors with a higher share of revenues from SOEs have a lower average firm productivity, which is mainly explained by firms operating in competitive sectors.

SOEs prompt market inefficiencies in potential high-growth sectors reducing Moldova's productivity

SOEs are among the top three largest firms in about half of the competitive sectors in which they operate, undermining Moldova's competitiveness in backbone services and potential high growth activities

Activities such as engineering, consultancy, or transport services and manufacturing of chemicals, radiators, glass, or technical instruments. SOEs are present in 90 4-digit sectors, equivalent to 19 percent of the economy. Among natural monopoly and partially contestable sectors, SOEs are predominantly market leaders. Given the stronger rationale for state presence and the relatively small number of private firms in these sectors, it is not surprising that SOEs are among the largest firms in these sectors. But SOEs are also among the top three largest firms in about half of the competitive sectors in which they operate (Figure 41). These include backbone services sectors providing key productive inputs for firms operating in the rest of the economy such as inland freight water transport. Moreover, the competitive sectors with strong SOE presence also include potential high growth sectors related to agricultural activity such as manufacturing of chemicals, hollow glass, radiators, boilers, technical instruments, or repair of machinery. However, SOEs large size in these sectors contradicts their poor productivity performance, pointing to policy privileges that they may receive to be able to stay on top of their more productive private competitors (see next section). Thus, given their low productivity level and growth, SOEs undermine the efficiency of markets in these potential high growth sectors, resulting in resource misallocation and discouraging private firms to grow and innovate, both contributing to Moldova's relatively low aggregate productivity growth in non-agriculture sectors.

Figure 41: Despite their low productivity, SOEs are among the largest firms in several competitive sectors



Source: World Bank BOS database and firm census data from Moldova's Statistical Agency 2015–2020. Note: Share of all SOEs and share of SOEs being among the top three largest firms (market leaders) in their sector.

SOEs are market leaders in several competitive, backbone services subsectors despite being less than half as productive as their fully privately-owned competitors.

Overall, there are 29 competitive sectors in which SOEs are among the top three largest firms, equivalent to 7 percent of all 4-digit sectors in the economy. In 26 of these competitive sectors, the SOEs leading these markets are, on average, less productive than their privately-owned peers. In nine competitive sectors, SOEs productivity is less than half and, in some cases, only one-quarter of the average productivity level among fully-privately owned firms operating in the same 4-digit sector. These sectors include several key backbone services sectors that provide productive inputs to the rest of the economy such as engineering and architecture al services, management of real estate, technical consultancies, and the repair of machinery (Table 1).

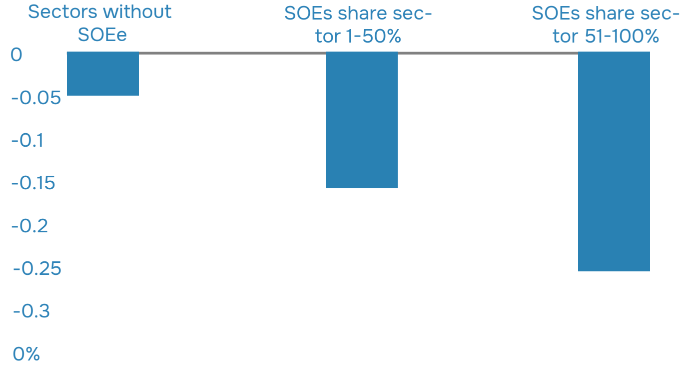
Table 1: SOEs are market leaders in several competitive sectors despite being less than half as productive

Productivity gap BOS/non BOS	Sector	Revenue Share of BOS	Type of sector
-194%	Television programming and broadcasting activities	23.30%	Partially Contestable
-96%	Water collection, treatment and supply	82.80%	Natural Monopoly
-81%	Service activities incidental yo land transportation	22.51%	Natural Monopoly
-73%	Other food services activitiles	17.54%	Competitive
-65%	Repair of machinery	12.62%	Competitive
-62%	Collection of non-hazardous waste	80.37%	Competitive
-61%	Architectural activities	19.21%	Competitive
-61%	Site prepration	18.27%	Competitive
-60%	Activities of head offices	4.01%	Competitive
-58%	Engineering activities and related technical consultancy	20.33%	Competitive
-54%	Management of real estate on a fee or contact basis	40.64%	Competitive
-52%	Treatment and disposal of non-hazardous waste	54.52%	Partially Contestable
-52%	Technical testing and analysis	18.70%	Partially Contestable
-51%	Manufacture of bread; manufacture of fresh pastrygood and cakes	29.41%	Competitive
-50%	Urban and suburban passenger land transport	41.75%	Partially Contestable

Source: World Bank BOS database and firm census data from Moldova's National Bureau of Statistics 2015–2020. Note: Competitive sectors with the largest productivity gaps between SOEs and fully privately-owned firms.

The dominance of unproductive SOEs in several competitive sectors is consistent with the strong resource misallocation observed in these sectors.

Sectors' allocative efficiency of resources is negatively correlated with the SOEs' presence in sectors. Specifically, the probability that a sector is experiencing resource misallocation a negative allocative efficiency in Figure 42 is increasing with the size of the sector's revenue share of SOEs, undermining the productivity growth of potential high growth sectors such as manufacturing of chemicals, glass, radiators, or inland freight water transport services. This correlation is also negative and significant if only the competitive sectors are included where SOEs do not play a leading role.



Moldova's low firm density is also associated with SOE's presence in competitive sectors.

Firms' entry rates tend to be lower in competitive sectors with a larger SOE presence. The presence of SOEs in competitive sectors also seems to discourage private firms from entering these markets. Specifically, firms' entry rates tend to be significantly lower in sectors in which SOEs account for a larger share of revenues. Notably, this negative relationship only occurs among competitive sectors. In other words, two key business dynamism indicators that are shown to cause Moldova's weak productivity performance-the low firm density and resource misallocation- can, to some extent, be explained by the presence of SOEs in markets that should be fully contestable. The next section reveals some preferential policies that SOEs in these sectors enjoy, which explains their ability to lead these markets despite their lower productivity.

Source: World Bank BOS database and firm census data from Moldova's Statistical Agency 2015–2020. Note: 4-digit sectors' allocative efficiency (y-axis) is measured by the between effect (see Chapter 3 on productivity). Lower values imply less allocative efficiency; negative values imply resource misallocation. Leading BOS sectors are 4-digit sectors with SOEs among the top three largest firms.

Leveling the playing field between SOEs and privately-owned firms

The type and impact of policy reforms depend on the nature of the sector where SOEs operate.

The strongest rationale for SOE presence is in natural monopoly markets where the prevalence of economies of scale or the sub-additivity in cost structures justifies the presence of a single market player. Meanwhile, significant fixed costs of entry which may reduce the number of competitors in sectors characterized by public goods, externalities, and asymmetries of information could provide support to SOE presence in partially contestable sectors. Finally, in competitive, fully contestable sectors where incumbents and entrants have access to similar information and production technologies and where the provision of good and services does not generate significant externalities, there is no clear economic rationale to justify the specific participation of SOEs. This difference in economic rationale implies different policy options depending on the type of the sector.

In natural monopoly sectors, such as transport via pipeline, transmission of electricity, or water collection, SOE performance can be improved through regulation and corporate governance reforms.

Corporate governance reforms should target internal governance, operational, and financial performance, and investments to improve service delivery. The provision of services in these sectors can also be improved by transfers to private operators through public private partnerships (PPPs). Moreover, it is essential in these sectors to complement reforms with a due regulatory environment, including open and competitive tenders, regulations to avoid abuse of dominant position, and stronger enforcement mechanisms.

In partially contestable sectors, such as production and trade of electricity, land transport, or research and development, management arrangements or PPPs are options to raise productivity and the quality of services.

PPPs can be a suitable policy option for Moldova's transportation sector in which SOEs account for a large share of sales but are typically less productive and not profitable. A review of the current PPP framework and its implementation is necessary to identify weakness in the framework to attract private investment and remove impediments that restrict or inhibit entry of the private sector. Further meaningful oversight and open tenders are required to ensure a competitive and transparent process, including appropriate frameworks for unsolicited proposal. Management contracts, which allow the government to retain control over assets but transfer the day-to-day management to private sector, can be more suitable policy option for sectors such as waste management which is dominated by SOEs and involves a straightforward provision of a public good.

In competitive sectors, such as engineering, consultancy, or transport services and manufacturing of chemicals, glass, or technical instruments, the policy priority is removing regulation protecting SOEs from private entry and competition.

This includes regulations increasing the costs for private firms to operate as discussed below. The Competition Council should use market assessments to identify the most restrictive regulations and promote more pro-competition reforms in these sectors. Moreover, for unprofitable SOEs in these competitive sectors, for instance in wholesale and retail trade, the most pragmatic reform option can be unbundle potentially profitable business lines from less productive ones and turn SOE performance around through governance and management reforms. For business lines that cannot be turned around, divestiture can be the best policy option. The below policies provide specific reform option in potential high growth, competitive sectors with a strong SOE presence.

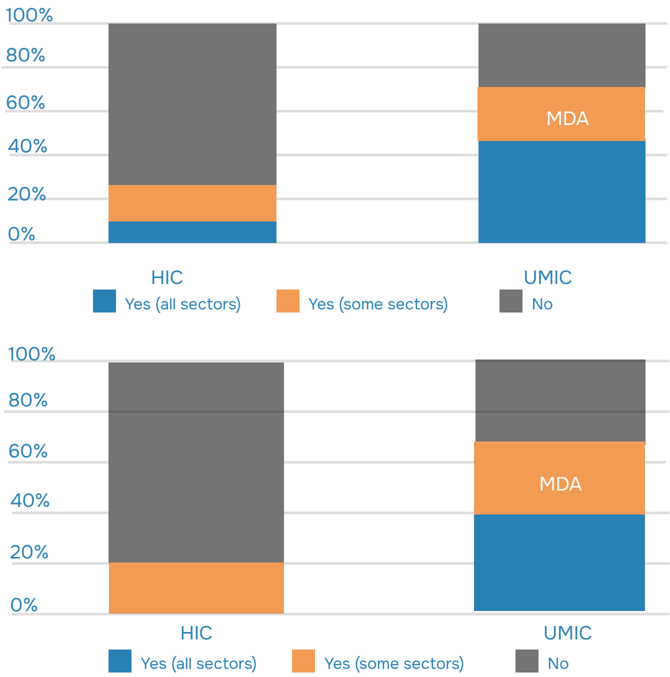
Many SOEs in Moldova are not subject to private company law, providing potential policy privileges over private competitors.

Ensuring a level playing field becomes critical when SOEs participate in markets where competition is viable. While some laws apply equally to both SOEs and private firms, Moldova's implementation of the legal competitive neutrality framework still has several gaps. For example, most SOEs in Moldova are not incorporated into limited liability companies, as firms can take the legal form of state or municipal enterprises and are not subject to private company laws. In addition, when SOEs conduct both commercial and non-commercial activities, they are generally not required to separate them. Only SOEs benefiting from state aid are compelled by the Competition Council to keep a separate accounting. This separation is, however, critical to prevent SOEs from cross-subsidizing their commercial activities competing with private firms from non-commercial activities, thus allowing SOEs to potentially obtain a competitive edge over private firms despite their lower productivity.

Moldova's regulatory framework does not provide explicit exemptions but SOEs can still benefit from certain advantages.

SOEs do not benefit from exemptions on the application of economy-wide laws, including competition laws. Still, SOEs may benefit from preferential access to other policy privileges, including guarantees for municipal SOEs and preferential access to manage state property in the public domain that is not subject to private law, which provides cost advantages relative to private competitors (Figure 43:)

Figure 43: SOEs in Moldova can benefit from preferential policies over their privately-owned competitors



Source: World Bank and OECD Product Market Regulation database, 2018–2023.
Note: Beneficial treatment of SOEs in Moldova, high-income (HIC), and upper middle-income (UMIC) countries.

Public procurement and entry regulations favor SOEs and private incumbents in sectors providing critical growth to the rest of the economy, such as road construction.

In road construction, public procurement regulation allows for direct contracting of SOEs for road works without opening the tender processes to private firms, providing preferential access to state contracts for SOEs. Moreover, in food production, a restriction to foreign ownership does not allow foreign entities to own agricultural land. In addition, incumbents in the wine sector are part of the regulatory body that authorizes licenses for the operation of new players in the sector. Participation of incumbents in entry decisions and regulation may create barriers to entry and undermine the ability of competitors to compete in a level playing field.

Price controls and state production of food and pharmaceuticals discourage private entry and thus supply, potentially undermining productivity, and the social policy objectives.

The largest producer of bread is an SOE that offers in part bread priced at below costs. Moreover, the Government controls the retail margin of both wheat flour and bread. While the policies aim to ensure food security and affordability, the policy instruments may not be the most effective way to ensure affordable bread prices. For example, the bread market relies on private services along the entire value- chain production of wheat, manufacturing of flour, and manufacturing of bread-and the price controls and state presence in production discourage private firms' entry and investments which can reduce aggregate supply and productivity and job creation along the value chain of bread. Moreover, prices of pharmaceuticals at the wholesale level are regulated through limits on the percentage surcharge allowed. But, again, controlling margins may not be the most effective mechanism to achieve the social objective of sufficient supply of affordable medicine, as the policy discriminates against different segments of the market, discouraging private entry and investment. The Government could consider less restrictive interventions, for example, subsidizing the acquisition of essential medicines by vulnerable people rather than controlling prices

In the transport sector, regulatory barriers in railways, maritime, and road freight transport limit entry and competition.

In railways, despite recent efforts to unbundle the sector, an SOE de facto controls a vertically integrated monopoly in the operation of infrastructure, passenger, and freight transport, restricting entry into the sector and competition for higher service quality. In passenger air transport, the SOE Air Moldova operates international flights under regulated tariffs, while there are no carriers for domestic flights. In maritime transport, a vertically integrated SOE controls the port authority and operates terminal facilities offering commercial services, providing strong incentives to favor its own commercial services over private service providers. Moreover, while the number of operators in maritime passenger and freight transport is not limited, retail tariffs are regulated by the Government, discouraging entry. In road freight transport, the market is generally open to competition, but foreign-registered trucks are not allowed to service domestic roads (cabotage).

While policies favoring SOEs contribute to resource misallocation, they can only explain some part of the market inefficiencies causing Moldova's weak aggregate productivity performance.

The analysis has shown that SOEs in Moldova manage to stay on top of private competitors in several competitive markets despite their substantially lower productivity. Nonetheless, given that they are only present in less than one out of five competitive 4-digit sectors in the economy, SOEs can only be part of the story. Notably, SOE presence among competitive sectors is concentrated in services, implying that the observed resource misallocation and weak aggregate productivity performance of the tradable manufacturing sector originates more other inefficiencies in market access and contestability. One important factor, Moldova's substantial gap in infrastructure services connecting markets has been discussed in Chapter 2. Market inefficiencies from shortcomings in the regulation of firms' entry, exit, and competition, and in the mandate and role of state institutions governing infrastructure services, are discussed in the following section.

These policy options are timely considering the recent approval the State Ownership Strategy and Policy, and the ongoing development of triage mechanisms for SOE reforms.

In December 2022, the Strategy on the administration of state property in the field of state enterprises and commercial companies with full or majority state capital for 2023-2030 was approved through a government decision. This policy defines the rationale for SOE ownership and aims to develop triage mechanism for state enterprises and commercial companies with state capital, considering whether companies are ineligible for privatization, subject to privatization after restructuring, subject to privatization, or are in the process of insolvency or liquidation.

Reforming state institutions to raise the quality of infrastructure services

State institutions regulating infrastructure sectors intervene in market structures by issuing or revoking licenses or permits and setting tariffs, which affect market entry and competition.

As in other countries, Moldova benefits from a comprehensive competition regulatory framework to discipline anticompetitive behavior in markets, including that of public bodies. The Competition Council is in charge of implementing this "ex post" mandate across sectors, whether or not they are overseen by a sector regulator. In addition, sector regulators are able to intervene in market structures through ex-ante regulation and thus determine critical conditions that can impact market competition. For example, in electricity, ANRE not only establishes price and tariffs caps but also issues licences, permits, and authorizations for market entry. In water and sanitation, ANRE issues or withdraws licenses from operators in public water supply and sewerage services at the local level, and approves tariffs for servicing drinking water supply, sewage, and wastewater treatment, etc. And in telecommunications, ANRCETI, investigates cases of abuse of identifies providers with significant market power.

Overlapping mandates between sector regulators and the competition authority together with the lack of clear mechanism to articulate cooperation between them may hinder the effective implementation of Moldova's comprehensive competition policy framework.

The state institutions regulating electricity, water and sewage, and telecommunication should coordinate with the Competition Council, in practice the obligations established in the laws are relatively vague and have not been clearly defined through sufficiently detailed Memoranda of Understanding (Table 2).

Capacity constraints from high staff turnover and limited regulation on interactions with interest groups potentially undermine the effectiveness of independent state institutions.

Moldova applies clear frameworks to appoint and remove Boards and insulation them from political interference. At the same time, the Competition Council and other sector regulatory institutions have gone through a very high turnover of technical staff, potentially reinforced by the low wages of public servants. In addition, the Council seems to face challenges in hiring and retaining talent, and some positions remain vacant. The budgets of both the Competition Council and some of the sector regulatory state agencies depend on the general state budget approved by Parliament have experienced recent cuts. Moreover, while rules to limit potential conflicts of interest of staff do exist, these fail to regulate in a transparent way the interactions between staff and potential vested-interest groups. For example, there are no requirements to reveal the names of advisory bodies involved in the regulatory process, nor to reveal the identity of the interest groups that were consulted in the process; informal meetings are not regulated either.

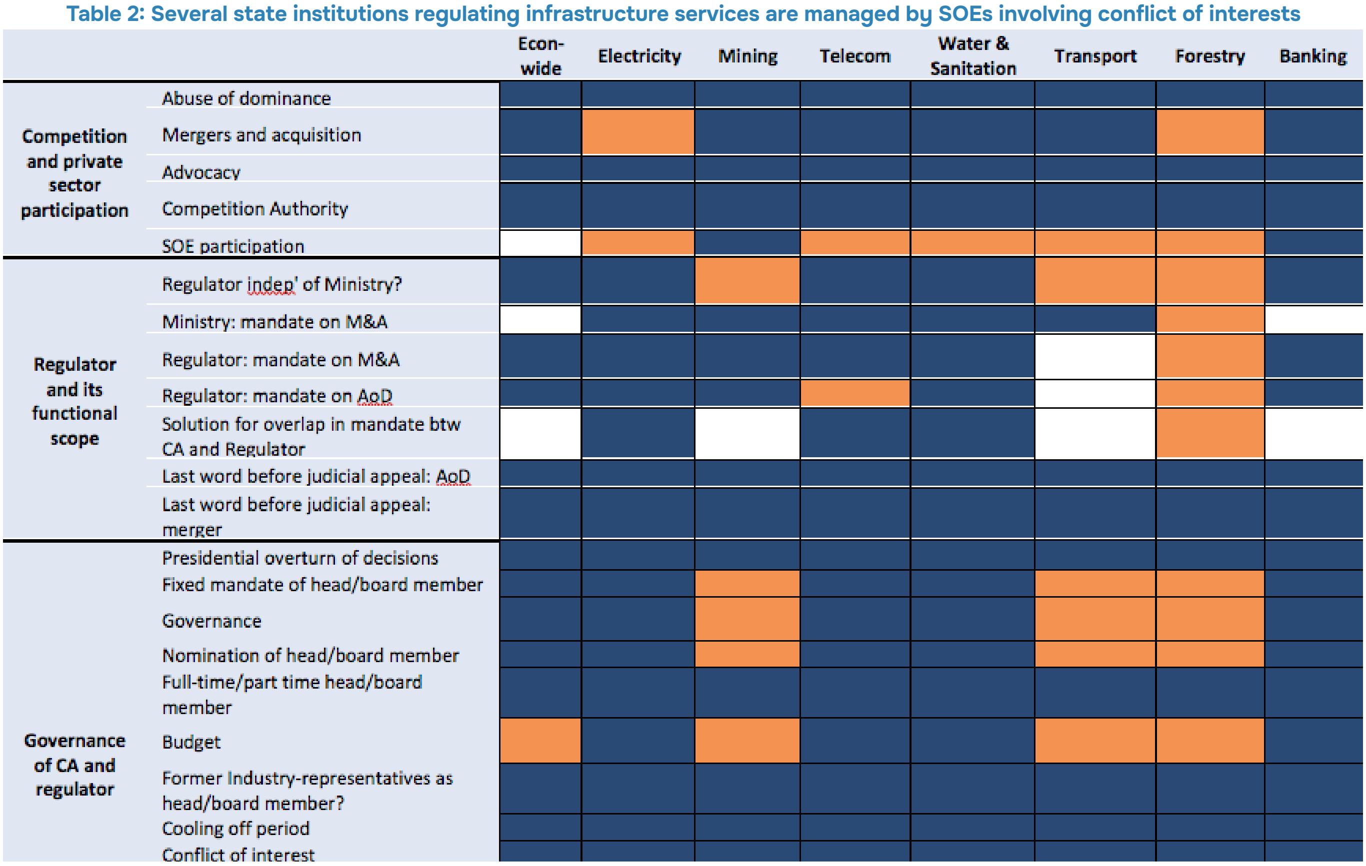
Significant SOE presence in regulated-sectors may also hinder effective competition.

The competition mandate of regulators in forestry, sanitation, energy, and transport is shaped by the significant presence of SOEs in these sectors. The strong relationships between regulators and market operators may limit competition and discourage entry. In addition many of the sector regulations foresee exclusive rights for SOEs, including in electricity, telecommunications, railways, and forestry creating an unlevel playing field with the private sector in those (related) markets where competition is viable (Tab. 2).

In the transport sector, for example, road construction is regulated and enforced by an SOE, which creates an unlevel playing field for private companies.

Road construction in Moldova is regulated by the State Road Administration (ASD), an SOE with subsidiaries that participate in the road construction sector. ASD is responsible for the efficient administration of the financial resources allocated from the state budget, the Road Fund and external sources for the rehabilitation, development, modernization, and maintenance of the national public road network of Moldova. Having an SOE as the authority in charge of assigning road works creates an incentive to favor its own subsidiaries. For example, public procurement regulation exempts the ASD from having to open road maintenance works for public tender if it assigns the contract to SOEs that are linked to it as subsidiaries or affiliates.

Table 2: Several state institutions regulating infrastructure services are managed by SOEs involving conflict of interests



Source: World Bank and OECD Product Market Regulation database, 2018-2023. Note: Beneficial treatment of SOEs in Moldova, high-income (HIC), and upper middle-income (UMIC) countries.

KEY POLICY OPTIONS TO ACCELERATE GROWTH

Boosting productivity growth requires making markets more contestable and accessible.

While firms have become more efficient in recent years and adopted better management practices, Moldova's aggregate productivity growth was held back by misallocation of resources to less productive firms, exposing inefficiencies in market mechanisms and sectors, implying slow structural transformation. **Removing regulatory or infrastructure barriers to the adoption of more advanced, foreign technologies and quality standards** can further boost their productivity growth. The finding of a lack of market contestability is corroborated by other firm dynamics in Moldova, including a low density of firms and high market power among incumbent firms. Policies aiming to boost productivity and job creation thus need to make markets more contestable, for example, by **reducing barriers to firms' entry, exit, and growth, and ensuring a level playing field.** Improving the economy's allocative efficiency also requires better access to markets by improving connecting infrastructure services, enabling more trade and foreign direct investment (FDI). These reforms are expected to maintain an average level of TFP growth comparable to Slovakia's or Lithuania's in the period 2000–2019, which would raise annual GDP growth by 0.6 of a pp through to 2050.

Accelerating public investment can address the low quantity and quality of infrastructure services that undermines the returns to private investment.

The poor quality of road transport and railway limits connectivity, which is key for a small landlocked economy. Moreover, energy security, accessibility and affordability continue to be key constraints to the country's competitiveness. Public infrastructure investments, including through access to EU funds, can spur GDP growth, on average, by 0.35 of a pp annually over the medium term. Higher public investment is also expected to crowd in private investment raising private investment by 2 pp to 25 percent of GDP would accelerate growth by an additional 0.25 of a pp annually until 2030.

- **Transport:** **a multimodal strategy, prioritizing railway infrastructure, improving road maintenance practices, and investing in urban transport systems,** is needed to recognize the advantages of different transport modes, develop logistics centers, enhance international connectivity, and achieve a resilient, efficient, and sustainable transport system. Coordinated planning and investment in public transport and alternative mobility solutions are necessary to address congestion, air pollution, and travel time issues.

- **Energy:** the priority remains to reduce the overwhelming dependence on single sources of energy imports towards a **more diversified energy mix both in terms of sources and suppliers, reduce market concentration, renew aging power generators, resolve issues of historical debts, and diversify power-generation mix.**

- **Private Sector Participation:** private sector financing, including through Public-private partnerships (PPPs), have the potential to bring not only infrastructure financing but also improve the efficiency of service delivery, for instance for road infrastructure, logistics services, and energy. **A review of the current PPP framework and its implementation** is necessary to identify policy and institutional weakness in attracting private investment and to remove impediments that restrict or inhibit entry of the private sector. **A solid procurement strategy and market assessment** are also necessary.

Reforming the public institutions that enable productivity growth and investment is also key to maintain high growth.

The success of growth policies in Moldova relies on the effectiveness of public institutions to make markets more contestable and accessible. Policies to level the playing field include **making commercial SOEs subject to private company law, removing public procurement and entry regulations favoring SOEs, and reviewing price controls, state aid and state production for services such as food and pharmaceuticals.** Raising Moldova's productivity performance also requires reforming critical public institutions that govern infrastructure services to improve connecting infrastructure services to enable more trade and FDI. Moreover, given that significant SOE presence in regulated sectors may also hinder effective competition, **addressing conflicting roles of SOEs as regulators and commercial service providers** in the transport sector for example, would alleviate these concerns. Finally, implementing **clear mechanisms to articulate cooperation between sector regulators and the competition authority** in the presence of overlapping mandates may hinder the effective implementation of Moldova's comprehensive competition policy framework.