COUNTRY PRIVATE SECTOR DIAGNOSTIC

CREATING MARKETS IN MOLDOVA

From a Remittances-Driven Economy to Private Sector-Led Sustainable Growth

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2121 Pennsylvania Avenue, N.W.
Washington, D.C. 20433
www.ifc.org

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ABBREVIATIONS AND ACRONYMS

ACSA	National Agency for Rural Development
ANRCETI	National Regulatory Agency for Electronic Communications, and Information Technology
ANRE	National Energy Regulatory Agency
ANSA	National Agency for Food Safety
ATIC	Association of Information and Communications Technology Companies
BEEPS	Business Environment and Enterprise Performance Survey
BPO	business process outsourcing
BPS	business pulse survey
BCP	border crossing points
CAGR	compound annual growth rate
CBAM	Carbon Border Adjustment Mechanism
CEFTA	Central European Free Trade Agreement
CFM	Calea Ferată din Moldova
CIS	Commonwealth of Independent States
CO2	carbon dioxide
CPSD	Country Private Sector Diagnostic
CSA	climate-smart agriculture
DCFTA	Deep and Comprehensive Free Trade Area
DFIs	development finance institutions
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECA	Europe and Central Asia
EEA	Energy Efficiency Agency
ESM	European Single Market
EU	European Union
FAO	Food and Agriculture Organization
FDI	foreign direct investment
FEZ	free economic zone
FiT	feed-in-tariff
FTA	free trade agreement
GAP	good agricultural practices

GATS	General Agreement on Trade in Services
GCC	Gulf Cooperation Council
GCI	green complexity index
GCP	green complexity potential
GDP	gross domestic product
GH2	green hydrogen
GHG	greenhouse gases
GIFP	Giurgiuleşti International Free Port
GPV	gross production value
GUAM	Organization for Democracy and Economic Development
GVC	global value chains
GW	gigawatt
GWh	gigawatt-hour
H2	hydrogen
Ha	hectares
HACCP	hazard analysis critical control points
ICT	information and communication technology
IEA	International Energy Agency
IFAD	International Fund for Agricultural Development
IoT	internet of things
IPPs	independent power producers
IRENA	International Renewable Energy Agency
ISO	International Organization for Standardization
ITO	information technology offshoring
JICA	Japan International Cooperation Agency
KG	kilogram
kVA	kilo volt-ampere
LPG	liquid petroleum gas
MCC	Millennium Challenge Corporation
MCS	Moldovan Customs Service
MDL	Moldovan Leu
MSMEs	micro, small, and medium enterprises
MWs	megawatts
NBCO	nonbank credit organization
NBFI	nonbanking financial institution

NBM	National Bank of Moldova
NBS	National Bureau of Statistics
NPL	nonperforming loan
OECD	Organisation for Economic Co-operation and Development
OS	offshore services
PCI	Productive Capacities Index
PMR	product market regulation
PPA	power purchase agreement
PPPs	public-private partnerships
PSD	private sector development
PSO	public service obligation
PV	photovoltaic
R&D	research and development
RE	renewable energy
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SCA	savings and credit associations
SCADA	Supervisory Control and Data Acquisition
SCD	Systematic Country Diagnostic
SOE	state-owned enterprise
SSC	shared service center
STEM	science, technology, engineering, and math
TEU	twenty-foot equivalent unit
TFP	total factor productivity
TVET	technical and vocational education and training
TWh	terawatt-hour
UNCTAD	United Nations Conference on Trade and Development
UNECE	United Nations Economic Commission for Europe
USAID	United States Agency for International Development
US$	US dollar
WEF	World Economic Forum
WEO	World Economic Outlook
WTO	World Trade Organization
YOY	year-over-year

EXECUTIVE SUMMARY

Moldova is at critical juncture: the economic growth drivers of the past decade are waning, further hindered by the lingering effects of COVID-19 shock and more recently by the ripple effects of the Russian invasion of Ukraine.[1] This circumstance emphasizes the need of a more sustainable growth model propelled by private investment and productivity gains. Over the past decade, Moldova experienced relatively high, yet volatile, economic growth rates that supported a sustained decline in poverty rates. Yet, economic growth was mainly driven by remittances-led consumption, while productivity sharply declined owing to an unreformed economy, the pervasive presence of unproductive state-owned enterprises (SOEs) and controls in the economy, a concentrated and unsophisticated export basket, high dependence of imported energy, and sustained migration outflows. Further, despite the past decade's progress, Moldova remains one of the poorest European countries and labor informality is rampant. The COVID-19 shock has further weakened the growth drivers of the Moldovan economy by reducing remittance flows from the main migrant-destination countries. Moreover, Russia's invasion of Ukraine emphasizes the need to diversify the energy mix and boost private investment and productivity, while it makes more salient the challenge of export diversification for Moldova.

Moldova is likely to be one of the economies most affected by the Russian invasion of Ukraine because of its physical proximity and close connections to Russia and Ukraine and the inherent vulnerabilities of being a small landlocked economy. In particular, you list five the shock waves of the invasion on the Moldovan economy are moving through five main channels: (a) a massive influx of refugees, (b) heightened financial uncertainty and declining foreign direct investment (FDI) inflows, (c) disrupted trade and logistic links, (d) dwindling remittances from both Russia and Ukraine, and (e) soaring energy and food prices. As of April 2022, around 430,000 Ukrainian refugees (mostly women and children), or 13 percent of Moldova's population, have entered the country. With around 91,000 refugees remaining in Moldova, adults represent around 6 percent of the labor force, a massive shock for such a small economy. The invasion of Ukraine has also increased financial uncertainty, further curtailing access to finance for small and medium enterprises (SMEs) and putting a halt to FDI inflows. It has disrupted major trade and transport routes, with a large part of the country's logistic infrastructure relying on Ukrainian networks and gateway ports (Odessa) to connect with the rest of the world. Moldovan migrants in Russia and Ukraine account for one-quarter of total remittances flows, which have been completely disrupted by the invasion. Moreover, Moldova's entire energy supply, and most of the electricity generation (85 percent), depends on gas imported from Russia; thus Moldovans have already endured a 400 percentage increase in energy prices in 2021. Because around 40 percent of Moldova's food imports come from Ukraine and Russia, the invasion is also putting pressure on food prices, which had already increased by almost 20 percent over 2021. Overall, inflationary pressures are expected to persist owing to higher international prices—particularly for energy, food, and commodities—and the disruption of trade routes. Inflation increased to close to 30 percent year-over-year (YOY) in 2022. Finally, the fiscal space is projected to be further squeezed by the need to tackle the refugees crisis and to mitigate rising inflation through increased social spending. Because of these multiple shocks, GDP growth has been downgraded from 3.9 percent to -1.5 percent in 2022.[2]

Besides this complex crisis, the Moldovan economy's potential is hindered by the structural challenges of poor governance and high vulnerability to climate change. The country lags peer economies in the main governance indexes, riddled by corruption and weak institutions. This adverse business environment impinges negatively on entry of new firms and expansion of the most productive companies. The pervasive presence of SOEs and an unlevel competition playing field thwart private initiative, further hindering innovation, productivity, and formal job creation. Over the past decade, Moldova has also become one of the countries most affected by the negative consequences of climate change, with the occurrence and severity of extreme climate events increasing at a worrisome pace.

Against this backdrop, there is an opportunity for the new government, elected in mid-2021, to mitigate the impact of the Russian invasion of Ukraine, while beginning to lay the foundations for a more inclusive, resilient, sustainable, and private sector–led growth model. The economic recovery hinges on a more favorable external environment and on providing effective support to the private sector. Mitigating the impact of the Russian invasion of Ukraine will require additional social and financial assistance to refugees, SMEs, and the low-income population. Further, the aftermath of conflict in Ukraine will also demand intensified efforts to diversify the energy matrix and export market destinations. The Moldovan government has an important role to play in initiating long-awaited reforms to strengthen institutions, build resilience, and enhance competitiveness, which will help accelerate the convergence of incomes and living standards with the European Union (EU).

The good news is that Moldova has clear opportunities that can be harnessed to unleash private sector growth. The country has already shown it can produce differentiated products and services. Following the successful example of wine, agribusiness could become a driver of growth by investing in new technology and policy reforms. In agribusiness, with a proactive package of policy reforms, Moldova could double horticulture exports to its main markets, amounting to nearly US$500 million annually. Still incipient, Information and Technology Offshoring (ITO) services are also expanding rapidly, and Business Process Offshoring (BPO) and Shared Service Center (SSC) are showing promising growth potential along with exports doubling in the next decade with continued private investment. In response to the unfolding energy crisis and import dependence, Moldova can mobilize private investment toward its significant technical potential to generate renewable energy, estimated at nearly 25 gigawatts (GW)—21 GW in wind and 4GW in solar generation—or three times its current installed capacity. Similarly, improving roads and trade border-crossing logistics points alone could boost exports by an additional 0.4–1.8 percent. Finally, the financing gap for micro, small, and medium enterprises (MSMEs) stands at 14 percent of GDP, pointing to opportunities for banking and nonbanking financial institutions to expand access to finance for MSMEs with adequate regulatory and policy reforms.

This CPSD explores how, in the postpandemic world and in response to the Russian invasion of Ukraine, Moldova can reignite economic growth and social inclusion by harnessing private investment in critical enabling activities and tradable sectors. By boosting private investment in those activities, Moldova would be able to create new good jobs and thereby reduce outward migration, thus achieving more sustainable economic growth rates. As the relative importance of remittances wanes, Moldova will face the challenge of unleashing new and more sustainable sources of economic growth. FDI and exports can drive private sector–led growth, but they require scale. A small economy such as Moldova can sustain private sector–led growth by pursuing four development goals: (a) reach scale in firm-level characteristics and market size; (b) fully reap the benefits of a closer integration with the EU in knowledge transfers, business upgrading, and market access; (c) unleash the productivity potential of foreign and domestic firms by leveling the playing field considering the pervasive presence of SOEs and controls in the economy; and (d) boost connectivity investment in transport, logistics, and digital infrastructure.

The CPSD focuses on three key cross-cutting constraints and two enabling sectors that hold back the development of a productive and competitive private sector in Moldova.[3] They are (a) the need to accelerate the pace of reforms of the business environment, (b) an unlevel competition field dominated by SOEs, and (c) the unfinished trade facilitation and harmonization agenda with the EU. Other key cross-cutting issues (for example, regulatory uncertainty and high transaction costs and the availability of skilled labor and the gaps in the education system) were already explored in depth by the *Moldova 2021 SCD Update*.[4] The challenges and opportunities associated with improving transport and logistics and access to finance for MSMEs are covered as part of the assessment of enabling sectors.

Improving governance in Moldova remains a cross-cutting priority to jump-start private sector–led growth. As emphasized by the Moldova 2021 SCD Update, governance remains a cross-cutting priority. The country continues to be held back by corruption, poor governance, political pressures from vested interests, and the politicization of regulatory institutions, as well as the judiciary and the customs and tax services. A large state presence and relatively limited policy enforcement against the most harmful anticompetitive practices hinders market competition and private sector participation.[5] The cross-cutting and sectoral assessments presented in this report include an analysis of the governance aspects of the proposed reforms, with an emphasis on capture-resistant policy proposals, as well as international best practices and relevant country case studies on how to reform.[6]

The three imperatives of tackling (a) energy dependence, (b) climate change and sustainable production, and (c) growth of higher-sophistication exports can be achieved by boosting the performance of the renewable energy, high value-added agribusiness, information technology offshoring (ITO), and BPO&SSC industries. These three sectors were identified as areas of the economy in which the private sector can contribute to enhance productivity and economic diversification (and high-quality jobs as a result) and to foster a more open and inclusive society and a greener development path. Four selection criteria, reflecting these priorities, were used: (a) potential to support enhanced productivity and export diversification, (b) capacity to create high quality jobs, (c) contribution toward greater trade integration and contestable domestic markets, and (d) potential for sustainability and greening the economy.

Strengthening resilience against climate change remains a priority for Moldova as a foundational element of a new growth model. Moldova is highly vulnerable to climate change and scores poorly on the institutional readiness to adapt to the effects of climate change. Natural disasters, such as earthquakes, are a constant threat, and droughts and floods are expected to increase in frequency and intensity with climate change.[7] Whereas a full assessment of the challenges of climate change faced by Moldova goes beyond the scope of this CPSD, the report focuses on the green competitiveness aspects of the climate agenda by (a) analyzing the productive and export performance and opportunities of Moldova on green products, also in light of the EU Green Deal and Carbon Border Adjustment Mechanism (CBAM) (in chapter 2, section 2); (b) assessing the growth potential of renewable energy and the policy reforms to unleash private sector investments in the industry (in chapter 4, section 1); and (c) advocating for sustainable practices in prioritizing high-value agriculture (in chapter 4, section 2).

STATE OF THE PRIVATE SECTOR

The economy of Moldova is characterized by a large number of low-productivity micro and small enterprises and a shrinking share of medium and large firms. Moldovan firms are smaller and have fewer exporters than the rest of Europe and Central Asia (ECA). Most firms gravitate toward the capital city, Chişinău, thus perpetuating geographic imbalances, whereas domestic low-productivity nontradable services (for example, wholesale and retail trade) show the highest enterprise density. Conversely, large, export-oriented, and foreign-owned firms are the most productive and, while accounting for the bulk of innovation and employment, remain poorly integrated with domestic suppliers. A more pervasive presence of SOEs, and controls across most enabling and traded sectors, than in other ECA countries hinders private investment, and the dual shocks of COVID-19 and of the Russian invasion of Ukraine have exacerbated the weaknesses of the private sector ecosystem.

CROSS-CUTTING CONSTRAINTS TO PRIVATE SECTOR INVESTMENT

Accelerating the pace of reforms to support the business environment in Moldova

Whereas the business environment in Moldova has improved significantly over recent years, progress remains uneven. Improvements have been made on business registration, permit and license reforms, inspections, and administrative simplifications across business operation. Yet, Moldova scores worse than regional peers and Organisation for Economic Co-operation and Development (OECD) in the green complexity index (GCI) (86th of 141). Corruption and political instability are identified as the top constraint by more than 27 percent and 20 percent of companies, respectively. Access to quality skills, although critical, is thoroughly analyzed in the *Moldova 2021 SCD Update*. The challenges posed by the business environment undermine the ability of firms to create new formal jobs: 41 percent of private firms report competing against informal enterprises. The fragmentation, duplication, and lack of clarity of legal norms governing the provision of public services for businesses contribute to the informality of firms. However, as witnessed during the COVID-19 pandemic, the digitalization of public services can increase accessibility, reduce the compliance burden, and encourage formalization, and the government of Moldova should build on the recent progress on the e-government agenda. At the other end of the spectrum, whereas Moldova has maintained a conducive investment regime, the recently adopted Law on the National Security-Related Investment Scrutiny Mechanism ("Law 174/2021" adopted in November 2021) risks undermining its openness and predictability. The law introduces an ex ante authorization system in wide-ranging areas, including mergers, concessions, public-private partnership (PPP) contracts, investment agreements, financial transactions, and minority shareholdings. Whereas this law could, in principle, support legitimate interests, it can give rise to unintended market and competition distortions. The objectives of the law could be achieved through less restrictive measures to competition (see appendix A3).

Unfinished trade harmonization and facilitation agenda

As a small open economy, Moldova's development path is inextricably linked with trade. Over the years, it has liberalized trade policy and aligned with the World Trade Organization (WTO), but gaps remain in border administration, logistics services, and infrastructure. Moldova ranks 79th out of 136 countries on enabling trade in the World Bank's Logistic Performance Index (LPI). Trade policy has consistently focused on supporting the country's participation in the WTO and achieving closer integration with the EU. Whereas Moldovan exports to the EU grew, progress in the complementary trade harmonization and facilitation agenda remains limited. Critical gaps include food safety, quality infrastructure and standards, internationally recognized quality certifications, customs administration, and trade facilitation. Customs legislation and procedures in Moldova have undergone significant harmonization with EU and starting November 2022, Moldovan Authorized Economic Operators (AEOs) have been recognized by the 27 EU member states under the Mutual recognition of AEOs-Program.[8] Whereas separate risk corridors have been implemented at border crossings, risk assessment and inspection practices lag. Around 13.8 percent of firms in Moldova consider customs and regulations as a major constraint to trade (versus 8.5 percent in ECA, on average). Foreign-owned, large, and manufacturing firms are the most affected by customs procedures. Trucks spend 20 percent of transit time in custom clearance with a waiting time of two to three days at the border. Each day that companies must wait to clear customs is associated with a productivity decline of 0.5 percent.

Moldova's trade with the EU is constrained by the country's inability to meet EU standards. Inability to comply with international technical requirements, product quality standards, and food safety regulation, ranks among the top constraints to export, along with limited knowledge of international markets. Whereas Moldova has already adopted more than 25,000 EU technical standards, overall knowledge and adoption by firms of International Organization for Standardization (ISO), Hazard Analysis Critical Control Points (HACCP), Good Agricultural Practices (GAP), Global Risk Assessment on Social Practice (GRASP), and relevant food safety management and product quality standards remains low. Only 26 percent of food processors in Moldova adhere to international standards, which prevents their entry into new export markets. Whereas the National Agency for Food Safety has shown progress on harmonizing sanitary and phytosanitary standards, the capacity for laboratory diagnostics, traceability of products, and infrastructure of the production chain remain weak.[9]

The EU green transition presents opportunities for further trade integration for Moldova. The EU Green Deal and CBAM, which will essentially impose taxes on emissions-intensive imports, are likely to present some export opportunities and minimal adjustment challenges for the country because of the composition of its export basket. The relative importance of agricultural products in Moldova's export basket puts it in a good position to gain from the introduction of climate policies in the EU. Although not a global player, Moldova can accelerate its green transition by upgrading its offer of green products, building on its agricultural comparative advantage and focusing on renewables.

Whereas the Russian invasion of Ukraine has disrupted trade, it also presents an unprecedented opportunity for an accelerated harmonization and integration process with the EU. Trade is among the main transmission channels of the shocks caused by the conflict in Ukraine. Although the direct exposure of exports to Russia and Ukraine is just below 15 percent, imports are expected to be affected more directly. While the share of Russia's and Ukraine's total imports is about 25 percent, Moldova imports about 40 percent of its food from Ukraine and Russia and 100 percent of its gas from Russia.[10] At the same time, the invasion of Ukraine has galvanized the EU's commitment to accelerate the accession path of Moldova and has renewed the resolve of more than 30 international partners to support the international integration and harmonization agenda of the country through significant financial assistance. This situation represents a unique opportunity for Moldova to double down on its open trade, harmonization, and convergence to the EU policy agenda.

Moldova's competition landscape: an unlevel playing field dominated by SOEs

Competition in Moldova lags international comparators. According to the OECD-WBG Product Market Regulation (PMR) indicators, Moldova's PMR scores are higher (worse) than the average of the PMR database (1.93 versus 1.56). Restrictions on competition are mostly driven by state involvement in the economy, notably through SOEs. Barriers to domestic and foreign entry are significant and are, primarily driven by barriers to competition in service and network sectors (for example, electricity, telecommunications, transport, or regulated professions). Limited competition in Moldovan markets can arise from a combination of three factors: (a) unequal treatment of certain operators, notably through state aid granted to SOEs; (b) restrictive regulations or discretionary application of the regulatory framework that may hinder market entry and competition on the merit; and (c) relatively limited competition policy enforcement issues against the most harmful anticompetitive practices.

Despite past privatization efforts, SOEs continue to play an important role in Moldova's economy, including in sectors that could be efficiently supplied by the private sector. SOEs account for about one-third of GDP, 50 percent of all fixed assets, 10 percent of corporate sector assets, and 24 percent of the labor force—and with a share in sales that is more than twice the average of other ECA countries.[11] Formal exclusions to private sector participation prevent entry in markets where competition may be feasible and even desirable (for example, human and animal medical research, manufacture of medals, or regular postal services). Lack of competitive neutrality constitutes an important entry barrier for private operators and presents the following challenges: (a) SOEs can cross-subsidize commercial activities where they face competition from private operators; (b) the presence of line ministries' in SOE boards may lead to regulatory capture and an unlevel the playing field; (c) SOEs benefit from state guarantees and other indirect financial and nonfinancial public advantages; and (d) SOEs receive some preferential treatment in applying commercial laws, despite that there is no formal exemption.

Moldova has some of the most restrictive regulations on network industries. In the energy sector, Moldova's PMR scores point to the persistence of barriers to entry in electricity and gas, mostly driven by barriers to entry and tariff regulations in electricity. In telecommunications, the regulatory framework contributes to an unleveled playing field among fixed and mobile operators. Moldova's PMR scores show the existence of restrictions to competition in both fixed and mobile markets. The telecommunications market is highly concentrated with few operators, which although relatively common among smaller countries, would require developing a well-designed regulatory framework to minimize risks of anticompetitive practices. In transport, restrictions relate to a lack of vertical separation between operators in different parts of the value chain and stringent licensing policies that limit market entry. Within ECA, Moldova has the largest percentage of firms that perceive transport as a major constraint (14.7 percent versus 11.9 percent ECA average).

Price regulation in Moldova is more widespread than in comparator economies, including in sectors where most peers have already phased out price controls. PMR subindicators for price controls are worse in Moldova than in most benchmark economies (see appendix D1), showing the existence of price regulation in a broad number of sectors (16 out of 29 sectors covered by the PMR database). Price controls limit competition, productivity gains, competitiveness, and innovation in sectors (for example, liquid petroleum gas [LPG], and dairy goods, among others) that are not generally subject to price regulation in peer countries. Although price regulation can be used to promote certain economic and social protection goals, it should be used only in cases where competition is not feasible.

Overall, two policy priorities should be fast-tracked in response to the Russian invasion of Ukraine: (a) conducting a privatization triage (a government ownership strategy and road map for greater private sector ownership) and (b) promoting better SOE corporate governance practices to ensure competitive neutrality. Whereas competition policy and SOE reforms usually require a sustained, medium- to long-term reform effort, because of their structural nature and long-term effects, the urgency of increasing the resiliency of the private sector in response to the shocks of the conflict in Ukraine call for swift policy action in facilitating private sector ownership and ensuring competitive neutrality of and by Moldovan SOEs. Specifically, short-term actions to kick-start more complex structural reforms in SOEs and competition policy entail (a) reviewing the rationale for state interventions through SOEs, considering the type and characteristics of the sectors and markets in line with the subsidiarity of the state, and ordering the sectors and markets from lower to higher private-led ownership and managerial transformation, and (b) promoting competitive neutrality between SOEs and private operators through internationally accepted corporate governance best practices in markets that warrant SOE presence.

ENABLING SECTORS

Enhancing transport and logistics to foster exports and investment

Insufficient supply of quality transport and logistics services is a major drag on the Moldovan economy, particularly agricultural and food manufacturing. The country ranks 76th out of 141 countries in the World Economic Forum (WEF)'s competitiveness index for infrastructure. The weakest score in the WEF's infrastructure index is the quality of road infrastructure (129). The poor state of roads generates additional costs for users amounting to approximately US$213 million annually. Firms report major delays in some of the main routes owing to lack of maintenance and insufficient rehabilitation work. Around 35 percent of large firms identify transportation as a major obstacle for investment. These conditions have a negative impact on the performance of other sectors, including health, especially in responding to public health emergencies, like COVID-19.

An obsolete transport infrastructure further prevents Moldova from fully reaping the benefits of closer trade integration with the EU. Road transportation is particularly time-consuming and deserves concerted efforts to build infrastructure and expand capacity, especially at the border with Romania. Railways need significant track maintenance and rehabilitation to speed access from the EU to the closest ports. With huge cargo capacity needs and poor operational efficiency at its two main airports (Chişinău and Mărculeşti), airfreight exports are almost nonexistent compared with regional peers. Compounded by the 48 hours required for documentation, compared with less than 2 hours in the EU, the median time an export transaction takes in Moldova is almost 12 times higher than in the EU and neighboring Romania and Ukraine. At the same time, the World Bank's LPI ranks Moldova behind Ukraine and Romania, and its worst scores are in infrastructure, tracking and tracing, and logistics competence.

Logistics infrastructure in Moldova is among the least developed in post-Soviet countries. Most facilities are old Soviet-style buildings that have been converted from production to warehouse facilities, and there are no A- or B-class temperature-controlled warehouses. Third-party logistics services (3PL) are also underdeveloped as retailers and distributors continue to keep logistics operations in-house and invest in their own vehicle fleets and warehouse facilities in spite of higher operational costs. Since 2009, cold storage capacity in Moldova has increased by 188 percent—633 cold facilities with a total capacity of 412,000 tons in 2019. However, only 250 of them are equipped with pre-cooling facilities that are particularly critical for the perishables with a short shelf life, and only 46 are equipped with sorting and grading equipment. Existing capacity is not enough to meet future demand. Currently, only about 35 percent of stone fruits and 40 percent of table grapes are distributed through the cold storages. While there is no issue with the supply of temperature-controlled trucks in the country, Moldova is underperforming against regional peer countries on non-temperature controlled transport.

The Russian invasion of Ukraine has deeply affected Moldova's transport and logistics, blocking not only access to key road freight transport routes via Ukraine, but also the main port gateway infrastructure—the port of Odessa. A large part of the country's logistic infrastructure relies on Ukrainian networks to connect with the rest of the world. The preferred route to and from Poland, Germany, Belarus, and the Baltic states currently transits through western Ukraine, whereas trade with the United States, the Middle East, and Asia is mainly shipped through the port of Odessa. The Russian invasion of Ukraine has resulted in the diversion of freight traffic from the Moldova-Ukraine transport corridor to the Moldova-Romanian corridor. It has caused congestion at border crossing points (BCPs) on the Moldovan-Romanian border. Although trade routes can be adjusted, an increase in transportation costs can be expected.

The Russian invasion of Ukraine calls for reprioritizing policy interventions to mitigate the short-term impacts of the invasion on transport and logistics and to advance in parallel long-term sectoral reforms. In the short term, policy priorities should aim at enabling a deeper integration of Moldova with the EU through Romania and at enhancing Moldova's transport resilience from security and trade perspectives. To ensure continuity in goods trade through the BCPs, improvement of border-crossing procedures and implementation of queue management systems are also urgent. Because of the port of Odessa closure, Moldova relies on the port of Constanța in Romania. Thus, connectivity of Moldova to Romania has the highest priority in order to ensure trade and secure supply chains, along with upgrading to the port of Giurgiulești.

On structural reforms, Moldova is in urgent need of developing effective instruments and mechanisms to address long-lasting and chronic levels of underinvestment in transport infrastructure. To achieve this goal, this CPSD recommends the following policy actions: (a) develop a road map of investments focused on integration of multimodal trade and logistics services and public-private coordination; (b) conduct a pilot test of output- and performance–based contracts for road maintenance and investment; (c) introduce public sector obligations to SOEs in charge of key road and railway infrastructure to increase investment in hinterland connectivity in the south to reap the benefits of proximity with the EU; and (d) resume the approval of the unbundling of Calea Ferată din Moldova (CFM), Moldova's railway operator, and undertake the reform of the railway service.

Improving access to finance for MSMEs

Improving access to finance for MSMEs while preserving financial stability has become a policy imperative for Moldova owing to the possible effects of the dual COVID-19 and Russian invasion of Ukraine shocks on liquidity and asset quality in the banking sector. Whereas banks are well capitalized, the direct exposure to Russia and Ukraine is limited and the nonperforming loan (NPL) ratio is low, the invasion could have an effect on the banking sector through deteriorating asset quality and liquidity. Asset quality may suffer from the reverberating effect on the economy of the unfolding crisis in Ukraine, especially since households and firms are still recovering from the COVID-19 crisis. The high share of foreign currency loans (26.1 percent) also represents an indirect credit risk in the case of a significant depreciation of the domestic currency. Finally, high unofficial euroization (i.e. the widespread use of euro for both transactional purposes and as a store of value) remains a tail risk for financial stability, given the uncertainty of the unfolding the invasion.

Besides the effects of the Russian invasion of Ukraine and COVID-19 shocks, Moldova's financial sector remains constrained by its small size, low sophistication, and an unfinished reform agenda. The ration of credit to GDP has been less than 30 percent over the past five years. After the banking crisis of 2014, risk management, anti money laundering efforts, and transparency of the banking sector have improved, but no similar improvements have occurred in the insurance sector and other non-bank financial institutions (NBFIs). Access to finance, particularly for MSMEs remains limited; more than 80 percent of firms report financing their working capital through reinvestment of their own profits, a much larger proportion than in other ECA countries and the international average, according to the Enterprise Survey 2019.[12]

Financial intermediation for MSMEs has been limited on both the demand and supply sides. Access to finance and the high cost of credit are the most often-mentioned key constraints to MSME development in Moldova. Financial service providers indicate an insufficient number of bankable firms and projects, in large part owing to a high degree of informality in firm operations. On the supply side, the banking sector provides 81 percent of all credit to the economy with limited products suited for MSME needs. Capital markets are underdeveloped and issuance of bonds or shares do not represent a viable alternative, yet there are no venture capital funds or similar vehicles to source the missing funding.

Targeted reforms are required to improve access to finance to MSMEs and mitigate the effects of the dual COVID-19 and Russian invasion of Ukraine shocks. The CPSD proposes the following priority policy reforms with a focus on improving access to finance for MSMEs: (a) modernize credit risk systems to reduce reliance on real state collateral (for example, effective data exchange among credit operators); (b) improve the movable collateral registry (for example, full digital processing and interconnection with other registries, use of alternative collaterals such as inventory, receipts, and crops); (c) promote open banking and regulatory sandboxes aligned with EU regulations to increase competition and foster innovation (for example, financial technology, noncard payments, paperless contracts, and digital onboarding); and (d) strengthen regulations in the nonbank credit organizations (NBCOs), especially in insurance to foster the creation of new products (for example, real estate, industrial accidents, third-party liability, transport and logistics, infrastructure investment, and agriculture).

SECTORAL ASSESSMENTS

Unleashing the potential of renewable energy to ensure a greener and safer energy supply

Although the Russian invasion of Ukraine has exacerbated concerns over the security of energy supply, Moldova has the technical potential to generate nearly three times more renewable energy (RE) than its current installed capacity, with the potential to significantly diversify energy provision, meet climate change mitigation aspirations, and ensure an adequate supply-demand balance with domestic generation. The synchronization of the Moldovan and Ukrainian transmission networks with the European Network of Transmission System Operators for Electricity (ENTSO-E) in March 2022 has partially addressed supply disruption concerns, and is supporting the balancing of the system through emergency interconnection to the EU network. However, the Moldovan domestic generation mix remains inadequate to ensure the supply-demand balance, a vulnerability that needs to be urgently addressed along with transmission and distribution bottlenecks, given the dependence of Moldova on gas-fired generation assets located in Transnistria. More than 80 percent of the country's generation capacity is also concentrated in the Transnistria region. As demand for electricity is expected to continue growing at a compound annual growth rate (CAGR) of 4.2 percent between 2020 and 2030, the capacity deficit could grow by 40 percent by 2033 unless new capacity is installed. To address this deficit, Moldova's National Energy Strategy 2030 proposes building up to 600 megawatts (MW) of RE sources by 2030.[13] Against this backdrop, and despite some limited success in developing small-scale RE projects, Moldova has only realized a negligible portion of its sizable RE potential to broaden its energy mix and ensure an adequate supply-demand balance.

However, Moldova faces four main impediments to realizing its RE potential and attracting private investment to the development of utility-scale RE projects: (a) major infrastructure bottlenecks related to limited capacity of the transmission grid (for example, the grid can only accommodate 200–400 MW of RE) and the need to invest significantly in the interconnection with ENTSO-E (for example, Moldova depends on Ukraine's system for balancing, and risks the curtailment of RE during peak hours); (b) the incomplete transition to a competitive wholesale energy market aligned with EU regulations, and an untested and incomplete regulatory framework for RE (for example, incipient implementation of competitive auctions and lack of track record of independent power producers [IPP]); (c) absence of a clear long-term strategy of priority investments to ensure resilient generation mix, transmission, and distribution through ENTSO-E; and (d) availability of land owing to the lack of economically viable solutions for coexistence of RE projects and agriculture production, especially for wind-generation projects.

Moldova has an opportunity, in the short term, to pilot-test capacity auction mechanisms that enable price discovery and unlock cost-competitive sources of RE in the medium term. This CPSD proposes an approach of scaling solar to attract investors to develop utility-scale RE projects that would be a cost-effective solution for the supply deficit and may help to achieve energy diversification. In parallel, Moldova should address fundamental bottlenecks that undermine the development of the electricity system and market, beginning with investments to modernize and expand the capacity of the grid. Moldova needs to reassess its energy strategy to tackle the evolving energy security situation and to prepare a package of risk-mitigation actions that would contribute to deploying RE projects as soon as possible.

Agriculture: fostering higher value-added exports

Moldova is characterized by good soil and agro-climatic conditions and proximity to important markets like the EU, Commonwealth of Independent States (CIS), and the Middle East. The country shows strong promise in high-value crops (for example, specialty fruits, vegetables, and products such as honey), which can be produced in smaller plots, are more labor intensive, and can lead to higher profits, thanks to product differentiation, than traditional crops (wheat). By increasing production and exports of these items, Moldova can promote economic growth and formal job creation. Although participation in high-value horticulture international markets remains below potential, early successes in niche segments can be replicated and scaled up in a context of expanding global demand. With a proactive package of policy reforms and investments in EU-compliant quality and safety standards, Moldova could more than double horticulture exports to EU, CIS, and Gulf Cooperation Council (GCC) markets, from about to US$200 million to almost US$500 million annually.

Whereas the Russian invasion of Ukraine will continue to disrupt agricultural trade, possibly heighten food security risks, and increase the price of agricultural inputs in the short term, it is not expected to alter the fundamental comparative advantage in high-value horticulture of Moldova. Although the direct exposure of agricultural exports to Russia and Ukraine is just below 12 percent, agrifood imports from Russia and Ukraine account for 9 percent and 26 percent of all agrifood imports, respectively. Similarly, the invasion is affecting fertilizer trade, with 43 percent of Russia's chemical exports consisting of fertilizers, representing more than 13 percent of world exports. The invasion is expected to bring some readjustments in crop production in the short term in response to higher input costs and increased demand for cereal commodities. However, it is not likely to fundamentally change on-farm productivity, comparative advantage, higher sophistication and value added of exports, and overall competitiveness potential of Moldovan horticultural products as compared with cereal-based agricultural commodities, as illustrated in chapter 4, section 2,in appendices H1 and H2 and World Bank Group (forthcoming).[14]

While Moldova's agriculture, especially horticulture, shows potential, it faces several constraints. The five main constraints are: (a) the lack of adequate farming scale owing to fragmented and inefficient land markets and to limited land aggregation of producers; (b) deficient irrigation, postharvest, energy, and transportation infrastructure in rural areas, hampering agribusiness productivity and connectivity; (c) inadequate adoption of modern technologies, risk mitigation instruments, geographic denomination and organic agriculture techniques, and critical inputs (for example, certified seeds and fertilizer), especially by small-holders, owing to a lack of access to finance, insurance, and quality extension and advisory services (EAS); (d) limited adoption of EU and international food standards (for example, GLOBALG.A.P., HACCP/ISO 22000, and EU organic) to improve quality, safety, and access to the European market; and (e) limited dissemination of climate-smart agriculture (CSA) production methods and other mitigation measures to lessen the effects of climate change, especially among small landholders.

Moldova can expand agriculture exports, especially of higher-value products, if it establishes a comprehensive, long-term strategy. The CPSD proposes five priority reforms for the Moldovan agribusiness sector, with a particular focus on horticulture and other higher-value food products: (a) upgrade irrigation, postharvest, energy, and road infrastructure in rural areas to improve productivity and connectivity; (b) foster productive aggregation and land consolidation through an adequate functioning of land markets to support more efficient production systems; (c) promote adoption of modern technologies by facilitating smallholders' access to finance through better targeting of subsidies to support productivity growth and high-quality EAS; (d) support adoption of EU and international standards and investment in laboratories and digital infrastructure to improve product quality, traceability, and safety as well as access to the EU market for higher value-added agrifood products; and (e) promote CSA practices (for example, greenhouses, drip irrigation, antihail nets, antifrost systems, and windbreaks), climate finance instruments, and climate products (for example, drought-resistant varieties and water-efficient methods, among others) to improve climate change resilience.

ITO and BPO&SSC: Supporting the next wave of ITO investments and fostering the nascent BPO industry

Internet technology offshoring (ITO) is one of the most dynamic sectors in Moldova. Although nascent, the country is also displaying some potential in BPO&SSC and e-commerce. In the past 15 years, ITO exports increased fourfold, from about US$60 million in 2005 to more than US$300 million in 2020, while BPO&SSC exports tripled over the same period. There are around 2,300 information technology (IT) companies employing nearly 15,000 IT professionals and accounting for around 11 percent of GDP and 7 percent of total exports. ITO expansion has been driven by the relative availability of low-cost specialized workers; Moldova ranks as the fourth best location for affordable talent in ECA. It is also well positioned in the quality and costs of its telecommunication infrastructure, with mobile penetration well over 100 percent, and Points of Presence (PoP) of fiber-optic backbone network at 98.2 percent. However, digitalization of SMEs is low because of limited infrastructure investment, regulatory barriers, and inadequate digital literacy. Finally, the government has nurtured the local ITO sector since 2006. The principal public initiative was the creation of the virtual IT park in 2018. The emergence of BPO&SSC has been related to a multilingual labor force, time zone compatibility with the EU and CIS, and adequate information and communication technology (ICT) infrastructure.

The United States and the EU are the largest markets for Moldova's ITO exports. About 40 percent of local firms export, mainly to the United States, and, to a lesser extent, to the EU market. Yet, Moldova is mostly specialized in providing low-sophistication ITO.[15] Gaps in market access, innovation, access to finance, and business environment represent the main constraints to the competitiveness of Moldovan offshore services (OS). Whereas Moldova's performance in OS is in line with comparators in Eastern Europe and the Western Balkans, it lags EU peers, especially in the conditions required for providing higher value-added OS.

Whereas ITO and BPO&SSC exports could double over the next decade, seizing this potential will require a deliberate and proactive effort to increase the supply and quality of talent and improve access to finance within a more flexible labor market and enhanced regulatory environment. Given the limited scale of its talent pool, Moldova's growth path lies in transitioning to higher-value-added OS activities (for example, engineering services, research and development [R&D], and other niche markets). Further expansion is restricted by four main constraints: (a) a limited supply of skilled workers and weak specialized technical education; (b) a dearth of early-stage financing; (c) the complexities and rigidities of labor regulations; and (d) the unlevel playing field between the ITO and the BPO&SSC regulatory frameworks.

Summary of policy recommendations

Tables ES.1 and ES.2 summarize the main policy recommendations to mitigate the effects of the dual crises of the Russian invasion of Ukraine and of the lingering effects of the pandemic in the short term. They address the main structural challenges hampering private sector–led growth in the medium to long term. Whereas the analytical work presented in the CPSD predates the Russian invasion of Ukraine, the policy recommendations of the report have been reassessed and reprioritized considering the invasion and the lingering COVID-19 crisis. Recommendations have been reprioritized by adding the following filters: (a) short-term responses to the Russian invasion of Ukraine in support of the private sector and to COVID-19 aftershocks, and long-term actions on structural reforms; (b) preparedness for the unfolding the invasion-induced shocks on energy, inflationary, and supply chain, credit crunch, and slowdown of the global economy; and (c) presence of a reform champion. These filters supplemented the following the invasion prioritization criteria: economic impact, potential to open and create new domestic and international markets, opportunities to unlock private investment, and political economy feasibility.

Six priorities have emerged to mitigate the effect of the Russian invasion of Ukraine and of COVID-19 aftershocks. The economic shock waves of the invasion are spreading through the channels of trade and supply chains, commodity and energy markets, logistics networks, FDI, remittances, and refugees, with Moldova being particularly exposed owing to proximity and the large influx of refugees. Against this background, six broad policy priority goals can help mitigate the crisis and plant the seeds for a resilient private sector–led recovery (table ES.1):

(a) Accelerate trade policy harmonization and facilitation with the EU.

(b) Develop a clear strategy for SOE ownership (privatization triage).

(c) Ensure energy security in the short term while creating enabling conditions for private investment in renewable energy.

(d) Increase access to finance for MSMEs during this the double crisis.

(e) Upgrade BCPs, streamline customs procedures with Romania, and strengthen transport and logistics networks with the EU.

(f) Increase market access to the EU for agribusiness through Harmonized Food Safety and Quality Standards.

At the same time, maintaining momentum on the long-term structural reform agenda for a sustainable private sector–led recovery remains an overarching priority. At the current economic juncture, short-term recovery measures must be complemented by long-term structural cross-cutting and sector-specific reforms that will help steer the economy away from the current economic model, as presented in table ES.2. Tables ES.1 and ES.2 identify the top policy areas and constraints to be addressed, by cross-cutting constraint and sector, and further detail the main recommendations and present the time frame for implementation. The individual tables presented at the end of each chapter, however, provide a broader description of (a) the expected benefits, (b) the political economy feasibility, and (c) the lead implementing stakeholder for all recommendations identified.

TABLE ES.1. PRIORITY POLICY RESPONSES TO MITIGATE IMPACT OF THE RUSSIAN INVASION OF UKRAINE AND OF LINGERING EFFECTS OF THE COVID-19 CRISIS

POLICY	SPECIFIC ACTIONS	TIMELINE
Cross-cutting constraints		
Accelerate trade policy harmonization and facilitation with the EU.	• Implement provisions of the DCFTA in all sectors. • Eliminate remaining tariff peaks. • Eliminate restrictions to trade in services. • Provide support to ANSA to align with EU regulations.	ST
Develop a clear strategy for SOEs ownership (privatization triage) and level the playing field for private and public operators.	• Develop a framework for SOE reform, including a government ownership strategy and road map for higher private sector ownership through SOE privatizations, PPPs, and concessions. • Promote competition neutrality between SOEs and private companies. • Adopt the Railway Transport Code and Action Plan to reorganize the railway sector and spur competition.	ST
Enabling sectors		
Upgrade BCPs and streamline customs procedures with Romania, and strengthen transport and logistics networks with the EU.	• Prepare blueprint for the NSW for Trade. • Upgrade BCPs with Romania and develop a one stop-shop customs clearance zone in Chișinău. • Modernize railway rolling stock and assets, in light of the increased importance of railway infrastructure to facilitate connection with EU as a consequence of the invasion. • Improve hinterland connectivity of available gateway ports of Giurgulești and Constanța that are not affected by the invasion.	ST
Increase access to finance for MSMEs to weather the double shocks of the Russian invasion of Ukraine and the lingering COVID-19 crisis.	• Develop and announce a regulatory strategy for financial markets beyond 2022 given the transfer of supervision of the nonbank financial sector from NCFM to NBM. • Enforce data exchanges between credit information operators and access of private sector credit information operators to relevant data held by government entities. • Scale up and increase attractiveness of credit guarantee schemes for MSMEs (coverage and pay out practice), focusing on women entrepreneurs. • Review legislation to enable modern instruments like crop and warehouse receipts.	ST

Note: ANSA = National Agency for Food Safety; BCP = border crossing point; DCFTA = Deep and Comprehensive Free Trade Area; EU = European Union; MSMEs = micro, small, and medium enterprises; NBM = National Bank of Moldova ; NCFM = National Commission on the Financial Market; NSW = National Single Window; PPP = public-private partnership; SOE = state-owned enterprise; ST = short term.

POLICY	SPECIFIC ACTIONS	TIMELINE
Tradable sectors		
Ensure energy security in the short term, while creating enabling conditions of private investment in RE.	• Prioritize the security of supply. Invest in 400 kV connection to ENTSO-E (via Romania). Consider new interconnections considering security of supply and availability of interconnections to Ukraine. • Prepare a least-cost generation plan that provides a road map of investments in RE and substantiates an update of RE targets.	ST
Increase market access to the EU for agribusiness through Harmonized Food Safety and Quality Standards.	• Align food safety regulations and implementation with EU standards focusing on horticulture, and facilitate adoption of food safety and quality certifications (e.g., GLOBALG.A.P., HACCP/ISO 22000, and EU organic). • Invest in developing laboratories and digital infrastructure to support traceability systems.	ST

Note: ENTSO = European Network of Transmission System Operators for Electricity; EU = European Union; GLOBALG.A.P. = Global Good Agricultural Practices ; HACCP = hazard analysis critical control points; kV = kilovolt; RE = renewable energy; ST = short term.

TABLE ES.2. STRUCTURAL PRIORITY POLICY REFORMS

POLICY	SPECIFIC ACTIONS	TIMELINE
Cross-cutting constraints		
Accelerate reforms of the business environment on investment policy and e-government for MSMEs.	• Revise the Law on National Security Related Investment Scrutiny Mechanism to minimize unintended FDI distortionary and anticompetitive effects. • Advance the digitalization of public services for MSMEs by introducing e-government, e-notary, and public depository of financial statements.	MT
Accelerate trade policy reform.	• Fast-track negotiations of additional FTAs to enhance Moldova's market diversification away from CIS.	MT
Level the playing field for private and public operators.	• Rationalize the use of state aid in the economy, prioritizing horizontal aid plans instead of individual state aid, notably for SOEs.	MT
Allow competition in key sectors and provide enforcement.	• Complete the unbundling of the electricity transmission market. • Implement an effective deregulation of electric tariffs for final consumers. • Ensure fair and nondiscriminatory third-party access to the gas transmission network. • Complete the revision and adopt the new draft law on competition.	ST-MT

Note: CIS = Commonwealth of Independent States; FTA = free trade agreement; MSMEs = micro, small, and medium enterprises; SOE = state-owned enterprise; ST = short term.

POLICY	SPECIFIC ACTIONS	TIMELINE
Enabling sectors		
Reform transport and logistics services and infrastructure.	• Pilot test standard OPBCs for maintenance of key road corridors and private sector PSOs for ASD. • Reform the road fund to allow adequate and multiyear payment mechanisms for rehabilitation and maintenance of roads. • Undertake CFM reforms (as a follow up to the adopting the Railway Transport Code) of unbundling of key activities, and develop business plans. • Develop a strategy and plan for multimodal transport integration and logistics that provide a road map of investments and cross-institutional coordination.	MT-LT
Improve access to finance for MSMEs.	• Modernize the movable collateral registry and create a regulatory and technological environment that is trusted by creditors. • Enact governance reforms to clean up the insurance industry and consolidate regulation and supervision to boost trust and new service development. • Develop start-up finance programs for early-stage innovative businesses, focusing on women entrepreneurs.	MT
Tradable sectors		
Encourage private investment in RE.	• Pilot utility scale projects (wind and solar) through sealed-bid auctions, and set benchmark of a bankable project structure. • As part of the pilot, develop standardized package (tender and PPA documentation) for RE procurement to use in subsequent auctions. • Undertake investments in grid development and modernization to reduce losses. • Finish transposing European Commission's acquis provisions for tendering of new assets, establishment of operation of generation assets and IPPs, including licensing and certification process, and market exchange for electricity. • Improve terms of the PPA following best international practices to mitigate key off-taker risks and address other bankability gaps.	MT
Enhance quality and organic certification and geobranding for horticulture and agribusiness exports.	• Promote wider adoption of regulation and implement programs for geographic identification and organic certification to support product differentiation and allow producers to compete in high-value niche markets, aligned with EU standards.	MT
Encourage productive aggregation and scale in agriculture.	• Promote commercial aggregation models. • Promote long-term leasing of agricultural land (10+ years) to facilitate investments in infrastructure and equipment. • Support land leasing mediation to encourage transfer of use rights between farmers to promote land aggregation. • Introduce mechanisms for promoting the use of abandoned agricultural lands (+10 years).	MT-LT
Encourage agricultural sustainability and climate resilience.	• Promote CSA practices and climate finance instruments for small and large farmers. • Invest in technologies and infrastructure that mitigate climate risks.	MT-LT

Note: ASD = state administration of roads; CFM = Calea Ferată din Moldova; CSA = climate-smart agriculture; EU = European Union; PPA = power purchase agreement; PSO = public service obligation; RE = renewable energy.

POLICY	SPECIFIC ACTIONS	TIMELINE
Attract returning skilled migrants and refugees for ITO and BPO&SSC.	• Simplify IT visa requirements. • Extend IT visa to companies located outside the IT park. • Extend long-term entry and right to work to Ukrainian refugees with their national IDs, which were granted in March 2022. • Provide evidence-based tax benefits and explore opportunities to establish some facilities for digital nomads.	ST-MT
Level the playing field between ITO and BPO&SSC.	• Pass new legislation or adapt Law 77 to tailor it to the BPO&SSC. • Foster formalization of BPO&SSC companies. • Include BPO&SSC representation in the formal stakeholder consultation process of the government.	ST-MT

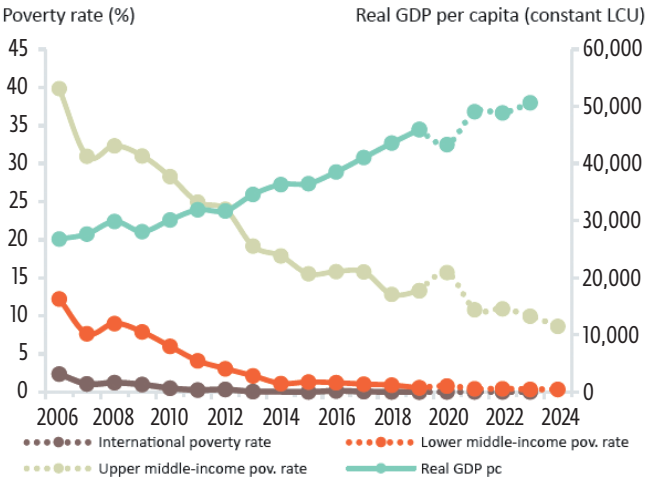
Note: BPO = business process outsourcing; IT = information technology; ITO =information technology offshoring; SSC = shared service center; ST = short term.

1. COUNTRY CONTEXT

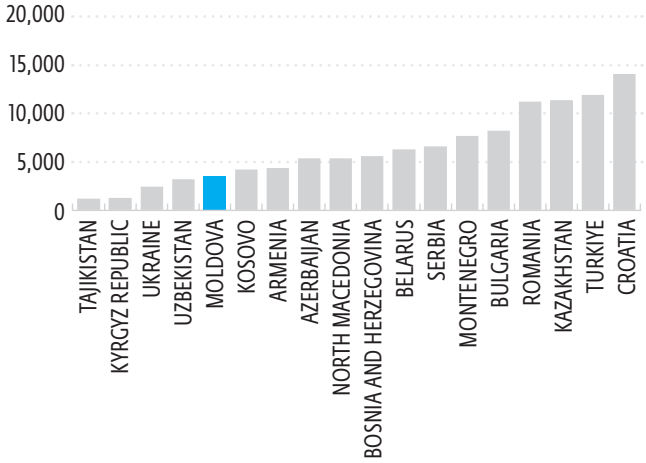
Decades of strong yet volatile economic growth have improved the living standards of the Moldovan population, but the country remains one of the poorest in Europe. Between the late 1990s and 2019, per capita GDP expanded at an average annual pace of 4.9 percent (figure 1, panel a). Solid growth resulted in strong poverty reduction, from close to 90 percent in the late 1990s to 13 percent by 2018 (based on the upper middle-income poverty line of US$5.50 a day in 2011 purchasing power parity [PPP]). However, Moldova, although a middle-income country, remains one of the poorest countries in Europe (figure 1, panel b), characterized by large urban-rural disparities in living standards[16] and a high degree of inequality of opportunity,[17] evident mainly across the spatial dimension.

FIGURE 1.1. MOLDOVA'S ECONOMIC GROWTH AND STRUCTURE

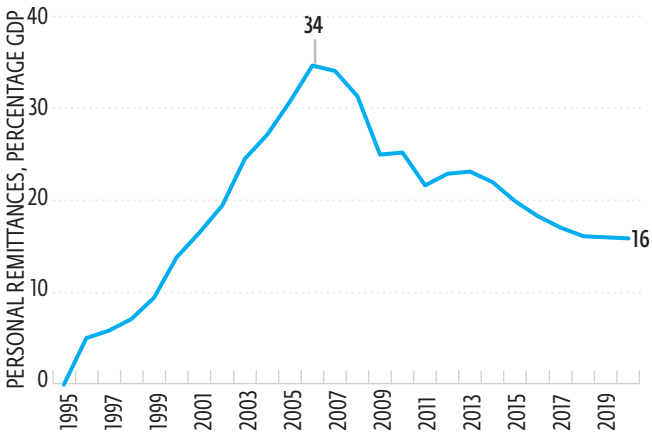
a. Solid growth since the late 1990s



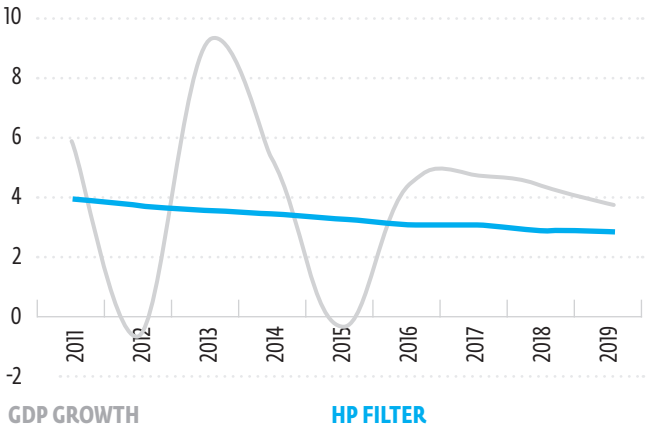
b. Moldova remains among the poorest countries in ECA (constant 2015 US$)



c. Remittances as a share of GDP (1995–2020)



d. Steadily declining potential growth (2011–19)



Source: World Development Indicators, December 2021; World Bank, Europe and Central Asia Economic Update. Spring 2022: War in the Region, (Washington, DC: World Bank, 2022).

Note: GDP = gross domestic product; ECA = Europe and Central Asia region; HP filter = Hodrick-Prescott-filter ; LCU = local currency unit ; pc = per capita ; pov. = poverty;

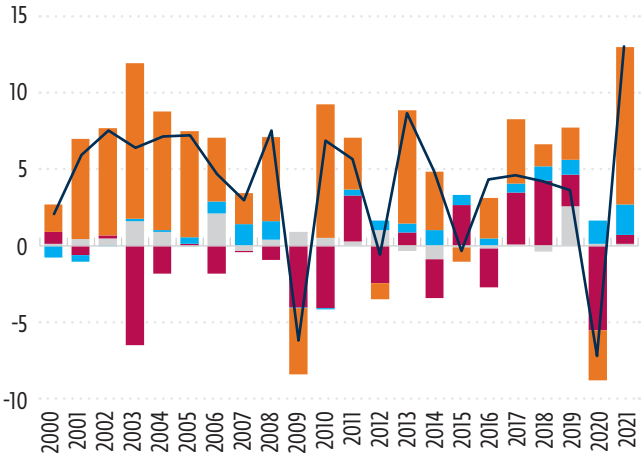
The growth model that yielded high growth and poverty reduction in the past had begun to show signs of waning in strength and low sustainability well before the COVID-19 pandemic. Moldova's growth performance since the country's 2014 banking crisis has been strong, with average annual growth inching up to 4.3 percent.[18] However, this was largely driven by temporary factors, including favorable financial and climate conditions. In contrast, potential GDP growth—a measure of the longer-term productive capacity of the economy—has fallen by 1 percentage point over the past decade (figure 1.1, panel d). Moldova's growth model, driven mainly by remittances-financed consumption, is increasingly confronted by structural issues. First, there has been a steep decline in remittances, which was previously an important source of income and consumption for many households (figure 1.1, panel c). 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. As a result, income growth among the poor has been primarily driven by pensions and social assistance, whereas the incomes of nonpoor households have been boosted by increasing wages.

Moldova's structural characteristics and climate change vulnerability, coupled with governance and institutional challenges, have supported the persistence of this self-perpetuating vicious cycle. Gaps in the rule of law, state capture by vested interests, weak institutions, political impasses, the predominant role of state-owned enterprises (SOEs), and political pressures to protect privileged pensions or public salaries weigh heavily on the reluctance to update the country's economic model. Other underlying factors are common to small states, including a narrow production base owing to high input costs and a small internal market, government revenues that depend on tariffs and indirect revenues, and limited implementation capacity. In addition, Moldova's vulnerability to natural disasters, as most recently demonstrated by the 2020 drought, results in boom-and-bust cycles that hinder the ability of the government to implement steady long-term growth strategies. Climate change has a sizable impact also on the energy and transport sectors in the country as reflected in the 2020 update of the Moldova's Nationally Determined Contributions (NDCs).[19] The COVID-19 pandemic and a severe drought in 2020 have revealed the intrinsic vulnerabilities of an economic growth model with limited resilience to shocks.

GDP growth dynamics have not gone hand in hand with sustainable productivity growth and improved competitiveness in Moldova. Whereas the remittance-led growth model helped steadily improve standards of living before COVID-19, it also came with declining potential growth.[20] In the five years before the COVID-19 crisis, growth of Total Factor Productivity (TFP) has also slowed down to a rate of nearly 2 percentage points lower than in the period 2000–14 (figure 1.2, panel a). Despite the intersectoral allocation taking place, with workers moving to more productive sectors, within-sector productivity growth has been disappointing, and resources have not flown to the most productive firms.[21] Moreover, disparities across regions, driven by migration from rural areas to the cities, have been increasing over the past decade, adversely affecting predictions for productivity growth.[22] Notably, owing to strong outward migration, labor quantity contributed negatively to growth (figure 1.2, panel b).

FIGURE 1.2. MOLDOVA'S PRODUCTIVITY

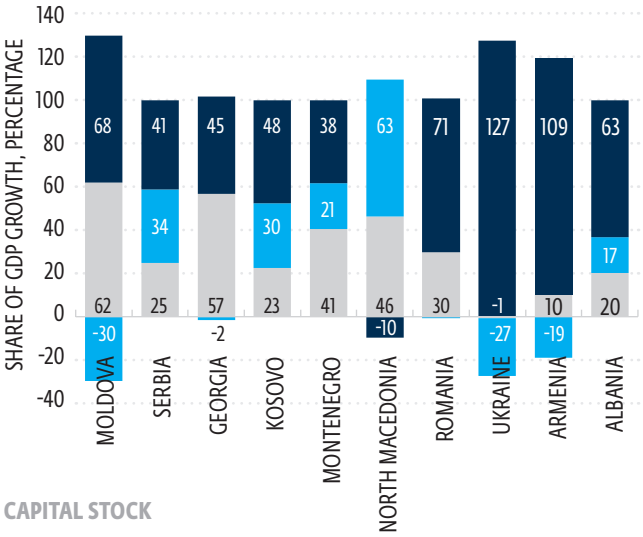
a. Productivity development since 2000



LABOR QUALITY CONTRIBUTION
LABOR QUANTITY CONTRIBUTION
TOTAL CAPITAL CONTRIBUTION
TOTAL FACTOR PRODUCTIVITY
GDP GROWTH (ANNUAL %)

Source: The Conference Board

b. Moldova vs. comparator countries: contributions to growth



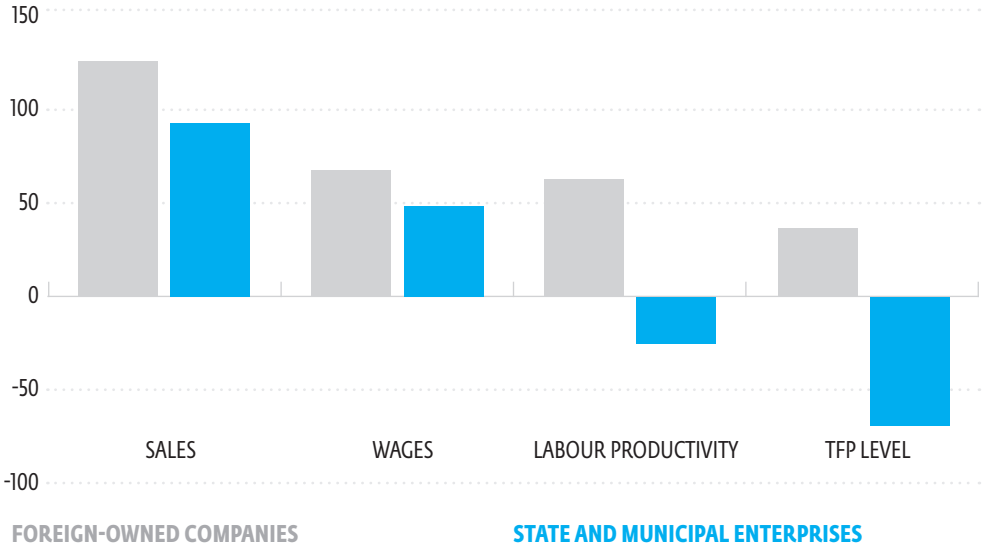
CAPITAL STOCK
LABOR
TOTAL FACTOR PRODUCTIVITY

Source: World Bank Group (WBG), Macro Poverty Outlook for Europe and Central Asia, WBG, Washington, DC, April 2022, https://www.worldbank.org/en/publication/macro-poverty-outlook/mpo_eca.

Before the pandemic, Moldova's physical capital accumulation has weakly supported economic growth. Moldova's overall investment level hovered around the Europe and Central Asia (ECA) average of close to 26 percent of GDP in the decade leading up to 2020. However, structural issues related to the low efficiency of investment and underexecution of investments, particularly in the public sector, have frequently offset the positive contribution to productivity growth, with a slight rebound after the banking crisis in 2014. Moldova's economy is also characterized by high input costs and a small internal market where private sector firms are limited in access to markets and finance. Whereas the financial system in Moldova is sound and liquid, financial intermediation is low as compared with aspirational peer countries (section 3.2). In addition, Moldova's financial sector primarily serves large firms, while micro, small, and medium enterprises (MSMEs) remain credit constrained and credit constraints on MSMEs have worsened in the past decade owing to the banking crisis of 2014 and impacts of the pandemic.

At the core of Moldova's declining productivity conundrum lies the relative importance and performance of SOEs in the economy. Moldova's SOEs are present in sectors where public ownership is not typical when compared with other countries.[23] SOEs display significantly lower levels of TFP than foreign-owned and domestic private firms, dragging down aggregate productivity (figure 1.3).[24] A legacy of the Soviet era, these firms are characterized by severe inefficiency, considerable losses, rising long-term debt, poor service delivery, and inadequate governance, as well as less dynamism.[25] SOEs have near-monopoly positions in virtually all basic infrastructure services, distorting markets with preferential treatment, mismanagement, price controls, and anticompetitive regulations. Competition and SOEs are presented in chapter 2 and in appendices D1 and D2.

FIGURE 1.3. PRODUCTIVITY OF SOEs AND FOREIGN-OWNED COMPANIES



Source: World Bank Group, "Moldova: Rekindling Economic Dynamism," Country Economic Memorandum, World Bank Group, Washington, DC, August 2019
Note: TFP = total factor productivity.

The population of Moldova is rapidly shrinking, driven by an aging population and large and increasing outward migration flows, dragging down productivity growth. The Moldovan population decreased from 4.6 million in 1990 to 2.6 million currently. Three factors explain this trend: (a) declining fertility rates; (b) slow progress in life mortality; and (c) youth emigration driven by large wage differentials with neighboring European Union (EU) countries. By 2050, Moldova's population could further contract by another 21 percent, with the average age rising from 37 years in 2015 to 49 years. At the same time, 1.2 million Moldovan citizens live and work abroad. Until the mid-2000s, most Moldovan migrants went to the Russian Federation, but the most popular destinations since then are in the EU with Romania and Italy accounting for more than 40 percent of total Moldovan citizens living abroad.[26] This is one of several factors contributing to a polarized electorate divided between those leaning toward closer integration with the EU on one side and those favoring the Eurasian Economic Union on the other.[27] In addition, more than two-thirds of females emigrating are younger than 44, thus exacerbating the adverse effects of Moldova's already ageing population. Moreover, almost a quarter of Moldova's labor force is employed in relatively low productivity activities, such as agriculture and the public sector.

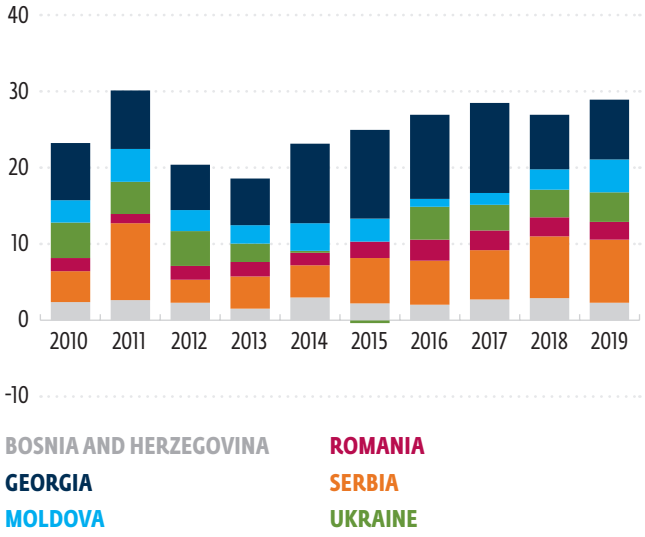
Severe deficits in the education system, combined with sustained and rising outward migration flows, constrain the availability of skilled labor, especially in STEM-intensive activities, and hamper innovation. Moldovans experience marked deficits in qualification levels in science, and more broadly, poor quality of education. Outdated curricula, teachers' old ages and inadequate quality standards hamper the performance of the Moldovan education system, especially in the universities and technical and vocational education and training (TVET) institutions.[28] About 20 percent of firms identify an inadequately qualified labor force as a major constraint for private investment, a much larger proportion than the regional average (19.5 versus 16.1 percent for ECA). Employers report that the skills taught by the education system do not match the needs of firms and that are, quite often, irrelevant to the modern economy. At the same time, Moldovan firms have not increased their formal training offering significantly. Whereas the share of firms that offer formal training in Moldova has grown moderately since 2005, it is still below that of Albania and Serbia. Not all firms can offer adequate training to their workers, and there is a large disparity among large and small firms, with around 60 percent of the former group and only 35 percent of the latter being able to offer formal training to their employees.[29]

Despite selective labor market reforms in the past two decades, there is a pressing urgency to improve the contribution of human capital in sustainably supporting productivity growth. Negative contributions from labor are observed in only a few countries in the region and contributions from productivity growth in Moldova are at the lower end when compared with regional peers. In particular, the labor force participation rate in Moldova has steeply declined since the early 2000s and remains well below ECA averages (40.3 percent versus 57.5 percent in 2020).

FIGURE 1.4. MOLDOVA'S FDI FLOWS AND CONTRIBUTION

a. FDI inflows (percentage of GDP) in comparison

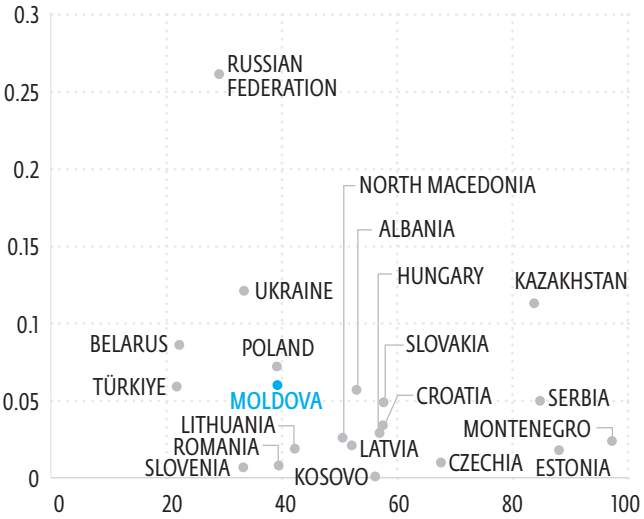
FDI INFLOWS, PERCENTAGE GDP



Source: World Development Indicators, December 2021.
Note: FDI = foreign direct investment.

b. FDI restrictiveness and FDI stock in comparison

FDI STOCK, 2019, PERCENTAGE GDP



Source: World Development Indicators and OECD, December 2021.

Foreign direct investment (FDI) inflows have had only a limited contribution in Moldova's productivity growth. Because of an uneven playing field caused by the high penetration of SOEs and the challenging business environment, Moldova's economy has been struggling to sustainably attract FDI (see appendix A2). Moldova has become progressively more open to FDI since 2000, but extremely weak FDI-local supplier links have limited the potential spillovers of FDI to the rest of the economy.[30] FDI net inflows as a share of GDP have been exhibiting a declining pattern—with a large contraction following the 2014 banking crisis. Only in 2019 did FDI reach its precrisis level at 4.2 percent of GDP, a level that remains relatively low compared with some peer countries in the region (figure 1.4, panel a). FDI remains highly concentrated in a few sectors (utilities, manufacturing, financial services, and wholesale and retail), although there are early signs of diversification. In manufacturing, four subsectors—agriprocessing, wine, automotive, and electronics—received the bulk of foreign investment, with a strong interest in the information and communication technology (ICT) sector that, together with BPO, could be an area of growth for FDI. FDI restrictiveness is low in Moldova, but the FDI stock has remained well below potential (figure 1.4, panel b). The newly adopted Strategic Investment Law has the potential to channel FDI with significantly positive spillovers for the economy but the details around it would need to address other factors influencing foreign investor decisions (see appendix A3 for an assessment of the new law).

As a small open economy, Moldova's development path is inextricably linked with its trade performance. Moldova's exports have almost quadrupled since 1995. They grew at 5.1 percent annually 2014–19 but plateaued at 30 percent of GDP over the past decade. There is significant potential for further growth thanks to the proximity to large markets such as the EU and the Commonwealth of Independent States (CIS). The trade-to-GDP ratio remained substantially stable compared with regional peers over the past decade, peaking at 99 percent in 2011 and standing at roughly 87 percent in 2019, as the expansion of imports and exports trailed GDP growth. Most important, merchandise trade balance has remained negative since the 1990s, with imports outpacing exports since 1995 (see appendix A4).

Exports have shifted from the traditional CIS markets to the EU, while imports remained dominated by few source countries. The EU market has contributed significantly to the growth on exports, displacing the CIS as the main destination for Moldovan exports (table 1.1).[31] At the same time, Russia and China stayed as the dominant suppliers of imports to Moldova, accounting for between 10 to 20 percent of total imports. France, Kazakhstan, Spain, United States, and a few additional European countries represent between 1 to 5 percent of imports.

TABLE 1.1. MOLDOVA'S FASTEST GROWING EXPORT MARKETS (2014–19)

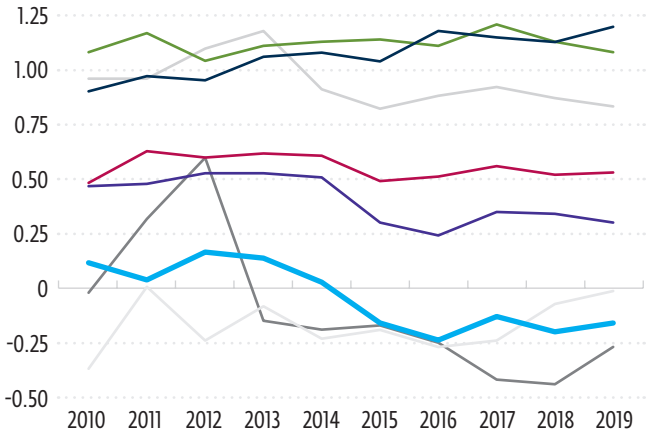
COUNTRY	TRADE VALUE (MILLION US$)	GROWTH (%)	COUNTRY	TRADE VALUE (MILLION US$)	GROWTH (%)
Romania	512	71	**Czechia**	39	93
Germany	158	84	**Austria**	33	103
Türkiye	120	55	**Netherlands**	22	78
Switzerland	56	69	**Spain**	14	204
Bulgaria	42	62	**Syria**	3	503

Source: Observatory of Economic Complexity, 2021, https://oec.world/.

Moldovan exports remain concentrated in few low value-added, low-sophistication products (figure 1.5, panel b), **but lower trade barriers through policy and facilitation reforms can help reach their full potential.** Compared with its peer countries, Moldova displays relatively low levels of economic complexity and ranks 71st in the Economic Complexity Index (ECI) behind regional peers such as Serbia, Ukraine, and Georgia (figure 1.5, panel a). Trade barriers, ranging from nontariff measures and weak trade facilitation to poor logistics, weak border management, and infrastructure gaps—both physical and digital—pose substantial costs to exporters and undermine the competitiveness of Moldova's products (see chapter 3 and appendix C). Lowering trade barriers would help Moldova build on the recent promising pattern of export growth, with the largest contribution coming from high and moderate complexity manufacturing products (for example, car seats, insulated electrical wire, among others), ICT, and some high value-added agribusiness products.

FIGURE 1.5. MOLDOVA'S EXPORTS AND ECONOMIC COMPLEXITY

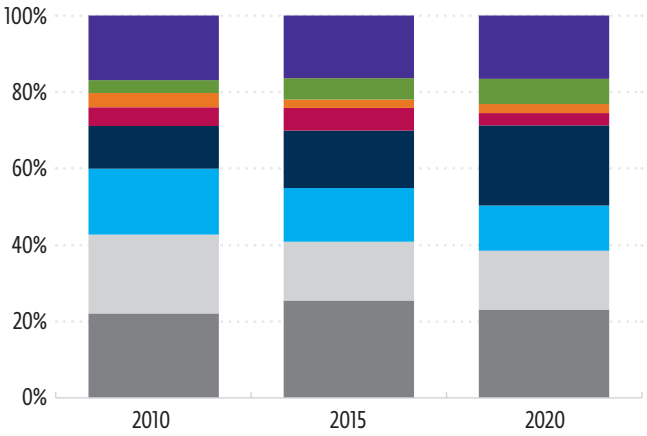
a. Economic Complexity Index



ARMENIA BELARUS MOLDOVA ROMANIA
BULGARIA GEORGIA POLAND UKRAINE

Source: World Bank based on Hidalgo and Hausmann (2009). The building blocks of economic complexity, CID Working Paper No. 186.
Note: The Economic Complexity Index (ECI) evaluates the characteristics of goods produced in an economy. Greater ECI levels suggest the economy is specialized in goods embedding more knowledge—that is, more complexity. Negative ECI corresponds to a decrease of a country's diversification—that is, the number of products that a country exports with a revealed comparative advantage. .

b. Export composition

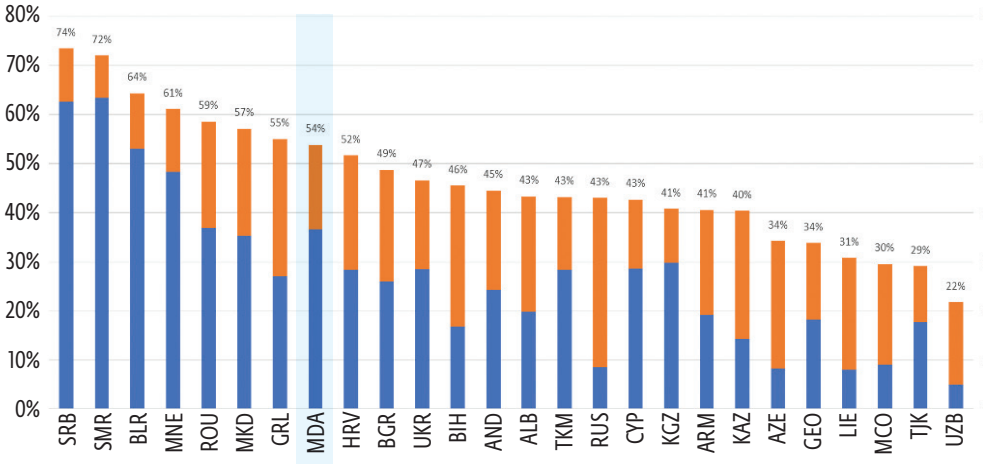


VEGETABLE PRODUCTS CHEMICALS
PREPARED FOODSTUFFS METALS
TEXTILES MSC. MANUFACTURING
MACHINERY OTHERS

Source: Statistica Moldovei (National Bureau of Statistics of the Republic of Moldova).
Note: Shares (in percentage) in total exports.
Msc = miscellaneous

Moldova is relatively integrated into regional and global value chains (GVCs), but it has been unable to move up from primary production (agribusiness) or low value-added assembly (manufacturing). Around 54 percent of Moldovan exports originate from GVCs (or goods that cross at least two borders from raw inputs to final consumers), as compared with 74 percent for Serbia or 47 percent for Ukraine (figure 1.6), indicating a relatively good level of integration.[32] The participation of Moldovan firms in regional and global production networks has moderately increased over the time, as shown by the fact that almost 77 percent of firms in Moldova reported using material inputs or supplies of foreign origin in 2019, up from 69 percent in 2009. Overall services exports fall behind peers in spite of sustained growth. Transport services accounted for 27 percent of total service exports in Moldova, followed by travel (26 percent), manufacturing services (18 percent), and information and communication technology (ICT) services (17 percent). At the same time, Moldova's information technology (IT), IT-enabled services (ITeS), and business process outsourcing (BPO) are growing briskly 7 percent growth rate per year between 2008 and 2017.

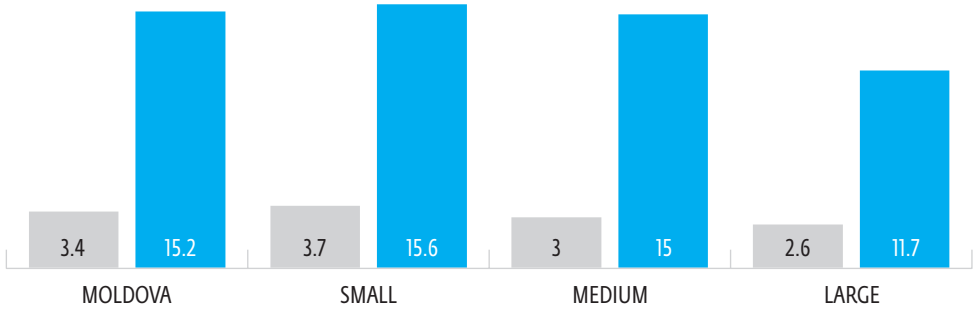
FIGURE 1.6. MOLDOVA'S GVC PARTICIPATION—BACKWARD AND FORWARD LINKAGES, 2020



Source: Dara Taglioni and Aaditya Mattoo, "COVID-19: An Unusual Shock in an Age of GVCs," World Bank Group, Washington, DC, March 2020.
Note: GVC = global value chain.

Moldova is among the worst-hit countries in ECA by the COVID-19 crisis. Private consumption and employment experienced steep drops, leading to a 7 percent decline in GDP in 2020, far worse than the ECA average. Gross external debt climbed to a historical high of 70 percent of GDP. Private sector sales dropped 57 percent at the onset of the pandemic, and 12 percent since May 2020.[33] The number of financially stressed firms has risen, with the share of firms delaying payments up from 52 to 74 percent between April–May 2020 and May–June 2021. About 15 percent of firms in Moldova had to close because of the pandemic, with the biggest impact on small firms (figure 1.7). About 57 percent of firms reduced their permanent staff (–28 percent). About 37 percent of firms have reported being overdue on financial obligations, and more are expected.

FIGURE 1.7. IMPACT OF COVID-19 ON FIRM CLOSURE; SHARE OF FIRMS THAT CLOSED



Source: CPSD team based on World Bank, Enterprise Survey, electronic dataset (World Bank, Washington, DC, 2021).

Moldova's government, despite a tight fiscal situation, has responded to the COVID-19 shock through a combination of income support programs and measures intended to increase liquidity for firms and households. Moldova's Central Bank aggressively cut the base interest rate and its reserve ratios. It also relaxed some macroprudential regulations and postponed payments to provide liquidity to financial and nonfinancial institutions. In three supplementary budgets in the course of 2020, the government deployed tax deductions, postponements, and refunds as well as an interest rate subsidy for credits on working capital. These measures were complemented by the provision of unemployment benefits to displaced workers and other measures aimed at easing the business climate. However, overall fiscal support has been very low (about 1.4 percent of GDP) with some of the support measures being discontinued at the start of 2021, yet public debt reached 33.5 percent of GDP. In addition, only a small percentage of firms have benefited from these support measures, with a progressive yet limited uptake from 3.1 percent in July 2020 to 9.9 percent in July 2021, likely owing to inadequate cash management, lengthy procurement processes for crisis-related infrastructure spending, delays in disbursements of external funding, time-limits to some crisis measures, and lower-than-expected local government absorption capacity.[34]

Moldova is likely to be one of the most affected countries by Russian invasion of Ukraine not only because of its physical proximity but also because of its inherent vulnerabilities as a small landlocked economy, with close links to both Ukraine and Russia. Because of its proximity, a large influx of refugees either in transit to the EU or to remain in the country has already materialized. About 430,000 refugees, representing more than 13 percent of Moldova's population, crossed the border in the first weeks of the conflict. Thus, Moldova has experienced the largest influx of refugees from Ukraine in Europe, except for Poland (2.1 million at the time of writing this report). This influx will likely bear fiscal costs, currently estimated at 0.4 percent of GDP,[35] because of the financing of development partners to support the government's efforts.[36] Moreover, key infrastructure (roads, railway, electric power lines, and gas pipelines) is primarily connected to Ukraine despite recent efforts to better connect the country to the EU. For a small landlocked economy that relies heavily on imports to meet its food and energy needs, the lack of access to the Ukranian market and infrastructure is a concern. Already during 2021 before the conflict had started, the price of food had increased almost 20 percent and the price of gas about 400 percent. The disruption in the supply of food, energy, and commodity imports from Ukraine and Russia is expected to further increase prices. The conflict is expected to also have a significant impact on remittances as most Moldovan migrants live in Russia (about 55 percent) and Ukraine (about 15 percent) accounting for 25 percent of total remittances (that is, 4 percent of GDP in 2020). Russia is also the second largest export destination for Moldovan products (11 percent of which half are agriculture exports) and ranks first in FDI stock (about 20 percent). Finally, the dependency from electricity from the Transnistria region, and a polarized electorate increase political and policy uncertainty, which may affect the reform program and investments. As a result of these multiple shocks, GDP growth projections for 2022 have been downgraded from 3.9 percent to -0.7 percent in 2022.[37]

The influx of Ukrainian refuges accounts for 13 percent of the Moldovan population, and therefore is a massive shock to the small Moldovan economy. The government has swiftly responded to attend the humanitarian crisis with development partner's support. According to the United Nations, as of April 2022, 430,000 refugees from Ukraine entered Moldovan territory, mostly women traveling with children.[38] More than 91,000 refugees have remained, of which more than 48,000 are children. The influx of refugees is overwhelming for such a small country: the refugees who have decided to remain represent about 4 percent of the total population, the adults represent 6 percent of the active labor force.[39] School-age refugees represent about 9 percent of the pupils that regularly attend prekindergarten to secondary schools. International experience shows that refugees tend to be less transitory than expected, with an average duration of stay of 10.3 years.[40] Large numbers of refugees increasingly use technology to connect with others and to access or transfer money.[41] Most refugees tend to be in the working-age bracket (or soon will be), with a very large presence of women. The government acted promptly in declaring a state of emergency and providing shelter, food, medical and educational services, livelihoods, and information. It has also approved emergency measures aimed at (a) facilitating entry for Ukrainian citizens and third-country nationals in Ukraine fleeing the invasion, (b) facilitating their integration into the labor market for those who opt to stay in Moldova, and (c) granting access to educational services to school-age refugees and (d) ensuring access to medical service needed by refugees and anti-COVID-19 measures, including vaccination. These government efforts could be strengthened by extending long-term entry and right to work to Ukrainian refugees with their national ID (see table ES.1) and by implementing additional measures aimed at facilitating their productive integration in the Moldovan economy (see box 1.1 for international experiences).

BOX 1.1. ADVANCING THE ECONOMIC INCLUSION OF UKRAINIAN REFUGEES THROUGH PRIVATE SECTOR ENGAGEMENT

The Russian invasion of Ukraine triggered the fastest-growing refugee crisis in Europe since World War II, with nearly 6 million people fleeing since the start of the invasion February 24, 2022, and with more expected. At the time of writing, neighboring Poland has experienced by far the largest influx of refugees (3.2 million), followed by Romania (857,000), Hungary (557,000), Moldova (453,000) and Slovakia (391,000). Host countries have taken unprecedented steps to facilitate the arrival of Ukrainian refugees. On March 4, 2022, EU ministers activated the Temporary Protection Directive (2001/55/EC), introducing temporary protection and support to persons fleeing Ukraine as a consequence of the invasion. This implies, among other things, that for an initial period of one year, Ukrainian refugees can obtain a residence permit, access employment opportunities, and open and use payment accounts with basic services, in line with the Payment Accounts Directive (2014/92/EU) in host jurisdictions in the EU. Also, Moldova is aligned with this approach and has simplified the procedure for employing refugees from Ukraine from the beginning of March, 2022.

Recent research shows that the duration of displacement for migrants from other similar events is lengthening with an average duration of 10.3 years.[a] Therefore, the earlier refugees integrate in the economies of host countries, the earlier they turn from an economic weight in need of humanitarian aid to self-reliant contributors to the development of local communities. There are reasons to believe that refugees from Ukraine can be integrated relatively quickly in host countries' economies. Many have a network of friends and family thanks to the large diaspora in Europe before the invasion. More generally, Ukrainians tend to be well educated, increasingly use technology and have a record of employment and entrepreneurship.[b]

While the swift implementation of the Temporary Protection Directive has substantially reduced the legal and regulatory hurdles for Ukrainian refugees in the near-to-medium term, hurdles around property ownership or entering a contract limiting their access to finance still need to be tackled. In particular, host countries' authorities can work with commercial banks, promotional banks and national development finance institutions, investment funds, microfinance institutions, and financial technology providers to introduce a "refugee lens" to their investment and lending strategies and facilitate private capital mobilization—through de-risking and other incentives—in support of refugee-related businesses. International experiences point to the following good practices and lessons learned in integrating refugees' productively in the host economies:

1. **Leveraging the private sector is key.** Refugees are active participants of host economies. When granted the right to work, refugees can be employees and business owners, trainers, trainees, clients, investors, and taxpayers. Refugees who create a business employ other refugees and members of host communities. Refugees can bring new skills and develop new industries with their know-how. They also represent a new market for the private sector because they can now develop new products or services demanded by the refugee group.

2. **Economic inclusion of refugees should start from the very beginning.** Economic integration can be achieved through several means:

    - **Entrepreneurship:** There is strong consensus internationally that self- and wage-employment are powerful strategies for the economic inclusion of refugees as well as important gateways to income, jobs, and gender equality. Refugees show a high propensity to enter entrepreneurship. Research in the United Kingdom shows that refugees are most likely to be in self-employment and hire employees than are local British. In France, 13 percent of refugees and migrants are self-employed, compared with just 3 percent of French-born. Even in camps, refugees find employment and create businesses—sometimes informally. In Bangladesh's Cox's Bazaar's refugee camp, Rohingya refugees have set up microbusinesses and interact with local Bangladeshi businesses located just outside the camp.
    - **Employment in local small and medium enterprises**: Refugees are engaged employees, and hiring them contributes to a more diverse, dedicated, and productive workforce. Refugees find employment in local and global companies, who consider them as loyal employees able to enhance productivity. In Jordan, Syrian refugees are employed by companies in various sectors including agriculture, construction, and apparel. Several companies worldwide also hire refugees and train them as part of their workforce, such as IKEA in 22 countries around the world, BNP Paribas in France, and Ben and Jerry's in the United Kingdom. In the United States, Chobani supplies its products from companies hiring Venezuelan refugees in Colombia and Peru.
    - Financial inclusion and financial access opportunities: The financial sector has a key role to play in supporting the economic inclusion of refugees. Access to financial services, capital mobilization and investment are key to enhance the economic integration of refugees and to support refugee-related businesses and local firms that employ refugees. Enabling cash-based assistance through bank accounts represents an important entry point for the economic inclusion of refugees. Not only well-designed accounts built into digital cash transfers can allow refugees to receive aid and remittances; they can also facilitate their engagement in income-generating activities. With a conducive financial regulatory environment, including anti-money laundering and combating the financing of terrorism (AML/CFT) oversight, refugees often move their assets to host countries and hire other refugees and locals. For instance, between 6,000 and 8,000 companies are estimated to be owned by Syrian refugees in Türkiye, and 1,660 are formally registered in Jordan.

- **Private sector provision of products and services:** Working with refugees can translate into access to new consumers and markets. When in high numbers, refugees represent a new market for local companies. In Türkiye, firms in the food and hotel sectors saw substantial increments in production. In Tanzania, the telecommunication company Vodacom established a new tower near the Nyarugusu refugee camp, generating more revenues than in the rest of the country. The French bank BNP Paribas created Nickel, a mobile banking solution targeting refugees from Sub-Saharan Africa in France, who are used to mobile banking as opposed to traditional banking solutions.

3. **A conducive regulatory environment supported by institutional sustainability is needed for the economic inclusion of refugees.** Refugees are vulnerable and face barriers in finding a job, creating a business, opening bank accounts, and accessing finance. Therefore, increasing the economic empowerment of refugees and host communities requires investment and a conducive policy and institutional framework. Policy and regulatory frameworks may pose a challenge to the achievement of the economic inclusion of refugees.

Growing analytical evidence suggests that refugees benefit their host communities. A 2019 study by the Economic Policy Research Foundation of Türkiye shows that Syrian entrepreneurs have established more than 10,000 businesses. These economically benefit more than 250,000 Syrians; they make significant contributions to Türkish foreign trade, and they have a positive impact on the Türkish economy. Furthermore, with the right initiatives and business enabling environment, refugee-driven private businesses can be a net positive, not just for the forcibly displaced, but also for their host communities. Host countries' authorities could convene at the same table as stakeholders—including local governments, employers' confederations, and bankers' associations—to discuss options to mobilize expertise, links, finance, and resources in support of refugees from Ukraine.

International evidence proves that strengthening the enabling environment would be key for swift and successful integration of refugees. Programs, targeting both host countries' businesses that employ refugees from Ukraine and refugee-created businesses, would encompass among others: support through matchmaking events, trade shows, and promotion of internal supply chain links; technical assistance to business development service providers; and sponsoring of inclusive entrepreneurship schemes. The Refugee Employment and Skills Initiative in Kenya (that is, the refugee camp in Dadaab) trains young people in digital skills and entrepreneurship, connects them with clients, and provides them with support to build their careers as freelancers. NaTakallam in Lebanon hires highly educated, digitally connected forcibly displaced peoples (FDPs) such as Syrians in Lebanon to provide professional services such as teaching languages and digital skills.[c]

a.Internet penetration among Ukrainians stood at 68 percent in January 2021, with the number of social media users at 59 percent of the total population. As of 2017, the share of adults with an account at a formal financial institution was 63 percent.

b. Pietro Calice, Benjamin Herzberg, and Gallina Andronova Vincelette, "Deploying the Private Sector in Europe Will Be Key to the Successful Economic Integration of Refugees from Ukraine," World Bank Blogs, April 27, 2022, https://blogs.worldbank.org/psd/deploying-private-sector-europe-will-be-key-successful-economic-integration-refugees-ukraine.

c. Weiyi Wang, Ozan Cakmak, and Kurt Hagemann, (2021), "Private Sector Initiatives in Forced Displacement Contexts: Constraints and Opportunities for Market-Based Approaches," IFC Note 103, May 2021, IFC, Washington, DC, https://openknowledge.worldbank.org/bitstream/handle/10986/35667/Private-Sector-Initiatives-in-Forced-Displacement-Contexts-Constraints-and-Opportunities-for-Market-based-Approaches.pdf?sequence=1&isAllowed=y.

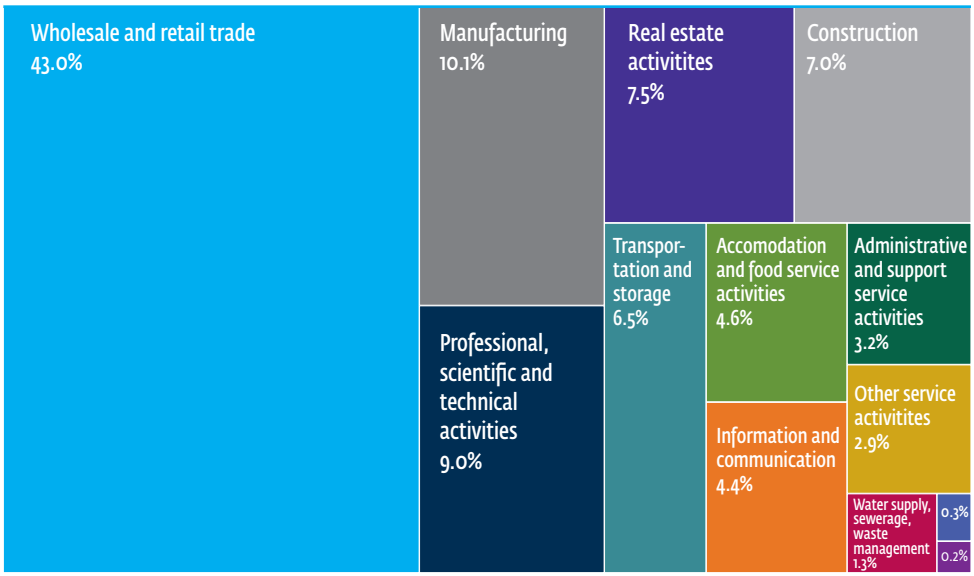
Moldova's medium-term growth outlook is clouded by uncertainties related to the progression of the COVID-19 pandemic and of the Russian invasion of Ukraine, but a broad-based reform program by the new government has the potential to lift Moldova's competitiveness. In 2021, the economy bounced back from the pandemic with a growth rate of around 13.9 percent, but Moldova's GDP growth is expected to be significantly affected by the Russian invasion of Ukraine. The main channels of transmission include significant economic and social repercussions through trade, financial market links, global value chain disruptions, migration, and energy. Initial GDP growth revisions point toward a stagnation of Moldovan GDP in 2022 (–0.4 percent) from previous projection of 3.9 percent. Reduced household purchasing power caused by higher energy and food prices, together with depressed consumer confidence owing to mounting uncertainties and limited economic opportunities, are expected to severely affect private consumption despite one of the largest fiscal responses in Moldova's history. The authorities estimate that an additional spending of about 1.3 percent of GDP would be required to protect firms from the economic impact of the invasion of Ukraine and to protect households' disposable income from increasing energy and food prices.[42] Nevertheless, the impact of the invasion of Ukraine is projected to increase the poverty rate in Moldova by 2.4 percentage points relative to a precrisis projection, based on the upper middle-income poverty line of US$5.50 per day. Against this background, the country is also facing the challenge of ensuring a sustainable recovery amid an ongoing pandemic. This fact means considering a new scenario where climate change and digitalization gain more relevance and where government policies and programs focus more on innovation, diversification, and inclusion. A sustainable economic growth path will also strongly depend on execution of the governance reform agenda.

1.1. THE STATE OF THE PRIVATE SECTOR

The economy of Moldova is characterized by limited entrepreneurial activity and low-productivity MSMEs representing 97 percent of enterprises, with a shrinking share of medium and large firms. Firm density reaches only 13,000 firms per million inhabitants, below most of its peers (for example, Czechia [98,000], Bulgaria [48,000], or Romania [26,000]). New firms tend to be small and are unlikely to become large. Part of the problem is that large firms, including SOEs, exploit market dominance to thwart competition and growth of smaller players. Private firms in Moldova exit at almost three times the EU average (8 percent) and higher than countries like Estonia (8 percent) and Croatia (9 percent). Wholesale retail and trade, manufacturing, and accommodation and public catering business were the sectors with the highest rates of exits (see appendix B1).

Moldovan firms are concentrated in low complexity activities by both geography and sector. Almost half of firms (43 percent) are engaged in wholesale and retail. Manufacturing accounts for roughly 10 percent of firms, followed by professional and technical activities (9 percent), real estate (7.5 percent), and construction (7 percent) (figure 1.8). Wholesale and retail trade is also the largest employer (29 percent), followed closely by transportation and storage (27 percent). In geographic distribution of economic activity, the capital city Chişinău concentrates the bulk of activities, with 62 percent of all firms, employing roughly 60 percent of the workforce and producing more than 71 percent of all turnover (see appendix B1). Balti is the second municipality in economic importance, but it does not surpass 10 percent of the country's firms, employment or sales.

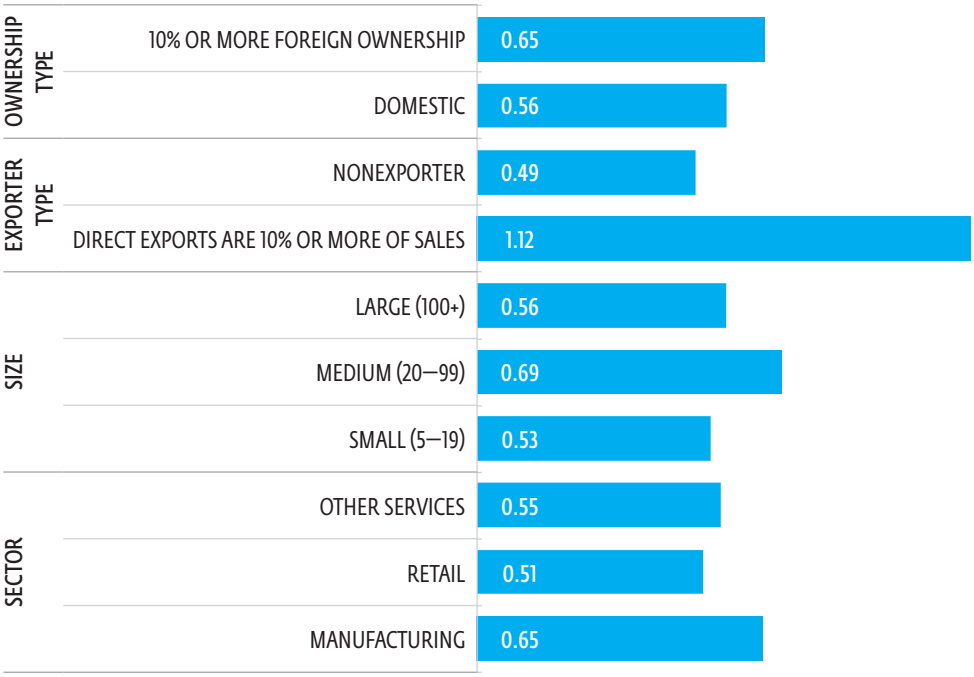
FIGURE 1.8. DISTRIBUTION OF FIRMS BY ACTIVITY, PERCENTAGE OF TOTAL FIRMS, 2019



Source: CPSD team based on National Bureau of Statistics of the Republic of Moldova, Annual Structural Survey, statistical databank (NBS, 2020), https://statistica.gov.md/

Large, foreign-owned, exporting, and manufacturing companies are the most productive, innovative, and skill-intensive companies. Moldovan exporters are most productive (figure 1.9), followed by foreign companies and manufacturers. In spite of their contribution to productivity, innovation, and skilled employment, exporters in Moldova are fewer at 15 percent[43] than in any other country in ECA, for example, Slovenia (48 percent), Serbia (39 percent), and Estonia (38 percent). Foreign companies encompass between 20 and 30 percent of Moldova's GDP. Foreign manufacturing firms are larger, more oriented to export and import, and more productive than domestic manufacturing firms.[44] They also have higher average sales, wages (proxied by labor costs), and sales per worker than do domestic firms (appendix B1). Compared with other ECA countries, firms in Moldova rely more heavily on foreign inputs: almost 77 percent of firms reported sourcing inputs from suppliers of foreign origin in 2019. The most common obstacles to sourcing locally are the unavailability of inputs and the unreliability of local suppliers. Even when inputs are available, local suppliers are seen as lacking the necessary certifications, technological capacity, and managerial skills to provide high-quality inputs in a reliable manner.[45] Retail is the least productive sector, with small and domestic firms lagging. Most exporters (78 percent), 72 percent of manufacturing enterprises, 71 percent of large firms and 64 percent of foreign-owned companies also report having invested in R&D.[46] Similarly, the 2019 World Bank Enterprise Survey shows that in Moldova skilled workers account for about 75 percent of the labor force in exporting firms versus about 70 percent in domestic-oriented companies. Female-run companies are also more skill intensive (87.6 percent versus 67.6 percent in male-run companies) (see appendix B1).

FIGURE 1.9. MOLDOVA: FIRM LABOR PRODUCTIVITY, MILLION MDL SALES PER WORKER



Source: CPSD team based on World Bank Enterprise Surveys, https://www.enterprisesurveys.org.
Note: MDL = Moldovan Leu

Women entrepreneurship is an opportunity and untapped resource in Moldova. Whereas declining in numbers, female-run firms consistently outperform male-run ones. Female-managed firms tend to perform better than firms with male managers but are less prone to participate in foreign markets; and in the past decade, the share of female-run companies and female workers have decreased significantly. Compared with firms managed by males, firms with a female top manager have higher capacity use (67.4 versus 62.3 percent), larger real annual sales growth (2.2 versus -2.1 percent), and higher real annual productivity growth (4.7 versus -0.9 percent). Only 12.3 percent of firms managed by females are exporting, compared with 16.1 percent of firms managed by males.[47] However, despite their growth potential, women in Moldova continue to be underrepresented in business. Unfortunately, there has been a decline in female ownership over the past decade; only 39.9 percent of firms reported having female participation in ownership in 2019 compared with 53.1 in 2009.[48] This reduction has also been accompanied by a decrease in the number of female top managers in firms (from 20.6 to 18.6 percent) and the proportion of permanent full-time workers that are female (from 40.7 to 39 percent).

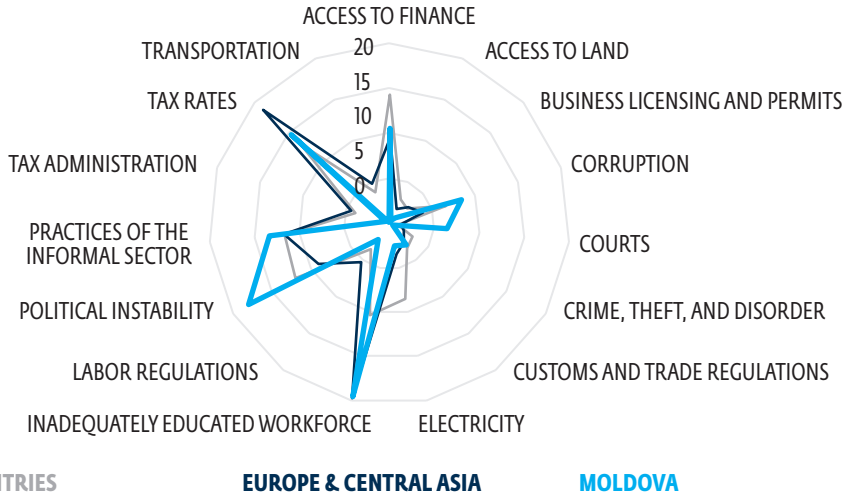
2. CROSS-CUTTING CONSTRAINTS TO PRIVATE SECTOR INVESTMENT

The most pressing constraints can be summarized in three interrelated categories: (a) a business environment that is not suited to Moldova's growth ambitions, (b) an unfinished trade harmonization and facilitation agenda, and (c) a large state presence holding back market competition and a relatively limited policy enforcement against the most harmful anticompetitive practices hindering private sector participation[49].

2.1. BUSINESS ENVIRONMENT: A NEED FOR ACCELERATED REFORM

The business environment in Moldova has improved significantly over recent years, but progress remains uneven. Moldova has shown important improvements on the registration of business and simplifying procedures to decrease state intervention in business activity, a reform of permits and licenses, streamlined inspection bodies, and the simplified administrative procedures across business operation. Figure 2.1 shows that the lack of an adequately educated workforce and political instability are the main obstacles for private investment for about 20 percent of firms in Moldova; a much larger proportion than in other ECA countries. Access and skills quality, while critical, are thoroughly analyzed in the *Moldova 2021 SCD Update*.[50] Moldova scores worse than regional peers in the Organisation for Economic Co-operation and Development's (OECD) Global Competitiveness Index (86th out of 141) and in governance indicators (for example, ranking 40.87 versus 64.42 for Romania or 84.13 for Slovenia on the Rule of Law indicator), suggesting a need for further reforms. In fact, corruption is identified as the top constraint by more than 27 percent of companies—10 percentage points above the average in ECA.[51] The weak rule of law and judiciary are analyzed in depth in the *Moldova 2021 SCD Update*.[52] Inadequate infrastructure, and a lack of investment in it, affect firms' competitiveness abroad.

FIGURE 2.1. KEY BARRIERS TO PRIVATE INVESTMENT IN MOLDOVA, ALL COUNTRIES AND ECA, PERCENTAGE OF TOTAL FIRMS



Source: CPSD team based on World Bank Enterprise Surveys, https://www.enterprisesurveys.org

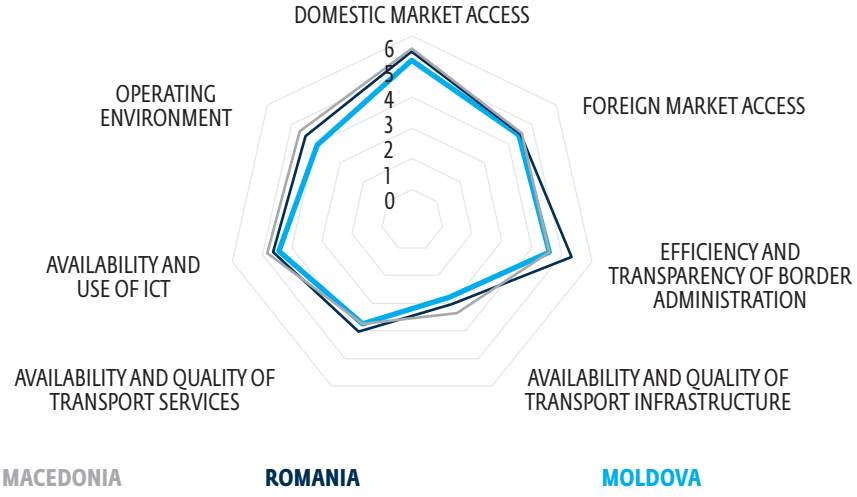
The challenges posed by the business environment increase informality and undermine the ability of firms to create new jobs. In 2018, informal employment accounted for 40 percent of total employment in Moldova, and this share has been increasing while the share of formal wage employment has been decreasing. The prevalence of informality in the country is a major constraint for the private sector with 41 percent of firms reporting that they compete against unregistered or informal firms. At the same time, the fragmentation, duplication, and lack of clarity of legal norms governing the provision of public services for businesses contribute to the informality of firms, which are deterred from engaging with the public sectors by the lack of clear rules, rights, and obligations. However, as witnessed during the COVID-19 pandemic, the digitalization of public services can provide continuity and facilitate access, reduce the compliance burden on business, and consequently encourage formalization. To this end, advancing the digitalization of public services for MSMEs, by introducing e-government, e-notary, and Public Depository of Financial Statements would build on the progress made with the enactment of Law No. 234/2021 on Public Services and Law No. 175/2021 on e-government, and encourage formalization.

The recently adopted Law on the National Security-Related Investment Scrutiny Mechanism provides broad grounds for intervention distorting market dynamics and competition. The law introduced an ex ante authorization system to select investors in areas considered important for Moldova's national security.[53] These areas cover a large number of economic activities—ranging from the design, construction, and operation of infrastructure in sectors such as energy or transport to the provision of final goods and services such as mobile and fixed telephone, media, and audiovisual services. The authorization system applies to mergers, concessions, PPP contracts, investment agreements, financial transactions such as credit or loans and minority shareholdings.[54] This application of this law adds risks related to flexibility, certainty, and timely decision-making for private investors. A complete review of the new law and proposed policy alternatives is provided in appendix A3.

2.2. AN UNFINISHED TRADE HARMONIZATION AND FACILITATION AGENDA

Moldova has liberalized trade and aligned with the World Trade Organization (WTO), but gaps remain in border administration, logistics services, and infrastructure. Moldova ranks in the 79th position out of 136 countries on enabling trade (figure 2.2). Trade policy has consistently focused on supporting Moldova's participation to the multilateral trading system and achieving a closer integration with the EU. This has led to a progressive reduction of outstanding notifications to the WTO and to increasing commitments under the General Agreement on Trade in Services (GATS).[55] However, informal practices have often continued to be enforced by customs authorities, such as imposing arbitrary requirements for imports and using ad hoc reference price lists to determine customs value. This can act as a barrier to trade.[56] Appendix C provides a comprehensive assessment of trade policy, barriers, and facilitation data.

FIGURE 2.2. ENABLING TRADE INDEX, 2016



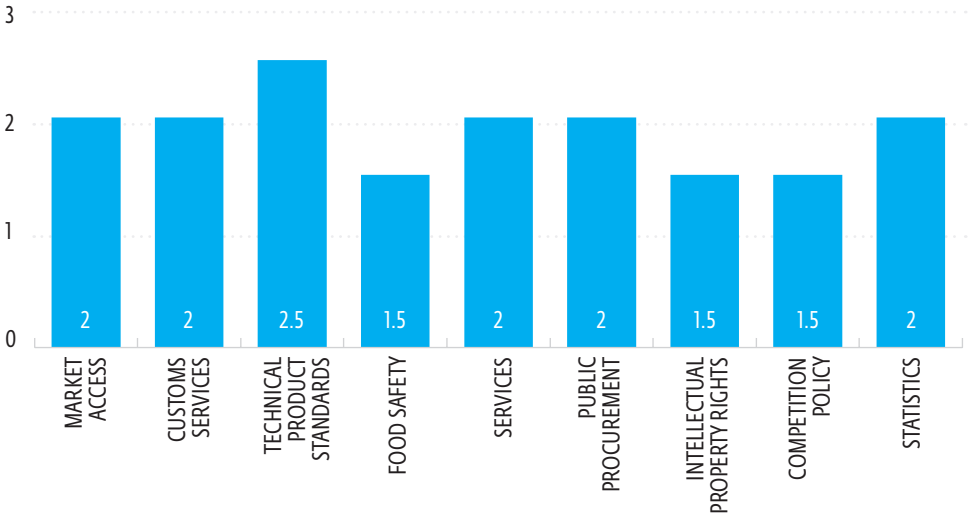
Source: CPSD team based on World Economic Forum and Global Alliance for Trade Facilitation, Global Enabling Trade Report 2016

The Russian invasion of Ukraine has disrupted trade and the supply of food and energy, but it also presents an unprecedented opportunity for an accelerated harmonization and integration process with the European Union. Although the direct exposure exports from Russia and Ukraine are just below 15 percent, imports are expected to be affected more directly. Whereas the share of Russia and Ukraine in total imports represents about 25 percent, Moldova imports about 42 percent of its food from Ukraine[57] and Russia and imports 100 percent of its gas from Russia. The invasion of Ukraine is expected to put further upward pressure on prices, which had already increased by almost 20 percent for food and about 400 percent for gas in 2021. At the same time, the Russian invasion has galvanized the commitment of the EU to accelerate the accession path of Moldova, and it has renewed the resolve of more than 30 international partners to support the international integration and harmonization agenda of the country through significant financial assistance. This situation represents a unique opportunity for Moldova to double down on its open trade, harmonization, and EU approximation policy agenda.

One of the most effective instruments of Moldova's trade policy toolbox has been the Free Economic Zones (FEZs). Extending the customs and business facilitation institutions of the FEZs to the rest of the country might well help unleash private sector investment. Indeed, whereas tax incentives appear to have had only a marginal influence on investment decisions and come with a cost to the government, customs procedures and legal protection appeared to be decisive factors.[58]

While Moldovan exports to the EU grew, progress in the complementary trade harmonization and facilitation agenda remains limited. Critical gaps include food safety, quality infrastructure and standards, internationally recognized quality certifications, customs administration, and trade facilitation. The adoption of product standards, although comprehensive and aligned to those of the EU, is insufficient because of the existing institutional weaknesses (figure 2.3). Customs legislation and procedures in Moldova have undergone significant harmonization with EU, however, no mutual recognition applies yet.[59] Separate risk corridors have been implemented at border crossings, but risk assessment and inspection practices lag. According to the World Bank Enterprise Survey of 2019, 13.8 percent of firms in Moldova considered customs and regulations as a major constraint to trade, when compared to the ECA average of 8.5 percent.[60] In particular, exporters tend to be more affected by local customs practices and regulations than non-exporters (17.5 versus 13.2). At the same time, customs and regulation remain a key constraint for imports, and even though a large number of Moldovan firms are heavily dependent on foreign inputs, with the three most problematic areas being tariffs and nontariff barriers, burdensome import procedures, and corruption at the border.[61]

FIGURE 2.3. RATINGS OF IMPLEMENTATION BY MOLDOVA OF MAIN PROVISIONS OF THE DCFTA



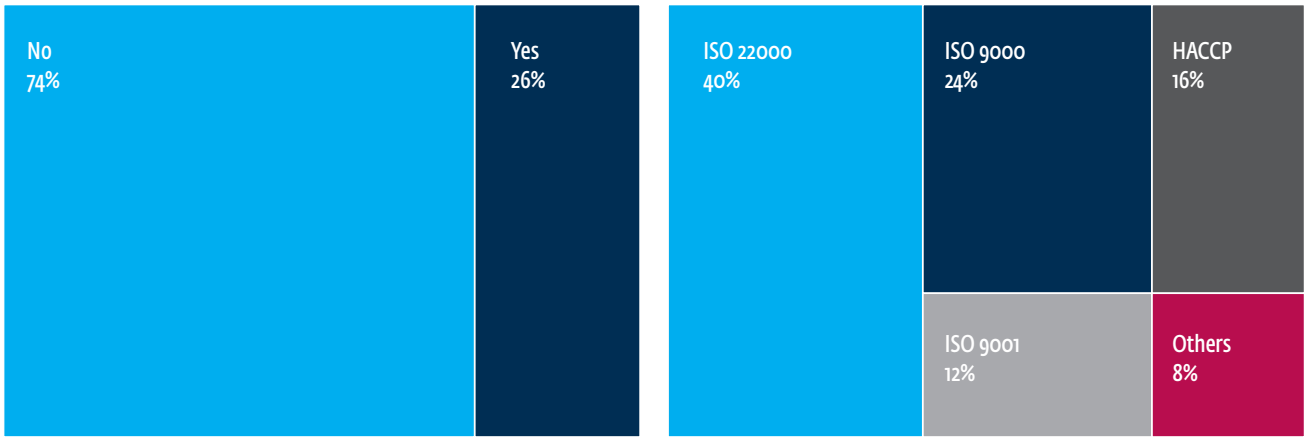
Source: CPSD team based on Michael Emerson and Denis Cenusa, eds., *Deepening EU-Moldovan Relations. Updating and Upgrading in the Shadow of COVID-19*, third edition, (Brussels: Centre for European Policy Studies, 2021).

Note: DCFTA = Deep and Comprehensive Free Trade Act. Ratings follow the methodology that the European Commission uses in its annual evaluation of the Balkan states, where 3 is a good rating in preparedness in relation to EU standards, 2 indicates moderate preparation, and 1 some preparation.

Poor logistics and inadequate transport infrastructure contribute to the trade facilitation challenges of Moldova. The World Bank's Logistics Performance Index (LPI) shows that Moldova scores lower than countries such as Belarus and Romania in timeliness, tracking and tracing, logistics competence, infrastructure, and customs.[62] According to the World Bank's Enterprise Survey 2019 data, 35 percent of large firms identified transportation as major investment obstacle. Chapter 3, section 1 of this report provides an in-depth analysis of the challenges and opportunities of transport and logistics in Moldova.

Moldova's trade with the EU is constrained by the country's inability to meet EU standards. Inability to comply with international technical requirements, product quality standards, and food safety regulation, rank among the top constraints to export, along with limited knowledge of international markets. Moldova has already adopted into national legislation and regulations more than 25,000 EU technical standards.[63] Certification is more familiar to firms in manufacturing, in which 45 percent of firms are certified, whereas in all other sectors around 5 percent of firms are certified.[64] Overall knowledge and adoption by firms of International Organization for Standardization (ISO), Hazard Analysis Critical Control Points (HACCP), Good Agricultural Practices (GAP), .Global Risk Assessment on Social Practice (GRASP), and relevant food safety management and product quality standards remains low.[65] According to the OECD, 85 percent of exporting food-processing companies in Moldova want to export more and 80 percent of nonexporters in the sector would like to start exporting.[66] Nonetheless, only 26 percent of food processors in Moldova adhere to internationally recognized standards, which prevents their entry into new export markets (figure 2.4). The National Agency for Food Safety has worked on the harmonization of sanitary and phytosanitary standards to align local legislation and practices with those of the EU. However, the capacity for laboratory diagnostics, traceability of products, and the infrastructure of the production chain remains weak.[67]

FIGURE 2.4. PENETRATION OF INTERNATIONALLY RECOGNIZED CERTIFICATES IN MOLDOVA, FOOD PROCESSING, 2019

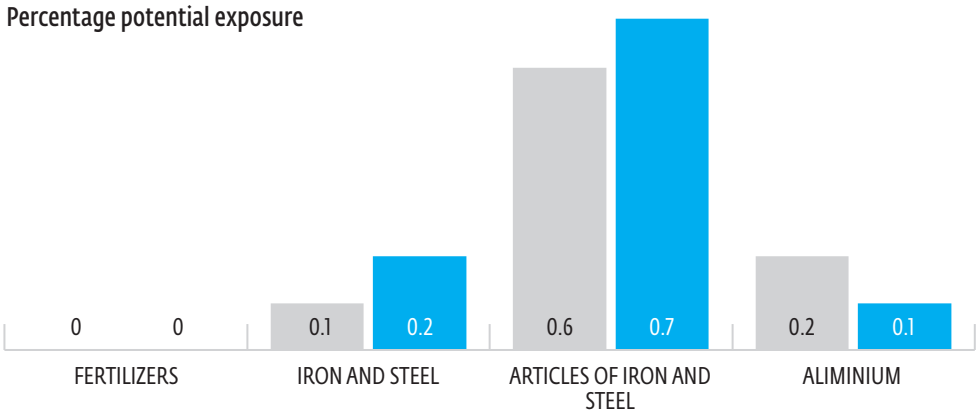


Source: CPSD team based on OECD(2020), Promoting Exports and Supply-Chain Linkages in the Food Industry in the Republic of Moldova, OECD Publishing, Paris, www.oecd.org/eurasia/competitiveness-programme/easternpartners/Promoting-Exports-and-Supply-Chain-Linkages-in-the-Food-Industry-in-the-Republic-ofMoldova-ENG.pdf

Note: The survey sample is not representative of general business population in the Republic of Moldova. ISO = International Organization for Standardization; HACCP = Hazard Analysis Critical Control Points (HACCP)

As part of the ongoing EU harmonization efforts, the possibility of including mitigation mechanisms and policies could help Moldova to better adapt to the changing landscape and benefit from the EU's green transition. The EU's forthcoming Carbon Border Adjustment Mechanism (CBAM), which will essentially impose taxes on emissions intensive imports, could provide some opportunities.[68] The relative importance of agricultural exports in Moldova's exports basket puts Moldova in a good position to gain from the introduction of climate policies in the EU (figure 2.5).

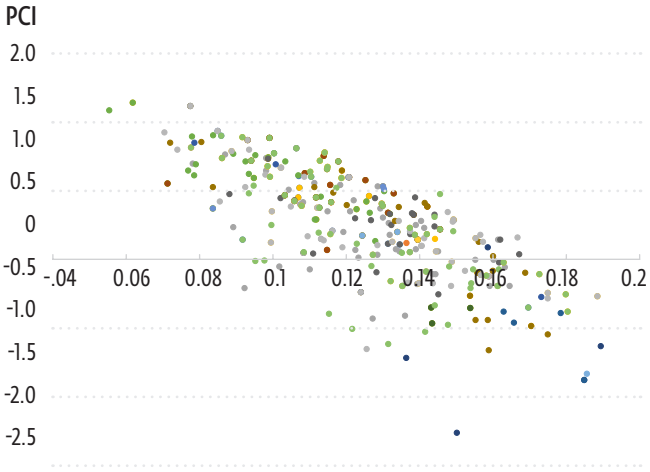
FIGURE 2.5. MOLDOVA'S POTENTIAL EXPOSURE TO THE EUROPEAN UNION'S CBAM IS MINIMAL



Source: World Integrated Trade Solutions (WITS), 2021
Note: Carbon Border Adjustment Mechanism; EU = European Union.

Although not a global player, overall Moldova can accelerate its green transition by upgrading its offer of green products.[69] It can do so by building upon its agricultural comparative advantage and with a focus on renewables. Moldova currently ranks 86th on in Green Complexity Index (GCI), well below Ukraine (46th), Romania (15th), or Belarus (42nd), or top performers such as Germany (1st) or China (5th).[70] Similarly, while China has grown into a global player on green competitiveness by accounting for 18.7 percent of global green products exports, and established players such as Germany and the United States account for 12.8 percent and 10.2 percent, Moldova continues to account for a mere 0.01 percent.

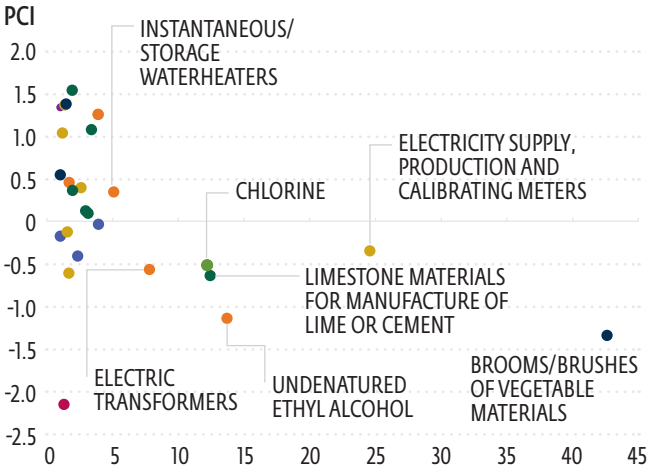
FIGURE 2.6. GREEN COMPETITIVE STRENGTHS



AIR POLLUTION CONTROL
CLEAN UP OR REMEDIATION OF SOIL AND WATER
CLEANER OR MORE RESOURCE EFFICIENT TECHNOLOGIES AND PRODUCTS
EFFICIENT CONSUMPTION OF ENERGY TECHNOLOGIES AND CARBON CAPTURE AND STORAGE
ENERGY EFFICIENCY
ENVIRONMENTAL MONITORING, ANALYSIS AND ASSESSMENT EQUIPMENT
ENVIRONMENTALLY PREFERABLE PRODUCTS BASED ON END-USE OR DISPOSAL CHARACTERISTICS
GAS FLAIRING EMISSION REDUCTION
HEAT AND ENERGY MANAGEMENT
MANAGEMENT OF SOLID AND HAZARDOUS WASTE AND RECYCLING SYSTEMS
NATURAL RESOURCE PROTECTION
NATURAL RISK MANAGEMENT
NOISE AND VIBRATION ABATEMENT
OTHERS
RENEWABLE ENERGY
RESOURCES AND POLLUTION MANAGEMENT
WASTE MANAGEMENT, RECYCLING AND REMEDIATION
WASTE WATER MANAGEMENT AND POTABLE WATER TREATMENT
WATER SUPPLY

Source: Pia Andres and Penny Mealy, Green Transition Navigator, 2021, www.green-transition-navigator.org.
Note: PCI = Productive Capacities Index.

FIGURE 2.7. GREEN OPPORTUNITIES



AIR POLLUTION CONTROL
EFFICIENT CONSUMPTION OF ENERGY TECHNOLOGIES AND CARBON CAPTURE AND STORAGE
ENVIRONMENTAL MONITORING, ANALYSIS AND ASSESSMENT EQUIPMENT
GAS FLAIRING EMISSION REDUCTION
MANAGEMENT OF SOLID AND HAZARDOUS WASTE AND RECYCLING SYSTEMS
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ENVIRONMENTALLY PREFERABLE PRODUCTS BASED ON END-USE OR DISPOSAL CHARACTERISTICS
HEAT AND ENERGY MANAGEMENT
NOISE AND VIBRATION ABATEMENT
RENEWABLE ENERGY
WATER SUPPLY

Source: Pia Andres and Penny Mealy, Green Transition Navigator, 2021, www.green-transition-navigator.org.
Note: RCA = revealed comparative advantage.

Moldova currently ranks 67th on the Green Complexity Potential (GCP) measure, which tracks countries' potential to transition into green, complex products in the future.[71] Moldova's current green competitiveness strengths relate to exports (with a revealed comparative advantage [RCA] larger than 1) in the areas of efficient consumption of energy technologies and carbon capture and storage, heath and energy management, renewable energy, and wastewater management and potable water treatment (figure 2.6). In particular, they relate to low complexity green products such as vegetable fibers, limestone materials, or ethylic alcohol, which are all related to Moldova's comparative advantage in agriculture. At the same, emerging green exports with higher complexity relevant for renewable energy, such as electric transformers or heaters, show a promising trend, given the strategic relevance of renewables for the country (chapter 4.1). This is also confirmed by a cursory analysis of the green opportunities (figure 2.7), which shows new green export opportunities that are more proximate to Moldova's existing capabilities in renewable energy, environmentally preferable end-user products, and natural resource protection (for example, liquid dielectric transformers, vegetable mats and screens, or natural cordage).[72]

2.3. COMPETITION LANDSCAPE: LACK OF A LEVEL PLAYING FIELD DOMINATED BY SOEs

Competition in Moldova lags international comparators. (See appendix D1, appendix D2 and World Bank Group [*forthcoming*])[73], which provide case studies, best practices, and a comprehensive assessment of competition and SOEs policies). The latest Bertelsmann Stiftung's Transformation Index[74] suggests that the fundamentals of market-based competition—that is, regulatory interventions that enable competition—are perceived to be less developed than in most comparator countries (figure 2.8). Competition policies are also perceived to be weak compared with the rest of benchmarking economies and seem to have worsened—from a score of 7 in 2018 to a score of 6 in 2020 (figure 2.9). This is related to the presence of SOEs in the economy, as well as related to the existence of vested interests and cronyism (figure 2.10). The share of monopolies, duopolies and oligopolies in manufacturing sectors has significantly decreased since 2013—from approximately 59 percent to 30 percent (Work Bank's Enterprise Survey) yet remains above the roughly 26 percent peer average. The degree of market dominance is also perceived to be higher than peers (WEF Global Competition Index).[75]

FIGURE 2.8. MARKET-BASED COMPETITION IN MOLDOVA AND COMPARATOR COUNTRIES, 2020

Score: 0 (worst) - 10 (best)

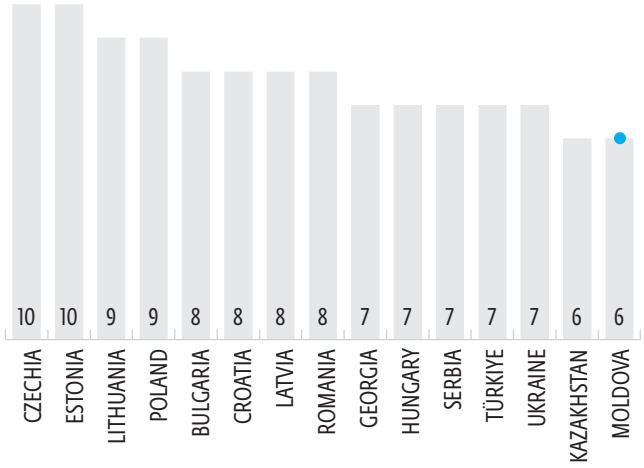
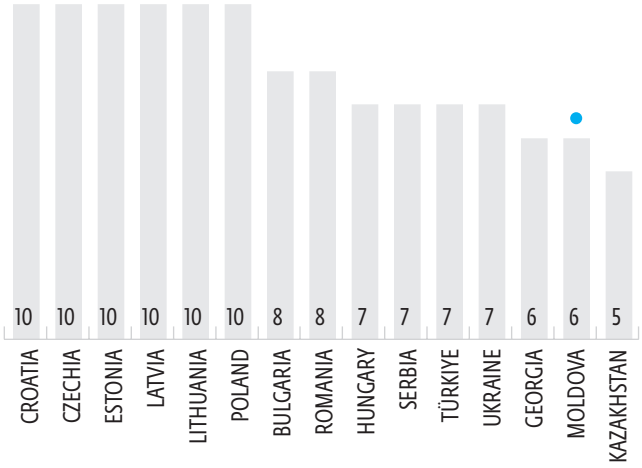


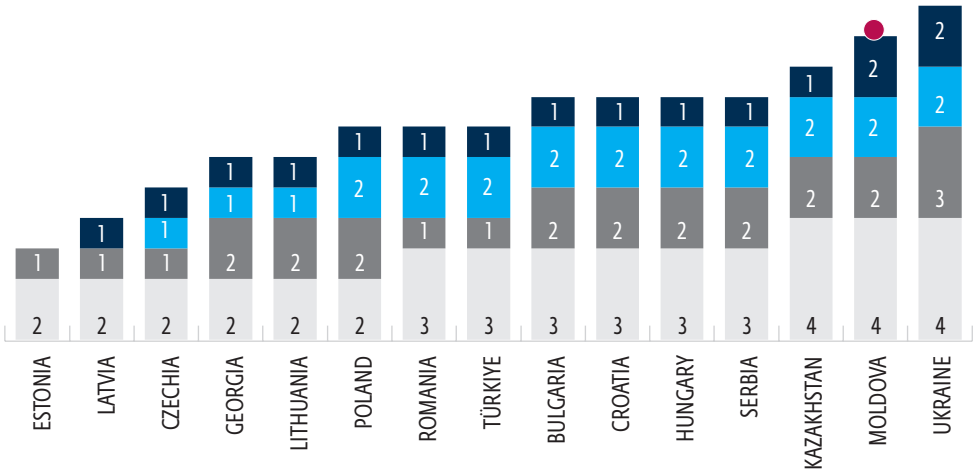
FIGURE 2.9. ANTIMONOPOLY POLICY IN MOLDOVA AND COMPARATOR COUNTRIES, 2020

Score: 0 (worst) - 10 (best)



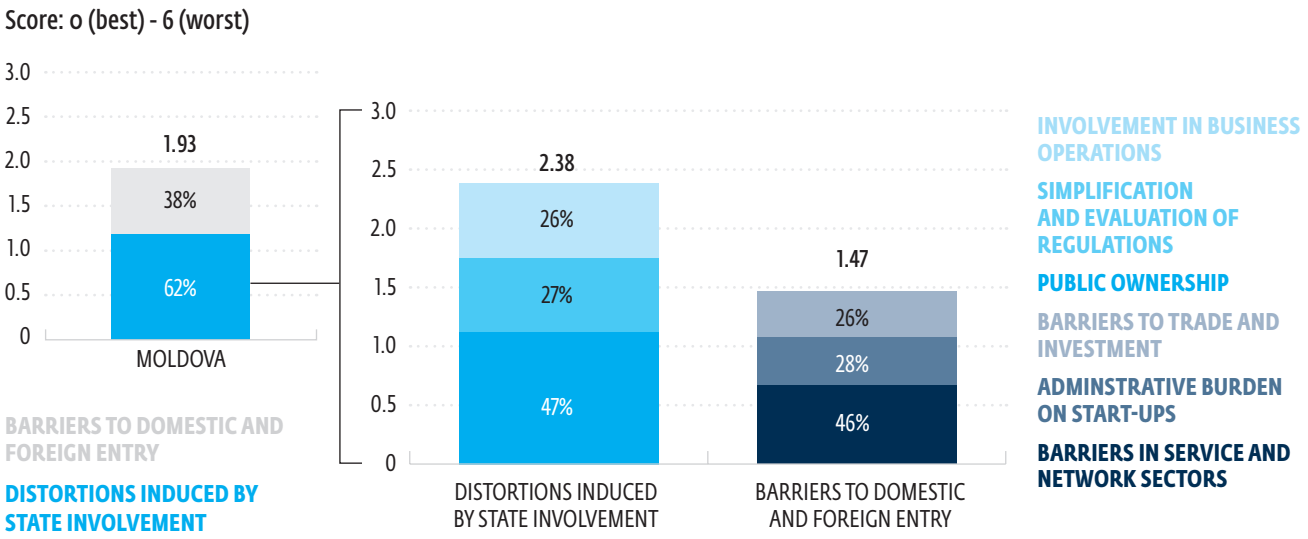
Source: Authors' elaboration based on data from the Bertelsmann Stiftung's Transformation Index (BTI), 2020, https://bti-project.org/en/?&cb=00000.
Note: The BTI is a perception indicator based on in-depth assessments of countries and is managed by the Bertelsmann Stiftung. The responses reflect the situation in the country at the end of January 2019.

FIGURE 2.10. BUSINESS RISKS RELATED TO WEAK COMPETITION POLICIES IN MOLDOVA AND COMPARATOR COUNTRIES, 2020



Source: IFC staff elaboration based on Economist Intelligence Unit, Competition and price regulations, https://www.eiu.com/n/.
Note: The figure shows an aggregation of four indicators each scored on a scale from 0 (very little risk) to 4 (very high risk).

FIGURE 2.11. DECOMPOSITION OF MOLDOVA'S PMR SCORE



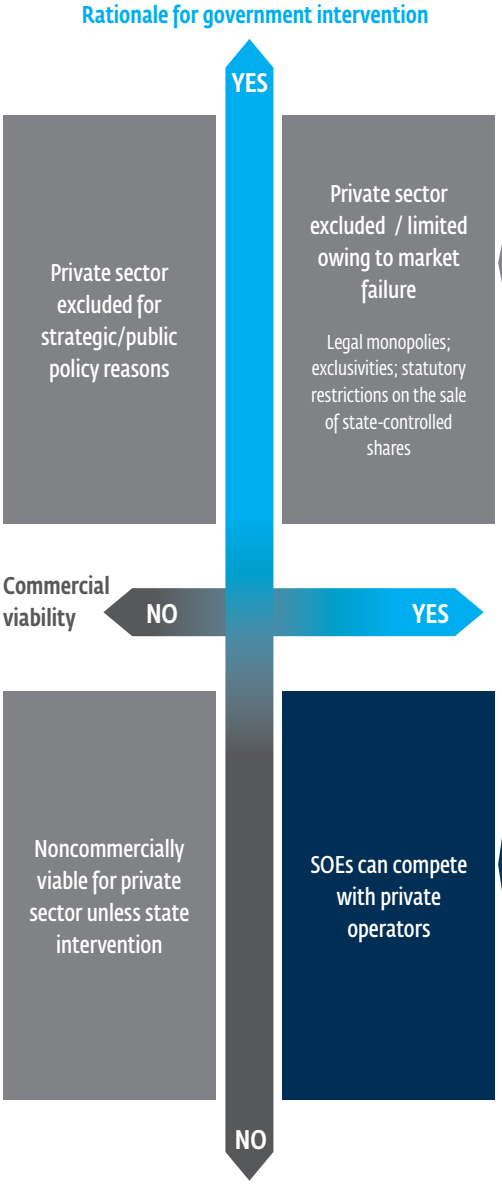
Source: Authors' elaboration based on the Organisation for Economic Co-operation and Development (OECD) PMR indicators (2018 methodology), https://www.oecd.org/economy/reform/indicators-of-product-market-regulation/.
Note: PMR = product market regulation.

Moldova's product market regulation lags most OECD and EU countries but is in line with peers. According to the OECD-WBG Product Market Regulation (PMR) indicators, which measure the incidence of regulatory barriers on competition as they appear on the books, Moldova's PMR scores, at 1.93, are higher (worse) than the average of analyzed countries of the PMR database (1.56). Restrictions on competition are mostly driven by the state involvement in the economy, notably through public ownership of firms. Another important source of restrictions comes from barriers to domestic and foreign entry, which are primarily driven by barriers to competition in service and network sectors, such as electricity, telecommunications, transport, or regulated professions (figure 2.11). Limited competition in Moldovan markets can arise from a combination of three factors: (a) unequal treatment of certain operators, notably through state aid granted to SOEs; (b) restrictive regulations or discretionary application of the regulatory framework that may hinder market entry and competition on the merit;[76] and (c) relatively limited competition policy enforcement against the most harmful anticompetitive practices. They are analyzed next.

State-Owned Enterprises continue to play an important role in Moldova's economy despite past privatization efforts, including in sectors that could be efficiently supplied by the private sector. SOEs account for about one-third of GDP, 50 percent of all fixed assets, and 10 percent of corporate sector assets. Moreover, they employ about 13 percent of the working population and have a share in sales that is more than twice the average of other ECA countries.[77] Formal exclusions to private sector participation in certain sectors prevent entry in markets where competition may be feasible and even desirable such as human and animal medical research, manufacture of medals or regular postal services.[78] Some of these SOEs hold a significant market position or even monopolies in their respective sectors, notably in network industries[79].

Developing a clear strategy for SOE ownership in Moldova could promote private sector development in competitive markets, while maximizing public resources (figure 2.12). Best international experiences typically rely on the subsidiarity principle and market failure considerations as justifications for the creation of new SOEs. According to the subsidiarity principle, if private agents are interested and able to supply goods and services to attend demand in an adequate manner, then the best means for the state to intervene in those markets is by supervising and controlling the behavior of those private agents in case of anticompetitive behavior. For instance, in Germany, SOEs' existence is reviewed every two years to ascertain whether the SOEs' objectives cannot be achieved in a better way. In the Netherlands, new SOEs can only be established when a well-formulated strategic and public interest, can be effectively carried out through an SOE in a commercially viable way, and cannot be efficiently provided by private operators. In Latvia, SOEs' justification is based on the principles of strategic important goods or services—which relate to public interest considerations—and the need to solve specific market failures.[80] In Peru, the subsidiarity principle is subject to the decision of the national competition authority (INDECOPI), which assesses whether private competitors could meet the existing demand (appendix D2).[81] [82]

FIGURE 2.12. EXAMPLES OF MOLDOVA'S SOEs ACROSS SECTORS, CONSIDERING COMMERCIAL VIABILITY AND RATIONALE FOR GOVERNMENT INTERVENTION



- Electricity generation (S.A. "Termoelectrica"; S.A. "Centrala Electrica de Termoficare Nord din Balti");
- Electricity transmission and distribution (S.A. "Retelele Electric de Distributie Nord"; S.A. "Energocom");
- Natural gas import, transmission and distribution (S.A. "Moldo-Rusa Moldovagaz");
- Operation of railroad infrastructure (I.S. "Calea Ferata din Moldova");
- Air transport-air traffic control activites (I.S. "pentru utilizarea spatiului aerian si deservirea traficului aerian Moldatasa");
- Operation of water transport infrastructure, cargo transportation and safety (I.S. "Portul Fluvial Ungheni");
- Water collection, treatment and supply (I.S. "Apa-Canal Ungheni", I.S. "Apa-Canal Ialoveni");
- Aeration, operation of plants of mechanical cleaning, pumping units, main and rainfall fun-offs in utility systems, operation of sewage lines (I.M. "Regia Autosalubritage Durlestis"; I.M. "Salubritate Ungheni").

- Electricity supply (S.A. "Furnizarea Energiei Electrice Nord"; S.A. "Energocom");
- Gas supply (S.A. "Moldo-Rusa MoldovaGaz");
- E-communications-retail fixed and mobile line services (voice, video, and data) (S.A. "Moldtelecom");
- Sea, coastal and passenger water transport: (I.M. "Apa-Canal"; I.M. "Trincavar");
- Sea, coastal and freight water transport (I.S. "Portul Fluvial Ungheni");
- Air transport-international passenger transport (I.S. "Compania Aeriana Moldova");
- Retail fix and mobile services (S.A. "Moldtelecom");
- Postal Services-parcel and courier (I.S. "Posta Moldovei");
- Manufacture of basic metals (S.A. "Metalferos");
- Manufacture of fabricated metal products (S.A. "Metalferos"); (S.A. "Tracom");
- Manufacture of machinery and equipment (S.A. "Tracom"); (S.R.L. "Moldtehimpex);
- Construction (I.M. "Munmilcom"; I.M. "Codru Cadastru"; I.M. "Sectia Constructii Capitale"; I.M. "Constructie-Falesti").
- Accommodation, food and beverage activities (I.S. "Hotelul Dacia", I.S. "Hotelul Zarea"; S.A. "Combinatul de Vinuri Cricova");
- Other: *Animal production* (I.S. "Centrul Republican pentru Ameliorarea si Reproductia Animalelor"; *Maintenance and repair of motor vehicles* (I.M. "Primtrans"; *Motion picture, video and television program activities* (I.S. "Gaudeamus-Cinema"; I.S. "Studioul Arta-Cinema").

Source: Authors' elaboration based on World Bank Group's SOEs landscape database (2021) and desk research.
Note: I.M. = Întreprinderea Municipală (Municipal enterprise); I.S. Întreprinderea de Stat (State enterprise); S.A. = corporation; SOE = state-owned enterprise. The list of SOEs is nonexhaustive.

Lack of competitive neutrality may constitute an important entry barrier for private operators.[83] A summary of competitive neutrality gaps in Moldova, as well as best international practice, is presented in World Bank Group (*forthcoming*)[84] and summarized in figure 2.13. Here, we state a few key observations:

- In the absence of rules mandating accounting separation between commercial and noncommercial obligations, SOEs in Moldova can cross-subsidize commercial activities where they face competition from private operators. For instance, state aid and aggregated liabilities of loss-making SOEs accounted for at least 4 percent of GDP in 2020.[85]

- Presence of line ministries in SOEs boards may give rise to conflicts of interest between public policy goals and management interests, which may lead to regulatory capture in favor of public operators and unlevel the playing field.
- Moldovan SOEs can benefit from state guarantees and other indirect financial and nonfinancial advantages from the state.
- Although SOEs in Moldova are not formally exempt from the application of private laws, in practice, some preferential treatment remains.[86]

FIGURE 2.13. COMPETITIVE NEUTRALITY GAP ANALYSIS FOR MOLDOVA

COMPETITIVE NEUTRALITY GAP ANALYSIS

SUBSIDIARITY ANALYSIS: THE ROLE OF THE STATE IN THE ECONOMY

Firm-level principles: Separation of SOE commercial and noncommercial activities

	1. Streamlining the operational form of government business	2. Identifying the costs of any given function	3. Achieving a commercial rate of return	4. Accounting for public service obligations
Moldova	• No separation between commercial and noncommercial activities of SOEs (no provisions in law on state and municipal enterprises).	• Lack of accounting separation/cost allocation (no provisions in the relevant laws).	• No express requirement to achieve a commercial rate of return. • No obligation for SOEs to cover direct costs using internally generated revenues and no private sector benchmark for SOEs transactions.	• Lack of transparent and objective criteria in the compensation of PSO delivered by SOEs.
Benchmark	• Legislation requires business separation of SOEs.	• Separate accounts for commercial and noncommercial activities of SOEs. • SOEs objectively assessed based on transparent performance reports.	• SOEs commercial operations and investments are required to have positive NPV, market consistent rate of returns and to be measured based on private sector performance.	• Compensation paid to SOEs for the provision of PSOs is based on transparent accountability and objective criteria. Cross-subsidization is avoided.

Principles embedded in cross-cutting regulatory frameworks and sectoral policies

	5. Regulatory neutrality	6. Public procurement	7. Tax neutrality	8. Debt neutrality and outright subsidies
Moldova	• Limited implementation of certain laws for SOEs (e.g., public properties). • Lack of clear separation between role as market regulator and operator (e.g., ministries' representatives in SOE boards / no rules for setting a majority of independent directors).	• SOEs at the municipal level are exempted from government procurement procedures.	• SOEs benefit from some exemptions and/or reductions in the payment of taxes, fees and other mandatory payments, which are classified as state aid.	• MoF can grant state guarantees and other financial advantages to SOEs. • SOEs are granted public properties for their use and management.
Benchmark	• Companies compete on a level-playing field with no trade protection and market-based competition for rights to invest in state assets. • Sectors where competition is feasible are open to private investment.	• Market-based competition in public procurement. • Bids/auctions designed to reduce the risks of bid rigging.	• Tax exemptions, subsidies, and debt guarantees granted following competitive neutrality principles.	

State aid legal framework and implementation requires improvements to minimize room for anticompetitive outcomes

Level playing field in the market between SOEs and privately owned operators

Source: Authors' elaboration.

Note: MoF = ministry of finance; NPV = net present value; PSO = public service obligation; SOE = state-owned enterprise;

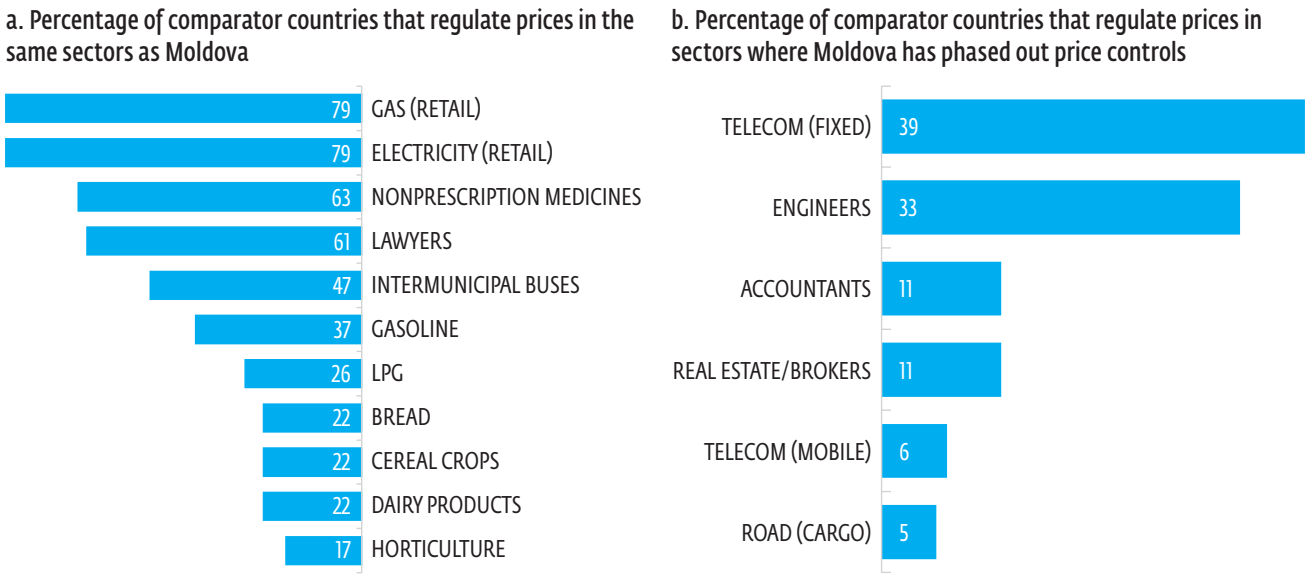
Although close to the ECA average, Moldova has one of the most restrictive regulations on network industries. Entry barriers in network and service sectors can hold back market entry and expansion of more efficient firms. According to PMR indicators, the regulatory frameworks in transport and e-communication sectors seem particularly restrictive on competition.[87] For example, Moldova's electricity sector is riddled by barriers to entry and tariff regulations, including the lack of effective implementation of current unbundling programs at the upstream and downstream level for electricity, limited competition in wholesale markets for electricity and natural gas prevent competition in retail markets, and the small size of the electricity and gas markets with regulated tariffs for final consumers[88]. The significant improvement of the financial and operational performance of Premier Energy (Moldova's largest distribution company) because privatization illustrates the potential productivity and welfare gains resulting from an overhaul of network regulations and privatization in the energy and other key network industries (see chapter 4, section 1).

In the telecommunications sector, which is highly concentrated, there is no level playing field among fixed and mobile operators. Moldova's PMR scores, at 1.84, are higher than comparator countries (ranging from 0.14 to 1.21), except for Kazakhstan and Serbia, and show the existence of restrictions to competition in both fixed and mobile markets. Ineffective asymmetric regulation has reinforced incumbents' position in the Moldovan telecommunication sector which combined with the concentration in these markers can hinder outcomes in the sector. More details are provided in World Bank Group (*forthcoming*).[89]

In transport, restrictions relate to lack of vertical separation between operators in different parts of the value chain and stringent licensing policies that limit market entry. According to the World Bank's Enterprise Survey of 2019, Moldova has the largest percentage of firms interviewed that perceive the transport sector as a major constraint (14.7 percent versus 11.9 percent ECA average). Moldova's PMR scores in this sector are among the highest (worst) when compared to peer countries, except Serbia; and most of the scores are driven by restrictions in the railways sector.[90] Despite the liberalization of the air transport sector through the sale of Air Moldova to a private operator, other transport markets are still subject to critical barriers to entry.[91] In the interurban bus markets, although new or available routes are open to competition, employer organizations in the transport sector can participate and have a voting right on the commission for awarding the routes, which incentivizes collusive strategies.[92] Moreover, cabotage—that is, the right to operate transport services within a particular territory—is not allowed, which prevents international competition in the road freight sector. In the water transport sector, there is no vertical separation between port authorities and operators of technical facilities. This allows these companies to leverage their power over the natural monopoly of infrastructure management on the downstream market segments (that is, the provision of the service), which would make it more difficult for private operators to compete against incumbent operators if markets are liberalized.

Price regulation in Moldova is more widespread across sectors than in comparator economies, including in sectors where most comparators have already phased out price controls. Moldova has already phased out price regulation in retail telecommunications and some professional services. Still, PMR subindicators for price controls are higher in Moldova than in most benchmark economies, showing the existence of price regulation in a broad number of sectors (16 out of 29 sectors covered by the database).[93] Moldova's score in this indicator is 2.5 times higher than the OECD and ECA countries on average. Price controls limit competition, productivity gains, competitiveness, and innovation in those sectors—including LPG, and dairy goods, among others (figure 2.14).[94] For instance, in the pharmaceutical sector, margin controls are established for all types of medicines (without a distinction between prescription and non-prescription, and essential and nonessential medicines), which distorts market incentives to entry and innovation. In the fuel sector, margins are fixed annually to achieve certain ceiling retail prices; however, this usually requires costly subsidies due to the high volatility of this commodity. In all these markets, policy goals—including in the context of the current COVID-19 pandemic—could be achieved with less distortive policy alternatives.[95]

FIGURE 2.14. MOLDOVA'S PRICE REGULATION BY SECTOR VS. COMPARATOR COUNTRIES, 2020



Source: World Bank, Boosting Competition through Streamlined Price Controls: Economic Reasoning, International Experience and Lessons for Moldova (Washington, DC: World Bank, 2020).
Note: Data based on the PMR database and WBG global price regulation database. Data include the following countries Albania, Azerbaijan, Belarus, Bulgaria, Croatia, Czechia, Estonia, Hungary, Kazakhstan, Latvia, Lithuania, Moldova, North Macedonia, Poland, Romania, Serbia, Slovak Republic, Slovenia, and Türkiye. LPG = liquid petroleum gas.

Despite having a solid legal framework, substantive and organizational reforms could further strengthen competition enforcement in Moldova. The competition law and state aid laws adopted in 2012 are broadly in line with international standards. However, the current law would require further improvement in the following two key areas: (a) ensuring separation between prosecution and decisional bodies of the Competition Council, thus empowering prosecutors to initiate investigations after reception of a complaint or ex officio,[96] and (b) increasing the level of sanctions from a maximum of 5 percent of the company's turnover to a maximum of 10 percent.[97] The number of decisions and total amount of sanctions imposed by the Competition Council seem to be low, which may also indicate ineffective enforcement of competition rules. The competition authority still lacks sufficient human and material resources to ensure all its attributions, including fully fledged enforcement of competition rules.

Overall, two policy priorities should be fast-tracked in response to the Russian invasion of Ukraine: (a) conducting a privatization triage (a government ownership strategy and road map for higher private sector ownership) and (b) promoting better SOE corporate governance practices to ensure competitive neutrality. Whereas competition policy and SOEs reforms usually require a sustained reform effort because of their structural nature and long-term impacts, the urgency of increasing the resiliency of the private sector in response to the shocks of the conflict in Ukraine calls for swift policy action in facilitating private sector ownership and ensuring competitive neutrality of and by Moldovan SOEs. In particular, short-term actions to kick-start a more complex structural policy reform process on SOEs and competition policy entail the following:

- **Review the rationale for state interventions through SOEs**, considering the type and characteristics of the sectors and markets (that is, natural monopoly, commercial, contestable), in line with the subsidiarity role of the state. A framework of SOE reforms may range from lower to higher private-led ownership and managerial transformation, including (a) regulatory and institutional reforms that allow private competitors to enter and expose SOE to competition; (b) management and partnership arrangements (for example, management contracts, concession), PPPs, and joint ventures; and (c) full or partial divestiture (see appendix D2).
- **In markets with SOE presence, promote competitive neutrality among SOEs and private operators.** Do so through (a) a clear separation between SOEs' commercial and noncommercial activities, (b) ensuring an adequate compensation for PSOs carried out by SOEs, (c) mandating that SOEs earn rates of return comparable to their private sector competitors, (d) limiting conflicting roles of the state as regulator and operator in certain sectors by establishing clear mandates and separation of functions; (e) avoiding preferential direct or indirect grants for SOEs (for example, asking rents to SOEs using public properties similar to those for private sector), and (f) ensuring regulatory neutrality for all SOEs (for example, requiring municipal SOEs to comply with public procurement rules). Boxes D.2 and D.3 in appendix D2 present OECD's recommendations in assessing PSO of SOEs, and OECD's best practice guidelines on SOEs' boards independence and accountability.

In table 2.1, the priority policy responses are detailed. The responses needed to mitigate the impact of the Russian invasion of Ukraine and of the lingering effects of the COVID-19 crisis are highlighted in light blue (see also table ES.1).

TABLE 2.1. PRIORITY POLICY RECOMMENDATIONS FOR BUSINESS ENVIRONMENT, TRADE REFORM, AND COMPETITION[98]

POLICY AREA/ CONSTRAINT	RECOMMENDATION	EXPECTED BENEFITS	DIFFICULTY[A]	TIME[B]	RESPONSIBILITY
Business-enabling environment					
Improving the business environment	• Revise the Law on National Security Related Investment Scrutiny Mechanism, to minimize unintended FDI distortionary and anticompetitive effects. • Advance the digitalization of public services for MSMEs, by introducing e-government, e-notary, and Public Depository of Financial Statements.	• Increased FDI inflows • Reduced regulatory compliance burden on firms • Increased business formalization	+	MT	Ministry of Economy Ministry of Finance
Trade					
Weak integration with GVCs	**Maximize the benefits of the DCFTA.** • Implement provisions in all sectors. • Increase communication activities related to technical aspects, with emphasis on tariff-rate quota management and other customs issues. Negotiate other preferential trade agreements. • Maintain liberal trade and investment policies. • Eliminate remaining tariff peaks in some products. • Eliminate restrictions to trade in services (for example, barriers to mobility of high-skilled workers). • Push for urgent adoption by the Parliament of pending trade-related legislation.	• Increased trade integration and harmonization with the EU • Increased merchandise and services exports to the EU • Increased export market diversification • Increased export sophistication and diversification • Stronger links between FDI and local suppliers, resulting in increased sales, investment, employment • Increased integration into EU GVCs, with increased generation of local value added • Increased access to productive inputs	++	MT	Ministry of Economy Ministry of Finance
Maximizing the gains of FEZs	**Reform FEZs.** • Downgrade the importance of fiscal incentives by shifting to targeted services for businesses. • Promote better links of FEZ with the domestic economy. • Streamline rules and regulations. • Facilitate circulation of skilled labor. • Use FEZs as testing and learning grounds for economy-wide reforms. • Shift to a common set of incentives for all promoted areas.		+++	MT	Ministry of Economy Ministry of Finance
Weak links between FDI and local suppliers	**Improve FDI-local suppliers' links.** • Establish a central and autonomous export and investment promotion agency. • Develop local suppliers' program. • Establish a trade finance fund.		++	ST	Ministry of Economy Ministry of Finance
Slow and inadequate convergence with EU technical standards	• Provide support to the National Agency for Food Safety (ANSA) to align local legislation and practices with those of the EU.		+	ST	Ministry of Agriculture

Note: EU = European Union; FDI = foreign direct investment; FEZ = free economic zone; GVC = global value chains; MSME = micro, small, and medium enterprises.

POLICY AREA/ CONSTRAINT	RECOMMENDATION	EXPECTED BENEFITS	DIFFICULTY[A]	TIME[B]	RESPONSIBILITY
Competition					
Ensuring a level playing field for private and public operators	• Review the rationale for state interventions through SOEs; taking into account the type and characteristics of the sectors/markets —that is, natural monopoly, commercial, contestable, in line with the subsidiarity role of the state. • Developing a framework for SOE reforms, which may range from lower to higher private-led ownership and managerial transformation, including the following: • Regulatory and institutional reforms that allow private competitors to enter and expose SOE to competition • Management and partnership arrangements (such as management contracts, concession), PPPs, and joint ventures • Full or partial divestiture	• Private sector growth and increased private investment through the creation of open and contestable markets	++	ST	Ministry of Finance Ministry of Economy Ministry of Infrastructure and Regional Development Public Property Agency
	In markets with SOE presence, promote competitive neutrality among SOEs and private operators through the following: • A clear separation between SOEs' commercial and noncommercial activities • Adequate compensation for PSOs carried out by SOEs • Mandating SOE rates of return comparable to their private sector competitors • Limiting conflicting roles of the state as regulator and operator in certain sectors by establishing clear mandates and separation of functions • Avoiding preferential direct or indirect grants for SOEs (e.g., asking rents to SOEs using public properties similar to those for private sector) • Ensuring regulatory neutrality for all SOEs (such as requiring municipal SOEs to comply with public procurement rules)		+++	ST	Ministry of Finance Public Property Agency
	• Rationalize the use of state aid in the economy, prioritizing horizontal aid schemes instead of individual state aid, notably for SOEs.	• More efficient allocation of state resources, less market distortions and more private sector entry	+	ST	Ministry of Finance Competition Council

Note: PPP = public-private partnerships; PSO = public service obligation; SOE = state-owned enterprise.

POLICY AREA/ CONSTRAINT	RECOMMENDATION	EXPECTED BENEFITS	DIFFICULTY[A]	TIME[B]	RESPONSIBILITY
Promoting procompetitive regulation in key sectors	**In the electricity and gas sectors, do the following:** • Complete the unbundling of the transmission market from the generation and supply markets, ensuring independence of the Transmission System Operator. • Implement an effective deregulation of tariffs for final consumers.	• Promotion of private investment through the elimination of barriers to entry in contestable markets • Market entry support reductions in energy prices and increased quality of service	+++	ST	Ministry of Infrastructure and Regional Development National Agency for Energy Regulation (ANRE)
	In the electricity sector, do the following: • Enhance transparency of electricity tenders to enable efficient outcomes.		+	ST	Ministry of Infrastructure and Regional Development National Agency for Energy Regulation (ANRE)
	In the gas sector, do the following: • Ensure fair and nondiscriminatory third-party access to the gas transmission network.		++	ST	Ministry of Infrastructure and Regional Development National Agency for Energy Regulation (ANRE)
	• Conduct market studies in the telecommunications sector to analyze operators' market power in the markets for the provision of wholesale fixed and mobile call origination services to ensure effective implementation of the current asymmetric regulation.	• Market entry support reductions in prices for telephony services, as well as an increase in service quality	+	ST	National Regulatory Agency for ICT
	• Ensure that the special obligations provided by law for telecom operators with Significant Market Power (SMP), such as the obligation to grant access to telecommunication networks, are not required for operators without SMP.	• Market entry for new operators and increased investment in new infrastructure	++	ST	Ministry of Infrastructure and Regional Development
	• Review legal monopolies and restrictions to entry in the transport sector, notably in the rail and interurban bus markets.	• Entry or increased participation of the private sector in these markets • Higher quality and lower prices in transport	+	ST	Ministry of Infrastructure and Regional Development
	• Explore vertical separation between provision of transport services and operation of infrastructure in the railway and water transport sectors. Adopt the Railway Transport Code and Action Plan to reorganize the railway sector and spur competition.		+	MT	Ministry of Infrastructure and Regional Development
	• Gradually replace price controls with less restrictive measures. For instance, vouchers for staple goods could be provided to vulnerable populations, allowing private players to compete for the market.	• More efficient allocation of the state's resources while achieving social goals	+++	MT	Ministry of Economy Ministry of Finance

Note: ICT = information and communication technology.

POLICY AREA/ CONSTRAINT	RECOMMENDATION	EXPECTED BENEFITS	DIFFICULTY[A]	TIME[B]	RESPONSIBILITY
Further strengthen competition enforcement	**Complete the revision and adopt the new draft law on competition, ensuring the following:** • Further aligning concepts (such as the definition of dominance) that do not match with international best practices, notably EU rules • Excluding some typically procompetitive practices from the list of prohibitions of minor agreements • Expanding the list of practices that could be subject to commitment proceedings • Enhancing the rights of the parties to be heard while ensuring protection of their commercially sensitive information	• Businesses would benefit from clearer competition rules, improving legal certainty and reducing compliance costs • Procompetitive allowed, such as joint purchasing agreements, encouraging the development of new business models by the private sector	++	ST	Ministry of Economy Competition Council
	• Focusing competition enforcement on the fight against cartels and anticompetitive agreements, which typically have the most harmful effects on competition	• Increase in the number of anticompetitive practices eliminated/avoided (cartels)	++	ST	Competition Council
	• Evaluating the introduction of ex post assessments of authorized state aid to determine whether they achieved their direct objectives and produced any market distortions and to better design future aid schemes; and considering opening prenotification mechanisms for complex state aid schemes	• More efficient allocation of the state resources, while reducing competition distortions in the market and promoting private sector participation in contestable markets	+	MT	Competition Council Line Ministries
	• Enhancing collaboration with central and local public authorities to ensure compliance with state aid reporting obligations, notably in the field of fiscal support initiatives		+	ST	Competition Council Ministry of Finance Local authorities
	• Ensuring sufficient human and capital resources for the Competition Council, notably through capacity building strategies	• Increase in the number of anticompetitive practices eliminated/avoided (cartels)	+	ST	Parliament Competition Council

Note: EU = European Union.

a. + Relatively low difficulty, ++ medium difficulty, +++ high difficulty

b. ST = short term, MT = medium term, LT = long term.

3. ENABLING SECTORS

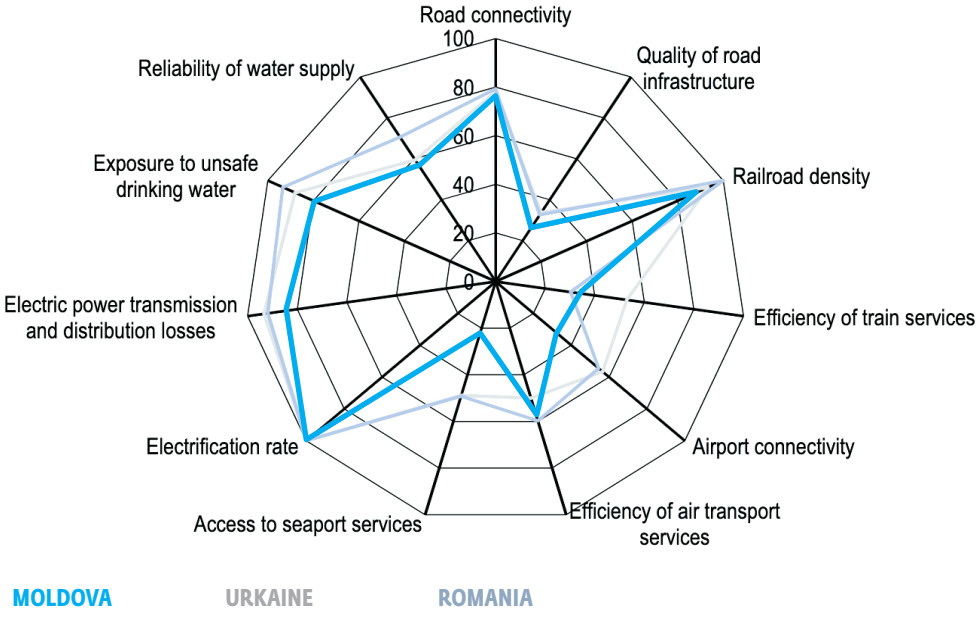
Transport and logistics and financial services are key enabling sectors that have a crucial role in supporting the growth of other tradeable sectors. Because of its high share in GDP and employment, as well as relatively high productivity and potential for FDI attraction, transportation and logistics is critical enabling activity. Whereas financial services, including banks and nonbanking financial institutions (NBFIs), display relatively low rates of growth and participation in employment and output, they have a crucial intermediation role in the economy going forward. Moldovan firms face challenges and pathways to reduce the infrastructure and input gaps.[99] These issues are framed in the context of improving transport and logistics and developing financial services in chapter 3, sections 1 and 2.

3.1.TRANSPORT AND LOGISTICS: LEAPING FORWARD FROM THE SOVIET ERA TO FOSTER EXPORTS AND INVESTMENT

The Russian invasion of Ukraine has deeply affected Moldova's transport and logistics. It has not only blocked access to key road freight transport routes via Ukraine, but also the main port gateway infrastructure—the port of Odessa. A large part of the country's logistic infrastructure relies on Ukrainian networks to connect with the rest of the world. The preferred route to and from the Baltic States, Belarus, Germany, and Poland currently transit from the west of Ukraine, whereas trade with North America, the Middle East, and Asia is mainly shipped from the port of Odessa. At the same time, since early April 2022, the European Commission has opened negotiations with Moldova and Ukraine with a view to facilitate road freight transport to secure supply chains and provide enhanced road transport alternatives through the EU.[100] Whereas trade routes can be adjusted, an increase in transportation costs can be expected. Against this background, while the challenges, bottlenecks, and policy recommendations illustrated in this chapter remain valid, the policy actions presented at the end of the chapter have been reprioritized (a) to enable in the short term a deeper integration of Moldova with the EU, via Romania, and (b) to enhance Moldova's transport resilience both from security and trade perspectives.

Overall, transport and logistics services in Moldova need an overhaul from the Soviet Union era. Between 2000 and 2019, Moldova spent 0.57 percent of its GDP on total inland transport infrastructure annually, considerably less than other countries in the Eastern Partnership (figure 3.1).[101] State dominance in some key subsectors (notably rail and roads), poor SOE performance, and dependance on scarce public resources have contributed to these low levels of investments. Similarly, Moldova faces connectivity challenges, both in airport connectivity and in access to seaport services, mainly owing to its condition as a landlocked economy. Quality of transport services also differs considerably between urban and rural areas. Poor transport connectivity, especially in rural localities removed from interurban transport corridors, constrains Moldova's continued development, reduces the economic opportunities of rural Moldovans, and hinders trade. Moldova's logistic infrastructure performance has also deteriorated in recent years. The country fell from 85th to 141st in the WBG logistic performance index between 2014–18. According to the World Bank's Enterprise Survey of 2019, 14.7 percent of firms perceive the transport sector as a major constraint to doing business (the largest share across ECA). Nonetheless, transport remains fundamental for Moldova, accounting for almost 5 percent of GDP in 2020 and about 4.2 percent of the output of all main downstream sectors with a significant multiplier effect (see appendix E1).

FIGURE 3.1. QUALITY OF INFRASTRUCTURE IN MOLDOVA, UKRAINE, AND ROMANIA.



Source: Organisation for Economic Co-operation and Development (OECD), Sustainable Infrastructure for Low-carbon Development in the EU Eastern Partnership: Hotspot Analysis and Needs Assessment, Green Finance and Investment (Paris: OECD Publishing, 2021), https://doi.org/10.1787/c1b2b68d-en.

Major transport and logistical challenges affecting Moldova's trade

The main transport and logistical challenges affecting Moldova's trade relate to (a) poor quality transport infrastructure and suboptimal transport services, (b) underdeveloped intermodal transportation, (c) high administrative burden for trade, and (d) underdeveloped logistics infrastructure (see World Bank Group (forthcoming)[102] for a complete assessment).

Poor quality transport infrastructure and suboptimal transport services

The quality of road infrastructure is one of the top impediments impacting Moldovan exporters and importers. Road construction and maintenance are the exclusive responsibility of SOEs in Moldova, and therefore lack sufficient funds to adequately maintain and develop key infrastructure and equipment. Despite recent efforts by the government of Moldova to rehabilitate the road network (about 500 kilometers or 9 percent of the network), 42 percent of Moldovan roads are in poor or very poor condition.[103] Around 45 percent of the truck traffic is handled in two western border crossing points with Romania, namely (a) the road connecting Chişinău to Leuseni (23 percent of truck traffic), which is in good condition and is the preferred option by freight cargo operators, and (b) the road connecting Chişinău with Sculeni (12 percent of truck traffic), which is being rehabilitated. The two main roads connecting Moldova with Ukraine have segments in poor condition.[104] These roads are similar to the roads connecting Chişinău with the main gateway ports Odessa and Chornomorsk, in Ukraine, and Giurgiuleşti in Moldova. The main road (M5) connecting with the Port of Odessa through the region of Transnistria imposes additional risks owing to the political situation in the region,[105] with additional charges to road transport users and increased logistical costs. Given the increasing volumes of freight transported by road (about 32 million tons in 2015 and 42 million tons in 2020) and the poor quality of some corridors, Moldovan freight forwarders face high operational costs and increased transit time.[106] Moreover, the Moldovan truck fleet for international shipments is aging (about 10 years), and only a small portion (915 out of nearly 5,000 trucks) are compliant with the highest European emission standards.[107] Road transport operators avoid investments in new trucks because of the higher maintenance costs caused by poor road quality. Nonetheless, logistics companies prefer road transport to rail because it is the only mode that enables door-to-door service and reasonable delivery times. Improving the quality of road infrastructure could bring substantial economic benefits for Moldova, estimated at 0.4–1.8 percent of export value added.[108] Unfortunately, private sector investment is low because of perceived difficulty in successfully structuring public-private partnerships (PPPs) and enforcing contracts in a context of poor governance and vested interests. Attracting private investment would require major reforms to ensure adequate payment mechanisms, better enforcement of contractual obligations, and structures to mitigate demand and political risks, among others risks that deter investor interests. To reduce trade and logistic costs imposed by suboptimal transportation services, Moldova needs to attract private investments by testing output and performance-based contracts (OPBC) for the maintenance of roads (see appendix E2 for lessons learned from international experience with OPBCs).

Railway infrastructure, although an important component of the Moldovan transport system, has deteriorated and cannot provide the required level of service to exporters and importers. One of the main causes of railway deterioration is the chronic level of underinvestment by the sole railway operator, the SOE Calea Ferată din Moldova (CFM).[109] Nearly 45 percent of the railway tracks are beyond life of service and completely depreciated, and nearly and 60 percent of the rolling stock comprises an obsolete fleet of locomotives, coaches, and wagons that are not fully compatible with the infrastructure of neighboring countries (for example, Ukraine or Russia). The higher costs lead to an accumulated backlog of maintenance, poor operational performance, low rolling stock availability, and speed restrictions. Given the obsolescence of the rolling stock, there is a shortage of wagons (only about 63 percent available), which hinders reliability of rail freight cargo services. Moreover, 77 percent of CFM control systems are in critically bad condition, affecting safety and reliability. As a result, low value-added bulk commodities and building materials constitute the vast majority of export and import products transported by rail (see appendix E2 on reforms path of the railway sector in Moldova).

The main port gateway infrastructure used by Moldovan exporters and importers has poor hinterland connectivity, and the sole domestic port faces operational challenges and increased logistics costs that undermine its competitiveness[110]. Moldova depends on three main ports as trade gateways: Odessa and Chornomorsk in Ukraine, and Giurgiuleşti in the south part of Moldova (connecting to the Black Sea through the Danube River). Given their distance to Chişinău (200 km) and similar inland transport costs (about US$400–600), most of the trade cargo is shipped through Odessa and Giurgiuleşti.[111] Most of this cargo (100 percent of the cargo going to Odessa and about 80 percent to Giurgiuleşti) is transported by trucks through poor quality roads, typically taking 4–6 hours from and to Chişinău, compared with 2–3 days by rail transport. For Odessa, access to the port is constrained to roads because the rail freight route between Chişinău and Odessa via Transnistria is closed. Exports and imports through Giurgiuleşti International Free Port (GIFP) require transshipment through Constanţa (Romania), adding some 3–4 days' time and additional feeder services cost. Given that the port is mainly a grain cargo terminal, it is susceptible to climate hazards (droughts), which did have an impact in 2020.

In air transport infrastructure, the Chişinău International Airport, the country's main gateway, has limited cargo operations and remains dependent on connections to other European airports for long haul flights.[112] Air freight is the most expensive form of transportation in Moldova, reaching cost prohibitive levels. The air cargo terminal at the Chişinău International Airport is built on old Soviet-style infrastructure with limited throughput capacity. The airport cargo facilities do not have temperature-controlled storage needed for perishable goods, and cargo handling equipment is outdated. Therefore, significant upgrading investments would be required to handle freight, especially high-value or perishable goods; however, the economic and financial viability of such investments is questionable given the observed demand and market trends.

Underdeveloped intermodal transportation

Insufficient demand and inefficient rail services hinder the development of intermodal transportation in Moldova, especially containerized trade cargo (for further information see World Bank Group (forthcoming)). Intermodal transport combines the benefits of door-to-door road transport with alternative modes of transport to increase efficiency, reduce costs, and achieve more efficient fuel consumption. In Moldova, interconnection between the road and rail systems, as well as between its river port and the rail system, remain poor. Lack of intermodal connections, especially between Giurgiuleşti and Chişinău, increases logistics costs and delivery time of goods significantly, reducing GIFP's competitiveness. The GIFP is the only container terminal in Moldova, and until 2019 the terminal used to have weekly container feeder service from and to the port of Constanța.[113] In 2019, total import of containers in Moldova amounted to only around 22,000 twenty-foot equivalent units (TEUs). Only 20 percent of containers shipped from Constanța Port to the GIFP were full, increasing the cost of container exports from Moldova to Asia, which makes the end-to-end supply chain of containers via the GIFP less competitive. In contrast, the container supply chain between the Moldovan and Ukrainian ports remained relatively sustainable. Another constraint to developing intermodal transport services is inefficiencies in rail services, which lead to a 48-hour transit time from GIFP to Chişinău, while road shipment takes around 12 hours. Bad hinterland connectivity impedes not only intermodal transport but hinders competitiveness and productivity of the port itself.

Administrative burden for trade

Complicated border-crossing and customs-clearing procedures are major bottlenecks to trade and logistics operations in Moldova. Around 20 percent of the transit time of trucks are spent at borders, which results in increased delivery time and cost for shippers. Border crossing points (BCPs), especially with Romania, are congested.[114] Border checks are done separately by Romanian and Moldavan border control agencies. Throughput capacity of these BCPs is limited, which results in queues and increased waiting time up to 2–3 days. BCPs with Ukraine work relatively smoothly as there are joint border controls provided. However, bad road conditions from both Moldavan and Ukrainian sides make road transport operations costly. Furthermore, a duplicative and decentralized customs clearance system in Chişinău adversely affects the performance of freight forwarders and traders. The three customs clearance points in Chişinău also lack custom bonded warehouses and infrastructure for truck inspection, which increases the clearance process of goods even longer. Although the principle of Authorized Economic Operator (AEO) and a risk management system is in use, customs clearance remains a problem. In 2019, Moldova launched the establishment of a National Single Window (NSW) for trade system, which would enable traders to submit documentation or data requirements for import, export, and transit through a single-entry point to regulatory authorities or agencies.[115] However, the NSW implementation is in the very initial stage requiring further optimization of a number of procedures and the harmonization of customs documentation. Each agency involved in customs clearance is focusing on its own procedures, and business processes are not integrated. Moldova was ranked at the bottom of the LPI's Customs Ranking in 2018 among Eastern European peer countries. Moldova also has among

the weakest trade facilitation scores in the ECA region. In 2013, the Moldovan Customs Service (MCS) introduced e-declaration for exports and in 2014 for imports. Currently, almost 99 and 50 percent of export and import procedures, respectively, are based on e-declarations. MCS has also introduced an electronic predeclaration system that simplifies border-crossing procedures significantly and has put into operation a risk management system.[116] In spite of that, processing time at the border is still a serious bottleneck. Even with an e-declaration system, original documents are still required, complicating procedures and increasing customs clearance times. Moldova lacks the required institutional capacity and IT infrastructure to support an effective transfer to paperless trade and the implementation of a NSW. Another administrative barrier for road carriers is a guarantee requirement for road transport of about US$57,000 to obtain permission for transport operations limiting severely an access by small and medium enterprises to the market.

Underdeveloped logistics infrastructure

Logistics infrastructure in Moldova is among the least developed in post-Soviet countries. Most facilities are old Soviet-style buildings which have been converted from production to warehouse facilities and there are no A or B class warehouses.[117] Third-party logistics services (3PL) are also underdeveloped as retailers and distributors continue to keep logistics operations in-house and invest in their own vehicle fleets and warehouse facilities. Thus mantaining the demand for 3PL services is low, as they prefer to rely on their in-house smaller scale logistics services, which have high operation unit costs. Globally in 2020, total logistics expenditures directed to outsourcing amounted to 52 percent, and warehouse operations managed by 3PLs amounted to 43 percent. (Key trends in the global logistics services industry that Moldova could benefit from are summarized in box 2.1 in appendix E2). Since 2009, cold storage capacity in Moldova has increased by 188 percent—633 cold facilities with a total capacity of 412,000 tons in 2019 and 192 of these storage facilities received 50 percent of cost financing from the state.[118] Of these cold storages, only 46 are equipped with sorting and grading equipment. Around 250 of them are also equipped with pre-cooling facilities that are particularly critical for the perishables with a short shelf life. However, existing capacity is not enough to meet future demand. Currently, only about 35 percent of stone fruits and 40 percent of table grapes are distributed through the cold storages. There is no issue with the supply of temperature-controlled trucks in the country. As a result, from Moldova to EU countries the road freight rates for temperature-controlled transport range from around US$1.3 to US$1.6 per truck-km, which is below the regional benchmark. However, the freight rate from Moldova to Russia is quite high, reaching US$1.85 per truck-km, because of increased seasonal demand. This translates in the products being sold at a relatively high price in Russia when compared with the EU. In nontemperature-controlled transport, Moldova is underperforming against regional peer countries. The freight rate for dry shipment ranges from US$1.2 to US$1.4 per truck-km, which is much higher than the regional average, caused in large part by the bad condition of roads (see World Bank Group (forthcoming) for detailed shipping costs).

Recommendations

The Russian invasion of Ukraine has deeply affected Moldova's transport and logistics, and it calls for a reprioritization of policy interventions to mitigate the impact of the invasion in the short term and to advance the more long-term structural reforms of the sector. In the short term, policy priorities should aim at enabling a deeper integration of Moldova with the EU, via Romania, and enhancing Moldova's transport resilience from security and trade perspectives. The Russian invasion of Ukraine has resulted in the diversion of freight traffic from the Moldova-Ukraine transport corridor to the Moldova-Romania corridor, which caused congestion at BCPs on the Moldova-Romania border. To ensure continuity in trade goods through the BCPs, border-crossing procedures need to be improved and queue management systems must be implemented in the short term. In the medium term, Moldova can consider extension of BCP facilities and improvement of access roads to BCPs. At the same time, Ukrainian ports represented the main sea gateway for Moldova. Because of the closure of the port of Odessa, Moldova relays on the port of Constanța in Romania. Thus, connectivity of Moldova to Romania has the highest priority to ensure trade and secure supply chains. Even in the case of the short-term resolution of the Russian invasion to Ukraine, Moldova can act as an alternative transit route for Ukrainian goods to the EU in the future.

If Ukrainian ports will resume operations in the short term, and if the port of Odessa will remain the main sea gateway for Moldova, the port of Giurgiuleşti must be upgraded and extended and intermodal facilities must be developed as a way to mitigate future supply chain disruptions. If Ukrainian ports are closed for the long term and freight flows from Ukraine and Moldova are diverted to Constanța, with associated congestion, increased transit time and costs, and reduced reliability of the port of Constanța, the Moldova should improve connectivity to Romanian borders as well as to the port of Giurgiuleşti. This would also entail rehabilitating road and railway infrastructure between Chişinău and Giurgiuleşti, as well as improving road and railway connectivity with Romania.

In structural reforms, Moldova requires a long-term strategy that provides a road map of investments to overcome years of lack of rehabilitation and maintenance in the sector (see appendix E2 for lessons learned from international experience on Masterplans for Integrated Multimodal Transportation). To reduce trade and logistic costs imposed by suboptimal transportation services, Moldova needs to attract investments by testing output- and performance-based contracts for the maintenance of roads (lessons learned from international experience with OPBCs are provided in appendix E2).

The reform of the railway sector, as proposed by the WBG in 2020 (appendix E3), should be resumed to restore operational and financial viability and to ensure medium-term investments in rehabilitating Calea Ferată din Moldova (CFM) assets and network. Improving cross-border operations and reducing time and cost of crossing the borders is a precondition for logistics efficiency for Moldova[119] (see appendix E2 on Georgia's experience in upgrading BCPs). Implementing a NSW system for trade is another important step to reduce the trade cost by simplifying customs procedures and reducing customs clearance time (see box 3.2 in appendix E3 on international experiences in implementing NSW for trade). Moldova needs to extend its cold storage capacity to meet future plans of agriculture export and to develop a multimodal logistics center in Chişinău for creating integrated logistics infrastructure and reducing logistics cost. The main initiatives to encourage the private sector to invest in logistics infrastructure should be through PPP concessions. Table 3.1 provides specific recommendations in the short to medium term that Moldova could adopt to improve the performance of transport and logistics and to ensure PPP participation.

TABLE 3.1. PRIORITY POLICY RECOMMENDATIONS FOR TRANSPORT AND LOGISTICS

POLICY AREA/CONSTRAINT	RECOMMENDATION	EXPECTED BENEFITS	DIFFICULTY[A]	TIME[B]	RESPONSIBILITY
Poor quality transport infrastructure and suboptimal transport services for trade	• Pilot test standard output/performance-based contracts (OPBCs) for maintenance of key road corridors.	• Reduced travel time and logistical costs • Improved Moldova's EU cross BCPs and hinterland connectivity of gateway ports • Improved quality of road infrastructure with economywide benefits for Moldova • Strengthened institutional capacity to implement PPPs, achieve value for money, and improve efficiency in road operation	+++	MT 3 years	Ministry of Infrastructure and Regional Development ASD
	• Pilot test PSOs for State Administration of Roads (ASD).		++		
	• Reform the Road Fund to allow adequate and multiyear payment mechanisms for rehabilitation and maintenance of roads.		+++		
	• Improve hinterland connectivity of available gateway ports of Giurgiulești and Constanța, not affected by the invasion.	• Improved hinterland connectivity of main gateway ports, with reduced transport costs	+	ST 1	Customs Service of the Republic of Moldova Ministry of Infrastructure and Regional Development
	• Undertake CFM reforms: unbundling key activities and develop business plans.	• Restored operational and financial viability of CFM • Improved CFM operational efficiency and rail quality of service and competitiveness	+++	LT 5	Ministry of Infrastructure and Regional Development. CFM
	• Adopt the Railway Transport Code and Action Plan to reorganize the railway sector and spur competition.		+	ST	

Note: BCP = border crossing point; CFM = Calea Ferată din Moldova; PSO = public service obligation. .

POLICY AREA/CONSTRAINT	RECOMMENDATION	EXPECTED BENEFITS	DIFFICULTY[A]	TIME[B]	RESPONSIBILITY
	• Modernize railway rolling stock and assets in light of the increased importance of railway infrastructure to facilitate connection with the EU, as a consequence of the Russian invasion of Ukraine.		++	ST-MT 2-3	
Administrative burdens for border crossing and complicated customs procedures	• Prepare blueprint to implement the NSW for trade.	• Improved reliability of logistics services and reduced admin cost through e-procedures • Reduced delivery time and improved reliability	+	MT 2	Ministry of Economy Customs Service of the Republic of Moldova
	• Upgrade BCPs with Romania and develop of a one stop-shop customs clearance zone in Chișinău.	• Reduced Moldova's EU cross-border transit time and costs	++	ST-MT 3	
Underdeveloped logistics infrastructure and the lack of logistics integration	• Consider developing an intermodal logistics center in Chișinău, leveraging a PPP framework or arrangements.	• Reduced logistics costs by better use of vehicles and last-mile optimization • Increased logistics outsourcing and development of state-of-the-art infrastructure • Improved productivity of GIFP by improving its hinterland connectivity	+	MT 2	Ministry of Infrastructure and Regional Development
Lack of long-term planning for integrated logistics services	• Develop a strategy and action plan for multimodal transport integration and logistics that provides a road map of investments and cross-institutional coordination.	• Established road map of investments and enable multimodal transport planning • Enabled cross-institutional coordination and informed decarbonization pathways	+	ST 1 year	Ministry of Infrastructure and Regional Development. Public Property Agency State Administration of Roads
Agricultural logistics	• Prepare feasibility study for development of cold storage in Moldova.	• Increased export volume of agriculture products and improved quality of crops • Increased income of producers and traders	+++	MT 2 years	Ministry of Agriculture

Note: BCP = border crossing point; GIFP = Giurgiulești International Free Port; NSW = National Single Window; PPP = public-private partnership. Priority policy responses to mitigate the impact of the Russian invasion of Ukraine and of the lingering effects of the COVID-19 crisis are highlighted in light blue (see also table ES.1).

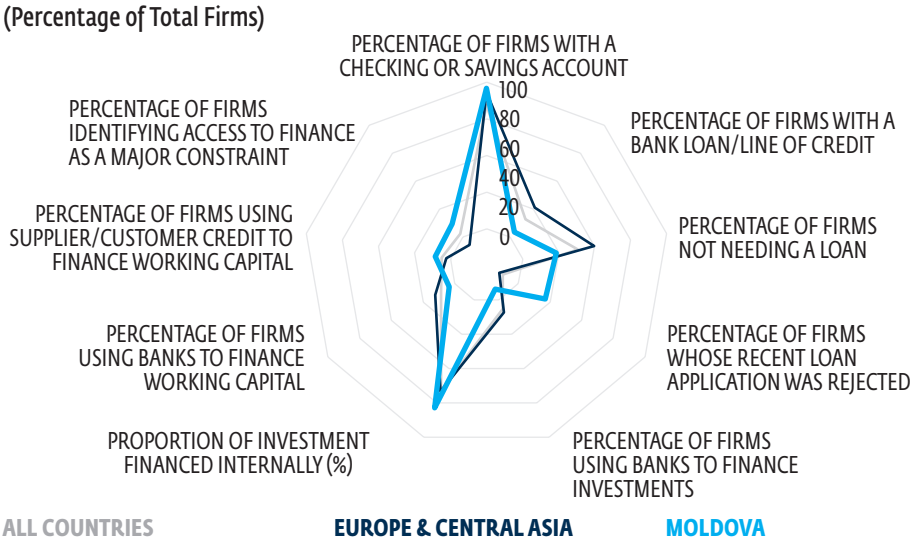
a.+ Relatively low difficulty, ++ medium difficulty, +++ high difficulty
b.ST = short term, MT = medium term, LT = long term.

3.2. IMPROVING ACCESS TO FINANCE FOR MSMEs IN A SMALL, UNDERDEVELOPED, AND INCOMPLETELY REFORMED FINANCIAL SECTOR

The Russian invasion of Ukraine could have an impact on the banking sector through deteriorating asset quality and liquidity, and therefore ensuring access to finance to keep the light on for MSMEs is a policy priority. Sanctions on Russian banks are expected to have limited repercussions in Moldova, as these banks do not have any subsidiaries or branches in Moldova and financial links have shrunk since 2014.[120] A risk to financial stability stems from the potential deterioration in asset quality. Whereas the share of nonperforming loans (NPLs) out of total loans has been on a downward trend since 2016 (now around 6.4 percent of total loans), it is high in select banks. Moreover, asset quality may suffer from the reverberating effect on the economy of the unfolding crisis in Ukraine because households and firms are still recovering from the COVID-19 crisis. The existing high share of foreign currency loans (26.1 percent) also represents an indirect credit risk in the case of a significant depreciation of the domestic currency. Nonetheless, the degree of coverage with NPL provisions is adequate (the coverage ratio was 67.2 percent in December 2021). Finally, high unofficial euroization remains a tail risk for financial stability, particularly if the population starts increasing its holdings, given the uncertainty of the unfolding Russian invasion of Ukraine. Improving access to finance for MSMEs has also become a prominent policy imperative to help most Moldovan firms weather the double shocks of the Russian invasion of Ukraine and the lingering effects of the COVID-19 crisis.

Access to finance and the high cost of credit are the main barriers constraining the development of MSMEs in Moldova (figure 3.2). Access to finance is necessary to develop the private sector, for its productivity and growth, and ultimately for job creation and poverty reduction. Yet, domestic credit to the private sector is low in Moldova, roughly 23 percent of GDP in 2020 versus 56.5 percent in developing ECA countries.

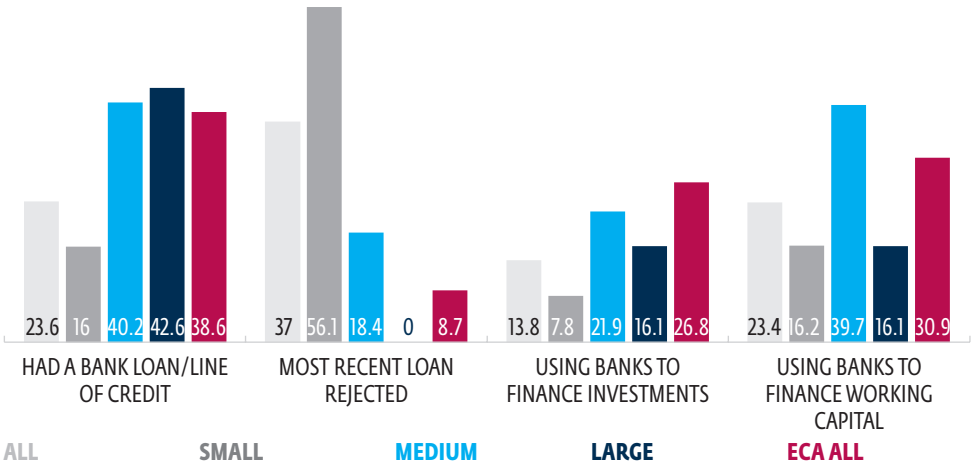
FIGURE 3.2. ACCESS TO FINANCE IN MOLDOVA, ALL COUNTRIES AND ECA



Source: CPSD team based on World Bank, Enterprise Surveys, electronic dataset (World Bank, Washington, DC, 2019), https://www.enterprisesurveys.org/en/enterprisesurveys.

The MSME financing gap amounts to about 14 percent of GDP, and thereby, many MSMEs remain fully or partially financially constrained. According to the SME Finance Forum, the MSME financing gap estimated at 14 percent of GDP, and therefore, about 36 percent of micro enterprises and 14 percent of small and medium enterprises are either fully or partly credit constrained. The World Bank's 2019 Business Environment and Enterprise Performance Survey (BEEPS) shows that only 16 percent of small firms[121] have a bank loan, and 56 percent of those firms report their most recent loan application has been rejected. Thus, access to finance in Moldova remains well below the ECA average (figure 3.3).

FIGURE 3.3. ACCESS TO FINANCE INDICATORS FOR MSMEs (MOLDOVA VS. ECA)



Source: World Bank BEEPS, Enterprise Surveys (WBES), electronic dataset (World Bank, Washington, DC, 2019), https://www.enterprisesurveys.org/.
Note: ECA = Europe and Central Asia; MSME = micro, small, and medium enterprise.

Financial intermediation in Moldova is predominantly centered on banks, with a small NBFI sector. As of the third quarter of 2022, some 87 percent of total financial sector assets were held by banks, while NBFIs accounted for 9.5 percent of total financial sector assets.[122] Banking assets as a share in GDP accounted for 46 percent in September 2022, while NBFIs institutions accounted for 5 percent of GDP (table 3.2).

TABLE 3.2. BREAKDOWN OF FINANCIAL SECTOR ASSETS (AS OF SEPTEMBER 30, 2022)

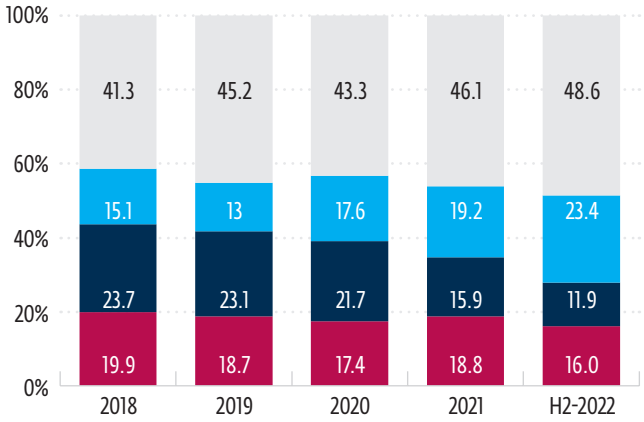
	TOTAL ASSETS, MILLION MDL	PERCENTAGE OF TOTAL FINANCIAL SECTOR ASSETS	ASSETS AS PERCENTAGE OF GDPA
Banking sector	124,995	86.77	45.99
Nonbank credit organizations	13,729	9.53	5.05
Savings and credit associations	1,223	0.85	0.45
Insurance	4,047	2.81	1.49
Investment societies	61	0.04	0.02
Total	**144,055**	**100**	**59.56**

Source: CPSD team based on National Bank of Moldova, database, 2022, https://www.bnm.md/en, and National Commission for Financial Markets (NCFM)
Note: GDP = gross domestic product; MDL = Moldovan Leu.
a. Projected nominal GDP 2022, World Bank.

Banks have sufficient liquidity to increase MSME lending. Banks are relatively well capitalized and well performing, most backed by foreign-owned parent companies. Financial performance and key prudential indicators indicate sufficient capacity in the banking sector to sustain growth in MSME lending. Liquidity in the banking sector has been high and well above regulatory requirements since 2015[123] with liquid assets to total assets at about 48.5 percent in 2021 (CPSD team calculations based on National Bank of Moldova).

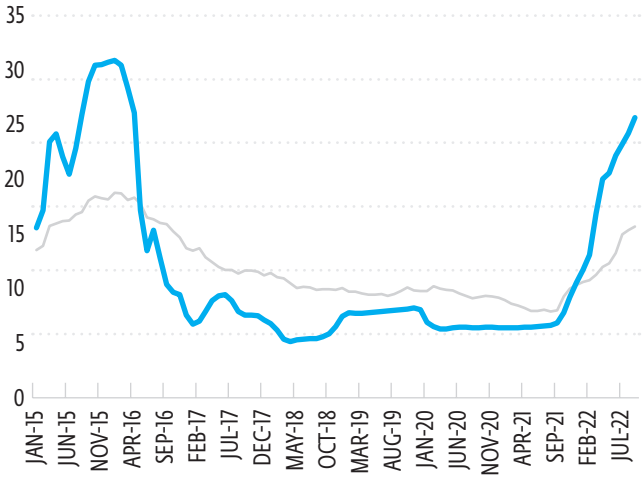
However, excessive liquidity has not been channeled to support credit to MSMEs because bank investment in government securities may be crowding out lending to the private sector. Moldovan banks invest heavily in government securities: the share of such assets in total assets amounted to about 20 percent of bank assets in the past two years (figure 3.4). Adding mandatory central bank reserves, the share of such assets rises to over 35 percent. Average yields of 364 days Treasury bills exceeded 9.4 percent in December 2021 and reached 22 percent by September 2022, versus 9.1 percent and 12.4 percent for new business loans respectively (figure 3.5). This is a negative incentive for private sector lending, further magnified by other advantages of governments securities (for example, low taxation on coupons, zero regulatory weighting, and no labor or credit risk).

FIGURE 3.4. STRUCTURE OF BANKING SECTOR ASSETS, PERCENTAGE



Source: National Bank of Moldova, database, 2022, https://www.bnm.md/en.
Note: NBM = National Bank of Moldova.

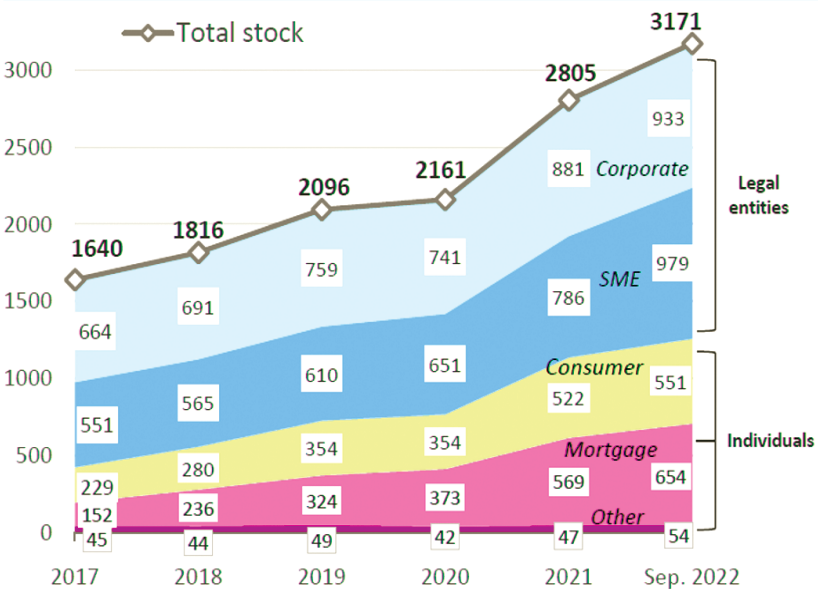
FIGURE 3.5. INTEREST RATES ON NEW LOANS TO BUSINESSES VS AVERAGE RATES ON TREASURY BILLS, PERCENTAGE



Source: National Bank of Moldova, database, 2022, https://www.bnm.md/en.
Note: MDL = Moldovan leu.

Bank lending to MSMEs has recently experienced only moderate growth. In the past five years, the banking sector loan portfolio has exhibited a modest growth on the corporate and MSME segments along with a significant expansion on the consumer and mortgage loan segments (figure 3.6).

FIGURE 3.6. STRUCTURE OF BANKING SECTOR LOAN PORTFOLIO BY CLIENT SEGMENTS, 2017 TO 2021–22, € MILLION

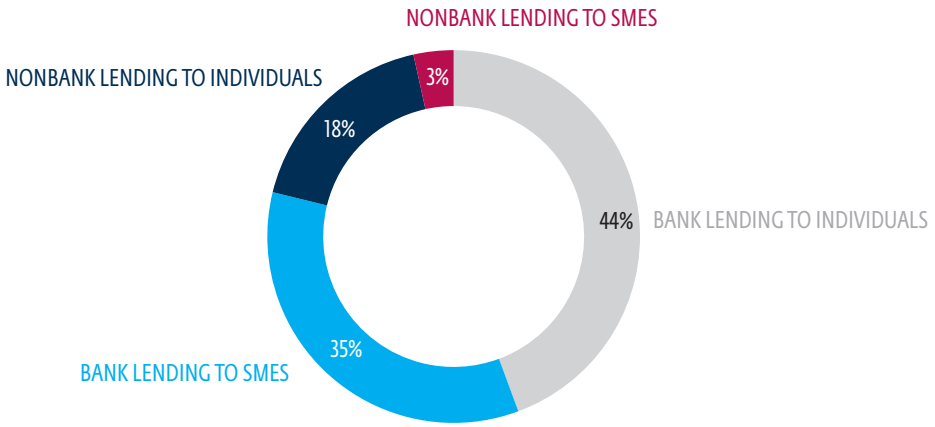


Source: National Bank of Moldova, database, 2022, https://www.bnm.md/en.

Tighter underwriting standards introduced by NBM in the aftermath of the banking sector fraud of 2014 have encouraged a more conservative approach to MSME bank lending. A range of MSME clients, including ones with positive credit history, became ineligible for new bank loans on grounds of poor financial ratios or poor quality of collateral, in an economy in which informality is still significant and MSME assets are weak. The nonbanking sector acknowledges an influx of former bank clients to the nonbank sector, which is supported by sectoral growth statistics after 2014.

While Nonbank Credit Organizations (NBCOs) have grown rapidly in number and size, they are mostly focused on high-yield consumer lending segments rather than MSME lending.[124] Only 11 NBCOs have MSME loan portfolios larger than US$1 million and the top 3 NBCOs represent 75 percent of total NBCO lending to MSMEs.[125] In the structure of leasing companies' portfolios, only 10 percent are dedicated to professional equipment, with the balance focused on personal cars. Thus, the lion's share of MSME lending (91 percent) comes from banks (figure 3.7).

FIGURE 3.7. LENDING TO MSMES AND INDIVIDUALS, BANK VS. NONBANK, PERCENTAGE



Source: IFC staff based on National Bank of Moldova, database, 2022, https://www.bnm.md/en, and NCFM data
Note: SME = small and medium enterprises.

MSME financing lacks product range and displays limited innovation. Products offered to MSMEs do not rely on digital innovation and mainly remain limited to collateralized loan products, reflecting traditional preferences reinforced by regulatory policies (for example, favorable risk weighting). More than 90 percent of loans require collateral with a value of 221.2 percent of the loan, higher than in any peer countries.[126] Thus, a significant share of MSMEs are denied access to finance because of a lack of sufficient acceptable collateral. NBCOs, as well as banks, use receivables, contracts, or personal guarantees as "moral" or "psychological" collateral. However, only 3 out of 11 Moldovan banks have developed leasing operations and factoring; reverse factoring has not taken off at all, despite demand from MSMEs that work with a 30–120 day payment delay after delivery. Further, there is no active credit insurer in Moldova to support factoring markets. Trade finance is almost inexistent, as MSMEs prefer the simplicity of drawing from working capital lines of credit to pay suppliers immediately.

Asset-based lending remains underdeveloped and burdened by complex registration and recovery processes, further hindering access to finance for MSMEs.[127] The movable collateral registry does not facilitate lending because it does not provide a reliable and transparent system to secure creditor rights. Contrary to the Civil Code provisions on a single registry, a multiple registry system exists in practice, which creates risks for security interests and conflicts in creditor priority.[128] Registries are not interconnected, and some are kept on paper. There are also legal impediments to their full digitization, such as the illegality of submitting scanned documents. Existing records cannot be modified, and the system treats a modification as a new record, which changes the priority order of creditors. This treatment has discouraged reliance on movable collateral by most financial system stakeholders. Moreover, the judicial system displays ununiform and unpredictable treatment of creditor rights in court cases concerning movable assets and inefficiencies in the bailiff system through which debt recovery is instrumented.

International financial groups have not used the opportunity to transfer their MSME-targeted products and services to the Moldovan market. Interviews suggest that large global players with sufficient resources to invest in digital and innovative products do not think that the benefit of differentiation would outweigh the cost of developing new products in a country where MSMEs are still content with traditional financing. Without the ability to scale up significantly, large players have chosen not to invest—not because of the cost but because the marginal profitability of innovation was too limited.

Whereas wide adoption by firms of e-signatures, internet and mobile banking, and cashless payment methods is opening opportunities for new digital MSME-targeted products, these methods need to be further aligned with EU regulations. Debit and credit card penetration is growing fast but remains lower than for regional peers, while the number of POS terminals more than doubled since Q1 2015, supporting growth of noncash payments.[129] The strict anti-money laundering (AML) regulation requires face-to-face know-your-customer procedures and prevents remote customer onboarding and development of more digital financial services. Despite the strategic commitment to implement the European Payment Services Directive, transposing it into national legislation faces delays.

Informality and low credit information coverage further hinders MSMEs, access to the financial sector. Whereas most businesses do get registered at creation (96 percent), informal practices are a bigger hinderance relative to peer countries.[130] Credit information coverage stands at 18 percent, below regional peers as well.[131] Additionally, the four credit bureaus encounter legal and technical problems in collecting critical information across government agencies (for example, tax arrears, collateral registries, debts in collection, customs data, and the companies' registry). Detailed company financial statements are also not publicly accessible, but the law already provides for a Public Depository of Financial Statements. MSMEs' financial statement quality is also impeded by informality.

Coverage of insurance products targeted to MSMEs also remains low.[132] The insurance sector is underdeveloped, dominated by Motor Third Party Liability (MTPL) and with several insurers operating below the minimum solvency margin requirement. The sector underwent a restructuring by the regulator in 2018–21 when 5 out of 16 insurance companies had their licenses withdrawn, and the process is expected to continue with the postpandemic fallout.[133] Most technically solvent insurers lack scale and sufficient reserves to back up the development of new products. Thus, MSME use of insurance products is low (Figures 3.8 and 3.9). Limited cash reserves also mean that insurance companies are currently not significant investors on capital markets and do not represent an alternative source of capital. Only recently, in April 2022, Moldova enacted Law on Insurance and Reinsurance (No. 92/2022), which partially transposes the provisions of the EU Directive 2009/138/EC by establishing new capital and prudential requirements, governance, and risk management standards for insurance companies, and Law No. 106/2022 on MTPL, which transposes the provisions of the EU Directive 2009/103/EC on insurance against civil liability for the use of motor vehicles.

FIGURE 3.8. INSURANCE PREMIUMS (LIFE)

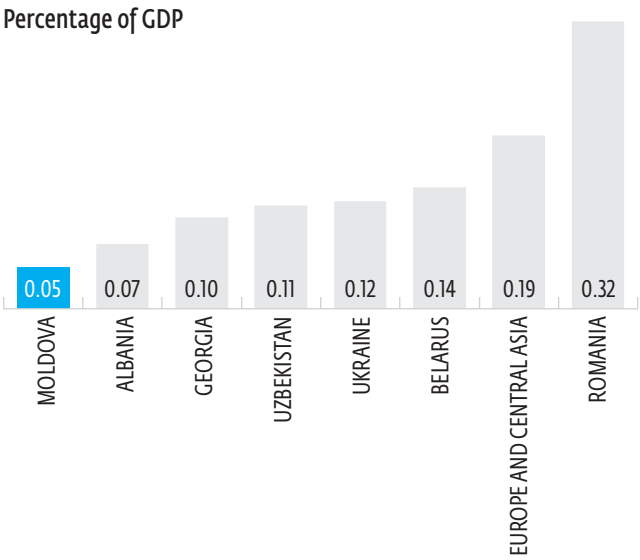
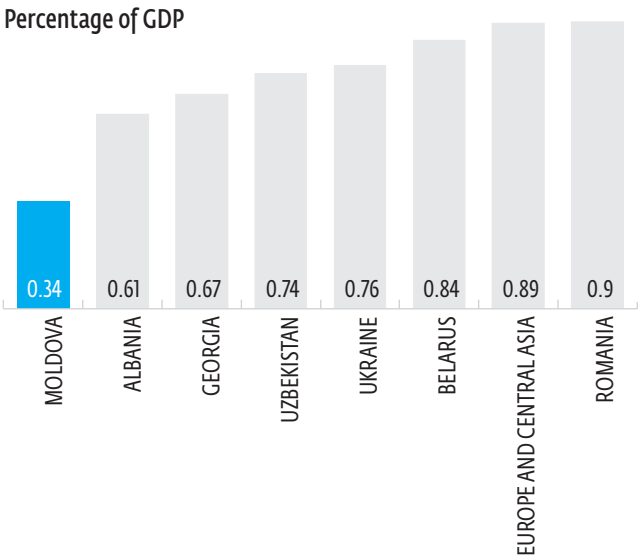


FIGURE 3.9. INSURANCE PREMIUMS (NONLIFE)



Source: Source: Global Financial Development Database, September 2022 version.

Tapping into capital markets is not yet an alternative form of financing for Moldovan MSMEs as capital markets and venture capital are not developed. The Moldova Stock Exchange (MSE) is not liquid: its turnover amounts to less than 1 percent of GDP, whereas market capitalization is only 3 percent of GDP, and there are only 32 joint-stock companies listed. Moreover, financing through local private investment funds is virtually nonexistent.[134] Institutional investors have limited presence, angel investor networks have only recently started activity, and there are no active venture capital funds. The only private equity fund targets medium-to-large and relatively mature firms. Lack of financing options, particularly for preseed, seed, and early-stage funding is a particular constraint for ITO and BPO&SSC.

Government instruments to facilitate more financial intermediation for MSMEs are limited in number and scale. Agriculture is the sector that has benefited the most from such support through direct subsidies for inputs, machinery, and very limited insurance, however, marked by targeting and outreach issues. Other recent government guarantee plans supported growth of mortgage lending to individuals whereas similar guarantees to business loans remain underdeveloped. MSMEs-targeted programs remain limited. A number of MSMEs-targeted support programs have been recently developed in Moldova's MSME development agency, ODIMM, providing training, loan guarantees and grant cofinancing for small projects related to digital improvements, greening of production processes, and export readiness for women-led MSMEs. However, the size and outreach of such programs remains limited and their effectiveness and influence on economic and sectoral growth is unknown.

To close the MSME financing gap, Moldova needs to create regulatory environment and ecosystem services that support a simple and efficient flow of finance to small, micro, and medium businesses that would compensate for its lack of scale. Authorities could consider the following recommendations: (see table 3.3 and appendix F for details).

- **Modernize credit risk to reduce reliance on immovable collateral.** Improving risk assessment tools and diversifying risk securing instruments could result in a less onerous regulatory weights associated with loans not backed by real collateral that particularly hinder access to finance by MSMEs. The starting point would be to enforce an effective exchange of data among the existing credit information operators and ensure that such exchanges enable their users to produce reliable and complete borrower credit profiles. Authorities in charge of the financial sector, government digitization, and data protection should also work together to facilitate the access of private sector credit information operators to relevant data held by government entities. Further steps are to make company financial statement data publicly available online and to facilitate credit scoring and related products.
- **Prioritize legal and technological improvements around the movable collateral registry.** Take steps to (a) align the movable collateral technical regulations to the Civil Code and reengineer the registry system, (b) synchronize the movable collateral registry with other registries to eliminate duplications, (c) implement full digital processing, and (d) ensure record security. A completely functional and reliable registry, trusted by creditors, can encourage using movable assets as a loan security, thereby improving access to finance for MSMEs. Further benefits can be obtained by transferring the registry to an institution better suited to its purpose, such as the E-Governance Agency or the Public Services Agency, and by capacitating the judicial system on movable collateral matters.[135] Authorities should review the legislation to enable the use of receivables and inventory as collateral, as well as crop and warehouse receipts, and upgrade the credit guarantee fund, directly benefiting agriculture small-holders, and other sector's MSMEs. The potential for crop receipts to facilitate more financial intermediation is significant (box 3.1 and appendix F).

BOX 3.1. CROP RECEIPTS AS FORM OF COLLATERAL

Crop receipts are an enhanced form of forward contract arrangements, more secure than typical forward contracts owing to their listing in a national registry. Farmers issue crop receipts, a special form of promissory notes secured by their future agriculture production. Creditors, such as input suppliers, commodity buyers, and financial institutions, accept these promissory notes in exchange for inputs or cash. These notes are attached to a farmer's specific plot or plots of land and require the farmer to repay the holder of the note in cash or to supply a certain quantity of agriculture production. The obligation is unconditional, and a force majeure production loss does not exempt from repayment. The obligation remains linked to the land, ensuring that any future crops growing on that plot are also secured to the holder of the note until repayment is completed. An important feature differentiating crop receipts from other types of collateral is the addition of enforcement procedures that allow crop receipt holders to collect outstanding crop receipt loans in default via a specially designed and fast out-of-court enforcement procedure.

The central registry is designed to store accessible and up-to-date records of all crop receipts in a country or region. Creditors and potential creditors must have access to the registry to determine if potential farmer clients have outstanding crop receipts and to assess potential clients' performance history of meeting crop receipt obligations. Through legislation implemented specifically for crop receipts, creditors have more legal protection with respect to other loans, even in comparison with loans secured with more tangible collateral. Thereby crop receipts increase farmers' access to capital, by converting preharvested crops into an asset that can be used as collateral.

- **Implement the European Payment Services Directive.** Open banking would help foster competition in the banking sector and stimulate the emergence of new payment methods, including noncard instruments, as well as the development of the financial technology (fintech) market, which would specially reduce entry barriers to the financial sector for MSMEs. Open banking reforms would also ensure that incumbent players do not monopolize access to customers' data and that all information is shared in a secure and predictable way without jeopardizing the level of data protection.
- **Align antimoney laundering and personal data protection legislation with the relevant EU framework while allowing for digital financial services development.** Drawing on the experience of other countries in the region, Moldova can start with lower-risk financial services. For example, the adoption of paperless contracts based on digital tools, in line with extensive experience accumulated worldwide, has the potential to quickly increase penetration of some MSME-targeted financial services, such as some types of insurance. Digital onboarding also offers an unprecedented opportunity to address eligibility and affordability barriers to formal financial inclusion faced by MSMEs and individuals and is crucial to fostering competition in the market and lowering barriers for consumers. This improvement would allow financial institutions to increase their customer base without relying on physical infrastructure.
- **Clarify the regulatory approach to NBCOs given the transfer of supervision to NBM,** including approaches to prudential and nonprudential regulation and supervision, transparency, and financing of NBFIs. This would help shape competitive positions in the market, inform new entrants, and unlock longer-term financing for innovative products with a focus on MSMEs financing.

- **Regulatory sandboxes may lower uncertainty faced by regulators and market players related to the rollout of new products and services, especially those targeted to MSMEs.** This strategy could allow new players and existing financial services to test the viability of their new products without necessarily bearing the costs of acquiring a full license. As products and services are tested in a live environment subject to some restrictions, risks are appropriately mitigated within the sandbox. Evidence-based improvements of legislation would lead to improving infrastructure and developing new products while also increasing transparency and oversight opportunities, thus creating higher predictability of fast-growing business models and helping to close the MSMEs financing gap.

BOX 3.2. REGULATORY SANDBOXES

A regulatory sandbox is a special regime that allows banks and companies to test innovative financial services and products without the risk of violating existing legislation. The main goals of this would be to promote the development of innovation and competition, increased security and availability of financial services, and the reduction of time and costs for the introduction of new services. Regulatory sandboxes also support evidence-based decision-making on behalf of the regulator in fast-evolving areas such as electronic contracts regulation, digital assets, digital onboarding, and others.

- **Strengthen transparency and enforce sound reserve and capital requirements in the insurance industry, and level the playing field for sustainable and sound competition, thus fostering the development of MSME-targeted products.** This action will help create new products, including insurance products in real estate, industrial accidents, third-party liability, transport and logistics, infrastructure investment, and agriculture, thereby helping to improve MSMEs' access to insurance products. This policy changes will also allow the insurance sector to channel funds into the financial sector, thus increasing the diversity of financial sources and the overall liquidity of the financial system.

TABLE 3.3. PRIORITY POLICY RECOMMENDATIONS FOR IMPROVING ACCESS TO FINANCE FOR MSMES

POLICY AREA/ CONSTRAINT	RECOMMENDATION	EXPECTED BENEFITS	DIFFICULTY[A]	TIME[B]	RESPONSIBILITY
Lack of clarity concerning regulatory policy on the financial market	• Develop and announce a regulatory strategy for financial markets beyond 2022 given the transfer of supervision of the nonbank financial sector from NCFM to NBM.	• An efficient and effective financial system that offers tailored financial solutions	+	ST 18 months	NBM (NCFM)
Limited product range in the financial sector	• Implement PSD2 and open banking. • Create enabling conditions for entry of innovative service providers. • Lower entry barriers (e.g., cost of licensing). • Consider regulatory sandboxes for innovative services.	• More and new financial instruments available for MSME growth and critical financial services for individuals	++	MT 2 years	NBM

Note: MSME = micros, small, and medium enterprises; NBM = National Bank of Moldova; NCFM = National Commission on Financial Markets; PSD2 = Payment Services Directive 2 Priority policy responses to mitigate the impact of the Russian invasion of Ukraine and of the lingering effects of the COVID-19 crisis are highlighted in light blue (see also table ES.1).

POLICY AREA/ CONSTRAINT	RECOMMENDATION	EXPECTED BENEFITS	DIFFICULTY[A]	TIME[B]	RESPONSIBILITY
AML and data protection legislation	• Review legal requirements to enable DFS, particularly remote onboarding and remote paperless contracting.	• Conducive environment for the growth of DFS; new and more DFS available	++	ST-MT 18-24 months	NBM AML Authorities Data Protection Authorities
Incomplete credit risk assessment tools	• Enforce data exchanges between credit information operators. • Facilitate access of private sector credit information operators to relevant data held by government entities.	• More and new financial instruments available for MSME growth and critical financial services for individuals	++	ST 18 months	NBM Data Protection Authorities Ministry of Justice E-Governance Agency Ministry of Economy Government and Parliament
Reduce reliance on real estate as the main collateral acceptable to the banking system	• Modernize the movable collateral registry and create a regulatory and technological environment that is trusted by creditors. • Review legislation to enable modern instruments like crop and warehouse receipts.		++	ST 18 months MT 2 years	
Small, undercapitalized, and mistrusted insurance industry	• Legislate governance reforms to clean up the insurance industry and consolidate regulation and supervision to boost trust and new service development.		++	MT 2–3 years	NBM (NCFM)
Lack of alternative sources of capital for MSMEs	• Develop start-up finance programs for early-stage innovative businesses. Some of those programs could be specifically geared toward women entrepreneurs.	• Increased access to financial services for new and innovative sectors • An ecosystem that encourages and supports women's entrepreneurship	++	ST 18 months	Ministry of Economy
Lagging pro-MSME support policies	• Scale up and increase attractiveness of the credit guarantee plan for MSMEs (coverage and payout practice), focusing on women entrepreneurs.	• Increased number of private operators offering finance to the MSME segment, with a focus on underserved populations	+	ST 18 months	Ministry of Economy Ministry of Finance
Tackle MSME informality to reduce the supply-demand gap in access to finance	• Open financial statement data to reduce information asymmetries in financial sector.	• Increased access to finance to MSMEs through formalization processes	+++	MT-LT 2–4 years	Ministry of Economy Ministry of Finance, ODIMM Other government agencies

Note: AML = anti-money laundering; DFS = digital financial services ; MSME = micros, small, and medium enterprises; NBM = National Bank of Moldova; NCFM = National Commission on Financial Markets; ODIMM = Moldova's MSME development agency.
a.+ Relatively low difficult; ++ medium difficulty; +++ high difficulty.
b. ST = short term; MT = medium term, LT = long term.

4. SELECTED SECTOR ASSESSMENTS

The three imperatives of tackling energy dependence and diversification, climate change and sustainable production, and growth of higher-sophistication nontraditional industries can be achieved by boosting the performance of the renewable energy, high value-added agribusiness, ICT services, and BPO industries. These three industries are areas in which the private sector can, on the one hand, provide a boost to enhance productivity and economic diversification (and high-quality jobs as a result) and, on the other hand, contribute to a more open and inclusive society and a greener development path. Four criteria, reflecting these priorities, were used: (a) potential to support enhanced productivity and diversification, (b) capacity to create high-quality jobs, (c) potential to contribute toward greater trade integration and contestable domestic markets, and (d) contribution to sustainability and greening the economy.[136]

4.1. RENEWABLE ENERGY: UNLEASHING THE POTENTIAL OF RENEWABLES FOR ENSURING A GREENER AND SAFER ENERGY SUPPLY

Performance and structure of Moldova's electricity sector

The Russian invasion of Ukraine in February 2022 has exacerbated concerns over security of electricity supply in Moldova.[137] A recent synchronization of the Moldovan (and Ukrainian) transmission networks with the European Network of Transmission System Operators for Electricity (ENTSO-E) on March 16, 2022, has partially addressed supply disruption concerns, and it is balancing of the system through emergency interconnection to the EU network. However, the Moldovan domestic generation mix remains inadequate to ensure supply-demand balance, a vulnerability that needs to be urgently addressed given the dependence of Moldova on gas-fired generation assets located in Transnistria. Currently, the main priority is to build Moldova's cost-efficient domestic generation resources to diversify away from imported fossil fuels. The CPSD recommendations also point to the urgent need to invest in increasing transmission network capacity and improving interconnections with Europe, which would otherwise remain a potential bottleneck for future renewable energy (RE) penetration. In parallel, Moldova needs to reassess its energy strategy to address this evolving energy security issue and prepare a package of risk mitigation products that would contribute to deploy RE projects as soon as is allowed.

Moldova has a significant technical potential to generate RE that could contribute to diversify its energy mix, to meet climate change mitigation aspirations, and to ensure an adequate supply-demand balance with domestic generation. Because of its poor endowment of conventional energy resources, Moldova's energy sector is heavily reliant on imports of natural gas, fossil fuel, and electricity, making it vulnerable to price spikes and prone to energy crises, such us the recent one in the autumn 2021 and winter 2021–22. Moldova's energy self-sufficiency is among the lowest in the world: only around 25 percent of its energy demand is covered by domestic production, consisting almost entirely of solid biomass and variable renewable energy sources. Moldova imports 100 percent of its gas and coal consumption, nearly all of its oil consumption and around 80 percent of its electricity[138].

Moldova's limited domestic generation capacity is insufficient to ensure an adequate supply-demand balance. It has progressed in achieving universal access to electricity with near universal access,[139] and a per capita electricity consumption of 1.62 megawatt-hour (MWh) in 2018.[140] Moldova's per capita electricity consumption is close to average global per capita electricity consumption (1.4–1.9 MWh) and of middle-income countries (2.7 MWh) but well below that of European countries (5.6 MWh). Despite this progress, the country faces long-lasting challenges in reaching the requisite supply-demand balance, primarily owing to its fragmented and limited domestic generation. Moldova has a total of 3 gigawatts (GW) of installed capacity (actual capacity is about 2,198 megawatts (MW),[141]) which produces about 5.3 Terawatt-hour (TWh) of annual electricity output. This supply is sufficient to meet 86 percent of the demand for electricity (6.06 TWh, including the Transnistria region). The rest is imported, primarily from Ukraine, a country with which Moldova has a mutual dependency to balance its electricity system. To balance the grid, Moldova has been historically importing electricity, mainly from Ukraine, a country with which Moldova had a mutual dependency to balance its electricity system. Electricity accounted for important part of trade between Moldova and Ukraine.

The configuration of Moldova's electricity generation system poses additional challenges, as most of the country's generation capacity is predominantly in the region of Transnistria. (The region is also known as the Left Bank of the Dniester River [box 4.1].[142]) Approximately, 84 percent of the country's installed capacity (2.52 GW) is concentrated at one thermal power plant (Moldova GRES-MGRES[143]) located on the Left Bank of the Dniester that produces 70 percent of Moldova's electricity consumption. The rest is produced by Dnestreergo (48 MW hydro power plant [HPP]), also on the Left Bank, and Termoelectrica JSC CET-Nord on the right bank. Moldova also has very limited electricity generation under full domestic control comprising three thermal power plants (about 330 MW) and one HPP (16 MW) on the right bank.[144] This fragmented distribution of domestic generation reflects the fact that Moldova's power system was designed as part of the former Soviet Union's power system. As demand for electricity is expected to continue growing—at compound annual growth rate (CAGR) 4.2 percent between 2020–30—increasing indigenous generation is a priority to ensure an adequate supply-demand balance. If new capacity is not built, it is expected that the capacity deficit could grow by 40 percent to 870 MW by 2033. To address this deficit, Moldova's National Energy Strategy 2030 proposes building up to 600 MW of RE sources by 2030 and to replace two combined heat and power (CHP) units with 650 MW combined cycle gas turbines (CCGT).[145]

BOX 4.1. ELECTRICITY PRODUCTION IN MOLDOVA AND THE TRANSNISTRIA REGION

Transnistria is regarded by Moldova as the Administrative-Territorial Units of the Left Bank of the Dniester and is given special legal status.

While Transnistria is not recognized as a separate territory, Moldova does not exert full control over it. The region is financially and militarily supported by the Russian Federation. However, Moldova's electricity supply capacity is entirely dependent on the installed capacity located in the region. Moldova's electricity imports from Ukraine and balancing capacity are also dependent on the electricity transmission infrastructure located in Transnistria . The region is responsible for the vast majority of Moldova's electricity production (more than 80 percent of total domestic production).

The Kuchurgan power station (Moldavskaya GRES), on the Left Bank, is the dominant domestic power plant of Moldova with installed capacity of 2.520 megawatt (MW) and is responsible for around 83 percent of domestic electricity production (4.343 gigawatt per hour). MGRES is a coal- and gas-fueled thermal power plant commissioned in the 1960s that is operating mainly with gas imported from Russia. MGRES is also controlled by the Russian Inter RAO company (51 percent ownership not recognized by Moldova). The second most important asset in Moldova's electricity production is the largest Moldovan hydroelectric power plant (Dubăsari Dam) with installed capacity of 48 MW, which is also in the Transnistria region. Recent efforts to reduce dependency on the Kuchurgan power plant through imports from Ukraine—a one-year import contract with the Ukrainian company DTEK for US$50.20 per MWh—has not been successful.

Electricity supply is also highly dependent on a single source of generation. This dependence increases the country's vulnerability to electricity-supply disruptions and other supply risks associated with it, such as geopolitics affecting price and availability of imported gas for electricity generation. Gas-fired plants produce 98 percent of installed capacity (2.94 MW) and about 93 percent of electricity output (5.3 TWh). Whereas the majority of the 5.3 TWh is produced by MGRES, the rest of Moldova's CHPs are old, inefficient and expensive assets, which are delivering electricity output at US$0.115/kWh —well above wholesale prices in Europe of US$0.06/kWh and almost double that of MGRESs cost of production. However, some of these assets have been or are in the process of rehabilitation. Additionally, all domestic CHPs, MGRES, and, to a lesser extent, the electricity imported from Ukraine depend on Russia's Gazprom as a gas supplier. This means that Gazprom's gas transit and price determine security of supply and affordability of energy in Moldova. This dependance is expected to diminish once the Ungheni-Chișinău gas pipeline becomes operational.[146] In the meantime, Moldova is vulnerable to risks on both the price and availability of gas. The Moldovan strategy for energy proposes building a new 650 MW CCGT to meet future demand for electricity and reduce energy dependence.[147] Last, financial challenges in the electricity sector give rise to reliability concerns and contribute to lack of infrastructure investments while regulated electricity is indirectly subsidized as retail prices depend on the exchange rate because most energy is imported.

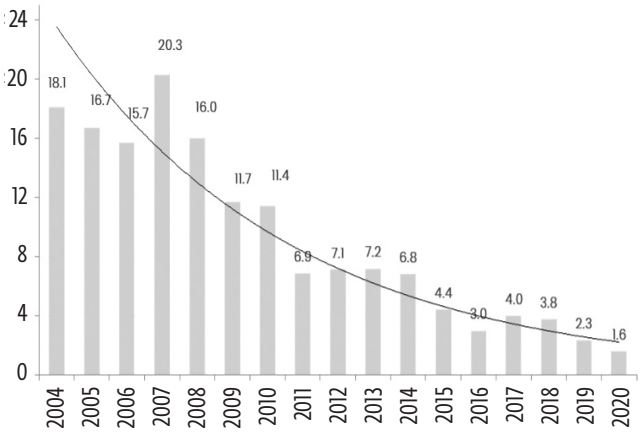
The electricity transmission and distribution systems also face challenges in ensuring a reliable electricity supply. Transmission and distribution losses amount to 10 percent of output—somewhat above the world average of 8 percent (IEA Statistics)—and affect reliability for domestic, industrial, and commercial consumers. Two-thirds of electricity consumers (about 908,000 users) are served by a Premier Energy Distribution SA (formerly known as RED Union Fenosa SA), which is the largest electricity distributor in Moldova. The rest, in the northern region of Moldova, is covered by RED-Nord SA (state-owned). The frequency (0.6 outages per month and per customer) and duration of outages (12.3 hours per year and per customer) are significant when benchmarked globally (see appendix G1). These outages can be attributed mainly to issues in the distribution and transmission networks.

An unreliable electricity supply hinders businesses competitiveness, as almost one-fifth of Moldovan companies identify electricity as a major constraint to investment. In the 2019 Moldovan World Bank Enterprise Survey, 36.8 percent of businesses reportedly experienced electrical outages, against an average of 31 percent in Europe and Central Asia.[148]

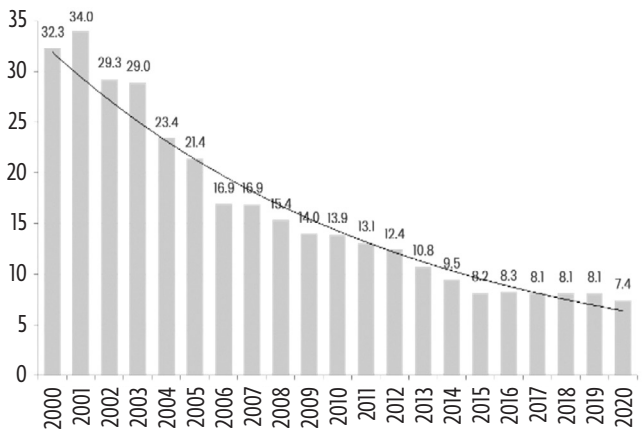
Notably, the performance of Moldova's distribution system has shown significant improvement since the privatization of the largest distribution company, Premier Energy, but state-owned distribution companies still struggle with improving their efficiency. Since its privatization, Premier Energy has significantly improved its financial and operational performance (figure 4.1). Hence, its customers benefit from a lower tariff estimated under the cost-plus regulatory regime by the National Energy Regulatory Agency (ANRE). However, the state-owned companies FEE-Nord and RED-Nord are yet to improve efficiency and therefore cannot deliver similarly low-cost electricity to their clients. For example, in 2021, RED-Nord's are 182 percent (distribution) and FEE-Nord's tariffs 35 percent (supply) higher than Premier Energy's for supply and Premier Energy Distribution for distribution, respectively (figure 4.1).

FIGURE 4.1. PERFORMANCE OF PREMIER ENERGY DISTRIBUTION AND PREMIER ENERGY (ELECTRICITY SUPPLY COMPANY) VERSUS SOEs FEE-NORD (ELECTRICITY SUPPLY COMPANY) AND RED-NORD (ELECTRICITY DISTRIBUTION COMPANY)

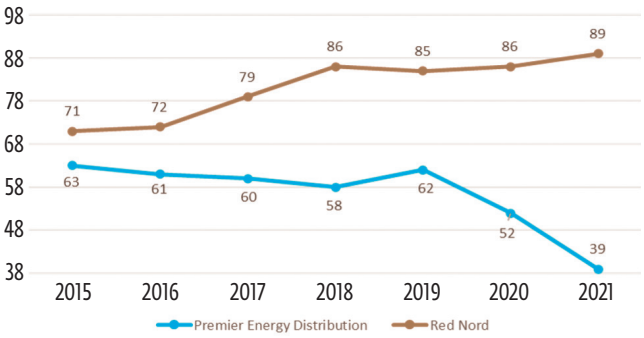
a. Premier Energy (SAIDI), interruption hours/consumer



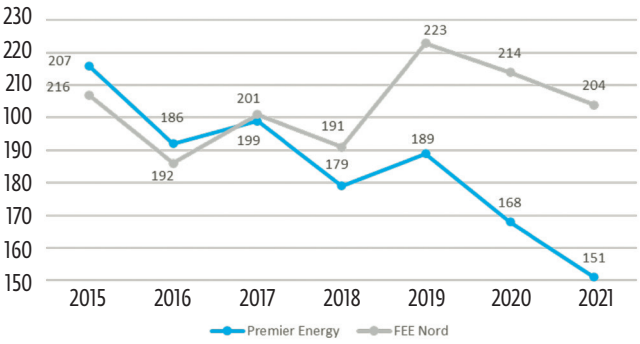
b. Premier Energy Distribution energy losses, percentage of distributed energy



c. Distribution tariff comparison, cLei/kWh



d. Supply tariff comparison, cLei/kWh



Source: Premier Energy. Interview 2021, PPTs shared with IFC.
Note: cLei = kWh = kilowatt hours; SAIDI = System Average Interruption Duration Index; SOE = state-owned enterprise.

Moreover, Moldova's electricity transmission network requires significant investment to rehabilitate and increase its capacity and accommodate additional generation produced by renewable producers. The transmission system operator (TSO) Moldelectrica owns and operates a grid network comprising 5,978 km of transmission lines (400, 330, 110, and 35 kV), 183 electrical stations, and a total installed power of 4,749,000 kilo Volt-Ampere (kVA) in the right-bank with average load, excluding the Transnistria region, at 412 MW for 2020 (as calculated from the 2020 energy balance). The networks on the Left Bank belong to GC Dniester Energo (a company owned by the Transnistria region). Moldelectrica's equipment and transmission lines are 60–70 percent depreciated and in a state of obsolescence. Recent efforts have been focusing on rehabilitating 330 kV substations, a partial reconstruction of 110 kV substations, modernizing high voltage transmission lines, and installing a new Supervisory Control and Data Acquisition system. The maximum load for both banks of the Dniester River can reach up to 1,100 MW.[149]

Moldova also faces challenges in electricity transmission and balancing, which are inherited from an initial configuration and interconnection with a larger network and system. The Moldovan electricity system has been technically a component of a larger regional power system, as it was designed, built, and operated as a Soviet-integrated system across multiple countries during the Soviet era. It is operated synchronously with Ukraine, which was also part of the former Soviet Union's Integrated Power System/United Power System. Before the Russian invasion of Ukraine, the Ukrainian and Moldovan systems were scheduled to fully synchronize with ENTSO-E by 2023, but following the Russian invasion of Ukraine Moldova and Ukraine requested accelerated synchronization; this was achieved on March 16, 2022, when the two countries effectively synchronized their systems with ENTSO-E. The Ukrainian electricity flowing into the Moldovan transmission system ensured the balancing and frequency control of the Moldovan system even when no electricity imports were contracted from Ukraine. Ukraine depended on Russia for the primary frequency control and balancing, but currently is ensuring its own capacity to balance the electricity market.

The structure of the Moldovan electricity market remains in transition. Moldova's Ministry of Infrastructure and Regional Development is responsible for the administration and long-term planning of the sector. The Energy Efficiency Agency supports Ministry of Economy in implementing energy efficiency and RE policies. The ANRE is the formally independent entity subordinated to parliament that regulates compliance with laws, promotes fair competition, monitors the wholesale and retail energy markets, issues licenses, monitors investment plans of system operators, and regulates tariffs. As central electricity supplier (Energocom) purchases electricity only from eligible (regulated) producers to sell it to eligible customers and suppliers. Energocom can perform a non-regulated trade activity as well. However, the trading of electricity is based on bilateral contracts and a power exchange is expected to be established in near future. As mentioned previously, Moldelectrica performs the functions of a TSO and manages the transmission network. In 2005 the electricity market was fully opened based on bilateral contracts for the wholesale market; however, the number of participants and competition in the market remains limited. Although the ANRE established the competitive wholesale market by law, de facto market opening has not been achieved. Since its incorporation into the EU Energy Community in 2010, Moldova has been working on the alignment of its sector regulations with the EU. That led to Moldova promulgating electricity and gas laws introducing competition and market principles in the electricity and natural gas fields, unbundling vertically integrated SOEs, and liberalizing the electricity market in 2016. But it was only until 2021 that the regulations and procedures for imbalance settlement, the procurement of electricity on forward, day-ahead, intraday, and balancing markets, as well as the procurement of ancillary services has been adopted and first stage of market rules entered into force on 1st June 2022. Progress in SOEs' unbundling has been slow and private investment remains limited.[150]

Another challenge is that the scale of Moldova's energy market is limited with few participants and significant state presence. Moldova has (a) one TSO (Moldelectrica); (b) three electricity distribution companies—Premier Energy Distribution SA (formerly known as RED Union Fenosa SA), state-owned RED-Nord SA,; (c) electricity is dominated by Premier Energy with state-owned FEE Nord SA being second largest, both supplying at a regulated tariff; and (d) nine or more suppliers at a nonregulated tariff. The relationships between market participants are set by the Power Market Rules approved by ANRE. State-owned Energocom acts as a single and wholesale buyer for regulated producers and the retail market is not sufficiently competitive. Even though there are other licensed players, Energocom has a de facto monopoly on imports from Ukraine (de jure this is the case only in emergency situations) and purchases from MGRES.[151] Energocom was also responsible for balancing the energy supply, but this function has been transferred to the TSO in 2020. The unbundling of TSO functions of transmission, central dispatch, and market operation remains a pending action. A larger and more competitive electricity market in Moldova is expected to be achieved by coupling with the Ukrainian market (as currently planned but dependent on the outcome of Russian invasion of Ukraine), and with participation of Moldova in a regional exchange, which is now possible by full and unrestricted access to the EU energy market, which is only limited by the transmission cross-border capacity.

Theoretically, Moldova's generation market is liberalized as regulated tariffs only apply to older assets (that is, CHPs). The market pricing structure is regulated but allows for cost recovery.[152] However, ANRE has adopted an end-user methodology (cost-plus methodology) that establishes a single electricity tariff for the supply-to-end customers. The tariff considers the cost of generation, transmission, distribution, supply and other cost-based components of electricity. ANRE also has the power to issue licensing rules and licenses, however it cannot make provisions for new generation capacities as this remains the responsibility of the Moldovan government via direct negotiations or tendering. Additionally, although ANRE adopted rules and access rights to the grid in 2005, the rules and tariffs for the access to distribution networks has not been approved yet.

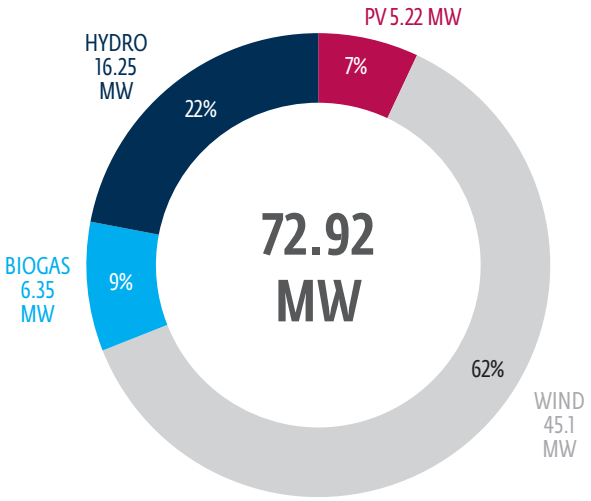
Penetration of RE is also limited despite Moldova's technical potential and recent supportive regulatory framework. (See appendix G2.) Excluding HPP generation (5 percent of electricity output), other RE sources (wind, solar photovoltaic [PV], and biofuels), represent 3 percent (97 MW) of the country's total installed capacity and about 1.4 percent of electricity output (77 GWh). The country's RE technical potential provides an opportunity to increase domestic generation and diversify the energy mix. The share of renewables in Moldova's gross final energy consumption was 27.8 percent in 2017, which is above the country's RE target (20 percent of total final consumption). This, however, is only because of a retroactive revision of biomass household consumption data for 2010–16, as 98 percent of the accounted RE comes primarily from biomass and is used mainly in the heating sector. Once biomass is excluded, the share of RE in gross final consumption is marginal at 2.2 percent. A new long-term RE target for 2030 has not yet been set.

The legal framework for RE is conducive and favorable, but implementation has stalled. In December 2021, the government decided to raise up to €800 million for investment in RE and expanded the RE quota to 400 MW for the next four years, in a renewed effort to catalyze investment in the sector. A law to promote the use of energy from RE sources and to supplement efforts to attract investments in the sector came into force in 2018 but has only promoted the development of small-scale RE projects so far. The law provided guarantees for investments, including nondiscriminatory grid connection, priority dispatch, and an obligation for the central electricity supplier to purchase all-renewable-generated electricity for 15 years. It also proposes a support mechanism, in the form of Feed-in-Tariffs (FiT) for small projects first come first serve.[153] In addition, it proposes auctions for capacity for additional renewables for FiT achieved via competitive bidding, which guarantees fixed tariffs for 15 years in line with EU guidelines on stated aid. The ANRE has also adopted a tariff methodology for RE auctions, similar to that used for conventional energy whereby the ANRE relies on the Moldovan government to procure RE in auctions and the tariff is set by the auction's outcome. Nevertheless, the majority of RE projects benefiting from the support mechanism are small, and only about 7 out of 50 MW of installed capacity is directly connected to the grid.

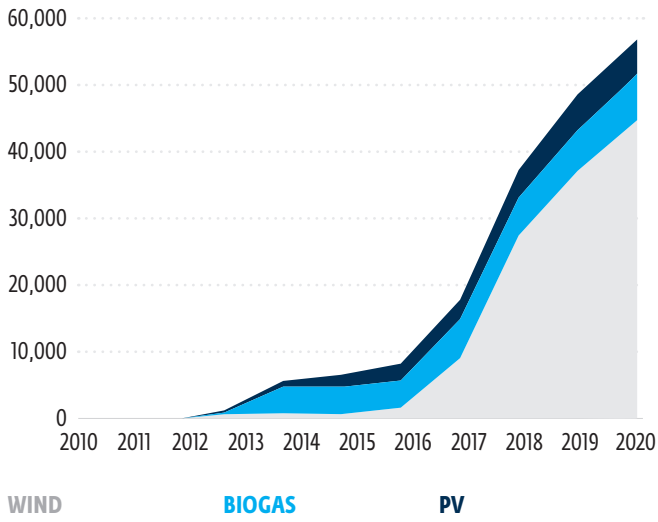
About 1 GW of RE projects were issued connection permits, but only about 50.32 MW of these were developed.[154] (See figure 4.2.) The majority of these are small-scale RE projects benefiting from the support mechanism, and only about 7 out of 50 MW of installed capacity is directly connected to grid. Whereas Moldova did succeed in area of biomass and small PV (with generous FiT and direct funding subsidy, see appendix G3), in utility-scale solar and wind there has been not a single project built. As of 2021 there is still about 1.3 GW of RE with connection agreements, most of which is waiting for capacity auctions or utility-scale opportunities to build RE. Two of the major impediments to realize Moldova's RE potential continue to be the technical capacity of the grid to accommodate intermittent new renewable energy generation (the amount of grid permits in Moldova is quite high and while the grid is able to accommodate issued permits, new RE projects may not be accommodated), as well as the country limited interconnection that constrains balancing of the system.

FIGURE 4.2. RENEWABLE ENERGY DEPLOYMENT IN MOLDOVA

Installed revewable energy capaciity, by source (as of 31 December 2020)



Dynamics of renewable energy growth



Source: Ministry of Economy and Infrastructure.
Note: MW = megawatt; PV = photovoltaic.

Constraints affecting private investment in Moldova's RE sector

Moldova has significant RE potential but has not been successful in attracting international investors to develop cost-competitive projects that can contribute to diversifying the country's energy mix and to reducing its dependency on imports. The underlying impediments to realizing Moldova's RE potential and attracting private investment to the development of utility-scale RE projects include (a) long-term planning; (b) infrastructure bottlenecks in transition; (c) incomplete transition to a competitive market, untested RE regulatory framework, and gaps in contractual agreements; and (d) land availability for RE development.

Long-term planning

The country would benefit from developing a long-term sectoral road map that would also estimate potential market size. Moldova's National Energy Strategy 2030 identifies the importance of RE generation for the future security of electricity supply and sets an RE target of 17 percent by 2020. This target was already achieved by including biomass in electricity consumption calculations and was updated in December 2021 to 30 percent by 2025. In addition to the outdated target, there is no clear and long-term vision or requirements for RE projects—all of which would attract the interest of international RE developers. The government's December 2021 announcement to raise €800 million for RE investments is a step in the right direction. However, the earlier announcement of auctions to develop 168 MW of RE projects falls short in signaling the magnitude of RE opportunities, and together with the low electricity consumption of Moldova could deter investments by international PV solar and wind developers. An update of the RE target, with the necessary sectoral analysis, would signal readiness by Moldova and its energy institutions to support RE. In particular, the country requires (a) preparing a power generation least-cost expansion plan that signals the road map and priority investments, including RE projects, for a resilient domestic generation that considers different scenarios, including regional integration; (b) quantifying the technical potential and investment needs in the transmission grid to absorb RE capacities; and (c) establishing a road map to meet all obligations for full ENTSO-E membership and synchronization, including how to meet requirements of reserves, generation adequacy, and system stability parameters, and showing how coupling of markets will happen with Ukraine and when larger RE projects will be procured.

Infrastructure bottlenecks in transmission

The capacity of the transmission grid and the lack of interconnection are major infrastructure impediments to developing the entire electricity market in Moldova, including RE. The technical capacity of Moldova's transmission network to accommodate a large influx of RE (or other additional capacity) is limited, especially in the southern and central part of the system. Approximately 1 GW of RE projects received grid connection permits by Moldoelectrica, taking the grid to capacity (estimated to be 1.3 GW). Without the necessary investments to rehabilitate, modernize, and expand capacity of the transmission grid. Major impediment is however ability to balance and offtake RE production during low load off season when the demand for the electricity would only accommodate 200-400 MW of RE capacity. This issue can be addressed by development of storage and ability to export surplus production in low demand hours. This infrastructure (as well as market) bottleneck poses a major restriction to developing solar and wind generation technical potential (about 25 GW), as the system presents a significant risk of curtailment if RE capacities exceed 200 MW, all of which deters investors' interest. These constraints also affect the government's plans to tender 460 MW of RE (200 MW solar and wind and 200 MW cogeneration). The grid limitations also restrict issuing new grid connection permits, meaning that investors cannot obtain a key requisite to ensuring prequalification in the recently established RE tenders.

Incomplete transition to a competitive market, untested RE regulatory framework, and gaps in contractual agreements

The nascent RE market in Moldova presents both an opportunity and a challenge for international investors. The sector is in transition from its current de facto single-buyer model—with Energocom acting as the single buyer and de jure single buyer for all RE—to more competitive market that would be aligned with EU regulations and would be able to establish day-ahead and exchange markets. Moldova is aligning its regulation with the European legal framework but is lagging in implementing the EC's Third Energy Package and some aspects of the EC acquis. This lag is in spite of EU support for the operationalizing regulatory changes. Areas where Moldova has been lagging in reforming local regulations include (a) tendering new assets, (b) establishing operational generation assets and Independent Power Producers (IPPs), (c) licensing and certification, and(d) establishing a market exchange for electricity. Moldova also requires a long-term comprehensive TSO investment plan, the absence of which adds up to significant regulatory risks to the development of large RE projects.[155]

Moldova's regulatory framework for RE auctions has not yet been tested, and the lack of track record increases risk perception by private investors. In 2019, Moldova began to design capacity auctions to transition from a FiT support mechanism to a technology-specific competitive tender for eligible producers. However, implementing auction mechanisms, initially to be launched in 2019, has not yet started. The European Bank for Reconstruction and Development (EBRD) has been supporting Moldova in this and has recommended improvements in the regulation, tender documentation, and contractual agreements. Further clarification is also needed in secondary legislation to include access to exports and day-ahead markets, associated costs with decommissioning assets, and land recultivation and clean up. Market participants (including SOEs) remain skeptical about implementing the auction mechanism and electricity market rules. Clarity is also needed on the offtake of electricity output, contractual agreements, and rules and liquidity of the market before ready-to-finance RE projects materialize. At the same time, Moldova is focused on developing small-scale RE projects with new FiT levels. The FiT support mechanism was critical in attracting interest in small-scale RE projects, but continuing it is setting misaligned incentives and sending the wrong signal to the market. It was successful in delivering over 50 small projects (1 MW or below) and provided a lot of experience with small wind and solar projects, especially on the different hurdles faced to secure land, grid connection permits, and other requirements. It has, however, provided grounds for misconception about the cost of RE produced by wind and solar as stakeholders in Moldova continue to perceive RE generation as a costly endeavor, despite global empirical evidence showing that RE is a low-cost and scalable option for electricity generation. Such misconception has generated some resistance to larger RE projects, undermining political will to strengthen the networks and speed up the procurement of utility-scale IPPs. Continuing the FiT mechanism, alongside untested capacity auctions, is incentivizing the continued development of small-scale RE projects (a pipeline of about 168 MW) as opposed to utility-scale RE projects that are needed to achieve Moldova's energy objectives. Similarly, if Moldova continues building up small and fragmented RE generation capacities under the FiT, it will miss benefiting from lower marginal cost that utility-scale IPPs can deliver. In addition, it will exhaust its already limited grid capacity, thereby adding to the risk of RE curtailment and affecting feasibility of implementing the capacity auctions. Moldova needs to test, demonstrate, and build its credibility to private investors that its regulatory framework is conducive to large projects.

The terms of contractual arrangements used for RE projects in Moldova are suboptimal and do not support the development of ready-to-finance utility-scale RE IPPs. IRENA assessed that the templates used for the Power Purchase Agreement (PPA) required some enhancements to provide the guarantees and predictability necessary for the stakeholders involved.[156] This includes, but is not limited to, the following essential elements (a) an obligation to offtake renewable electricity, balancing obligations, and costs; (b) liability for noncompliance; (c) payment security instruments; (d) transfer of obligations to a new central supplier; (e) liability for unplanned disconnection from the grid; (f) arbitration clauses; and (g) a stated duration for the agreement. Moldova has been working on these recommendations with EBRD to design capacity auctions.[157] In addition, the duration for renewal of PPAs is undermining its bankability. Currently, the PPA used to procure electricity from small-scale RE producers is being signed for one year with automatic renewal, which has major implications on risk perception, availability, and cost. These terms do not satisfy investor or lender requirements, undermining bankability of utility-scale IPPs, which require project financing. Best international practice of project finance calls for PPAs to be structured to match the life cycle of the asset to achieve better cost per MWh and provide long-term stability of offtake pricing.

Moldova also faces offtaker risks not properly mitigated in PPA terms and secondary regulation, which creates unpredictability for investors. Energocom, the offtaker for RE producers, faces challenges in providing long-term certainty, mainly owing to the short duration of its mandate, its capacity to fulfill PPA obligations, and its diversity of commercial activities. Moldova is discussing and considering two recommended options by the EBRD to mitigate offtaker risks that would provide additional credit support by Moldova in the form of a tripartite agreement or establish a special purpose company (separated from Energocom) that executes PPA payments and facilitates financial settlement. However, Energocom's mandate as offtaker (initially valid between April 2018 and December 2020) was extended until 2028. This is still a short-term mandate compared with the 15–20 year duration of a typical PPA, adding risks to the offtake of electricity. Similarly, Energocom has other commercial activities, which increase perception of counterpart risk.

Availability of land for RE development

Most of the land in Moldova with abundant wind resources (the biggest RE potential) might not be available for the construction of RE plants because of its status as agricultural land. RE projects in Moldova, even small-scale RE projects that materialized under FiT support, compete with other key economic activities for the use of land. for the use of land.[158] Moldova needs to assess and decide which land should be made available to RE developers while also requiring policy, environmental, and social impact assessments, and an overall impact assessments on potential agricultural activities.[159] At the same time, RE developers face increasing pressure to secure property or the right to use land as a requirement for the prequalification stage of RE generation auctions. The validity of Moldoelectrica's grid connection permits are also subject to demonstration of land ownership. Hence, the importance of clearly planning land use and ensuring a reasonable and economically viable solutions to enable the coexistence of RE projects and agricultural activities becomes evident.

Recommendations to attract private participation in RE in Moldova

Moldova's technical potential in RE and the nascency of the market provide fertile ground to test and set a track record in procuring cost-competitive and utility-scale projects in the sector, using international best practice examples, especially wind.[160] This test would require attracting the interest of private investors to finance and develop RE IPPs at a scale that would achieve the country's long-term goals—diversification of its energy mix and electricity supply security. Moldova also has an opportunity in the short term to test capacity auction mechanisms that would enable price discovery and unlock cost-competitive sources of RE in the medium term. In parallel, Moldova needs to address fundamental bottlenecks that undermine developing the electricity system and market, beginning with the necessary investments to modernize and expand the capacity of the grid (with the main focus on balancing and storage capacity) and to ensure interconnection with ENTSO-E.

Short-term goals and opportunities

As a start, Moldova would benefit from updating and strengthening its RE strategy with comprehensive analyses of the least-cost generation options and ability of the network to support RE development. Since the adoption of the National Energy Strategy 2030 and the National Renewable Energy Action Plan, there have been major changes in the evolution of RE developers, in the cost competitiveness of RE technologies, and new approaches fast-tracking RE development (for example, utility-scale battery storage). A new strategy would be able to investigate these opportunities, set a clear road map for RE investments, and define the RE targets and investment needed in grid modernization and balancing capability. Moldova would also benefit from supplementing its strategy update with more effective communication at all levels of the government to ensure the required political and policy support and to ensure an adequate budget to execute the strategy. The strategy should also be actively communicated to the market and large international RE developers and investors. It is only by enhancing the overall credibility of its entire RE program and ensuring broad support that would make the market more comfortable in investing in RE in Moldova.

Moldova also needs to implement intermediate steps (for example, sealed bid auctions) to unlock the utility-scale market and tap into its RE potential in the long term. Utility-size wind and solar PV IPPs should be procured in the long run using capacity auctions, but Moldova needs to show a track record of projects to attract private project developers. In these nascent markets with an untested regulatory framework and various requirements (for example, securing the land to build RE capacity), it is challenging to successfully organize capacity auctions. Therefore, designing and implementing sealed-bid auctions in the short term could be an intermediate and beneficial alternative to kick-start interest and set a record of IPP projects to deliver cost-competitive electricity. Sealed-bid auctions can enable price discovery and set a benchmark for the cost and terms in which RE can be developed. This type of auction also offers other opportunities that are suitable to the Moldovan context and limitations, and that ensure a leveled playing field, for instance, (a) purchasing power agreements (PPAs) that are standard and bankable, following international standards that adequately protect international and domestic investors and lenders in small markets with untested regulatory frameworks (b) connections to the grid, with

a connection agreement, with all conditions outlined, are established in advance with clarity on costs; and (c) publicly owned land is made available to the winning bidders, which would facilitate a one-by-one assessment of the opportunity cost in using agricultural land. We propose this alternative based on the experience of the WBG scaling solar program (box 4.2), with some modification to fit Moldova's context and its RE technical potential (wind generation), to align with the EU. The solar program has proven effective in delivering competitively priced RE energy through a standard and scaled package of project documents.

BOX 4.2. THE WORLD BANK GROUP SCALING SOLAR PROGRAM

The World Bank Group Scaling Solar program is a one-stop shop that offers a wide array of WBG products with the aim of delivering competitively priced solar energy from private independent power producers (IPPs) in as little as two years from project launch. To achieve this objective, the program provides participating governments with thorough project preparation and structuring support and developers with certainty of process, low-transaction costs, robust and bankable project documentation, and de-risking solutions. It has supported the development of more than 1.5 gigawatts (GW) of photovoltaic (PV) solar power in developing countries, including Ethiopia, Madagascar, Senegal, Uzbekistan, and Zambia. The program has also become well known among investors and developers of utility-scale solar power plants.

Scaling solar products offers competitive bidding and simplified procurement for grid-tied PV power, even in small markets. By awarding projects via auction, the program maximizes the benefits of competition and rapidly declining technology prices. So far, the procured IPPs have delivered very low prices, even at first pilot projects, and kicked off much larger development of renewable energy. Procurement has always been very competitive, with large participation of bidders (often reaching 40), and the projects have been procured on the basis of a bankable 25 years power purchase agreements.

The piloting of sealed auctions offers a short-term opportunity to gather market feedback that can be used to prepare for successful RE capacity auctions (box 4.3). This method has the advantage that not all procurement documentation needs to be embedded in legislation or secondary laws nor approved in advance and can be developed as part of procurement preparation. The rights and obligations of private investors, as well as guarantees provided for them, would be embedded in the contractual package rather than in regulation in advance. A pilot utility-scale project would examine and provide for solutions tailored to and tested in Moldova's context. These solutions would set standards that can be replicated in follow-on tenders. This action addresses the risk that capacity auctions pose, where all rights, obligations, and guarantees outlined for private investors need to be embedded in the regulatory framework in advance, and subsequently they do not pass the market test. Eventually this method would clearly identify areas to improve the regulatory framework for RE capacity auctions that use a tested package of transaction and procurement documentation, including qualification criteria, grid connection conditions, and eligibility and administrative clarity regarding use of the land. [161]

BOX 4.3. THE CASE OF UZBEKISTAN SCALING SOLAR AND RENEWABLE ENERGY CAPACITY AUCTIONS

Since 2018, Uzbekistan has undertaken a set of structural reforms to introduce market-oriented principles in the electricity market and unbundle the vertically integrated electricity state-owned enterprise. Given the nascency of the renewable energy (RE) segment and the recently introduced reforms, the market faced increased risk perception owing to the lack of track record of the recently unbundled companies, tariffs below cost recovery, and nonexistent RE independent power producer (IPP) participation. The sector also faced vulnerabilities that destabilized electricity supply, such as dependence on a single source for electricity generation, while requiring significant infrastructure investment to meet future demand for electricity (about US$14.7 billion).

Uzbekistan requested support from IFC, as part of the World Bank Group support, to the implementation of its reforms and related generation expansion plans. In 2019, IFC structured a pilot project—a 100 megawatt (MW) photovoltaic (PV) solar IPP in the region of Navoi—which was competitively tendered, using standard tender and contractual agreement documents (including a bankable 25-year power purchase agreement [PPA] and government support agreement) based on the WBG scaling solar templates. The tender attracted significant interest from international investors, which resulted in a very low tariff offered by the winning bidder (US$0.02.679 per kilowatt hours [kWh]). The winning bidder opted to use IFC stapled long-term financing (including a blended finance tranche) alongside WBG partial risk guarantees that backstopped the offtaker obligations in the power purchase agreement (PPA), in addition to financing from other development finance institutions.

Altogether US$110 million in private investment will be used to develop the country's first privately financed utility scale IPP, with a capacity of up to 270 per gigawatt hours of solar-generated electricity. The PV solar plant will displace aging thermal power generation and prevent nearly 156,000 metric tons of carbon dioxide each year from being produced for the life of the PPA.

Because of the success and interest by investors in this pilot IPP, Uzbekistan requested support from IFC to replicate and structure similar tenders to develop an additional 900 MW of PV solar generation (about 20 percent of PV solar generation planned by the country by 2025). The first follow-on tender (about 400 MW) attracted the interest of various international RE developers, and the winning bidder will develop two solar PV IPPs that will sell electricity at tariffs of US$0.01.79–0.01.82 kWh. The second follow-on tender (about 500 MW) is in the request-for-proposal stage achieved commercial close in 2021.

The successful closing of these tenders (1 gigawatt [GW] of competitively tendered utility-scale PV solar IPPs) is setting a precedent of standard tender and contractual agreements and is demonstrating the effectiveness of Uzbekistan's ambitious reform program, attracting private investment to a nascent market. These tenders and others replicating them are expected to catalyze new private players with an expected investment of up to about 2.7 GW PV in solar projects (about 17 percent of the country's total installed capacity). They will increase the competitiveness and resilience of Uzbekistan's electricity supply by diversifying the country's energy mix with low-cost RE.

Medium-term goals and opportunities

Support for bankable projects has several dimensions and is heavily dependent on scale. For small producers, success is mainly reliant on access to bankable contracts and banks' acceptable level of risks in the overall regulation and contracting of small producers. For bigger producers it is dependent on local banks' experience and ability in providing long-term funding, and international investors' ability to mitigate exchange rate risk exposure. Moreover, the risk profile of the whole region has been negatively affected by Russian invasion of Ukraine and bigger producers or international investors will need significant de-risking tools to be able to make investments in Moldova. Therefore, the regulatory framework and the procurement and contractual package need to pass the bankability test and enable banks to lend money at favorable conditions to the investors in RE. Any risks deemed unbankable will either disincentivize banks from providing funding or might increase their risk margins, which would in turn increase the levelized costs of electricity produced by RE. Moldova should analyze all options and adopt support mechanisms best able to deliver low-cost electricity and a stable, investment-conducive environment in the sector. Risk mitigation products provided by development finance institutions (DFIs), have shown effective in mitigating political, offtaker, and currency risks that would usually limit interest from international investors and currently the de-risking package should be prepared before any procurement of bigger RE investments in Moldova.

Grid support is critical in balancing Moldova's RE output with consumption. To do this it would need to strengthen the grid, especially 330 kilovolt (kV) lines, and double some of the key grid networks as described in the National Energy Strategy 2030, while also balancing the power and maintaining the frequency. For short-term balancing, any strategy would need to ensure the adequate capacity of utility-scale battery storage and longer balancing. Moldova's hydropower existing installed capacity provides reserves for marginal long-term balancing of the system, however the country would still benefit from adding 25–30 MW of pumped storage hydro capacity to provide further flexibility to the system. However, the ancillary market should promote development of reserve providers and energy balancing providers and regulatory framework should enable long term procurement of ancillary services to achieve optimal results for developers as well as long term costs of ancillary services.

Moldova should also aim toward privatizing the remaining publicly-owned distribution sector and supply assets. Attracting the interest of international investors to the distribution sector would incentivize further loss reduction in the distribution network and improve reliability indicators (System Average Interruption Duration Index [SAIDI] and System Average Interruption Frequency Index [SAIFI]). The recent experience of Premier Energy Distribution and Premier Energy (supply company) shows this can be achieved in a reasonable time period. Having an efficient distribution and supply companies in the short term is necessary to ensuring that the benefits of having low-cost RE generation are also translated to the end-users of electricity. To reduce the inherent risks of undertaking a privatization process in a country with high political risks, Moldova should request support from DFIs to structure a competitive and transparent process to complete privatization of FEE-Nord and RED-Nord. In parallel, DFIs could support ANRE to strengthen the regulatory parameters to ensure cross-fertilization from international experience, thereby setting tariffs based on regulated asset-based funding models.

TABLE 4.1. PRIORITY POLICY RECOMMENDATIONS FOR RENEWABLE ENERGY.

POLICY AREA/ CONSTRAINT	RECOMMENDATION	EXPECTED BENEFITS	DIFFICULTY[A]	TIME[B]	RESPONSIBILITY
Reassessment of energy policy in light of the new security of supply situation in the region	• Prioritize the security of supply considerations. • Prioritize the construction of interconnections to Romania. • Prepare a least-cost generation plan that provides a road map of investments in RE and substantiates an update of RE targets.	• Updating National Energy Strategy 2030 with clear road map for achieving security of supply with impact of Russian invasion of Ukraine on energy sector • Quantifying a road map of investment opportunities, based on Moldova's RE potential, desired evolution of energy mix, and transmission network capability • Signaling Moldova's ambitions and pipeline to attract interest from RE investors and enable adequate risk assessment	+	ST 1.5	MoE
Network interconnections to Romania	• Invest in 400 kV connection to ENTSO-E (via Romania). • Consider new interconnections in light of security of supply and availability of interconnections to Ukraine.	• Enabling the import of competitively priced power from the energy community (supply security and balancing) • Having full and reliable interconnection to ENTSO-E	+++	MT-LT 3-5	Moldelectrica (TSO)
Untested regulatory framework and lack of track record of developing utility scale IPPs	• Pilot utility-scale projects (wind and solar) through sealed-bid auctions, and set benchmark of a bankable project structure. • Develop de-risking tools with IFIs to enable mitigation of risks arisen with Russian invasion of Ukraine, and ensure bankability of project finance before procuring new assets • As part of the pilot, develop standard package (tender and PPA documentation) for RE procurement to use in subsequent auctions.[C]	• Setting a precedent of a bankable structure and building a track record to attract international investments to develop utility scale RE projects • Enabling price discovery and setting benchmarks for low-cost RE generation • Gathering market reactions and drawing lessons to scale up competitive auctions for utility scale RE IPPs to ensure adequate supply-demand balance	+++	MT 3 (pilot)	MoE ANRE
Network capacity to absorb intermittent generation	• Undertake investments in grid development and modernization to reduce losses.	• Increasing transmission capacity to accommodate additional RE projects and modernize network to reduce losses	++	MT 2-3	Moldelectrica (TSO) DSOs
Alignment with EC acquis and EC's Third Energy Package	• Finish transposing EC acquis provisions for (a) tendering of new assets, (b) establishing operation of generation assets and IPPs including licensing and certification process, and (c) establishing market exchange for electricity	• Setting framework to reduce regulatory risks for integration into the EC • Enabling development of market exchange for electricity that would in turn strengthen Moldova's regional integration, enhance system flexibility, and trade electricity at competitive prices	++	ST-MT 1-2	MoE ANRE

Note: EC = European Commission; ENTSO-E = European Network of Transmission System Operators for Electricity; IPP = independent power producers; kV = kilovolt; RE = renewable energy; SOE = state-owned enterprise.

POLICY AREA/ CONSTRAINT	RECOMMENDATION	EXPECTED BENEFITS	DIFFICULTY[A]	TIME[B]	RESPONSIBILITY
Suboptimal terms of PPAs	• Improve terms of the PPA following best international practices to mitigate key offtaker risks and address other bankability gaps.	• Mitigating risks in contractual framework and facilitating development of bankable RE projects • Improving predictability for investors	+	ST 1.5	MoE AN
Offtaker risks and other market player's credibility	• Define an adequate duration of the offtaker's mandate and capacity to fulfil PPA obligations. • Clarify roles and responsibilities, especially for market balancing and curtailment compensation. • Provide clarity on market operator functions, including market design and methodologies.	• Mitigating offtaker risks and facilitating development of bankable RE projects • Improving predictability for investors	++	MT 2	ANRE MoE
Availability of land for RE development	• Adopt best practices to allow coexistence of wind-generation projects and agricultural production. • Undertake economic, environmental, and social impact assessments of options.	• Facilitating land rights use required for investors to participate in the prequalification stage of RE generation auctions	++	MT 2	MoE Incumbent Sectoral Agencies
Poor performance by SOE distribution companies that affect reliability of electricity supply (losses and outages)	• Assess options to privatize the distribution network (FEE-Nord and RED-Nord) through a competitive and transparent process assisted by DFIs. • Ensure adequate tariff mechanisms based on regulated asset-based funding models and international experience.	• Attracting further international investors to distribution of electricity and addressing losses in distribution network	+++	MT 2	Public Property Agency of Moldova

Note: DFI = development finance institution; EC = European Commission; ENTSO-E = European Network of Transmission System Operators for Electricity; IFIs = international financial institutions IPP = independent power producers; kV = kilovolt; RE = renewable energy; SOE = state-owned enterprise.
Priority policy responses to mitigate the impact of the Russian invasion of Ukraine and of the lingering effects of the COVID-19 crisis are highlighted in light blue (see also table ES.1).
a.+ Relatively low difficulty, ++ medium difficulty, +++ high difficulty. Selectivity criteria based on the recommendation's potential to address Moldova's key development challenges in electricity generation and unlock opportunities for the private sector. Top 3 reforms are highlighted in order.
b.ST = short term; MT = medium term; LT = long -term.
c. Coordinate with EBRD which is involved in supporting Gov of Moldova to implement RE auctions for onshore wind and solar PV projects

4.2. AGRIBUSINESS: FOSTERING HIGHER VALUE-ADDED EXPORTS BY ACCELERATING ALIGNMENT WITH INTERNATIONAL REGULATIONS AND POLICY REFORMS

Performance and structure

Whereas agriculture plays a vital role in Moldova's economy, most agrifood exports are low-value products. In 2021, agriculture contributed more than 10 percent of GDP (16 percent accounting for agri-processing), while about 20 percent of Moldovans were employed in agriculture and about 58 percent lived in rural areas.[162] The sector is a major net exporter, with agrifood products representing 46 percent of the country's total exports. However, most agrifood exports are low-value crops or processed items with little value addition.[163]

The Russian invasion of Ukraine will continue to disrupt agricultural trade, heighten food security risks, and increase the price of agricultural inputs in the short term, but it is not expected to alter Moldova's fundamental comparative advantage in high-value horticulture in the long term. Although the direct exposure of agricultural exports to Russia and Ukraine is just 13 percent (see figure 4.7), agricultural imports are expected to be affected more directly, with agrifood imports from Russia and Ukraine accounting respectively for 9.3 percent and 25.5 percent of all agrifood imports (see figure 4.8). For example, Moldova imports 39 percent of its wheat from Ukraine.[164] Similarly, the invasion is affecting fertilizer trade, with 43 percent of Russia's chemical exports consisting of fertilizers, representing more than 13 percent of world exports. Moldova, along with Belarus and Mongolia, imports between 81 percent and 98 percent of fertilizers from Russia. In general, the higher cost of fertilizer is expected to reduce its use and agricultural yields, potentially shifting the terms-of-trade gains for specific commodities. Whereas some readjustments in crop production is expected in the short term in response to higher input costs and increased demand for cereal commodities, the shocks caused by the conflict in Ukraine are not expected to fundamentally change the on-farm productivity, comparative advantage, higher-sophistication and value added of exports, and overall competitiveness potential of Moldovan horticultural products compared with cereal-based agricultural commodities, as illustrated in the reminder of this chapter, in appendix 1 and in World Bank Group (forthcoming)[165].

Moldova's agricultural sector benefits from natural agro-climatic and geographical comparative advantages that would enable it to become an internationally competitive player. Agricultural land represents about three-quarters of Moldova's territory and is characterized by rich agricultural soils—most of the territory is composed of very fertile chernozem—and favorable climatic conditions. These characteristics provide Moldova with the necessary conditions to operate in diverse subsectors, including grains, fruits, and vegetables. Moreover, proximity to the European Union, the Commonwealth of Independent States, and the Middle East gives Moldova opportunities to export to very large markets.[166]

However, Moldova faces several challenges that limit agriculture sector potential. A fragmented productive system prevents the sector from operating at scale, and it has ultimately led to low competitiveness. Outdated and underfunded key public support services such as agricultural education and weak research and extension services

hinder innovation. The use of quality inputs is relatively low, and infrastructure supporting the sector is inadequate. Access to finance is a major barrier to sector growth, as is insufficient compliance with international food quality and safety norms, particularly in the livestock sector. Last, the growing effects of climate change add volatility to the performance of the sector.

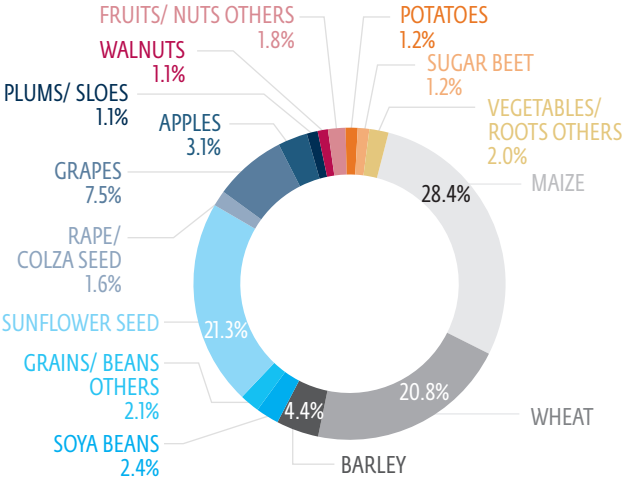
Moldova is one of the most vulnerable countries to climate change in Europe, and agriculture is the most vulnerable sector of the Moldovan economy to climate change. Moldova's soil types are very fertile, but vulnerable to rain and droughts. Furthermore, around 90 percent of crop production in the country is rain fed, which makes the sector highly vulnerable to changes and climate variability. Drought is already a major risk in the country, with an estimated annual loss in crop production of US$20 million; between 1990 and 2015, 11 droughts were registered in Moldova. The effect of this climate change is already felt on declining crop yields, and it is expected that by 2050 yields will drop 10–30 percent, although some crops like grapes might benefit from rising temperatures. This situation is particularly worrying for the large amount of smallholder farmers who practice subsistence farming and for the urban poor, given rising food prices. A full assessment of disaster risk management and climate resilience practices and opportunities is provided in a recent World Bank report.[167]

Structurally, Moldovan agriculture is dominated by a few large enterprises and numerous family farms. There are two main producer groups. On the one hand, a few large companies specialize primarily in low value-added crops such as cereals, oil crops, and sugar beets and are highly mechanized. On the other hand, 98 percent of farmers are smallholders working on about 900,000 farms of less than 2.5 hectares (ha), often doing subsistence or semisubsistence farming, and focus mainly on higher-value crops, including fruits, nuts, vegetables, and roots.[168] Large firms suffer from capacity underuse and underinvestment, whereas smallholders lack the capacity and the benefits of scale. Last, the food processing industry is relatively small compared with the overall agriculture sector and focuses on low value-added products, thus remaining well below its full potential.[169]

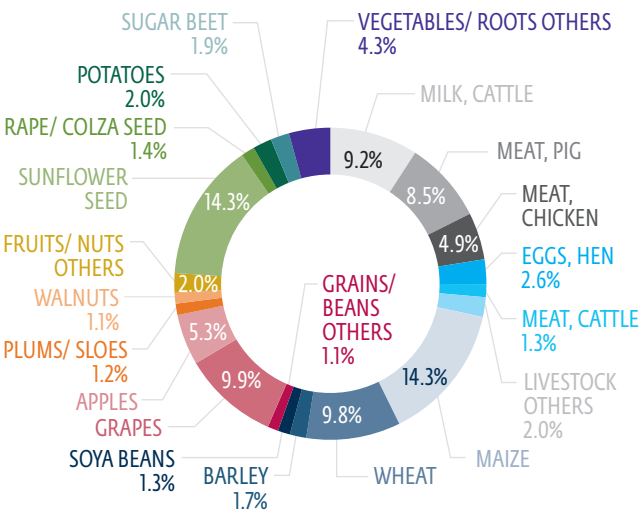
Moldova's agriculture mostly produces low-value crops—grains and oleaginous seeds—which occupy most of agricultural land, as opposed to horticultural products, which deliver higher unit values. In recent years, the country has taken advantage of new market access to economies like the EU and expanded its agrifood trade balance. However, Moldova's exports have little value added, and compared with its peers it sells at lower unit prices, exports to lower value markets, and competes at the lower end of these markets (appendix H1 and CPSD sectoral deep dives (forthcoming)). Between 2014–20, grains and beans occupied about 59 percent of the harvested area in Moldova and generated about 29 percent of the gross production value (GPV); oleaginous crops occupied about 22 percent of the land and generated 15 percent of the GPV. At the same time, fruits and nuts occupied 14.5 percent of the land and generated 18 percent of the GPV; vegetables and roots occupied 4.4 percent of the land and generated 8 percent of the GPV. Livestock generated about 30 percent of the GPV (figure 4.3). When looking at US dollars generated per hectare, vegetables and fruits, which occupy less than 20 percent of cropland, generated the highest values. Vegetables and roots were the top performers, generating US$1,665/ha, followed by fruits and nuts, at US$1,111/ha, and oleaginous crops, at US$602/ha. Grains and beans generated the lowest values, at US$430/ha.

FIGURE 4.3. AREA HARVESTED AND GROSS PRODUCTION VALUES, PERCENTAGE OF TOTAL (AVERAGE 2014–2020)

a. Area harvested, percentage of 1.66 million ha avg. 2014-2020



b. Gross production value, percentage of US$1.77 billion avg. 2014-2020

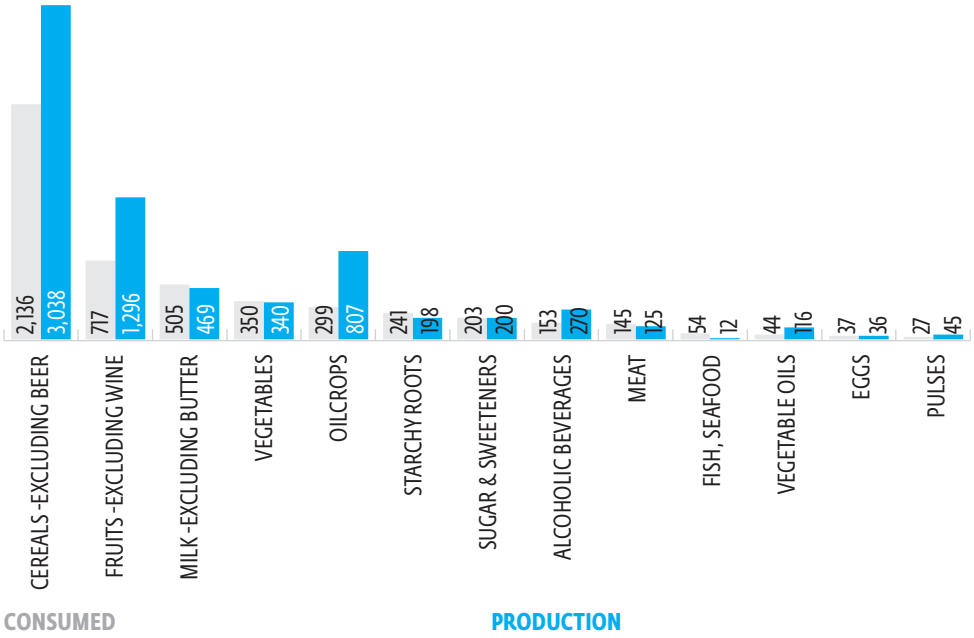


Source: Source: WBG staff calculations using Food and Agriculture Organization (FAO) data. https://www.fao.org/faostat/en/#data

Moldovan yields fall behind competitors, with the necessary caveats about informality, underreporting, and statistical accuracy. Analysis of FAO data shows that Moldova's yields for selected crop and livestock items[170] have experienced growth in the period between independence and 2019 (appendix H1). However, Moldovan yields perform below Eastern European, EU, and world averages. Only sunflower seeds and barley perform above Eastern European averages (appendix H1). As noted in the World Bank's 2016 Moldova Trade Study, yields may be underreported in the statistics, as producers reduce them for tax purposes.[171] Data from the National Agency for Rural Development (ACSA) show that yields may be two to three times higher for high-value crops than the data reported to Moldova's National Bureau of Statistics. This view is supported by the Japan International Cooperation Agency's 2017 agriculture survey, which concluded that most small and medium farmers do not submit official records of the purchase of agricultural inputs or the sale of agricultural products, to avoid paying taxes and dues.[172]

Moldova satisfies most domestic food demand with local production, but its food supply per capita has decreased over time. Domestic demand for most food groups is met with local production, even though there is some import dependency on dairy, vegetables and roots, and meat, and larger dependency on fish and seafood imports (figure 4.4). However, since the country's independence, Moldova's per capita food supply has decreased for some of the largest food groups, including cereals, milk, vegetables and roots, and meat. But per capita consumption of smaller food groups including alcohol, fruit, sugar, fish, and vegetable oils has increased since then (appendix H1). Malnutrition and food insecurity do not appear to be major challenges for Moldova, but estimates suggest that one in five Moldovans are consuming insufficient quantities of food.[173]

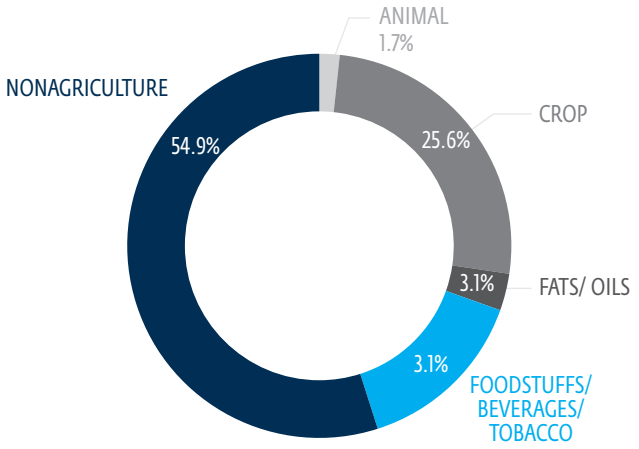
FIGURE 4.4. FOOD CONSUMPTION AND PRODUCTION, IN 1,000 METRIC TONS (AVERAGE 2014–19)



Source: Source: WBG staff calculations using FAO data. https://www.fao.org/faostat/en/#data

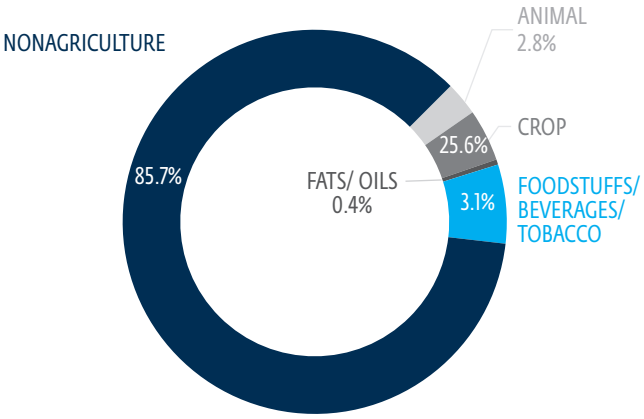
Whereas the trade balance of agrifood products has improved over the past five years, Moldova continues to fetch lower unit prices either in less-sophisticated export markets or at the low end of higher-value international markets. In 2014, Moldova had a total export of agrifood products of US$1,065 million and imports of US$719 million, leading to a positive trade balance of 3.6 percent of GDP. In 2019, exports were at US$1,211 million whereas imports stood at US$816 million, with a positive trade balance of 3.3 percent of GDP. Whereas agrifood exports grew at a larger rate than imports in 2014-2019 period (CAGR 2.6 percent versus 2.55 percent respectively), both exports and imports grew at lower rates than GDP growth (4.7 percent). In 2020, during the height of the COVID-19 pandemic, agrifood imports continued to grow, but agrifood exports fell considerably. In 2021, agrifood exports recovered significantly and both agrifood exports and imports growth rates have been higher than GDP growth.[174] Moldova's export prices per metric ton for its top agrifood exports are lower than those received by most neighbors, with the notable exception of Ukraine (appendix H1). Furthermore, most of Moldova's produce is exported to less sophisticated markets and competes at the lower end of these markets. A small proportion of produce is exported to higher-value markets, but these mostly compete at the lower end as well (see appendix H1 and World Bank Group (forthcoming)).[175] Almost half of Moldova's total exports are composed of agrifood items (45 percent), with plant crops being the largest agrifood export category group (figure 4.5). Agrifood imports represent only 14 percent of total imports, and foodstuffs, beverages, and tobacco are the largest agrifood import category group (figure 4.6).

FIGURE 4.5. EXPORT VALUE BY CATEGORY GROUP, PERCENTAGE OF TOTAL EXPORT VALUE US$2.4 BILLION (AVERAGE 2014-2021)



Source: WBG staff calculations using UNCOMTRADE data. https://www.trademap.org/Index.aspx

FIGURE 4.6. IMPORT VALUE BY CATEGORY GROUP, PERCENTAGE OF TOTAL IMPORT VALUE US$4.9 BILLION (AVERAGE 2014-2021)

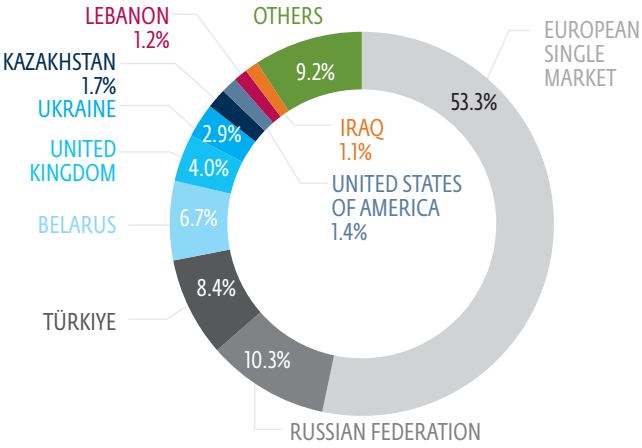


Source: WBG staff calculations using UNCOMTRADE data. https://www.trademap.org/Index.aspx

Moldova's top 20 agrifood exports are minimally processed and sold in bulk, thus offering limited value addition. Sunflower seeds, wheat, maize, walnuts, wine, apples, grapes, and rapeseed are among the top 20 agrifood export items, which represent 80 percent of total agrifood exports. Most of these top products are either raw or have experienced minimal processing (for example, shelling, pressing, fermentation), and are mostly sold in bulk.[176] Agrifood imports are rather diverse, with no product category representing more than 10 percent of imports. Top 20 imports include raw (potatoes, frozen chicken), semiprocessed (oilcake, flours) and fully processed (sauces, chocolate, cheese) items (appendix H1).

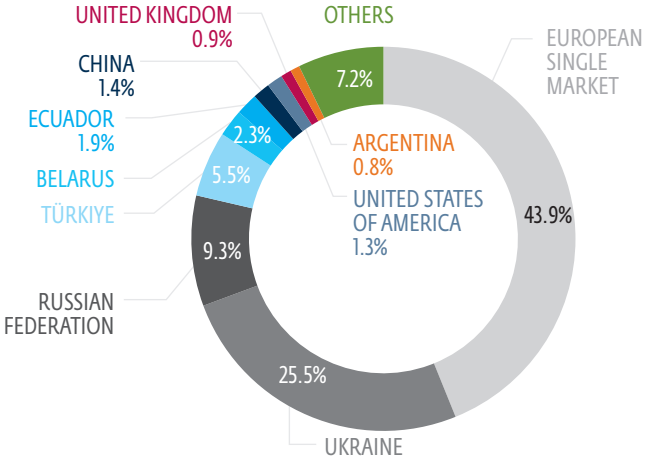
Moldova's largest agrifood trade partner is the European Single Market (ESM), followed by the CIS countries, with limited export diversification on both trading blocs. The ESM represented 53 percent of Moldova's agrifood exports, and 44 percent of agrifood imports in 2014–21. Top export destinations in the ESM were Romania, Italy, Switzerland, Poland, and France. CIS countries represented the second largest trading block for Moldova, with the Russian Federation and Belarus as its largest export partners and Ukraine as the largest import partner (figures 4.6 and 4.7). Moldovan agrifood exports remain concentrated on few items in both markets. Western Europe's largest imports from Moldova are cereals, sunflower seeds, and walnuts and, to a lesser extent, honey; Central and Eastern Europe's imports add rapeseed, wine, fruit, and fruit juices to these top items. Most exports to Russia and Belarus are concentrated in wine, fruits, and fruit juices. Moldova's agrifood import basket is more diverse, with no food group representing more than one-fifth of total agrifood imports from any import partner.

FIGURE 4.7. MOLDOVA'S AGRIFOOD EXPORT DESTINATIONS, PERCENTAGE OF TOTAL EXPORT VALUE US$1.1 BILLION (AVERAGE 2014–21)



Source: WBG staff calculations using UNCOMTRADE data. https://www.trademap.org/Index.aspx

FIGURE 4.8. MOLDOVA'S AGRIFOOD IMPORT ORIGINS, PERCENTAGE OF TOTAL IMPORT VALUE US$0.7 BILLION (AVERAGE 2014–21)



Source: WBG staff calculations using UNCOMTRADE data. https://www.trademap.org/Index.aspx

A mix of traditional and horticultural products generated most of agricultural export growth over the past few years. Almost half of agriexport value growth in 2014–21 came from sunflower seeds, wheat and meslin, and maize, while other top growth generating export items included fresh apples, rapeseed, wine, soya beans, plums, and grapes. Most of these items are either raw or minimally processed (see World Bank Group (forthcoming)[177] and appendix H1). For CAGR, for the same period, some of the fastest growing items included spirits, mixed nuts, processed cheese, carrots, tomato sauces, almonds, dried apples, dried peas, raspberries and blackberries, watermelons, and high erucic acid rapeseed.

In spite of Moldova's good performance on foreign direct investment, agriculture has failed to attract significant investments in recent years. Moldova has performed relatively well on FDI as illustrated in chapter 2 and appendix A2. However, significant FDI inflows have failed to materialize in agriculture, despite its relevance for the whole economy. Anecdotal evidence suggests that key barriers to attracting FDI to the sector are the small size of the domestic market, the lack of scale, and the inability of local firms to compete in international markets. Challenges in aggregating smallholdings, inadequacy of the national food safety and quality system, and significant infrastructural gaps are among the additional domestic constraints affecting FDI as well, as illustrated in the remainder of this chapter.

Sector opportunities: products and market potential

Moldova shows promising growth opportunities in high-value horticultural products (appendixes H1, H2, and World Bank Group (forthcoming)). On-farm yields, revealed comparative advantage (RCA), and expected benefits to the broader economy point to high-value horticultural products such as vegetables, walnuts, grapes, plums, or apples, among others, as a largely untapped potential source of growth and diversification of the sector. Although appendix H2 provides a description of the methodology (and caveats) used in screening products based on on-farm competitiveness, RCA, and economic impact, World Bank Group (*forthcoming*) complements the analysis with a detailed assessment of export performance in quality ladder and unit values, markets and products sophistication, and diversification. Moldova's on-farm yields of key horticultural products are higher than world averages. Growing (see appendix H2), high RCAs (>1) for fruit (especially plums, cherries, apples, apricots, and grapes), walnuts, and honey show a good export track record that can be further leveraged and made sustainable. Potential positive spillovers from fruit and vegetable products to the broader economy in production, employment, and trade growth are significant.

High-value fruit and vegetable crops offer the most potential in increasing Moldovan incomes (appendices H1, H2, and World Bank Group (forthcoming)). Raising the productivity of high-value crops and increasing their exports could drive growth and push the development of the SME sector. However, low-value crops, such as grains and staple products, are not differentiated commodities; their margins are low, often excess production capacity, and economies of scale tend to increase further downstream in the value chain. Strategic upgrading and higher-value addition options in this segment are limited to increasing productivity and volumes. Yet higher-value crops, such as most horticultural products, allow competitive entry to smaller farms and SMEs, as they do not require scale, can be produced in smaller plots, and are more labor intensive. They also can buffer the risk of volatile commodity prices and are more conducive to product differentiation, with associated higher prices and profits.[178] At the same time, a successful competitive strategy for high-value horticulture requires close links and proximity to the end market, with efficient logistics as a critical success factor. Furthermore, retailers demand a high degree of product uniformity and product differentiation and strict adherence to quality standards.

Moldova's participation in high-value horticulture international markets remains below potential, but early successes in niche segments can be replicated and brought up to scale. Currently, the production of high-value crops in Moldova remains below its full potential because of high investment requirements, such as in irrigation or compliance with food and safety standards, and because of the low level of compliance with the requirements of high-end markets, such as the EU, for volumes, sorting, packaging rules, and certifications, which are high entry barriers for most Moldovan farmers. However, Moldova has already seen success in competing in some high-value niche markets, and lessons learned can be replicated to the horticultural sector as a whole, including learning from large-scale operations.[179] For example, Moldova is the second-largest supplier of walnuts to the EU and competes in the middle range for apples in countries like UK and Bulgaria. It is also growing exports of organic products to Europe (box 4.4). If Moldova improves its production practices, postharvest handling and infrastructure, and the flow of market intelligence to producers for more crops and products, it will be better positioned to not only compete in the EU, but also in more demanding markets in the CIS and in other regions such as the Middle East.

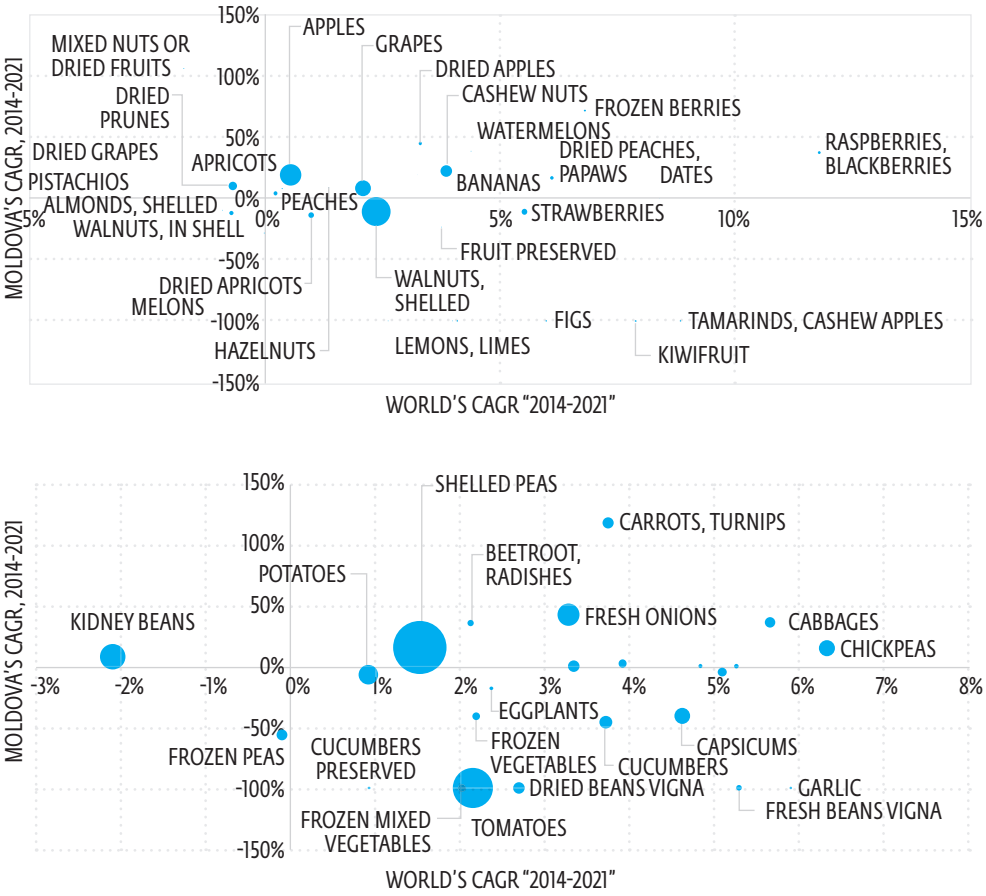
BOX 4.4. THE RISE OF THE MOLDOVAN WALNUT SECTOR

Moldova has the ideal soil and climate to produce walnuts. During Soviet times, this was not considered a strategic priority, and walnut trees were scattered throughout farms or roadsides, mostly of low yield varieties not suitable for commercial production. These are still an important part of Moldova's walnut production. However, in the 1990s the situation changed, as low labor costs were identified as a competitive advantage in walnut processing (manual processing results in much higher extraction rate of unbroken kernels than mechanized processing). Investments came in, and in 1999 a walnut law was adopted to support the expansion of industrial plantations and provide subsidies to the sector.[a] These plantations transformed the sector, and the situation further improved when Moldova gained access to the EU market. Moldova also positioned itself in cracking and sorting. Moldova currently provides processing services to countries like France, which exports shelled walnuts to Moldova and reimports them after being processed. At present, Moldova has production and export opportunities in organic walnuts, walnut oil, and walnut cake products such as walnut flour.[b]

a. ECOLEX, "Law No. 568-XIV on walnut," https://www.ecolex.org/details/legislation/law-no-658-xiv-on-walnut-lex-faoc074321.
b. United Nations Conference on Trade and Development (UNCTAD), "National Green Export Review of the Republic of Moldova: Walnuts, Honey, and Cereals," UNCTAD, Geneva, 2018.

World demand for a wide range of horticulture products is growing, and Moldova can leverage this growth. World demand for fruit and nut products like berries, watermelons, grapes, and dried apples has been increasing, accompanied by a rapid growth in Moldovan exports. Other products have exhibited a similar pattern: fresh apples, hazelnuts; vegetables and root products like onions, peas, carrots, turnips, chickpeas, brassicas, and beetroots; processed fruits and vegetables, ground nuts, and vegetable mixtures; and jams, fruit jellies, and marmalades. Products like strawberries, potatoes, and fresh peas have seen their export growth decrease despite a growth in world demand apple juice—this also applies to cucumber and bean preparations. Other products like nuts and tomato preparations have seen world demand decrease, yet Moldovan exports continue to grow (figure 4.9 and World Bank Group (forthcoming)).

FIGURE 4.9. WORLD DEMAND AND MOLDOVAN EXPORT GROWTH FOR FRUITS AND NUTS (TOP), AND VEGETABLES AND ROOTS (BOTTOM)



Sources: World Bank staff calculations based on COMTRADE. https://www.trademap.org/Index.aspx
Note: CAGR = compound annual growth rate.

Moving to higher-value strategic segments of the fruit and vegetable sector (for example, berries) exploits Moldova's comparative advantage for smaller scale labor-intensive production. Moldova's relatively smaller size in both territory and productive systems positions it well for the higher-value horticulture sector, which is better suited for smaller and more labor-intensive productions systems. More than half of global import growth in the fruit and nuts sector comes from high-value, highly perishable fruits, and a large proportion of this demand comes from EU countries. These niche markets are also highly profitable.[180] Moldova is already showing promise in this sector; raspberries and blackberries have experienced one of the country's highest product export CAGR since 2014. However, moving into this category requires adapting to the sector's sources of competitive advantage such as research and development of better suited varieties, better harvest and postharvest techniques, market intelligence, and improved logistics, as well as additional investments in several areas, including postharvest infrastructure and packaging (see appendix H2 for an overview of the critical success factors and competitive requirements for each strategic segment of the horticulture sector).

Developing horticulture and increasing the scale of production of fruits and vegetables would support the food processing industry. Currently, the farming sector is not capable of delivering enough quantities of horticultural products with consistent quality. Investing in this segment and increasing volumes and quality would provide Moldova with an opportunity to expand agro-processing, add value to its products and generate further jobs. Furthermore, given the country's untapped export potential in processed foods, it would position Moldova better to boost its exports.[181]

Moldova's numerous trade agreements provide opportunities in traditional and new markets, such as the EU, the CIS, and the Gulf Cooperation Council (GCC) in the Middle East. Moldova's main trade partners are the EU and the CIS, which account for more than 80 percent of the country's foreign trade. As illustrated in chapter 3, section 2 and appendix C, Moldova has signed Free Trade Agreements (FTAs) with more than 40 trade partners, including the EU's DCFTA (Deep and Comprehensive Free Trade Area), CIS countries (Armenia, Azerbaijan, Tajikistan, and Uzbekistan), Türkiye, the Central European Free Trade Agreement (CEFTA, composed of Albania, Bosnia and Herzegovina, Kosovo, Macedonia, Montenegro, and Serbia), and the Organization for Democracy and Economic Development (GUAM, composed of Georgia, Ukraine, and Azerbaijan). These agreements allow duty-free access to a market of more than 880 million people.

Russia and the CIS are Moldova's traditional markets and can continue to provide growth opportunities in the medium term. But the heightened political instability in the region caused by the Russian invasion of Ukraine and the frequent geopolitically driven discretional changes to trading rules increase risks and create uncertainty. These markets offer access to more than 200 million consumers.[182] However, Russia has become unreliable as an export market, as discretional restrictions on Moldova's exports to Russia have been imposed on a few occasions, officially on grounds of noncompliance with technical norms. Products affected have included fruits and vegetables, processed foods, wine, or meat products, which are top exports to Russia.[183] Notwithstanding the heightened political and trade risks, geographic closeness, strong economic and cultural ties, and well-established logistic channels continue to represent a strong pull factor. Many Moldovan farmers see these countries as their main markets, as they currently lack the capabilities to meet the volume, quality, and safety requirements of more sophisticated markets, such as the EU, and because they are accustomed to the semiformal cash-based payment terms practiced in these markets. However, in the long run, quality and food safety requirements are expected to increase on both Russian and CIS markets, and this could provide an opportunity to Moldovan exporters to gradually improve their product standards.[184] Overall, Moldova should diversify its exports toward new and more sophisticated markets while maintaining a strong footprint in these traditional markets. World Bank Group (forthcoming) summarizes the opportunities and risks for Moldovan horticultural exports to the CIS and Russian markets.

The EU offers ample opportunities for diversification, conditional to upgrading and compliance with higher quality and safety standards. The DCFTA with the EU has provided Moldova with access to a market with more than 500 million consumers, along with additional investment opportunities. As illustrated in chapter 3, section 2, the agreement provides duty- and quota-free access for almost all Moldovan goods, except for agriculture. Quotas exist for a list of products, and entry restrictions are in place for products not meeting EU health and safety standards, most notably a range of livestock products.[185] Trade with the EU has been growing, and it has enabled Moldova to reduce its reliance on the unstable Russian market. However, most of Moldova's small rural producers cannot meet the quality, quantity, and safety requirements in the EU, which exposes them to the risk of competition by EU imports in the long run. At the same time, Moldova has been successful in competing in the EU in selected niche horticultural markets. For example, Moldova is the second largest supplier of walnuts to the EU, and it has managed to sell to organic produce buyers. Enhanced compliance with EU quality and safety standards will provide an opportunity to Moldovan agriproducers to significantly expand their footprint in the EU and in key international markets accepting EU standards.[186] World Bank Group (forthcoming) summarizes the opportunities and risks for Moldovan horticultural exports to the EU market.

Other international markets, such as the GCC countries provide further opportunities for diversification. In recent years, Moldova has started exporting to new geographies, including GCC countries, North Africa, Southeast Asia, and North America. Moldova supports a strategy of market penetration into these new international markets, to diversify both from the CIS and EU markets.[187] Fast-growing demand and less-stringent product quality and safety standards (compared with the EU), but higher than the ones required in CIS countries, provide opportunities for gradual market diversification and product upgrading. However, entry and consolidation in GCC markets will require establishing new trade channels and identifying new transport and logistics chains. World Bank Group (forthcoming)summarizes the opportunities and risks for Moldovan horticultural exports to the GCC countries.

Overall, a three-pronged strategy of consolidating their footprint on the EU market, through higher quality and safety standards, would give Moldovan exporters a competitive edge both in CIS markets, expected to progressively introduce tighter standards over the time, and in Middle Eastern markets, perceiving EU certification as a strong brand signaling for quality. At present (2021 data), Moldova exports fruits and vegetables to the EU, CIS, and GCC for a total value of US$218.6 million.[188] With a proactive package of policy reforms and investments in higher EU-compliant quality and safety standards, Moldova could double horticulture exports to its three main markets, amounting to US$476 million annually.[189]

Challenges: What would it take to develop the sector?

An institutional comprehensive long-term vision for the agriculture sector is missing. A holistic approach to solving the challenges of the agriculture sector is missing. The Moldova Agriculture and Rural Development Strategy 2014–2020 has expired, and at the moment the Ministry of Agriculture is establishing a new policy for the sector. The timeline of when the next strategy will be final is unclear, according discussions with the Ministry of Agriculture. This section provides an overview of the key constraints mostly relevant for high-value horticulture whereas a more detailed review of the challenges affecting the overall agriculture sector in Moldova is provided in World Bank Group (forthcoming)[190].

Mistargeted subsidies benefit mostly larger firms and the conditions required to receive the subsidies are distortionary. Moldova has been supporting the agriculture sector at an estimated 1 percent of GDP, with subsidies representing about half of that support. Anecdotal evidence shows that subsidies have benefited larger producers with access to alternative sources of finance, instead of poorer farmers, and that quite often they have led to investments in traditional rather than innovative technologies. Among the reasons subsidies don't reach smaller farmers are prominently featured include (a) the complicated administrative procedures and costs for applying to them and (b) farmers in Moldova can apply for subsidies only after investing and satisfying a set of conditions, in contrast to EU subsidies, which are given in advance. The structure of the subsidies also does not promote technological innovations. As an illustration, for seeds and seedlings, national subsidy funds specifically offered subsidies only to seeds registered in the national catalog, which are often outdated and of lower yield.[191]

Production systems in Moldovan agriculture are challenged by fragmentation, inefficient land markets, and limited productive aggregation and association. Moldovan small farms use traditional methods of production, with low mechanization levels and no irrigation and low levels of agricultural inputs, and are not able to meet the volumes or quality required to access high-value markets. Very few work with retail chains as they cannot afford to withstand long payment terms and cannot meet consistency requirements in supply or grading. Therefore, small farms cannot establish long-term relationships with their business partners and customers and instead sell on the spot to aggregators as price-takers.

Inefficient land markets drive fragmented, smallholder production systems in Moldovan agriculture. Agricultural land consolidation is another key missing factor to improve the productivity, quality, and financial viability of Moldovan agriculture. Land markets seem to be functioning adequately, with the exception of a restriction on foreign ownership of agricultural land, but the main barrier to land consolidation is access to finance. Leasing agricultural land is a more common practice. Moldovan legislation allows for 49-year rentals. However, agreements are not always formally registered, which can lead to frequent disputes and property rights uncertainty, and have a de facto short duration of one to three years, which discourages on-farm investments. Aging of the rural population is a final contributing factor to the underuse of a relevant number of smallholders agricultural land, which remains idle, contrary to what neighboring Romania has experienced with the "Life Annuity Scheme" (see World Bank Group (forthcoming)[192]).

As a response to the small size and fragmentation of most Moldovan farms, productive aggregation and cooperatives could constitute a good institutional mechanism. This method would achieve economies of scale, strengthen the bargaining power in regard to buyers and input suppliers, and facilitate the integration into vertically coordinated supply chains. However, Moldovan cooperatives combined only represent 0.5 percent of registered agricultural holdings and about 6.5 percent of the registered agricultural land. Insufficient awareness of the importance of associative activity, large distances between farmers producing similar crops, and lack of trust are major barriers to forming cooperatives. Key lessons and good practices in establishing viable and sustainable cooperatives in Central and Eastern Europe are presented in World Bank Group (forthcoming).

The sector lacks a well-functioning knowledge ecosystem in agricultural education, R&D, and reliable statistics. Quality statistics about the agriculture sector, particularly regarding smallholder farmers and family farms, are limited, and this prevents the development of evidence-based policies and informed business decisions. There is also a mismatch between agricultural education and private sector needs. Agricultural education is weak, outdated, and underfunded. The country's agricultural R&D capacity is also in a poor state, owing to outdated research equipment, insufficient financial resources, and aging staff.

Extension and Advisory Service (EAS) provision is weak, with limited market intelligence and investment promotion. Efforts to strengthen EAS in Moldova haven taken place in the past two decades, but in 2018 the government failed to select a new extension service provider and services have significantly regressed. Even when the EAS system was fully operational, it was underperforming on the two following critical areas: (a) limited institutional links with educational and R&D centers, as well as the private sector, and (b) coverage and quality of services provided was limited. Marketing and branding skills are strongly needed, as most smallholder farmers focus mostly on production and rely on chance or aggregators to visit their farm gates. Most smallholder farmers do not have capabilities to export and lack the fundamental knowledge about product demand and market standards of export markets, including information on varieties, colors, size, and weight, plant protection practices required in end markets, and products offered by competitors.

Moldova's access to skilled labor in the sector is a major challenge. One of Moldova's agribusiness sector's comparative advantages is its low labor cost in relation to EU competitors. However, workers in farming, processing, and agricultural support services lack technical and management skills in areas including agronomy, production technologies, engineering, and marketing. The number of students enrolled in agriculture sciences and veterinary medicine has decreased by 28 percent and 13 percent, respectively, between 2009–16.

Regulations and procedures to introduce new agricultural inputs, such as seeds, fertilizers, and agro-chemicals are inefficient and curb the adoption of new technologies. Complicated, lengthy, and costly procedures for the introduction of new plant varieties, fertilizers, and phytosanitary products undermines technology adoption and innovation in the sector. Restrictions on the introduction of new agricultural inputs has also affected their prices, which are traditionally higher than in neighboring EU countries and possibly subject to monopolistic behavior by providers. Progress has occurred recently, with EU imported varieties undergoing a one year fast-track testing procedure since 2013, while the National Seed Commission usually takes about three years to test annual crop varieties and up to seven to test multiannual varieties. Nevertheless, if EU varieties fail to be included in the national registry, their use was not covered by national seeds incentive schemes for farmers. A similar situation is found with fertilizer and agro-chemicals, which must be tested by the State Center for Testing and Homologation of Fertilizers and Phytosanitary Products. Given the country's low R&D capacity, not having an open regime for the easy and quick import of modern inputs into the country is detrimental to the sector, in particular high-value horticultural items.

Lack of access to finance in the form of loans, insurance, nonbanking products, and subsidies severely limits the sector's potential. Access to finance in sector is limited, particularly for smallholders, family farms, and SMEs. An estimated 85 percent or more of farmers finance their working capital via reinvestments of their own profits, which is a high proportion compared with the ECA average. From the supply side, there is interest in providing credit to commercial farmers, however institutional credit providers take a rather prudent approach owing to sector issues including high climate risk and a high degree of informality. Because banks perceive the sector as risky, collateral demands are high. Most often, crops are not accepted as collateral, whereas agricultural land is accepted but valued quite low for collateral purposes. From the demand side, even when collateral requirements are met, products don't meet farmer needs. Most credit comes in medium-term loans with maturities of three to five years. Investments such as tree orchards, greenhouses, and irrigation systems have heavy upfront costs with delayed cash flows after six to eight years. Most farmers in Moldova are not insured because of the limited range of insurance products, mistrust of insurance firms, and high costs, despite a government subsidy.

Moldova's infrastructure constraints are limiting the development of agricultural production, especially irrigation systems and electricity. Since independence, the irrigation system in Moldova has deteriorated, both because of poor maintenance and its unfitness to the farm restructuring process. Sixty percent of the centralized irrigation systems need rehabilitation, and irrigated land has fallen from 230,000 ha in 1990 to less than 15,000 ha currently. At present (2020 data), only 9.5 percent of the total agricultural land is irrigated, and irrigation infrastructure is practically nonexistent in smallholder farms. Addressing the irrigation challenge is a priority, given Moldova's high vulnerability to climate change, with the expectation of significant water stress by 2040, and with the need to adopt climate-smart farming practices.[193] In addition to the irrigation challenge, the high price of electricity and quality of supply limit growth of horticulture (for example, greenhouses and cold storage) and food processing (see Chapter 3, section 1).

Postharvest facilities in Moldova have grown across the country but are still insufficient. Postharvest facilities such as cold storage, sorting and grading facilities, or packaging houses are essential, particularly for high value horticultural crops, as they determine product end quality and therefore the markets in which producers can compete. The availability of these facilities in Moldova has rapidly grown over the past decade, but supply is still insufficient, particularly if Moldova expands production and exports of high value agricultural goods. The postharvest infrastructure assessment for fresh horticultural products carried out by the government in May 2019 identified 633 cold stores with a total storage capacity of 412,000 tons. Only 40 percent of the demand for precooling and cold storage services is met. Government estimates suggest that 338,000 tons of additional capacity must be installed by 2025.[194] Other postharvest infrastructure, such as sorting facilities, remain underdeveloped, with even top exports, such as grapes or apples not being sorted. Main challenges preventing investment include lack of access to long-term finance, limited knowledge of their benefits, and policy barriers, such as the need to reconvert agricultural land into industrial land to get a construction permit.

Poor quality transport infrastructure affects competitiveness and trade of agricultural goods. As illustrated in chapter 4, section 1, Moldova is ranked particularly low in the quality of trade and transport infrastructure; 141 out of 160. Transport by road constitutes the main transportation mode in Moldova, accounting for almost 90 percent of shipments of goods. The *Global Competitiveness Report 2019* of the World Economic Forum ranks Moldova 129 out of 141 countries in quality of road infrastructure.[195] Poor roads damage agricultural trade in transport times and costs and influence trade routes and availability of trucking services, which increases logistic costs. High reefer transport costs, which are much more expensive than regular containers, provide and additional disincentive to export perishables via rail or road.

Moldova's trade with the EU is constrained by slow progress in meeting EU food safety and quality standards. Moldova has adopted into its regulatory framework over 25,000 EU technical standards, and most Moldovan food safety regulations have been harmonized with EU legislation. Horticulture producers have become increasingly familiar with the standards required by EU markets, but several producers and processors continue to rely on old Soviet standards (for more information, see World Bank Group (forthcoming) presenting the lessons learned by Poland and Romania in harmonizing safety and quality standards with the EU ones).

The adoption of food safety management systems and process control certification of primary and processed products has expanded in recent years, but not among small producers. GLOBALG.A.P (Good Agricultural Practices) has become a minimum standard requirement for producers by most EU supermarket chains. In Moldova, many advanced commercial farms have recently obtained GLOBALG.A.P. certificates, but smaller farms cannot qualify for this basic certification standard. Food safety process controls based on the HACCP process are required by Moldovan regulations, and the EU, but the requirement is not being consistently enforced. Access to certification is not an issue as several reliable international players have established operations in Moldova and neighboring Romania. Rather than lack of access, many small producers have limited understanding of the value of certification in securing market access. A World Bank survey from 2019 showed that only 9 percent of firms certify their products and production processes.[196]

Product control is hindered by weak laboratory capacity, and traceability systems are weakened by the sector's lack of aggregation and limited ICT capacity. The network of public Moldovan laboratories lacks the technical resources to carry out effective food safety testing and controls, and foreign laboratories are often contracted out by the public sector to perform controls, which is a normal practice for low-capacity small countries, but it increases trade costs. The IFC has been working with Moldova to upgrade the performance of the laboratory infrastructure, via the IFC Moldova Investment Climate Reform Project, and a set of operational recommendations is provided in World Bank Group (forthcoming) . At the same time, traceability systems are almost nonexistent owing to the limited digital infrastructure and ICT capabilities of the Moldovan Food Safety Agency, compounded by the high level of informality and fragmentation of many agricultural supply chains.

Geographic designations to support export diversification and product differentiation are not widely used, but the experience of the wine industry shows a promising path. Geographic Indications (GIs) and Appellations of Origin (AOs) offer the potential for improving the branding of Moldovan products and can lead to extra profits, additional employment, product diversification, improved quality, and tourism promotion. Several of Moldova's products have the potential to be branded as GIs or AOs, including numerous fruits, vegetables, nuts, honey, and processed meat. However, only seven products are registered as GIs and three as AOs and half of the products are wines. In this regard, the wine industry summary in box 4.5 in appendix H4 provides a clear path of how GIs and AOs can be leveraged to reposition Moldovan agricultural exporters from low-cost bulk segments to a higher-value segments.

Organic farming is growing, but Moldova lacks a strategy to facilitate the transition. The demand for organic products is growing around the world, and organic farming can also be used to promote product differentiation and compete in higher-value markets. Moldovan farmers use limited amounts of fertilizers and agro-chemicals, which is a requirement for organic farming, but lack organic farm management skills. Moldova's exports of organic produce are growing, and in 2019 the country's area of certified organic production covered 28,500 ha and exports of organic products to the EU amounted to more than 50,000 tons. An organic farming law was introduced in 2005, and incentive schemes between 2007 and 2012 led to a temporary increase in organic farming until the programs were scaled down. Whereas the legal and regulatory framework is in place, and has been harmonized with EU requirements, national organic certifications have not been recognized in export markets. An explicit strategy to transition to organic practices would enable Moldovan farmers and exporters to enter this growing and lucrative segment[197].

Most small-scale farmers are reluctant to adopt climate-smart agriculture practices, and a proactive strategy to fight climate change is needed. The adoption of CSA practices —including climate-controlled greenhouses, drip irrigation, antihail nets, antifrost systems, organic mulching, windbreaks, improved pastures, and conservation agriculture—is needed in Moldova[198]. Many medium and large farms in Moldova have started adopting some CSA practices, but most smallholding farmers remain reluctant. Most farmers will be encouraged to invest in CSA only by the launch of complementary large infrastructural investments. Climate finance can play a pivotal role in enabling both large and small farmers to adopt CSA practices and good practices and programs supporting this transition are presented in appendix F. However, the government's response to climate change is lagging. Access to irrigation is limited, treatment of water is unsatisfactory, efficient technologies for water use are not being adopted, pest management is poor, and weather forecasts lack needed precision and capacity to do early prevention. Little R&D work is carried out to develop climate-resilient varieties suitable to the country's evolving needs

Recommendations

Moldova can achieve its goal of export expansion if it establishes a comprehensive, long-term strategy for the agriculture sector and promotes competition in the sector. Five priority reforms for Moldova in this sector are as follows:

- Improve irrigation, postharvest, energy, and road infrastructure in rural areas to improve productivity.
- Foster productive aggregation and land consolidation through an adequate functioning of land markets to support more efficient production systems.
- Promote the adoption of modern technologies and inputs by facilitating smallholders access to finance, through better targeting of subsidies to support productivity growth and high-quality EAS.
- Support adoption of EU standards to improve the quality and safety as well as access to the EU market of agrifood products.
- Promote CSA practices to improve climate change resilience.

A comprehensive set of recommendations on each of these key policy areas is provided in World Bank Group (forthcoming)[199].

Creating access to markets, building productive capabilities to reach scale, and mainstreaming sustainability and resilience will enable Moldova to become internationally competitive in agriculture and horticulture. Several policies contribute to these three goals, and they are discussed at length in the appendixes, but the following policy areas deserve priority in the strategic pursuit of market access, scale, and sustainability: (a) further aligning food safety and quality regulations and practices with EU standards as a way to create market access, (b) promoting productive alliances and input markets reforms to enable aggregation and reach scale, and (c) encouraging the transition to sustainable and climate-smart practices.

TABLE 4.2. PRIORITY POLICY RECOMMENDATIONS FOR AGRICULTURE

POLICY AREA/ CONSTRAINT	RECOMMENDATION	EXPECTED BENEFITS	DIFFICULTY[a]	TIME[b]	RESPONSIBILITY
Market access: food safety and quality	• Align food safety regulations and implementation with EU standards. • Facilitate the adoption of food safety and quality certifications (e.g., GLOBALG.A.P., HACCP/ISO 22000, and EU organic). • Provide capacity building for producers and agriprocessors on food safety standards and market requirements from EU markets.	• Preserve public health of Moldovan consumers. • Enable entry into export markets for Moldovan agriproducers. • Encourage higher margins, through greater access to high-value market segments	++	ST	Ministry of Agriculture National Food Safety Agency
	• Promote adoption of geographic identification and organic certification aligned with EU standards.		++	ST	
	• Invest in the development of laboratories (e.g., equipment upgrade and maintenance, lab systems), professional staff training, new methods, and in digital traceability systems.		+++	MT-LT	
Productive aggregation and scale	• Promote long-term leasing of agricultural land (10+ years), to facilitate investments in infrastructure and equipment.	• Improve efficiency of agricultural production and reduce production costs. • Increase yields and product quality. • Encourage greater technology adoption. • Enable stronger bargaining power relative to input suppliers and buyers. • Allow more efficient land marketing.	+	ST	Ministry of Agriculture Ministry of Economy Agri-Producers and Processors Associations Land Cadastre
	• Simplify administrative procedures for selling small plots of land and exempt small farmers from notarial and state fees when merging small adjacent land plots.		+	ST	
	• Support land leasing mediation to encourage transfer of use rights between farmers to promote land aggregation.		++	ST	
	• Introduce mechanisms for promoting the use of agricultural lands that have been abandoned for more than 10 years.		+++	MT-LT	
	• Encourage the creation of commercially oriented aggregators.		++	MT-LT	
			++	MT-LT	

Note: EU = European Union; GLOBALG.A.P. = Global Good Agricultural Practices; HACCP = hazard analysis critical control points; ISO= International Organization for Standardization

POLICY AREA/ CONSTRAINT	RECOMMENDATION	EXPECTED BENEFITS	DIFFICULTY[a]	TIME[b]	RESPONSIBILITY
Sustainability and climate	• Improve climate-related data systems (e.g., productivity, environmental status, and projected effects of climate events on land plots).	• Reduce costs associated with climate-change disasters. • Increase yields and their predictability.	++	ST	Ministry of Agriculture Ministry of Economy
	• Promote Climate-Smart Agriculture (CSA) practices (e.g., greenhouses, drip-irrigation, antihail nets, antifrost systems, and wind breaks).		++	ST	
	• Develop climate finance instruments for small and large farmers.		+++	ST	
	• Facilitate the transition to organic farming practices.		+	ST	
			++	ST	
	• Increase forest surface (e.g., using abandoned farming lands).		++	MT-LT	
	• Invest in technologies and infrastructure that mitigates climate risks, such as irrigation, or R&D in drought-resistant varieties or pest management.		+++	MT-LT	
	• Improve irrigation infrastructure; improve quality of water; encourage farmers to adopt irrigation, and produce with water efficient methods.		+++	MT-LT	

Note: EU = European Union; GLOBALG.A.P. = Global Good Agricultural Practices; HACCP = hazard analysis critical control points; ISO= International Organization for Standardization.
Priority policy responses to mitigate the impact of the Russian invasion of Ukraine and of the lingering effects of the COVID-19 crisis are highlighted in light blue (see also table ES.1).

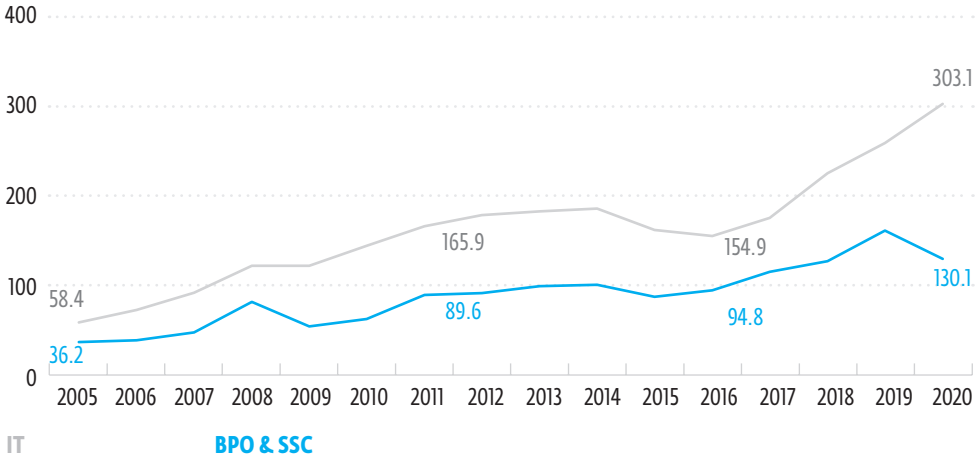
a.+ = relatively low difficulty; ++ = medium difficulty; +++ = high difficulty.
b. ST = short term; MT = medium term; LT = long term.

4.3. INFORMATION AND TECHNOLOGY OFFSHORING, AND BUSINESS PROCESS OFFSHORING AND SHARED SERVICE CENTERS: HARNESSING THE NEXT WAVE OF ITO INVESTMENTS AND FOSTERING THE NASCENT BPO&SSC INDUSTRY

Recent performance of Moldova's offshore services

Outsourcing is the principal offshore services market in Moldova, whereas IT services is the largest outsourcing category. Business process offshoring and shared service centers exports are expected to experience double-digit growth until 2024 and beyond (see appendix I1) for an overview of global offshoring services). Outsourcing accounts for about 78 percent of the Moldovan offshore services market whereas IT services explain 55 percent of outsourcing revenues. According to the Invest Moldova Agency, IT services' revenues are expected to grow by 7 percent per year between 2019 and 2024, whereas BPO&SSC's revenues are expected to growth at double-digit rates over the same period.[200] In the domestic market, IT implementation accounts for around half of the revenues, whereas operations management is the category experiencing the fastest growth rates.[201] In the past 15 years, Moldova's IT services exports quadrupled, from US$58 million in 2005 to US$303 million in 2020, while BPO&SSC exports tripled over the same period. IT services also accounts for about 70 percent of Moldova's offshore services exports (figure 4.10). Furthermore, according to NBM data for 2021, the export volume of the ICT sector reached 397 million US dollars, from which 350 million US dollars come from the IT industry.

FIGURE 4.10. EXPORTS OF OFFSHORE SERVICES IN US$ MILLIONS, 2002–20

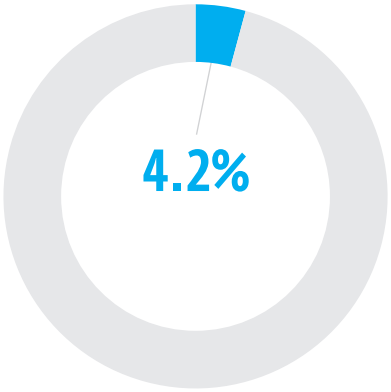


Source: World Bank Group staff elaboration based on UNCTAD Database (2021).
Note: BPO = business process outsourcing; IT = information technology; SSC = shared service center. BPO&SSC comprise exports of "other services."

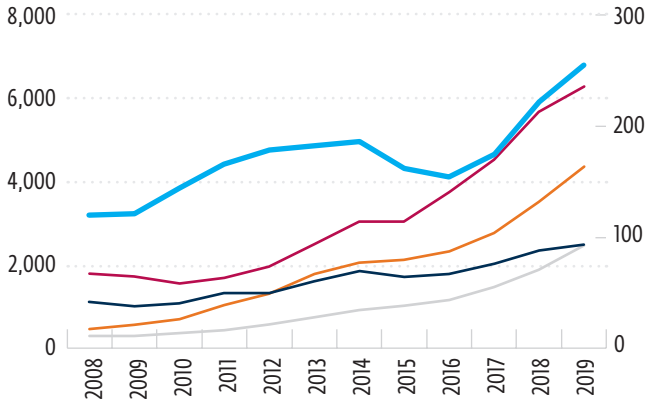
IT services is one the most dynamic and high-potential sectors for private sector development in Moldova. As of 2021, there were around 2,300 IT companies employing nearly 15,000 IT professionals. According to the latest data provided by the National Bureau of Statistics, in 2021 the ICT sector recorded its highest growth so far. The sector's gross value reached 18.3 billion MDL in 2021, registering an increase of 3.0 billion MDL compared to 2020 and reaching a share in GDP of 7.6 percent. Much of this growth is due to the IT industry the value of which increased from 7.4 billion MDL in 2020 to 10.2 billion MDL in 2021, reaching a share in GDP of 4.2 percent (figure 4.11, panel a). This increase is largely due to favorable policies implemented for the development of IT industry, ensured through the distinct tax regime and other benefits offered by the state to Moldova's Virtual IT park residents. Between 2008 and 2017 Moldova exports in IT services grew at 7 percent per year, a reasonable performance but below the ECA average (figure 4.11, panel b), pointing to potential for further expansion. Currently, IT services represent around 7 percent of Moldova's total exports.

FIGURE 4.11. MOLDOVA INFORMATION TECHNOLOGY CONTRIBUTION TO GDP AND EXPORTS

a. IT contribution to GDP, percentage



b. IT service exports, US$ millions



Sources: National Bureau of Statistics of the Republic of Moldova, database, 2021, https://statistica.gov.md/index.php?l=en; UNCTAD Database https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en ; Atlas of Economic Complexity, database, Growth Lab at Harvard University, Cambridge, MA, 2021, https://atlas.cid.harvard.edu/

The United States and the EU are the largest markets for Moldova's IT services exports. About 60 percent of the Moldovan IT firms serve the domestic market, whereas the remaining companies export, mainly to the United States, and, to a lesser extent, to the European market. A second tier of export markets comprises the United Kingdom (35 percent of firms), Germany (33 percent), Romania (28 percent), Ukraine (17 percent), Russia (15 percent), France (13 percent), Italy (11 percent), and Israel (11 percent). Foreign markets with an emerging footprint of Moldovan exports include Kazakhstan (9 percent of firms), Canada (9 percent), Netherlands (9 percent), Austria (7 percent), Denmark (7 percent), Australia (4 percent), Korea (4 percent), Sweden (4 percent), Czechia (4 percent), South Africa (4 percent), and other countries. About one-fifth of firms serve the EU market.[202] The IT services sector is primarily focused on the build-out phase, with major investments occurring in hardware infrastructure (for example, server, storage, or network equipment).[203]

Whereas most of the Moldovan IT services companies provide services in English, Russian, and Moldovan, further growth is possible in Asian and other European languages. Most firms provide services in Romanian (100 percent), English (100 percent), and Russian (89 percent). A second layer of serviced languages comprise French (20 percent), Italian (15 percent), German (13 percent), Ukrainian (11 percent), and Spanish (11 percent).[204]

The country specializes mostly in providing low-sophistication IT services. Whereas a range of higher-sophistication services are emerging within the portfolio, most projects are relatively basic in technology.[205] Thus, Moldova's ICT exports have relatively low economic complexity like most of the country's export basket.[206] Talent available for IT projects includes architects, project managers, analysts, software engineers, developers, and testers. Core approaches to building software applications include Agile[207] Methodologies and DevOps[208].In programming languages, Moldovan workers show strong proficiency in .NET, Java, C/C++, PHP, Python, and Ruby.[209]

The IT services expansion has been driven by the availability of relatively low-cost specialized workers. Those workers have computer and related skills (for example, software engineers, analysts, developers, and project managers). A recent global report ranks Moldova the fourth best location for affordable talent in ECA.[210] Average monthly wages in the local IT sector amount to around US$900, compared with US$1,487 in Portugal, US$1,676 in Bulgaria, or US$2,127 in Romania.[211] Moldova's universities are turning out math and science majors at about twice the rate of other Eastern European countries such as Bulgaria, Hungary, Romania, and Slovenia. For instance, there are 2,000 graduates yearly with graduate and undergraduate degrees in IT, engineering, and mathematics. Currently there are also 3,500 students enrolled in IT programs and 5,000 in engineering programs, whereas computer science students account for 6 percent of the total number of graduates.[212]

Moldova is well positioned in the quality and costs of its telecommunication infrastructure. It has mobile penetration well over 100 percent and Points of Presence (PoP) of fiber-optic backbone network at 98.2 percent. According to the Speedtest Global Index as of April 2019, the internet download speed in Moldova (47.64 Megabits per second [Mbps]) is higher compared with other countries in the region: Ukraine (44.36 Mbps), Albania (27.29 Mbps), Serbia (38.82 Mbps), Macedonia (24.55 Mbps).[213] Moldova ranks 59th out of 175 countries in the ICT Development Index. Average fixed broadband speed is 91.4 Mbps[214] and average cost of fixed-line internet is around €10 per month, making Moldova the 6th most affordable country in connectivity worldwide.[215]

However, digital connectivity constrains the expansion of IT services in Moldova. Digitalization of SMEs is low owing to limited infrastructure investment, regulatory barriers, and inadequate digital literacy. Moreover, the number of fixed broadband subscriptions per 100 inhabitants (16.6) is similar to the worst-performing regional peers such as Ukraine (16.2) or Serbia (18.5) and significantly below Romania (27.3), Bulgaria (28.8), or Croatia (30.0).[216] The mobile connectivity market is highly concentrated: two of the three mobile operators account for almost 85 percent of users; and the fixed broadband market is affected by the distortive presence of the SOE Moldtelecom, which accounts for more than half of the market. Regulation and sector governance remain weak because of the political economic challenges, continued market power of the SOE, and the inadequate independence and limited mandate of the sector regulator, the National Regulatory Agency for Electronic Communications, and Information Technology (ANRCETI).[217]

Another growth driver for IT services has been support policies and an active private sector. Moldova has designated FEZs where investors can carry out entrepreneurial activities under preferential terms and conditions (that is, favorable tax, customs, and other regimes). Companies investing US$250,000 or more are eligible for lower corporate income tax (CIT) for up to five years under certain conditions and the CIT rate was reduced from 28 percent to 12 percent since 2007. Moldova has seven FEZs and nine industrial parks. The ICT services growth has also been due to a vibrant and organized private sector. Moldova's active IT services association, the Association of Information and Communications Technology Companies (ATIC) has been a significant player; for example, it has recently set up Tekwill, an IT industry center of excellence.[218]

The IT park has played an important role in fostering Modolva's IT services exports. Following the example of neighboring countries like Romania, the government has continuously nurtured the growth of the local IT services since 2006. The most important public initiative has been the creation of the virtual IT park in 2018. The IT park provides a 7 percent turnover tax that replaced seven preexisting taxes.[219] The park also involves an IT visa program that allows residents to obtain visas for foreign experts for up to four years for managers and up to two years for IT specialists through a simplified process (box 4.5).

BOX 4.5. MOLDOVA'S VIRTUAL INFORMATION TECHNOLOGY PARK

Moldova's virtual IT park started operations in 2018 as a public-private effort. In its first year, the park hosted 300 residents and more than 500 residents in its second year. According to estimates of the Association of Information and Communications Technology Companies (ATIC), 350 companies were created because of the park. Currently, the park hosts nearly 800 companies, 20 percent of which are foreign invested, mostly from the United States, Romania, and Italy. Most of the companies in the park engage in IT services provision. Around 80 percent of firms operating in the park are exporters and more than 90 percent of the exports generated by the park belong to IT companies. Whereas most of the revenues come from outsourcing activities, some companies are starting to develop and sell their own products, such as Noction.

Moldova's law on IT parks (Parliament Law no. 77 of 21.04.2016) regulates the creation and functioning of IT parks. To enter into the park, companies need to demonstrate that 70 percent of their turnover comes from one or several priority activities.[a] Currently, IT park's residents enjoy a special tax regime until 2025. The IT park is currently defining its strategy for the next five years. Part of the efforts are focused on working with the donor community to identify additional funding in addition to charging fees to resident companies. The park is also pushing its digital transformation effort by digitizing the interaction with residents. It is also about to create a small office, with nearly 10 people working as support staff.

a. Those activities include customized software development; computer game editing; editing other software products; management of computing means; data processing; web page management; web portal; information technology consulting; other information technology services; other forms of education limited to training in computer science; research and development in other natural sciences and engineering based on the use of specialized high-performance computing equipment; research and development in biotechnology; manufacture of electronic components; motion picture, video, and television programs postproduction based on the use of specialized high-performance computing equipment; and specialized design based on the use of specialized high-performance computing equipment.

In addition to the thriving IT industry, BPO&SSC is a nascent OS sector in Moldova. Its emergence is generally attributed to multilingual language skills of the Moldovan population (for example, Russian, Moldovan, and other languages) and to being in similar time zones as the EU and CIS countries, as well as the presence of adequate ICT infrastructure. There are about 80 companies engaging in BPO&SSC in the country. Whereas the industry is focused mainly on low value-added activities (for example, call centers), some companies have recently started to engage in more complex services (for example, payroll management). BPO&SSC exports reached about US$130 million in 2020 and have exhibited a mild growth rate in the past decade (figure 4.10). Already eight companies are establishing a business association that is expected to be launched in 2022.

Market access, innovation, access to finance, and business environment represent the largest gaps in the competitiveness of the Moldovan OS industry compared with its regional peers. Table 4.3 provides a comprehensive assessment of Moldova's OS industry by presenting the results of the Offshoring Services Competitiveness Index (OSCI). The OSCI ranks Moldova against a selected group of peer countries in eight crucial dimensions for private investment in information technology offshoring and in BPO&SSC: (a) business environment, (b) talent, (c) digital capabilities, (d) cost, (e) innovation, (f) access to finance, (g) investment promotion, and (h) market access.[220] Moldova only scores above 50 in the OSCI in cost (80.5) and digital infrastructure (79.3), whereas the country ranks the worst in market access (13.5), innovation (15.3), access to finance (19.2), and business environment (37.7). In digital infrastructure, Moldova lags EU peers like Portugal (93.2), Bulgaria (93.4), and Serbia (81.9).

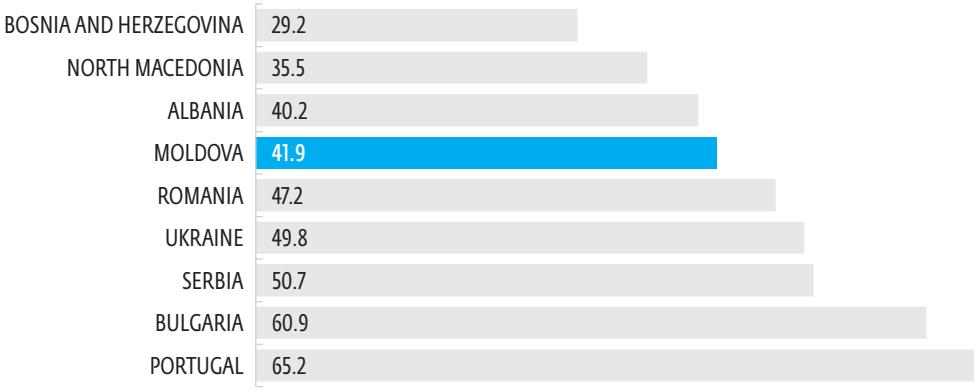
TABLE 4.3. OFFSHORING SERVICES COMPETITIVENESS INDEX (OSCI) BY PILLAR AND COUNTRY, MAXIMUM = 100

PILLARS	MOLDOVA	ALBANIA	BULGARIA	BOSNIA AND HERZEGOVINA	NORTH MACEDONIA	PORTUGAL	ROMANIA	SERBIA	UKRAINE
Business environment	37.7	29.3	44.1	60.9	47.9	45.9	40.8	43.4	36.4
Talent	41.1	45.1	64.4	19.4	44.0	19.4	34.4	21.2	22.1
Digital infrastructure	79.3	45.9	92.4	17.3	71.6	93.2	72.8	81.9	60.5
Cost	80.5	67.1	55.6	79.3	19.5	19.9	24.7	54.4	87.8
Innovation	15.3	2.0	62.4	13.7	16.8	94.0	49.9	37.3	46.1
Access to finance	19.2	51.6	75.1	23.3	25.8	91.8	25.5	60.8	26.9
Investment promotion	48.3	71.3	24.8	19.8	47.2	57.5	49.0	73.9	55.5
Market access	13.5	8.8	68.2	0.0	11.5	100.0	80.3	32.4	63.0

Sources: See appendix I.2.
Note: See appendix I.2 for a detailed explanation of the methodology and data used to construct the OSCI. Greener colors denote a higher score, whereas more red colors denote a lower score. Yellowish colors denote an intermediate score.

Moldova's performance on the OSCI Index is in line with Eastern European and Western Balkans comparators, but it lags EU countries for offshoring services. The results of the OSCI reveal that Moldova ranks closely to countries like Romania or Ukraine (41.9 versus 47.9 and 49.8, respectively), but well below EU members like Portugal (65.2) or Bulgaria (60.9). At the same time, it outperforms most Western Balkans countries, such as Albania (40), North Macedonia (35.5), and Bosnia and Herzegovina (29.2) among the selected peers (figure 4.12).

FIGURE 4.12. OFFSHORING SERVICES COMPETITIVINESS INDEX (OSCI) BY COUNTRY, MAXIMUM = 100



Note: The aggregated Offshoring Services Competitiveness Index is calculated by taking the simple average of the pillars for each country. For more details, see appendix I.2.

Moldova displays strong competitiveness for low sophistication OS, while it lags peer countries in the conditions required for providing higher value-added OS. The OSCI reveals that the country ranks better than its peers in dimensions relevant for less sophisticated OS activities, as illustrated by its performance on costs and digital infrastructure. Moldova's competitiveness exhibits gaps in some of the crucial dimensions for more complex OS like innovation, access to finance, and business environment, which become particularly important given the absence of the large pool of talent typically required to sustain growth in the low value-added segment of the OS value chain (see appendix I.2).

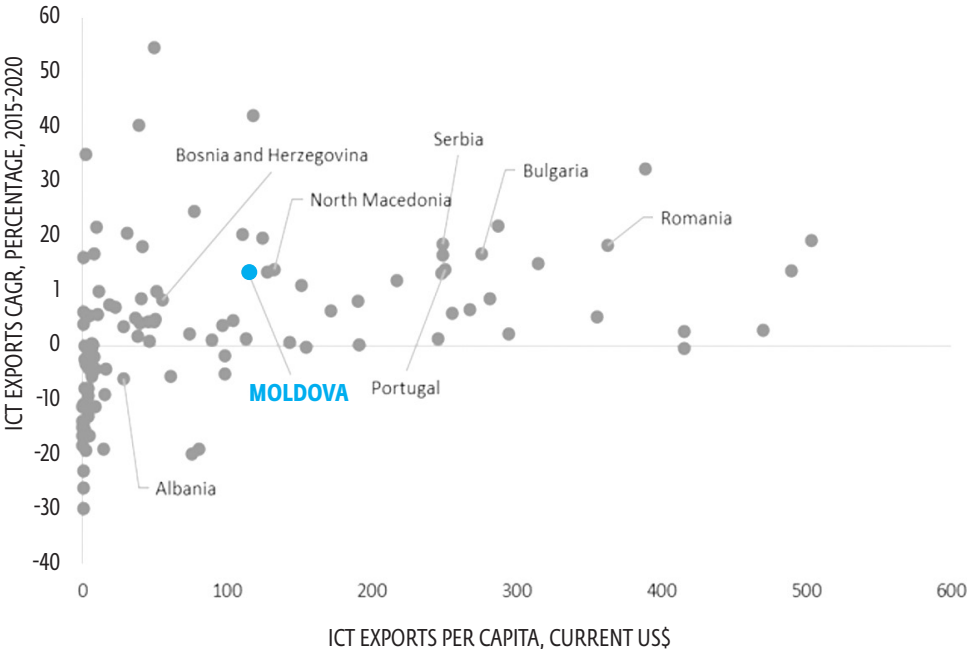
Moldova already has several success stories that show its potential in OS. Software arises as the most consolidated IT activity. However, there are many emerging opportunities aligned with Moldova's comparative advantages, such as IT consulting, IT infrastructure, call centers, finance and accounting, or HR management, and more broadly in BPO&SSC (appendix I.3). Of particular note are vertical services such as e-commerce and fintech that have considerable growth potential.

E-commerce and fintech also exhibit increasing signs of dynamism. Moldova's 1.4 million online shoppers are expected to drive US$168 million in revenue in 2021, with revenues reaching US$269 million by 2025.[221] Fashion is the largest segment of the market, contributing around US$49 million in revenue in 2021. Shoppers generally pay on receipt of goods rather than online at the time of purchase. In 2020 the innovation hub Tekwill's initiative to offer cofinancing for companies using technology to boost e-commerce has been identified as one of the main priorities for the Economic Council agenda.[222] Tekwill recently launched "FinTech Vertical 2021," a program dedicated to supporting the country's growing fintech sector by connecting startups with existing financial services and IT players. In addition, Tekwill holds open days for students and others interested in learning more about the subsector. Moldova also has opportunities in other more specialized and complex OS, such as OS related to manufacturing, agriculture, and gaming.[223] Against this background, there are already ongoing efforts from ATIC to include some emerging activities (for example, distance learning, R&D services, video call centers, nanotech, biotech, and manufacturing of electronic parts) in Parliament Law no. 77 of 21.04.2016 to enable them to operate in the IT park.

Seizing the potential for private sector development in offshore services in Moldova

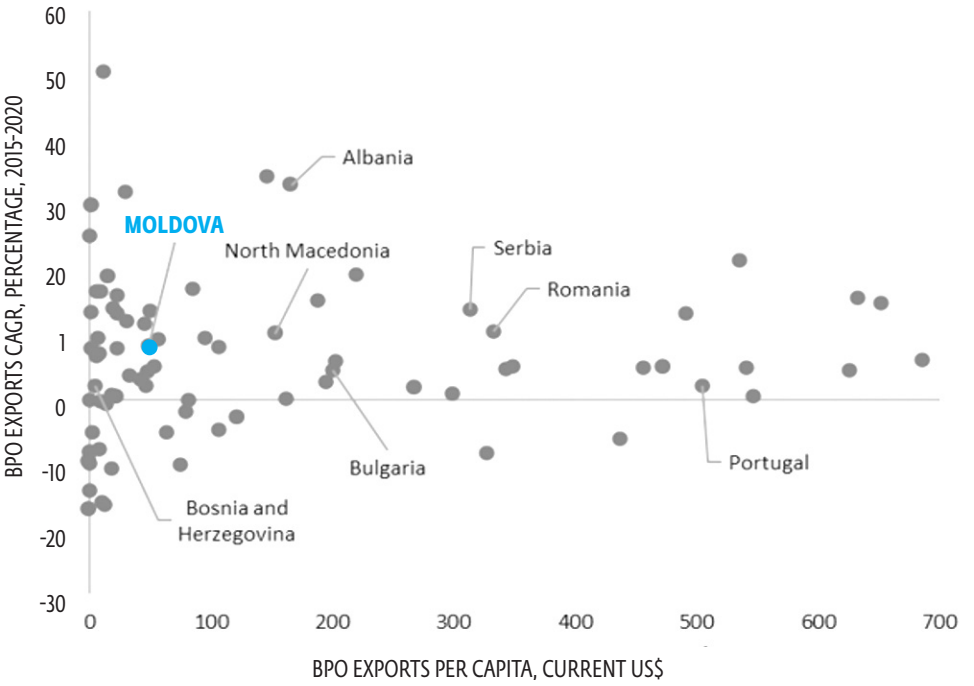
Given the limited scale of its talent pool, Moldova's growth path lies in transitioning from its current specialization in low sophistication OS to higher value-added OS activities such as engineering services, research and development, and other niche markets. Moldovan OS exports per capita remain significantly below peers and have grown significantly faster (figure 4.13). Whereas Moldova's exports per capita of IT services amount to US$116 in 2020 (figure 4.14), other ECA countries like Romania and Bulgaria export more than double or triple that (US$364 and US$275, respectively). Moldovan BPO&SSC exports per capita (US$50) are significantly lower than all peers, except Bosnia and Herzegovina (US$5). For instance, Romania's exports per capita of BPO&SSC are about seven times larger than Moldova's (US$334). Viable subsectors for expansion include R&D and engineering services, which are expected to show the highest dynamism among outsourcing services with a projected annual growth rate of 12.2 percent between 2019 and 2024.[224] Other emerging niche competencies involve UX specialists, product managers, and data scientists. Improving the supply of local IT specialists by strengthening the education system, tapping the potential of the Moldovan diaspora, and engaging in upskilling and reskilling the labor force could provide the required talent for the IT sector's next stage.

FIGURE 4.13. MOLDOVA'S AND PEER COUNTRIES'S ICT EXPORTS PER CAPITA VERSUS ICT CAGR, 2015–2020



Sources: Own elaboration based on WEO for population data. UNCTAD for ICT exports data.
Note: Only countries with available data for 2020 are included. Outliers were removed. ICT = information and communication technology; CAGR = compound annual growth rate.

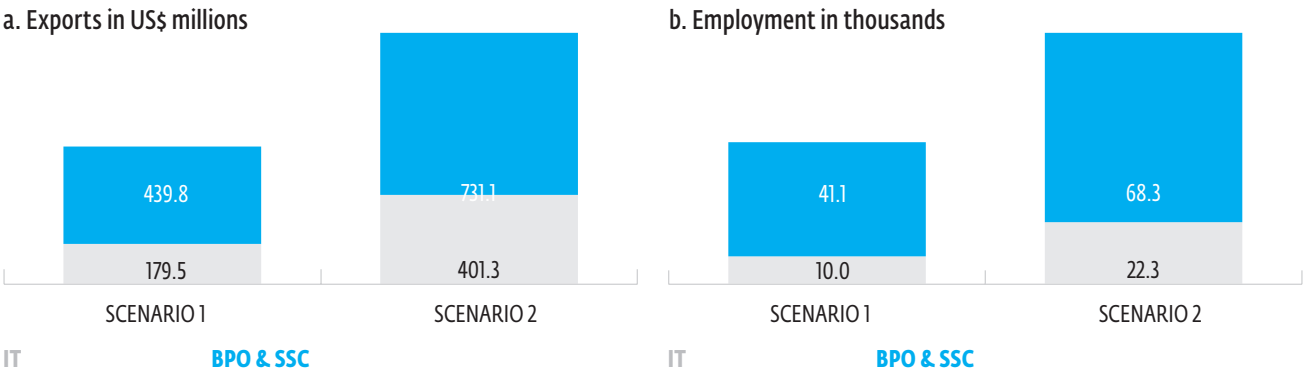
FIGURE 4.14. MOLDOVA'S AND PEER COUNTRIES'S BPO EXPORTS PER CAPITA VERSUS BPO CAGR, 2015–20



Sources: Own elaboration based on WEO for population data; UNCTAD for ICT exports data.
Note: Only countries with available data for 2020 are included; outliers were removed. BPO = business process outsourcing; CAGR = compound annual growth rate.

Moldova's IT services and BPO&SSC exports could more than double in the next decade. Figure 4.15 presents the results of a simulation exercise aimed to seize the untapped potential of offshoring exports in Moldova beyond the business-as-usual or inertial scenario.[225] The exercise considers two alternative scenarios: (a) absolute convergence scenario in which Moldovan exports and employment per capita converge with average exports and employment per capita in the peer countries and (b) conditional convergence scenario in which Moldovan exports and employment per capita increase to the 75th percentile (top 25 percent) of the average exports and employment per capita in the peer economies. Results are presented separately for IT and BPO&SSC in both scenarios.

FIGURE 4.15. POTENTIAL MOLDOVA'S ITO AND BPO&SSC EXPORTS AND EMPLOYMENT



Source: World Bank staff calculations based on UNCTAD Database https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en for exports; for employment, Invest Moldova Agency, "Food Processing and Livestock," 2020, https://invest.gov.md/attached_files/2021/03/04//02020_Food%20Processing%20&%20Livestock%20overview%20Brochure%20(ENG).pdf and Invest Moldova Agency 2021.
Note: BPO&SSC = business process outsourcing and shared service center; IT = information technology. For IT, a labor intensity of 55.6 jobs per US$1million of revenues is assumed; for BPO&SSC, the assumed labor intensity is 93.4 jobs per US$1 million of revenues based on information from Invest Moldova Agency cited in source line .

In figure 4:13, panel a, scenario 1, Moldova's offshoring services exports (IT and BPO&SCC) would more than double, reaching US$619 million, whereas it would almost triple in scenario 2, reaching US$1,132 million. The potential increase in exports is significantly higher for BPO&SSC than for IT given the currently lower exports per capita of Moldova of these services. Similarly, BPO&SSC would experience a more pronounced rise in employment than IT driven by the higher labor intensity of the former sector with respect to the latter OS activity.

However, seizing this potential increase in exports and employment will require a deliberate and proactive policy effort to increase the supply and quality of available talent and improve access to finance for OS within a more flexible labor market and enhanced regulatory environment. Despite Moldova's advantages, further expansion in the information technology offshoring services sector is restricted by four main constraints: (a) limited supply of skilled workers and weak technical education, (b) a dearth of early-stage financing, (c) the complexities and rigidities of labor regulations, and (d) the need to level the playing field between IT and BPO&SSC regulations. For instance, for IT, creating between 10,000 to 22,300 additional jobs (without considering inertial growth), would imply increasing the supply of IT technical specialists by between 8,000 to 17,800.[226] Moldova needs to invest in improving the existing supply and quality of IT workers and access untapped sources of talent like foreign workers, the Moldovan diaspora and silver workers (employees who are over age 50 or pensioners) to be make this growth happen following the example of some of the most successful OS cases.

Barriers for private sector investment and ongoing reform initiatives in offshoring services

This section provides an assessment of the main barriers for private investment in the offshoring services market in Moldova. It combines the results of a benchmarking exercise of Moldova's competitiveness in the main drivers for attracting and fostering investment in this sector against the selected peer countries with the results of interviews with the main stakeholders of the industry in the country.

Impending talent shortage for Moldova's offshoring services

Whereas the availability of affordable talent has been one of the recent key drivers for Moldova's recent performance in OS, access to talent is increasingly becoming a binding constraint for this industry. According to the 2019 World Bank's Enterprise Survey, 19.5 percent of Moldovan firms report an inadequately educated workforce as their biggest obstacle, against an ECA average of 16.1 percent.[227] The talent shortage may be even more severe for the IT sector. For instance, according to ATIC, half of IT firms identify skill mismatches as the main barrier to investment.[228]

The talent shortage in IT services is due partly to labor demand outpacing supply. The current number of specialized IT graduates is insufficient to meet demand in the labor market. The IT sector demands 2,000–4,000 new IT specialists annually.[229] However, the Ministry of Education and Research budgets for only 700 IT workers per year. This represents nearly one graduate per company, which is insufficient to sustain growth in the local IT sector. Talent shortage will soon be prevalent across multiple skills and activities, including programmers, automation personnel, data scientists, IT engineers, and network engineers. As a result, salaries will rise, particularly for high-skilled labor and will gradually converge to the EU levels, thereby eroding Moldova's competitive advantage in affordable talent.

Moldova's education system faces multiple challenges to meet the increasing demand for offshoring services workers. Some of the major challenges relate to lack of spaces, teachers, and inadequate curricula for the industry's demands. Only 50 percent of vocational education and training (VET) graduates find a job, and the course offerings remain limited and highly concentrated in Chişinău, while demand comes mainly from MSMEs. Quality is also a major constrain for VET owing to lack of adequate materials like textbooks and teacher quality. College education is besotted by weak links with the labor market such as internships; lack of recognition by the EU education system; and outdated curricula, especially in digital skills. Technical and vocational education and training (TVET) also lacks adequate offerings of lifelong learning courses, including reskilling and upskilling with a focus on science, technology, engineering, and mathematics.

Talent shortage is aggravated in Moldova by a shrinking labor force resulting from a declining demographic dividend and, mostly, an increase in emigration flows. Although efforts have been made to attract foreign talent, results have not been encouraging. For instance, while the IT visa program has been active for the past three years, it has been able to attract only 60 to 70 IT specialists. According to World Bank–LinkedIn research based on 2017–19 data, the top four skills Moldova is losing to talent migration are workers in computer software, telecommunications, IT, and services.

However, there are several ongoing public and private initiatives aimed at closing the talent gap in the IT sector. The Ministry of Education and Research is including digital skills in the curricula and increasing the participation of the ITO private sector in TVET. It is also promoting entrepreneurial training in BPO&SSC. In higher education, the education ministry is including an IT module in the curricula and strengthening teacher's digital skills. It is also building laboratories and providing equipment, smart boards, projectors, and laptops for chemistry and engineering. The private sector is also putting strong emphasis on reducing the talent shortage in IT-related occupations, particularly through the Tekwill project (appendix I.3).

Recent international experiences suggest that upskilling and reskilling initiatives can also contribute to mitigate talent shortages in offshoring services. Moldova has another source of talent available by adopting upskilling and reskilling programs. The international experience suggests these initiatives can be an effective tool to increase the supply of skilled workers in IT and BPO&SSC, especially in small countries like Moldova (box 4.6).

BOX 4.6. ADDRESSING TALENT GAPS IN OFFSHORING SERVICES IN IRELAND, ISRAEL, AND POLAND

Springboard+, Ireland[a]: Springboard+ is a joint effort by the government of Ireland and the European Union (EU). It began in 2011 as part of the government's job initiative, aiming at providing affordable upskilling and reskilling opportunities through higher education in areas where there is an identified skill shortage. It places particular emphasis on the unemployed and beneficiaries of social welfare programs. The program offers free and subsidized courses at certificate, bachelor's and masters' levels. It offers more than 320 courses and has capacity for more than 11,000 students for the upcoming elective year. It is currently launching the Human Capital Initiative Pillar 1, which will offer incentivized places for graduates to reskill in areas of skills shortage and emerging technologies, such as information and communication technology (ICT), high-end manufacturing, data analytics, robotics, or artificial intelligence.

Israel Tech Challenge (ITC) and Masa Israel Journey, Israel[b]: ITC is a nonprofit coding academy owned by the Jewish Agency for Israel. It's focused on attracting people from all over the world to come to Israel to learn the coding language and the technological skills needed to launch a career and successfully integrate into the Israeli high-tech industry. Its course offerings focus on in-demand technologies and coding abilities over 5 to 6 months of intensive training taught in English. It also offers coding bootcamps for beginners that focus on full-stack development and cybersecurity. ITC is sponsored by Masa Israel Journey, a joint project of the government of Israel, the Jewish Agency for Israel and its partners, the Jewish Federations of North America, and Keren Hayesod. Masa Israel Journey designs and provides intensive experiences in Israel for young Jews abroad. Through multiple programs and events, it has developed a growing community of young talented people. Currently, the Masa alumni community concentrates nearly 170,000 people across different countries.

Poland[c]: Poland concentrates the largest developer pool in Eastern Europe, significantly outperforming other countries in the region. Moreover, Poland was ranked no. 3 globally in top-class programmer.[d] Part of Poland's success in developing a large and dynamic talent pool are related to continuous efforts to strengthen the education system. Over the past 15 years, Poland introduced a series of reforms aimed at strengthening learning opportunities. For instance, Poland extended comprehensive education for all students (increased from 8 years in 1999 to 11 years in 2015), improved the curriculum by emphasizing core skills and problem-solving, and increased investment in preschool education and foreign language teaching.[e] Poland also introduced a series of reforms to promote dynamism and decentralization in the sector: the government freed the textbooks market, increased school autonomy, decentralized school financing, and introduced an accountability system for teachers. According to Programme for International Student Assessment (PISA) results, Poland moved from below to above the average for the Organisation for Economic and Co-operation Development and, within a decade, became close to a top performer.[f]

a. Springboard+ website, https://springboardcourses.ie/.
b. Israel Tech Challenge website, https://www.masaisrael.org/es/program/itc-coding-bootcamp/.
c. Polish Investment and Trade Agency website, https://www.paih.gov.pl/sectors/ict.
d. HackerRank, 2016. Which country would win in the programming Olympics? https://www.hackerrank.com/blog/which-country-would-win-in-the-programming-olympics
e. Jabukowski, M (2015). " Opening up opportunities: education reforms in Poland. IBS Policy Papers 01/2015."
f. Jabukowski, M (2015). " Opening up opportunities: education reforms in Poland. IBS Policy Papers 01/2015."

Improving access to finance for OS's SMEs and start-ups

Access to finance in OS is structurally constrained by the limited development of the local financial sector, especially for MSMEs and start-ups. Chapter 3, section 2 shows that access to finance, especially for MSMEs and start-ups remains a pervasive challenge for the Moldovan economy. Despite emerging efforts, the country hasn't been successful in attracting significant volumes of venture capital (VC).[230] Although an emerging variety of resources are available for pre-seed and seed projects, there remains a particularly severe gap in the early-stage and scaling phases.[231] There are several undergoing efforts aimed at addressing the finance gap for offshoring services. The Ministry of Economy (ME) is developing a mixed venture capital fund for IT start-ups. It will be equally funded by the industry, the government, and development partners. It will also be managed by the IT park with a coordination council of representatives of the MEI, Ministry of Finance, ATIC, Tekwill, and the development partners. The coordinating board will examine and evaluate projects and will establish the criteria for selecting digital products and services that will benefit from funding. The financing is proposed in the form of grants and is expected to cover up to 80 percent of the costs related to the development and promotion of digital products or services, with a cap of 500,000 MDL.

Modernizing regulations for the digital era: labor and e-government

Rigid labor regulations are a stringent constraint for private sector development. According to the World Bank Enterprise Survey, the share of firms that identify labor regulations as a major constraint for private investment doubled between 2013 and 2019. Whereas the current labor code dates from 2003, the local OS private sector perceives current labor regulations as too rigid and noncompliant with EU best practices. According to interviews with stakeholders in the IT and BPO&SSC private sector, developing the local OS sector requires acknowledging the diverse nature of labor relations in the digital economy, including independent and remote work. For instance, the labor code could be amended to include the possibility of reduced or flexible work schedules or could allow employees to transfer to other positions in the same location. Moreover, the labor code discourages remote access to foreign talent because foreign IT experts must be in Moldova for 180 days to be registered as employees by local OS firms.

Despite some improvements in e-government, there is room for improvement in government-to-business and business-to-government interactions. Recently, Moldova has been making significant progress in the following areas: online fiscal declarations, biometric passports, automated border crossing systems based on electronic passports, digital maps, mobile digital signatures, and online services. However, some online procedures like VAT filing remain cumbersome, and public agencies still require physical presence for requesting information or applying to public services. Moldova still lacks a one-stop-shop for applying and registering new companies, hampering the creation of start-ups and new companies. Moreover, although law 91/2014 ("Law on Electronic Signature and Electronic Document") allows the use of electronic signatures, electronically signed documents still are not widely accepted by the public administration.

Recommendations

Building on the barriers to private sector development and ongoing initiatives, this section presents policy recommendations to help boost Moldova's OS sector. The recommendations focus on three main pillars: (a) leveling the play field between IT and BPO&SSC, (b) fostering the next wave of growth in IT, and (c) improving the policy environment and investing in longer term institutions and capabilities.

Leveling the playing field between IT and BPO&SSC's regulatory frameworks

The IT park has fostered the growth of Moldova's ITO sector in the past decade (see box 4.5). Although the BPO&SSC share some of the competitive advantages of the ITO industry (for example, privileged market access to the EU and CIS, multilingual and relatively skilled workforce, and adequate ICT infrastructure), the former sector lacks a similar regulatory framework. Whereas the IT sector enjoys the governance and incentives framework established by the Law 77/2016, BPO&SSC is hindered by the absence of a similar institutional setting. As a result, the BPO&SSC sector remains in a premature stage with many businesses remaining small and informal and unable to go global. However, the design and adoption of the new incentives should also be accompanied with an effort to formalize BPO&SSC with the aim of mitigating the potential fiscal implications. Moreover, the BPO&SSC industry needs to invest in developing languages skills targeted to rapid growth export destinations in Asia and the EU. Table 4.4 presents the main policy recommendations in this area and box 4.7 reviews the recent case of Poland fostering its BPO&SSC industry.

BOX 4.7. POLAND'S OFFSHORING SERVICES PROMOTION STRATEGY[A]

Poland is a recognized success story in the offshore services sector. The country was able to attract globally renowned players such as Citi, Roche, and Cisco. Between 2013 and 2017, Poland doubled the number of offshore services jobs, which increased from 99,000 in 2013 to 198,000 in 2017.

Poland's success was built mostly around incentives, talent, and governance. For incentives, the country waived corporate income taxes in 14 free zones across the country. For talent, there was strong emphasis on promoting close collaboration between businesses and local universities in defining education programs. Such efforts were complemented by a strong push to build a local organization, the Association of Business Service Leaders in the Republic of Moldova, to promote the development of the sector, including a strong network of investors.

a. World Bank staff interview with Polish OS experts.

Promoting the next wave of Moldova's ITO

Maintaining the current growth rate or accelerating growth will require a massive effort to increase the available supply of IT specialists in the next five years. Training programs like Tekwill could be replicated and expanded by the public and private sectors, while ongoing reforms in the education system need to be accelerated by incorporating IT modules in the curricula, expanding the teacher's talent pool (for example, including non-PhD holders), and strengthening TVET.

Besides these efforts, Moldova should also explore untapped talent pools. As Moldova's population ages, citizens over age of 50 can provide an attractive source of talent for the ITO sector. For instance, Japan is reengaging silver workers in the labor market by providing custom training programs. Another source of untapped talent for the local ITO sector could be foreign workers. Facilitating remote work for foreigners, allowing access to the IT visa for firms located outside the IT park, and simplifying the certification of foreign diplomas could increase Moldova's attractiveness as a destination for digital nomads.

Diversifying Moldova's ITO sector into new markets will also require upskilling the available IT workers and offering a test bed for new services and products. There are opportunities for Moldovan IT companies to diversify into new niche markets (for example, gaming, engineering, and R&D services as well as business verticals like agtech, biotech, and manufacturing) and novel export destinations (for example, China and Türkiye, among others). Yet, capturing these emerging prospects demands training workers for niche roles like IT architects, data scientists, product managers, and UX specialists. A small but digitally literate country like Moldova can prove an ideal testing ground for piloting new services or products. Creative industries can provide a powerful partner, as technological innovation accelerates the involvement of creative industries and R&D centers.

Tapping the Moldovan diaspora can become not only a source of additional talent for the local ITO sector but also of capital and innovation. Recent studies in Colombia and Albania suggest the diaspora can be powerful engine for disseminating technology, knowledge, funding, and business opportunities for local firms.[232] This strategy should start with a careful and updated assessment of the Moldovan migrants (for example, characteristics, location, interests, and willingness to engage with their country of origin). Successful engagement with the diaspora might establish an official program to identify, promote, and attract successful Moldovan migrants. Another initiative could be expanding and revisiting the ongoing PARE 1+1 (Improving Moldova's Remittance-Based Investment Program) to finance IT and BPO&SSC companies.

Improving the institutional capabilities for export and investment promotion in ITO

Besides expanding the talent pool, Moldova needs to invest in institutional and physical infrastructure and promote export and investment in the ITO sector. Expanding access to infrastructure and equipment is key for helping projects navigate the acceleration path. Consultations with IT park residents revealed 50 percent of companies thought that a physical digital park would be beneficial and that they would join that park if it were built. Expanding physical infrastructure can provide adequate space for brownfield investments, which is currently missing. Moreover, export promotion efforts should be accompanied by a strong commitment to attract foreign investment as well as to foster Moldova's recognition as an OS destination. Some progress has already been achieved.[233] Box 4.8 illustrates the examples of Israel, Singapore, and Estonia on how to upgrade competitiveness in ICT services.

BOX 4.8. BUILDING INSTITUTIONAL CAPABILITIES FOR FOSTERING OFFSHORING SERVICES: CASES OF ISRAEL, SINGAPORE, AND ESTONIA

Israel

Israel is regarded as one the most powerful success stories in upgrading the participation in global value chains of information technology offshoring. Israel's story becomes particularly relevant and compelling given the small size of the country, with a population of nearly 9 million people. Israel is ranked as a worldwide leader in R&D centers per capita (over 300), researchers per 1,000 employees, and R&D expenditure as a share of GDP (around 4.3 percent). Between 2005 and 2015, Israel managed to more than triple the number of high-tech start-ups, which rose from 253 in 2005 to 829 in 2015.[a]

Israel's success story builds around government support, infrastructure, partnerships, and funding, among other areas. The government's defence spending is a powerful engine for R&D. The Yozma program launched in 1993 attracted and developed venture capital funds. Infrastructure investments were important and followed clear guidelines on enabling high potential segments, such as biotech or nanotech. Finally, international cooperation and partnerships helped disseminate technologies, funding, and opportunities (for instance, the Korea-Israel Industrial Research Foundation).

Singapore

Over the past three decades, Singapore has become one of the most competitive hotspots for R&D and highly sophisticated offshore services. To a large extent, Singapore's success relied on the government's capacity to design, adopt, and sustain a long-term strategy for the industry and the capabilities of the National Innovation Agency, A*STAR (Agency for Science, Technology, and Research).

Over this period, Singapore launched and adopted successive five-year innovation plans. The plans involved creating new agencies like the National Science and Technology Board and the Institute of High-Performance Computing, identifying flagship projects such as the Genome Institute of Singapore, and allocating the resources to ensure success.

Implementing the five-year plan relied mainly on A*STAR. Jointly with other public agencies, A*STAR seeks to foster high sophistication OS through (a) promoting collaboration between local firms and multinational companies, (b) supporting the development of globally competitive enterprises, and (c) nurturing R&D-based start-ups by providing finance and technical assistance.

Estonia

Estonia is a world leader in digitalization. Estonia is ranked no. 2 worldwide in start-up friendliness, no. 2 in internet freedom, no. 1 in e-participation, and no. 3 in cybersecurity. Estonia's information and communication technology sector employs 5.9 percent of the workforce. Estonia is also home to more than 1,100 start-ups and 7 unicorns.

Estonia set the challenging goal of becoming a fully functional digitized nation without relying on a developed economy's bureaucracy and capabilities. The ambitious effort began in 1994, with the launch of the strategic outline for information technology (IT) development, ratified by parliament four years later. Such a strategy was boosted by a nationwide effort to strengthen IT infrastructure and launch specific digital solutions to create opportunities and improve the quality of life (such as online banking, tax declaration, or the launch of an electronic ID).

In 2001, Estonia launched X-Road, a platform to link public and private sector information and facilitate the exchange of critical information. In 2014, Estonia launched its e-residency program to attract international business and talent. The program positioned Estonia as the first digital nation for global citizens.

Estonia keeps pushing the frontier. In 2017, Estonia launched the NIIS X-Road consortium to ensure interoperability of e-governance solutions and provide adequate cross-border solutions for the public. In 2019, the country started outlining a strategy to create the legal and strategic framework for accelerating artificial intelligence (AI) and to promote the implementation of AI solutions in the public and private sectors. (See table 4.4., Policy Recommendation for Fostering Moldova's Next Wave of ITO and Harnessing the Nascent BPO&SSC industry.)

a. Luzzatto (2016). Israel National Technological Innovation Report: 2016-2017.

TABLE 4.4. POLICY RECOMMENDATION FOR FOSTERING MOLDOVA'S NEXT WAVE OF ITO AND HARNESSING THE NASCENT BPO&SSC INDUSTRY

CONSTRAINT	RECOMMENDATION	EXPECTED BENEFITS	DIFFICULTY[A]	TIME[B]	RESPONSIBILITY
Talent shortage **Low sophistication in specialization of ITO**	**Attract foreign talent, mainly from Ukraine and Romania, and remote digital nomads to Moldova by doing the following:** • Simplifying IT visa requirements • Extending long-term entry and right to work to Ukrainian refugees with their national ID, which were granted in March 2022 • Extending IT visas to companies located outside the IT park • Providing evidence-based tax benefits and explore opportunities to establish some facilities for digital nomads.	• Increased access to available foreign talent pool	++	ST 1–2 years	ME
	Build capacity for emerging markets and reskilling workers by doing the following: • Supporting training in language skills for emerging markets for existing offshore services workers (e.g., Chinese, Türkish, etc.), with some programs specifically targeting women • Scaling up ongoing efforts to disseminate and expand coding skills, including the creation of new programs specifically targeting women	• Increase in talent pool • Market expansion and diversification • Sophistication of existing capabilities	+	MT 2–4 years	ME MER Tekwill
Lack of access to finance	**Support Moldovan start-ups to move beyond the "valley of death" by developing local accelerators and attracting global VC flows, including the following:** • Supporting the creation of local accelerators for IT start-ups, with special outreach efforts for women • Designing and adopting a strategy to attract global accelerators (e.g., 500 Start-ups, Combinator, Techstars, Scale-X Program)	• Growth and increased survival rate for start-ups • A diverse ecosystem that includes women-led start-ups • Increased capabilities and internationalization opportunities	++	MT 2–3 years	ME ATIC

Note: ATIC = Association of Information and Communications Technology Companies; IT = information technology; ITO = information technology offshoring; ME=Minstry of Economy; MER =Ministry of Education and Research; VC = venture capital.

CONSTRAINT	RECOMMENDATION	EXPECTED BENEFITS	DIFFICULTY[A]	TIME[B]	RESPONSIBILITY
Lack of recognition of Moldova as an investment and sourcing destination	**Strengthen export and investment promotion policies for ITO and BPO&SSC by doing the following:** • Supporting ongoing efforts to strengthen investment attraction focusing on high potential activities and markets. • Strengthening national branding. • Expanding the structure and resources of Invest Moldova.	• Fostering exports and attracting FDI	+	MT 3–5 years	ME
Lack of adequate infrastructure and brownfield opportunities	**Develop physical infrastructure for Moldova's OS by assessing the costs and benefits of establishing a physical OSP (e.g., office spaces and innovation labs).**	• Increased investment • Improved technology adoption, leading to increased productivity and growth	+++	MT 3–5 years	ME ATIC
Lack of adequate business environment for BPO&SSC	**Extending the benefits of the IT park to BPO&SSC by doing the following:** • Passing new legislation or adapting Law 77 to replicate and tailor ITO's incentives for the BPO&SSC sector • Fostering formalization of BPO&SSC companies to mitigate fiscal burden	• Increased number of formal BPO&SSC companies • Increased employment, wages, productivity, exports, and investment	++	ST 1 year or less	ME
	Strengthen the BPO&SSC institutional environment by doing the following: • Including BPO&SSC representation in the government's formal stakeholder consultation • Supporting ongoing efforts to create a BPO&SSC association	• Increase in productivity and effectiveness in design and implementation of promotion policies	+	ST less than 1 year	ME ATIC
Lack of institutional stability and interagency coordination	**Developing an integrated long-term strategy for OS by doing the following:** • Designing and adopting a five-year strategy that establishes clear objectives and defines roles and responsibilities to the sector's public and private stakeholders	• Improved predictability in government's policies toward the sector	+	ST 1–2 years	Economic Council ME, ATIC, MER ITO and BPO&SSC reps.,Donor community

Note: ATIC = Association of Information and Communications Technology Companies; BPO = business process outsourcing; FDI = foreign direct investment; IT = information technology; ITO = information technology offshoring; ME=Minstry of Economy; MER =Ministry of Education and Research; MIRD = Ministry of Infrastructure and Regional Development; OS = offshore services; SSC = shared service center; VC = venture capital. Priority policy responses to mitigate the impact of the Russian invasion of Ukraine and of the lingering effects of the COVID-19 crisis are highlighted in light blue (see also table ES.1).

a.+ = relatively low difficulty; ++ = medium difficulty; +++ = high difficulty.
b. ST = short term; MT = medium term; LT = long term.

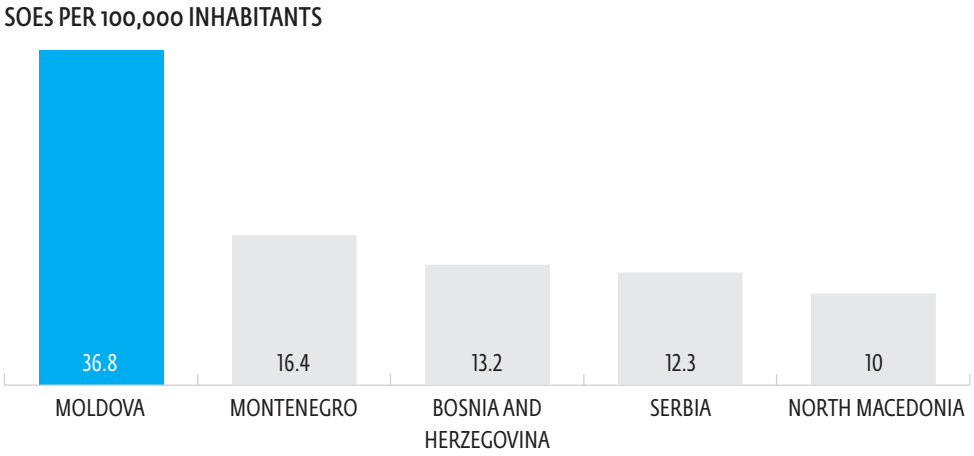
APPENDICES

APPENDIX A. COUNTRY CONTEXT

APPENDIX A.1. STATE-OWNED ENTERPRISES' FOOTPRINT

State-owned enterprises (SOEs) play an important role in Moldova's economy and have a more pervasive presence than in other Europe and Central Asia (ECA) countries, which could limit growth. Estimates indicate that SOE assets account for more than 32 percent of the GDP.[234] Moldovan SOEs provide important public services and are active in key sectors of the economy such as energy distribution, telecommunications, infrastructure, and transport, employing 11.4 percent of the working population. In terms of their contribution to total output, Moldovan SOEs appear to be two to three times larger than their counterparts in other countries of the region.[235] Overall, 979 SOEs are active in the country, with more than 36 SOEs per 100,000 inhabitants (figure A.1).

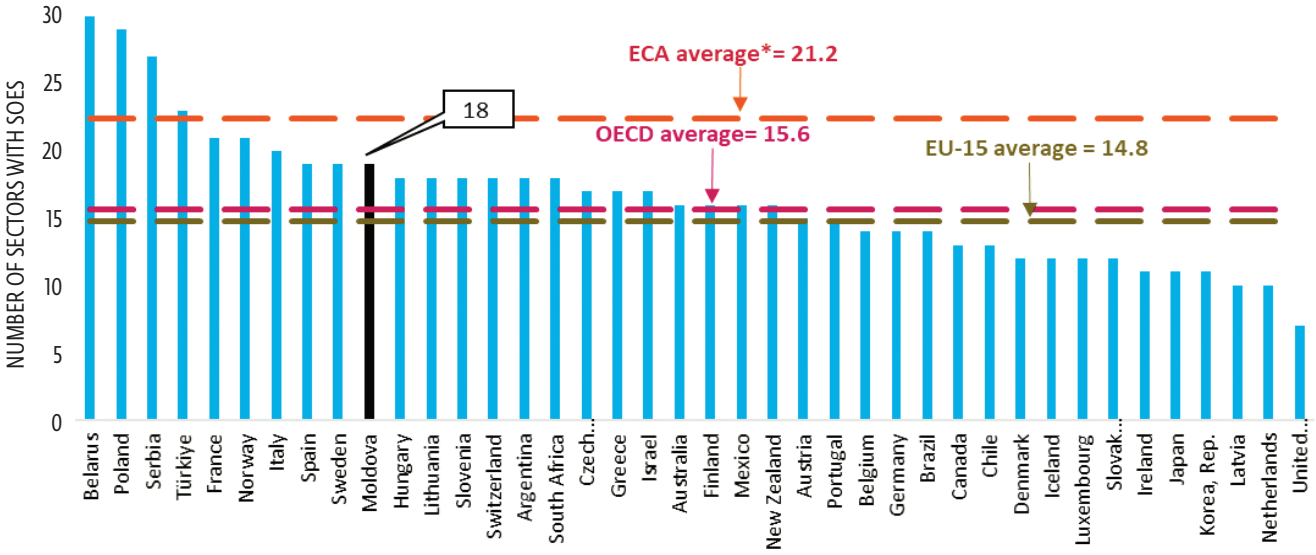
FIGURE A.1. SOES' DENSITY, MOLDOVA AND NEIGHBORING COUNTRIES



Source: World Bank Group, SOEs landscape database, 2021.

SOEs operate across many Moldovan sectors and markets. According to the latest data from the Product Market Regulation (PMR) database and further research,[236] the government controls at least one SOE in 18 of the 29 sectors, compared to the EU-15 average of 14.8 (figure A.2). These firms are characterized by severe inefficiency, considerable losses, rising long-term debt, poor service delivery, low productivity, and inadequate governance. SOEs are also less dynamic and less productive than firms in the private sector and foreign-owned firms. They also register less value-added per employee, lower sales per employee, and slower growth in sales. Their total factor productivity is also lower than that of their private and foreign counterparts, and they have larger unit costs. In some of these sectors, SOEs are established as legal monopolies or the state can significantly influence SOE decisions. For instance, Calea Ferată din Moldova holds a legal monopoly in the railway sector.[237] In the gas sector, the state holds shares (35.33 percent)[238] of the largest player, Moldovagaz, and is empowered to appoint the chief executive officer, exerting a decisive influence over the SOE.[239]

FIGURE A.2. NUMBER OF SECTORS WHERE AT LEAST ONE SOE IS PRESENT IN MOLDOVA AND COMPARATOR ECONOMIES



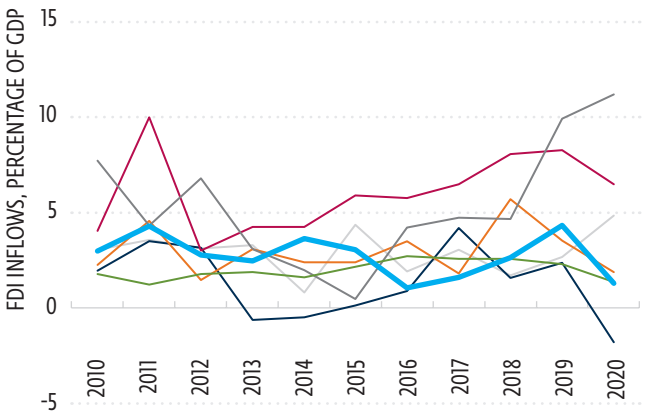
Source: World Bank elaboration, based on Organisation for Economic Co-operation and Development (OECD) and OECD-World Bank Group Product Market Regulation indicators (2018 methodology) and on desk research (2021).
Note: ECA = Europe and Central Asia; EU = European Union; OECD = Organisation for Economic Co-operation and Development; SOE = state-owned enterprise. For the purposes of calculating the total number of sectors covered by the Product Market Regulation methodology, infrastructure markets are considered as independent sectors.

Overall, compared to its peers, Moldova has received limited foreign direct investment (FDI), which plummeted during COVID-19. FDI inflows in Moldova have hovered at about €180 million during the past decade but started to fall behind comparators since 2016 (figure A.3, panel a). Moldova's inward FDI stock as a percentage of GDP has also been consistently below that of its comparators and has shown almost no growth during the past decade (figure A.3, panel b). More recently, FDI inflows to Moldova plummeted as a result of the pandemic, political turmoil, and a severe drought. FDI inflows fell to €48 million in 2020 from almost €450 million in 2019. Compared to other countries in the region, the decline of FDI in Moldova was one of the largest (figure A.4, panel a).

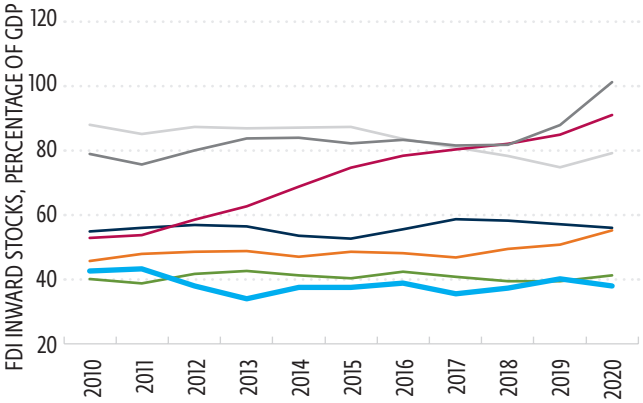
APPENDIX A.2. FOREIGN DIRECT INVESTMENT PERFORMANCE

FIGURE A.3. FDI IN MOLDOVA AND PEERS

a. FDI inflows



b. Inward FDI stock



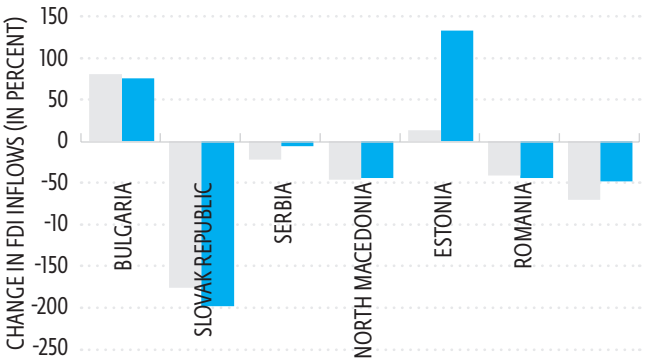
BULGARIA SLOVAK REPUBLIC ROMANIA
ESTONIA SERBIA
MOLDOVA NORTH MACEDONIA

BULGARIA SLOVAK REPUBLIC ROMANIA
ESTONIA SERBIA
MOLDOVA NORTH MACEDONIA

Source: Vienna Institute for International Economic Studies (WIIW) database.

FIGURE A.4. FDI INFLOWS IN MOLDOVA

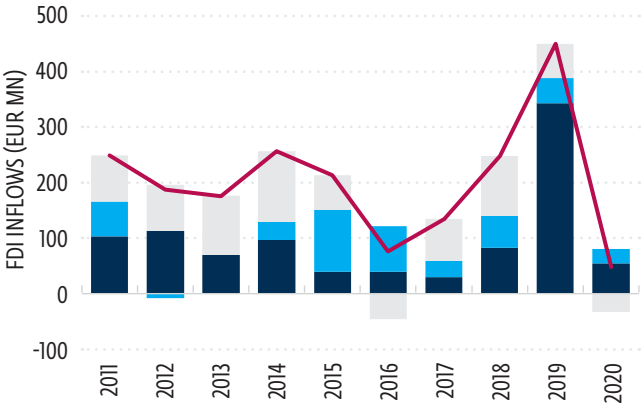
a. The impact of COVID-19 on FDI



Source: Vienna Institute for International Economic Studies (WIIW) database.

DROP 2020 VS. 2019
CHANGE 2020 VERSUS 2015–2019 AVERAGE

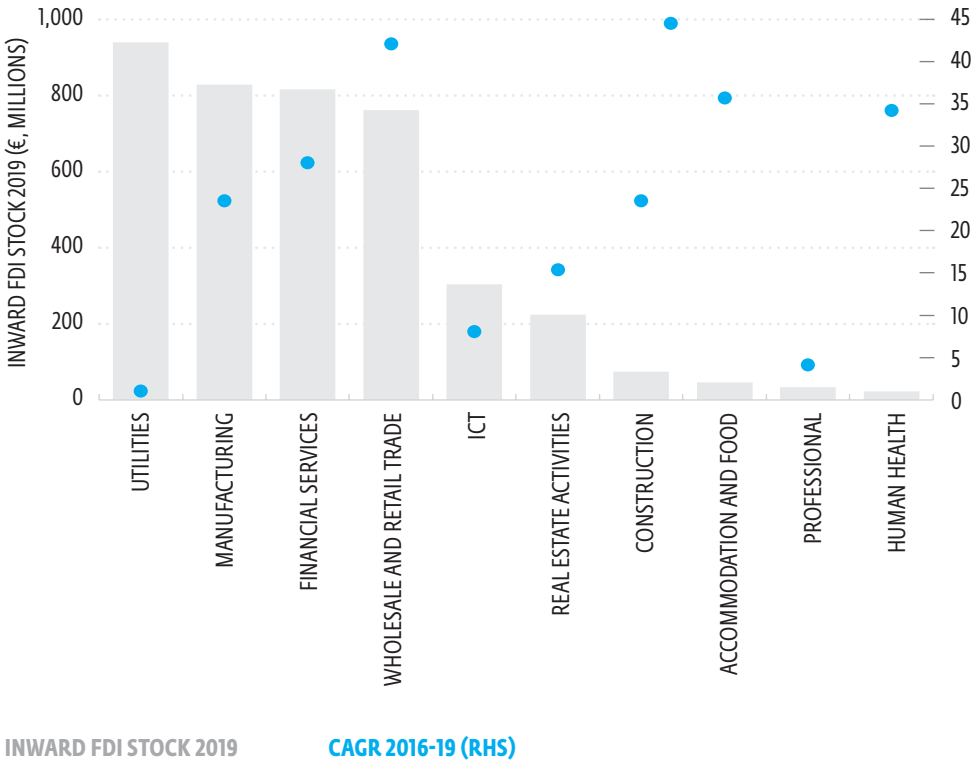
b. FDI inflows in Moldova by typology



DEBT INSTRUMENTS NEW EQUITY
REINVESTMENT OF EARNINGS TOTAL

FDI remains highly concentrated in a few sectors, though there are early signs of diversification. The utilities sector is the largest recipient of FDI (22 percent of FDI stock by end 2019), followed by manufacturing, financial services, and wholesale and retail, which represented roughly 19 percent each (Figure A.5). Within manufacturing, agriprocessing, wine, automotive, and electronics received the bulk of foreign investment. Except for manufacturing, the rest of the top FDI-receiving sectors are oriented to the internal market, which creates limited opportunities for participation and upgrading of the global value chain. Private investors have also shown strong interest in the information and communication technology (ICT) sector, which, together with business process outsourcing (BPO), could be an area of growth for FDI.

FIGURE A.5. MOLDOVA'S INWARD FDI STOCK BY SECTOR



Source: Vienna Institute for International Economic Studies (WIIW) database.
Note: CAGR = compound annual growth rate; FDI = foreign direct investment.

APPENDIX A.3. REVIEW OF THE NEW STRATEGIC INVESTMENT LAW OF MOLDOVA

Moldova recently adopted the Law on the National Security-Related Investment Scrutiny Mechanism of Moldova (the Law), which introduced an ex ante authorization system to select investors in areas considered important for Moldova's national security.[240] These areas cover a large number of economic activities, ranging from the design, construction, and operation of infrastructure in sectors such as energy or transport to the provision of final goods and services such as mobile and fixed telephone services or media and audiovisual services.[241] According to the Law, natural or legal persons willing to participate in public-private partnership (PPP) agreements, privatization procedures, or investment in a private firm operating in any of the areas of importance defined by the Law require prior approval from the government and a newly specialized government agency—the Council for the Promoting Investment Projects of National Importance for state security.[242] This adds risks related to flexibility, certainty, and timely decision-making for private investors.

Although the authorization system could in some instances support Moldova's legitimate interests, broad grounds for intervention can give rise to unintended distortions to market dynamics and competition. The Law identifies areas subject to ex ante authorization—that is, those classified as important for state security—that are broadly defined and cover a wide range of sectors where competition is feasible. Moreover, the authorization system applies not only to changes of control in a firm—as required by merger control regulation—but also to concessions, PPP contracts, investment agreements, financial transactions such as credit or loans, and minority shareholdings.[243] Ultimately, this application could result in conflicts with Moldova's merger control system under the Competition Law,[244] prohibiting mergers and agreements that do not raise any competition concerns and creating important barriers to entry in key economic sectors.

The objectives of the Law could be achieved through less restrictive measures to competition. These include pro-competitive regulations and reinforced ex post control of transactions (e.g., strengthened anti-money laundering and competition enforcement), which would facilitate alignment with European Union (EU) law standards. Although EU law typically recognizes public security considerations as legitimate interests compatible with the EC Merger Regulation,[245] in practice, EU courts and institutions generally require a genuine and serious threat to public security in order to accept these concerns as valid justifications. However, with regard to Moldova, this case is unlikely if the state introduces a general ex ante authorization system, while other policy alternatives that are less distortive continue to exist.[246] In this context, and in light of the EU rules, the implementation of Moldovan legislation should explore less restrictive measures to competition before introducing an ex ante authorization system such as the one proposed by the Law or, alternatively, amend the Law to reduce the unintended distortions to competition (box A.1).

BOX A.1. REVIEW OF THE LAW ON THE NATIONAL SECURITY-RELATED INVESTMENT SCRUTINY MECHANISM: OPTIONS FOR REFORM

Several policy options can be explored to achieve the objectives provided by the Law, while avoiding the creation of additional barriers to competition. For instance, preventing the monopolization of certain sectors, such as energy, could be more efficiently secured through the adoption of pro-competitive sector regulation (for example, ensuring an effective unbundling among transmission, generation, and supply segments; improving transparency in the electricity procurement system; or deregulating tariffs at the retail level).[247] Similarly, increased transparency of investments in strategic markets can be achieved through regular reporting requirements, without the need of introducing an ex ante authorization system. Other objectives, such as preventing the entry of investments coming from illegal activities or reducing unfair competition, could be improved by reinforcing ex post enforcement of the legal provisions on anti-money laundering and unfair competition, respectively. Alternatively, the following provisions of the Law could be further revised or clarified to reduce unintended market effects that would chill investments in the long run:

- The scope of application (Article 3) should exclude minority shareholding transactions and focus on the concept of change of control, as defined in Article 203, paragraphs 3 and 4, of the Civil Code of the Republic of Moldova
- Areas of importance for state security (Article 4) should be further defined and refer to concrete markets or market segments instead of broad sectors. For instance, the electricity transmission segment, as a possible bottleneck, may be deemed more important from a national security perspective than the generation or supply of electricity.
- The list of jurisdictions that do not implement international transparency standards (Article 6.a.) can be revised to refer to objective criteria that countries must fulfill in order to be excluded from such a list (for example, the adoption of International Accounting Standards).
- The restriction for firms controlled directly or indirectly by the government of another state (Article 6.b.) should be limited to cases of control (that is, the state exerts decisive control over the firm, as defined in Article 203, paragraphs 3 and 4, of the Civil Code of the Republic of Moldova).
- The concept of natural or legal persons that increase or pose a threat to national security (Article 6.f.) should be further clarified in the Law and subject to objective criteria, in order to avoid an open interpretation of this provision.
- The prior approval system (Article 7) should be replaced by ex post controls, allowing the government to impose specific requirements to investors in areas of importance for national security (such as an obligation to notify transactions to the Council for Promoting Investment Projects of National Importance, without carrying out an authorization process, and regular reporting obligations) to the list of restricted investors.
- The criteria for the examination of information (Article 8) should be further developed or rephrased to ensure objectivity. For instance, the financial soundness of the potential investor (Article 8.b.) could make reference to the concrete financial requirements that would need to be considered.
- As part of the decision procedure (Article 9), the Law should include a provision to automatically approve an investor's request If no decision has been taken by the council within the decision period (the so-called silence is consent rule).
- Cooperation with other public authorities and institutions (Article 10) could explicitly refer to the need to coordinate with the Competition Council in order to ensure an effective enforcement of competition rules.
- The obligation to include a clause to obtain the consent of the government and the Council for the promotion of the investment projects of importance for state security if the investor intends to transfer control (Article 12) could be replaced by an obligation to inform the government and council of such transactions.

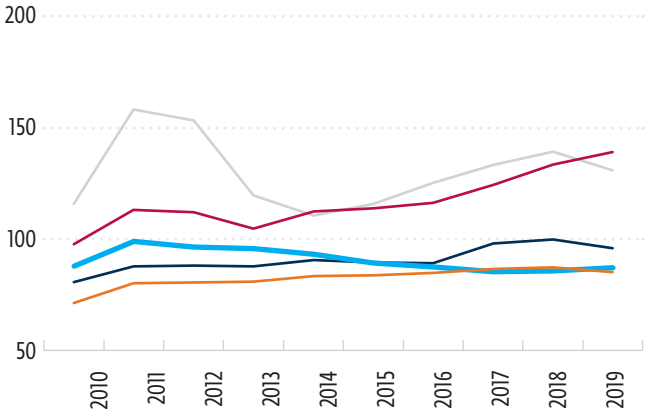
Sources: World Bank elaboration; Law on the National Security-Related Investment Scrutiny Mechanism, Law 174/2021, November 11, 2021

APPENDIX A.4. TRADE PERFORMANCE

As a small open economy, Moldova's development path is inextricably linked with its trade performance. Moldova exported over US$3.5 billion in 2019, which represented a 45 percent increase as compared to 2014 (US$2.4 billion) and a 6.6 percent average annual growth rate (Observatory of Economic Complexity, 2020). Moldova's exports have almost quadrupled since 1995, with significant further potential for growth thanks to the proximity to large markets such as the European Union (EU), and the Commonwealth of Independent States (CIS). The trade-to-GDP ratio has remained stable vis-à-vis regional peers over the last decade, peaking at 99 percent in 2011 and standing at roughly 76 percent in 2020, as an indication that international trade grew at a slower pace than the overall economy. Nonetheless, exports have plateaued at 31 percent of GDP over the period 2010-2019, thus declining from nearly 50 percent of GDP at the start of the 2000s (see, for example, figures A.6–A.7).

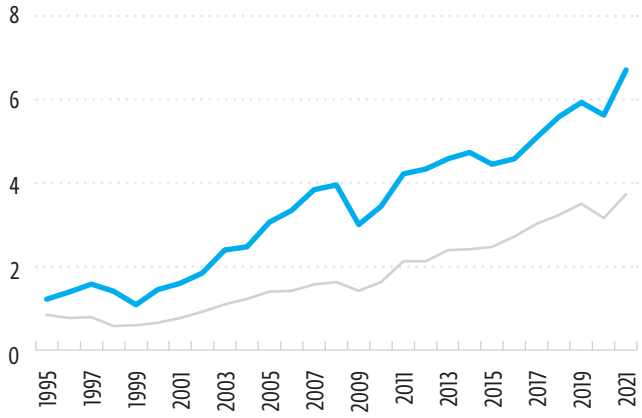
Moldovan exports have shifted from its traditional CIS markets to the EU, while imports remain dominated by a few source countries and remain concentrated in few low value-added, low-sophistication products, that fetch lower prices than competitors on destination markets. The EU market has contributed significantly to growth in Moldovan exports, displacing the CIS as the main destination for them. At the same time, Russian Federation, Romania and China remain the dominant suppliers of imports to Moldova, accounting for roughly 11 to 12 percent of total imports. The United States, Kazakhstan, Spain, France, and a few other European Countries account separately for 1 to 5 percent of imports. Moreover, three product categories account for over 50 percent of total merchandise exports. Vegetable products (23 percent), machines (22 percent), and textiles (15 percent) are the top three export categories. Foodstuffs is also an important product category accounting for 11 percent of exports. While the EU has replaced the CIS as the main destination for Moldova's exports, the country's export basket relies on low technology and primary products. Compared to its peer countries, Moldova displays relatively low levels of economic complexity and ranks 68th in the Economic Complexity Index (ECI), behind regional peers such as Serbia, Ukraine, and Georgia (Figure A9). Nonetheless, Moldova has recently seen a promising pattern of export growth, with the largest contribution to export growth coming from high and moderate complexity manufacturing products (e.g., car seats, insulated electrical wire, among others), ICT, and some high value-added agribusiness products (e.g., wine, fruits, among others) (see, for example, figures A.8–A.9).

FIGURE A.6. MOLDOVA'S TRADE-TO-GDP RATIO



Sources: World Bank, World Development Indicators database, 2021.

FIGURE A.7. MOLDOVA'S TRADE PERFORMANCE (CONSTANT 2015 US$; BILLIONS)

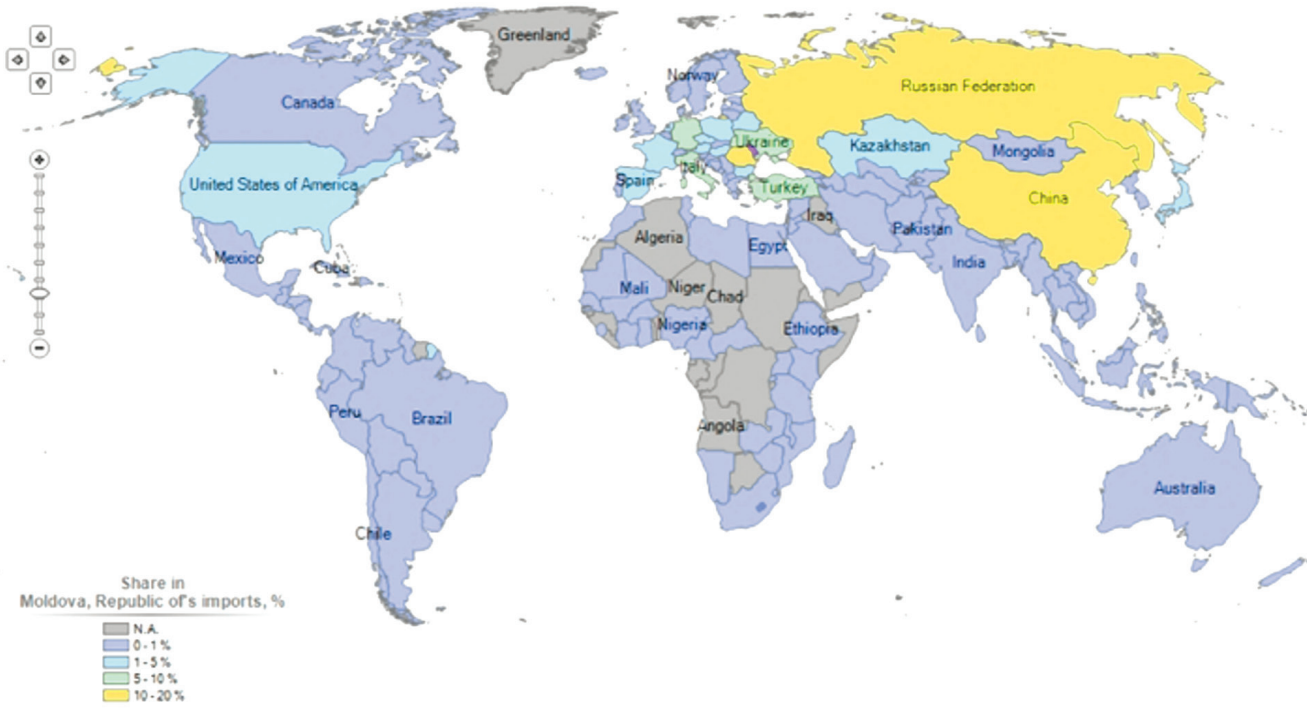


Sources: World Bank, World Development Indicators database, 2021

FIGURE A.8. SUPPLYING MARKETS FOR MOLDOVAN IMPORTS

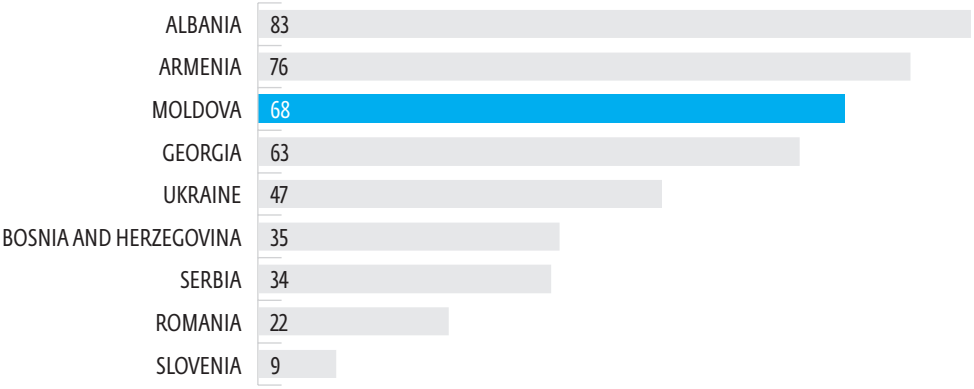
List of supplying markets for a product imported by Moldova, Republic of in 2020

Product: Total All Products



Sources: International Trade Centre Trade Map, 2021.

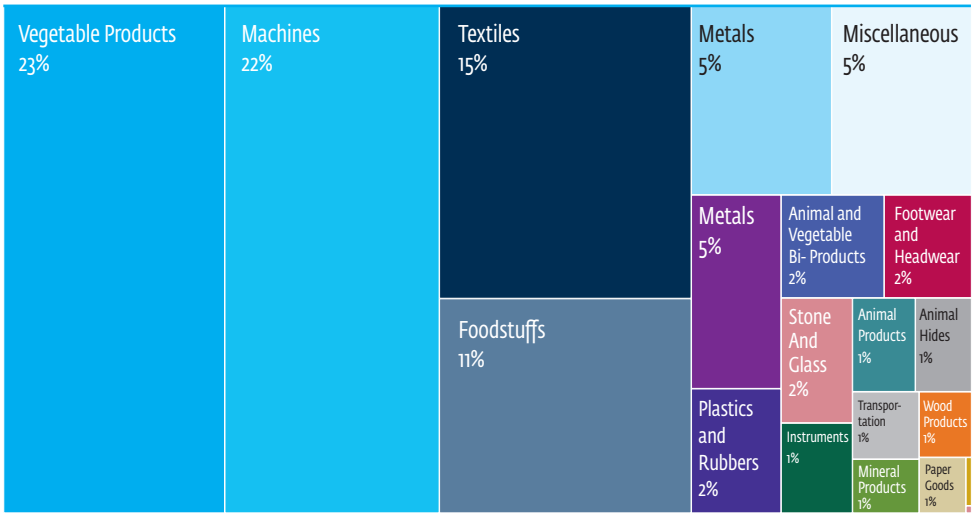
FIGURE A.9. ECONOMIC COMPLEXITY INDEX OF MOLDOVA AND PEERS



Sources: Growth Lab, Harvard University, Atlas of Economic Complexity, 2021.

Moldovan exports remain concentrated in few low–value added, low-sophistication products that fetch lower prices than those of competitors on destination markets. Three product categories account for over 50 percent of total merchandise exports. Vegetable products (23 percent), machines (22 percent), and textiles (15 percent) are the top three export categories. Foodstuffs is also an important product category, accounting for 11 percent of exports (figure A.10). Although the European Union has displaced the Commonwealth of Independent States as the main destination for Moldova's exports, the country's export basket relies on low technology and primary products. Compared to its peer countries, Moldova displays relatively low levels of economic complexity and ranks 71st in the Economic Complexity Index, behind regional peers such as Serbia, Ukraine, and Georgia. Nonetheless, Moldova has recently seen a promising pattern of export growth, with the largest contribution to export growth coming from significant and moderate complexity manufacturing products (for example, car seats and insulated electrical wire), ICT, and some high–value added agribusiness products (for example, wine and fruits) (see, for example, figures A.11–A.16)

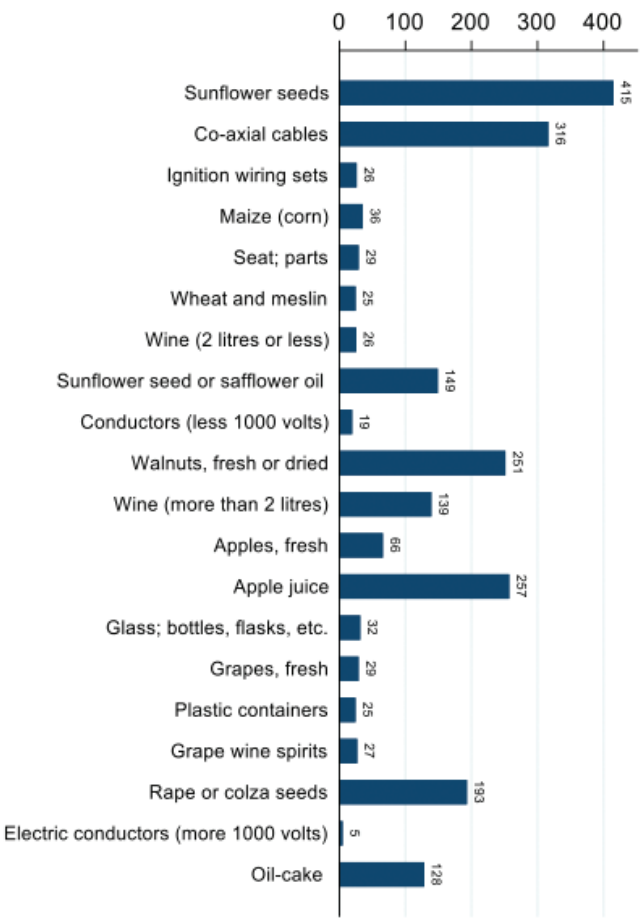
FIGURE A.10. EXPORT SHARE BY SECTOR (2019; MERCHANDISE)



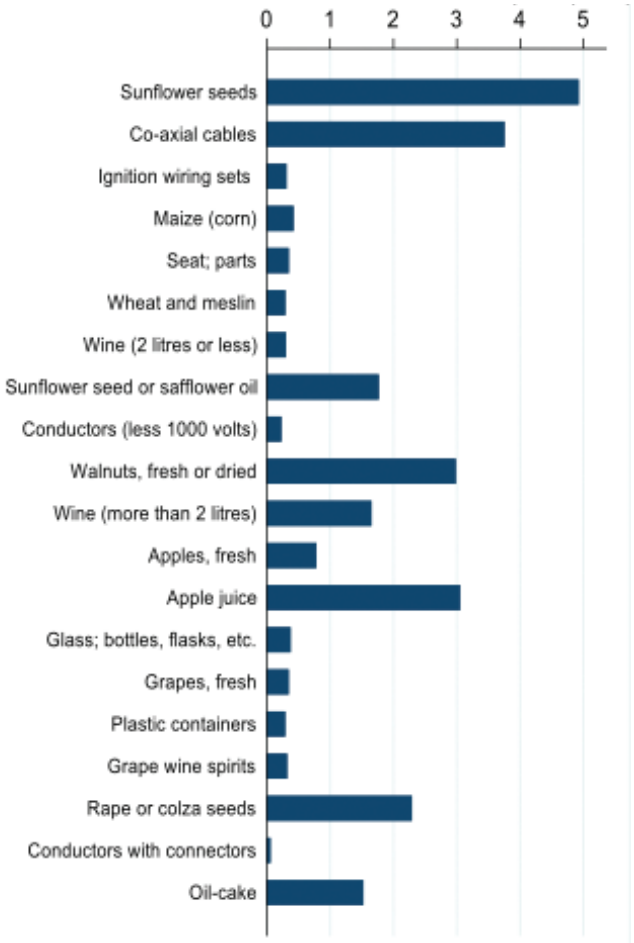
Source: Observatory of Economic Complexity 2021.

FIGURE A.11. MOLDOVA'S TOP EXPORTS AS REVEALED COMPARATIVE ADVANTAGE AND SHARE OF WORLD'S EXPORTS, 2019

a. Revealed comparative advantage

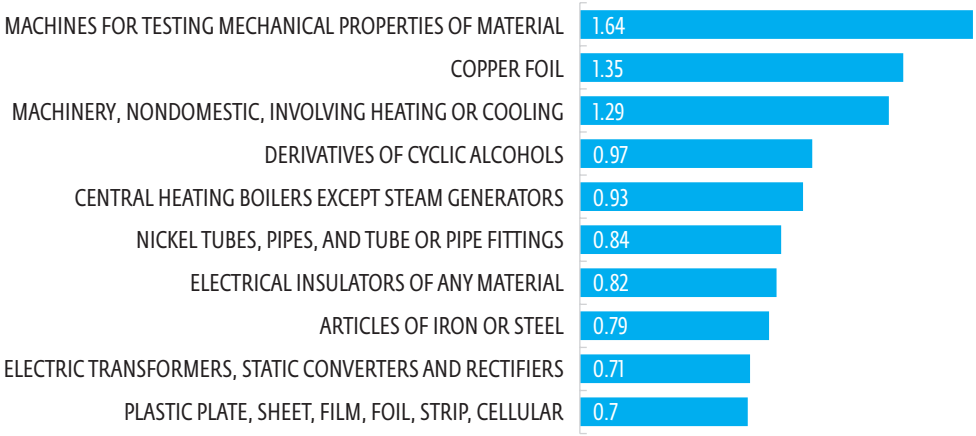


b. Share of total world exports



Source: CPSD team based on World Bank, World Integrated Trade Solution (WITS) database.
Note: RCA = revealed comparative advantage.

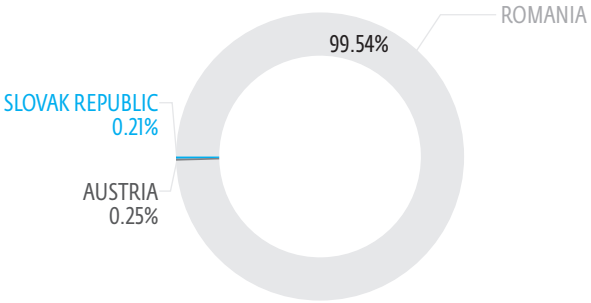
FIGURE A.12. MOLDOVA'S MOST COMPLEX PRODUCTS BY PCI



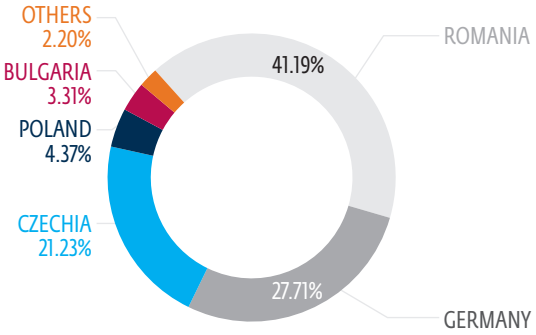
Source: Observatory of Economic Complexity 2021.

FIGURE A.13. EXPORT MARKET DESTINATION FOR SELECTED MANUFACTURING PRODUCTS, 2019, PERCENTAGE OF TOTAL

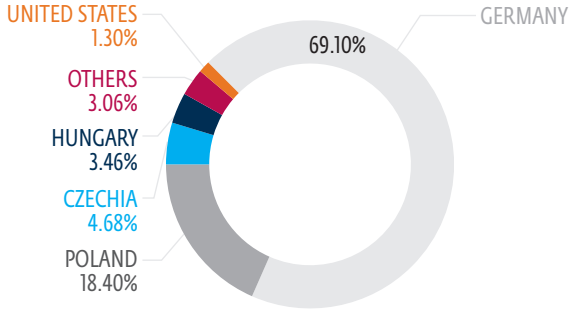
a. 854420: Coaxial cable, share by destination



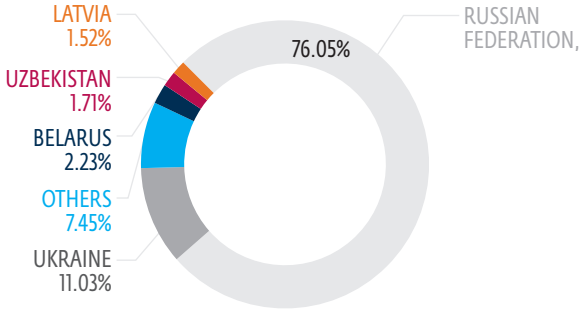
b. 854430: Wiring sets, share by destination



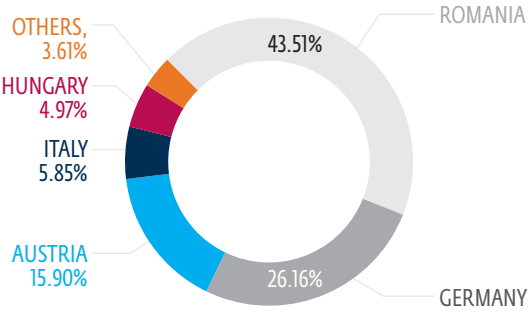
c. 940190: Parts of seats, share by destination



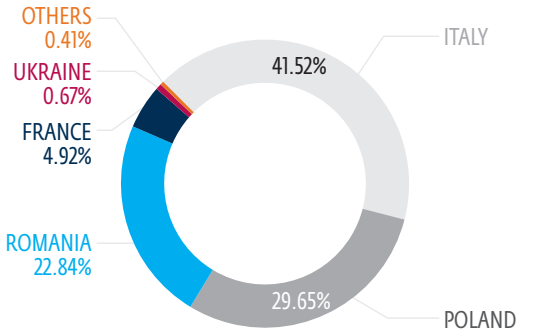
d. 300490: Therapeutic medicaments, share by destination



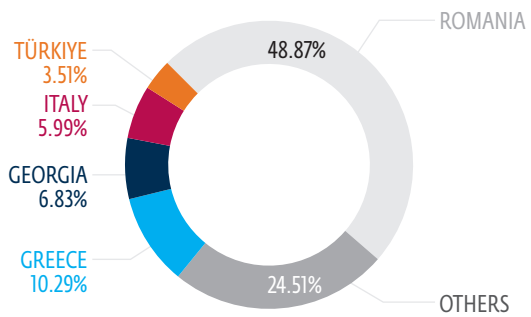
e. 854449: Conductors without connectors, share by destination



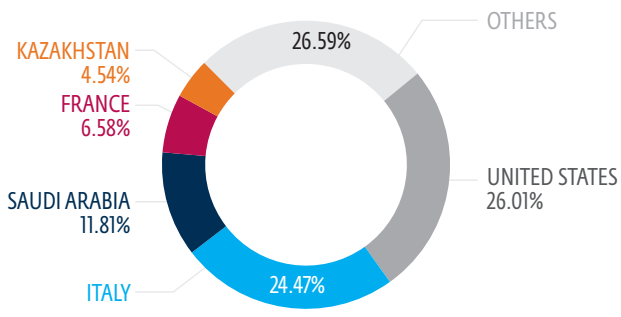
f. 854442: Conductors with connectors, share by destination



g. 701090: Glass containers, share by destination



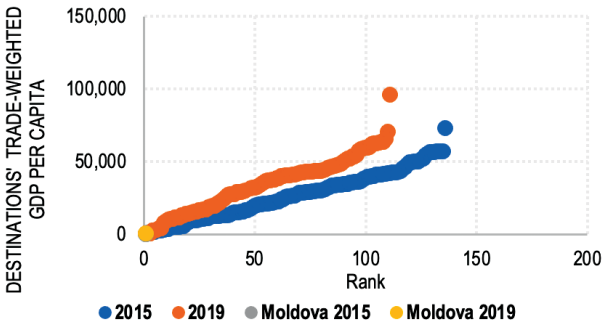
h. 392350: Plastic containers, share by destination



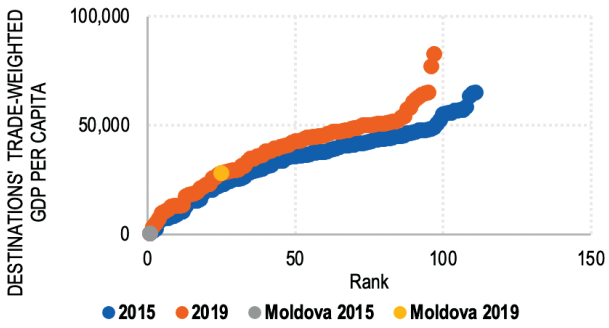
Source: CPSD team based on World Bank, World Integrated Trade Solution (WITS) database, 2021

FIGURE A.14. EXPORT SOPHISTICATION OF DESTINATION MARKETS FOR SELECTED MANUFACTURING PRODUCTS, 2019 , PERCENTAGE OF TOTAL

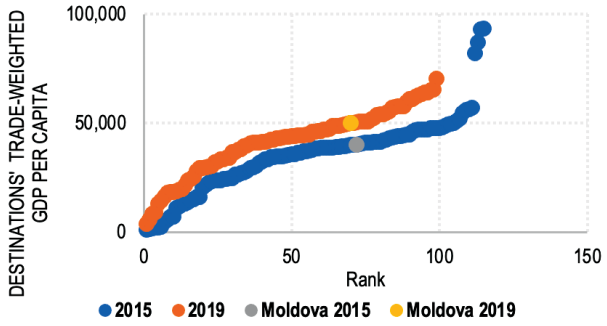
a. 855420: Coaxial cable—sophistication of destination markets



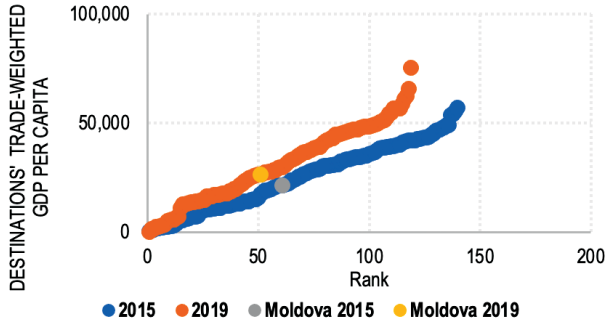
b. 854430: Wiring sets—sophistication of destination markets



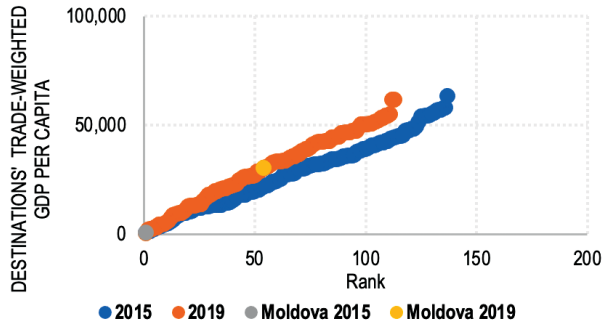
c. 940190: Parts of seats—sophistication of destination markets



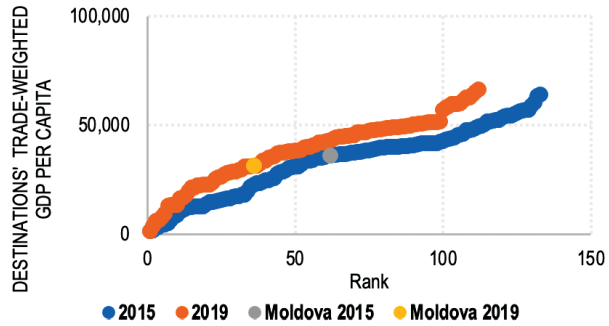
d. 300490: Therapeutic medicaments—sophistication of destination markets



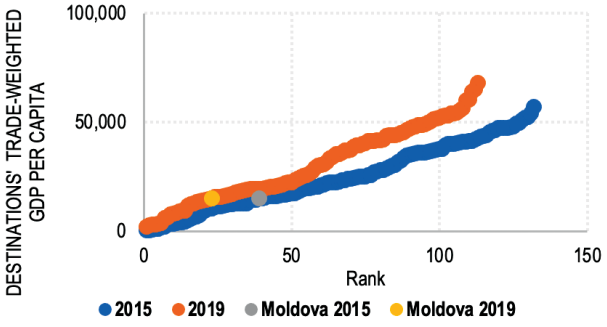
e. 854449: Conductors without connectors—sophistication of destination markets



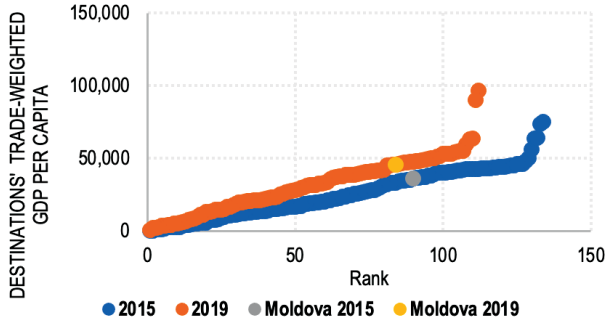
f. 854442: Conductors with connectors—sophistication of destination markets



g. 701090: Glass containers—sophistication of destination markets



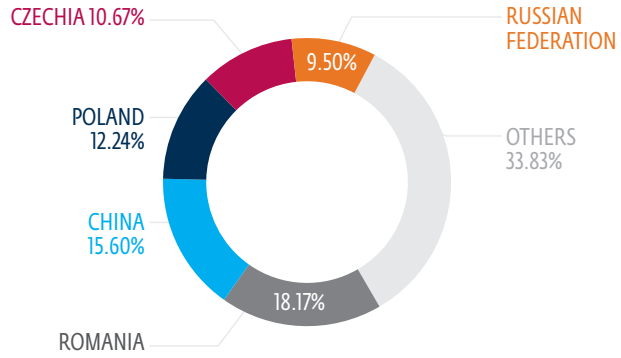
h. 392350: Plastic containers—sophistication of destination markets



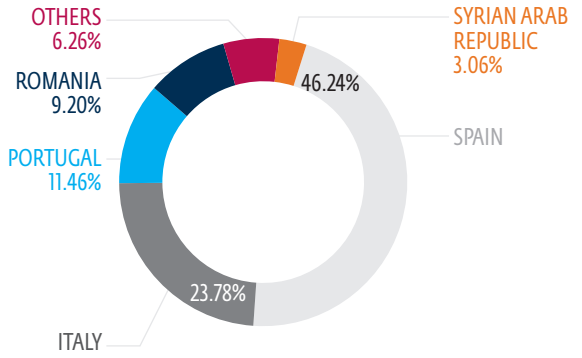
Source: CPSD Team based on World Bank, World Integrated Trade Solution (WITS) database, 2021

FIGURE A.15. EXPORT MARKET DESTINATION FOR SELECTED AGRIBUSINESS PRODUCTS, 2019, PERCENTAGE OF TOTAL

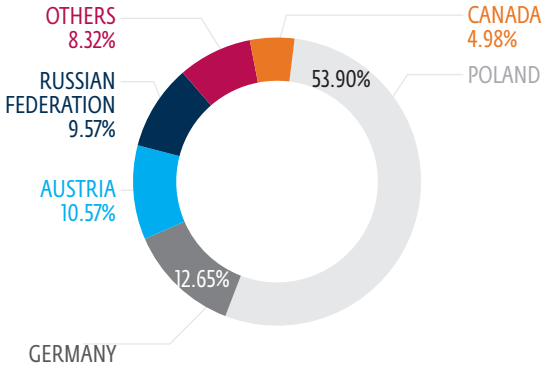
a. 220421: Wine(2l less), share by destination



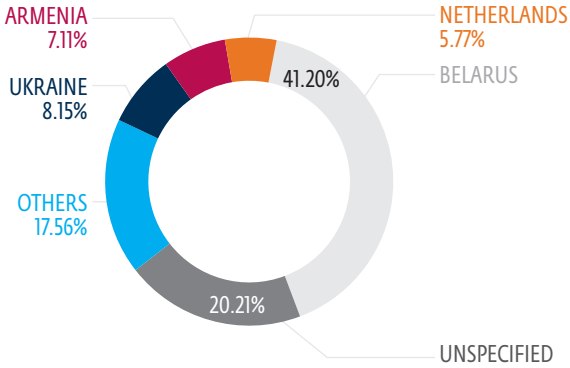
b. 151211: Sunflower, safflower oil, share by destination



c. 200979: Apple juice, share by destination



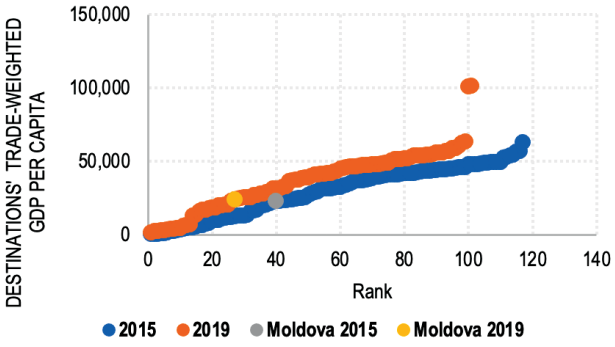
d. 220820: Grape spirits, share by destination



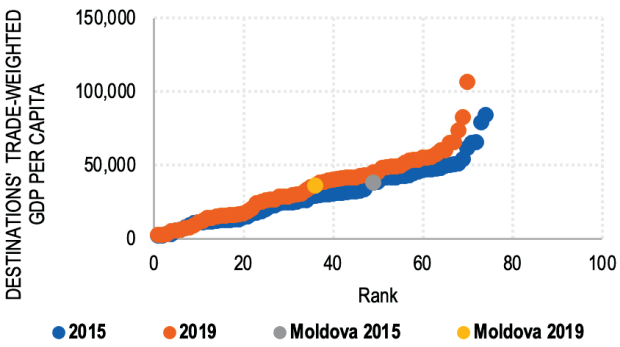
Source: CPSD Team based on World Bank, World Integrated Trade Solution (WITS) database, 2021.
Note: L = liter.

FIGURE A.16. EXPORT SOPHISTICATION OF DESTINATION MARKETS FOR SELECTED AGRIBUSINESS PRODUCTS, 2019 PERCENTAGE OF TOTAL

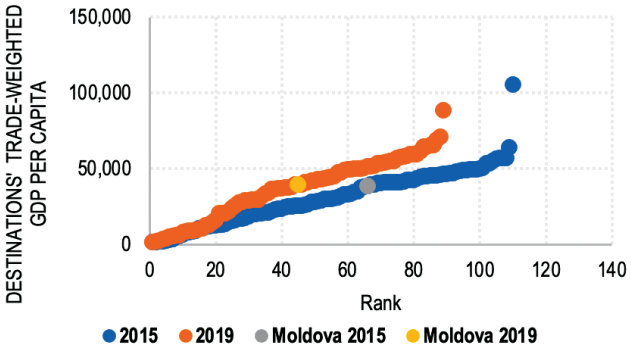
a. 220421: Wine (2 L less)—sophistication of destination markets



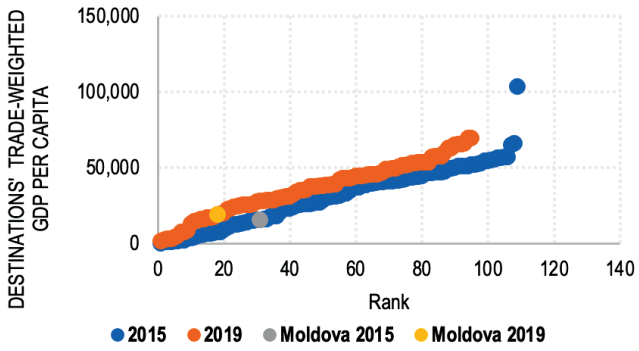
b. 151211: Sunflower, safflower oil— sophistication of destination markets



c. 200979: Apple juice—sophistication of destination markets



d. 220820: Grape spirits—sophistication of destination markets

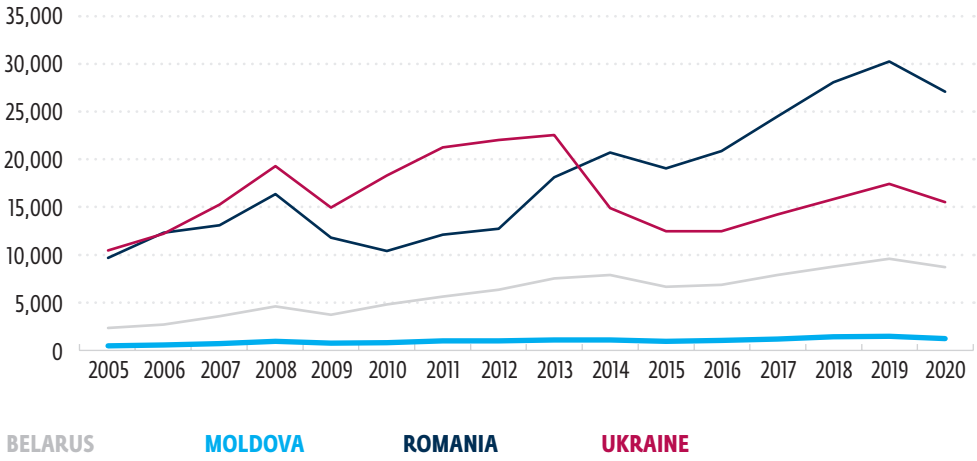


Source: CPSD Team based on World Bank, World Integrated Trade Solution (WITS) database, 2021.
Note: L = liter.

ICT and BPO are among the most dynamic of the tradable service industries, but overall services exports lag peers in spite of sustained growth. In 2019, exports of services in Moldova reached US$1,534 million. Transport services accounted for 27 percent of total service exports in Moldova, followed by travel (26 percent), manufacturing services (18 percent), and ICT services (17 percent). Nonetheless, when compared to comparator countries, Moldova lags (figure A.17). At the same time, Moldova's information technology (IT), IT-enabled services, and BPO grew briskly at 7 percent growth rate per year between 2008 and 2017.

FIGURE A.17. SERVICE EXPORTS FOR MOLDOVA AND COMPARATOR COUNTRIES

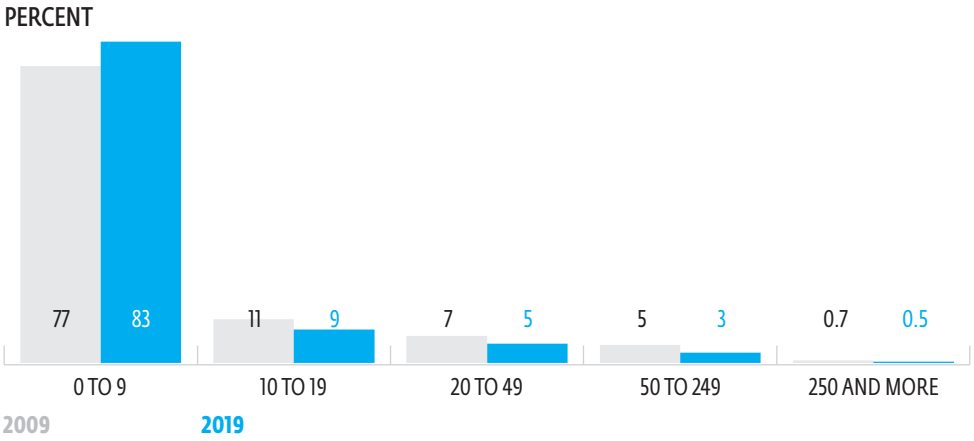
US$, MILLIONS, AT CURRENT PRICES



Source: UNCTADstat, 2020

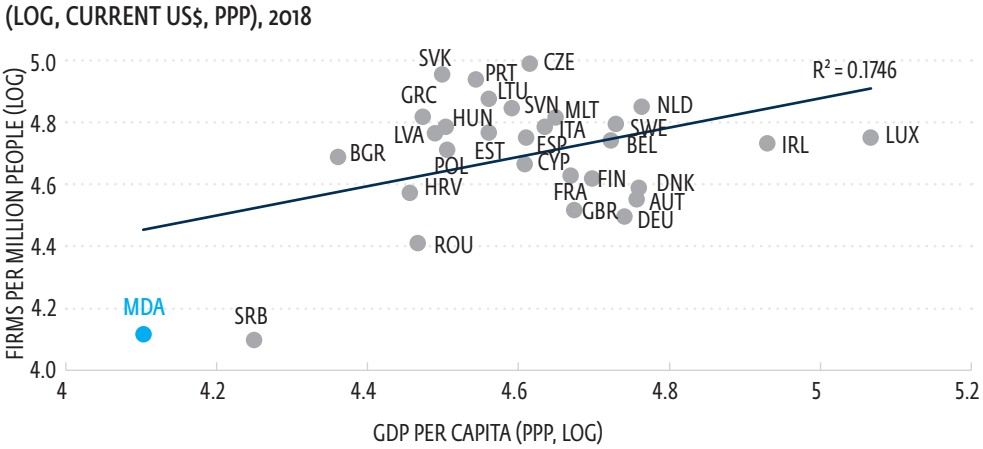
APPENDIX B. STATE OF THE PRIVATE SECTOR

FIGURE B.1. SHARE OF FIRMS BY NUMBER OF EMPLOYEES



Source: CPSD team based on National Bureau of Statistics of the Republic of Moldova, Annual Structural Survey, statistical databank (NBS, 2020), https://statistica.gov.md/

FIGURE B.2. FIRMS PER MILLION INHABITANTS AND GDP PER CAPITA



Source: CPSD team based on National Bureau of Statistics of the Republic of Moldova, Annual Structural Survey, statistical databank (NBS, 2019), https://statistica.gov.md/ and Eurostat's Structural Business Statistics 2018, https://ec.europa.eu/eurostat/web/structural-business-statistics/database

Note: PPP = purchasing power parity.

Note: Moldova (MDA), Serbia (SRB), Bulgaria (BGR), Romania (ROU), Croatia (HRV), Poland (POL), LVA (Latvia), GRC (Greece), SVK (Slovak republic), HUN (Hungary), EST (Estonia), CYP (Cyprus), ESP (Spain), ITA (Italy), FRA (France), GBR (Great Britain), DEU (Germany), AUT (Austria), DNK (Denmark), FIN(Finland), SVN (Slovenia), LTU (Lithuania), PRT (Portugal), CZE (Czechia), MLT (Malta), BEL (Belgium), SWE (Sweden), NLD (Netherlands), IRL (Ireland), LUX (Luxembourg).

TABLE B.1. FIRM DYNAMICS, 2019

PERCENT

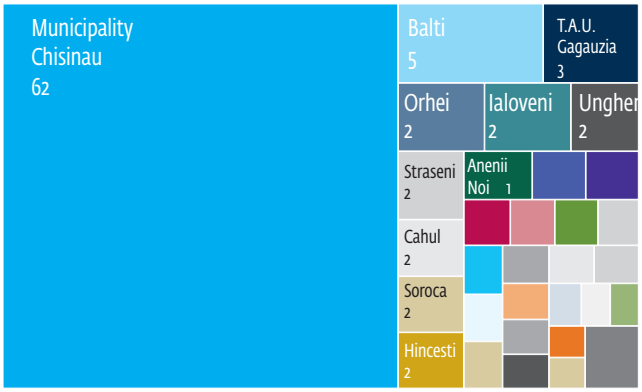
SECTOR	CREATION	DISSOLUTION	1-YEAR SURVIVAL	2-YEAR SURVIVAL
Total	14.7	25.4	46.8	40. 5
Extractive industry	3.5	11.8	14.3	0
Manufacturing	16.3	27.0	38.7	33.2
Production and supply of energy	29.5	13.1	11.1	11.1
Water distribution	12.0	8.8	29.6	53.5
Construction	15.0	11.6	53.6	44.6
Wholesale and retail trade	12.5	37.5	49.7	41.3
Transport and storage	12.8	17.3	51.8	52.7
Accommodation and public catering	22.5	25.4	45.6	34.4
Information and communication	18.7	15.8	55.2	51.4
Financial and insurance activities	22.2	10.3	32.1	44.2
Real estate transactions	13.2	4.8	26.7	22.8
Professional activities	16.8	16.8	51.2	43.6
Administrative activities	19.1	11.8	49.0	46.3

Source: CPSD team based on National Bureau of Statistics of the Republic of Moldova, Business Demography, (NBS, 2020) https://statistica.gov.md

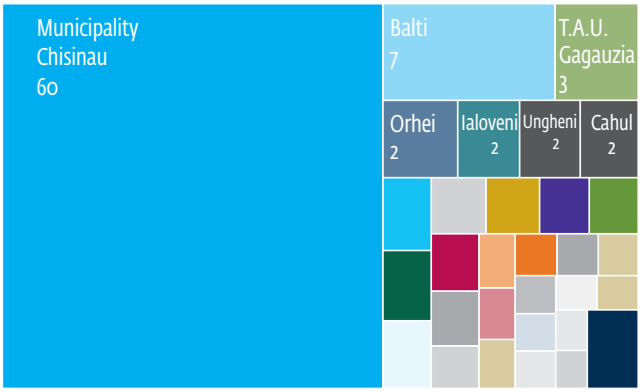
FIGURE B.3. DISTRIBUTION BY ACTIVITY, 2019

PERCENTAGE OF TOTAL FIRMS

a. Firms



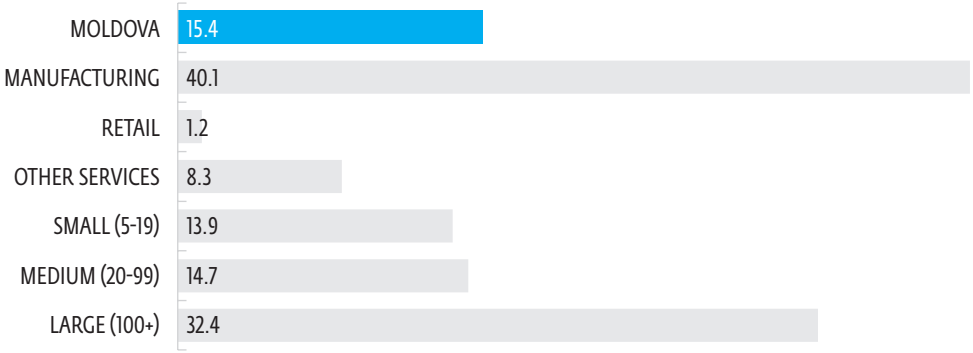
b. Employment



c. Turnover

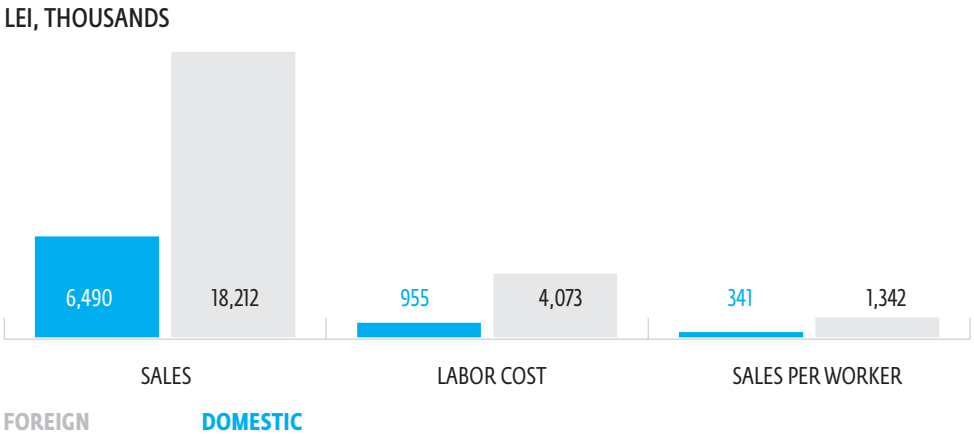
Source: CPSD team based on National Bureau of Statistics of the Republic of Moldova, Entrepreneurship, statistical databank (NBS, 2020), https://statistica.gov.md/

FIGURE B.4. SHARE OF FIRMS EXPORTING DIRECTLY OR INDIRECTLY, 2019 AT LEAST 10 PERCENT OF SALES



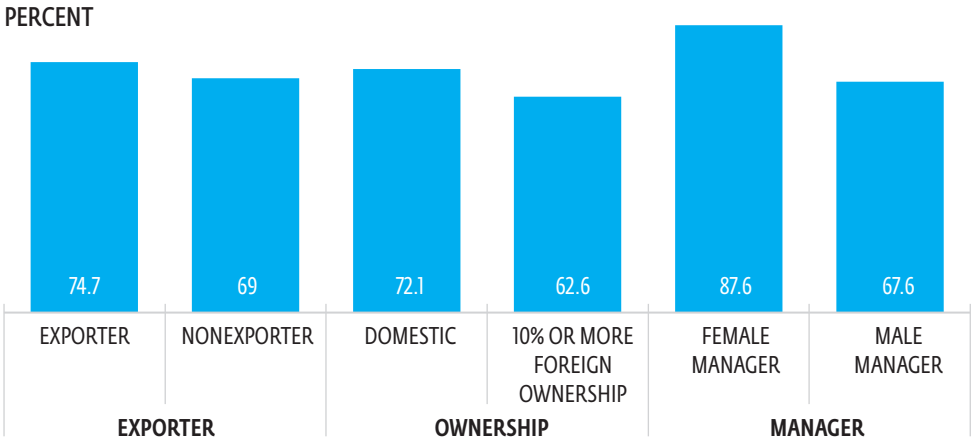
Source: CPSD team based on World Bank Enterprise Surveys, https://www.enterprisesurveys.org

FIGURE B.5. SALES AND LABOR COSTS: DOMESTIC VERSUS FOREIGN FIRMS



Source: CPSD team based on Tan, S. and Tusha, D. 2019. Buyer-Supplier Linkages in Moldova. Washington, DC: The World Bank

FIGURE B.6. PROPORTION OF SKILLED WORKERS (OF ALL PRODUCTION WORKERS), BY FIRM TYPE



Source: CPSD team based on World Bank Enterprise Surveys, https://www.enterprisesurveys.org

APPENDIX C. TRADE HARMONIZATION AND FACILITATION

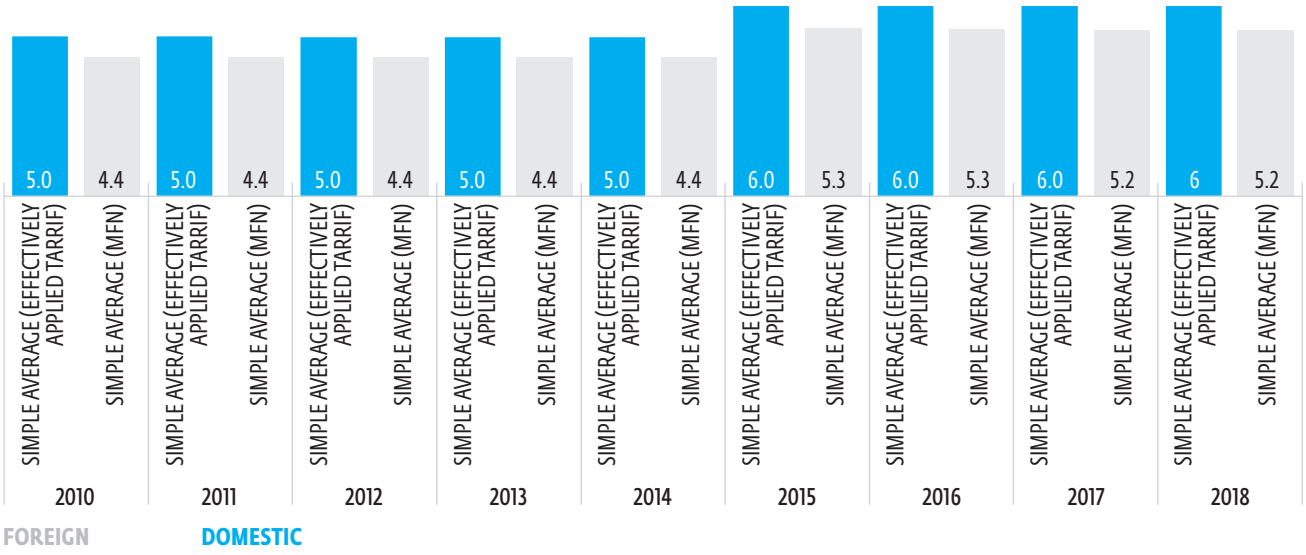
An Unfinished Trade Harmonization and Facilitation Agenda

Since opening its economy to the world, Moldova has maintained a relatively open trade regime. Exports and imports in the country have shown substantial growth, access to new markets has increased, and openness has remained high, with trade representing 77 percent of GDP in 2020. According to the Enabling Trade Index, Moldova ranks 79th of 136 countries but there is significant room for improvement on key dimensions such as border administration or availability and quality of logistics services and infrastructure. The Ministry of Economy is responsible for trade policy formulation and evaluation, dealing with the World Trade Organization, promotion trade agreements, and promoting trade and investment, with support from the Moldova Investment and Export Promotion Organization (MIEPO).

Trade policy has consistently focused on supporting Moldova's participation in the multilateral trading system and achieving a closer integration with the European Union (EU). Moldova joined the World Trade Organization (WTO) in 2001 and maintained its trade regulation as WTO compliant since then. This action has led to a progressive reduction of outstanding notifications to the WTO and to increasing commitments under the General Agreement on Trade in Services. For example, Moldova has binding coverage of 100 percent for all its tariff lines.[248] Moldova was the 84th country to ratify the Trade Facilitation Agreement (TFA) at the WTO, which entered into force February 22, 2017.[249] However, informal practices have often continued to be enforced by customs authorities, such as imposing arbitrary requirements for imports and using ad hoc reference price lists to determine customs value. These practices, together with the discriminatory treatment to businesses that rely on foreign inputs, can act as a barrier to trade.[250]

Moldova has one of the lowest simple average tariffs in the world. For 2018, the simple average effectively applied tariff was 5.97 percent, increasing from 4.96 percent in 2014 (figure C.1). In 2018, the simple average agricultural tariff (most favored nation, MFN) in was 11.2 percent and the simple average non-agricultural tariff (MFN) was 4.4 percent, whereas the final bound tariff level reached 7.0 percent.[251] With a simple average duty (MFN) of 5.23 percent, Moldova has a higher tariff than Georgia (1.33), Albania (3.64), Ukraine (4.51), and the European Union (4.37).[252] However, its maximum duties are below those of Ukraine and the European Union (table C.1). At the same time, there are significant differences in the effectively applied tariffs across economic sectors. Agriculture, agroindustry, and textiles have significantly large tariffs compared to other economic sectors in the country (table C.2).

FIGURE C.1. MOLDOVA'S SIMPLE AVERAGE TARIFFS, 2010–18



Source: World Bank, World Integrated Trade Solution (WITS) database, 2021
Note: MFN = most favored nation.

TABLE C.1. EFFECTIVELY APPLIED VERSUS MFN TARIFFS, 2018

DUTY TYPE	COUNTRY	SIMPLE AVERAGE	WEIGHTED AVERAGE	STANDARD DEVIATION	MINIMUM RATE	MAXIMUM RATE
Effectively applied tariff	**Georgia**	0.35	n.a.	2.17	0	12.00
	Moldova	5.97	n.a.	5.46	0	20.00
	Ukraine	4.60	n.a.	5.35	0	110.96
	Albania	4.46	n.a.	5.77	0	15.00
	European Union	1.48	1.46	3.79	0	74.90
Most favored nation tariff	**Georgia**	1.33	n.a.	4.17	0	12.00
	Moldova	5.23	n.a.	5.59	0	25.00
	Ukraine	4.51	n.a.	5.76	0	110.96
	Albania	3.64	n.a.	5.47	0	15.00
	European Union	4.37	2.78	5.25	0	74.90

Source: World Bank, World Integrated Trade Solution (WITS) database, 2021
Note: MFN = most favored nation.

TABLE C.2. MOLDOVA'S EFFECTIVELY APPLIED TARIFFS BY SECTOR

PRODUCT NAME	SIMPLE AVERAGE	PRODUCT NAME	SIMPLE AVERAGE
Agriculture, hunting and related service activities	10.12	Manufacture of coke and refined petroleum products	0
Forestry, logging and related service activities	8.04	Manufacture of chemicals and chemical products	3.52
Fishing, operation of fish hatcheries and fish farms	3.36	Manufacture of rubber and plastics	5.85
Mining of coal and lignite; extraction of peat	0	Manufacture of other nonmetallic mineral products	8.24
Extraction of crude petroleum and natural gas	0	Manufacture of basic metals	0.03
Mining of metal ores	0	Manufacture of fabricated metal products	3.57
Other mining and quarrying	3.77	Manufacture of machinery and equipment	3.99
Manufacture of food products and beverages	12.16	Manufacture of office, accounting and computing	3.01
Manufacture of tobacco products	15.00	Manufacture of electrical machinery	6.40
Manufacture of textiles	7.08	Manufacture of radio, television, and communication	3.58
Manufacture of wearing apparel	11.90	Manufacture of medical precision and optical instruments	3.17
Tanning and dressing of leather	13.32	Manufacture of motor vehicles	3.55
Manufacture of wood and wood products	0.84	Manufacture of other transport equipment	2.69
Manufacture of paper and paper products	6.72	Manufacture of furniture	7.61
Publishing and printing	8.72		

Source: World Bank, World Integrated Trade Solution (WITS) database, 2021.

Moldova also participates in a wide range of regional trade agreements, and it has signed a number of preferential trade agreements with advanced industrial economies, including the United States, Canada, and Japan. At present, Moldova has signed 15 regional trade agreements with 46 countries[253] Most of these agreements are with members of the Commonwealth of Independent States (CIS), the Central European Free Trade Agreement (CEFTA), and the European Union (Deep and Comprehensive Free Trade Area, DCFTA). In particular, the DCFTA enables entry into new markets for Moldovan exporters, such as information technology services and business process outsourcing industries. It also promotes the harmonization of legislation with that of the European Union, which can spur innovation and create new export products.

The EU-DCFTA has provided enhanced access to the European market. The preferential trade system resulting from the DCFTA has enabled Moldova to benefit from lower tariff barriers in the EU. In particular, it has allowed for (a) the removal of import duties for most goods; (b) mutual access to trade in services; and (c) the right of both EU and Moldovan companies to create a subsidiary or branch office on a nondiscriminatory basis. The DCFTA has also translated to increased opportunities for agricultural and agroindustry exports. From 2015 to 2018, agrifood product exports saw a 52 percent increase, compared to 2011–2014. Products like sunflower seeds, wheat, wines, fresh grapes, and barley have been increasing their footprint on the European market rapidly. At the same time, some trade restrictions remain under the DCFTA. While tariffs for industrial products have been mutually eliminated, some agricultural products continue to face restrictions. On the one hand, tariff quotas and an anticircumvention mechanism remain on the EU side, with the MFN customs duty applied to imports exceeding the tariff quotas (table C.3). On the other hand, Moldova was granted only a transitional period to liberalize most of its agricultural products.

TABLE C.3. MOLDOVAN PRODUCTS SUBJECT TO ANNUAL DUTY-FREE TARIFF RATE QUOTAS FOR IMPORT TO THE EU

PRODUCT	VOLUME (TONS)
Tomatoes, fresh or chilled	2,000
Garlic, fresh or chilled	220
Table grapes, fresh	10,000
Apples, fresh	40,000
Plums, fresh	10,000
Grape juice	500

Source: Michael Emerson and Denis Cenusa, eds., Deepening EU-Moldovan Relations: Updating and Upgrading in the Shadow of COVID-19, 3rd ed. (Brussels: Centre for European Policy Studies, 2021).

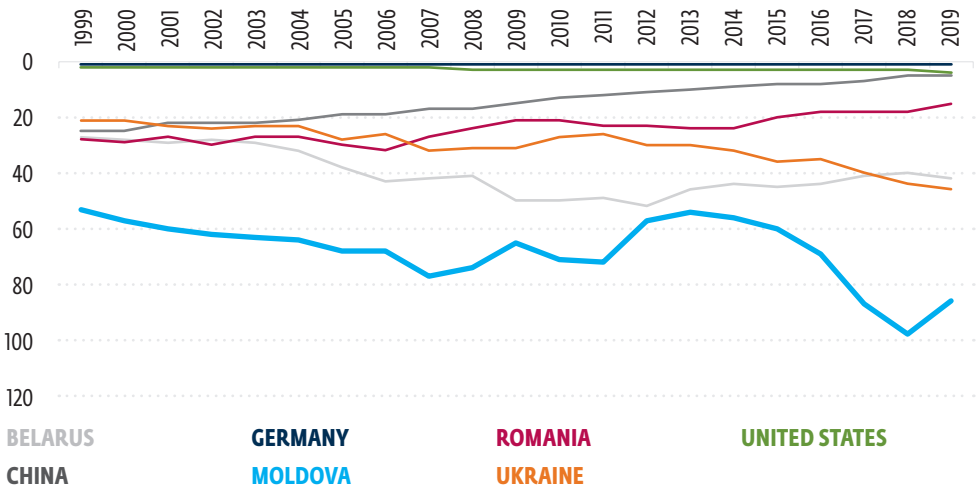
Overall, the DCFTA has boosted Moldovan exports to the EU, but progress in the complementary trade harmonization and facilitation agenda remains limited. Exports to the EU have increased steadily since the entering into force of the DCFTA in 2014, accounting for 66.0 percent of the total,[254] and with agrifood exports growing by 34.2 percent from 2014 to 2019. Nonetheless, progress in the complementary regulatory and compliance agenda associated with the DCFTA lags in some critical areas such as food safety, quality infrastructure and standards, internationally recognized quality certifications, customs administration, and trade facilitation (see the following section in this appendix). The adoption of product standards, while comprehensive and aligned to those of the EU, is insufficient owing to the existing institutional weaknesses.

One of the most effective instruments of Moldova's trade policy toolbox has been the free economic zones (FEZs). Moldova began establishing free zones in 1995, but since only 2015 have they really begun to accelerate. By 2018, the country had seven zones and two industrial parks, with a legal status similar to the zones. Companies located there receive financial benefits and legal protections, including value added tax exemptions, discounted or zero tax rates depending on the activity, and 10 years of protection from legal changes. Other benefits include ease of transferring profits abroad, changing ownership titles, easier customs clearance processes, and exemptions from corporate income taxes commensurate with the level of investment. In 2016–17, FEZs accounted for about half of all inflows of foreign direct investment. These investments have contributed substantially to the rise in exports. In 2015–17, exports from the FEZs amounted to fully 25 percent of all merchandise exports, a several-fold increase in their share relative to 2006. One reason performance is more dynamic in the FEZs as compared to the main territory is customs. A key policy lesson is that extending the customs and business facilitation institutions of the FEZs to the rest of the country might well help unleash private sector investment. Indeed, although tax incentives appear to have had only a marginal influence on investment decisions, and come with a cost to the government, customs procedures and legal protection appeared to be decisive factors.

Climate policy has become a key dimension of Moldova's integration trajectory with the EU, including significant opportunities provided by the European Green Deal. The EU's forthcoming Carbon Border Adjustment Mechanism (CBAM),[255] which will essentially impose taxes on emissions-intensive imports, should only marginally affect Moldovan exports. As shown in chapter 2, Moldova's potential exposure to the CBAM is confined to a low share of total exports for each affected product and a low share of total product exports going to the EU. At the same time, relative importance of agricultural exports in Moldova's exports basket puts Moldova in a good position to gain from the introduction of climate policies in the EU. As part of the ongoing EU harmonization efforts, the possibility of including adaptation mechanisms and policies could help Moldova to better adapt to the changing landscape and come out among the winners from the EU green transition.

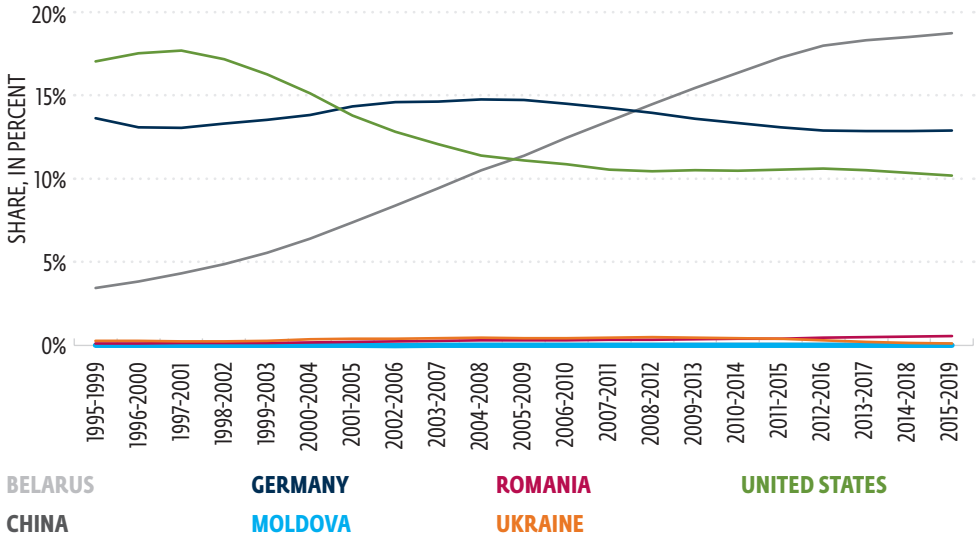
Overall, although not a global player, Moldova can accelerate its green transition by upgrading its offer of "green products,"[256] building upon its agricultural comparative advantage and focusing on renewables. As global demand begins to shift away from fossil fuel–based production and toward cleaner technologies and more environmentally friendly products, cultivating competitiveness in these areas is a fundamental way countries can achieve greater economic benefits from the transition to the green economy. The Green Complexity Index (GCI) tracks countries' capacities to competitively export products that are green (having environmental benefits) and complex (tending to involve more technologically sophisticated capabilities). Countries that rank highly in the GCI tend to have higher environmental patenting rates, lower carbon dioxide emissions, and more stringent environmental policies.[257] Unfortunately, Moldova currently ranks 86th on the GCI (figure C.2), well below its neighbors such as Ukraine (46th), Belarus (42nd), or Romania (15th) or the top performers such as Germany (1st) or China (5th). Similarly, while China has grown into a global player on green competitiveness, accounting for 18.7 percent of global green products exports, and established players such as Germany and the US account for 12.8 percent and 10.2 percent, respectively, Moldova continues to account for a mere 0.01 percent (figure C.3).

FIGURE C.2. GREEN COMPLEXITY INDEX (RANK)



Source: Pia Andres and Penny Mealy, Green Transition Navigator, 2021, https://www.lse.ac.uk/granthaminstitute/the-green-transition-navigator/.
Note: GCI = Green Complexity index.

FIGURE C.3. SHARE IN GLOBAL EXPORTS OF PRODUCTS WITHIN CATEGORY "ALL GREEN PRODUCTS"



Source: Pia Andres and Penny Mealy, Green Transition Navigator, 2021, https://www.lse.ac.uk/granthaminstitute/the-green-transition-navigator/.

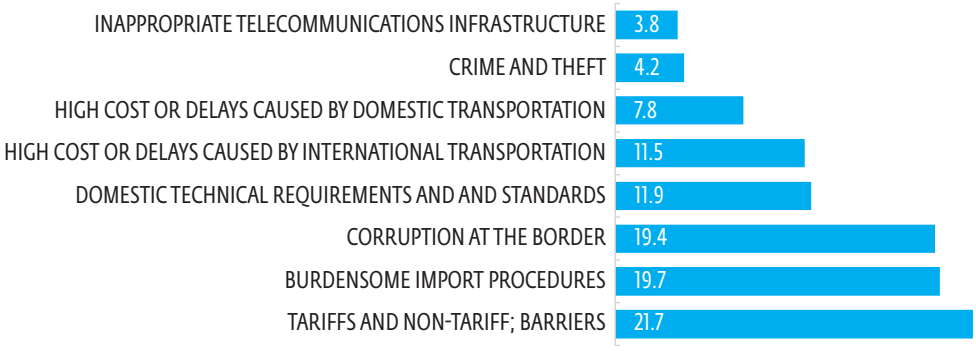
Trade Barriers

Trade facilitation, with a focus on customs and logistics, and harmonization of food safety and quality standards persist as the main barriers to trade, despite an overall open trade policy regime. Chapter 3, section 3.1 on transport and logistics and 4, section 4.2 on agribusiness provide in-depth assessments of the challenges and reform options to improve Moldova's performance on trade and transport facilitation and of the harmonization of food safety and quality regulation and standards in key export industries such as horticulture, respectively.

Customs legislation and procedures in Moldova have undergone significant harmonization with the EU, with the new EU-harmonized customs code adopted in 2021 to enter into force in 2023. Moldova has authorized a total of 135 Authorized Economic Operators (AEOs) for which simplified border crossing procedures are applied upon importing to Moldova from EU and CEFTA member countries. Customs legislation and procedures in Moldova have undergone significant harmonization with EU and starting November 2022, Moldovan Authorized Economic Operators (AEOs) start to be recognized by the 27 EU member states under the Mutual recognition of AEOS Program. Separate risk corridors have been implemented at border crossing points, but risk assessment and inspection practices lag.

Despite progress, customs procedures remain a constraint on productivity and competitiveness, especially for foreign-owned, large, and manufacturing firms. About one-third of foreign-owned companies and exporters and one-fourth of manufacturing firms identify customs and trade regulations as a major constraint for private investment. Each day that companies have to wait to clear customs is associated with a productivity decline of 0.5 percent. Major issues include high import tariffs, corruption, customs inspection and clearance procedures, and arbitrary prices applied in customs valuation of imported goods.[258] According to the World Bank's Enterprise Survey (2019), 13.8 percent of firms in Moldova considered customs and regulations as a major constraint to trade, when compared to the Europe and Central Asia average of 8.5 percent. In particular, exporters tend to be more affected by local customs practices and regulations than are nonexporters (17.5 versus 13.2). At the same time, customs and regulation are a key constraint for import, despite the fact that a large number of Moldovan firms are heavily dependent on foreign inputs, with the three most problematic areas being tariffs and nontariff barriers, burdensome import procedures, and corruption at the border (figure C.4).

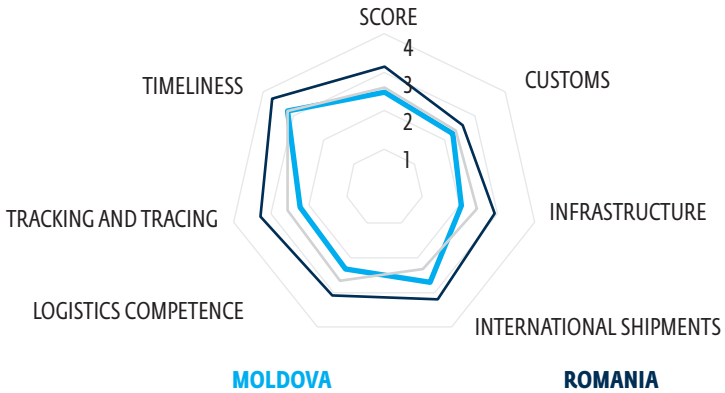
FIGURE C.4. MOST PROBLEMATIC FACTORS FOR IMPORTING, 2016



Source: World Economic Forum's Executive Opinion Survey, 2016. https://www.weforum.org/reports?year=2016#filter
Note: From the list of factors, respondents to the World Economic Forum's Executive Opinion Survey were asked to select the five most problematic factors in their country and to rank them between 1 (most problematic) and 5 (least problematic)". The score corresponds to the responses weighted according to their rankings.

Poor logistics and inadequate transport infrastructure contribute to the trade facilitation challenges of Moldova, along with customs administration. The World Bank's Logistics Performance Index shows that Moldova scores lower than countries such as Romania and Belarus in dimensions such as timeliness, tracking and tracing, logistics competence, infrastructure, and customs (figure C.5). The country ranks 76th of 141 countries in the World Economic Forum's competitiveness index for infrastructure, with the weakest score on the quality of road infrastructure (129).[259] Compounded by the 48 hours required for documentation, compared to less than 2 hours in the EU, the median time for an export transaction in Moldova is almost 12 times higher than in the EU and neighboring Romania and Ukraine. The poor state of roads implies additional costs for users amounting to approximately US$213million annually.[260] Railways need significant track maintenance and rehabilitation to speed access from the EU to the closest ports. Owing to huge cargo capacity needs and two poorly operational airports (Chişinău International Airport and Mărculeşti International Airport), airfreight exports are almost nonexistent compared to those of regional peers. According to the World Bank's Enterprise Survey data, 35 percent of large firms identified transportation as a major obstacle for investment.

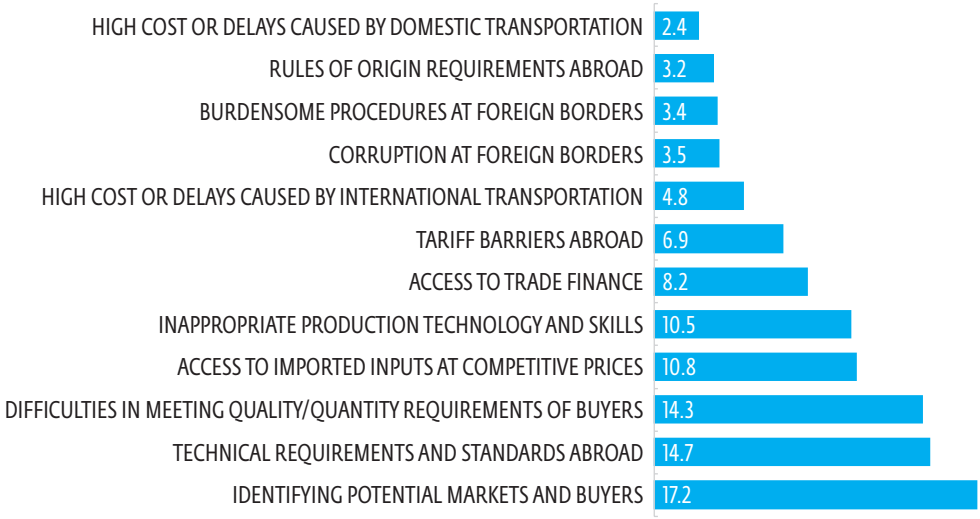
FIGURE C.5. LOGISTICS PERFORMANCE INDEX, 2018



Source: World Bank's Logistics Performance Index data set, 2018.
Note: LPI = Logistics Performance Index.

Inability to comply with international technical requirements, product quality standards, and food safety regulation rank among the top constraints to export, along with limited knowledge of international markets (figure C.6). Moldova's trade with the EU is constrained by the country's inability to meet EU standards. Moldova has already enacted national legislation and regulations adopting more than 25,000 EU technical standards.[261] Firms do not report major issues in certifying their goods or production process, but only 9 percent of firms certify their products and production processes. Certification is more familiar to firms in manufacturing, in which 45 percent of firms are certified, while in all other sectors, about 5 percent of firms are certified.[262]

FIGURE C.6. MOST PROBLEMATIC FACTORS FOR EXPORTING, 2016

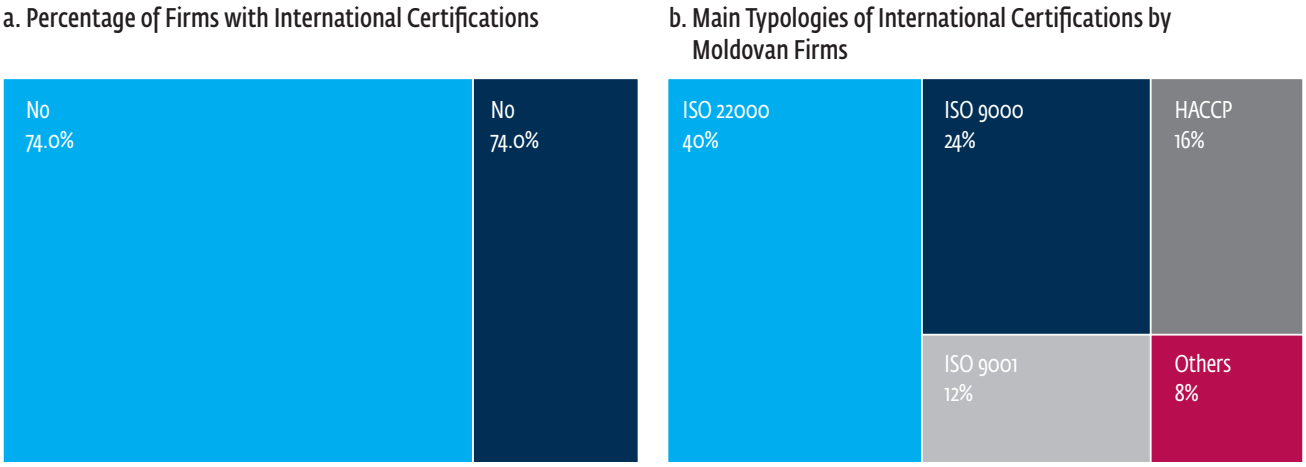


Source: World Economic Forum's Executive Opinion Survey, 2016. https://www.weforum.org/reports?year=2016#filter
Note: From the list of factors, respondents to the World Economic Forum's Executive Opinion Survey were asked to select the five most problematic factors in their country and to rank them between 1 (most problematic) and 5 (least problematic)". The score corresponds to the responses weighted according to their rankings.

Overall knowledge and adoption by firms of ISO (International Organization for Standardization), HACCP (hazard analysis and critical control points), GAP (good agricultural practices), GRASP (Global Risk Assessment on Social Practice) and relevant food safety management and product quality standards remains low. Even though the requirements for food business operators to implement the principles of an HACCP food safety management system have been introduced by law since 2016, their implementation has not been enforced and the degree of compliance by firms is unknown. Although implementation of sanitary and phytosanitary measures per EU requirements has advanced, Moldova has achieved EU compliance of its phytosanitary systems for only the phytosanitary subsector covering products of vegetal origin. For these products, EU markets are open, and exports are growing. However, Moldova is lagging in implementation of its commitments on food safety systems for products of animal origin, animal well-being, and disease control, particularly regarding its laboratory capacities and national monitoring plans.

Food safety, quality standards, and international certifications are vital for the agribusiness industry of Moldova. Food safety and quality standards, for instance, remain some of the most binding constraints for the food retail sector. According to the OECD, 85 percent of exporting food-processing companies in Moldova want to export more and 80 percent of nonexporters in the sector would like to start exporting.[263] Nonetheless, only 26 percent of food processors in Moldova adhere to internationally recognized standards, which prevents their entry into new export markets (figure C.7).

FIGURE C.7. PENETRATION OF INTERNATIONALLY RECOGNIZED CERTIFICATES IN MOLDOVA, FOOD PROCESSING, 2019



Source: OECD Enterprise Survey, 2019.
Note: ISO = International Organization for Standardization; HACCP = hazard analysis critical control points. The survey sample is not representative of the general business population in Moldova.

Improving the perception around Moldovan food products can help producers fully reap the benefits of increased access to the EU. International industry players perceive Moldovan food products as lacking the necessary health and safety practices that are in line with international best practices. To tackle these issues, the National Agency for Food Safety has worked on the harmonization of sanitary and phytosanitary standards to align local legislation and practices with those of the EU. However, the capacity for laboratory diagnostics, traceability of products, and the infrastructure of the production chain remains weak. At the same time, Moldovan firms show limited knowledge and readiness to adopt internationally recognized product and process standards, mostly owing to the financial outlays associated with investing in food safety and quality management systems.

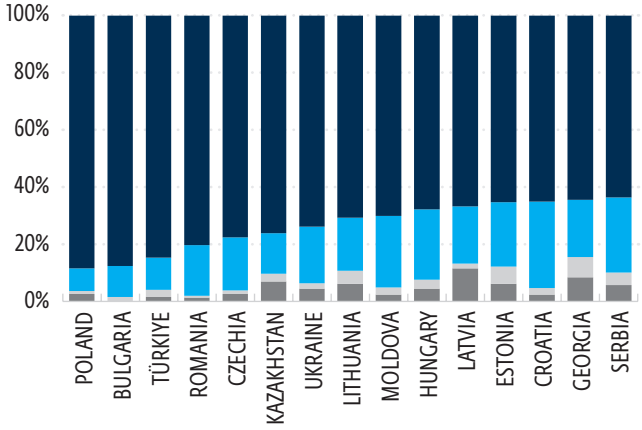
APPENDIX D. COMPETITION POLICY AND STATE-OWNED ENTERPRISES

APPENDIX D.1. MOLDOVA'S COMPETITION LANDSCAPE: STATE-OWNED ENTERPRISE DOMINANCE AND AN UNLEVEL PLAYING FIELD

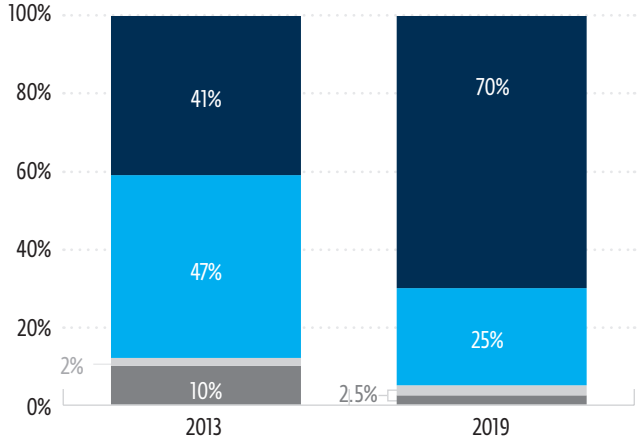
Although firms perceive that market concentration is decreasing in certain sectors, such as manufacturing, the extent of market dominance is still perceived to be higher in most Moldovan markets compared to benchmark economies. In light of the latest World Bank's Enterprise Survey data, the share of monopolies, duopolies, and oligopolies in manufacturing sectors has significantly decreased since 2013—from approximately 59 percent to 30 percent. Yet, this share seems to be slightly above the average of comparator countries—approximately 26 percent (figure D.1). Moreover, the World Economic Forum–Global Competition Index (WEF-GCI), suggests that the degree of market dominance is still perceived to be higher in Moldova than in comparator countries (figure D.2). High market concentration may raise risks of anticompetitive behavior, such as exclusionary practices, particularly in markets where the possibility of entry is limited by either structural or regulatory barriers.

FIGURE D.1. EVOLUTION AND MARKET STRUCTURE OF THE MANUFACTURING SECTOR IN MOLDOVA AND COMPARATOR COUNTRIES

a. Manufacturing sectors' market structures in Moldova and selected countries, 2019



b. Evolution of manufacturing sectors' market structures in Moldova, 2013–19

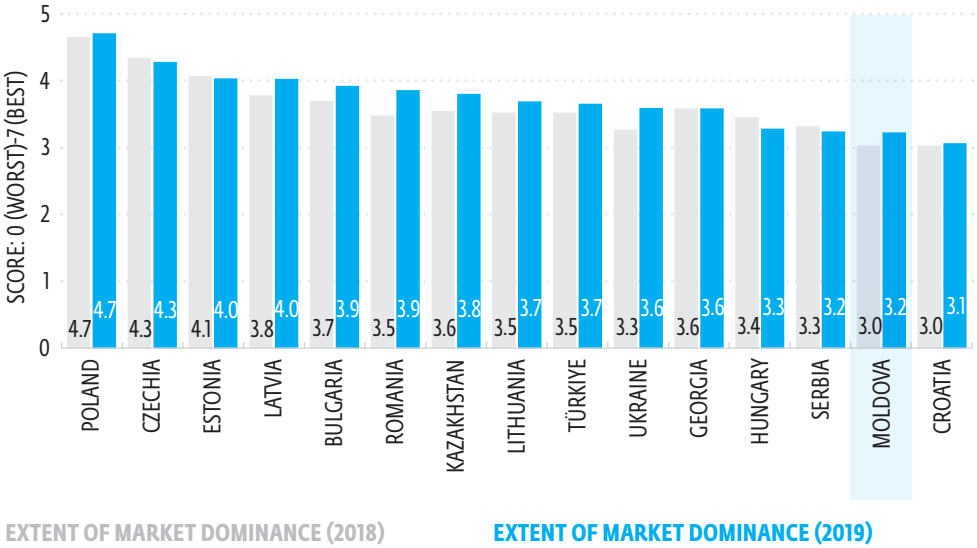


MONOPOLY DUOPOLY OLIGOPOLY (2-5) MORE THAN 5 MONOPOLY DUOPOLY OLIGOPOLY (2-5) MORE THAN 5

Source: World Bank analysis based on data from the World Bank, Enterprise Surveys (WBES), electronic dataset, Markets. https://www.enterprisesurveys.org/content/dam/enterprisesurveys/documents/methodology/ES_QuestionnaireManual_2019.pdf

Note: The shares reflect the percentage of responding establishments that answered "None," "One," "2–5," or "More than 5" or whose responses were classified as such to the question "For fiscal year [indicated in parenthesis], for the main market in which this establishment sold its main product, how many competitors did this establishment's main product/product line face?". For example, "None" was coded as "Monopoly" and "One" as "Duopoly." Establishments with no answers to the question and establishments whose main market for its main product line is international are excluded.

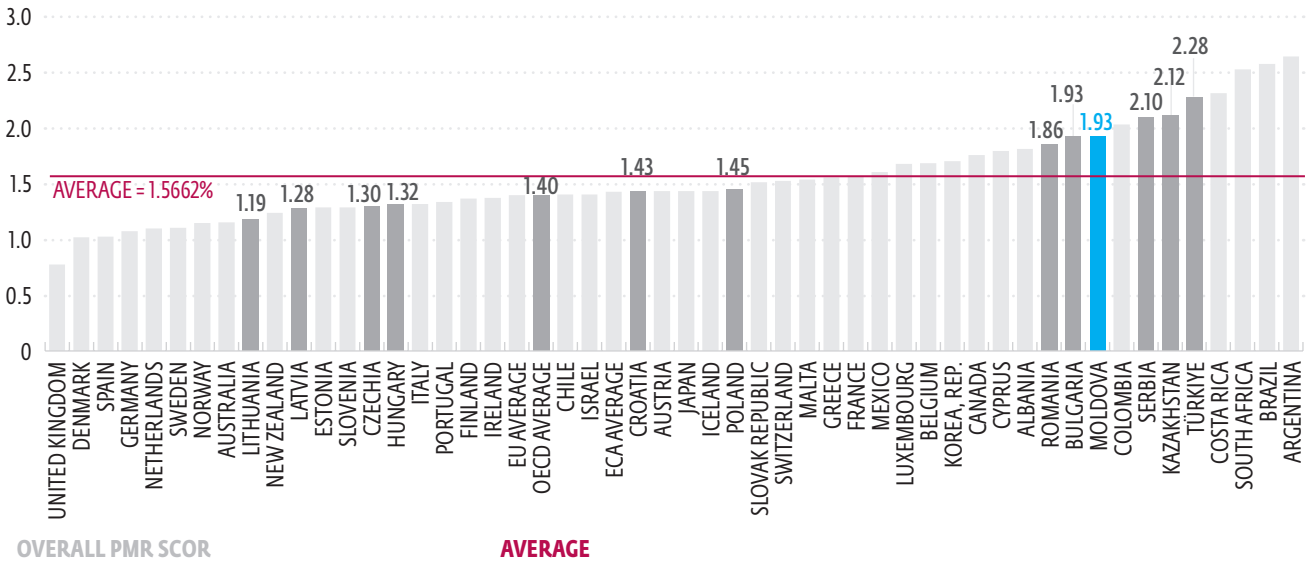
FIGURE D.2. EXTENT OF MARKET DOMINANCE IN MOLDOVA AND COMPARATOR COUNTRIES, 2018–19



Source: World Bank elaboration based on the World Economic Forum–Global Competition Index (WEF-GCI) database, World Economic Forum, "The Global Competitiveness Report", 2019 https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf

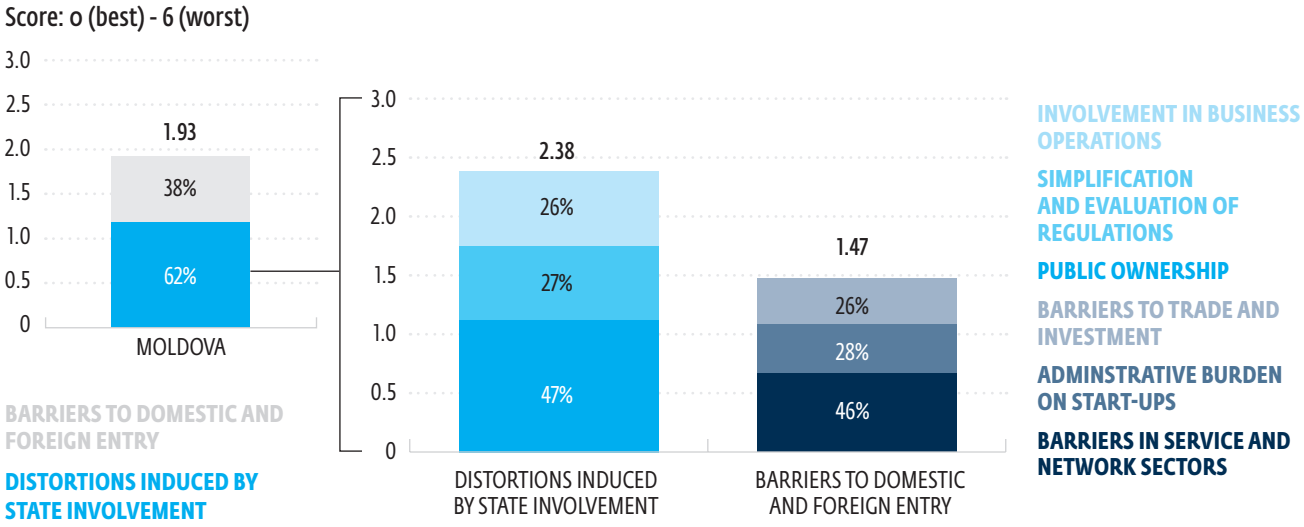
In this context, the OECD-WBG (Organisation for Economic Co-operation and Development–World Bank Group) Product Market Regulation (PMR) indicators suggest that Moldova's regulatory framework is in line with that of some regional comparators, but still lags that of most OECD and European Union (EU) countries. According to the PMR indicators, which measure the incidence of regulatory barriers on competition as they appear "on the books," Moldova's PMR scores are higher (worse) than the average of analyzed countries of the PMR database (figure D.6). Restrictions on competition are mostly driven by the state involvement in the economy, notably through public ownership of firms. Another important source of restrictions comes from barriers to domestic and foreign entry, which are primarily driven by barriers to competition in service and network sectors, such as electricity, telecommunications, transport, or regulated professions (figure D.7).

FIGURE D.3. OVERALL PMR SCORES IN SELECTED ECONOMIES, 2018



Source: World Bank elaboration based on Organisation for Economic Co-operation and Development (OECD) and OECD–World Bank Group Product Market Regulation indicators (2018 methodology), https://www.oecd.org/economy/reform/indicators-of-product-market-regulation/.
Note: ECA = Europe and Central Asia; EU = European Union, OECD = Organisation for Economic Co-operation and Development; PMR = Product Market Regulation.

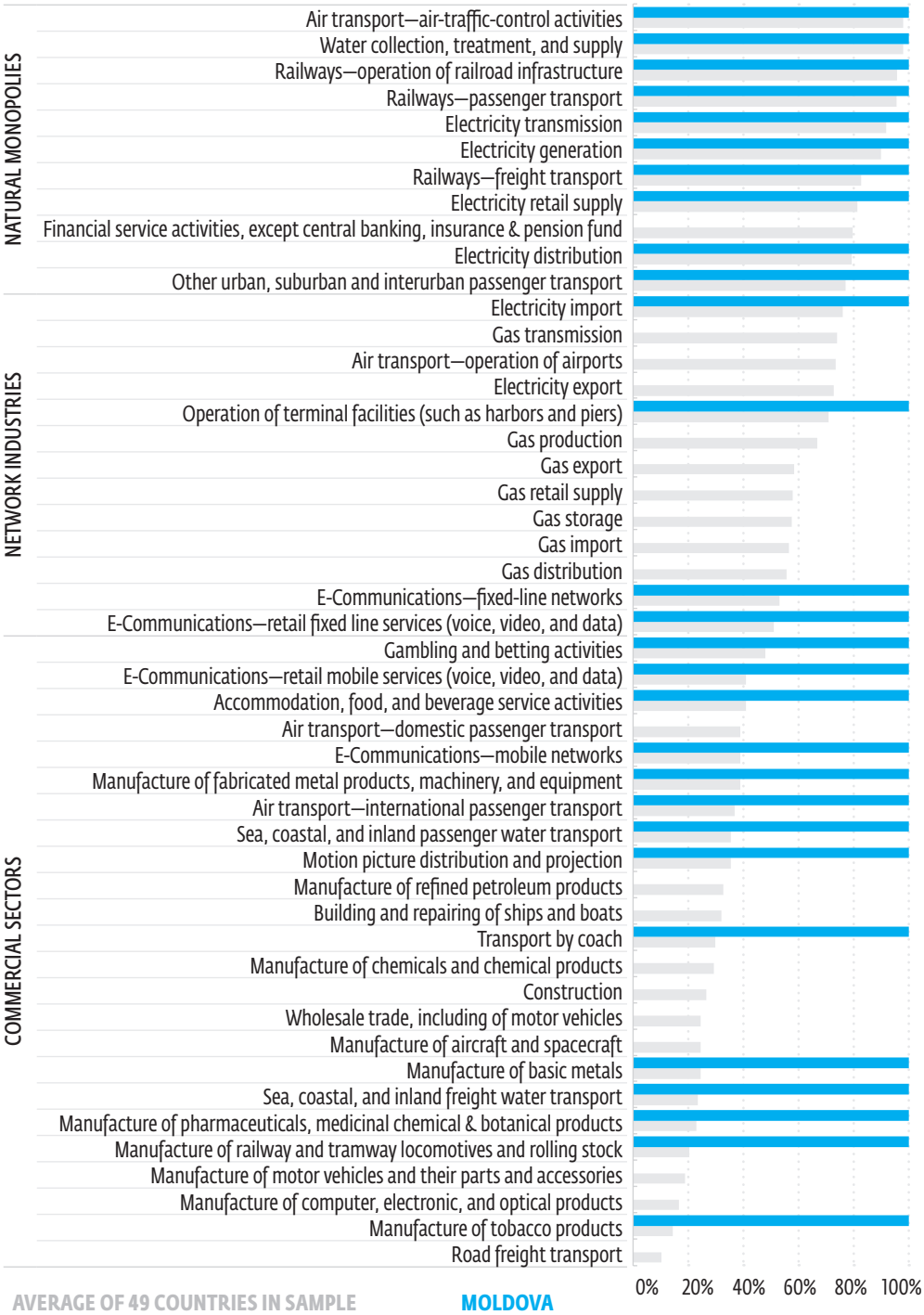
FIGURE D.4. DECOMPOSITION OF MOLDOVA'S PMR SCORE



Source: World Bank elaboration based on Organisation for Economic Co-operation and Development (OECD) Product Market Regulation indicators (2018 methodology), https://www.oecd.org/economy/reform/indicators-of-product-market-regulation/.
Note: PMR = Product Market Regulation.

APPENDIX D.2. COUNTRY CASES AND GOOD PRACTICES ON SOE REFORMS

FIGURE D.5. SOEs' PRESENCE IN MOLDOVA ACROSS SECTORS AND SHARE OF COUNTRIES THAT HAVE AT LEAST ONE SOE PRESENT IN EACH SECTOR



Source: World Bank elaboration based on data from Organisation for Economic Co-operation and Development (OECD) and OECD–World Bank Group Product Market Regulation indicators (2018 methodology), https://www.oecd.org/economy/reform/indicators-of-product-market-regulation/ and desk research (2021).

BOX D.1. THE IMPLEMENTATION OF THE SUBSIDIARITY PRINCIPLE IN PERU

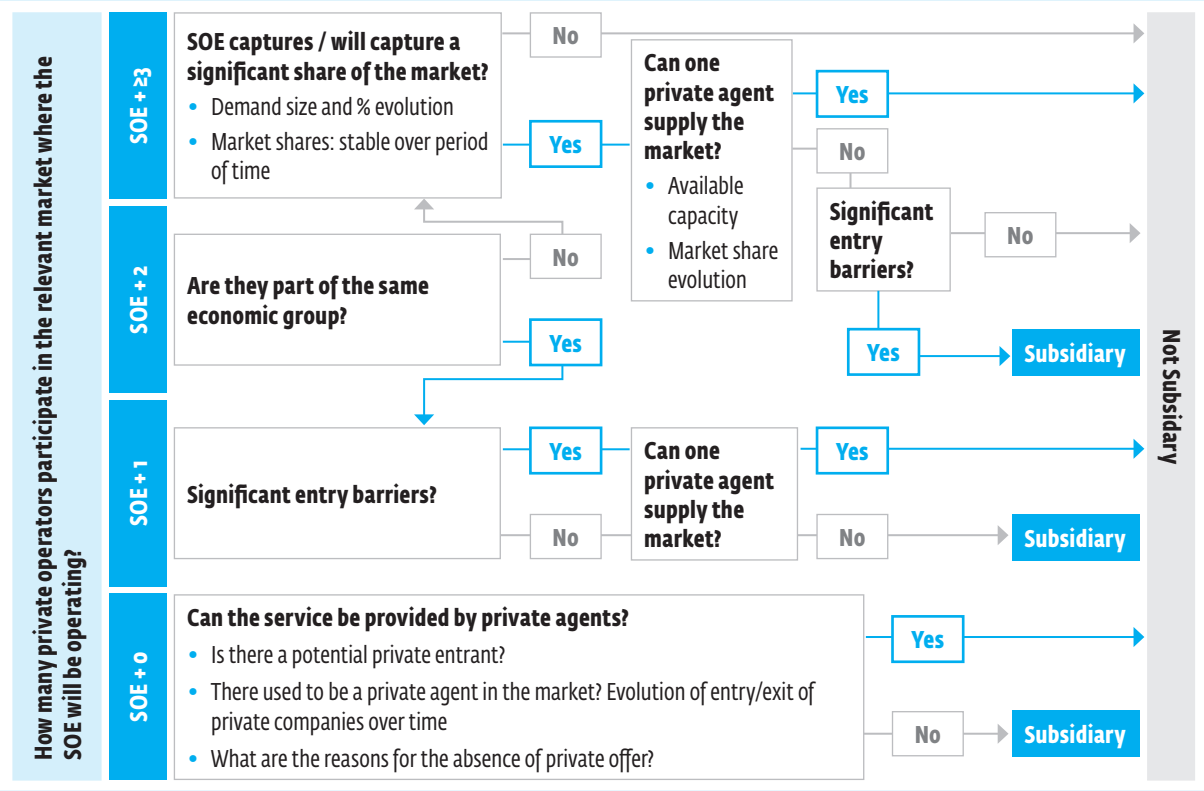
In Peru, the Constitution reserves for the state a subsidiary role in the provision of economic activities, while recognizing both public and private ownership and entrepreneurship. Accordingly, the state recognizes economic pluralism. The national economy is sustained through the coexistence of diverse forms of ownership and enterprise. Authorized solely by express law, the state may engage in a subsidiary manner in business activities, directly or indirectly, for reasons of high public interest or manifest national convenience. Business activity receives the same legal treatment, whether public or private (see figure below).

The Peruvian Competition Authority (INDECOPI) can sanction a state-owned enterprise for engaging in nonsubsidiary business activities. The three conditions that a state-owned enterprise must observe under the subsidiarity principle are summarized as follows:

- If the state business activity has been expressly authorized by law
- Whether the subsidiary role of the state activity in a certain market occurs owing to the absence and potential of private initiative to meet the demand
- If the aim of the state business activity is of high public interest or national convenience

For these purposes, a relevant market has to be defined. The Peruvian Competition Authority will assess whether private competitors, present or potential, could meet the existing demand.[a]

FIGURE BD.4.1. APPLICATION OF THE SUBSIDIARITY FILTER IN PERU



Source: World Bank Group, 2017. China: Applying Competitive Neutrality Principles to Level the Playing Field Across Markets: Lessons from International Practice.
Note: Private agent is a non-state-owned enterprise
a. Note by Peru, Organisation for Economic Co-operation and Development (OECD) Roundtable on Competitive Neutrality in Competition Policy, OECD, June 17, 2015, 4; Tania Zuñiga-Fernández, "The Principle of Subsidiarity as the Essential Restriction on Peruvian State Business Activity under Pro-competitive Conditions," in State-Initiated Restraints of Competition, ed. Josef Drexl and Vicente Bagnoli (Northampton, MA: Edward Elgar, 2015), 55–63.

BOX D.2. OECD'S RECOMMENDATIONS ON THE ANALYSIS AND CALCULATION OF PUBLIC SERVICE OBLIGATIONS

The Organisation for Economic Co-operation and Development (OECD) provides several recommendations to analyze public service obligations (PSOs) and define an adequate compensation level:

- PSOs should be clearly defined in the regulatory framework. Any PSO carried out by the state-owned enterprise (SOE) beyond the generally accepted norm should be clearly mandated by laws or regulations.
- SOEs' compensation for a PSO should be disbursed and spent in a manner that can be accounted for separately. There should be an accounting separation between commercial and noncommercial activities.
- Costs for the provision of a PSO should be transparently disclosed to audit authorities, and financial data should be reported according to international accounting standards.
- Costs for the provision of a PSO should be measured following an industry-by-industry approach and avoiding cross-subsidization strategies. Cost calculation methodologies include the following:
  - **Marginal costs** (that is, additional costs for increasing the production)
  - **Distributed costs** (that is, average variable costs plus a mark-up to cover fixed costs)
  - **Avoidable costs** (that is, fixed and variable costs associated with the production of an additional block of output)
  - **Stand-alone costs** (that is, costs for producing an additional unit without considering economies of scale and scope)

Source: Organisation for Economic Co-operation and Development (OECD), Competitive Neutrality: A Compendium of OECD Recommendations, Guidelines and Best Practices (Paris: OECD, 2012).

BOX D.3. OECD'S RECOMMENDATIONS TO IMPROVE SOEs BOARDS INDEPENDENCE AND ACCOUNTABILITY

The Organisation for Economic Co-operation and Development (OECD) Guidelines on Corporate Governance of State-Owned Enterprises issued several recommendations to ensure the competency of boards of state-owned enterprises (SOEs) and enhance their independence, including the following:

- The members of the SOE board should be assigned a clear mandate, which should be defined in the legislation. All members of the board should be held fully accountable and liable.
- Board members should be nominated on the basis of objective qualifications, subject to a transparent selection procedure. They should be protected from political interference and vested interests. Persons directly linked with the executive powers, such as heads of government or ministers, should not be included in the boards, as this could cast serious doubts on their independence. In SOEs engaged in commercial activities, it is advisable that board members be recruited from the private sector, as these members are typically more business oriented.
- Measures to address possible conflicts of interest should be in place. For instance, members of the board should disclose conflicts of interest if they arise.
- Boards should be able to make the strategic decisions of the SOE, notably the power to appoint and dismiss the chief executive officer. This appointment should be based on objective criteria and made following a competitive procedure, which should be publicly available.
- Periodic evaluations of the board's members and audits are important to ensure efficiency of the SOE.

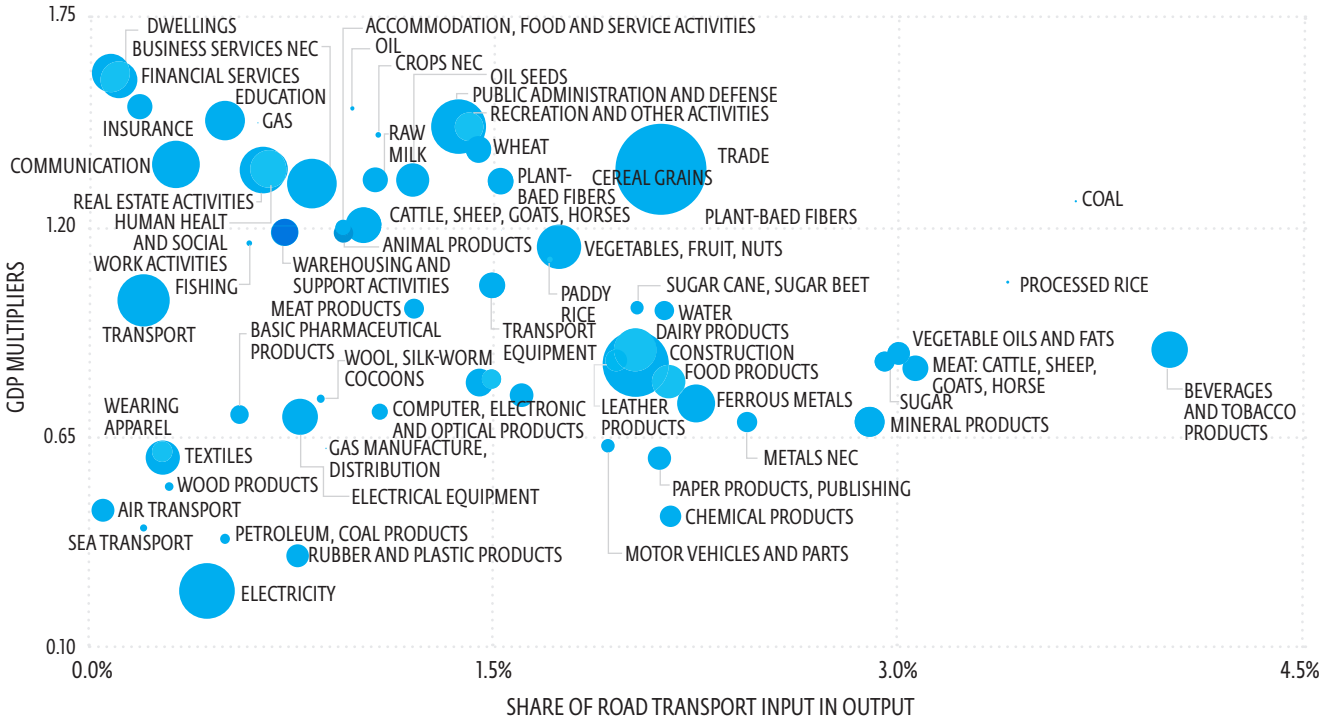
Source: Organisation for Economic Co-operation and Development (OECD), OECD Guidelines on Corporate Governance of State-Owned Enterprises (Paris: OECD, 2015).

APPENDIX E. TRANSPORT AND LOGISTICS

APPENDIX E.1 ECONOMY-WIDE LINKAGES OF TRANSPORT

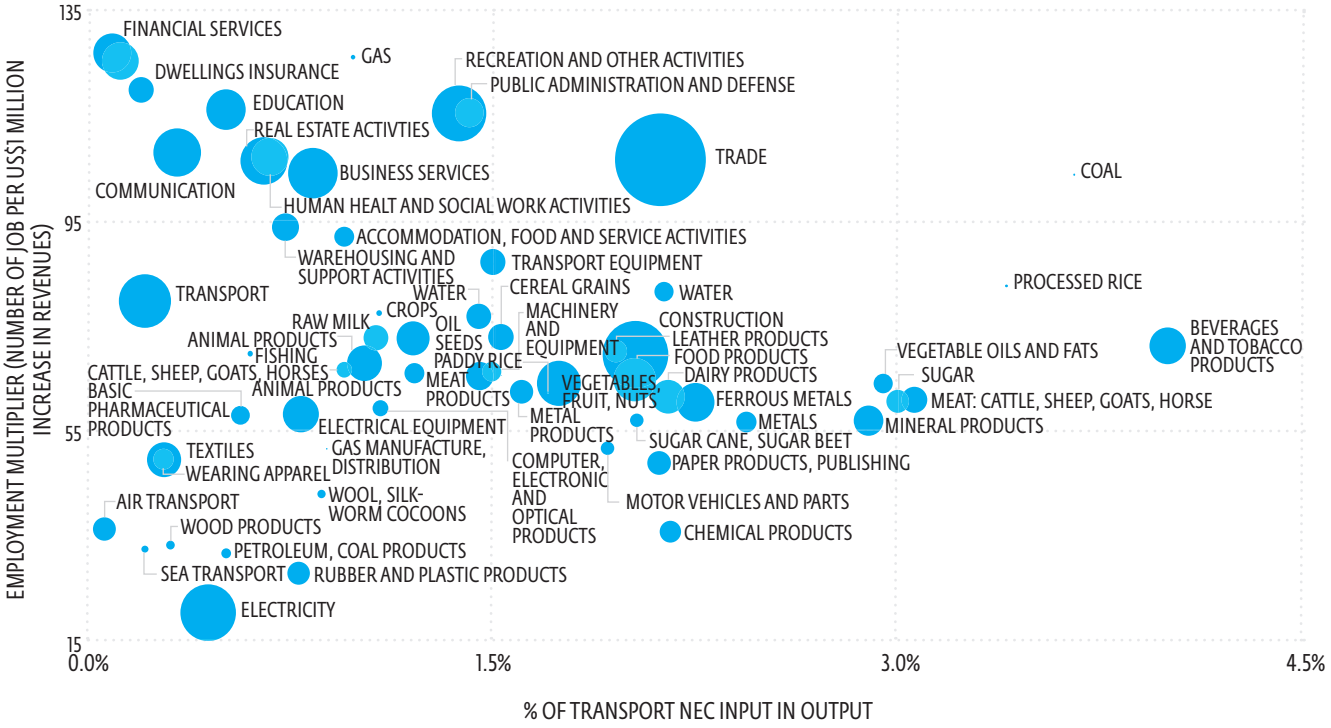
The transport sector constitutes an important part of the Moldovan economy, accounting for almost 5 percent of Moldova's GDP in 2020 and about 4.2 percent of the output of all main downstream sectors. Transport services play a critical role in the facilitation of trade. Road transportation is a main input for trade and other key goods produced by the Moldovan economy. It is critical to the performance of the agriculture sector, contributing to 1.7–3.0 percent of the output of agricultural goods (vegetables, fruits, nuts, dairy products, and food products), 3.0–4.0 percent of processed agricultural output (beverages and tobacco products, processed rice, vegetables oils, and fats), and 2.0 percent of trade.[264] Agriculture and food manufacturing sectors with a large share of road transportation in output such as trade, beverages, tobacco products, and meat have a high or average effect on the economy as computed by the Social Accounting Matrix (SAM) multiplier approach. Figures E.1 and E.2 show sectoral multiplier effects in Moldova on GDP in response to a US$1 million increase in sector revenues along with the share of road transportation in total output.[265] Similarly, agriculture and food manufacturing sectors with a large share of road transportation inputs in output exhibit average or high employment multipliers.

FIGURE E.1. SECTORAL GDP MULTIPLIERS AND ROAD TRANSPORTATION SHARES IN OUTPUT ACROSS SECTORS



Source: IFC estimation based on Center for Global Trade Analysis, Global Trade Analysis Project (GTAP) database, https://www.gtap.agecon.purdue.edu/databases/.
Note: nec = not elsewhere classified .

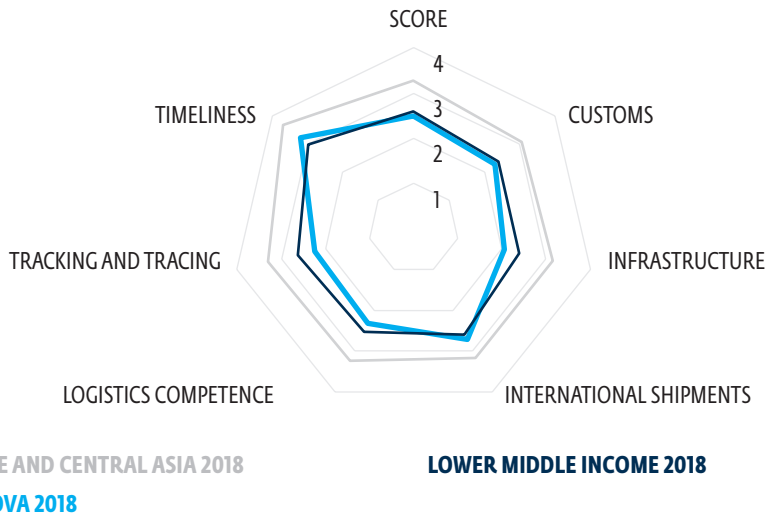
FIGURE E.2. SECTORAL EMPLOYMENT MULTIPLIERS AND ROAD TRANSPORTATION SHARES IN OUTPUT ACROSS SECTORS



Source: IFC estimation based on Center for Global Trade Analysis, Global Trade Analysis Project (GTAP) database, https://www.gtap.agecon.purdue.edu/databases/.
Note: nec = not elsewhere classified.

Moldova's logistic infrastructure performance has also deteriorated in recent years. The country's ranking fell from 85th to 141st in the World Bank's Logistics Performance Index between 2014 and 2018. This falls short when compared regionally or against economies in the same income group (figure E.3). According to the World Bank's Enterprise Survey, 14.7 percent of firms perceive the transport sector as a major constraint to doing business (the largest share across economies). Inadequate transport infrastructure quality combined with regulatory barriers increase the cost of trade while poor border agency cooperation and documentation are weak points in facilitating cross-border trade.

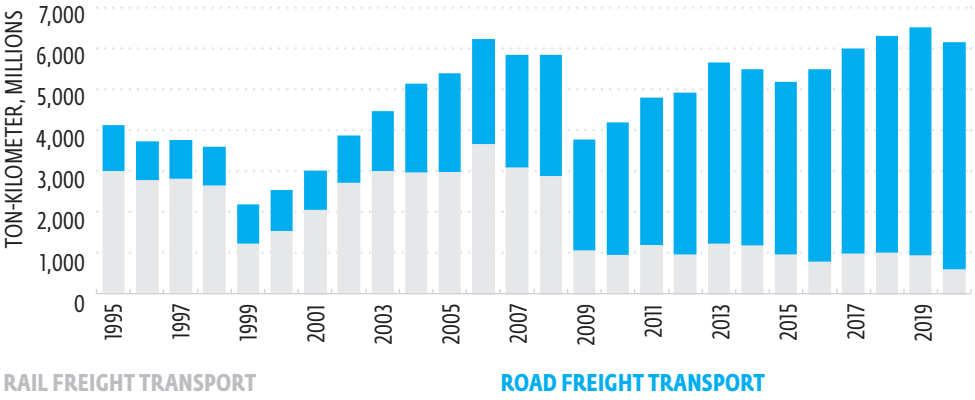
FIGURE E.3. LOGISTICS PERFORMANCE INDEX, MOLDOVA VERSUS COUNTRY COMPARATORS



Source: World Bank's Logistics Performance Index, https://lpi.worldbank.org/.
Note: LPI = Logistics Performance Index.

As a result of the low quality of transport infrastructure, as well as poor state-owned enterprise (SOE) performance in the sector (notably in rail), the country has experienced a modal shift in transport. Whereas rail represented 73 percent of the turnover of goods—measured in ton-kilometers (tkm)—in 1995 compared to 27 percent for road, these proportions had reversed by 2020: around 90 percent versus 10 percent for road and rail, respectively. In absolute terms, rail turnover reduced by 80 percent from 3.1 billion tkm to 0.9 billion tkm while road increased by 380 percent from 1.2 billion tkm to 5.6 billion tkm (see figure E.4). Air cargo is negligible, representing only 0.003 percent of the total freight cargo handled in Moldova. While the government has recently started taking initial steps to modernize railway assets to counter the shift, road transport remains a more competitive option. As an example, some domestic routes are significantly shorter by road than by rail (Chișinău—Rîbnița and Chișinău—Bender); hence, the railway has a price disadvantage because rates are set on the basis of distance. Road transport services are also less costly than rail transport services because the distances are relatively short, opportunities for backhaul cargo are greater, and the state often bears the costs of maintaining and operating the road networks without passing on those costs to road users.[266]

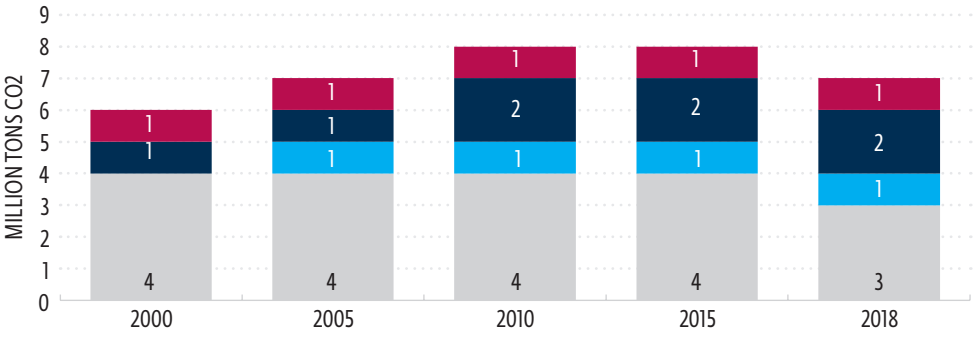
FIGURE E.4. FREIGHT VOLUME BY MODE OF TRANSPORT, MOLDOVA



Source: Organisation for Economic Co-operation and Development (OECD) and International Transport Forum (ITF), ITF Transport Statistics database, transport performance indicators, https://www.oecd-ilibrary.org/transport/data/itf-transport-statistics/transport-performance-indicators_2122fa17-en.

Unfortunately, this means that the transport sector is a significant contributor to Moldova's pollution owing to the increasing use of road transport, especially in urban areas. The transport sector's carbon footprint is significant and grew from 16 percent to 28 percent of total carbon dioxide (CO2) emissions between 2000 and 2018 (figure E.5:). According to the Organisation for Economic Co-operation and Development (OECD),[267] the transport sector is the main source of air pollution in Moldova in urban areas, accounting for at least 86 percent of pollutant emissions. Road transport also consumes the vast majority of fuel (about 96 percent), and many vehicles enter Moldova with inadequate technical inspections. This includes an urban transport fleet that is aging and diesel fueled. Reducing the transport sector's carbon footprint would require investments (US$150 million–US$500 million) to modernize public transport units (about 943 urban, 1,139 suburban, and 7,135 intercity transport vehicles), as well as supporting rail system electrification.

FIGURE E.5. CO2 EMISSIONS BY SECTOR



Source: International Energy Agency, Moldova country profile. https://www.iea.org/subscribe-to-data-services/co2-emissions-statistics

Note: CO2 = carbon dioxide.

APPENDIX E.2. OPPORTUNITIES AND SOLUTIONS FOR THE MOLDOVAN TRANSPORT AND LOGISTICS SECTOR

Moldova requires a long-term strategy that provides a roadmap of investments to overcome years of lack of rehabilitation and maintenance in the sector. Moldova would benefit from a transport and logistics masterplan that identifies short- and long-term opportunities and benefits of multimodal transport integration, as well as financing mechanisms that would allow adequate development, maintenance, and operation of the transport system. Promotion and coordinated planning of intermodal infrastructure and logistics centers combined with integrated customs clearance and logistics value added services can increase logistics efficiency and reduce logistics cost. A masterplan that considers synergies between modes of transport and efficiencies in covering geographies would also contribute to reducing the carbon footprint of the Moldovan transport sector (see box E.1 for lessons learned from international experience on Masterplans for Integrated Multimodal Transportation).

BOX E.1. MASTER PLANS FOR INTEGRATED MULTIMODAL TRANSPORTATION

Strategic master plans for the development of infrastructure provide a valuable framework for extension of transportation networks. Experiences of developed countries (for example, France and Japan) show that transportation master plans have created a degree of consistency over time, minimizing planning and political risk, and facilitated funding and financing. For example, master plans gave direction to the development of motorways (under tolled concessions) and high-speed railways. The replacement of subsectoral transport master plans with a multimodal approach is a positive recent development. Attention to multimodal interchanges and interconnections has long been part of planning, but the new emphasis is on value for money in projects across transport modes. This is accompanied by a focus on bottlenecks (notably in deficiencies in port hinterland infrastructure), congested rail links, and congested roads. These types of master plans facilitate agreements among central, regional, and local governments on funding investment, and they provide information on the synergies and interlinkages among transport subsectors, and transport and other sectors, that can inform decarbonization roadmaps.

In the case of Uzbekistan, the government has recently taken considerable steps toward improving transport sector governance and moving from fragmented to integrated multimodal planning. One key step was to establish a new Ministry of Transport to improve governance, develop policies, and regulate the sector. Before the establishment of the ministry, transport policy making, planning, and operations were handled by separate sectoral state entities and self-regulating state-owned enterprises (SOEs), leading to conflicts of interest between policy and operations, inefficiency, and duplication in service. The finalization of a National Transport Sector Strategy is helping the sector move from fragmented unimodal planning to integrated multimodal planning. The transport system masterplan aims to provide a framework to optimize logistics and land transport connections with the hinterland, provide small and medium enterprises more reliable and cost-effective access to domestic and export markets, prioritize investments, accelerate transition to market-based financing and management mechanisms, and encourage the role of the private sector in service delivery combined with unbundling of vertically integrated SOEs.

Sources: Organisation for Economic Co-operation and Development (OECD) and International Transport forum (ITF), "Strategic Infrastructure Planning: International Best Practice," https://www.itf-oecd.org/strategic-infrastructure-planning, March 2017; OECD and ITF, "Decarbonising Transport in Europe," https://www.itf-oecd.org/decarbonising-transport-europe-way-forward, July 2021 ; World Bank, "Uzbekistan: -Building Blocks for Integrated Transport and Logistics," Policy Note, Washington, DC, World Bank, May 2020.

To reduce trade and logistics costs imposed by suboptimal transportation services, Moldova needs to attract investments by piloting and testing output- and performance- based contracts for the maintenance of roads. This approach would need to be combined with adoption of best practices and standards that improve road maintenance and operation. Introducing output- and performance-based contracts (OPBCs) would help the government adopt minimum standards for long-term road maintenance and reach the desired level of road service, which would, in turn, result in substantial benefits to users especially in Moldova where the vast majority of trade occurs through road transport (see box E.3 for lessons learned from international experience with OPBCs). The CPSD team estimated various scenarios simulating improvements in quality of roads connecting Moldova's border crossing points, which are currently used by 40 percent of truck traffic. These estimations[268] show that piloting OPBCs to improve the quality of road corridors could increase Moldovan exports by USD 7.6-37.9 million (0.4-1.8 percent of total exports); with significant value added across exporting industries such as electrical equipment (US$6.6 million); apparel (US$3.3 million); oil seeds (US$5.7 million); beverages and tobacco products (US$3.4 million); and vegetables, fruits, and nuts (US$4.2 million). This will, in turn, spur economic activity within export industries and across supply chains, thereby supporting the creation of nearly 2,400 direct and indirect jobs (0.2 percent of total employment). In addition, piloting OPBCs would bring intangible benefits to the Moldovan transport sector, such as strengthening of institutional capacity to structure and manage long-term and performance-based contracts, rationalization of the Moldovan road maintenance program, and increased transparency and accountability of key infrastructure contracts (both on the government and contractor side). Moldova could leverage technical assistance from development finance institutions (DFIs) to structure standardized OPBCs that would attract international companies to maintain key road transport corridors. In parallel with the rehabilitation of the road network, Moldova needs to improve its efficiency in road network operation and transportation services. Hence, the pilot test of OPBCs could be supplemented by other DFIs' efforts (for example, whole life-cycle support for project preparation and the deployment of guarantees and blended finance to mitigate political and execution risks) if the country decides to pilot test PPPs as a subsequent phase to bring about efficiency gains in the development and rehabilitation of road infrastructure. The introduction of public sector obligation schemes could also be tested to improve efficiency in the operation of key national roads. Similarly, the state's road fund should be reformed to allow the establishment of multiyear payment mechanisms for rehabilitation and maintenance of roads that would enable the implementation of OPBCs.

BOX E.2. INTERNATIONAL EXPERIENCE ON OUTPUT= AND PERFORMANCE-BASED CONTRACTS

Well-designed output- and performance-based contracts (OPBCs) can deliver efficient, cost-effective, and innovative maintenance; improve quality of road assets, and achieve value for money. Output-based contracts can also help governments build experience in undertaking public-private partnerships (PPPs). OPBCs have several benefits over traditional input-based contracts. By paying contractors based on the level of service, OPBCs provide a clear financial incentive for contractors to meet performance standards. Private contractors are also incentivized to improve their efficiency and minimize waste because they are paid at a set level for performance, not a level based on the value of the inputs used. OPBCs encourage contractors to develop innovative solutions to realize the output standards while minimizing the inputs. OPBCs are usually longer than traditional maintenance contracts, which incentivize private contractors to take measures that improve the road conditions for the duration of the contract rather than perform ad hoc repairs. Longer maintenance contracts also commit governments to fund maintenance for several years, reducing the risk of delaying maintenance for budget reasons. This approach encourages predictable and regular maintenance work, resulting in improved asset quality and reduced long-term costs from lower rehabilitation and reconstruction costs. In addition, OPBCs can help governments build their capacity to implement PPPs.

In Vietnam, the World Bank Group's Public-Private Infrastructure Advisory Facility (PPFIAF) recommended introducing an OPBC to address road deterioration and provided technical support to improve institutional practices for contract management. As a result, three significant OPBCs were introduced for key roads, which resulted in better maintenance (especially in northern Vietnam), lower vehicle operating costs, reduced travel time, and fewer road accidents.

In Peru, OPBCs were introduced as a contractual innovation to rehabilitate and maintain existing rural roads. The program (Rural Road Program) was assessed using impact evaluation methods. Efficiency in maintenance was significantly improved, and the incentives set out through the contracts led to significant improvements in connectivity (28 percent reduction in travel time).

In Zambia, the introduction of OPBCs had a significant effect on road maintenance (increase by 18 probability of receiving necessary road maintenance works whenever needed), connectivity and agricultural production in rural areas (especially crops like maize and ground nuts); and road maintenance sustainability.

In Brazil, OPBCs were successfully introduced to improve efficiency in the rehabilitation and maintenance of one-third of the federal road network and more than 10 percent of the states' networks. Widespread use of OPBCs brought about improved efficiency to the sector and a high level of competition at the bidding stage (21 percent average discount on engineering designs). Road sections under OPBCs benefited from a more regular and focused maintenance over a 5-year period, which translated to better road conditions obtained at lower costs (25–35 percent lower rehabilitation costs and 34 percent lower maintenance costs). In addition, these contracts reduced management burdens on federal and local governments and road administrations.

Sources: World Bank Group (WBG), PPIAF World Bank Group's Public-Private Infrastructure Advisory Facility, "Lessons Learned in Output and Performance-Based Road Maintenance Contracts," Issue Brief, October 2014; Martin Valdivia, Contracting the Road to Development: Early Impacts of a Rural Roads Program," PMMA Working Paper 2010-18, Poverty and Economic Policy Research Network, October 2010; Astushi Imi and Ben Gericke, "Output- and Performance-Based Road Contracts and Agricultural Production: Evidence from Zambia," Policy Research Working Paper 8201, World Bank, Washington, DC, 2017; and Eric Lancelot, "Performance Based Contract in the Road Sector: Towards Improved Efficiency in the Management and Rehabilitation—Brazil's Experience, Transport Papers TP-31, World Bank, Washington, DC, March 2010.

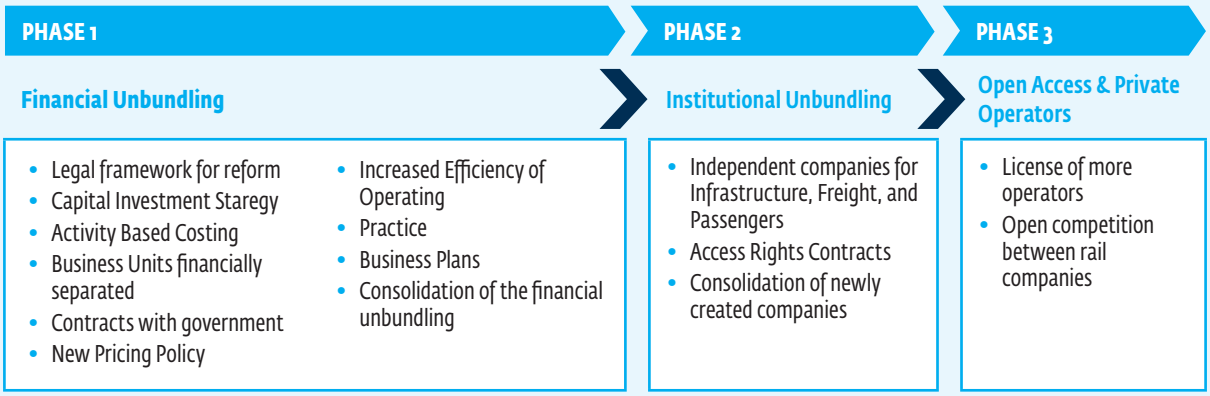
The reform of the railway sector, as proposed by the WBG in 2020 (box E.3), should be resumed to restore operational and financial viability and ensure medium-term investments in rehabilitation of CFM assets and network. It is of paramount importance to resume the congressional discussion on the unbundling of key CFM activities (infrastructure, freight, passengers, and maintenance), while the government sets a new business-oriented culture in the railway industry. In parallel, CFM should implement reforms proposed by the WBG to restore financial and operational viability, while also adopting a business plan linked to key performance indicators and public service obligations that ensures a corporate pathway to a more sustainable operation. In the short to medium term, once financial sustainability is strengthened, CFM should undertake the necessary—and for various years neglected—investments to rehabilitate tracks, equipment, and rolling stock to prevent further deterioration of the company's competitiveness. In the long term, the sector should allow for private participation in some segments of the rail service, especially between the GIFP and Chișinău. Improving railway competitiveness would induce a progressive shift of good transport from road to rail that would be beneficial for decarbonization of the Moldovan transport sector.

BOX E.3. REFORM PATH OF THE RAILWAY SECTOR IN MOLDOVA

The multiple challenges faced by the railway sector in Moldova jeopardize the future of Calea Ferată din Moldova (CFM), but also have a negative effect on the country's economic development. Currently, CFM is not competitive compared to the road transport, and it cannot compete with other European railways. There is a significant risk that the loss of market share will continue at an even greater pace over the coming years if the government and CFM fail to take strong actions needed to profoundly reform the entire system.

The World Bank Group (WBG) recommended to the government the following path to guide the unbundling of the railway industry in Moldova: (a) the first recommended step is the financial unbundling, which will be implemented in parallel with the profound reform addressing the operational and financial performance of the CFM and accompanied by important investments in infrastructure and rolling stock; (b) the second recommended step is the institutional unbundling of CFM, to be undertaken by putting in place subsidiaries of CFM for management of infrastructure and for the provision of freight and passenger transport services; and (c) the third recommended step could be the opening of access for more operators on the railway infrastructure of Moldova. See phases in the figure below.

FIGURE BE.4.1. RAILWAY SECTOR REFORM PHASES, MOLDOVA



Source: World Bank.

The implementation of the first step will reconfirm Moldova's political commitment to the European Union (EU) integration and will mark the fulfilment of the provisions of the Association Agreement with the EU for the railway sector. The continuation of the reform with steps two and three must be carefully planned and implemented at an appropriate time in line with the progress of the political agreements for accession to the EU while also allowing CFM to compete in an open environment.

The railway sector reform is a complex process that requires adequate political and social environment. There are two key prerequisites for successful reform implementation: (a) securing broad political support for the railway sector reform before starting the process; and (b) ensuring agreement in the Parliament for a minimum period of 5¬7 years of continuity in the policies for the implementation of the railway reform. In addition, the government should clarify and address the following issues: (a) clarify the role of the state in relation to the new railway company(ies); (b) address historical debts of the railway sector; (c) adopt a commercial approach for all activities of the railway company(ies); (d) outsource noncore activities that are not financially viable; (e) establish a tariff policy consistent with the commercial approach of railway activities; (f) implement a reliable costing system in railway company(ies); (g) identify mechanisms for financing the public transport of passengers; (h) identify mechanisms for financing the railway infrastructure; (i) strengthen the corporate management of railways; (j) implement mechanisms to measure the performance of railway company(ies); and (f) decide on the role of the private sector in the railway sector.

The WBG identified three broad strategies to improve rail competitiveness: (a) capital investments to improve quality of service while limiting long-run marginal costs, (b) modification of operating practice to increase efficiency and quality of service, and (c) introduction of a system of pricing based on quality of service.

Source: World Bank, Tracks from the Past, Connectivity for the Future: Revitalizing Moldova's Railway Sector (Washington, DC: World Bank, 2020).

Improvement of cross-border operations and reduction of time and cost of crossing the borders is a precondition for logistics efficiency for Moldova. To improve transit procedures, MCS should consider establishing a bilateral coordinating committee with the Romanian customs authority that would include senior representatives meeting periodically to review the adequacy of all transit arrangements established under bilateral and regional agreements. Installation of nonintrusive inspection equipment, such as x-ray and gamma-ray scanners, would also improve the efficiency of cross-border procedures and reduce delays at the border. In addition, Moldova needs to modernize infrastructure to increase a throughput capacity at some BCPs. To improve cross-border operation, Moldova needs to upgrade Leușeni and Sculeni BCPs with Romania as a first step. Projected cost of the upgrade of both BCPs is US$7 million, and it could be implemented by 2023 (see box E.4 on Georgia's experience in upgrading BCPs, implementing a national single window for trade, and one-stop-shop customs clearance zone).

BOX E.5. IMPLEMENTATION OF SINGLE WINDOW FACILITY AND ONE-STOP-SHOP CUSTOMS CLEARANCE ZONE IN GEORGIA

Georgia has made significant progress in improving its border crossing and customs clearance procedures. International organizations reported that 85 percent of cargo was released by Georgian Customs within 2 hours of the customs declaration being presented. According to the Time Release Study 2019 of the Georgian customs authority, average time between the entrance of transport means in the customs control zone at a border crossing point and exit of the customs control zone amounts to 4 minutes for transit, 6 minutes for imports, and 5 minutes for exports (see table below).

TABLE BE.5.1. AVERAGE BORDER CROSSING TIME AT GEORGIAN BCPS

MINUTES

REGIME	MINIMUM TIME	MAXIMUM TIME	AVERAGE
Transit	2	14	4
Import	2	17	6
Export	2	17	5

Source: Time Release Study 2019 of the Georgian Revenue Service.

Note: BCP = border crossing point

Implementation of single window

The single window implementation in Georgia started in 1998. In 2015, the Georgian Revenue Service (RS), part of the Ministry of Finance, updated its single window system, which is currently operating with the most recent version of ASYCUDAWorld, the so-called E-Customs system. The E-Customs system enables paperless processing of most of customs operations. The infrastructure is integrated with the information systems of other state authorities providing inputs to (or consuming data from) customs operations, such as permits, licenses, and certificates. RS has implemented an e-platform of permits in order to finalize the border and customs control procedures. The e-platform provided by RS automatically registers the permits issued by following authorities:

- Ministry of Internal Affairs
- Ministry of Defense
- Ministry of Economy and Sustainable Development
- Ministry of Environmental Protection and Agriculture
- Ministry of Health, Labour and Social Affairs

Issuance of the permits is automatically registered and validated at all the BCPs. After finalizing the border control procedures, the feedback is given to the permit issuing agencies.

Development of one-stop-shop customs clearance facility

In 2010, RS established the one-stop-shop customs clearance facilities—Customs Clearance Zones (CCZs). The main goal of CCZs is to simplify customs clearance procedures. CCZs conduct air, land, railway, and sea cargo clearance while offering unique services of customs declaration submission and all the related procedures giving the possibility to traders to benefit from the one-stop-shop principle.

The CCZ officers support traders in the submission of the documents based on the online platform. The customs officer acts as a customs broker. All necessary services and support needed for the clearance process is now provided by CCZs. The E-Customs platform provided by RS includes the following:

- ASYCUDA customs declaration, transit declaration, and automated risk management
- ORACLE-based software, which administrates customs duties, other import taxes (import value added tax (VAT) and import excise), automated enforcement of payment, and customs guaranties
- Border risks management, postal consignment declaration, identification of postal consignment risks, and tax-free risks (VAT refund for foreign citizens);
- Border control system, (automated risks, Common Veterinary Entry Documents (CVED), CFD control, and exchange of information between National Food Agency and RS);
- Administering of transit road fee that accrues at BCPs transiting the Georgian territory;
- Exchange of Information on permit system (some permits are issued via customs information and communiations technology system);

Information exchange between: (a) RS and Georgian Railway; (b) RS and Customs administrations of neighboring countries—Azerbaijan, Türkiye (information exchange with GUAM [Organization for Democracy and Economic Development] members and Armenia is planned); (c) between RS and the Georgian sea ports and forwarding companies; (d) RS and banks (FATCA [Foreign Account Tax Compliance Act]; CRS [Common Reporting Standard] is upcoming); and (e) RS and Public Registry on property tax return. Further, the systems allow information exchange with a number of different organizations involved in the customs clearance process.

Source: Georgian Revenue Service

APPENDIX F. FINANCIAL SECTOR

Remote and Digital Client Onboarding: Azerbaijan and Central Asia

In 2020, the National Bank of Tajikistan and National Bank of the Kyrgyz Republic enacted digital onboarding procedures for financial institutions. Both countries allowed financial service providers (FSPs) to open lower-risk e-wallets, while in the Kyrgyz Republic provision of smaller-scale loans and lower-risk bank accounts were also allowed, without face-to-face contact. The uptake of e-wallets in 2021 reached 1.7 million people in Tajikistan and 1.9 million in the Kyrgyz Republic, and the volume of transactions continues to increase.

Earlier in 2019, Azerbaijan implemented remote account opening. With the support of IFC, the Financial Market Supervisory Authority of Azerbaijan adopted new rules for opening, maintaining, and closing bank accounts. The rules introduced a new approach to remote account opening using e-signature, video identification, and the Central Bank's BankID system for authentication. New bank clients (individuals and legal entities) are able to open accounts without physically visiting the bank. The rules limit the amount limit of the operations of the accounts opened remotely with a video connection (for accounts with an annual turnover of up to US$3,500) and other distant authentication tools (with an annual turnover of up to US$300). The rules also integrate know-your-customer principles by obliging banks to develop risk level determination for clients. Currently, the tax authority requires e-signatures to sign the Foreign Account Tax Compliance Act for individuals, but this barrier should be eliminated soon.

These reforms had a significant positive effect on the market during COVID-19 restrictions. A number of financial institutions tailored their product proposition to reach out to consumers and onboard them digitally. The reforms also contributed to the emergence of digital champions—rapidly growing FSPs focused on the fast rollout of digital-first products and services. The number of banks using the digital identification platform developed by the Central Bank reached 16 in addition to 2 banks that implemented their own solutions. Over 1,300 users registered in the system, and 800 customers were able to open individual or business accounts and order debit cards. The system will also support savings accounts soon, significantly easing access to financial services in Azerbaijan for diaspora and migrants working abroad.

The Case for Fintech and Open Banking: Lithuania

Lithuania has been facing similar demographic challenges as Moldova: high emigration and difficulty retaining local skilled labor, leading to shortages in industries such as information technology (IT) and financial services. This led to the development of a financial technology (fintech) strategy.

Since 2016, authorities have been pushing for development of fintech and digital payments by providing a clear enabling environment. A national fintech strategy was put forward with the objective of enabling contactless instantaneous payments by 2020. Part of that objective was largely reached in 2017 with CENTROlink, a national infrastructure linked to the single euro payments area. As early as 2017, the Bank of Lithuania had approved 110 fintech licenses to providers of payment and electronic money services, crowdfunding, and other specialized banking services. It was only in 2018, however, that the potential of open banking was fully revealed, when the Bank of Lithuania launched a public consultation on the topic. After considering the proposals received from banks and fintech firms, a financial sector application programming interface (API) register was set up, as well as a working group of the Payments Council dedicated to Open Banking. Respondents preferred following the Berlin Group standard of APIs (which had already been adopted by Lithuanian banks for the revised Payment Service Directive APIs) rather than the UK Open Banking standard. To unlock the full potential of Open Banking, and to allow businesses to create new and innovative products, respondents also strongly supported the development of APIs or Open Banking services beyond the revised Payment Service Directive requirements. Access to products, accounts, and transactional data from across a broad range of deposit and lending products are expected to transform the banking ecosystem. Moreover, following the World Bank's and the International Monetary Fund's joint Bali Agenda, the Bank of Lithuania has paid particular attention to the ability of fintech companies (most of whom started outside Lithuania) to ensure compliance with anti-money laundering and other security requirements as well as the quality of services provided.

Crop Receipts: The Examples of Brazil and Ukraine

Brazil was the pioneer country in introducing crop receipts as a secured agricultural finance instrument. In 1957, it introduced the concept of enhancing an agricultural loan by adding a clause for "unconditional promise to pay" (a promissory note) in its legislation. The concept became central to the rural credit system in the mid-1960s when the country adopted several comprehensive measures to boost agricultural finance. In 2020–21, two new laws allowed crop receipts to become electronic, abolished their registration in the cadaster register, expanded types of assets used for a crop receipt, rationed the land titles for crop receipts, and allowed receipts registration by the entity authorized by the Central Bank of Brazil or a clearing house. In Brazil, prior to securitization, crop receipts financed US$3 billion of working capital to farmers annually. With the introduction of securitization, within 10 years, crop receipts financed US$17 billion of working capital needs, enabling accelerated cash to lend to other agriculture producers and creating a multiplier effect in liquidity provision, and more Effect is expected in the future.

Ukraine adopted the Law on Agrarian Receipts in 2012, based on Brazil's successful experience. In Ukraine, similarly to Brazil, farmers had limited collateral that could be offered as loan security to creditors. In 2015, supported by IFC, Ukraine modernized the crop receipts system by launching the single publicly accessible electronic crop receipt register and establishing efficient accelerated out-of-court enforcement procedures ensuring creditors' rights. As a result, the crop receipts market has been exponentially growing. In six years, over 4,000 farmers issued 7,500 crop receipts exceeding US$1.8 billion of financing. An upgrade of the instrument was introduced in 2019, allowing the purchase of foreign currency and transfer of money abroad under financial crop receipts. Since then, Ukrainian farmers from the small and medium enterprise (SME) segment can access cheaper financing from nonresidents directly as opposed to previous years when only very large farmers could access foreign capital or have direct grain supply contracts with foreign buyers.

Making Climate Finance Work in Agriculture

Access to sufficient and adequate finance is a traditional challenge for smallholder farmers and SMEs in developing countries, mainly owing to inadequate enabling environments, insufficient capacity to manage exposure to specific agricultural risks, and high transaction costs. Climate finance is no exception to that. However, a World Bank Group paper[269] proposes the following three solutions for making climate finance available:

1. Design innovative mechanisms and adapt others to leverage additional sources of both public and private capital that can be directed toward climate-smart investments in agriculture, such as the following:
    - Enhancing public-private partnerships to leverage the resources, expertise, and capacities of different stakeholders
    - Designing and piloting new investment vehicles that can attract additional capital by diversifying, managing, and rebalancing the risk return profiles of individual investors
    - Bundling a wide range of financial instruments to heighten their effectiveness and provide more holistic and comprehensive solutions
2. Identify entry points for directing climate finance into agriculture and linking financial institutions, smallholders, and agricultural SMEs. Public sources of climate finance are uniquely positioned to address some of the financial sector constraints on agriculture and thus significantly increase the flows of capital to smallholder farmers and SMEs. For instance, climate finance could be used for the following:
    - Developing and improving a finance-enabling environment for agriculture, the basis of which could be better policies and regulations to mobilize and channel financial flows to farmers and to build the structures to facilitate and accelerate climate-smart and other investments
    - Supporting financial institutions to develop and reinforce their risk management mechanisms. with possible options being establishment of rural credit-rating agencies, promotion of guarantees, insurance, value-chain finance, warehouse receipts, climate-smart advisory services, and big data and data science
    - Supporting financial institutions to reduce transaction costs, most obviously through branchless banking and mobile financial services

3. Provide technical assistance to increase investments in agriculture. Public climate finance could play a useful role in helping strengthen the capacities of the main stakeholders engaged in climate-smart investments, namely lenders and borrowers:
    - Lenders: Build institutional agricultural finance capacities; build the capacity of agricultural finance staff; and customize financial products and services to agriculture.
    - Borrowers: Adopt on-farm climate-smart practices and technologies; manage risks; and access finance.

Programs successfully supporting farmer access to climate finance include the following:

- Peru's global canopy program
- Costa Rica's eco.business Fund
- Ecuador's credit bureaus for the rural poor
- Ethiopia's farmers access finance through credit guarantee services
- Kenya's input-linked weather insurance—Syngenta Foundation and UAP Insurance
- India's value chain finance—HDFC Bank
- India's warehouse receipt financing—HDFC Bank
- Philippines' climate-smart rice cultivation through phone Apps
- Several countries: Big data, small credit—reaching smallholders with alternative credit assessments
- Pakistan's branchless banking—United Bank Ltd.
- Kenya's mobile banking—M-PESA and M-KESHO
- Cambodia's building of agricultural lending skills—Amret Microfinance Institution and the World Bank

Artificial Intelligence Solutions in Financial Services

A recent survey of 151 firms, which was conducted jointly by the World Economic Forum (WEF) and the Cambridge Centre for Alternative Finance and included both fintech firms and incumbent banks, suggests the use of artificial intelligence (AI) in financial services. Eighty-five percent of respondents say they are "currently using some form of AI." AI solutions can help overcome the lack of infrastructure, human resources, and large information asymmetries in emerging markets by supporting product innovation and leapfrogging solutions tailored to serve previously underserved segments.

Globalization has increased the scope and complexity of supply chains. Originators of supply chain finance now have access to a greater wealth of data about the behavior and financial health of supply chain participants. For example, Tradeteq is a platform that provides investors and supply chain finance originators with the technology to negotiate, analyze, and manage trade finance investments, using alternative data to provide credit analysis and facilitating originators to pool assets, with the objective of reducing the structural costs that drive the trade finance gap. Although costly, the accessibility of services like Tradeteq for FSPs has improved through software pricing models based on optional use-of-service format, rather than upfront capital expenditure models.

Kenya-based FarmDrive is an agricultural data analytics company that developed an AI algorithm that generates credit scores used by financial institutions. Using mobile phone technology, alternative credit scoring, and machine learning, FarmDrive collects a farmer's data through text messaging. The questions are designed to identify the farmer's location, crops cultivated, farm size, assets such as tractors, and farming activities. These data are combined with existing agricultural data to develop a credit profile. FarmDrive also uses testing to determine the likelihood that a farmer will repay a loan. The aggregate profile is then shared with lending institutions for credit assessment and funding. During the first phase (the pilot), which ran between December 2015 and December 2016, the company collected environmental data (weather and climate patterns and soil data), economic data (income and market data), and social data (such as social network information including apps usage and individual data) from participating farmers. FarmDrive expanded the environmental arm of the algorithm by incorporating more data sets, including satellite imagery and remote sensing data. In addition, FarmDrive plans to use these environmental data sets in combination with crop cycle data to predict seasonal yields and influence agricultural insurance products.

APPENDIX G. RENEWABLE ENERGY

APPENDIX G.1. MOLDOVA'S DEVELOPMENT CHALLENGES

TABLE G.1. BENCHMARKING OF MOLDOVA'S DEVELOPMENT CHALLENGES IN THE ENERGY SECTOR

COUNTRY GAPS (MOLDOVA)								
				GLOBAL BENCHMARKS				
GAPS			MOLDOVA	SMALL	MEDIUM	LARGE	VERY LARGE	VERY LARGE
Users	Access	Electricity consumption per capita (kWh)	1,620	>3,000	1,500-3,000	700-1,500	<700	LARGE
		Access to electricity (% of population)	100	> 97	80-97	40-80	<40	MEDIUM
		Rural access to electricity (%)	100	>97	75-97	20-75	<20	SMALL
	Affordability	End-user tariff (USg/kWh)	9.9-11.4	<7	<7-14	14-20	>20	
	Quality	Number of outagesper month	0.6	<2	2-6	6-13	>13	
		Length of outages hrs)	12.3	<2.5	2.5-4.5	4.5-8	>8	
		Share of firms hatidentify electricity as constraint (%)	22.1	<15	15-30	30-60	>60	
		T&D losses	10-11	*B	8-12	12-22	>22	
Environment		Sector share of country emissions (%)	24	<5	5-10	10-25	>25	
		% of fossil fuels in generation mix	98	<50	50-75	75-90	>90	
		CO2 emissions per capita (tons per year)	2.3	<08	0.8-2.4	2.4-6.3	x6.3	

Source: World Bank estimation based on secondary sources and benchmarks established in IFC's Anticipated Impact Measurement and Monitoring (AIMM) framework for power generation.
Note: kWh = kilowatt-hour; T&D = Transmission and Distribution

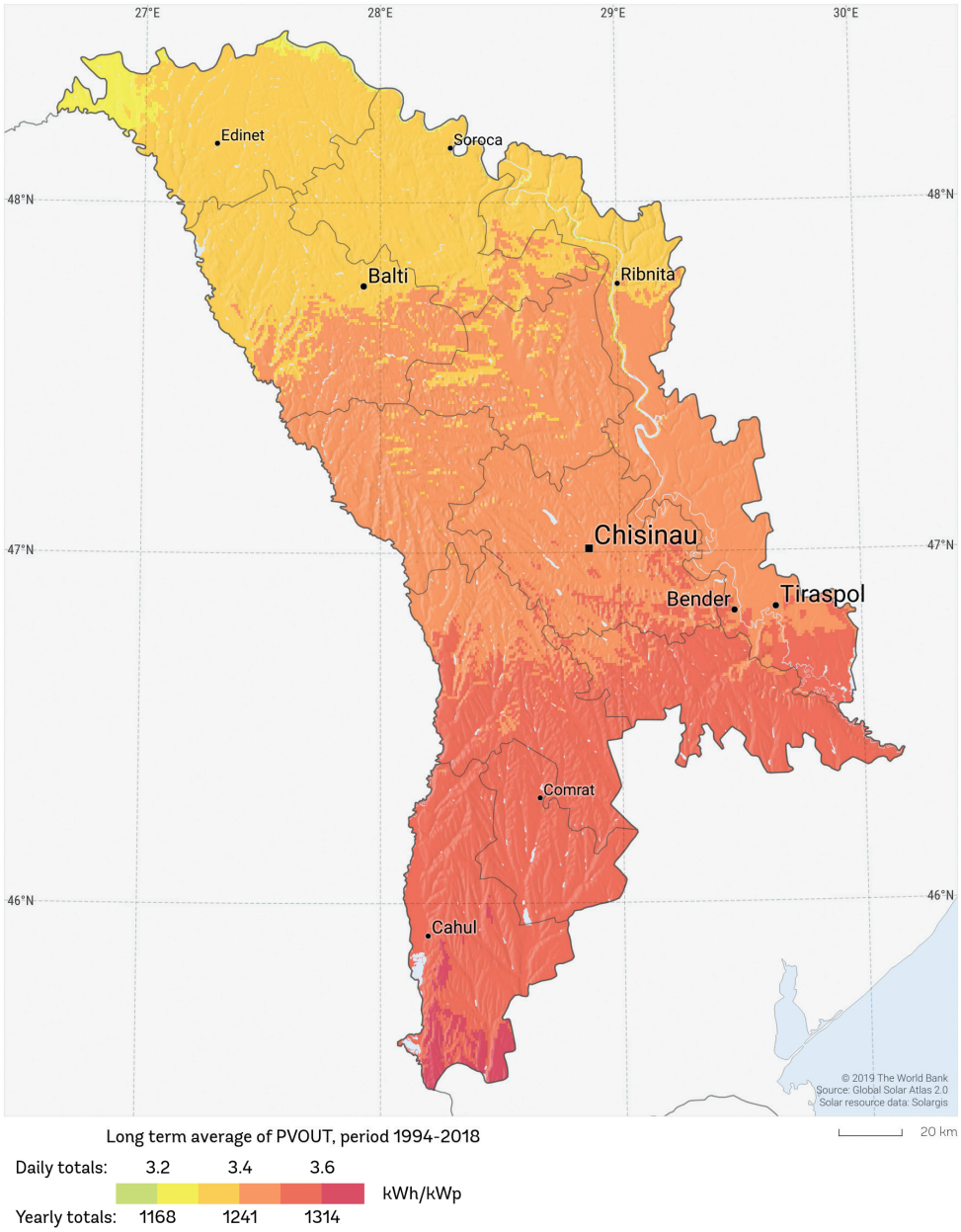
APPENDIX G.2. MOLDOVA'S RENEWABLE ENERGY POTENTIAL

TABLE G.2. MOLDOVA'S RENEWABLE ELECTRICITY POTENTIAL

RE TYPE	POTENTIAL			
	MW	%	GWH	%
Solar PV	4,648	17.1	6,044	9.3
Wind	20,869	76.7	50,236	77.3
Hydro	840	3.1	3,361	5.2
Biomass	850	3.1	5,388	8.3
Total	27,207	100.0	65,029	100.0

Note: GWh = gigawatt-hour; MW = megawatt; PV = photovoltaic; RE = renewable energy.

Map G1: Photovoltaic power potential



Source: Solar GIS, https://solargis.com/maps-and-gis-data/download/moldova.

PV Potential: Photovoltaic power in Moldova has a technical potential of 4.65 gigawatts, which would translate to an estimated 6 terawatt-hours per year. Sunshine in Moldova is 1,950 hours (h)/year to 2,210 h/year, and there is about 69–86 of sunless days (see Map G.1)

Moldova has succeeded in small-scale solar projects of up to 1 megawatt (MW) of installed capacity. An example of a large solar park is the Academy of Science 1 MW solar park developed by Italy's Fly Ren Energy Group and Consulcesi Tech and built by STEAG Solar Energy Solutions(SENS, formerly Gildemeister energy solutions) near Băcioi village. In august 2020, Fly Ren announced that it had agreed with the government to build an additional 28 MW of solar renewable energy (RE) in three new solar parks.

Wind Potential: Moldova's entire territory offers technically suitable locations for wind power investments (see map). Currently, with 27 MW installed, wind is the most widely used RE technology in the Moldovan power sector.

APPENDIX G.3. FEED-IN TARIFF MECHANISM IN MOLDOVA

The feed-in tariff (FiT) support mechanism was important to ignite some interest in small-scale RE projects, but its continuation is also setting misaligned incentives and sending the wrong signal to the market. The FiT was successful in delivering over 50 small projects (1 MW or less) and provided a lot of experience with small wind and solar projects. especially on the different hurdles faced to secure land, grid connection permits, and other requirements for the development of these projects. It has, however, provided grounds for misconception about the cost of RE produced by wind and solar. Different stakeholders in Moldova perceive RE generation as a costly endeavor, despite global empirical evidence showing that RE is a low-cost and scalable option for electricity generation. This perception has generated some resistance within the society to larger RE development, hence undermining political will to strengthen the networks and speed up the procurement of utility-scale independent power producers. At the same time, the continuation of the FiT mechanism, alongside untested capacity auctions (see box G.1), is setting the incentives to continue developing small-scale RE projects (a pipeline of 168 MW) as opposed to utility-scale RE projects. Taking this path would have a negligible contribution to the country's objectives of building up domestic generation capacities, diversifying energy mix, and ensuring low-cost electricity supply. Similarly, if Moldova continues building up small and fragmented RE generation capacities under the FiT, it will miss the opportunity of benefiting from lower marginal cost that utility-scale independent power producers can deliver. In addition, it will exhaust its already limited grid capacity, adding to the risk of RE curtailment, affecting feasibility of implementing the envisioned capacity auctions, and neglecting the potential to attract interest of international private investors.

BOX G.1. MOLDOVA'S RENEWABLE ENERGY FEED-IN TARIFFS AND ANNOUNCED CAPACITY AUCTIONS

Moldova energy regulator (National Agency for Energy Regulation [ANRE]) approved 15-year feed-in tariffs (FiTs) for a renewable energy project, which came into force in 2018 (Law No. 10/2016). The law set the capacity limit for each renewable energy technology to be able to obtain a FiT at 4 megawatts (MW) for wind and 1 MW for photovoltaic (PV), biomass, biogas, and hydropower plants. Power plants with higher capacity than the limit established by ANRE are expected to participate in future tenders (in the form of capacity tenders).

The government aims to organize technology-specific tenders for wind and solar PV projects for a total capacity of 113 MW, which will guarantee fixed tariffs for 15 years (see tables BG.1.1 and BG.1.2). The scheme has been designed in line with the European Union Guidelines on state aid for environmental protection and energy for 2014–20.

TABLE BG.1.1. RE CAPACITY QUOTAS UNDER SUPPORTING SCHEMES

NUMBER	TYPE OF TECHNOLOTY	QUOTAS (NW) CLASSIC FEED-IN TARIFF	AUCTION	THRESHOLD FOR SMALL INSTALLATIONS
1	**Wind**	20	80	4
2	**Solar**	15	25	1
3	**Biogas cogeneration**	12	8	1
4	**CHP installations (on solid biomass)**	5	—	1
5	**Small hydro**	3	—	1
	Total	**55**	**113**	

Source: International Renewable Energy Agency.
Note: CHP = combined heat and power; MW = megawatt; PV = photovoltaic.

TABLE BG.1.2. RENEWABLE CAPACITIES IN MOLDOVA BY 2021

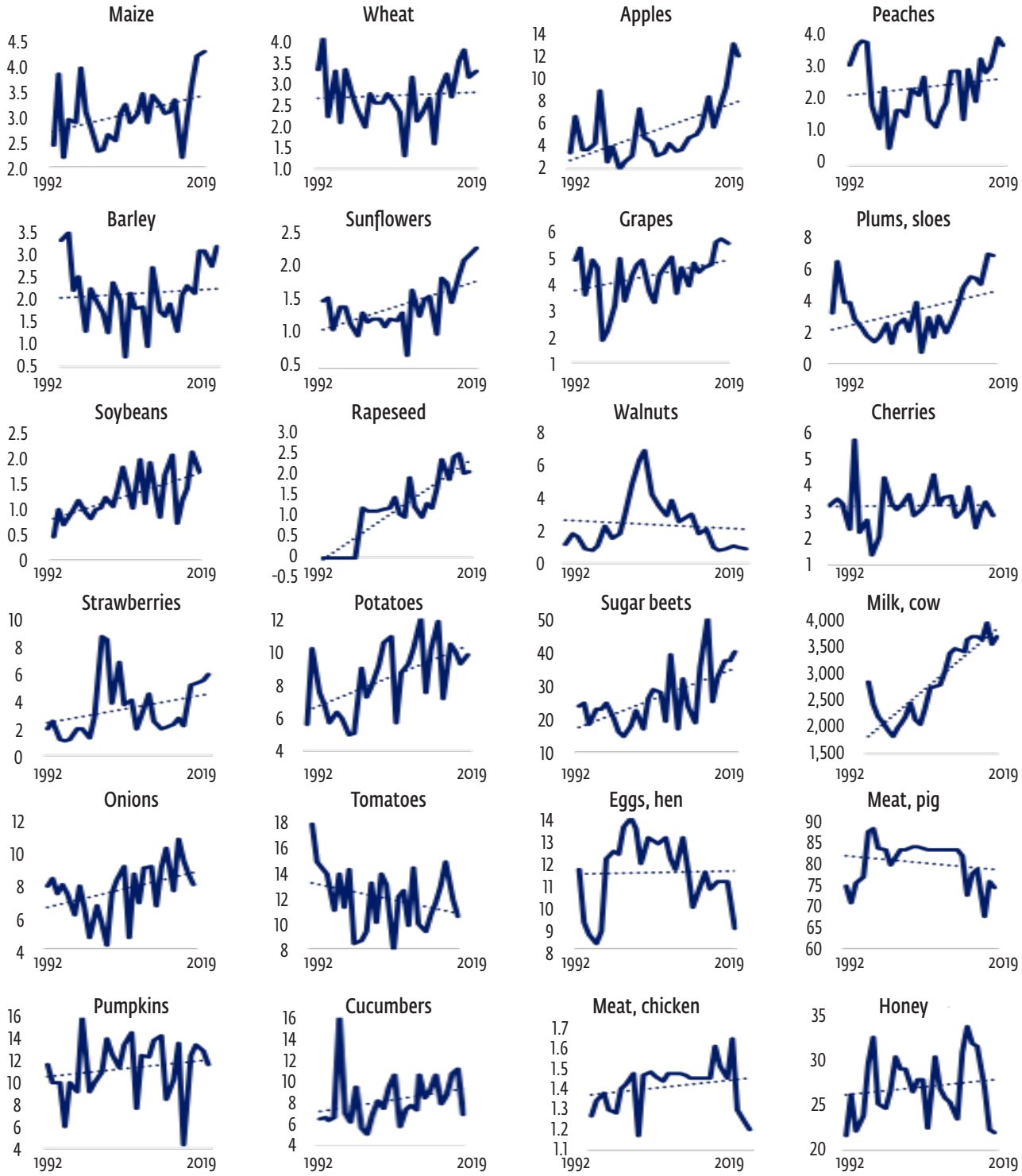
	CAPACITY IN MW				TARIFF UNDER 2020 FID PER KWH	
RES TYPE	ANRE FID	AUCTIONED FID	TOTAL	CAPACITY LIMITS	MDL	US$
Wind	20	80	100	4	1.55	0.08835
Solar	15	25	40	1	1.88	0.10716
Biogas cogeneration	12	8	20	1	1.84	0.10488
Solid biomass	5	0	5	1	1.96	0.11172
Small hydro	3	0	3	1	0.97	0.05529
Total	**55**	**113**	**168**			

Source: CPSD team based on ANRE, IRENA, publicly available information
Note: FiD = ; kWh = kilowatt-hour; MW = megawatt; MDL 1 = US$0.057.

APPENDIX H. AGRIBUSINESS

APPENDIX H.1. OVERVIEW OF MOLDOVA'S AGRIBUSINESS

FIGURE H.1. NATIONAL CROP AND LIVESTOCK YIELDS, 1992–2019



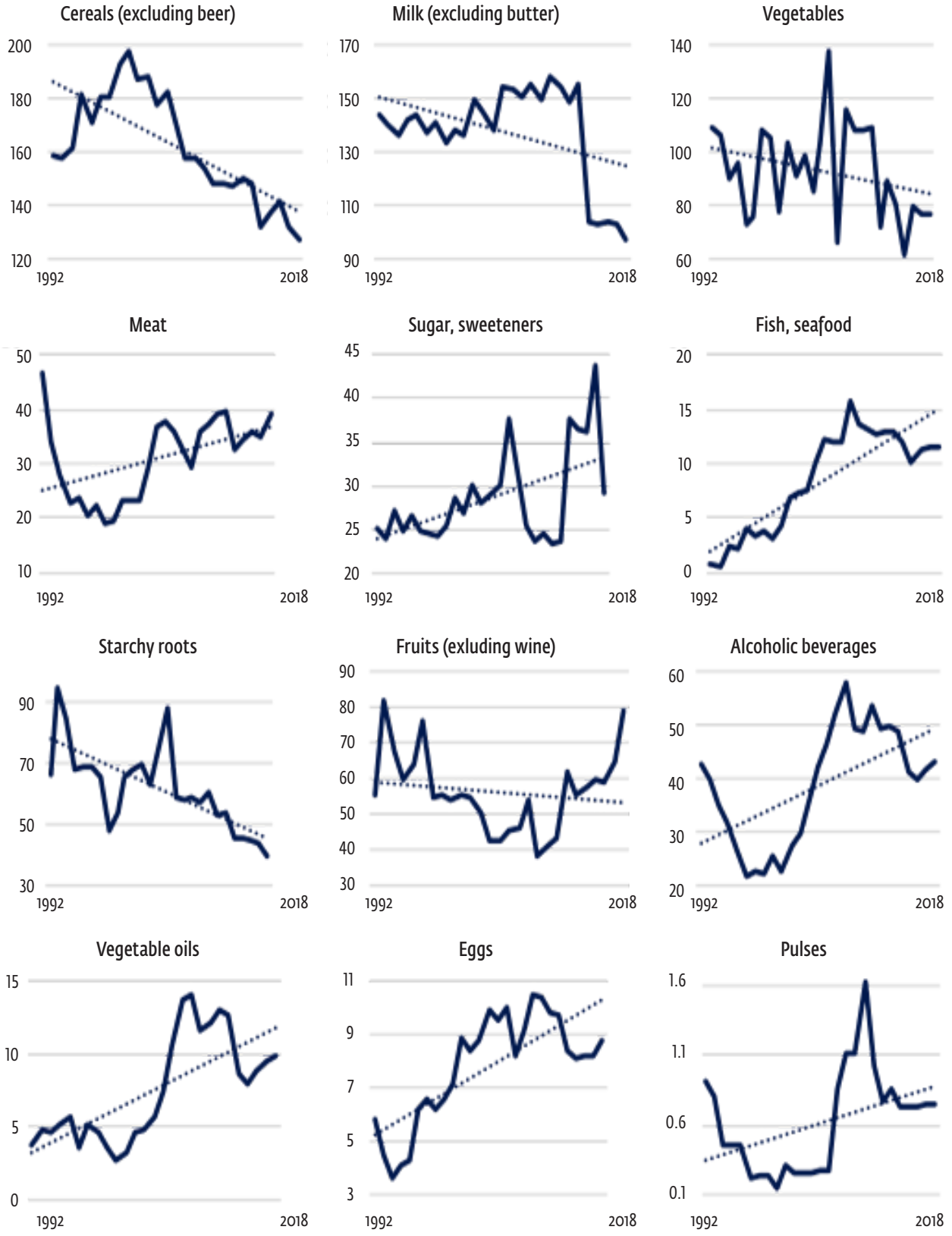
Source: WBG staff calculations using Food and Agriculture Organization data.
Note: Yields of production per unit are calculated in metric ton per hectare for crops, kilogram per animal for livestock, and kilogram per beehive for honey.

TABLE H.1. COMPARISON OF NATIONAL CROP AND LIVESTOCK YIELDS, AVERAGE 2015–19

Crop or livestock	Moldova/ EU yield gap	Moldova/World yield gap	Moldova	Eastern Europe*	EU-27	Romania	Ukraine	Russian Federation	World average	World best performer	Economy
Honey, natural	1.38	1.28	26.90	28.88	19.54	18.00	25,373.02	20.08	21.04	25,373.02	Ukraine
Sunflower seed	0.88	1.06	1.98	1.97	2.25	2.49	2.26	1.56	1.87	5.47	Israel
Meat, chicken	0.82	0.84	1.36	1.70	1.65	1.67	1.87	1.74	1.63	3.00	Kenya
Meat, pig	0.81	0.92	74.66	88.28	91.94	85.84	87.58	88.56	80.78	165.00	Puerto Rico
Eggs, hen	0.76	1.01	10.64	12.32	13.95	7.99	9.75	14.95	10.53	24.25	Jordan
Rapeseed	0.70	1.04	2.16	2.36	3.08	2.59	2.63	1.31	2.07	3.98	Ireland
Cherries	0.68	0.55	3.14	5.87	4.62	11.41	7.16	4.50	5.74	32.16	Guyana
Grapes	0.66	0.48	5.26	6.39	7.98	5.38	9.75	8.74	11.02	31.46	Taiwan, China
Plums, sloes	0.59	1.29	5.79	7.03	9.78	9.05	10.50	4.06	4.49	80.22	Austria
Wheat	0.59	0.94	3.26	3.33	5.53	4.43	4.02	2.73	3.45	9.63	Ireland
Barley	0.59	0.94	2.84	2.82	4.79	4.01	3.19	2.31	3.02	7.98	Belgium
Milk, cow	0.52	1.44	3,678.62	4,819.94	7,027.92	3,277.26	4,886.18	4,333.98	2,556.96	12,928.24	Israel
Soybeans	0.49	0.52	1.43	1.80	2.92	2.45	2.20	1.45	2.77	4.33	Türkiye
Maize	0.46	0.61	3.49	6.01	7.58	5.55	6.57	5.17	5.70	32.74	Jordan
Sugar beets	0.46	0.58	34.47	46.88	74.31	40.10	47.23	43.20	59.65	102.09	Chile
Apples	0.41	0.54	9.54	12.52	23.10	8.86	13.00	8.84	17.67	56.39	Switzerland
Strawberries	0.41	0.22	4.80	5.58	11.58	7.98	7.26	6.70	22.01	58.93	USA
Walnuts	0.39	0.26	0.89	4.05	2.29	26.78	8.65	–	3.43	26.78	Romania
Pumpkins, squash	0.36	0.79	11.00	20.28	30.59	15.00	20.79	21.12	13.95	92.12	Guyana
Potatoes	0.29	0.45	9.31	17.63	32.01	15.79	16.41	16.56	20.89	55.59	Kuwait
Onions	0.26	0.47	8.88	20.70	33.72	11.61	17.75	26.90	18.92	72.80	Guyana
Tomatoes	0.18	0.34	12.31	31.48	67.95	17.34	30.59	30.98	36.40	507.30	Netherlands
Peaches, nectarines	0.18	0.21	3.32	5.99	18.06	11.85	6.43	6.15	15.80	25.81	Jordan
Cucumbers, gherkin	0.16	0.24	9.09	26.86	56.01	16.52	19.11	34.19	37.88	697.15	Netherlands

Source: World Bank Group staff calculations using Food and Agriculture Organization data.
Note: — = not available. EU = European Union. Yields are for production per unit as calculated in metric ton per hectaer for crops, kilogram per animal for livestock, and kilogram per beehive for honey. Green cells represent highest yield economy or economy group. Eastern Europe is Belarus, Bulgaria, the Czechia, Hungary, Poland, Moldova, Romania, the Russian Federation, the Slovak Republic, and Ukraine.

FIGURE H.2. ANNUAL FOOD SUPPLY QUANTITY, 1992–2018, KILOGRAM PER CAPITA



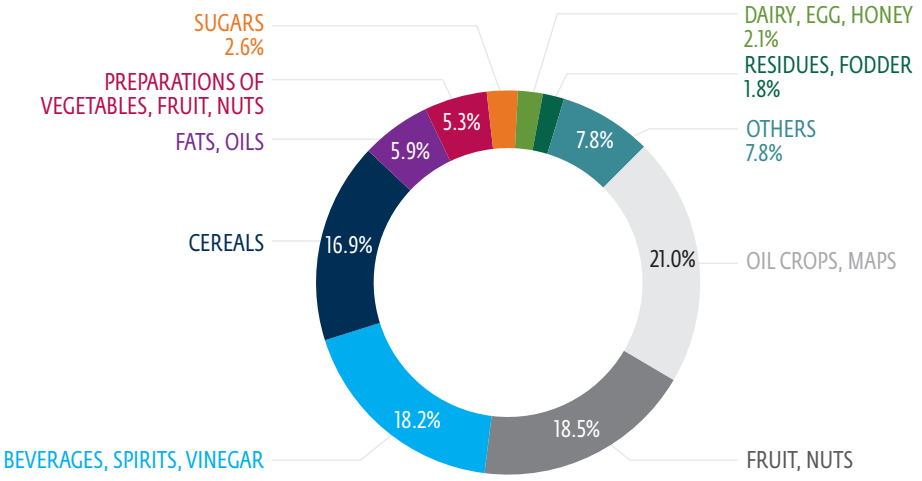
Source: World Bank Group Staff calculations using Food and Agriculture Organization data.

TABLE H.2. EXPORT VALUE PER TON FOR AGRIFOOD EXPORTS, 2019, US$ PER METRIC TON

FOOD	MOLDOVA	ROMANIA	UKRAINE	RUSSIAN FEDERATION	TÜRKIYE	BULGARIA	BELARUS	POLAND	WORLD AVERAGE
Sunflower seeds	371.0	402.0	420.0	356.0	1,493.0	583.0	776.0	1,017.0	609.0
Walnuts, shelled	5,469.0	5,412.0	2,846.0	8,250.0	7,204.0	5,465.0	4,432.0	6,669.0	6,494.0
Wheat and meslin	192.0	205.0	183.0	201.0	304.0	194.0	550.0	207.0	216.0
Maize	174.0	178.0	161.0	197.0	213.0	178.0	480.0	199.0	175.0
Wine of fresh grapes ≤ 2 L	1,834.0	2,173.0	1,947.0	1,358.0	2,697.0	1,978.0	2,885.0	2,652.0	–
Crude sunflower seed, safflower oil	632.0	760.0	685.0	690.0	753.0	749.0	688.0	821.0	610.0
Wine of fresh grapes > 2 L	544.0	730.0	282.0	716.0	1,901.0	549.0	1,000.0	2,708.0	–
Fresh apples	246.0	204.0	322.0	296.0	351.0	462.0	271.0	377.0	834.0
Apple juice, unfermented	802.0	930.0	958.0	1,003.0	1,327.0	902.0	1,295.0	1,006.0	–
Fresh grapes	473.0	1,041.0	750.0	708.0	730.0	996.0	378.0	1,310.0	1,729.0
Spirits obtained by distilling grape	4,318.0	32,900.0	4,181.0	2,191.0	–	4,959.0	9,817.0	6,149.0	–
Cane or beet sugar	459.0	429.0	359.0	396.0	358.0	582.0	395.0	375.0	395.0
Barley	181.0	205.0	171.0	194.0	245.0	185.0	239.0	185.0	–
Undenatured ethyl alcohol ≥ 80%	741.0	828.0	564.0	697.0	1,014.0	823.0	993.0	940.0	–
Cigarettes	14,150.0	19,314.0	11,700.0	10,465.0	8,564.0	10,960.0	–	20,110.0	–
Oilcake and other solid residues	188.0	217.0	205.0	194.0	340.0	217.0	193.0	244.0	206.0
High erucic acid rape or colza seeds	410.0	422.0	420.0	391.0	410.0	413.0	369.0	439.0	428.0
Fresh plums and sloes	343.0	794.0	526.0	260.0	383.0	981.0	311.0	717.0	1,094.0
Low erucic acid rape or colza seeds	399.0	506.0	406.0	401.0	424.0	465.0	882.0	545.0	422.0
Natural honey	2,979.0	3,812.0	1,815.0	2,318.0	4,463.0	3,123.0	4,087.0	2,537.0	3,105.0

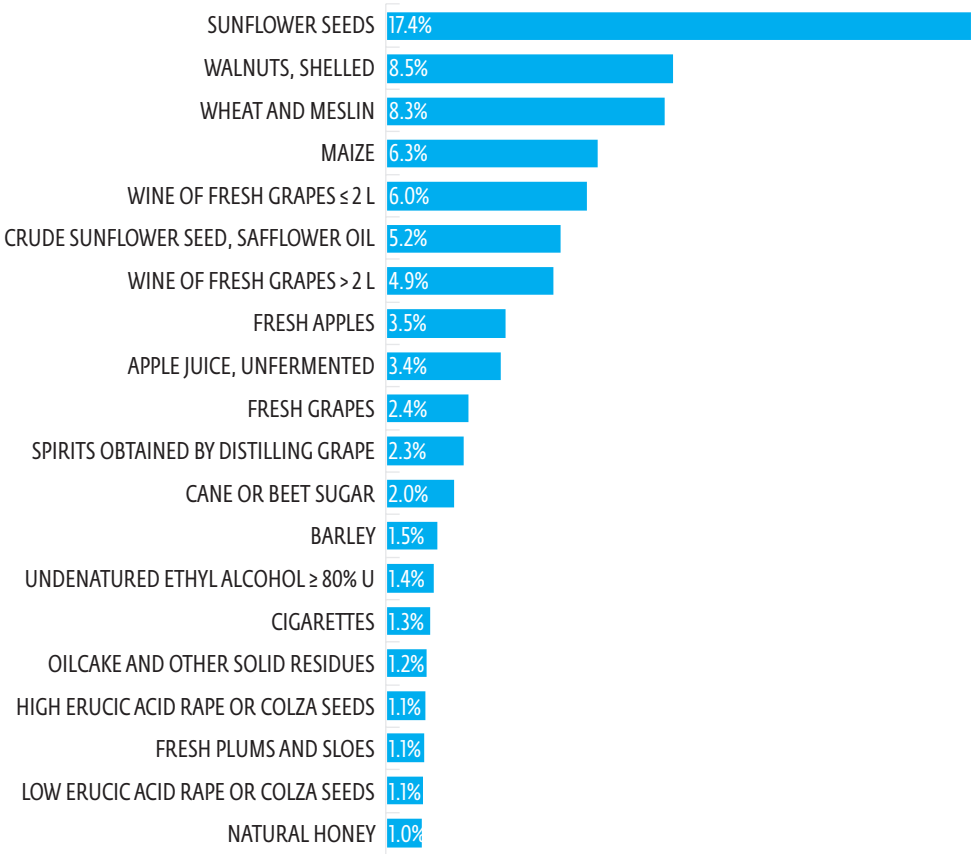
Source: World Bank Group Staff calculations using Food and Agriculture Organization data.
Note: — = not available; L = liter. Green cells represent highest values, and red cells represent the lowest values.

FIGURE H.3. EXPORT VALUE BY CATEGORY, AVERAGE SHARE OF TOTAL EXPORT VALUE US$1.1 BILLION, 2015–19, PERCENT



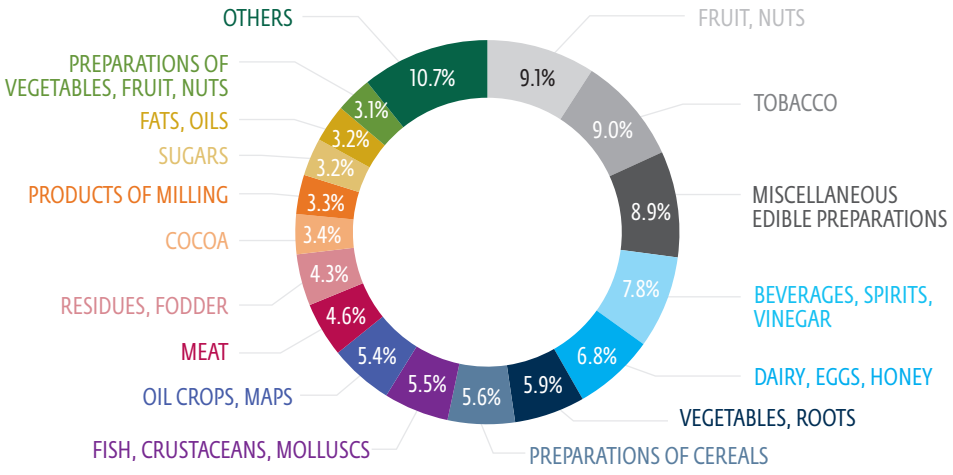
Source: World Bank Group staff calculations using United Nations Comtrade Database.

FIGURE H.4. TOP 20 PRODUCTS REPRESENTING 79.9 PERCENT OF TOTAL AGRIFOOD EXPORTS, AVERAGE, 2015–19



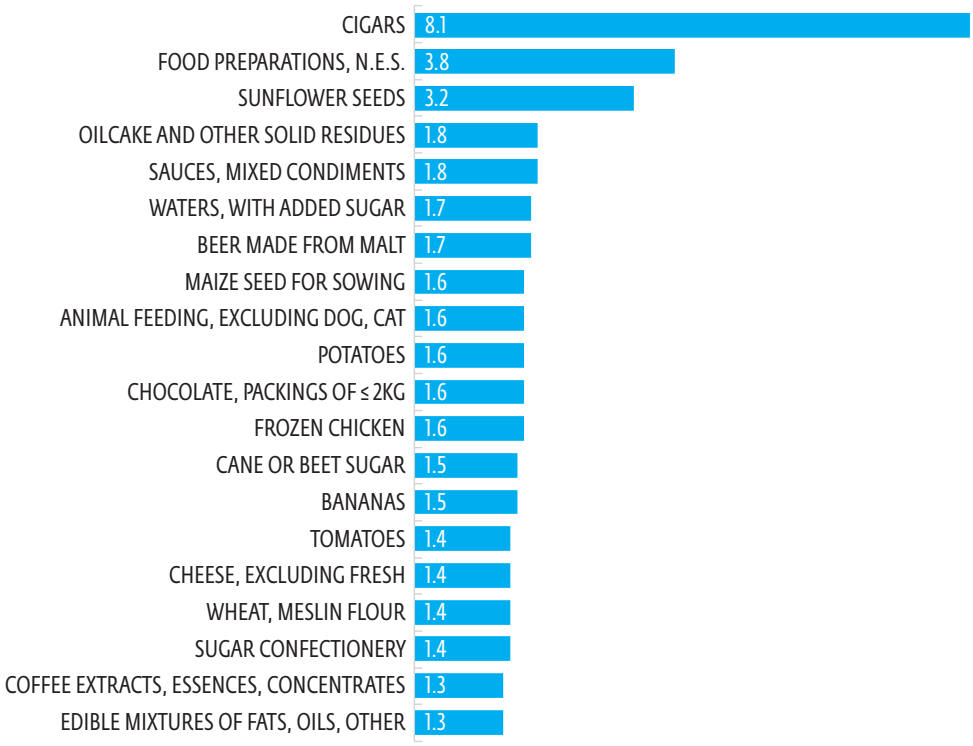
Source: World Bank Group staff calculations using United Nations Comtrade Database.
Note: L = liter.

FIGURE H.5. IMPORT VALUE BY CATEGORY, SHARE OF TOTAL IMPORT VALUE US$0.70, AVERAGE, 2015–19, PERCENT



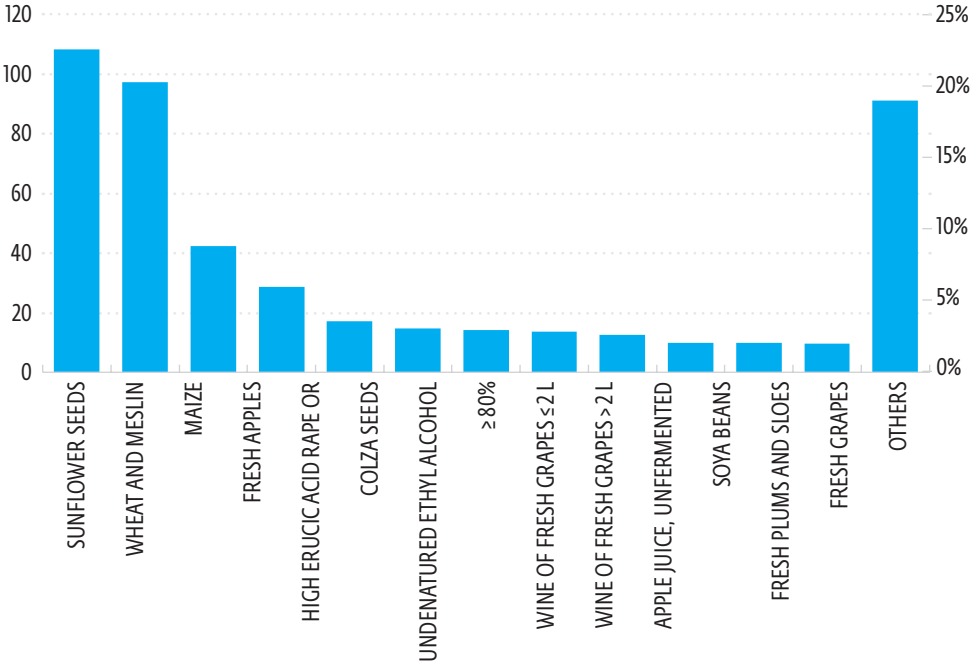
Source: World Bank Group staff calculations using United Nations Comtrade Database

FIGURE H.6. TOP 20 PRODUCTS REPRESENTING 41.4 PERCENT OF TOTAL AGRIFOOD IMPORTS, AVERAGE, 2015–2019



Source: World Bank Group staff calculations using United Nations Comtrade Database
Note: kg = kilogram; n.e.s. = not else specified

FIGURE H.7. FIVE-YEAR EXPORT VALUE GROWTH, 2014–19 US$, MILLIONS



Source: World Bank Group staff calculations using United Nations Comtrade Database.
Note: L = liter.

APPENDIX H.2. COMPETITIVENESS OF MOLDOVA'S AGRIBUSINESS

A comparison of yields in Moldova versus world average indicates that Moldova has on-farm competitiveness in several commodities, including oil crops, grains, plums, and animal products like horse meat and honey (figure H.8 and box H.1) Doubts around the statistical accuracy of yields, in particular of horticulture products, would indicate that fruits and vegetables most likely have larger on-farm competitiveness than current data suggest. A similar comparison, looking at the revealed comparative advantage (RCA), indicates that Moldova shows promise in oil crops, walnuts, and fruit (especially plums, cherries, apples, apricots, and grapes) and honey (figure H.8). For both indicators, certain distortions may be affecting the results, such as subsidized inputs boosting on-farm productivity. A low RCA with a high yield ratio could also be indicative of more robust domestic demand for the commodity (relative to competing exporters of this commodity), inability to expand production beyond current production, product quality not suitable for international markets (including safety and quality standards), or obstacles between farm and port that reduce global trade competitiveness despite high farm competitiveness. Some of the commodities with a yield ratio > 1 but an RCA < 1 fall in this category, including chickpeas and cow milk. In the case of chickpeas, as is the case with other pulses, Moldovan demand is higher than production (figure H.8), and the country has a negative trade balance in this item. In the case of milk, it is a combination of internal demand being higher than production (figure H.8), combined with the fact that Moldovan dairy products have suffered import restrictions due to food safety regulations in markets like the European Union (EU).

FIGURE H.8. MOLDOVA'S COMPETITIVENESS BASED ON YIELDS AND RCA

	MOLDOVA YIELD/WORLD AVERAGE YIELD SCORE (A)	
1	Chickpeas	4.03
2	Sorghum	2.74
3	Meat, rabbit	2.11
4	Meat, horse	1.77
5	Millet	1.63
6	Milk, whole fresh cow	1.44
7	Plums, sloes	1.29
8	Honey	1.28
9	Almonds	1.22
10	Meat, sheep	1.10
11	Peas, dry	1.06
12	Sunflower seeds	1.06
13	Beans, dry	1.04
14	Rapeseed	1.04
15	Eggs, hen	1.01
16	Mushrooms, truffles	1.00
17	Rye	1.00
18	Wheat	0.94
19	Barley	0.94
20	Meat, pig	0.92
21	Tobacco	0.90
22	Meat, chicken	0.84
23	Pumpkins, squash	0.79
24	Oats	0.68
25	Meat, cattle	0.64
26	Cauliflowers, broccoli	0.63
27	Maize	0.61
28	Vegetables, fresh nes	0.60
29	Sugar beets	0.58
30	Apricots	0.58

	REVEALED COMPARATIVE ADVANTAGE SCORE (B)	
1	Sunflower seeds	369.92
2	Walnuts	312.39
3	Plums, sloes	108.09
4	Cherries, sour	48.40
5	Apples	38.49
6	Honey	36.72
7	Apricots	24.94
8	Grapes	24.21
9	Cherries	20.39
10	Wheat	18.40
11	Rapeseed	17.73
12	Maize	17.28
13	Barley	17.02
14	Peas, dry	13.50
15	Peaches, nectarines	12.05
16	Quinces	11.08
17	Strawberries	10.72
18	Meat, cattle	10.42
19	Tobacco	9.65
20	Meat, horse	7.59
21	Peas, green	4.53
22	Currants	4.47
23	Hazelnuts	4.29
24	Raspberries	4.05
25	Beans, dry	3.86
26	Meat, sheep	3.73
27	Eggs, hen	3.27
28	Sorghum	2.33
29	Almonds	1.83
30	Soybeans	1.44

	COMPOSITE COMPETITIVENESS PRIORITIZATION SCORE (50%*A +50%*B)	
1	Sunflower seeds	0.63
2	Chickpeas	0.50
3	Walnuts, with shell	0.45
4	Sorghum	0.34
5	Plums, sloes	0.31
6	Meat, rabbit	0.26
7	Meat, horse	0.23
8	Honey, natural	0.21
9	Millet	0.20
10	Milk, whole fresh cow	0.18
11	Almonds	0.15
12	Rapeseed	0.15
13	Peas, dry	0.15
14	Wheat	0.14
15	Meat, sheep	0.14
16	Barley	0.14
17	Beans, dry	0.13
18	Eggs, hen	0.13
19	Tobacco	0.12
20	Rye	0.12
21	Mushrooms, truffles	0.12
22	Apples	0.12
23	Meat, pig	0.11
24	Apricots	0.11
25	Meat, chicken	0.10
26	Cherries, sour	0.10
27	Maize	0.10
28	Pumpkins, squash	0.10
29	Cherries	0.10
30	Meat, cattle	0.09

Source: World Bank Group staff analysis of data from Food and Agriculture Organization and United Nations Comtrade Database.
Note: RCA = revealed comparative average. Green cells represent horticulture items, blue cells represent livestock, orange cells represent grains, and yellow cells represent oilseeds.

BOX H.1. GROWING YIELDS IN HIGH-PERFORMING FARMS

Crop yields in Moldova are relatively low and volatile, in comparison to its European Union (EU) neighbors. However, there are good signs of yield improvement over the past decade, especially for high-value crops. New greenhouses and intensive and superintensive orchards have been set up, benefiting from drip irrigation, antihail and antirain nets, and improved agronomic practices. Yields obtained from these new establishments are much higher than country averages and are comparable to yields obtained in developed EU countries.

TABLE BH.1.1. CROP YIELD DYNAMICS

TONS PER HECTARE

CROP	2010	2011	2012	2013	2014	2015	2016	2017	2018
Potatoes	13.09	15.23	10.59	15.77	18.43	11.47	13.95	14.97	14.26
Vegetables	6.71	8.85	7.36	8.88	10.50	11.52	13.81	14.22	13.04
Fruits and berries	3.75	4.46	4.67	6.56	6.22	4.88	5.91	7.16	9.73
Nuts	0.17	0.22	0.09	0.39	0.35	0.37	0.35	0.38	0.54
Grapes	2.31	4.48	4.05	6.21	5.13	5.33	6.23	7.90	8.60

Source: Moldova National Bureau of Statistics.

The cultivation of some agricultural goods in Moldova contributes to stronger economic impact and competitiveness. Alongside Moldova's on-farm competitiveness, it is important to consider the economic impact of the different agriculture subsectors. Economic impact[270] refers to the economic benefits that a subsector brings to the economies involved in that activity. High values in production can result in higher employment, stronger linkages with downstream industries, and impact on SMEs; high values in exports can contribute to positive trade balances and foreign currency gains; high values in imports show economic leakages but signal the opportunity for competitive import replacements; and high growth rates of these values indicate growth opportunities in each subsector. In Moldova, these products include sunflower seeds; maize; wheat; milk; poultry; pork; and many horticulture items in the fruits, vegetables, and nuts categories. All these items show high values and volumes of production. In the case of grains, additional economic value is generated thanks to their high export value and global trade. Select livestock items have high import value and global trade values, which show that at present, there are leakages in these subsectors, but that, provided certain challenges are addressed, there is room for both competitive import replacements and expansion of exports. Horticulture items show both high value of exports (for certain fruits like grapes and apples) and of imports (for several fruits and most vegetables), as well as high growth in export values and volumes and high growth in global trade, showing not only current economic impact but also high growth opportunities in this subsector. Some products move higher in priority when economic impact is considered along with competitiveness (see figure H.9). For example, the high value of production, imports, and global trade of chicken and pork meat contribute to the scale of impact that these products deliver. Owing

to questions around data, particularly for horticulture products in terms of yield and production volume, it is reasonable to believe several items in this category might have a higher joint score. Oil crops, grains, walnuts, grapes, plums, apples, and milk show the highest joint competitiveness and economic impact.

FIGURE H.9. PRIORITIZATION AFTER ACCOUNTING FOR COMPETITIVENESS AND ECONOMIC IMPACT

	COMPETITIVENESS SCORE			ECONOMIC IMPACT SCORE			COMPOSITE PRIORITIZATION INCORPORATING COMPETITIVENESS AND ECONOMIC IMPACT*	
1	Sunflower seeds	0.63	1	Sunflower seeds	0.58	1	Sunflower seeds	0.60
2	Chickpeas	0.50	2	Grapes	0.45	2	Walnuts	0.28
3	Walnuts, with shell	0.45	3	Maize	0.40	3	Grapes	0.27
4	Sorghum	0.34	4	Wheat	0.31	4	Chickpeas	0.26
5	Plums, sloes	0.31	5	Milk, whole fresh cow	0.27	5	Maize	0.25
6	Meat, rabbit	0.26	6	Apples	0.21	6	Wheat	0.23
7	Meat, horse	0.23	7	Meat, chicken	0.17	7	Milk, whole fresh cow	0.22
8	Honey, natural	0.21	8	Meat, pig	0.16	8	Sorghum	0.18
9	Millet	0.20	9	Soybeans	0.13	9	Plums and sloes	0.18
10	Milk, whole fresh cow	0.18	10	Walnuts	0.11	10	Apples	0.16
11	Almonds	0.15	11	Onions, dry	0.10	11	Meat, pig	0.14
12	Rapeseed	0.15	12	Potatoes	0.09	12	Meat, chicken	0.14
13	Peas, dry	0.15	13	Peas, dry	0.09	13	Meat, rabbit	0.13
14	Wheat	0.14	14	Carrots, turnips	0.08	14	Millet	0.12
15	Meat, sheep	0.14	15	Tomatoes	0.08	15	Peas, dry	0.12
16	Barley	0.14	16	Raspberries	0.06	16	Meat, horse	0.12
17	Beans, dry	0.13	17	Peppers, green	0.06	17	Honey	0.11
18	Eggs, hen	0.13	18	Mushrooms, truffles	0.06	18	Rapeseed	0.10
19	Tobacco	0.12	19	Plums, sloes	0.06	19	Soybeans	0.10
20	Rye	0.12	20	Barley	0.05	20	Barley	0.10
21	Mushrooms, truffles	0.12	21	Meat, cattle	0.05	21	Almonds	0.10
22	Apples	0.12	22	Garlic	0.05	22	Mushrooms, truffles	0.09
23	Meat, pig	0.11	23	Eggs, hen	0.05	23	Eggs, hen	0.09
24	Apricots	0.11	24	Cherries	0.05	24	Meat, sheep	0.08
25	Meat, chicken	0.10	25	Cabbages, brassicas	0.04	25	Onions, dry	0.08
26	Cherries, sour	0.10	26	Rapeseed	0.04	26	Potatoes	0.07
27	Maize	0.10	27	Almonds	0.04	27	Beans, dry	0.07
28	Pumpkins, squash	0.10	28	Millet	0.04	28	Meat, cattle	0.07
29	Cherries	0.10	29	Cauliflowers, broccoli	0.04	29	Cherries	0.07
30	Meat, cattle	0.09	30	Watermelons	0.03	30	Pumpkins, squash	0.06

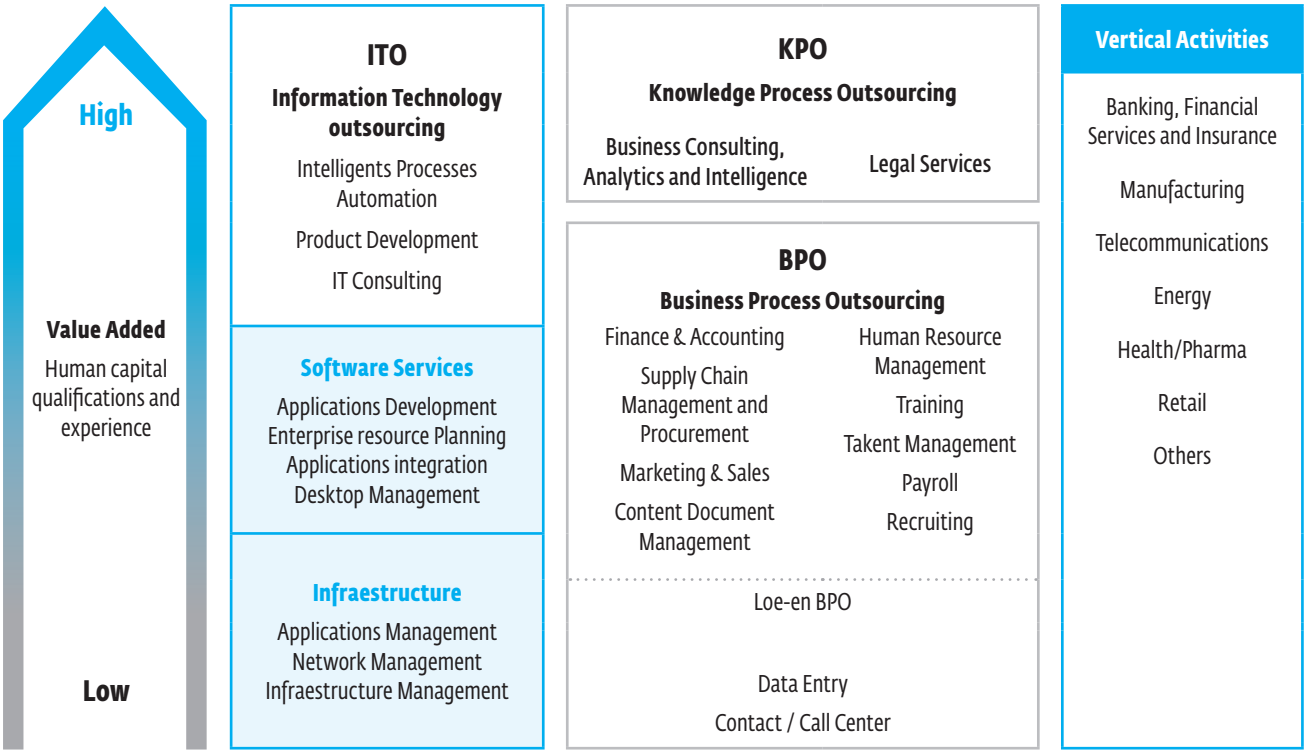
Source: World Bank Group staff analysis of data from Food and Agriculture Organization and United Nations Comtrade Database.
Note: Ranking is based on 60 percent weight to competitiveness and 40 percent to economic impact. Green cells represent horticulture and related goods, blue cells represent livestock, orange cells represent food grains, and yellow cells represent oilseeds.

APPENDIX I. INFORMATION AND COMMUNICATION TECHNOLOGIES

APPENDIX I.1. THE GLOBAL LANDSCAPE FOR OFFSHORING SERVICES

Offshore services (OS) comprise the provision of business services by a third party or from a different location, leveraging information and communication technology (ICT) to gain cost, technical, and business advantages. OS can be broadly classified into two categories: (a) information technology outsourcing (ITO) and (b) business process outsourcing (BPO) and shared services centers (SSCs) services. The emergence of digital technologies has given rise to a new category—digital services—as well as adding new services into the ITO and BPO categories. OS have evolved beyond traditional ITO and BPO, which largely focused on customer support, back-office services, and remote information technology (IT) support. ITO and BPO are increasingly driven by digital technologies, as a service (aaS), and platform-based models to include services like data analytics and digital solutions. In general, OS can be classified into four main segments: ITO, BPO, knowledge process outsourcing (KPO), and vertical activities (figure I.1 and box I.1). Because human capital is the prominent determinant of value creation and growth, the level of value added brought by the various services provided by the industry strongly correlates with the skills and work experience of the workforce.

FIGURE I.1. OFFSHORE SERVICES INDUSTRY GVC AND TYPE OF SERVICES



Source: Couto, V. and Fernandez-Stark, K. (2019), " Pakistan in the Offshore Services Global Value Chain", Duke Global Value Chains Center, Duke University

BOX I.1. A TAXONOMY OF OFFSHORE SERVICES

Information technology outsourcing (ITO). ITO is centered around the production and use of software. This segment dominates the global outsourcing space with a contribution of 52 percent of the total deal value in 2017.[a] Main activities in this segment involve infrastructure, software services, information technology consulting, product development, and intelligent process automation (IPA).

Business process outsourcing (BPO) and shared services centers (SSC). BPO involves activities related to the management of business functions. The segment accounts for 18 percent of worldwide outsourcing contract value. BPO can be subdivided into two categories: low-end BPO and high-end BPO. Low-end BPO consists of customer support services primarily (contact centers, call centers, and data entry) and accounted for merely 0.4 percent of the entire BPO contract value in Q4 2017. High-end BPO comprises more sophisticated activities such as finance and accounting, human resources management, supply chain management, and marketing and sales. Supply chain management and human resources management accounted for 57 percent of BPO revenues in Q4 2017.

Knowledge process outsourcing (KPO). KPO refers to specialized activities that often require professional licensing, such as in the legal and financial fields. This segment captures the highest value-added of horizontal services in the chain, such as market intelligence, business analytics, and legal services. Examples of subsegments within this category include legal, business intelligence, and data analytics services[b].

Vertical services. Vertical services require specific industry knowledge with limited applicability in other industries. Some examples involve agritech, information security software for financial services, or loyalty program management in the travel and hospitality sector.

a. KPMG, 2017. Global IT-BPO outsourcing deals analysis
b. Fernandez Stark and Gereffi (2016). Global Value Chain Analysis: A primer.
Source: Own analysis based on Fernandez Stark & Gereffi (2016).

OS has emerged as a dynamic global industry over the past two decades, primarily located in emerging markets. Driven by the need to lower costs and access talent, firms began offshoring and outsourcing a variety of corporate functions to emerging markets. Estimates of the size of OS range from US$209 billion to US$262 billion in revenues and around 7 million employees globally. Overall, the global OS industry grew at annual rates of 6 to 8 percent per year between 2015 and 2019, outperforming global GDP growth rates of 2.3 to 3.3 percent. India and the Philippines account for the majority share in the global supply of OS; they account for 63 to 67 percent of global full-time equivalent (FTEs), thanks to their large and inexpensive, yet educated labor forces. The two countries also represent 70 percent of the revenues from the East Asia and Pacific region, which captures 58 to 63 percent of global revenues of the industry. Europe (driven mostly by Poland, Ireland, Scotland, Ukraine, the Czechia, and Hungary is the second-largest provider of offshoring services in terms of revenues and FTEs, accounting for 13 to 18 percent of revenues and 14 to 16 percent of total FTEs. According to the AT Kearney's Global Services Location Index (GSLI 2021), the top 10 most attractive destinations to deliver global offshoring services are India, China, Malaysia, Indonesia, Brazil, Vietnam, the United States, the United Kingdom, the Philippines, and Thailand. the most attractive destinations from Eastern European countries involve Estonia (ranked 12th), Poland (14th), Bulgaria (17th), Latvia (20th), and the Russian Federation (21st). India is also ranked as the top preferred location for SSCs across most industries.

Demand for offshore services is primarily concentrated in advanced economies. The largest buyer of OS is the United States, accounting for 36 percent of the international outsourcing deals announced in 2017.[271] The European Union follows with 28 percent of the total share, while the United Kingdom accounts for 12 percent of the demand side.[272] Five key trends are reshaping the demand and supply of IT and global services across the globe: increased specialization, remote work, new wave of automation, emergence of global digital hubs, and political instability and rising protectionism.

Increased specialization and sophistication. Knowledge-based and analytics-based IT services and solutions more than tripled their share of offshoring services between 2010 and 2017, relative to more transactional and low-sophistication services. As an illustration, between 2011 and 2018, the top ITO Indian providers (such as TCS, Wipro, Infosys, and HCL) expanded their global presence by investing at least US$6,274 million in more than 132 new delivery centers around the world.[273] This expansion was accompanied by a strategic shift toward more sophisticated products and projects, as opposed to traditional cost arbitrage–based projects.[274] In line with increasing sophistication and digital transformation of the offshore services industry, between 2010 and 2017 the average value of global outsourcing contracts doubled while the number of outsourcing deals experienced a 38 percent fall.[275]

Shift toward remote and virtual work. The COVID-19 crisis accelerated preexisting trends toward digitalization and remote work. Activities and functions involving considerable physical proximity were disrupted the most, with a significant increase in remote work. Between 20 and 25 percent of the workforce in advanced economies shifted to regular work from home between three and five days a week.[276] A survey among multinational corporation (MNCs) (Deloitte, 2021)[277] suggests that 73 percent of businesses expect to rely on hybrid models over the next three to five years for their shared services organizations, followed by mostly remote models (14 percent). The effect of COVID-19 boosted the relevance of remote work: 87 percent of MNCs state that the greatest effect of COVID-19 on their plans was the need to expand work-from-home capabilities.[278]

Next wave of automation. Robotic process automation is becoming the key enabler of digital transformation across businesses, with 67 percent of global business services organizations prioritizing automation as the top enabler of digital transformation.[279] Intelligent process automation (IPA), which encompasses the latest productivity-enhancing ICT, is expected to drive the offshore services market toward digitalization and automation and continues exhibiting exponential growth.[280] As a result, traditional offshore services have been losing ground, and third-party services providers have shifted their value proposition from labor arbitrage to automation arbitrage. As the intelligence processes market develops, the labor demand will shift from computer science engineers to technology and data specialists with computational, design, systems, and management skills.[281] Despite the threat posed by automation, the labor-intensive contact-center segment is expected to continue growing,[282] through transformed business models bringing new technologies to work alongside contact-center agents, not replacing them.

Emergence of digital hubs. The presence of digital-savvy talent has become a fundamental competitive advantage and differentiator among nations, regions, and cities vying for consideration as offshore business-service locations. A global network of digital hubs has emerged with key nodes mostly driven by the presence of digital talent and serving as one-stop shops for organizations seeking easy-to-access scalable business services to accelerate their digital transformation. The COVID-19-induced acceleration toward remote work arrangements has intensified this shift. Multiple combinations of digital technologies and vertical services have experienced investment growth rates above 100 percent, such as artificial intelligence and machine-Learning for the automotive and transport industry, augmented reality and virtual reality in health care, blockchain (across all sectors), or internet of things in agriculture.[283] The top five hubs in terms of overall start-up activity and investments are the United States, the United Kingdom, Hong Kong SAR, China China / Hong-Kong, France, and India.[284]

Political instability and rising protectionism. Political and economic uncertainty have fueled protectionist sentiment and policy trends across advanced and emerging economies, including tightened visa requirements and regulations for hiring foreign talent, or increased taxation on services imports, which particularly affect the offshore services industry and have led around 16 percent of MNCs to consider diversifying location according to a recent survey by Deloitte (2021).[285] Similarly, a global cross-country analysis of policy trends finds that the share of restrictive and regulatory measures against foreign direct investment is increasing and has reached the highest level in more than 20 years. Political instability has also become a major risk, particularly in emerging regions in Asia or the Americas.[286] A survey among 2,400 global business executives in 10 large middle-income countries found that 64 percent of executives believe rising policy uncertainty owing to protectionism and nationalism in trade and investment is either “important” or “critically important.”

APPENDIX I.2. METHODOLOGY AND DATA SOURCES FOR THE OFFSHORE SERVICES COMPETITIVENESS INDEX (OSCI)

Table I.1 shows the list of variables and data sources used for constructing the Offshoring Services Competitiveness Index (OSCI).

TABLE I.1. DATA SOURCES AND WEIGHTS OF THE OSCI

PILLAR	VARIABLE	SOURCES	YEAR	WEIGHT
Business Environment	Procedure—Men (number)	World Bank	2020	0.0526
	Time—Men (days)		2020	0.0526
	Cost—Men (% of income per capita)		2020	0.0526
	Procedure—Women (number)		2020	0.0526
	Time—Women (days)		2020	0.0526
	Cost—Women (% of income per capita)		2020	0.0526
	Paid-in minimum capital (% of income per capita)		2020	0.0526
	Strength of minority investor protection index (0–50)		2020	0.0526
	Extent of disclosure index (0–10)		2020	0.0526
	Extent of director liability index (0–10)		2020	0.0526
	Ease of shareholder suits index (0–10)		2020	0.0526
	Extent of shareholder rights index (0–6)		2020	0.0526
	Extent of ownership and control index (0–7)		2020	0.0526
	Extent of corporate transparency index (0–7)		2020	0.0526
	Time (days)		2020	0.0526
	Cost (% of claim value)		2020	0.0526
	Quality of judicial processes index (0–18)		2020	0.0526
	Score intellectual property protection (1–7)	WEF	2019	0.0526
	Score rule of law (0–1)	WJP	2020	0.05266
Talent	Score vocational and technical skills (0–100)	GTCI	2020	0.1
	Score global knowledge skills (0–100)		2020	0.1
	Score migrant stock (0–100)		2020	0.1
	Score international students (0–100)		2020	0.1
	Score brain gain (0–100)		2020	0.1
	Score ICT skills (0–100)		2020	0.1
	Labor force (CAGR 2010–2020)	WDI	2020	0.1
	Percentage of pupils that speak English	Eurostat	2019	0.1
	Regulations allow flexible hiring (1–7)	WEF	2019	0.1
	Ease of hiring foreign labor (1–7)		2019	0.1

Note: CAGR = compound annual growth rate; GTCI = Global Talent Competitiveness Index ICT = information and communication technology; WEF = World Economic Forum; WJP = World Justice Project.

PILLAR	VARIABLE	SOURCES	YEAR	WEIGHT
Digital Infrastructure	Score households with internet access	NRI	2020	0.1
	Score 4G coverage		2020	0.2
	Score fixed broadband		2020	0.2
	Score international internet bandwidth		2020	0.1
	Score cybersecurity		2020	0.1
	Score ICT regulatory environment		2020	0.2
	Score framework adaptability to emerging technologies		2020	0.1
Costs	Average monthly earnings of employees (US$)	ILO	2019	0.3
	Average monthly earnings of employees (US$; information and communications)	ILO	2019	0.3
	Score handset prices	NRI	2020	0.1
	Average cost of broadband (per month US$)	Cable UK	2020	0.2
	Total tax and contribution rate (% of profit)	World Bank Doing Business	2020	0.1
Innovation	Score availability of latest technologies	NRI	2020	0.2
	Score company investment in emerging technology	NRI	2020	0.15
	Score ICT PCT patent applications	NRI	2020	0.15
	Score R&D expenditure by businesses	NRI	2020	0.2
	Score R&D expenditure by governments and higher education	NRI	2020	0.15
	Score high-tech exports	NRI	2020	0.15
Finance	Domestic credit to the private sector (% of GDP)	WDI	2020	0.34
	SMEs access finance (1–7)	WEF	2019	0.33
	Finding venture capital (1–7)	WEF	2019	0.33
Investment Promotion	Foreign direct investment, net inflows (% of GDP)	WDI	2019	0.34
	Foreign direct investment, inward flows (CAGR 2015–2019)	UNCTAD	2019	0.33
	Value of announced greenfield FDI projects, by destination (CAGR 2015–2019)	UNCTAD	2019	0.33
Market Access	RTAs in force, including accessions to RTAs	WTO	2021	0.5
	Total countries with direct flights	FlightConnections	2021	0.5

Note: CAGR = compound annual growth rate; FDI = foreign direct investment; GTCI = Global Talent Competitiveness Index ICT = information and communication technology; ILO = International Labor Organization ; NRI = Network Readiness Index; PCT = Patent Cooperation Treaty; R&D = research and development; RTA = Regional Trade Agreement SME = small and medium enterprise;; UNCTAD = United Nations Conference on Trade and Development; WDI = World Development Indicators; WEF = World Economic Forum; WJP = World Justice Project; WTO = World Trade Organization. Before constructing the OSCI, each variable is transformed to develop a common scale. We apply a linear transformation to each variable so that it becomes an index ranging from 0 to 100, where 0 represents the score of the lowest-performing country in the sample and 100 represents the score of the highest-performing country. That is, if we call X the original variable and consider the case were an increase in X is associated to an increase in competitiveness (e.g., ease of hiring labor), the transformation of X can be expressed as f(X) = (X - Xmin) / (Xmax - Xmin), where Xmax represents the highest score across countries and Xmin represents the lowest scores across countries. In the case where an increase in X is associated with a decrease in competitiveness (for example, cost), then the transformation can be expressed as f(X) = (X - Xmax) / (Xmin - Xmax).

APPENDIX I.3. EXAMPLES OF MOLDOVA'S OFFSHORING SERVICES' COMPANIES

The cases detailed in this appendix are intended to provide an illustration of the capabilities present in Moldova. For a more detailed review, please see Invest Moldova's investment profiles on IT[287] and BPO & SSC.[288]

- **Cedacri International (BPO).** The company was founded in 2008 in Chișinău, as part of the Cedacri Group, a large Italian company specialized in outsourcing services for the banking sector. It offers integrated software and BPO services mainly to the Italian market, focusing mostly around banking and financial institutions, manufacturing, and utilities. As of 2018, it reported having 339 employees and a turnover of US$5.8 million.[289] Serviced languages include Romanian, English, and Italian. Specific solutions are mostly focused on back-office services (such as collection and payment, finance, or institutional reporting), inbound services (help desk, information contact center, or customer care), and document management (such as virtualization, digital storage, printing, or physical storage and transport).
- **Endava (IT).** The company was founded in 2000 in London and Chișinău. It focuses on designing and implementing digital transformations in financial services, telecommunications, media, technology, and consumer products. Endava currently has more than 8,800 employees across 10 client locations and 13 nearshore delivery centers in Europe, the United States, and Latin America.[290]
- **MTEAM (IT).** MTEAM is a leading Moldovan company in software development and IT outsourcing services, including business analysis, IT infrastructure audit and reengineering, software development, implementation and support of information systems, and data processing, among others. Main services markets are the EU (mainly Germany) and the United States. As of 2019, it reported 250 employees and a turnover of US$4.2 million.[291]
- **Noction (IT).** Noction is a local privately funded technology company founded in 2011 and currently one of Moldova's unicorns. It develops, sells, and provides support for its cutting edge network intelligence products, allowing organizations of different sizes to take full advantage of maximum network performance for business applications, such as e-commerce, voice over internet protocol, and media streaming across internet protocol networks. It has offices in Chișinău, Oakland (United States), London, Singapore, São Paulo (Brazil), and Abu Dhabi (United Arab Emirates). Main service markets are the United Sates, EU, and Asia. As of 2018, it reported having 60 employees and an estimated turnover of US$1.6 million.[292]
- **Simpals (IT).** Simpals was founded in 2002 and provides IT solutions across different areas, mostly around internet projects, mass media, social projects, sports and entertainment events, animation, and hardware development. Its projects account for 65 percenet of internet traffic in Moldova.[293] Although it services mainly the Moldovan market, it provides services in Romanian, English, and Russian. As of 2018, it reported 238 employees and a turnover of US$3.5 million.[294]

- **Viatel (BPO).** Viatel was founded in 2012 and is a multichannel communication center that provides a variety of BPO services, including voice (for example, incoming calls) and nonvoice (for example, back-office support, outgoing calls). Since its foundation, it has gained significant experience in microfinancing and telecommunications and collaborated with leading companies in Moldova, such as Orange, Moldtelecom, and Beeline. It has locations in Chişinău and Krasnodar (Russia) and provides services to Moldova, the United States, and Russia across eight different languages: Romanian, Russian, English, Ukrainian, Italian, German, French, and Spanish. As of 2019, it reported 86 employees and US$0.7m in annual turnover.[295]

The Tekwill project

Tekwill was designed as a national public-private partnership between the government of Moldova, USAID, Microsoft, and IBM to answer the needs of the ITO industry to close the gap of the human capital shortage and support the development of the entrepreneurship ecosystem. It operates a partnership between the Moldovan Association of ICT Companies and the Technical University of Moldova. The human capital branch encompasses a broad range of programs across all education levels and works with different public and private stakeholders. Tekwill Academy is one of their main initiatives, leveraging private sector trainers to provide adequate formation and specialization in IT-related activities, such as Web development or cybersecurity and networks. The program receives 1,000–2,000 people per year. Other relevant programs aimed at talent development include Tekwill Academy Kids (which promotes digital skills in schools), Tekwill in Every School (which supports school connectivity), or UTeach (which provides mentorship and support for higher-education teachers interested in ITO).

Entrepreneurs are supported through a variety of programs that involve building capability (such as legal and fiscal support), engaging the youth (youth entrepreneurial schools and start-up academies), and providing support incubation (through Startup Moldova) and acceleration (through international players and also the local XY and Upcelerator). Tekwill also provides access to space through coworking spaces, 12 office spaces, and space for events. Tekwill's hub in Chişinău encompasses 5,000 square meters of space focused mostly on technical skills, including 250 residents. They estimate a total of 80,000 people have gone through their many education and entrepreneurship initiatives.

APPENDIX I.4. MAIN ICT AND BPO AND SSC STAKEHOLDERS IN MOLDOVA

ATIC. The Moldovan Association of ICT Companies (ATIC) is an umbrella organization that acts as the voice of the Moldovan ICT sector and seeks to promote the development of the industry through cooperation within the private sector and partnerships with the public sector and other relevant local and international organizations. It was established in 2006 and currently encompasses 80 entities that represent more than 9,000 employees. The Board of Directors comprises of representatives of different ICT companies: Deeplace, Orange, Simpals, QSystems, S&T IT Services, Esempla Systems, and Rapid Link.

Ministry of Economy (ME). The government of Moldova's ME oversees economic policy around a variety of sectors, functions, and enablers, mainly ITO, tourism, industry, trade, and business environment. As part of its responsibilities, ME oversees the operation of Invest Moldova, Moldova's Investment Promotion Agency (IPA).

Ministry of Education and Research (MER). The government of Moldova's MECR guides education and research activities. It oversees programs across all education levels: pre-school, general education, high school, vocational education and training, and higher education.

Economic Council. The Economic Council was established as an advisory body to the prime minister in 2011. The Council is headed by the prime minister and aims at facilitating the dialogue between businesses, donors, and policy makers in order to develop a transparent, business friendly environment. The Council concentrates on three main mandates: (a) provision of expertise to the government from the business community in drafting public policies; (b) monitoring and valuating the effect of public policy implementation; and (c) engagement of the private sector in developing public decisions in economic, budgetary, fiscal, and trade areas, among others. Currently, the Council is composed of 56 business organizations, 47 state representatives, and 19 representatives of the research community and international organizations.

Invest Moldova. Moldova's national IPA has three mandates: promoting exports, attracting investments, and promoting tourism. They focus on seven key sectors: ICT & BPO, automotive, electronics, tourism, renewables, agrifoods, and textiles. Invest Moldova reports to the MEI and the prime minister.

Invest Gagauzia. Invest Gagauzia started operating in 2019 and works as Gagauzia's regional IPA. The agency focuses on three main sectors: ICT and BPO, agriculture and food processing, and manufacturing. It covers the entire investment life cycle: provision of information for pre-investment, site selection including meetings and visits, and investment facilitation and after care. It also does advocacy for certain issues. Invest Gagauzia works closely with Invest Moldova to identify regional opportunities and ensure a better matching in terms of coverage of investment opportunities. It is part of the Executive Committee of ATU Gagauzia.

NOTES

1 The analytical work underpinning this Country Private Sector Diagnosis (CPSD) was completed in January 2022. A summary assessment of the expected impact of Russian invasion of Ukraine on Moldova is presented in section 1 of the Country Context. Policy recommendations have been reprioritized, and individual chapters have been updated, to account for the impact of the Russian invasion of Ukraine on Moldova using information and data available as of September, 2022.

2 World Bank. 2023. Global Economic Prospects, January 2023. Washington, DC, January 2023.

3 This CPSD presents the most binding constraints holding back private investment in Moldova. It also identifies areas where private sector solutions could contribute to ease these constraints. Based on consultations with private and public sector stakeholders, the main cross-cutting obstacles were identified that both disincentivize investment and, as a result, limit growth opportunities in promising sectors.

4 World Bank, Moldova 2021 SCD Update. Building Resilience and Enhancing Competitiveness (Washington, DC: World Bank, 2022).

5 The CPSD analysis shows that the limiting role for competition of SOEs is especially due to them competing for resource allocation with private sector firms. In addition, SOEs are shown to induce market distortions in various industries in the country..

6 World Bank, "How to Identify Capture and Design Privilege-Resistant Policies," EFI Note–Governance, World Bank, Washington, DC, 2021, https://documents1.worldbank.org/curated/en/537291636611822955/pdf/How-to-Identify-Capture-and-Design-Privilege-Resistant-Policies.pdf.

7 World Bank, "How to Identify Capture and Design Privilege-Resistant Policies," EFI Note–Governance, World Bank, Washington, DC, 2021, https://documents1.worldbank.org/curated/en/537291636611822955/pdf/How-to-Identify-Capture-and-Design-Privilege-Resistant-Policies.pdf.

8 Moldova has 135 Authorized Economic Operators (AEOs) for which simplified border crossing procedures are applied upon importing to Moldova from the EU and the Central European Free Trade Agreement (CEFTA) member countries.

9 Organisation for Economic Co-operation and Development (OECD), Promoting Exports and Supply-Chain Linkages in the Food Industry in the Republic of Moldova (Paris: OECD Publishing, 2021).

10 On March 9, 2022, the Ukrainian government imposed a ban on exports of key agriculture products, including wheat, corn, grains, salt, and meat.

11 World Bank Group, "Moldova: Rekindling Economic Dynamism," Country Economic Memorandum, (World Bank Group, Washington, DC, August 2019)

12 World Bank, Enterprise Surveys, electronic dataset (World Bank, Washington, DC, 2019), https://www.enterprisesurveys.org/..

13 World Bank, "Moldova Electric Power Market Options: Sector Study," Report No. ACS12721, Energy Sector Management Assistance Program, World Bank, Washington, DC, July 11, 2015.

14 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

15 International Data Corporation (IDC). 2019. Moldovan IT players priming for worldwide presence.

16 Whereas the recent increase in poverty has mainly occurred in urban areas (an increase of 3 percentage points), rural areas remain much poorer (rural poverty rate of 35.3 percent versus the urban rate of 14.0 percent). As a result, poverty is predominantly a rural phenomenon, with more than 82 percent of the poor being less educated and older and self-employed in agriculture living outside Chișinău or other cities.

17 The gap in access to opportunities as measured by the Human Opportunity Index is 34 and 52 percent for urban and rural areas, respectively.

18 In 2014, three Moldovan banks, Banca de Economii, Unibank, and Banca Socială were involved in a fraud with a total loss from the scheme equivalent to about 12 percent of Moldova's GDP.

19 United Nations Climate Change, Nationally Determined Contributions Registry, https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Republic%20of%20Moldova%20First/MD_Updated_NDC_final_version_EN.pdf.

20 World Bank, Moldova 2021 SCD Update. Building Resilience and Enhancing Competitiveness (Washington, DC: World Bank, 2022). http://documents.worldbank.org/curated/en/099750104252216595/IDU0008eed66007300452c0beb208e8903183c39

21 World Bank Group, "Moldova: Rekindling Economic Dynamism," Country Economic Memorandum, World Bank Group, Washington, DC, August 2019.; https://openknowledge.worldbank.org/handle/10986/32551

22 World Bank, 2018. A Strategic Segmentation of the Horticulture Sector. Fruits and Vegetables, mimeo.

23 The government controls at least one SOEs in 18 of the 29 sectors, compared with the EU-15 average of 14.8 (Product Market Regulations database).

24 World Bank Group, "Moldova: Rekindling Economic Dynamism," Country Economic Memorandum, World Bank Group, Washington, DC, August 2019.

25 World Bank, *The Republic of Moldova: Support to State Owned Enterprises (SOEs)—Preliminary Diagnostics and Reform Assessment Report* (Washington, DC: World Bank, 2017), https://cfrr.worldbank.org/sites/default/files/2019-11/Moldova_SOE_Diagnostics_EN.pdf

26 United Nations International Organization of Migration, 2020, IOM rapid field assessment of the impact of COVID-19 on the wellbeing of the Moldovan diaspora: an evidence base regarding migrants' coping strategies and contributions https://moldova.un.org/sites/default/files/2020-07/IOM%20Diaspora%20Survey%20Report-EN_FINAL_3.pdf.

27 World Bank, *Moldova 2021 SCD Update. Building Resilience and Enhancing Competitiveness* (Washington, DC: World Bank, 2022). http://documents.worldbank.org/curated/en/099750104252216595/IDU0008eed66007300452c0beb208e8903183c39

28 World Bank Group, "Moldova: Rekindling Economic Dynamism," Country Economic Memorandum, World Bank Group, Washington, DC, August 2019.;]

29 World Bank, Enterprise Surveys, electronic dataset (World Bank, Washington, DC, 2019), https://www.enterprisesurveys.org/.

30 Tan, S. and Tusha, D. 2019. Buyer-Supplier Linkages in Moldova. Washington, DC: The World Bank.

31 The Deep and Comprehensive Free Trade Area (DCFTA) as a part of the Association Agreement between the EU and Moldova has been in full effect since July 2016. It has reduced tariffs that Moldovan firms face when exporting to the EU and has improved customs procedures.

32 However, the 17 percent forward links participation mostly relates to the export of primary commodities with minimal value addition, whereas the 37 percent backward links participation is mostly associated with simple assembly of imported components in low value-added phases of light manufacturing value chains.

33 World Bank, *Strengthening Moldova's Disaster Risk Management and Climate Resilience: Facing Current Issues and Future Challenges* (World Bank, Washington, DC, 2020), https://openknowledge.worldbank.org/handle/10986/35318.

34 IMF, 2022. Republic of Moldova: 2021 Article IV Consultation and Requests for an Arrangement under the Extended Fund Facility, https://www.imf.org/en/Publications/CR/Issues/2022/01/04/Republic-of-Moldova-2021-Article-IV-Consultation-and-Requests-for-an-Arrangement-under-the-511622

35 The authorities estimate about MDL 0.6 billion (0.2 percent of GDP) of direct costs of providing humanitarian support for refugees from Ukraine (including shelter, medicine, food, income, and additional wage costs of frontline staff) for the first six months of the crisis.

36 Moldovan families, which received refugees from Ukraine, are expected to receive a lump sum of MDL 3,500, whereas refugees with a temporary residence in refugee camps are expected to receive MDL 2,200 per month under the program of the Office of the United Nations High Commissioner for Refugees and the World Food Program. UNICEF announced that it would cover the expenses of books and other schooling materials for children. Bilateral donors are also expected to provide fuels, food, medicines, tents, and so forth.

37 World Bank. 2023. Global Economic Prospects, January 2023. Washington, DC, January 2023.

38 The vast majority of the refugees from Ukraine entering Moldova are women, of which 33 percent reported to be traveling with children ages 0–5, 59 percent traveling with children ages 6–18, up to 10 percent with elderly people, and 5 percent were people with disabilities.

39 In 2021, 843,400 Moldovans were employed, and 28,200 were unemployed for an active labor force of 871,600.

40 Xavier Devictor, "2019 Update: How Long Do Refugees Stay in Exile? To find out, Beware of Averages," World Bank Blogs, December 9, 2019, https://blogs.worldbank.org/dev4peace/2019-update-how-long-do-refugees-stay-exile-find-out-beware-averages.

41 Internet penetration among Ukrainians stood at 68 percent in January 2021, with the number of social media users at 59 percent of the total population. As of 2017, the share of adults with an account at a formal financial institution was 63 percent.

42 The authorities estimate that an additional MDL 3.5 billion (1.3 percent of GDP) would be required to secure energy supplies and support households and businesses on top of the MDL 1.8 billion (0.7 percent of GDP) already budgeted.

43 Firms exporting directly or indirectly at least 10 percent of sales in 2019, World Bank, Enterprise Surveys, electronic dataset (World Bank, Washington, DC, 2019),https://www.enterprisesurveys.org.

44 Tan, S. and Tusha, D. 2019. Buyer-Supplier Linkages in Moldova. Washington, DC: The World Bank.

45 Tan, S. and Tusha, D. 2019. Buyer-Supplier Linkages in Moldova. Washington, DC: The World Bank.Tan and Tusha, 2020.

46 World Bank, Enterprise Surveys, electronic dataset (World Bank, Washington, DC, 2019), https://www.enterprisesurveys.org/en/enterprisesurveys.

47 World Bank, Enterprise Surveys, electronic dataset (World Bank, Washington, DC, 2019), https://www.enterprisesurveys.org/en/enterprisesurveys.

48 World Bank, Enterprise Surveys, electronic dataset (World Bank, Washington, DC, 2019), https://www.enterprisesurveys.org/en/enterprisesurveys.

49 Access to finance is also a key constraint to private sector growth, and it is discussed in chapter 3, section 2 on enabling sectors.

50 World Bank, *Moldova 2021 SCD Update. Building Resilience and Enhancing Competitiveness* (Washington, DC: World Bank, 2022).

51 World Bank, Enterprise Surveys, electronic dataset (World Bank, Washington, DC, 2019), https://www.enterprisesurveys.org/en/enterprisesurveys.

52 World Bank, Moldova 2021 SCD Update. Building Resilience and Enhancing Competitiveness (Washington, DC: World Bank, 2022).

53 Law on the national security-related investment scrutiny mechanism adopted on November 11, 2021.

54 See article 3 of the Law on the National Security-Related Investment Scrutiny Mechanism. According to the law, natural or legal persons willing to participate in PPP agreements, privatization procedures, or invest in a private firm operating in any of the areas of importance defined by the Law, require prior approval from the government and a newly specialized government agency, the Council for the Promotion of Investment Projects of Importance for State Security. Some of the investors rejected by article 6 of the law include investors who reside in jurisdictions that do not implement international standards of transparency; investors who are controlled by the government of another state; and prior participation in money laundering, security-related issues, illegal acts, links to foreign states or organized crime, corruption, and so forth. Ultimately, this could result in conflicts with Moldova's merger control system under the Competition Law (see chapter IV of Competition Law no 183/2012

55 For example, Moldova has binding of 100 percent for all of its tariff lines. See World Trade Organization (WTO), *Trade Policy Review of Moldova* (Geneva: WTO, 2015), https://www.wto.org/english/tratop_e/tpr_e/s323_e.pdf.

56 UNECE (United Nations Economic Commission for Europe), *Regulatory and Procedural Barriers to Trade in the Republic of Moldova, Needs Assessment*, (New York and Geneva: UNECE, 2017), ECE/TRADE/433. https://unece.org/DAM/trade/Publications/ECE_TRADE_433E.pdf.

57 On March 9, Ukraine imposed a ban on exports of key agriculture products, including wheat, corn, grains, salt, and meat.

58 World Bank Group, "Moldova: Rekindling Economic Dynamism," Country Economic Memorandum, World Bank Group, Washington, DC, August 2019.

59 Moldova has authorized a 135 Authorized Economic Operators (AEOs) for which simplified border crossing procedures are applied upon importing to Moldova from EU and Central European Free Trade Agreement (CEFTA) member countries.

60 World Bank, Enterprise Surveys (WBES), electronic dataset (World Bank, Washington DC, 2019), https://www.enterprisesurveys.org/.

61 World Bank, Enterprise Surveys (WBES), electronic dataset (World Bank, Washington DC, 2019), https://www.enterprisesurveys.org/.

62 CPSD team calculations based on World Bank's LPI.

63 European Commission, "EU Trade Policy: WTO Negotiations on E-Commerce, Civil Society Dialogue, 5 December 2019," https://trade.ec.europa.eu/doclib/docs/2020/january/tradoc_158577.pdf.

64 Government of Moldova and World Bank Cost of Doing Business survey, 2019.

65 Even if the requirements for food business operators to implement the principles of HACCP food safety management system has been introduced by law since 2016, the implementation of it has not been enforced and degree of compliance by firms is unknown. While implementation of sanitary and phytosanitary (SPS) measures as per EU requirements has advanced, Moldova has achieved EU compliance of its SPS systems only for phytosanitary subsector covering products of vegetal origin. For these products, EU markets are open and exports are growing. However, Moldova is lagging behind in implementation of its commitments on food safety systems for products of animal origin, on animal wellbeing and disease control, particularly in what concerns its laboratory capacities and national monitoring plans.

66 Organisation for Economic Co-operation and Development (OECD), *Promoting Exports and Supply-Chain Linkages in the Food Industry in the Republic of Moldova* (Paris: OECD Publishing, 2020), www.oecd.org/eurasia/competitiveness-programme/easternpartners/Promoting-Exports-and-Supply-Chain-Linkages-in-the-Food-Industry-in-the-Republic-ofMoldova-ENG.pdf.

67 OECD, *Promoting Exports and Supply-Chain Linkages*.

68 The CBAM will initially apply to imports of the following goods: cement, iron and steel, aluminum, fertilizers, electricity, which have a high risk of carbon leaks and high carbon emissions. The CBAM will apply to direct emissions of greenhouse gases emitted during the production process of the products covered. By the end of the transition period, the EU Commission will evaluate how the CBAM is working and whether to extend its scope to more products and services—including down the value chain, and whether to cover so-called indirect emissions (that is, carbon emissions from the electricity used to produce the good). See European Commission, "Carbon Border Adjustment Mechanism: Questions and Answers," July 14, 2021, Brussels, https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_3661.

69 A green product is defined as a product with environmental benefits. Based on APEC, OECD and WTO lists of green goods, which have been filtered and categorized based on the methodology outlined in Penny Mealy and Alexander Teytelboym, "Economic Complexity and the Green Economy," Research Policy 2020, https://doi.org/10.1016/j.respol.2020.103948.

70 The GCI tracks countries capacities to competitively export products that are green (meaning they have environmental benefits) and complex (meaning they tend to involve more technologically sophisticated capabilities). Countries that rank high in GCI tend to have higher environmental patenting rates, lower CO_2 emissions and more stringent environmental policies (Mealy and Teytelboym, "Economic Complexity").

71 Countries with high GCP have many new green, complex export opportunities that could be unlocked relatively easily. The GCP measure has also been shown to be a significant predictor of future increases in GCI and growth in green trade (Mealy and Teytelboym ,"Economic Complexity").

72 Green opportunities are products that a country does not yet export competitively (revealed comparative advantage (RCA) <1), but could develop competitiveness in going forward. Proximity measures the product's similarity to the country's productive capabilities and is correlated with the probability of developing future competitiveness in a product (Mealy and Teytelboym, "Economic Complexity").

73 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

74 Bertelsmann Stiftung's Transformation Index (BTI), 2020, https://bti-project.org/en/?&cb=00000.

75 Moldova scored 3.2 on the WEF-GCI index in 2019 (Score: 1 (worst)–7 (best), when compared to a score of 4.7 for Poland or 4.3 for the Czechia. See World Economic Forum, "The Global Competitiveness Report", 2019 https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf

76 Distortions may arise when government interventions reduce the ability of firms to enter or exit the market (for example, through exclusivity rights, limitations on the number of suppliers, or expensive licensing schemes), when they affect competition between market participants or when they restrict consumer choice.

77 World Bank Group, 2017. Support to State-Owned Enterprises. Preliminary Diagnostics and Reform Assessment, https://cfrr.worldbank.org/publications/republic-moldova-support-state-owned-enterprises-soes-preliminary-diagnostics-and

78 The Law on Entrepreneurship and Enterprises establishes a closed list of activities that are exclusively reserved to SOEs. See article 10.3 of Law No. 845 of 03-01-1992 on entrepreneurship and enterprises, as amended by LP1500 of 05.12.02, MO185 / 31.12.02 art. 1400.

79 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

80 OECD, "Note by the OECD Secretariat on Latvia's Implementation of Corporate Governance Accession Review Recommendations," OECD, Paris, 2016, https://www.oecd.org/daf/ca/OECD-Note-Latvia-Corporate-Governance-Accession.pdf. See also KPMG Baltics SIA, *State Ownership Policy Review in Latvia: Final Report* (Riga: KPMG Baltics SIA, 2019), http://www.valstskapitals.gov.lv/images/userfiles/SOE_Review_LV__Final_report.pdf.

81 For further information, see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

82 World Bank Group, *China: Applying Competitive Neutrality Principles to Level the Playing Field Across Markets: Lessons from International Practice* (Washington, DC: World Bank Group, 2017), mimeo.

83 Competitive neutrality is defined as a principle according to which all enterprises, public or private, domestic or foreign, should face the same set of rules, and where government's contact, ownership, or involvement in the marketplace, in fact or in law, does not confer an undue competitive advantage on any actual or potential market participant. OECD, "Roundtable on Competition Neutrality," Issues paper by the Secretariat, OECD, Paris, 2015, p. 4.

84 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

85 International Monetary Fund (IMF), "Republic of Moldova: Staff Report for the 2020 Article IV Consultation and Sixth Reviews Under the Extended Credit Facility and Extended Fund Facility Arrangements," IMF Country Staff Reports, IMF, Washington, DC, March 2020, https://www.imf.org/en/Publications/CR/Issues/2020/03/17/Republic-of-Moldova-Staff-Report-for-the-2020-Article-IV-Consultation-and-Sixth-Reviews-49272.

86 For instance, public properties managed by SOEs are not subject to private law and therefore cannot be legally pursued for debts and damages. Similarly, public procurement procedures for SOEs at the national level are not binding for municipal enterprises.

87 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

88 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

89 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

90 In the railways sector, the Code on Railways Transport grants a legal monopoly to the sole operator of railways services in the Republic of Moldova. See Code No. 309 of 17-07-2003 of Rail Transport. Another concern is that the sole service provider is vertically integrated with the management of railway infrastructure. The overlap between SOE ownership, SOE management, and sector regulation, paired with the lack of access rules to essential infrastructure may further restrict market entry. Although the presence of a single operator is not uncommon among countries, unbundling separation between the infrastructure operator and provision of railways services could enhance SOEs' accountability and pave the way for competition in the medium-term. For instance, in Romania, the monopolistic state-owned rail company was unbundled into five separated companies: the infrastructure operator; freight operator; passenger operator; a company in charge of managing ancillary assets and human resources; and a company in charge of accounting, financial, and legal services. World Bank, *Boosting Competition Through Streamlined Price Controls: Economic Reasoning, International Experience and Lessons for Moldova* (Washington, DC: World Bank, 2020).

91 World Airline News, "Air Moldova Is Acquired by Blue Air," news release, October 3, 2018, https://worldairlinenews.com/2018/10/04/air-moldova-is-acquired-by-blue-air/.

92 Code No. 150 from 17-07-2014 on Road Transport.

93 OECD PMR indicators (2018 methodology).

94 Several network sectors count on retail price regulation, including water supply, electricity (except for a minority of nondomestic consumers), gas, rail transport, air transport, water transport, and coach transport. The government also regulates prices in other sectors, such as pharmaceuticals and fuels. For a detailed discussion on price controls in Moldova, please see World Bank, Boosting Competition Through Streamlined Price Controls, mimeo.

95 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

96 See Article 55 of the Competition Law No. 183 from 11.07.2012.

97 For further analysis, see World Bank Group, "Moldova: Rekindling Economic Dynamism," Country Economic Memorandum, World Bank Group, Washington, DC, August 2019, https://openknowledge.worldbank.org/handle/10986/32035.

98 Priority policy responses to mitigate the impact of the Russian invasion of Ukraine and of the lingering effects of the COVID-19 crisis are highlighted in light blue (see also Table ES1).

99 World Bank, "Moldova Country Private Sector Diagnostic Concept Note" (Washington DC: World Bank, 2021) mimeo.

100 See European Commission Council Decision authorizing the opening of negotiations on an agreement on the carriage of goods by road between EU and the Republic of Moldova, https://eur-lex.europa.eu/resource.html?uri=cellar:e0d27e0d-b58d-11ec-b6f4-01aa75ed71a1.0001.02/DOC_1&format=PDF.

101 These figures were Armenia, 1 percent (2008–16); Azerbaijan, 2 percent (2000–18); Belarus, 2.8 percent (2005–18); and Georgia, 2.7 percent (2002–18).

102 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

103 In spite of the government's efforts to increase public funding to road maintenance (from US$43 million in 2015 to US$127 million in 2020), these funds are not enough to cover the 20 years of maintenance backlog. The State Road fund, which is mainly funded by taxes and managed by the state road administration, is neither sufficiently capitalized nor does it provide a predictable source of funds to mitigate road availability risks.

104 Around 83 kilometers (km) of the road between Chișinău and Otaci-Mohyliv-Podilskyi is being rehabilitated, but a key segment between Soroca and Otaci (30 km) remains in poor condition. In spite of these conditions, the BCP in Otaci (11 percent truck traffic) is preferred by freight forwarders to serve clients exporting to Belarus and Baltic countries.

105 Moldova faces challenges to reinforce the rule of law in this region. Moldova does not have complete control of this region, which complicates its ability to oversee trade transported by road or rail through Transnistria.

106 For instance, road shipments in the main trade corridors (Chișinău–Odessa and Port of Giurgiulești–Chișinău (about US$2.1-2.5 per truck-km); are double the cost of shipments between Moldova and Ukraine for the same distance (Chișinău–Kiev about US$1 per truck-km).

107 Euro 6 refers to the vehicle emission standards for exhaust emissions of new vehicles sold in the European Union and EEA member states. The standards are defined in a series of EU directives staging the progressive introduction of increasingly stringent standards. The stages are typically referred to as Euro 1, Euro 2, Euro 3, Euro 4, Euro 5, and Euro 6. Emission standards are important for Moldavian international road carriers operating in EU.

108 IFC CDI modeling team based on IFC economywide framework for infrastructure using the social accounting matrix multiplier approach.

109 According to a recent WBG policy note (World Bank, 2020,"Tracks from the Past, Connectivity for the Future: Revitalizing Moldova's Railway Sector", https://openknowledge.worldbank.org/bitstream/handle/10986/35700/Tracks-from-the-Past-Connectivity-for-the-Future-Revitalizing-Moldova-s-Railway-Sector.pdf?sequence=1&isAllowed=y) on the railway sector, funds allocated to railway infrastructure between 2007–16 amount to nearly €150 million, compared to nearly €1 billion allocated for road rehabilitation and development in the same period.

110 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

111 Odessa exports of about 9,265 twenty-foot equivalent units (TEU) and imports 12,936 TEU. Giurgiulești exports 3,800 TEU and imports or 800 TEU.

112 Operation of the Chișinău Airport including the air freight terminal is under concession of Avia invest.

113 Container feeder services include container transportation carried out by a feeder vessel from the regional port to the hub port and delivered to the final port by using main and other feeder vessels via different hub ports. For GIFP, the Port of Constanța acts as a regional port that serves large container vessels. To deliver containers from Constanța to GIFP, the containers are reloaded to smaller container feeder vessels with a capacity up to 300 TEUs and delivered to GIFP.

114 Insufficient capacity at BCPs with Romania, reduced working hours of border control authorities, and lack of human resources on the Romanian side are among the causes of congestion.

115 Establishment of a single window for trade would allow for the preparation, filing, tracking, storage, and seamless flow of all trade documents by enabling all parties involved in trade and transport to log standardized information and documents with a single entry.

116 Currently around 90 percent of exports are under the green corridor and 10 percent are under the yellow and red corridors. For import, 77 percent of goods are under the green corridor (that is, without inspection), 18 percent are under yellow (requiring document inspection prior to clearance) and 5 percent are under red (requiring document inspection before clearance as well as physical inspection).

117 Warehouse buildings are generally classified into Class A, Class B, or Class C categories. Standards vary by market and each category is defined in relation to counterparts. Class A warehouses are the highest quality buildings in their market. The main difference between A and B classes are in the temperature control system. B class warehouses are usually not temperature controlled, rarely equipped with the sprinkler systems, and have less gates than A class buildings. C class warehouses are characterized by a lower roof (5-6 meters) with low quality floors that limit productivity of warehouse operations and quality of logistics services.

118 World Bank, "Moldova Country Private Sector Diagnostic Concept Note", mimeo.

119 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

120 Nevertheless, certain links may subsist, as certain Moldovan banks continue to use certain Russian banks as correspondents, especially in Russian ruble, but also in other currencies.

121 BEEPS firm-size levels are 5–19 (small), 20–99 (medium), and 100+ employees (large). See World Bank BEEPS, Enterprise Surveys (WBES), electronic dataset, 2019, https://www.enterprisesurveys.org/.

122 IMF, "Financial Soundness Indicators," 2022, https://data.imf.org/?sk=51B096FA-2CD2-40C2-8D09-0699CC1764DA. Nonbanking financial sector corporations include financial corporations that are not classified as central bank or deposit takers: money market funds, nonmoney market fund investment funds, insurance corporations, pension funds, financial auxiliaries, captive financial institutions, and money lenders.

123 Liquidity in the banking sector has been between 42 and 55 percent since 2015 versus 20 percent requirement for short-term liquidity.

124 NBCOs comprise more than 150 companies, including leasing, peer-to-peer platforms, pawn shops, and payday lenders. They mostly cannot take deposits and are supervised by the National Commission for Financial Markets, but by law would come under the banking regulator in 2023.

125 CPSD team calculations based on NCFM data, October 2022.

126 CPSD calculations based on 2019 World Bank Enterprise Survey.

127 World Bank, *Secured Transactions, Collateral Registries and Movable Asset-Based Financing: Knowledge Guide* (Washington, DC: World Bank, 2019). For example, delinquent loans are generally restructured to avoid the costs, time (typically one to two years), and uncertainty of court proceedings.

128 For instance, the registration of the pledge on the means of transport is made in two registers, first in the Register of Real Securities held by the Ministry of Justice and afterward in the Register of Transport held by the Agency for Public Services. A similar process needs to be followed in case of pledging agricultural machinery, by additionally registering with the Register of Agricultural Machinery held by "Intehagro," a subdivision of the Ministry of Agriculture. Failure to register in one of these registries may effectively lead to change of property of the pledged assets without due protection of secured creditor rights.

129 The number of credit cards for individuals is up 71 percent since 2015; for businesses, it more than doubled since 2017, with a fivefold increase in the number of operations and a threefold increase in transaction value since Q1 2015

130 The 2019 World Bank Enterprise Survey shows 41 percent of Moldovan businesses report facing informal competition, above ECA average of 37 percent.

131 Those peers are Ukraine, Romania, Hungary, Serbia, and Georgia at 45, 55, 91, and 100 percent, respectively.

132 United States Agency for International Development (USAID), *A Rapid Review of Moldova's Financial Sector: Conditions, Constraints, and Opportunities* (Washington, DC: USAID, 2018), https://pdf.usaid.gov/pdf_docs/PA00TGXW.pdf.

133 The new Insurance Law and Motor Third Party Liability Law partially transposing Solvency II provisions and other relevant EU directives was adopted in spring 2022.

134 US Department of State, "2020 Investment Climate Statements: Moldova," https://www.state.gov/reports/2020-investment-climate-statements/moldova/.

135 Specifically, this could include better training for judges in the application of movable collateral law, particularly concerning nonseparable universality of assets and receivables and inventory not requiring individual identification.

136 World Bank, "Moldova Country Private Sector Diagnostic Concept Note" (Washington DC: World Bank, 2021) mimeo.

137 This CPSD, prepared in 2021, provides recommendations that are still relevant and valid to address both, bottlenecks to renewable energy that would help with diversification, as well as to tackle the short terms concerns emerging from Russian invasion of Ukraine. The current version of the CPSD was revised to ensure factual accuracy and to signal new priorities for the recommendations drawn from the 2021 analysis.

138 International Energy Agency (IEA), "Moldova 2022. Energy Policy Review", IEA, Paris, 2022, https://iea.blob.core.windows.net/assets/dc881e93-9f82-4072-b8b4-a0d00a487f59/Moldova2022.pdf

139 World Bank Development Indicators, https://databank.worldbank.org/source/world-development-indicators.

140 IEA (International Energy Agency), "Moldova Energy Profile," IEA, Paris, 2020, https://www.iea.org/reports/moldova-energy-profile.

141 Information shared with IFC by Moldoelectrica

142 The Moldovan government faces challenges in reinforcing the rule of law in the Transinstria region, adding an additional vulnerability to electricity supply (box 4.1).

143 MGRES is owned and operated by Russia's Inter RAO UES.

144 The energy balance of 2020 (excluding the Transnistria region).

145 World Bank, "Moldova Electric Power Market Options: Sector Study," Report No. ACS12721, Energy Sector Management Assistance Program (ENTSO-E), World Bank, Washington, DC, July 11, 2015. The strategy also proposes imports through asynchronous or synchronous interconnection to ENTSO-E to address the growing supply deficit.

146 This gas pipeline was commissioned in 2020 and will provide Moldova with access to the EU gas network via Romania.

147 World Bank, "Moldova Electric Power Market Options: Sector Study."

148 World Bank, Enterprise Surveys (WBES), electronic dataset, 2019, https://www.enterprisesurveys.org/.

149 IRENA (International Renewable Energy Agency), *Renewables Readiness Assessment: Republic of Moldova* (Abu Dhabi: IRENA, 2019), https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Feb/IRENA_RRA_Moldova_2019_EN.pdf.

150 Moldova currently does not have spot or day ahead markets.

151 At a price of US$45/MWh (since 2017), Energocom's prices are 10 percent cheaper than electricity imports from DTEK (Ukraine)

152 With Decision 283/2020, ANRE adopted the Electricity Market Rules and Methodology for calculation of fees for the imbalances.

153 The overall capacity limit is approved by ANRE for each type of RE; solar, for example, is 15 MW.

154 IRENA, *Renewables Readiness Assessment*, and authors' different interviews with Moldovan authorities.

155 This TSO investment plan would include (a) the construction of interconnections to Romania; (b) a generation adequacy plan;(c) a plan to join ENTSO-E; (d) guidelines on environmental impact assessments; (e) regulation of an electricity market operator that would address emergencies in the system; (f) a methodology for calculation, approval, and application of tariffs for connection to the networks; (g) terms and conditions of electricity supply agreements of the universal service supplier and last resort supplier to end customers; and (h) a methodology for the calculation, approval, and application of regulated tariffs for the service of electricity market operation. See USAID (United States Agency for International Development), "Assessment of Local Power Generation Options in Moldova, Progress Report, November 2019," USAID, Washington, DC, 2019.

156 IRENA, *Renewables Readiness Assessment: Republic of Moldova*.

157 EBRD had also reviewed and proposed changes to existing PPA terms that are aimed at improving bankability and ensuring debt financing, including options for offtaker obligations and short-term payment security and compensation (for example, in case of curtailment and termination).

158 Agricultural and food products are among the top export products of Moldova.

159 As an encouraging signal to investors, the Parliament of Moldova has been amending legislation in March 2022 to simplify the change of status of agricultural land to other uses, including RE.

160 IRENA (International Renewable Energy Agency), Joanneum Research, and University of Ljubljana, *Cost-Competitive Renewable Power Generation: Potential across South East Europe* (Abu Dhabi: IRENA, 2017), https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2017/IRENA_Cost-competitive_power_potential_SEE_2017.pdf. Moldova has a cost-competitive potential of 4.65 GW of PV solar and 21 GW Wind generation.

161 In parallel, it is best practice to determine clear conditions for land use, planning, and environmental assessments for RE ensuring that agricultural land is adequately protected and with limited negative effects on the environment and agricultural production. Issuance of grid connections and connection agreements and requirements for substations should also be part of the overall package.

162 World Bank, DataBank, https://databank.worldbank.org/home.aspx; Invest Moldova Agency, "Food Processing and Livestock," 2020, https://invest.gov.md/attached_files/2021/03/04//02020_Food%20Processing%20&%20Livestock%20overview%20Brochure%20(ENG).pdf; https://statistica.gov.md/en/statistic_indicator_details/1#data_bank; https://statistica.gov.md/en/statistic_indicator_details/25#data_bank

163 Staff calculations using data from UN Comtrade Database, https://www.trademap.org/Index.aspx.

164 On March 9, 2022, the Ukrainian government imposed a ban on exports of key agriculture products, including wheat, corn, grains, salt, and meat.

165 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

166 Invest Moldova Agency, Food Processing and Livestock; World Bank, International Center for Tropical Agriculture, "Climate-Smart Agriculture in Moldova," CSA Country Profiles for Africa, Asia, Europe and Latin America and the Caribbean Series, 2016, World Bank Group, Washington, DC.

167 World Bank, *Strengthening Moldova's Disaster Risk Management and Climate Resilience: Facing Current Issues and Future Challenges* (Washington, DC: World Bank, 2020), https://openknowledge.worldbank.org/handle/10986/35318.

168 Japan International Cooperation Agency (JICA), *Data Collection Survey on Agriculture Sector in Moldova* (Tokyo: JICA, 2017); World Bank, "Moldova Poverty Assessment 2016: Structural Transformation of Moldovan Smallholder Agriculture: Implications for Poverty Reduction and Shared Prosperity," Report No. 105724-MD, World Bank Group, Washington, DC, 2016, www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2016/06/23/090224b0843f61cc/1_0/Rendered/PDF/Structuralotraondosharedoprosperity.pdf.

169 World Bank, "Moldova Trade Study: Note 3, Competitiveness in Moldova's Agricultural Sector," World Bank, Washington, DC, 2016, https://openknowledge.worldbank.org/handle/10986/24007.

170 Items were selected on two criteria: area harvested and production value. They also represent different food groups (fruit, cereals, livestock, etc.) and different commercial use (exports vs. local consumption).

171 World Bank, "Moldova Trade Study: Note 3. Competitiveness in Moldova's Agricultural Sector."

172 JICA, *Data Collection Survey on Agriculture Sector in Moldova*.

173 International Fund for Agricultural Development (IFAD) "Republic of Moldova, Country Strategic Opportunities Programme 2019–2024," https://www.ifad.org/en/-/document/republic-of-moldova-country-strategic-opportunities-programme-2019-2024.

174 Values calculated using UNCOMTRADE and World Bank data, https://www.trademap.org/Index.aspx and https://databank.worldbank.org/home.aspx.

175 World Bank, "Moldova: Rekindling Economic Dynamism."

176 World Bank Group (WBG), "Moldova Policy Notes 2019: Sustaining Stability and Reviving Growth," WBG, Washington, DC, 2019, https://openknowledge.worldbank.org/handle/10986/32183.

177 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

178 World Bank, "A Strategic Segmentation of the Horticulture Sector. Fruits and Vegetables," World Bank, Washington, DC, 2018, mimeo.; Center for Rural Affairs (CFRA), "High Value Markets," CFRA, Lyons, Nebraska, https://www.cfra.org/farm-foodfarm-finances/high-value-markets.

179 Food and Agriculture Organization of the United Nations (FAO), "Smallholders and Family Farms in the Republic of Moldova: Country Study Report 2019," FAO, Budapest, 2020, https://doi.org/10.4060/ca9836en.

180 World Bank, "A Strategic Segmentation of the Horticulture Sector. Fruits and Vegetables," World Bank, Washington, DC, 2018, mimeo.

181 Organisation for Economic Co-operation and Development (OECD) "Promoting Exports and Supply-Chain Linkages in the Food Industry in the Republic of Moldova," OECD, Paris, 2020.

182 IFAD, "Republic of Moldova, Country Strategic Opportunities Programme 2019-2024."

183 World Bank Group, *Moldova—Paths to Sustained Prosperity: A Systematic Country Diagnostic* (Washington, DC: World Bank Group, 2016).

184 World Bank, "Moldova Trade Study: Note 3. Competitiveness in Moldova's Agricultural Sector."

185 https://www.eeas.europa.eu/eeas/eu-moldova-relations-factsheet_en

186 https://www.eeas.europa.eu/eeas/eu-moldova-relations-factsheet_en

187 Government of Moldova, Government Decision no. 840/2020 Regarding the Horticulture Development Program for 2021–2025, Chișinău, Moldova, 2020.

188 All values are for 2021. Moldovan exports fruits valued at US$82.4 million to the EU, US$131.7 million to CIS and US$0.51 million to GCC, and vegetables valued at US$2.77 million to the EU, US$0.94 million to CIS, and US$0.33 million to GCC. This represents US$218.6 million in horticulture exports to these three regions. World Bank Group staff calculations of UN Comtrade data, https://www.trademap.org/Index.aspx.

189 For the total, Moldova exports 0.24 percent, 1.24 percent and 0.005 percent of total fruit imports to the EU, CIS, and GCC, respectively, and 0.012 percent, 0.035 percent and 0.027 percent of total vegetable imports to the EU, CIS, and GCC imports, respectively. If Moldova maintains current exports of fruits to CIS and grows exports of fruits to EU and GCC to meet about 1 percent of these regions' total fruit imports and increases vegetable exports to these regions to meet about 0.25 percent of their total imports, Moldova could generate an additional US$476.4 million in horticulture exports per annum.

190 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

191 This restriction has been removed only recently.

192 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

193 World Bank Group, *Moldova: Paths to Sustained Prosperity, A Systematic Country Diagnostic.*

194 Government of Moldova, Government Decision no. 840/2020 Regarding the Horticulture Development Program for 2021–2025.

195 World Economic Forum (WEF), *Global Competitiveness Report 2019* (Geneva: WEF, 2019), https://www.weforum.org/reports/how-to-end-a-decade-of-lost-productivity-growth.

196 Enterprise Survey Moldova, 2019 https://microdata.worldbank.org/index.php/catalog/3720.

197 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

198 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

199 For further information see World Bank Group "Moldova CPSD Deep Dives", Washington DC, forthcoming.

200 Invest Moldova Agency, "Food Processing and Livestock Overview."

201 Operations management refers to the administration of technology components and application requirements within an organization and includes provisioning of IT infrastructure, capacity management, security management. See Invest Moldova Agency, "Food Processing."

202 Percentages do not add to 100 percent because firms serve to multiple markets. The information on market destination was calculated based on information for about 50 IT exporters collected for this chapter based on information provided by Invest Moldova.

203 Invest Moldova Agency,2021 "Food Processing and Livestock Overview." https://invest.gov.md/en/publications/1

204 Invest Moldova Agency, 2021"Food Processing and Livestock Overview." https://invest.gov.md/en/publications/1

205 International Data Corporation (IDC), 2019. "Moldovan IT players priming for worldwide presence", 2019. https://moldovaitpark.md/wp-content/uploads/2019/09/IDC_Report_Moldova_2019.pdf.

206 With a Product Complexity Index (PCI) of -0.089, Moldovan ICT exports have low complexity. See Atlas of Economic Complexity, https://atlas.cid.harvard.edu/explore?country=173&product=undefined&year=2017&productClass=HS&target=Product&partner=undefined&startYear=undefined.

207 Agile is an approach to project management and software development aimed at improving effectiveness and efficiency. It relies on delivering work in small increments through continuous evaluation and iteration.

208 DevOps results from the combination of two words: Development and Operations. It refers to a set of principles, processes, and tools, to help optimize application development and IT operations in general through collaborative approaches.

209 International Data Corporation (IDC), "Moldovan IT players priming for worldwide presence", 2019.

210 Startup Genome , "The Global Startup Ecosystem Report: GSER 2021", 2021

211 ILO, 2019. ILOSTAT dataset. https://ilostat.ilo.org/es/topics/wages/

212 Invest Moldova Agency, "Food Processing and Livestock Overview."

213 Invest Moldova Agency, "Food Processing and Livestock Overview."

214 See Speedtest Global Index, https://www.speedtest.net/global-index. Moldova ranks 43rd in speed.

215 BDRC Continental (https://www.bva-bdrc.com/) & Cable.co.uk (https://www.cable.co.uk/)

216 International Telecommunications Union (ITU), 2019. ITU Statistics. https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx.

217 For further details, see chapter 3 and appendix D on SOEs.

218 World Bank, "Digital Jobs in Moldova," World Bank, Washington, DC, 2018, p. 8, http://documents1.worldbank.org/curated/en/165681548705998410/pdf/Final-version-of-report-on-digital-jobs-in-Moldova.pdf

219 Those seven taxes are social security (employee and employer), personal income tax (PIT), corporate income tax (CIT), road tax, medical insurance (employee and employer), local tax, and real estate tax.

220 Appendix I.2 provides a detailed explanation on how the OSCI is constructed and the data sources used.

221 Startup Genome 2021 The Global Startup Ecosystem Report: GSER 2021", .

222 Economic Council 2020. , " Roadmap for boosting Digitalization of the Economy and Development of E-commerce",

223 According to stakeholders' consultations (appendix I).

224 International Data Corporation (IDC). 2019. Moldovan IT players priming for worldwide presence

225 The business-as-usual scenario assumes export and employment will continue growing at the same average annual rate than in the last years.

226 Invest Moldova Agency 2020a. , "ICT Sector Overview."

227 World Bank, Enterprise Surveys, electronic dataset, 2019.

228 Source: interview with representatives from ATIC.

229 From World Bank team interviews with key stakeholders from the IT sector. See appendix I.

230 For a more detailed analysis of Moldova's financial sector, see chapter 3 in Moldova's CPSD.

231 According to EU4Digital's "Diagnosis of the Performance of the Moldovan ICT Entrepreneurial Ecosystem" https://eufordigital.eu/eu4digital-guide-for-building-and-boosting-growth-of-ict-entrepreneurial-ecosystems-in-eastern-partner-countries/

232 Nedelkoska, L., Assumpcao, A., Grisanti, A., Hartog, M., Hinz, J., Lu, J., Muhaj, P., Saxenian, A., and Hausmann, R. (2021). The role of the diaspora in the internationalization of the Colombian economy. CID Faculty Working Paper No. 397.

233 Invest Moldova Agency, the national investment promotion agency is under resourced, leaving Moldovan OS firms to rely on their own resources for going global. The few extant promotion efforts have been typically focused around the low-cost dimension of Moldova's value proposition. The IT park is currently mapping and participating in regional and global events and forums to promote the park and its residents. Beyond attracting investments, the park is also promoting sales partnerships. Beyond supporting such efforts, it would be worth ensuring adequate short-term delivery, for instance, by developing and implementing personal reach-and-relevance strategies for emerging segments in markets with high potential markets.

234 World Bank, *The Republic of Moldova: Support to State-Owned Enterprises (SOEs)—Preliminary Diagnostics and Reform Assessment Report* (Washington, DC: World Bank, 2017), https://cfrr.worldbank.org/sites/default/files/2019-11/Moldova_SOE_Diagnostics_EN.pdf.

235 Böwer 2017. "State-Owned Enterprises in Emerging Europe: The Good, the Bad, and the Ugly." IMF Working Paper

236 The PMR indicators measure the degree to which policies promote or inhibit competition in markets for products and services. The indicators contained in the PMR methodology include cross-sector regulatory domains; network; and service sectors, thus providing a good overview of how the regulatory set-up fosters competition and market entry. For further information, visit https://www.oecd.org/economy/reform/indicators-of-product-market-regulation/.

237 Code of Railway Transport No. 309, July 17, 2003.

238 Registrul patrimoniului public database, accessed June 2021.

239 International Monetary Fund (IMF), "Republic of Moldova. Technical Assistance Report—Government Finance Statistics Mission," Washington, DC, 2019, https://www.imf.org/en/Publications/CR/Issues/2020/08/04/Republic-of-Moldova-Technical-Assistance-Report-Government-Finance-Statistics-Mission-49637.

240 The Law on the national security-related investment scrutiny mechanism, Law 174/2021, was adopted on November 11, 2021]

241 The Law identifies the following sectors as areas of importance for state security: hydrometeorological and geophysical processes and phenomena; management of radioactive waste during storage, processing, transport, and disposal; design, construction, and operation of infrastructure in the fields of energy, transport, water, health, data processing and storage, aerospace, defence, and electoral design, construction, and operation of artificial intelligence, robotics, semiconductor, cybersecurity, aerospace, defense, quantum and nuclear technologies, nanotechnologies, and biotechnologies; use, distribution, and maintenance of means of encryption (cryptographic) of information systems, telecommunication systems; development, production, sale, and purchase for the purpose of sale of special technical equipment intended for the reception of secret information by legal persons engaged in entrepreneurial activity; production of explosive materials for industrial use and activities for their distribution; aviation security activities; development of aviation technology; production, repair, and testing of aircraft; management of airports, railway stations and bus stations, rail traffic, inland waterways, ports for inland waterway traffic, and quays of seaports; media and audio-visual services; provision of communication services (mobile telephony, fixed telephony); provision of services in national ports; geological study of subsoil resources and exploration of deposits of useful natural substances; control of export, re-export, import, and transit of strategic goods ; access to, or the ability to control, personal data; administration of public state registers and information security.

242 Some of the investors rejected by Article 6 of the Law include investors who reside in jurisdictions that do not implement international standards of transparency; investors that are controlled by the government of another state; prior participation in money laundering, security-related issues, illegal acts, links to foreign states or organized crime, corruption, and so on.

243 See Article 3 of the Law

244 See Chapter IV of Competition Act No. 183/2012.

245 See Article 21 (4) of the EC Merger Regulation, Council Regulation (EC) No 139/2004, January 20, 2004.

246 For instance, in E.On/Endesa (Cases M.4110 and M.419), and ENEL/Acciona/Endesa (Case No. COMP/M.4685), the Commission of the European Communities found that a prior authorization required by the Spanish authorities to approve the merger was not justified by the alleged need to protect the security of supply of electricity. As a result, the measure taken by the Spanish authorities contravened the freedom of capital and establishment provisions. Similarly, in Church of Scientology (Case C-54/99), the CJEU held that a system of prior authorization for every foreign direct investment representing a threat to public policy and public security was contrary to the free movement of capital provisions.

247 See chapter 2 on competition.

248 World Trade Organization (WTO). 2015. Trade Policy Review of Moldova. Geneva: WTO. https://www.wto.org/english/tratop_e/tpr_e/s323_e.pdf.

249 The main areas for intervention that were identified in Moldova as part of the national action plan for trade facilitation were (a) facilitating access to information and ensuring transparency in trade regulation; (b) ensuring predictable rules for carrying out trade; (c) simplifying administrative procedures applicable to trade; (d) implementing modern information technologies in state control procedures of commerce and automation of business interaction processes; and (e) improving necessary infrastructure and foreign trade control (WTO 2020).

250 UNECE (United Nations Economic Commission for Europe), *Regulatory and Procedural Barriers to Trade in the Republic of Moldova, Needs Assessment* (New York and Geneva: UNECE, 2017), ECE/TRADE/433. https://unece.org/DAM/trade/Publications/ECE_TRADE_433E.pdf.

251 World Bank, World Integrated Trade Solution (WITS) database, 2020.

252 *Effectively applied tariff* is defined as the lowest available tariff, the simple average tariff is the unweighted average of the effectively applied rated for all products subject to tariffs, while the most favored nation tariffs are those that countries promise to impose on imports from other members of the WTO.

253 Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, the European Union (EU-27), Georgia, Kazakhstan, Kosovo, the Kyrgyz Republic, North Macedonia, Montenegro, the Russian Federation, Serbia, Tajikistan, Türkiye, Turkmenistan, Ukraine, the United Kingdom, and Uzbekistan. Source: World Trade Organization, Trade Policy Review of the Republic of Moldova, June 15, 2022.

254 Michael Emerson and Denis Cenusa, eds., *Deepening EU-Moldovan Relations: Updating and Upgrading in the Shadow of COVID-19,* 3rd ed. (Brussels: Centre for European Policy Studies, 2021).

255 The CBAM will initially apply to imports of cement, iron and steel, aluminum, fertilizers, and electricity, which have a high risk of carbon leakage and high carbon emissions. The CBAM will apply to direct emissions of greenhouse gases emitted during the production process of the products covered. By the end of the transition period, the EU Commission will evaluate how the CBAM is working; whether to extend its scope to more products and services, including down the value chain; and whether to cover so-called indirect emissions (that is, carbon emissions from the electricity used to produce the good). European Commission, "Carbon Border Adjustment Mechanism: Questions and Answers," July 14, 2021, https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_3661.

256 *A green product* is a product with environmental benefits, The products are based on the lists of green goods of the Asia-Pacific Economic Cooperation, Organisation for Economic Co-operation and Development, and World Trade Organization that have been filtered and categorized on the basis of the methodology outlined in Penny Mealy and Alexander Teytelboym, "Economic Complexity and the Green Economy," Research Policy 2020, https://doi.org/10.1016/j.respol.2020.103948.

257 Mealy and Teytelboym, "Economic Complexity and the Green Economy."

258 World Bank, Cost of Doing Business, 2020, Washington, DC: World Bank, 2020.

259 World Economic Forum (WEF), *Global Competitiveness Report 2019* (Geneva: WEF, 2019), https://www.weforum.org/reports/how-to-end-a-decade-of-lost-productivity-growth.

260 United Nations Conference on Trade and Development (UNCTAD), *Investment Policy Review: Republic of Moldova* (New York: United Nations, 2013), https://unctad.org/system/files/official-document/diaepcb2013d5_en.pdf.

261 EU-Moldova Association Committee in Trade Configuration, "Joint Report," October 19, 2018, https://trade.ec.europa.eu/doclib/docs/2020/january/tradoc_158577.pdf.

262 World Bank's survey on Moldova Cost of Doing Business, Washington, DC: World Bank, 2019)

263 Organisation for Economic Co-operation and Development (OECD), "Promoting Exports and Supply-Chain Linkages in the Food Industry: Snapshot of Moldova," OECD, Paris, 2020.

264 IFC estimations based on Center for Global Trade Analysis, Global Trade Analysis Project (GTAP) database, https://www.gtap.agecon.purdue.edu/databases/.

265 These approximated effects are computed using a a Social Accounting Matrix (SAM) multiplier approach, which assumes that increases in revenue or output are driven by positive shocks related to investments or business model improvements across different industry sectors. These shocks generate direct, indirect, and induced effects throughout the economy that add up to a cumulative effect. Direct effects pertain to the sectors directly affected by these shocks and show the increase in output or revenue in that sector. Indirect effects arise from the backward production linkages in the economy, and induced effects are caused by consumption linkages that increase expenditure on goods and services following an increase in labor and capital income (through expanded employment and capital).

266 World Bank, *Tracks from the Past, Connectivity for the Future: Revitalizing Moldova's Railway Sector* (Washington, DC: World Bank, 2020).

267 Organisation for Economic Co-operation and Development (OECD), *Promoting Clean Urban Public Transportation and Green Investment in Moldova* (Paris: Green Finance and Investment and OECD, 2019).

268 Estimations are based on IFC economy-wide estimation framework for infrastructure using a Social Accounting Matrix (SAM) multiplier approach.

269 World Bank Group, "Making Climate Finance Work in Agriculture," Discussion Paper, June 2016, https://documents1.worldbank.org/curated/en/986961467721999165/pdf/ACS19080-REVISED-OUO-9-Making-Climate-Finance-Work-in-Agriculture-Final-Version.pdf.

270 Economic impact parameters include "current value of production," "current value of unprocessed exports," "current value of processed exports," "growth in value of exports," "growth in production," "value of global trade," "growth in value of global trade," "value of imports," and "growth in value of imports," measured by analyzing these parameters weighted at 25 percent, 10 percent, 25 percent, 5 percent, 5 percent, 10 percent, 5 percent, 10 percent, and 5 percent, respectively.

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272 Everest Group 2017 Global Locations Annual Report 2017: Signs of structure in a disordered world.

273 Couto and Fernandez-Stark, 2019 Couto, V. and Fernandez-Stark, K. (2019), Pakistan in the Offshore Services Global Value Chain, Duke Global Value Chains Center, Duke University.

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277 Deloitte 2021. Global Shared Services and Outsourcing Survey Report.

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285 Deloitte 2021 Global Shared Services and Outsourcing Survey Report.

286 Everest Group 2019 Global Locations Annual Report 2019: Demand for Next-Gen Services Defining Location Strategies.

287 Invest Moldova Agency, 2020c. IT Investment Profiles.

288 Invest Moldova Agency, 2020d. BPO & SSC Investment Profiles.
289 Invest Moldova Agency, 2020d. BPO & SSC Investment Profiles.
290 Endava website, https://www.endava.com/en/About.
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IFC
2121 Pennsylvania Avenue, N.W.
Washington, D.C. 20433 U.S.A.

CONTACTS

Mariya Stankeva Hake
mhake@ifc.org
Alberto Criscuolo
acriscuolo@worldbank.org

ifc.org

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