



COUNTRY PRIVATE SECTOR DIAGNOSTIC

CREATING MARKETS IN ROMANIA

Raising Romania's Private Sector Potential
for Greener Growth

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ABBREVIATIONS AND ACRONYMS

ANRE	Romanian Energy Regulatory Authority
ATPBI	Bucharest Public Transport Association Ilfov
ATM	Automated Teller Machine
BANC	Bucharest Airport National Company
BIPTA	Bucharest-Ilfov Public Transport Association
BOT	Build-Operate-Transfer
BvB	Bucharest Stock Exchange
CCDR	Country Climate and Development Report
CNAIR	Romanian Railway Company/ Compania Națională de Administrare a Infrastructurii Rutiere
DFI	Development Financial Institution
EAF	Environmental Agency Fund
EC	European Commission
ECA	Europe and Central Asia
EFA	Environmental Fund Administration
EGD	European Green Deal
EO	Emergency Ordinance
ETS	Emissions Trading System
EU	European Union
EV	Electric Vehicle
FDI	Foreign Direct Investment
FSPs	Financial Service Providers
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GO	Guarantees of Origin
GOR	Government of Romania
ICT	Information and Communication Technology
IPDTI	Investment Program for the Development of Transport Infrastructure
MaaS	Mobility as a Service
MODPWPA	Ministry of Development, Public Works and Public Administration
MoE	Ministry of Energy
MoF	Ministry of Finance
MoT	Ministry of Transport

NDP	National Development Program
NRRP	National Recovery and Resilience Plan
NBR	National Bank of Romania
OECD	Organization for Economic Cooperation and Development
OPLI	Operational Program for Large Infrastructure
OPT	Operational Program for Transport
PMR	Product Market Regulation
PPA	Power Purchase Agreement
PPP	Purchasing Power Parity
PPPs	Public-Private Partnership
PSC	Public Service Contract
RE	Renewable Energy
RES	Renewable Energy Sources
R&D	Research and Development
RRA	Railway Reform Authority
SGA	Services of General Interest
SCD	Systematic Country Diagnostic
SOE	State-Owned Enterprise
SUMP	Sustainable Urban Mobility Plan
TFP	Total Factor Productivity
WEF	World Economic Forum
ZUP	Zonal Urban Plan

EXECUTIVE SUMMARY

Country context

Romania has made impressive strides in economic performance over the past two decades, as EU integration helped accelerate income convergence towards the bloc's average. Between 2000 and 2022ⁱ, Romania's income per capita in PPP (2017 international US\$) rose from 26.4 percent to 76.7 percent of the EU average, real GDP per capita in PPP more than doubled (from US\$12,177 to US\$32,738), and GDP grew at an average annual rate of 3.5 percent (nearly triple the EU average). Moreover, Romania's economic growth has shown substantial resilience in the face of the pandemic, Russia's invasion of Ukraine, and the associated economic shocks.

The shift towards sustainable, well-governed, and inclusive economic growth remains in progress, with headwinds for the private sector. Although high on average, Romania's economic growth has been very volatile, mainly driven by consumption, and associated with major environmental externalities—such as high levels of air pollution in urban areas. The productivity dividends from the reforms spurred by EU accession in 2007 have dwindled, due to gaps in governance and quality of institutions, unfavorable demographics, and acute skills shortages that affect the quantity and quality of labor. Structural transformation remains ongoing: agriculture still accounts for a large share of employment, while the relative contribution of services to GDP and employment is the lowest in the EU. Despite the availability of sizable EU funds, infrastructure remains underdeveloped relative to the country's income level, constraining private investment and productivity in several key sectors. Unsustainable wage dynamics and an aging and shrinking labor force further compromise productivity. The country's vast shadow economy, estimated at 21 percent of GDP, generates additional challenges. Informal workers are a major component of the labor market, especially in low-skilled roles. Private investment has been relatively high, but a shallow financial sector limits the availability of long-term finance.

Substantial internal inequalities exacerbate the country's challenges and highlight the urgency of expanding access to economic opportunities and better jobs. Although robust economic growth has translated into poverty reduction, Romania still has the highest poverty rate in the EU. Approximately 45 percent of the population lives in rural areas, where the poverty rate is six times as high as in metropolitan areas. Disparities between leading and lagging regions, as well as between urban and rural zones, are large and often widening. The Systematic Country Diagnostics (SCD) 2018 summarized the overarching narrative of the country's socio-economic development as “A Tale of Two Romanias”: one urban, dynamic, and integrated with the EU; the other rural, poor, and isolated.¹ The population in the bottom 40 percent of the income distribution has limited access to productive employment and struggles to reap the benefits of economic

i. Some information presented in this report may not reflect the latest data or developments available due to a combination of factors, including but not limited to: better representation of structural factors by pre-COVID data; consistency with recently published World Bank reports; general cut-off point for the preparation of the report (April 2023).

growth. Nearly half of those in the bottom 40 percent do not work, while 28 percent engage in subsistence agriculture. Social disparities are widening, with vulnerable groups such as the Roma facing deprivation on multiple fronts and often living in precarious conditions. Additionally, the gender gap in labor force participation is the largest in the EU, and the female entrepreneurship is undercapitalized in Romania, with disparities in self-employment rates across genders and with only 17.2 percent of companies having a female top manager - see Romania Gender Assessment (forthcoming) for more details.

Two recent shocks and two impending transitions highlight both existing gaps, and opportunities for a more inclusive, resilient, and sustainable private sector-led growth model. The COVID-19 pandemic and Russia's invasion of Ukraine have tested Romania's economic resilience and left considerable scars, particularly on the country's human capital. The green and digital transitions can bring major opportunities to Romania, but need a supportive institutional environment, and a workforce ready for the changes to come.

Focus of the report

The first part of this Country Private Sector Diagnostic (CPSD) provides an overview of Romania's economic performance, and of five key cross-cutting constraints to private sector development in the country. First, the inadequate education of the workforce has shot up the list of constraints in the business environment, as reported by firms. Second, the business environment tends to be unpredictable—a consequence of institutional shortcomings, including deficiencies in governance. Third, impediments to competition, associated with a relatively high degree of state control of the economy as well as barriers to entry (especially in services), distort market outcomes and hamper the efficient allocation of resources. Fourth, Romania's economy has little innovative capacity, mainly due to chronic underinvestment and shortages of skills. Fifth, essential infrastructure (e.g., in energy and transport) suffers from significant shortcomings. Other cross-cutting issues (for example, challenges in the education system) are analyzed in depth in the Romania 2023 SCD Update², while the Romania Country Climate and Development Report (CCDR) provides an in-depth overview of climate objectives and the potential implications for the economy and people.

The second—and core—part of the CPSD explores how Romania can harness private investment in three critical enabling sectors to reignite sustainable economic growth and social inclusion. To identify short- to medium-term opportunities for private sector growth and enhanced service provision across the country, the CPSD focuses on crucial sectors featuring gaps that affect the whole economy. These are: the energy sector, with a focus on renewables; the transport sector; the financial sector, with an analysis focusing on inclusion through digitalization on the one hand, and the sector's readiness for the green transition on the other. Notably, surveys of Romanian firms identify shortcomings in the transport and financial sectors among the top constraints in the business environment, and a wealth of analytical work shows that private sector-led solutions can address many such gaps. Renewable energy and energy efficiency are strategic areas in the European Green Deal, offering technological solutions that are increasingly cost-effective and need to be deployed at scale, while Russia's invasion of Ukraine has brought to the fore a renewed emphasis on energy security. The financial sector has a crucial role to play not only in enabling green growth by mobilizing and allocating private capital, but also in expanding access to finance for individuals and micro, small, and medium enterprises (MSMEs), thus helping bridge regional divides and foster social inclusion.

In addition, three “tradeable opportunity highlights”—focusing on industry, services, and agriculture, respectively—outline how improvements in the key enabling sectors could expand opportunities for trade across the economy. Specifically, Opportunity Highlight 1 explores how Romania’s private sector may find a role in new, green value chains (e.g., supplying inputs or components for electric vehicles and wind or solar power generators), building on the green transition and recent global trends toward reshoring and nearshoring. Opportunity Highlight 2 examines how Romania can boost the performance of the services sector—which lags the EU average on many dimensions—to maximize benefits for the wider economy. Relevant steps include improving digital skills, boosting enrolment in tertiary education, and enhancing management practices at firm level. Finally, Opportunity Highlight 3 recognizes that while agriculture remains an important sector of the Romanian economy and a large employer, its productivity is significantly lower than the EU average, and the gap is not showing signs of closing. Addressing key constraints—such as underinvestment in mechanization due to limited access to finance, a shortage of specialized skills, impediments to technology adoption, lack of economies of scale, and infrastructural and geographical barriers that hinder access to markets—can boost agricultural productivity and value addition.

PART 1: The private sector already drives Romania’s growth, but addressing cross-cutting constraints can enable more private capital mobilization and help boost the economy’s dynamism and sustainability

Addressing the cross-cutting constraints can bring more dynamism to MSMEs and further boost the private sector’s role in driving Romania’s economic growth. MSMEs play an important role in the Romanian economy, but less so than in regional peers, and have the potential to become more productive and dynamic. They account for about 65 percent of employment and 56 percent of value added in Romania, in line with EU averages but less than in regional peers—for example, MSMEs generate almost 80 percent of employment in the Baltic countries, and 68 percent in Poland and Czechia. Labor productivity in Romania has been catching up with the EU average but remained around 33 percent lower in 2021. Aggregate productivity gains in recent years largely stem from improved allocative efficiency, whereby productive firms have increased their market share. Lack of digital skills, poor human capital, brain drain, and shortcomings in the business environment are major and intertwined challenges to productivity growth in the country. In addition, the productivity of MSMEs is held back by limited access to finance, due to both demand-side (e.g., undercapitalization of firms, informality, limited collateral, low financial literacy) and supply-side factors (e.g., deficiencies in the financial infrastructure).

Cross-cutting constraint #1: Skills shortages and mismatches

The combination of a fast-growing economy, one of the highest rates of emigration in the EU, and a lagging education system has turned the skills gap into the key impediment to private sector development. Romania’s population has been decreasing due to ageing and emigration, and the working-age population (20-64 years old) will shrink by an estimated 7.5 percent by 2025 from 2019 levels, with another 3 percent drop between 2025 and 2030. At the same time, the labor force participation rates among women and the young are some of the lowest in the EU. The deficiencies of the education system, unfavorable attitudes to lifelong learning, and ineffective vocational training and active labor market policies combine with brain drain to cause skills shortages and mismatches, which reduce innovation capacity as well as growth and earnings potential (see Romania 2023 SCD Update). Romania has the lowest score

in the EU on the Human Capital Index (HCI): 0.58, meaning that children born in Romania today will be 58 percent as productive when they grow up as they could be if they received full education and healthcare. In addition, Romania has the lowest rate of participation in lifelong learning in the EU, due to both cultural and systemic barriers, while the country's workforce has lower levels of digital and soft skills relative to EU standards. At a sectoral level, 51 percent of industrial companies suffer from skills shortages, versus 40 percent of companies in agriculture and services.³ Greener jobs coming alongside the green transition to achieve Romania's climate objectives demand more of the higher skills already in short supply in Romania—a factor that may deepen the skills deficit and hamper the green and digital transitions, unless education systems and social protection policies are fundamentally rethought (see Romania CCDR and other recent analytical work for more details).⁴

Cross-cutting constraint #2: Governance and institutional shortcomings affecting the business environment

The unpredictability of the business environment and deficiencies in governance pose a significant challenge to the private sector's development in Romania. Inefficiency of the tax administration, perceived corruption, and political instability are major constraints in the business environment. Although Romania has made progress in improving its business environment, many tasks (e.g., obtaining electricity supply and construction permits, resolving insolvency, protecting minority investors, and enforcing contracts) remain onerous for businesses. Romania also stands out for its restrictive regulation of professional and transport services (including airlines). Furthermore, as of 2018, Romanian firms reported that an estimated 18 percent of their senior management's time was spent on dealing with tax regulations (a higher figure than in 2009), versus 13.5 percent on average in peer countries.

Cross-cutting constraint #3: Barriers to competition

A high degree of state control of the economy, an unequal playing field between State-Owned Enterprises (SOEs) and private firms, and barriers to entry hamper competition in Romania. The OECD's 2018 Product Market Regulation (PMR) index—which captures state control, barriers to entry, and barriers to trade and investment—shows that state control over the economy in Romania is greater than in most OECD countries.⁵ Barriers to entry that could be removed to boost competition and GDP growth include, among others: i) burdensome administrative procedures; ii) unnecessary entry requirements in road freight services and professional services; and iii) minimum and maximum fees for legal services, as well as recommended fee guidelines for engineering and architectural services. Moreover, SOEs enjoy significant regulatory privileges, including exemptions from legal requirements on corporate governance; a lack of rules mandating the separation of commercial and non-commercial functions; and a lack of requirements for SOE investments to show positive rates of return. The application of existing rules suffers from fragmented responsibilities for SOE oversight, inconsistent reporting, unclear terms of compensation for public service obligations, and poor transparency of state aid allocation.

Cross-cutting constraint #4: An underperforming innovation ecosystem

Romania's economy is limited in its innovative capacity, mainly due to chronic underinvestment, shortages of skills, and governance deficiencies. Romania ranks last on the EU Innovation Scoreboard, signaling a poor ability of Romanian firms to move up the value chain. Romanian firms underperform their EU peers in product and process innovation, marketing and organizational innovation, R&D expenditures, patent applications, and ICT training. Romania has by far the smallest share of innovative

enterprises in the EU: as of 2019, only 10 percent of Romanian firms had introduced a new or significantly improved product or service over the previous 12 months, fewer than in regional peers such as Bulgaria, Hungary, or Poland. Moreover, no single agency is responsible for the overall management and coordination of innovation policy.

Cross-cutting constraint #5: Infrastructure and connectivity issues

Romania's infrastructure does not reflect the country's status as an EU member, or its overall high level of development—as outlined in detail in Part 2 of this report. Romania's infrastructure metrics lag the rest of the EU, with the country ranking last in the bloc on quality of overall infrastructure nearly every year since 2007. According to the 2019 Global Competitiveness report, Romania performed especially poorly on quality of roads, ranking 119th out of 141 countries—the worst placement in the EU and, despite being a high-income country, well below some upper-middle-income countries. The major role of SOEs in the country's infrastructure sector (especially transport and energy) leads to underinvestment and/or crowds out the private sector. Public investment averaged 4.2 percent of GDP between 2000 and 2020, above the EU-27 average of 3.2 percent of GDP, but it was highly volatile. The government's use of cuts to investment as an instrument to meet fiscal deficit targets has been a major contributor to volatility. The insufficient coverage of transport infrastructure networks hampers competitiveness and job creation. On the other hand, digital infrastructure is relatively well developed, albeit with sizeable regional variations.

While all sectors of the economy will need to decarbonize to deliver on the green transition's objectives, the shift in the energy sector and its implications for energy security are paramount. The energy sector is the main contributor to greenhouse gas (GHG) emissions in Romania (66 percent of total emissions), highlighting the importance of the energy transition in several related sectors. Among the emissions attributed to energy, 32 percent come directly from energy generation, 24 percent from transport, and 15 percent from manufacturing activities. Therefore, in the short-to-medium term, increasing the share of electricity generation from renewables, their storage capacity, and laying the foundations for transport decarbonization are key considerations, examined in Part 2 of this report.

Municipal infrastructure remains underdeveloped and requires significant investment. Many Romanian cities face challenges around urban transport, with Bucharest ranked among the most congested cities in the world, and the transport sector has been responsible for an increasing share of GHG emissions in recent years, primarily from daily commuting within metropolitan areas. Moreover, heating infrastructure is old and inefficient: 80 percent of the country's heat generation capacity is more than 30 years old, and the age of some installations exceeds 45 years.

Romania is missing out on the opportunity to fully embrace the public-private partnership (PPP) model, where suitable, to involve the private sector in financing, developing, upgrading, and operating key infrastructure assets. In certain infrastructural domains (e.g., aviation and railways) the private sector can help surmount funding gaps and improve efficiency, including through PPPs. This modality may also be well suited to delivering discrete assets with limited complexity and risks (e.g., waste treatment plants, cogeneration facilities), particularly at the municipal level—while carefully considering the implementation capacity of subnational governments, to avoid creating contingent liabilities. Romania's current legal framework for PPPs, however, requires optimization to boost private sector investment.

PART 2: Enabling private sector investment to unlock bottlenecks and reap dividends across the economy

Renewable energy: Unleashing the potential of renewables for a greener energy supply

The rapid decline of Romania's fossil energy sources, limited capacity for energy imports, and Russia's invasion of Ukraine have exacerbated concerns over the security of the country's energy supply. The Romanian domestic generation mix remains tilted towards fossil fuels (65 percent of total generation in 2020) but their contribution to electricity output has declined in recent years—largely due to the closure of units that no longer met environmental standards, technical failures affecting obsolete plants, and increasing marginal costs. Non-hydro renewable energy (RE) generation accounts for between 9 and 10 percent of Romania's electricity output. Most of the decline in energy output from fossil fuels has been covered through energy imports, which poses additional energy security risks and interconnectivity constraints. Currently, SOEs have a dominant role in energy production, accounting for more than 80 percent of electricity generation, 50 percent of gas production, and virtually all co-generation capacity for district heating. Despite the availability of significant EU funding, SOEs are slow in investing to replace obsolete capacity, and tend not to reinvest their profits. Limited liberalization and the lack of a competitive market constrains private sector investments, as well as benefits for consumers.

To realize its considerable RE potential and meet the EU's ambitious decarbonization goals, Romania needs to scale up significantly its RE investments. The EU and its member states have revised materially its climate targets, with the introduction of the European Green Deal in 2020 setting out net zero targets by 2050, the adoption of the Fit-for-55 package in July 2021, and the RePowerEU plan unveiled in May 2022. Member states including Romania are now expected to revise their National Energy and Climate Plans by 2023. Romania's current target of deriving 30.7 percent (currently under revision) of its final energy consumption from RE by 2030 will most likely be scaled up to 45 percent—the revised EU target. Romania's RE potential is estimated to be sizable, amounting to 54 GW from solar, 16 GW from onshore wind, and 11 GW from hydro. The World Bank has recently estimated the technical potential to develop offshore wind at a total of 76 GW. However, after 2015 and despite soaring energy prices in 2022-23, investments in utility-scale RE have come to a halt. The total installed capacity remains at 3 GW for onshore wind, and 1.5 GW for solar.

Romania struggles to attract private investment to the development of utility-scale RE projects. Despite significant potential interest from private investors since 2016, investments have largely failed to materialize due to frequent changes to the relevant support scheme, legal and regulatory bottlenecks, long waiting times for permits, and network access issues. Hobbled by a precarious financial situation, Romanian transmission and distribution (T&D) operators have only been allocating marginal investments to the grid, leading to frequent electricity losses. Thus, grid modernization is an unresolved challenge: most of the major projects planned by the transmission operator Transelectrica—e.g., for new lines and substations, as well as for grid digitalization—are delayed by up to 15 years, despite the government's ambition to integrate more than 7,000 MW of electricity from RE by 2030. Moreover, the regulatory framework for the development of energy storage solutions is still emerging.

Yet, Romania can unlock the utility-scale RE market by using site-specific auctions (e.g., sealed-bid auctions) in the short term, capacity auctions in the medium term, and PPP solutions for battery storage and pumped-storage hydro. Site-specific auctions can be suitable to the Romanian context—notably, for offshore wind projects, where

development risks are high and private sector players have historically struggled to secure sites and connection agreements. Moreover, Romania would benefit from developing a sophisticated PPP market to mobilize private sector involvement in energy infrastructure—especially for battery storage facilities of at least 400 MW, which would support RE development while maintaining grid and frequency stability. Moreover, district heating offers a range of opportunities for the development of PPPs at the municipal level. Private participation may benefit municipalities financially, enhance efficiency, and lower costs and improve service for users, in a context where municipal budgets have a debt ceiling which affects large-scale investments in services, though again with careful considerations for fiscal risks. Romania urgently needs to define a National Energy Plan to accelerate the deployment of RE—including by streamlining the process for regulatory approvals and reducing waiting times for permits—and boost private sector investment in the sector.

Transport sector: Significant gaps hamper decarbonization and competitiveness

The subpar quality of transport infrastructure is a key bottleneck to Romania’s development and its convergence with the EU, with the country facing a range of transport-related challenges. These include regional disparities in connectivity, a growth in sectoral GHG emissions, and vulnerability to climate change (e.g., Bucharest is the third-fastest-warming capital in the EU, and one of the most congested cities in the world). Despite significant public investment, mainly funded by the EU and focused on roads, Romania still lags in Europe in terms of transport infrastructure and service quality. In large part, Romania’s infrastructure development is held back by its governance environment, characterized by lack of stability, ineffectiveness, and outright impediments to infrastructure project delivery. Around 28 percent of Romanian firms identify transportation issues as a major obstacle to their operations, and many businesses report major delays on some of the main transport routes they use, owing to lack of maintenance and insufficient rehabilitation work.

Romania urgently needs effective instruments to address chronic underinvestment in transport infrastructure. Notwithstanding recent reforms, the development of key transport infrastructure largely remains a centralized responsibility of the national government, while state agencies face institutional and financial limitations. The major role of SOEs in transport services results in underinvestment and/or crowds out the private sector, while SOEs themselves face operational and financial challenges due to a heavy debt burden and/or limited public resources. Romania has also been missing out on the opportunity to utilize its conducive, albeit untested, PPP regulatory framework to involve the private sector in financing, developing, and operating key transport infrastructure assets.

Expanding access to finance for individuals and MSMEs

Greater access to finance for individuals and MSMEs and the development of green finance can help drive private sector growth, and foster innovation that is essential for a successful green transition. Romania’s financial sector remains small relative to its regional peers, and low levels of financial intermediation and inclusion hinder the sector’s ability to support productive, inclusive, and green growth. Significant efforts are needed from the public and private sectors to enhance financial inclusion for individuals and MSMEs, while unlocking the full potential of the financial sector to foster the green transition.

Romania has the lowest level of financial intermediation in the EU. The total assets of the banking sector as a share of GDP stood at 52.5 percent as of June 30, 2022, lower than in comparable countries such as Poland (95 percent), Bulgaria (95.3 percent), Croatia (140 percent), and the Czechia (147 percent), and significantly lower than the Euro area average of 289.1 percent.⁶ The financial sector is dominated by banks, which tend to offer basic products and have ample lending capacity; as of Q3 2022, credit institutions (mostly banks) held 76.5 percent of Romania’s total financial sector assets. Romanian banks are pursuing a large-scale shift to digital financial services (DFS), and financial technology companies (fintechs) have started to enter the market, particularly for innovative digital payment services. Non-bank financial institutions (NBFIs) are small, but they play an important role in financing micro-entrepreneurs and rural consumers. Capital markets are shallow, both for equities and corporate bonds, and venture capital to support innovative firms is limited. Disparities in access to finance are wide, both by region and by income bracket.

Financial inclusion for individual consumers in Romania is low, due to both supply- and demand-side factors. According to the World Bank’s Global Findex database, 69.1 percent of adults in Romania owned a transaction account in 2021—a figure more than 10 percentage points higher than in 2017, but still lower than the averages of both regional and income peer countries. Account usage rates and savings are also lower than in regional peers. Card ownership and usage have historically been limited, but digital payments have increased significantly in recent years. Poor financial literacy, mistrust of the financial sector, comfort with using cash, and a limited rural payments infrastructure (with fewer and fewer physical access points, such as ATMs and bank branches, in rural areas), have all contributed to stifling financial inclusion among individual consumers.

Access to finance is key for MSMEs to deliver growth and employment. Significant gaps in access to finance affect not only individual consumers, but also MSMEs, which are important economic agents in Romania. The MSME financing gap is estimated⁷ at 26 percent of GDP, with about 36 percent of micro enterprises and 14 percent of small and medium-sized enterprises either fully or partly credit constrained. Access to finance is necessary to develop the private sector, enhance productivity and growth, and ultimately create jobs and reduce poverty. Yet, up to 26 percent of Romanian firms identify access to finance as a major constraint, with the share of firms that had a loan application rejected reaching 22.5 percent—almost three times higher than the Europe and Central Asia (ECA) average.

As is the case for individual consumers, both demand- and supply-side factors explain the low levels of MSME finance in Romania. On the demand side, many firms are undercapitalized (34 percent of all firms in 2020, according to NBR data),⁸ have poor quality financial statements (when available), a high degree of informality, limited hard collateral, and low levels of financial literacy. As a result, MSMEs may not display much demand for finance, while it is challenging for financial service providers (FSPs) to serve them. On the supply side, deficiencies in financial infrastructure increase the cost and risk to lenders of serving MSMEs. As a result, banks are very risk averse, and rely heavily on hard collateral and guarantees (both from national schemes and EU-funded programs). MSME loans are generally over-collateralized—with average collateral requirements amounting to nearly 240 percent of loan value, the highest rate among regional peers—and very few loans are secured by movable collateral.

Addressing financial inclusion challenges for both individuals and MSMEs in Romania requires multi-pronged strategies. Such strategies should especially focus on four key goals: (1) developing a holistic approach to financial inclusion; (2) increasing account ownership and usage; (3) leveraging digital financial services; and (4) expanding MSME finance.

Enabling the financial sector to support growth and the green transition

Mobilizing and efficiently allocating private capital is essential to Romania's decarbonization, as green finance gains momentum and continues to expand. The green and low-carbon transition will require substantial investments, based on multiple sources and types of financing.⁹ The effective mobilization of public, blended, and private finance hinges on putting in place appropriate institutional frameworks. While a significant portion of investments is expected to be funded by the public sector (including through EU funds), the financial sector will have a crucial role in reorienting commercial capital towards net-zero purposes and setting the ground for market-based, low-carbon economic transformation and green growth. The banking sector's exposure to green assets amounted to RON 5.1 billion (just over €1 billion) in June 2021, equal to 4 percent of its total non-financial corporate exposure and three times greater than at the beginning of 2021.¹⁰ At the same time, the Romanian financial sector faces climate-related risks, which require new approaches and action from financial practitioners and policymakers.

Banks are still developing the core systems and capacity to engage more in green finance, with demand-side constraints exacerbating supply-side issues. Banks require more detailed information on sectoral pathways for the transition to the green economy, to identify business opportunities and assess whether companies are transition-ready. Firms, including small and medium enterprises (SMEs), must demonstrate their commitment to low-carbon business models; however, their understanding of the risks and opportunities associated with climate change, and their ability to develop transition plans, remain limited. Beyond the banking sector, capital markets can play an important role in greening the economy, but they remain underdeveloped in Romania.

The financial industry needs to build capacity in green finance, possibly through a combination of private and public sector initiatives. The National Bank of Romania, industry bodies, and experienced commercial banks can play a leading role. Green finance coalitions (e.g., in the form of an implementation committee) or sustainable finance knowledge centers could also be set up to provide thought leadership, raise awareness of excellence and best practice, build capacity in the sector, host peer networks, and facilitate innovation with supportive frameworks and tools. The new national development bank in Romania can also play a key role in expanding capacity for green finance.

A strategic framework and sequencing can accelerate the achievement of Romania's climate and sustainable development goals. In particular, the green finance agenda can best be pursued as part of a comprehensive long-term strategy for broader financial sector development.

Summary of policy recommendations

Figure ES.1 summarizes priority recommendations for unlocking more dynamic private sector growth and private investment opportunities in Romania. The recommendations (presented in the table) address the main structural challenges to private sector-led growth in the short to medium term. The prioritization criteria applied are: economic impact, decarbonization of the economy, opportunities to unlock private investment, and political economy feasibility. Recommendations related to the key cross-cutting constraints holding back private sector growth in Romania have been well documented in recent World Bank publications and thus beyond the scope of this CPSD. Therefore, the top part of the figure highlights selected recommendations from these analytics – particularly the Romania SCD Update¹¹ and the Romania Country Economic Memorandum¹² – to address the cross-cutting constraints discussed in the CPSD.

FIGURE ES.1 PRIORITY RECOMMENDATIONS FOR UNLOCKING PRIVATE SECTOR GROWTH AND INVESTMENT OPPORTUNITIES

CROSS-CUTTING			
1. Skills shortages and mismatches	2. Governance and institutional shortcomings affecting the business environment	3. Barriers to competition	5. Infrastructure and connectivity issues
<p>Provide access to quality education for all.</p> <p>Strengthen lifelong skills formation, especially for vulnerable groups.</p> <p>Improve on-the-job training, including traineeships and apprenticeships.</p>	<p>Mitigate the impact of political instability through establishment of medium-to-long-term strategic and spending priorities .</p> <p>Ensure fiscal sustainability.</p>	<p>Enhance market competition and innovation, including by: streamlining/reducing administrative procedures for market entry, and moving towards competitive neutrality for SOEs.</p>	<p>Close the gaps in transport and other infrastructure for international and domestic connectivity.</p> <p>Improve access to quality public infrastructure and services (e.g., transport, digital network, water and sanitation, district heating, solid waste management, social benefits and social services) for the poor, the vulnerable, and those in rural areas.</p> <p>Accelerate decarbonization, improve regional interconnections, and ensure energy security.</p>

SECTORAL		
Joint Transport and Renewable Energy		
POLICY AREA	SPECIFIC ACTIONS	TIMELINE
Strengthen technical capacity and legislative base for project preparation and PPP management	Develop centralized units at both the national and local level with the expertise to develop projects and PPPs.	ST
	Promote success stories and ensure transferability of good practices in PPP development.	ST
Renewable Energy		
POLICY AREA	SPECIFIC ACTIONS	TIMELINE
Encourage private investment in RE	Review regulatory and permitting constraints for investments in RES according to EC's Guidelines.	ST
	Enable investments in high-voltage transport networks to avoid grid congestion in areas with new renewables developments.	MT-LT
	Enable investments in distribution grids to integrate distributed generation from renewables at local level.	MT-LT
	Draft policy for long-term contracting of ESCOs through PPP structures and adequate financial instruments.	ST
	Pilot utility-scale wind and solar projects through sealed-bid auctions and CfD-set benchmark for a bankable project structure.	ST

EXPECTED OUTCOMES	
Higher Private Capital Mobilization	More and Better Jobs
More Dynamic Private Sector	More Sustainable & Inclusive Growth

Note: CCR= Central Credit Registry; CfD= Contract for difference; ESCO=Energy Service Companies; MSMEs=Micro-, Small and Medium Enterprises; NDB= National Development Bank; PPA=Power Purchase Agreement; PPPs = Public-private partnership; RE = Renewable energy; SOE = State-owned enterprise; MT= medium term; ST = short term; LT= long term.

CROSS-CUTTING			
1. Skills shortages and mismatches	2. Governance and institutional shortcomings affecting the business environment	3- Barriers to competition 4. An under-performing innovation ecosystem	5- Infrastructure and connectivity issues
<p>Provide access to quality education for all.</p> <p>Strengthen lifelong skills formation, especially for vulnerable groups.</p> <p>Improve on-the-job training, including traineeships and apprenticeships.</p>	<p>Mitigate the impact of political instability through establishment of medium-to-long-term strategic and spending priorities .</p> <p>Ensure fiscal sustainability.</p>	<p>Enhance market competition and innovation, including by: streamlining/reducing administrative procedures for market entry, and moving towards competitive neutrality for SOEs.</p>	<p>Close the gaps in transport and other infrastructure for international and domestic connectivity.</p> <p>Improve access to quality public infrastructure and services (e.g., transport, digital network, water and sanitation, district heating, solid waste management, social benefits and social services) for the poor, the vulnerable, and those in rural areas.</p> <p>Accelerate decarbonization, improve regional interconnections, and ensure energy security.</p>

Transport		
POLICY AREA	SPECIFIC ACTIONS	TIMELINE
Improve transport infrastructure	Update the national master transport plan to provide a framework for integrated transport corridors and synergies between national, regional, and urban transport systems.	ST
	Pilot test PPPs as a modality to attract private sector to municipal/regional projects in integrated urban transport, regional/metropolitan railways, electrified mass transport, e-mobility, cycling, and urban regeneration.	MT
	Identify one to three motorways to be developed via PPPs, linked to urban transport and logistic nodes.	MT
	Pilot PPP concessions on segments of the railway network.	LT
	Update and develop technical specifications and design guidelines at national level for sustainable urban mobility projects.	MT

EXPECTED OUTCOMES	
Higher Private Capital Mobilization	More and Better Jobs
More Dynamic Private Sector	More Sustainable & Inclusive Growth

Note: CCR= Central Credit Registry; CfD= Contract for difference; ESCO=Energy Service Companies; MSMEs=Micro-, Small and Medium Enterprises; NDB= National Development Bank; PPA=Power Purchase Agreement; PPPs = Public-private partnership; RE = Renewable energy; SOE = State-owned enterprise; MT= medium term; ST = short term; LT= long term.

CROSS-CUTTING

1. Skills shortages and mismatches	2. Governance and institutional shortcomings affecting the business environment	3. Barriers to competition	4. An under-performing innovation ecosystem	5. Infrastructure and connectivity issues
<p>Provide access to quality education for all.</p> <p>Strengthen lifelong skills formation, especially for vulnerable groups.</p> <p>Improve on-the-job training, including traineeships and apprenticeships.</p>	<p>Mitigate the impact of political instability through establishment of medium-to-long-term strategic and spending priorities .</p> <p>Ensure fiscal sustainability.</p>	<p>Enhance market competition and innovation, including by: streamlining/reducing administrative procedures for market entry, and moving towards competitive neutrality for SOEs.</p>	<p>Close the gaps in transport and other infrastructure for international and domestic connectivity.</p> <p>Improve access to quality public infrastructure and services (e.g., transport, digital network, water and sanitation, district heating, solid waste management, social benefits and social services) for the poor, the vulnerable, and those in rural areas.</p> <p>Accelerate decarbonization, improve regional interconnections, and ensure energy security.</p>	

Financial inclusion and digitalization of financial services

POLICY AREA	SPECIFIC ACTIONS	TIMELINE
Improve access to finance for MSMEs by digitalizing financial services	Adopt a comprehensive approach to financial literacy, with targeted initiatives for MSMEs.	LT
	Assess scope, targeting, and additionality of public credit guarantee programs.	ST
	Facilitate further financial institutions' access to government data on MSMEs or alternatively consider establishing a database with verified MSME financials.	MT
Financial sector for the green transition		
POLICY AREA	SPECIFIC ACTIONS	TIMELINE
Enable the financial sector to finance the green transition	Incorporate green finance into broader financial sector strategies/roadmaps, leverage stakeholders.	ST
	Continue to provide supervisory guidance to financial institutions and encourage expansion of innovative green financial instruments.	ST/MT
	Ensure a critical role for the new NDB as champion of the green agenda.	MT

EXPECTED OUTCOMES

Higher Private Capital Mobilization
More Dynamic Private Sector

More and Better Jobs
More Sustainable & Inclusive Growth

Note: CCR= Central Credit Registry; CfD= Contract for difference; ESCO=Energy Service Companies; MSMEs=Micro-, Small and Medium Enterprises; NDB= National Development Bank; PPA=Power Purchase Agreement; PPPs = Public-private partnership; RE = Renewable energy; SOE = State-owned enterprise; MT= medium term; ST = short term; LT= long term.



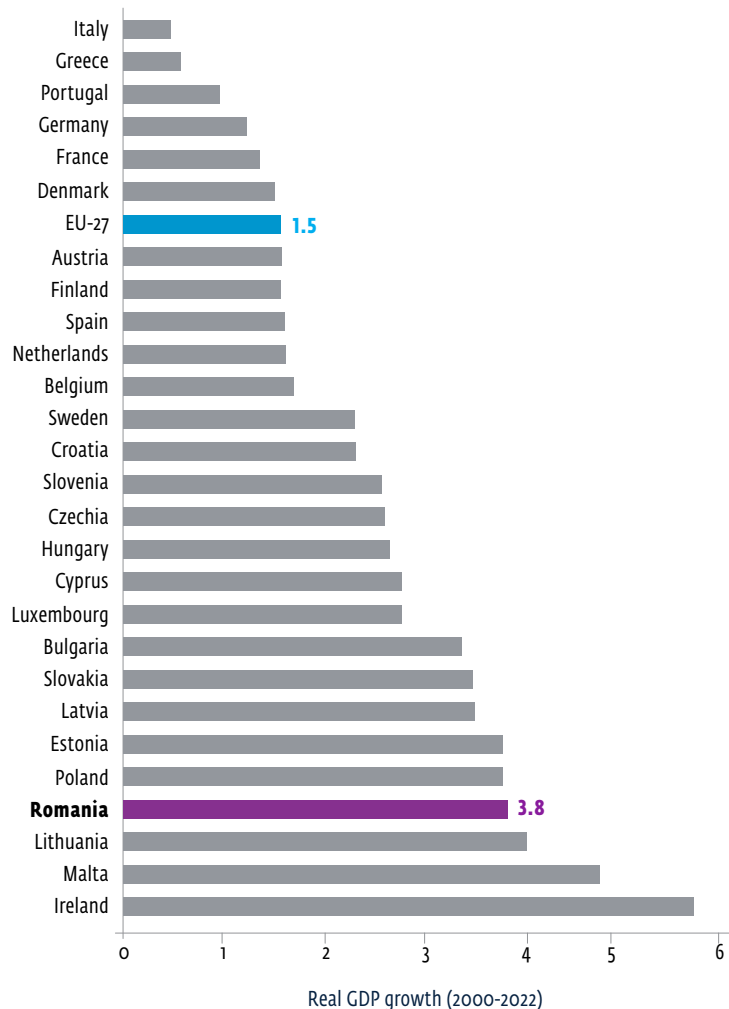
PART 1: **SETTING THE CONTEXT**

1. COUNTRY CONTEXT

Romania is one of the fastest-growing EU economies, rapidly converging to the bloc's average living standards

The sixth most-populous country in the EU with a population of 19.2 million, and the eighth largest by area, Romania is a land of contrasts with substantial internal inequalities. Disparities between leading and lagging regions, as well as between urban and rural zones, are large and often widening. Approximately 45 percent of the population lives in rural areas, where the poverty rate is six times higher than in metropolitan areas. GDP per capita in almost half of Romania's counties is lower than 75 percent of the national average, and the urban-rural income gap is the second highest in the EU. Agriculture still accounts for 21.1 percent of employment and 4.5 percent of GDP, while the relative contribution of services to GDP and employment is the lowest in the EU. An often deficient and unpredictable regulatory framework, and the continuing and pervasive role of state-owned entities (SOEs) in almost every facet of the economy, stymie the potential for private sector growth. Infrastructure remains underdeveloped, especially in rural areas, despite the availability of sizable EU funds: with approximately 870 km of highways, Romania ranks 57th out of 159 countries on the Global Logistics Index. At the same time, certain sectors are thriving, especially ICT and automotive. Internet connections in Romania's urban areas are among the fastest in the world, and value-added in the ICT sector equaled 6.3 percent of GDP as of 2020 (the seventh highest in the EU).

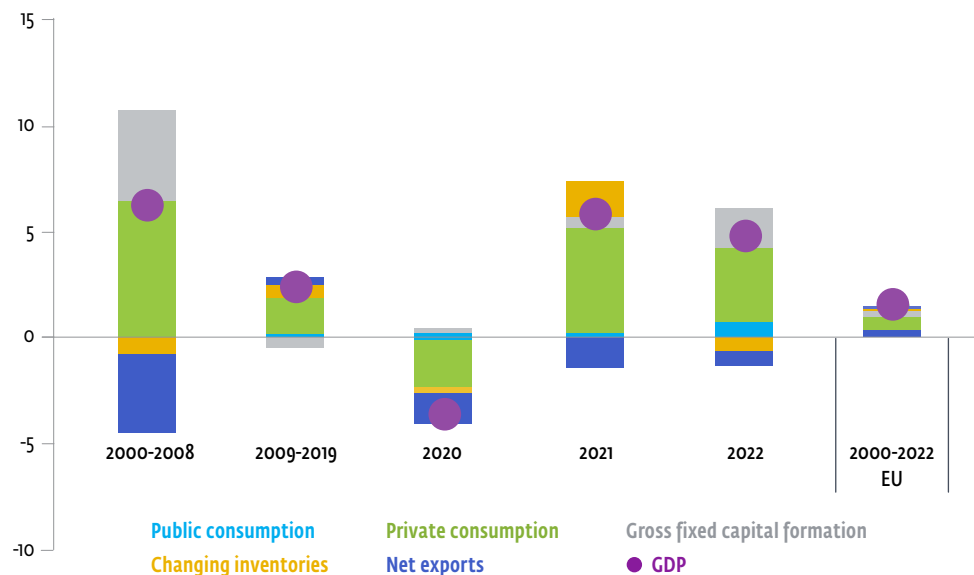
Romania has made impressive strides in economic performance over the past two decades, but growth has been volatile and appears increasingly unsustainable – both economically and environmentally. Between 2000 and 2022, Romanian income per capita in PPP (2017 international US\$) rose from 26.4 percent to 76.7 percent of the EU average, real GDP per capita in PPP more than doubled (from US\$12,177 to US\$32,738). The income convergence was supported by strong economic growth averaging 3.8 percent between 2000 and 2022 (Figure 1). Although Romania's recent growth rate has been among the highest in the EU, it has also been highly volatile and unsustainable, driven by procyclical fiscal policies that boosted domestic consumption. Public wages more than doubled between 1999 and 2008, public employment increased by 13.4 percent in the four years between 2005 and 2008, and household credit rose more than sevenfold between 2003 and 2008. The global financial crisis led to a painful adjustment in output in 2009. In 2013, the growth cycle resumed, boosted again by procyclical fiscal policies that generated new macroeconomic imbalances. Despite 15 years of EU membership, Romania's infrastructure is surprisingly deficient relative to the country's income level, constraining private investment and productivity in several key sectors. Unsustainable wage dynamics and an aging and shrinking labor force further compromise productivity. Growth has been lacking environmental sustainability, with Romania's natural capital on systemic decline (please see the Romania Country Climate and Development Report (CCDR) for more detail).

FIGURE 1 ROMANIA'S GDP GROWTH HAS BEEN AMONG THE HIGHEST IN THE EU

Source: World Bank calculations using EUROSTAT data.

Sub-optimal fundamentals threaten the sustainability of both the country's ongoing economic recovery post-pandemic, and its long-term growth. A growth model fueled by private consumption (Figure 2), partly made possible by an untenable rise in wages, has contributed to inflationary pressures and high current account deficits. Shortcomings in the quality and quantity of labor and capital, as well as productivity challenges, curb Romania's growth potential and international competitiveness. The country's sizeable informal economy, estimated at 21 percent of GDP,¹³ generates additional challenges. Informal workers are a major component of the labor market, especially in low-skilled roles. Private investment has been relatively high, but a shallow financial sector limits the availability of long-term finance. Overall, the level of financial intermediation in Romania is the lowest in the EU, with significant challenges in access to financial services outside the Bucharest region and among micro, small, and medium-sized enterprises (MSMEs) (see section 6 for more details).

FIGURE 2 ROMANIA'S GROWTH HAS BEEN INCREASINGLY DRIVEN BY PRIVATE CONSUMPTION, WITH INVESTMENT PLAYING A POSITIVE BUT LIMITED ROLE



Source: World Bank calculations using EUROSTAT data.

Although robust economic growth has translated into poverty reduction, Romania still has the highest poverty rate in the EU. Between 2014 and 2019, the share of Romanians living on less than US\$6.85 a day (2017 PPP) declined rapidly from 30 percent to 11.3 percent, on the back of strong labor markets domestically and in the wider EU. Yet, the country's poverty rate remains by far the highest in the EU, and above the levels of other European and Central Asian economies like Kazakhstan or Serbia. Moreover, not all Romanians have benefited from strong economic growth: those outside the formal labor markets or working in subsistence agriculture remain disproportionately represented in the bottom 20 percent of the income distribution. Opportunities in thriving sectors—e.g., manufacturing, trade, and ICT—have eluded the poorest as well as other marginalized groups (including the Roma community), which remain detached from the wealth generated in urban areas and leading regions. As a consequence, the gap in living standards between poor rural and successful urban areas has widened.

The uneven distribution of growth has led to the emergence of two Romanias: one – urban, dynamic, and integrated with the EU; the other – rural, poor, and isolated. The most dynamic firms and individuals have fully benefited from being part of the EU, with Bucharest and a handful of secondary cities becoming vibrant centers with growing populations and incomes. At the same time, vast segments of the population have been left behind, excluded from opportunities for quality jobs and better incomes. Over 2 million Romanians (more than 10 percent of the population, and nearly 20 percent of the labor force) have emigrated, most of them in the last 15 years and often on a permanent basis, constraining the labor supply and availability of skills¹⁴.

The urban-rural divide is also visible in public services affecting MSMEs. As of 2020, Romania was the only EU country without universal access to piped water as highlighted in the Romania SCD update (2023). While water services reach nearly 100 percent of the urban population, only 39 percent and 15 percent of the rural population is connected to the water supply and the wastewater system, respectively.¹⁵ In terms of transport infrastructure, the 2019 Global Competitiveness Report indicates that despite large public investments boosted by EU funds, Romanian regions are poorly interconnected, with a transport infrastructure competitiveness index far below the EU average. Socio-economic resilience to disasters and climate change is also unequal, with the level of disaster resilience among the poor amounting to less than one-quarter the national average.

Deeper, business-friendly reforms can help sustain and accelerate growth and competitiveness

Governance and institutional constraints slow down progress across the board, including in the business environment. The Romania SCD 2018's conclusion that 'it will be difficult for Romania to achieve shared prosperity and sustainable welfare improvements unless it addresses its governance challenges' remains relevant today. Political volatility is high (although less so recently): the average effective terms of Prime Ministers and government cabinets in Romania are among the shortest in the EU. The consequence is constant change in priorities and discontinuity in reforms, as well as an uncertain and unpredictable environment that hinders public-service provision and private-sector development and investment. Companies regularly mention¹⁶ political instability and corruption among the five most significant constraints in the business environment. Insufficient administrative capacity among public institutions, and a lack of coordination across sectors and public agencies, result in limited strategic planning, suboptimal policymaking and reform implementation, and low absorption and use of EU funds. Public investments suffer from inefficiency in planning and deployment, compromising the provision of key services such as healthcare, education, and energy and water distribution.

The future of the EU is greener and more digitalized—is Romania ready?

Climate change presents both sizeable opportunities and significant risks for Romania's economy and financial system. The country's vulnerability to climate change is relatively high, but its readiness to adapt is not. Romania is at risk from a range of hazards, including natural disasters, epidemics/pandemics, among others. On the mitigation side, achieving the targets of the Paris Agreement and the European Green Deal will require an economy-wide green transition and substantive investments (see the Romania CCDD). EU funds and other public sources will partly cover the financing needs of such a transition, but the financial sector will have to fill the gap. The share of green assets in the portfolios of Romanian banks stands at around 3 percent (data for 2021), less than half the Euro area average. At the same time, banks are significantly exposed to climate-related risks: about 50 percent of their outstanding loans are to companies affected by transition risks and climate-related physical risks, especially in agriculture. Moreover, although certain sections of the population may face disruption from the green transition, holistic policies to mitigate its impact on them are yet to be articulated beyond the Just Transition operational programs associated with closure of coal mines and coal-fired power plants.

As an EU member, Romania is a signatory to the European Green Deal (EGD). EU membership has yielded substantial economic benefits for Romania, granting it access to a vast market and accelerating its growth and income convergence. Since the COVID-19 pandemic, EU programs and funding have also enabled Romania's public planning agenda to shift toward a medium-term horizon, helping to ease uncertainty from domestic political volatility. However, EU membership also entails greater efforts to jointly combat climate change. The EGD has heightened regional ambitions for climate change mitigation and adaptation action, while highlighting the need for an equitable transition. At the heart of the EGD are two firm decarbonization targets: i) reducing net greenhouse gas (GHG) emissions by at least 55 percent by 2030, relative to 1990 levels; and ii) achieving net zero GHG emissions by 2050. Thus, the green transition provides an opportunity to decouple Romania's economic growth from environmental degradation and place it on a more environmentally sustainable path.

Although Romania's GHG emissions account for a modest share of the EU's total, the country has room to cut them, and an obligation to do so under the EGD. Romania's overall emissions are relatively low and are declining. Romania contributes approximately 3 percent of the EU's emissions, while accounting for 1.2 percent of GDP and 3.8 percent of population (2019 figures). Emissions (including per capita, despite the shrinking population) have been on a downward trend. Economic activity accounts for 82 percent of total GHG emissions in Romania, with the remaining 18 percent generated by households via heating and transport. Emissions intensity¹⁷ remains high, indicating the need to decouple economic activity from emissions as well as moving up value chains. Without policy action, emissions – particularly in certain sectors, like transport - are projected to increase, and risk compromising the achievement of targets in the Paris Agreement and EGD. To meet the EGD's commitments, however, Romania is required to further cut emissions by 3.9 percent by 2030, and by 96.1 percent by 2050¹⁸.

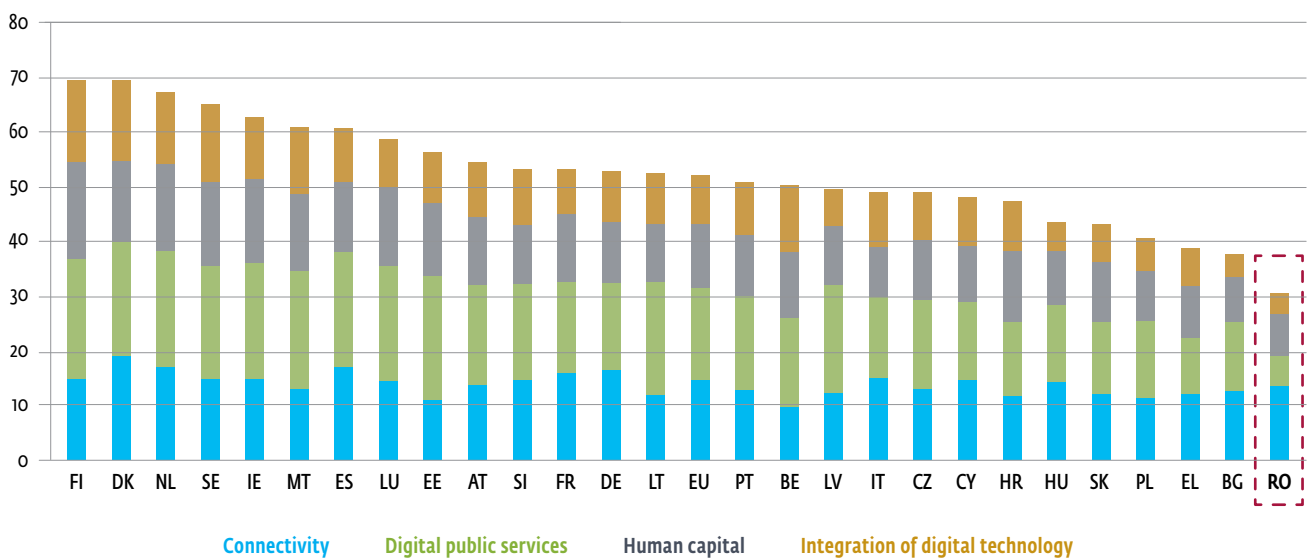
Energy is the key emitting sector in Romania, and its decarbonization—including through renewables and electrification of transport— will be central to the green transition in the wider economy. Currently, 66 percent of GHG emissions in Romania derive from energy use (including from transport), 17 percent from agriculture, 12 percent from industrial processes, and 5 percent from waste. The implementation of the EU's Emissions Trading System (ETS), and compliance with annual emissions targets for sectors not covered by the ETS, are Romania's main commitments toward achieving energy decarbonization goals.

As part of the green transition, the Romanian economy will need a profound reconversion to stay competitive in the European market, sustain growth, and create jobs. In addition to decarbonizing key polluting sectors such as energy and transport, such a reconversion will also touch on agriculture and industry where the emissions remain hard and expensive to abate. Mobilizing the public, blended, and private finance necessary for the transition requires appropriate institutional and governance frameworks, which enable the financial sector to allocate capital efficiently while managing the risks and seizing the opportunities from the transition. In addition, potential shifts in consumer demand and regulatory changes in the EU market—Romania's main export destination—may make it necessary for firms to demonstrably shift to greener practices and, potentially, greener industries. The ability of governments to quickly deploy supportive environments for the green transition will determine the future competitiveness of national economies in Europe (see the forthcoming Romania CCDR for more detailed discussion). Renewables and other greener forms of energy will be paramount for decarbonization and are the focus of Chapter 4. Opportunity Highlight 1 showcases some of the more imminent economic opportunities.

Romania’s digital deficit – particularly on the skills side - risks limiting the country’s ability to reap the benefits of digitalization, as well as deepen existing inequality between regions and population groups. Less than a third of Romanians have at least basic digital skills (versus the EU average of 58 percent), with a considerable urban-rural wedge. Digitalizing the economy and public services—a priority highlighted by the COVID-19 pandemic—offers opportunities to raise productivity, create new jobs, and tap into novel global value chains. Digital platforms are reshaping relationships between citizens and governments, customers and businesses, workers and employers. At the same time, digitalization carries a risk of job displacements and losses, while leaving those ill-equipped to benefit from it further behind.

Romania is lagging the rest of the EU on digitalization. Digital connectivity is relatively good and above the EU average, due to the wide availability of fixed high-capacity broadband networks. However, the national average hides large regional disparities: urban areas enjoy 82 percent coverage by fast-broadband services (above 30 Mbps), and 49 percent of Romanian homes (mostly in cities) subscribe to ultrafast (at least 100 Mbps) broadband—the fifth-highest share in the EU—but rural areas are trailing behind. Despite a relatively extensive network coverage, consumer uptake of broadband and use of internet services remain among the lowest in the EU, and even those who use the internet mainly do so for communication and entertainment purposes, rather than for activities such as online banking or education although the use of digital tools in schools has increased due to the COVID-19 pandemic. Overall, Romania ranks last in the EU on the Digital Economy and Society Index (DESI), which accounts for a range of indicators about digital skills, connectivity, integration of digital technologies in economic activity, and digital public services (Figure 3).

FIGURE 3 ROMANIA IS LAGGING THE REST OF THE EU ON DIGITALIZATION



Source: The Digital Economy and Society Index (DESI), European Commission.

Romania has an opportunity to strengthen private sector-led growth if it can better utilize EU resources and crowd in private investment

Against a backdrop of constrained fiscal space, an active private sector and greater effectiveness in absorbing and utilizing funds from the EU Multiannual Financial Framework and Next Generation EU program will be crucial for an economically and environmentally sustainable growth. Romania's utilization of EU funds has been rising over time, reaching 55 percent as of June 2021, and 82 percent by August 2023 for structural and cohesion funds for the 2014-2020 period, but remains lower than the EU average. Implementing the initiatives under the 2021-2027 programming period and the National Recovery and Resilience Plan (NRRP), especially those relating to new thematic areas such as the green and digital transitions, will require additional institutional capacity and deeper private-sector involvement (see Appendix 2 for more details on the EU funds).

The green transition and the ongoing disruptions to established trade patterns can offer new trade opportunities to the Romanian private sector. The EGD and the EU's Carbon Border Adjustment Mechanism are expected to push European industry towards greener production processes and inputs. In addition, disruption to global supply chains from the COVID-19 pandemic, gyrations in energy markets, and the growing decoupling between the US and China has reignited the debate on strategic value chains, with a greater emphasis on reshoring and nearshoring. Building on its strong industrial base, Romania's private sector may find a role in new, green value chains (see Opportunity Highlight 1). At the same time, such potential opportunities can be affected by existing bottlenecks to private sector growth (i.e., shortcomings in skills, access to finance, and transportation, among others), and will require careful balancing with the decarbonization agenda, particularly in relation to GHG emissions from industrial activity.

Opportunity Highlight 1: Tapping into Green Global Value Chains

Navigating the green transition: Romania's strengths and opportunities in the solar, wind, and electric vehicles value chains

Romania is in a strong position to capitalize on the transition to the green economy. Romania has a diversified export portfolio, with well-developed manufacturing capabilities and competitive strengths in a range of products and technologies that will be in high demand as the EU and the world transitions to a green economy. Romania's ranking on the Green Complexity Index, which tracks the capacity of countries to competitively export products that are green (i.e., offer environmental benefits) and technologically complex has been improving over time,¹⁹ up to 15th out of 230 countries and territories assessed. Romania also ranks well on the Green Complexity Potential index (28th place), which suggests significant potential to build on its existing capabilities and unlock further opportunities for green and complex exports.

Among EVs, solar and wind energy production, Romania’s strengths lie in the wind value chain. Three factors place Romania in a strong position to take advantage of the global shift to low-carbon energy generation.²⁰ First, Romania exhibits export competitiveness—as measured by its revealed comparative advantage—in various technologically sophisticated components of the wind value chain, such as electric control and distribution boards (Figure OH1.1). This implies that Romanian firms have acquired specialized capabilities, and can build on them to progress to new, differentiated products with higher margins and fewer competitors. Second, Romania’s best-established products in the wind value chain benefit from favorable market dynamics, as evidenced by strong EU import demand and growing domestic supply. This makes them “winning” products in a growing sector, located in the top-right quadrant in Figure OH1.2. Furthermore, most of Romania’s wind products have gained market share relative to those produced in other countries over the last five years. Third, the wind products that Romania exports are close to the technological frontier—which bodes well in view of future market developments. At the same time, Romania has few strengths in the solar value chain and in electric vehicles.

FIGURE OH 1.1 ATTRACTIVENESS OF ROMANIA'S GREEN STRENGTHS, 2016-2020

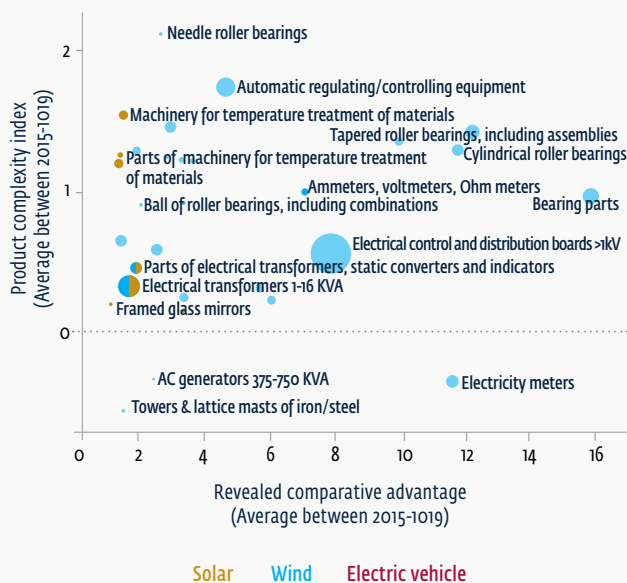
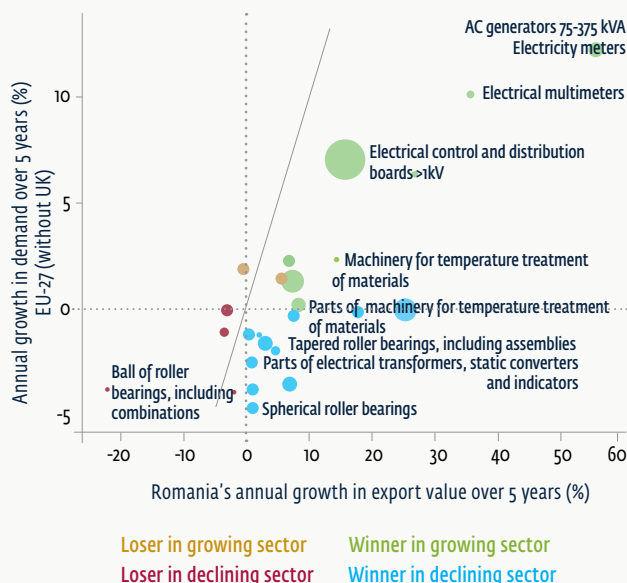


FIGURE OH 1.2 MARKET DYNAMICS OF ROMANIA'S GREEN STRENGTHS, 2016-2020



Note: Green Value Chain Explorer.

Romania can develop competitiveness in products within green value chains that align with its capabilities. This is especially true for solar subcomponents, such as machines for the manufacture of photovoltaic (PV) wafers. They are reasonably proximate to Romania’s existing capabilities, technologically sophisticated (Figure OH1.3), and both Romania’s exports and EU-27 demand for them have grown in recent years (Figure OH1.4). While Romania does not currently have an obvious comparative advantage in this segment, it has the potential to gain competitiveness over time. However, further analysis is required to gain a better view of likely export destinations, existing competitors, and current barriers to growth.

FIGURE OH 1.3 ATTRACTIVENESS OF ROMANIA’S GREEN OPPORTUNITIES, 2016-2020

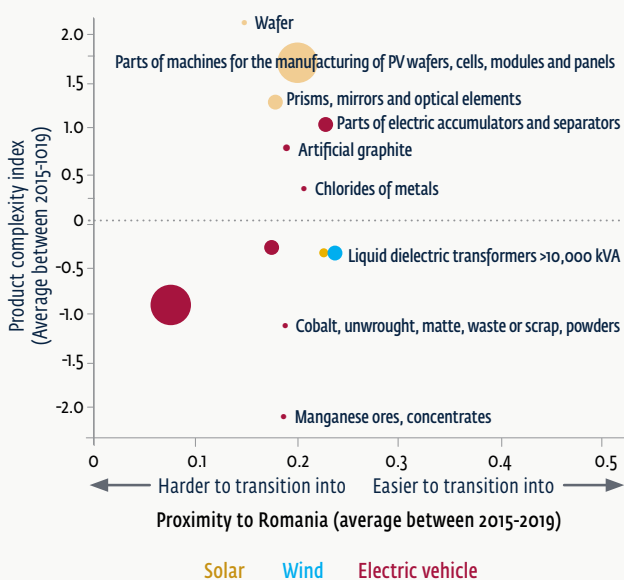
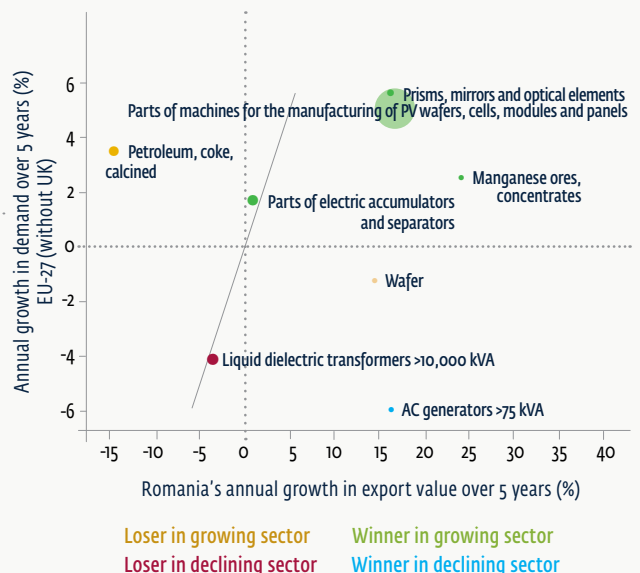


FIGURE OH 1.4 MARKET DYNAMICS OF ROMANIA’S GREEN OPPORTUNITIES, 2016-2020



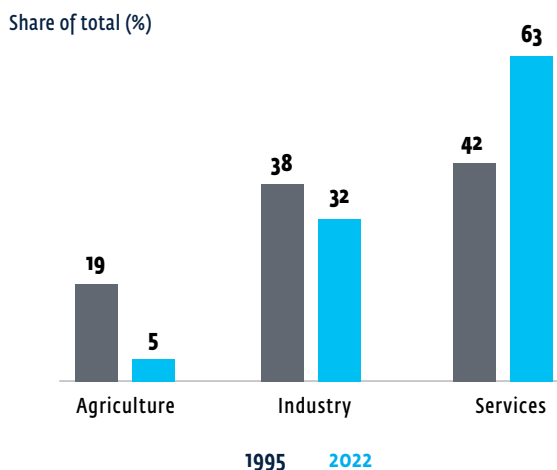
Source: Green Value Chain Explorer.

2. ROMANIA'S PRIVATE SECTOR OVERVIEW: PERFORMANCE, STRUCTURE, AND FIRM CHARACTERISTICS

Romania's economy has undergone a significant structural transformation

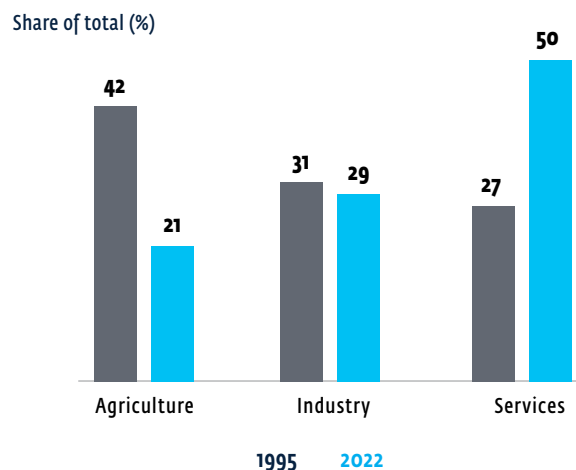
Romania's services sector is increasingly driving economic transformation (Figure 6), but its contribution to the economy and share of employment remains lower than the EU average (Figure 7). The industrial sector's – where policy effort tends to be concentrated – share of total employment in Romania has been in moderate decline since the 1990s, reaching 29 percent in 2022 (Figure 5); the agricultural sector's share almost halved over the same period. At the same time, the services sector's share of total employment rose from 30 percent in 1995 to 50 percent in 2022 (Figure 5) but remains the lowest in the EU. Please see Opportunity Highlight 2 below on Romania's opportunities to accelerate its service sector development.

FIGURE 4 THE SHARE OF THE SERVICES SECTOR HAS INCREASED, IN OUTPUT



Source: World Bank calculations using Eurostat data.

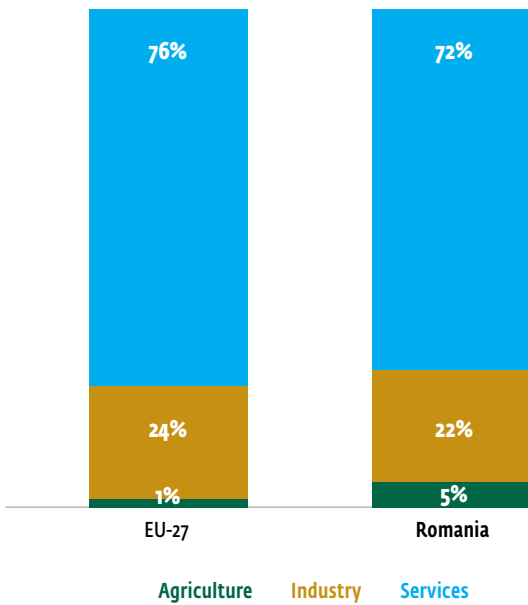
FIGURE 5 THE SHARE OF THE SERVICES SECTOR HAS INCREASED, IN EMPLOYMENT



Source: World Bank calculations using Eurostat data.

FIGURE 6 THE CONTRIBUTION OF SERVICES TO GROWTH IN ROMANIA IS BELOW THE EU AVERAGE

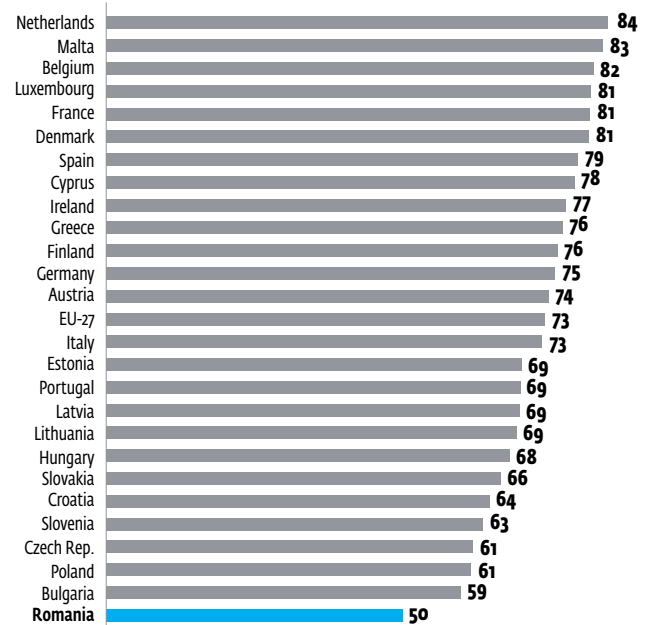
Growth Drivers (Supply-side), 2013–22



Source: World Bank calculations using Eurostat data.

FIGURE 7 THE SHARE OF EMPLOYMENT IN THE SERVICES SECTOR IS THE LOWEST IN THE EU

Services sector's share of employment, 2018



Source: World Bank calculations using Eurostat data.

Certain services sub-sectors have been thriving – particularly ICT. The ICT sector has been among the main contributors to growth, and its share of the national GDP as of 2020 (7 percent) was among the ten highest in the EU (average 5.5) – please see Box 1. Wholesale and retail trade have also been accounting for an increasing share of economic growth in recent years, reflecting robust domestic demand. Construction's contribution to growth tends instead to be procyclical and volatile, as in many other economies.

BOX 1 ROMANIA'S ICT SUCCESS: SKILLING UP FOR SUSTAINED GROWTH

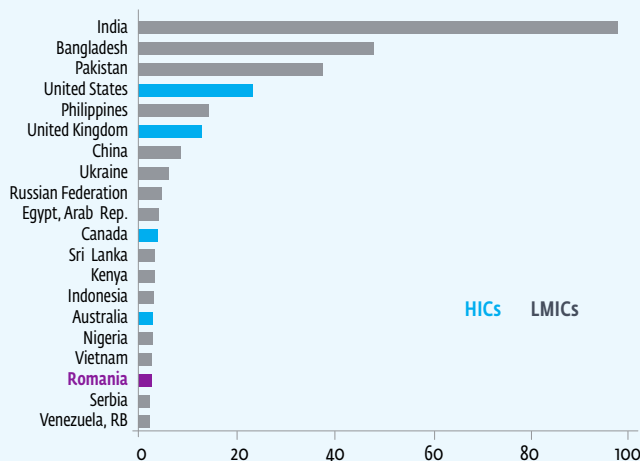
Romania has emerged as a regional center for ICT—from software development and web applications to fintech—with the sector now accounting for 7 percent of GDP, and an estimated annual gross value added of €15 billion.²¹ ICT has been an important contributor to economic growth, driving the development of several cities beyond Bucharest: from Cluj to Timisoara, Iasi and Brasov.²² Supported by income tax exemptions, employment has soared in ICT and supporting industries. Recent estimates from the Employers' Association of the Software and Services Industry (ANIS)²³ show that in addition to the 135,000 employees of companies mainly active in software and IT services (direct impact), there are more than 73,000 employees in their Romanian supply chain (indirect impact), and over 65,000 employees in other industries that are supported by ICT salaries spent in the national economy.

Retaining the competitive edge will require education and innovation. ICT graduates in Romania account for 5.6 percent of all graduates, a higher share than the EU average of 3.6 percent, but migration and brain drain help explain why the share of ICT specialists in the economy (2.2 percent) is lower than in the wider EU (3.9 percent) (Figure 9). The future pipeline of ICT specialists is also in question due to low basic digital skills: 31 percent of Romanians have at least basic digital skills (DESI 2020), compared

with the EU average of 58 percent. Some workers are e-migrating without physically emigrating: the Oxford Internet Institute's iLabour Project estimates that Romania is the only EU member among the top-20 supplier countries of software development freelancers on four major English-language labor platforms—Fiverr, Freelancer, Guru, and PeoplePerHour (Figure 8).

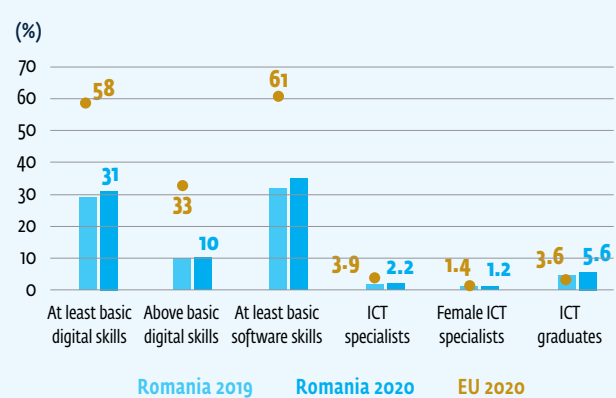
Private sector firms have room to grow their digital adoption. The adoption of digital technologies by Romanian firms is considerably lower than in most EU member states, especially among smaller companies: in 2021, Romania had the lowest share of SMEs with at least a basic level of digital intensity in the EU.²⁴ There are signs of positive change: the share of Romanian firms engaging in e-commerce is on par with the EU average (17.3 percent) and has more than doubled since the beginning of the pandemic.²⁵ However, a shortage of appropriate skills is a challenge. Among Romanian firms, adopters of Industry 4.0²⁶ (I4.0) technologies generate on average 8 percent more value-added per hour worked than non-adopters, a gain equivalent to less than half the EU average. The limited size of productivity gains among I4.0 adopters in Romania suggests that a scarcity of skilled workers constrains the intensity in the use of such technologies, relative to regional peers.

FIGURE 8 ROMANIA IS THE ONLY EU COUNTRY AMONG THE TOP-20 SUPPLIERS OF WORKERS ON ENGLISH-SPEAKING ONLINE LABOR PLATFORMS



Source: Oxford iLabour project. Millions of workers on four major English-language online platforms, 2020.

FIGURE 9 LARGE NUMBER OF ICT GRADUATES SHOWS HIGH POTENTIAL FOR GROWTH, BUT WIDER DIGITAL SKILLS LAG THE EU AVERAGE

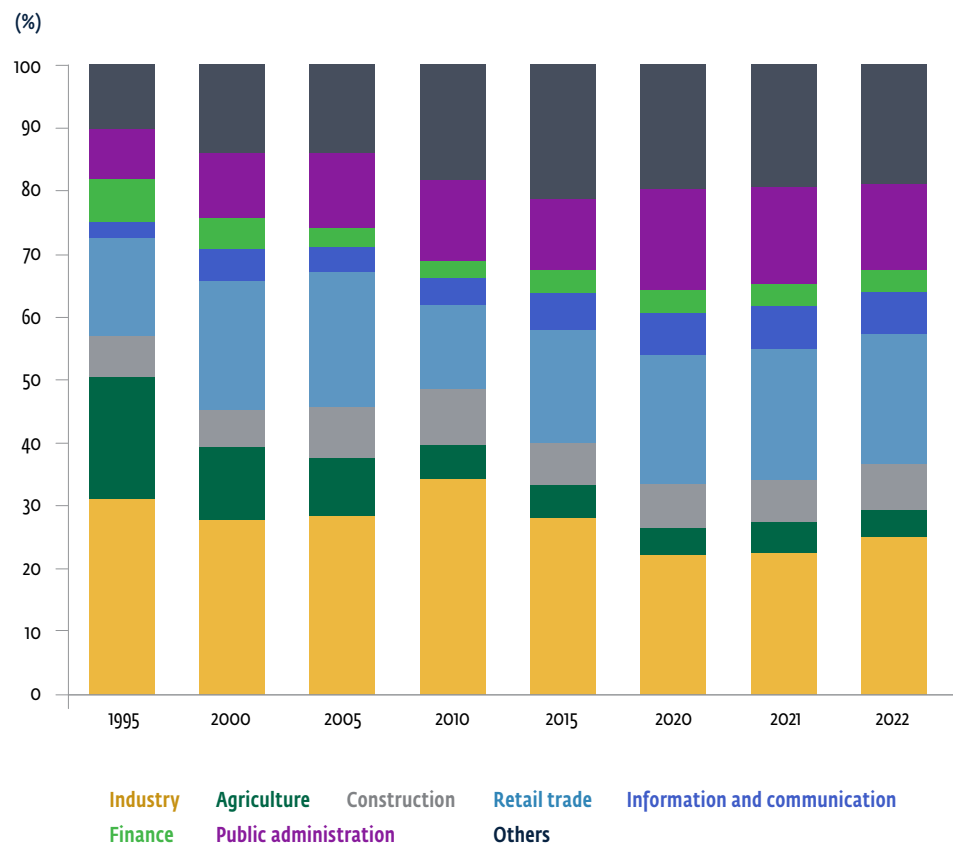


Source: World Bank Enterprise Surveys, <https://www.enterprisesurveys.org>.

Agriculture employs 21.1 percent of the working population, but its contribution to GDP has dwindled to 4.5 percent. Despite significant sectoral modernization, supported by EU pre- and post-accession instruments, the agricultural workforce still consists largely of self-employed smallholders and low-skilled workers. As a result, productivity in agriculture is significantly lower not only than in the rest of the economy but also to the average EU agricultural productivity (see Opportunity Highlight 3). Consequently, the sector falls short of its potential as a driver of sustainable growth and better living standards in rural areas.

Industrial sectors such as chemicals and textiles manufacturing were hard hit by Romania's early transition to a market economy, but manufacturing in the country remains more labor-intensive than in its regional peers. Romania's industrial base is among the largest in the CEE region. Industry accounts for over 20 percent of national value added (Figure 10), on par with the levels in Slovenia, Hungary, and Poland. Manufacturing is by far the largest industrial subsector, but is still more labor intensive than in Hungary and Slovenia—although more complex segments, such as motor vehicles and machinery production, are becoming increasingly important. As mentioned above (Opportunity Highlight 1), Romania can leverage its industrial base to increase its participation and competitiveness in the green regional and global value chains.

FIGURE 10 COMPOSITION OF GROSS VALUE-ADDED (CURRENT PRICES), ROMANIA, 1995– 2022



Source: World Bank calculations using Eurostat data.

Opportunity Highlight 2: Harnessing the potential of services for Romania's growth, employment, and exports

The services sector in Romania is an engine of growth, with room for further job creation

The services sector is increasingly driving economic transformation across the globe, and Romania is no exception. Romania's average growth rate over the past two decades was thrice as high as in the rest of the EU, driven largely by services (Figures OH2.1-2). As in other economies undergoing structural transformation, the industrial sector's share of total employment in Romania has declined since the 1990s, averaging 30 percent. As a result, the increase in the services sector's share of total employment—from 30 percent in 1995 to close to 50 percent in 2018—offset almost the entire decline in the share of the agricultural sector.

Despite the relatively fast growth of the services sector, its share of Romania's total employment in 2018—at 47 percent—was the lowest in the EU, indicating room for further growth (Figure OH2.3). This is in part because in high-income countries in the EU, such as those in Western Europe, that are at more advanced stages of the structural transformation, the share of services in total employment is extremely large.

FIGURE OH2.1 THE CONTRIBUTION OF SERVICES TO GROWTH HAS BEEN INCREASING, WHILE THE ROLE OF AGRICULTURE HAS BEEN DECLINING, 2000-2021

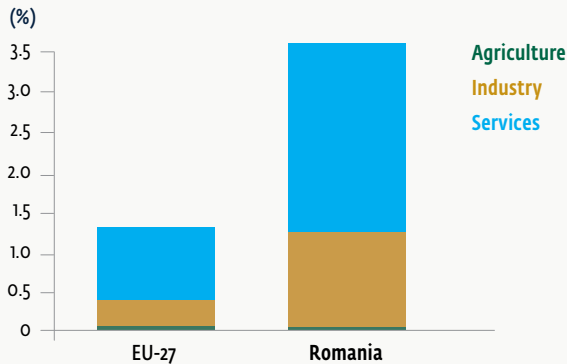
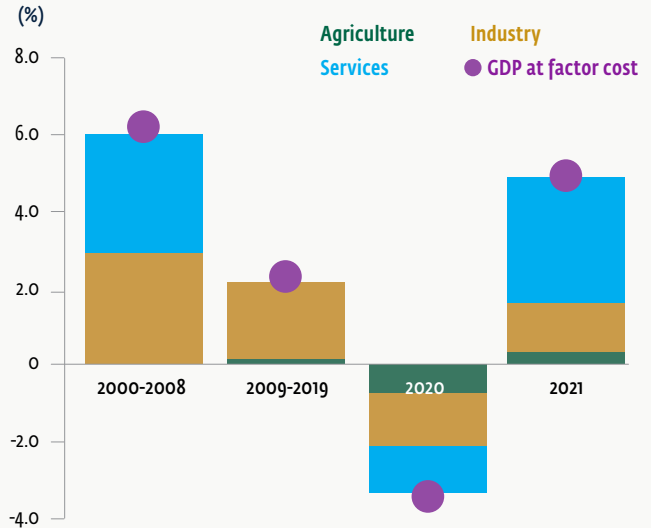


FIGURE OH2.2 THE CONTRIBUTION OF SERVICES TO GDP GROWTH IS ON THE RISE



Source: Eurostat, World Bank calculations.

Looking within the services sector: Romania as an emerging global innovator

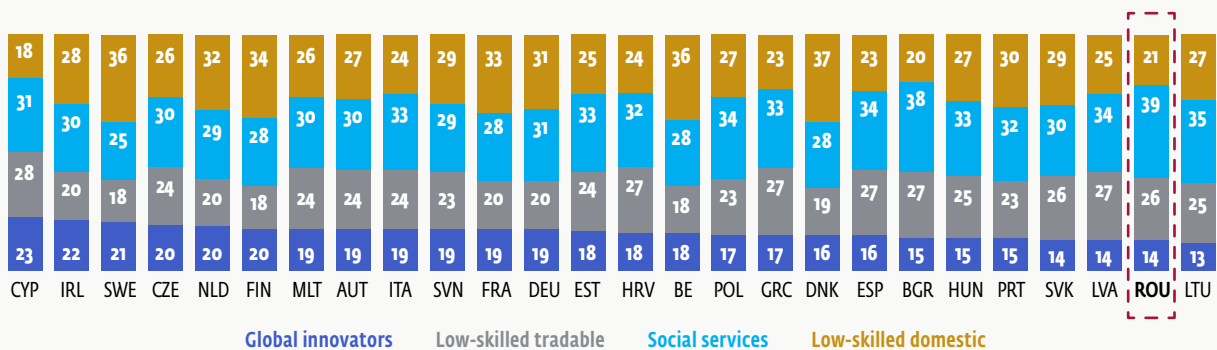
The services sector is not monolithic, with differences in the extent to which services are traded, their labor intensity, the skills they use, and their links to other sectors. These characteristics result in the following categorization of services.

- **Global innovator services** (including ICT, finance, and professional services) are relatively highly traded internationally and offshorable, R&D intensive, share linkages with other sectors, and are typically skills-intensive. On average, across countries, global innovator services are more productive than manufacturing.
- **Low-skill domestic services** (including arts, entertainment, and recreation; administrative and support; retail trade; and personal services) employ a large share of low-skilled workers but provide little productivity-enhancing potential through international trade and linkages. On average, across countries, low-skill domestic services are less productive than manufacturing.
- **Low-skill tradable services** (including accommodation, transportation, and wholesale trade) are relatively highly traded internationally, share linkages with other sectors, while employing a large share of low-skilled workers. On average, across countries, the productivity of low-skill tradable services is almost on par with manufacturing.
- **Skill-intensive social services** (including health and education) are relatively less traded internationally, share few linkages with other sectors, and employ a large share of skilled workers.

Global innovator services (finance, ICT, and professional services) account for around 14 percent of services employment in Romania (Figure OH2.3). The corresponding share in high-income EU countries ranges between 15 and 20 percent. In contrast, low-skill domestic services (retail; personal services; arts, entertainment, and recreation; and administrative and support services) represent about 40 percent of services employment in Romania, compared with about 30 percent in high-income EU countries. Notably, in Romania, nearly one quarter of employment is in retail—the highest level in the EU; while only around 5 percent is in professional, scientific, and technical services—the lowest level in the EU.

FIGURE OH2.3 ROMANIA'S SHARE OF EMPLOYMENT IN GLOBAL INNOVATOR SERVICES IS AMONG THE LOWEST IN THE EU, WHILE MOST SECTORAL EMPLOYMENT IS IN LOW-SKILLED SERVICES

Employment shares in service sector groupings, %, latest available year

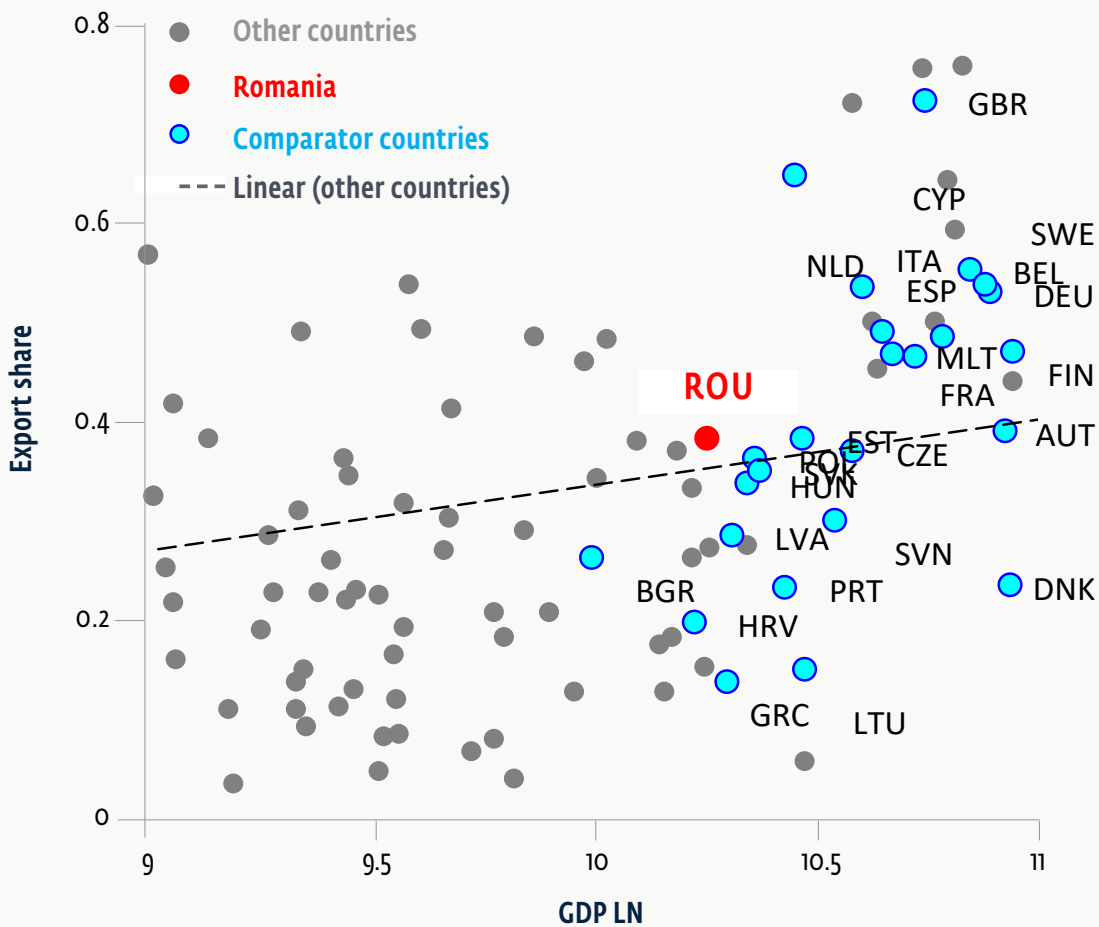


Source: Elaboration based on WB (2021): *At Your Service? The Promise of Services-Led Development*, from ILO employment data.
 Note: CYP=Cyprus, IRL=Ireland, SWE=Sweden, CZE=Czechia, NLD=Netherlands, FIN=Finland, MLT=Malta, AUT=Austria, ITA=Italy, SVN=Slovenia, FRA=France, DEU=Germany, EST=Estonia, HRV=Croatia, BE=Belgium, POL=Poland, GRC=Greece, DNK=Denmark, ESP=Spain, BGR=Bulgaria, HUN=Hungary, PRT=Portugal, SVK=Slovakia, LVA=Latvia, ROU=Romania, LTU=Lithuania.

As many other emerging economies, Romania has diversified its export basket by specializing in offshore business services: software development, business process outsourcing (BPO), accounting, and architectural and engineering services. Largely driven by ICT, global innovator services accounted for 38 percent of Romania’s services exports in 2017—around the average for countries with a similar per capita income (Figure OH2.4). Such share is lower than in certain high-income EU countries (such as Ireland, Germany, Spain, Italy, and the Netherlands), but higher than in others, including some with higher per capita income (Denmark, Slovenia, Latvia, Portugal, Lithuania, Greece, Croatia, and Bulgaria). While ICT has been Romania’s success story in global innovator services, there are other areas in which the countries could excel, including tourism.

FIGURE OH2.4 EXPORTS OF GLOBAL INNOVATOR SERVICES MADE UP 38 PERCENT OF SERVICES EXPORTS IN ROMANIA

Share of global innovator services in total services exports



Source: WB (2021): *At Your Service? The Promise of Services-Led Development*.

What can Romania do to harness the potential of services? The 4Ts: Trade, Technology, Training, Targeting

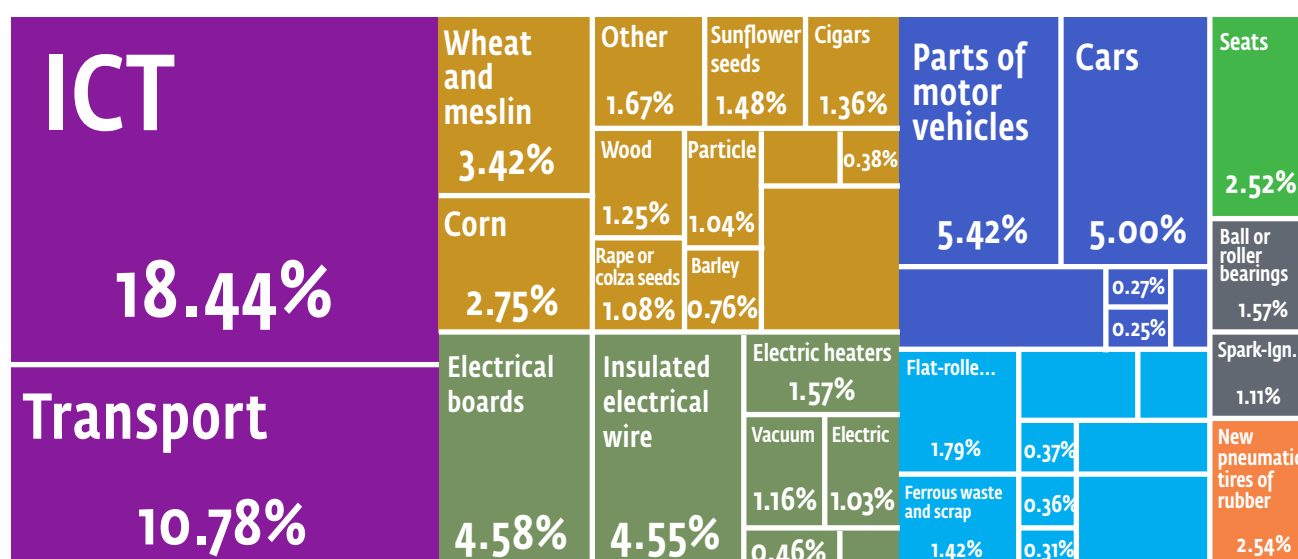
Trade, Technology, Training, and Targeting (the 4Ts) are key to building on the potential of the services sector. As technology diminishes the need for physical proximity between producers and consumers, lowering the barriers to trade in services could enable greater economies of scale. Expanded access to digital technologies and training for workers and managers are necessary to realize the innovation potential of ICT and the associated intangible capital. Finally, recognizing the potential for linkages with other sectors, targeting the growth of enabling services can maximize their spillover effects.

Romania has room for progress across all of the 4Ts. World Bank research (At Your Service? The Promise of Services-Led Development, 2021) found that on Trade, Technology, and Targeting, Romania's performance ranks above the global median, but below the levels of many EU countries. On Training, on the other hand, Romania ranks below the global median, in addition to lagging most of its fellow EU members. Improving digital skills, boosting enrolment in tertiary education, and enhancing management practices at firm level are key to the growth of the services sector in the country, and to maximizing its benefits for the wider economy.

Romania's economy is highly integrated with EU value chains

Export composition and increasing economic complexity highlight the changing structure of Romania's economy.²⁷ Romania has moved up the economic complexity rankings, from 39th out of 133 countries in 2001 to 19th in 2020—above Bulgaria, the Baltic countries, and Croatia²⁸—having increasingly switched from labor-intensive, low-tech exports (e.g., garments and footwear) to more advanced medium-tech exports (e.g., automotive, machinery, and electronics). However, high-tech exports still account for less than 10 percent of total exports (Figure 11). The value of the Romanian agri-food trade has grown consistently over the last 15 years, accelerating after EU accession in 2007, with exports generally expanding faster than imports. However, growth in agri-food exports has largely come from primary commodities (72 percent of agri-food exports) produced by large commercial farms, while smallholder farms account for the majority of agricultural employment (see Opportunity Highlight 3).

FIGURE 11 COMPOSITION OF ROMANIA'S NET EXPORTS, 2021

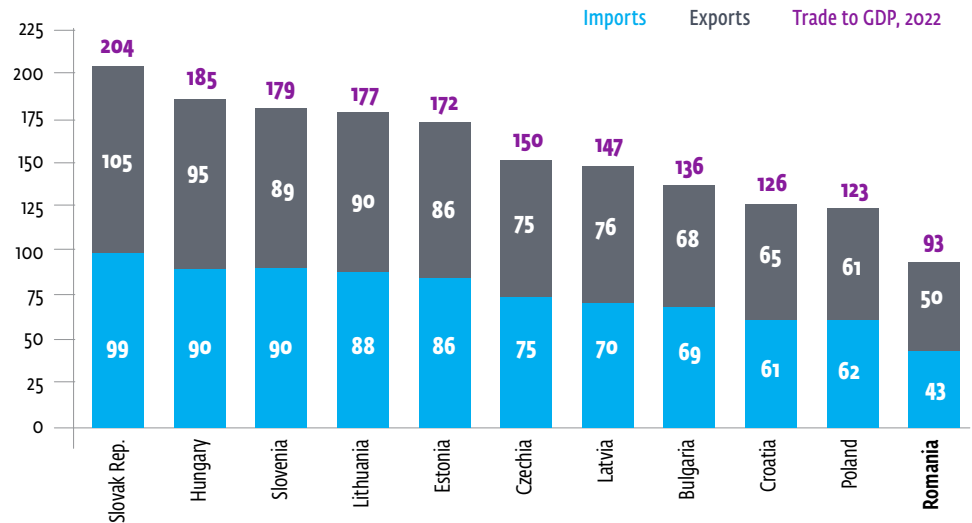


Source: Harvard atlas of economic complexity, <https://atlas.cid.harvard.edu/explore?country=185&queryLevel=location&product=undefined&year=2020&product-Class=HS&tradeFlow=Net&target=Product&partner=undefined&startYear=undefined>.

The EU is Romania's main export market, but the country is the least open to foreign trade among its regional peers. More than 70 percent of Romania's total exports are destined to the EU, with Germany, Italy, and France the top three destinations (accounting for 22, 10, and 6 percent of Romania's exports in 2020, respectively). Overall, the value of Romania's foreign trade (exports and imports) stands at about 93 percent of its GDP, below other comparable EU Member States (Figure 12). Relative to its regional peers, Romania has experienced the smallest increase in openness to foreign trade (measured as the ratio of foreign trade to GDP) since the early 2000s, when the value of foreign trade equaled 70 percent of the country's GDP. In part, this reflects the lower value added of its exports compared to the EU average, highlighting the need for Romania to continue increase its complexity of production and productivity.

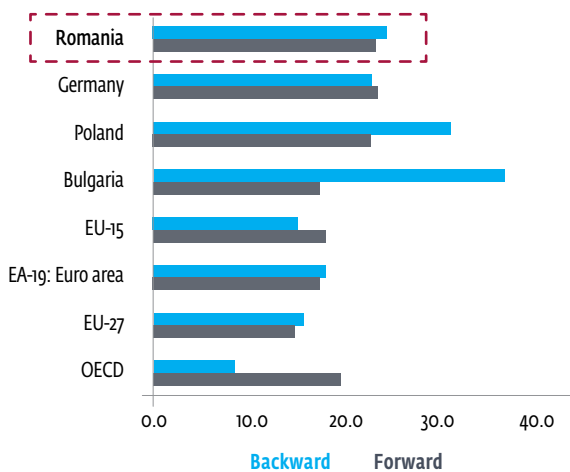
Romania has strong backward and forward linkages with global value chains (GVCs) (Figure 13). Backward integration indicates the use of imported inputs for the production of exports (e.g., importing car parts to assemble cars for export); while forward integration indicates that a country provides raw materials or parts to which its export partners add value. Romania's GVC integration is comparable to Germany's, and exceeds the EU-27 and OECD averages. Export intensity (i.e., exports as a percentage of turnover, Figure 14) is highest in manufacturing, but ICT is catching up. As discussed in the Opportunity Highlight 2, other service sectors have ample room to grow. Consistent with international trends, large firms are more likely to export than small firms in both services and manufacturing.

FIGURE 12 FOREIGN TRADE, PERCENTAGE OF GDP



Source: CPSD team based on Eurostat.

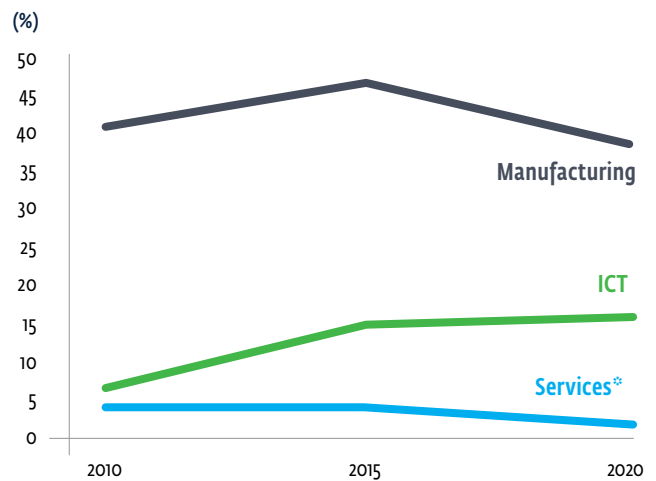
FIGURE 13 ROMANIA IS WELL INTEGRATED IN INDUSTRIAL GVCs



Source: OECD TiVA.

Note: Backward: Foreign value-added share of gross exports, by value-added origin country. Expressed as foreign value-added from partner country p embodied in the gross exports of country c, as a percentage of country c's total gross exports. Forward: Domestic value-added in foreign exports as a share of gross exports, by foreign exporting country. Expressed as domestic value-added from country c embodied in the gross exports of foreign country p, as a percentage of country c's total gross exports.

FIGURE 14 EXPORT INTENSITY IN ROMANIA IS HIGHEST IN MANUFACTURING, AND GROWING IN ICT



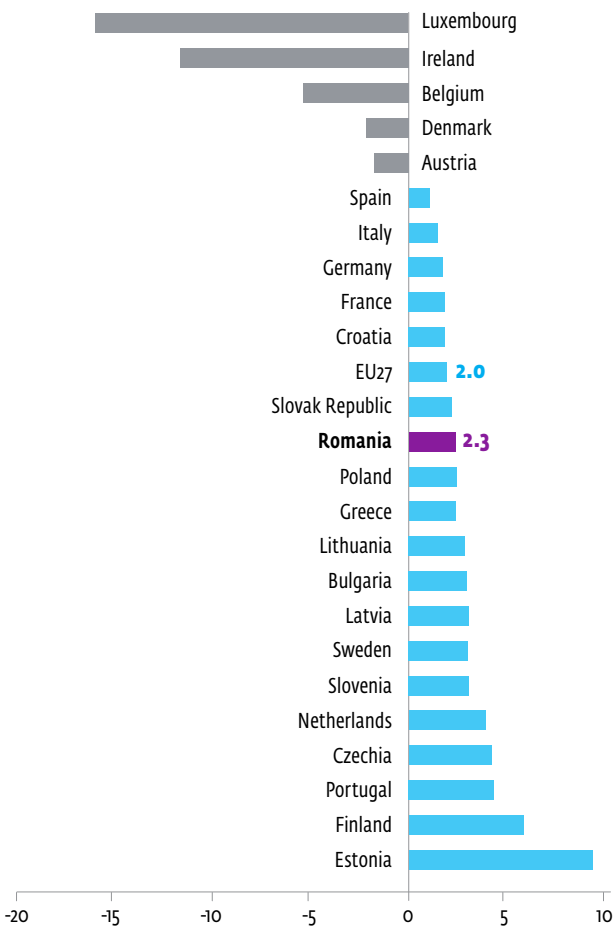
Source: Romanian National Statistical Office.

Note: Export intensity calculated as ratio between direct exports and turnover, in percent

* Services include wholesale and retail trade; repair of motor vehicles and motorcycles; transportation and storage; accommodation and food services.

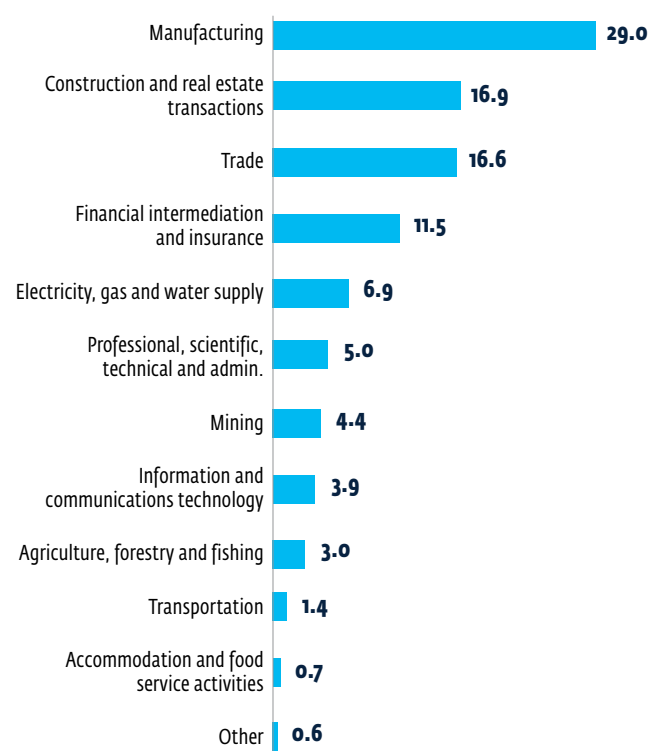
In 2019, net FDI into Romania as a share of GDP was above the EU average, but FDI stock was significantly lower than EU levels and concentrated in broadly low-innovation activities. Three-quarters of FDI inflows come from EU countries, and almost one-third goes into the manufacturing sector. The Bucharest-Ilfov region receives 60 percent of all FDI, with no other region accounting for more than 9 percent. Romania’s FDI stock is almost three times lower than the EU average, and most of it is in low-innovation activities (likely held back by Romania’s overall lower innovation and skills availability compared to other EU member states – please see Chapter 3), such as manufacturing, construction, and trade (Figure 16)—although certain manufacturing subsectors include more advanced firms.

FIGURE 15 FDI (NET) FLOWS, % OF GDP, 2019



Source: CPSD team based on National Bank of Romania, World Development Indicators.

FIGURE 16 FDI STOCK BY MAIN ECONOMIC ACTIVITY (% OF TOTAL), 2019

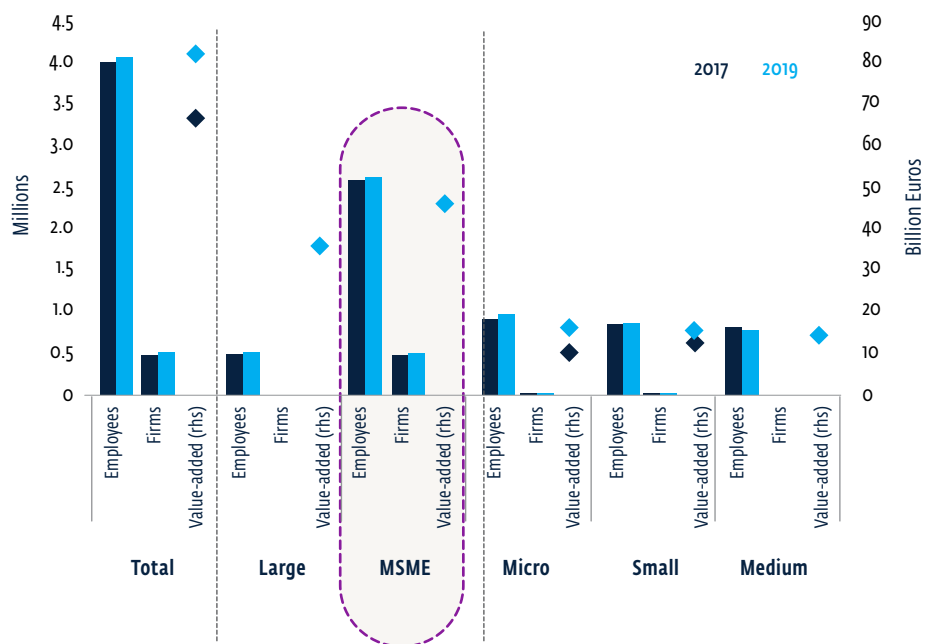


Source: CPSD team based on National Bank of Romania, World Development Indicators.

The private sector is primarily composed of MSMEs, which have room to become more dynamic and productive

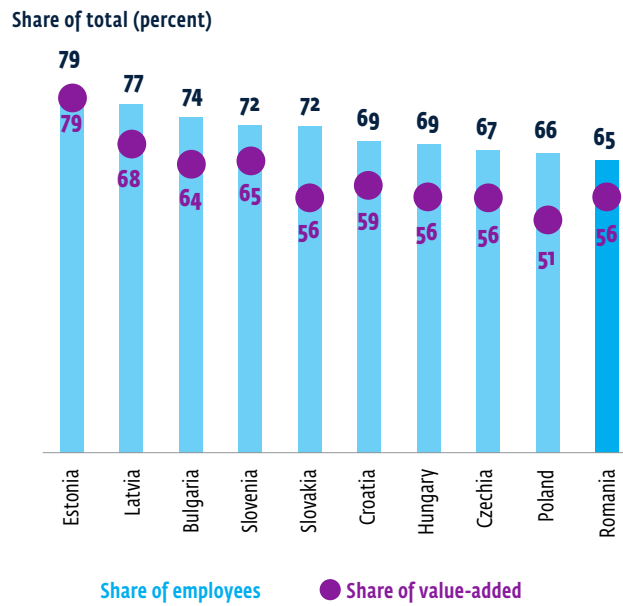
The role of MSMEs in Romania’s economy, albeit significant, is smaller than in its regional peers, in part due to constraints in the enabling environment. MSMEs account for about 65 percent of employment and 56 percent of value-added in Romania (Figure 17), in line with EU averages but less than in regional peers—for example, MSMEs represent almost 80 percent of employment in the Baltic countries, and 68 percent in Poland and the Czechia (Figure 18). Romanian MSMEs are disproportionately affected by constraints in the business environment and in access to finance, as discussed in more detail in Chapter 3. Nevertheless, micro-firms displayed a higher growth in value-added between 2017 and 2019 than small firms.

FIGURE 17 MSMEs ACCOUNT FOR MOST OF EMPLOYMENT IN ROMANIA



Source: CPSD team based on Eurostat data.

FIGURE 18 SHARE OF MSMEs IN EMPLOYMENT AND VALUE-ADDED, 2019

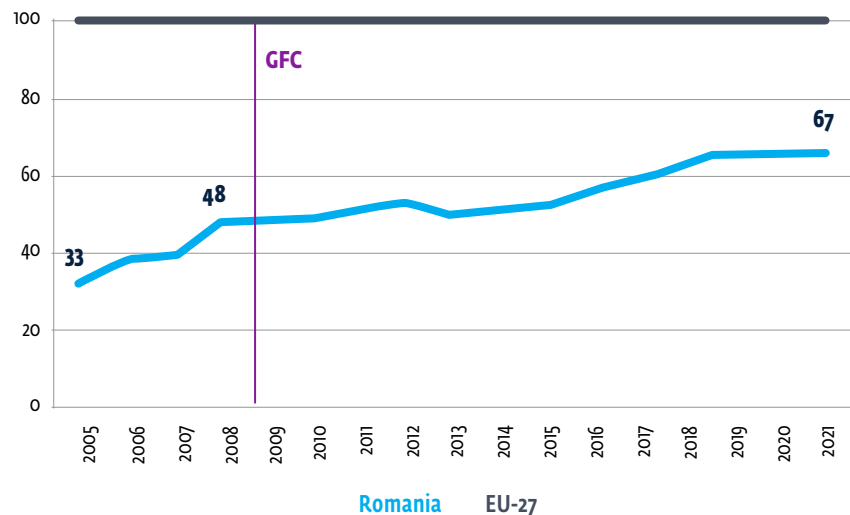


Source: CPSD team based on Eurostat data.

Productivity has been on the rise, but faces major constraints

Labor productivity in Romania has been rising since the mid-2000s, but its growth slowed after the global financial crisis of 2008, and as of 2021 it remained 33 percent lower than the EU average in PPP terms (Figure 19). Progress toward closing the gap is complicated by skills shortages and mismatches, and by low labor force participation rates—especially among women, the Roma population, and the rural poor.

FIGURE 19 LABOR PRODUCTIVITY HAS BEEN CATCHING UP WITH THE EU AVERAGE, BUT A 33 PERCENT GAP REMAINS



Source: CPSD team based on Eurostat.

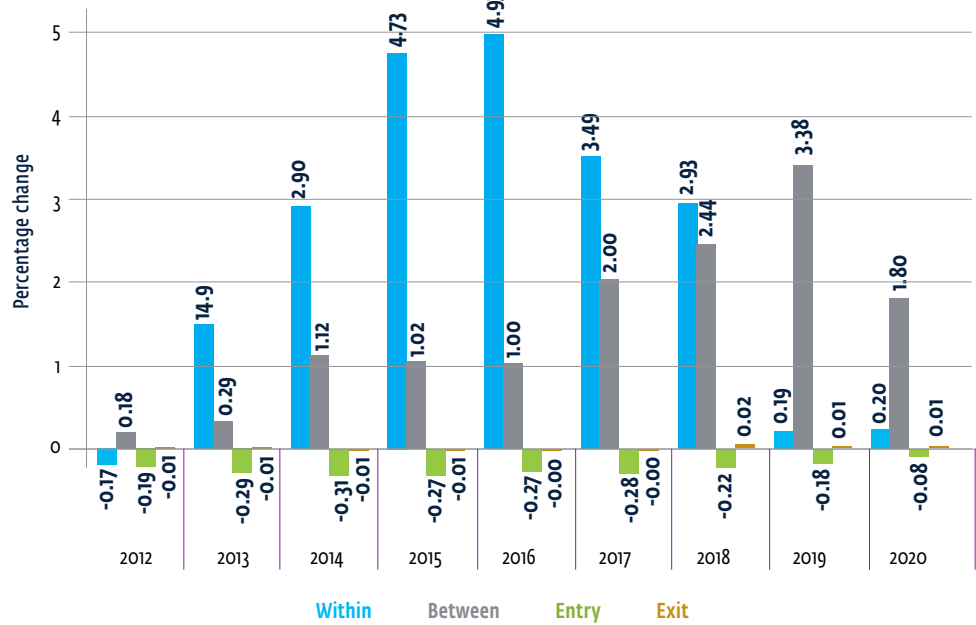
Note: Labor productivity per person employed and hour worked (EU27_2020=100)
 GFC=Global Financial Crisis.

Aggregate productivity gains in recent years largely stem from improved allocative efficiency, whereby productive firms have increased their market share. Aggregate productivity, measured as total factor productivity (TFP), can be interpreted as the portion of firm-level value-added that cannot be explained by growth in the quantity of inputs used (in this case, capital and labor). TFP is determined, for instance, by innovation, improvements in work organization, and upgrades to managerial skills. TFP growth in Romania has been mainly due to firm-level productivity improvements (within-firm growth), and to greater allocative efficiency that has enabled high-productivity firms to increase their market share (between-firm growth)—with the latter component especially relevant over the past decade. Moreover, high-productivity firms can enter the market (entry), and less successful establishments can abandon it (exit), forming the net entry component of TFP—but this aspect has been less crucial to recent productivity growth in Romania (see Figure 20 and Figure 21).

TFP growth in both manufacturing and services has been strong over the past decade, but as of 2018, firm-level efficiency improvements had almost come to a halt (Figure 20 and Figure 21). This indicates a need for policies that incentivize Romanian firms to continue improving their capabilities, e.g., through digitalization, the build-up of innovation capacity, and upgrades to managerial skills. In services, on the other hand, less-productive firms have been gaining market share in recent years, highlighting market inefficiencies. This may have been due to incentives benefiting small, less-productive firms (e.g., public programs targeting SMEs); another possible explanation is that services firms are usually less exposed to foreign competition, while having to comply with more rigid product market regulations (e.g., in the highly regulated ICT sector, which includes firms such as internet providers and mobile network operators).

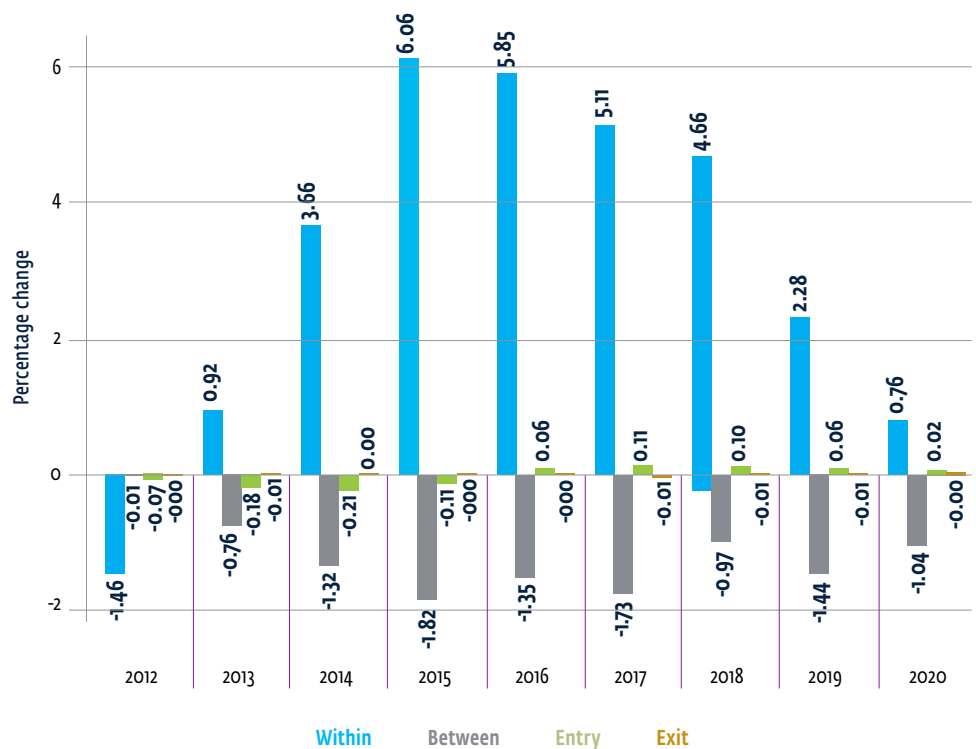
Lack of digital and overall skills, brain drain, and shortcomings in the business environment are major and intertwined challenges to productivity growth in Romania. Within the EU, Romania has the lowest shares of people with at least basic digital skills and tertiary education graduates, but also some of the highest rates of penetration of high-speed internet and an above-average number of ICT graduates. This points to a large potential for TFP growth through digitalization and human capital development, which however remains largely untapped. Moreover, shortcomings in the enabling environment (e.g., burdensome licensing and permit regulation, legislative instability, and prevalent corruption) limit TFP growth by constraining the entry of new firms, extending the life of unproductive or insolvent firms, and hampering the country's ability to retain qualified graduates as potential entrepreneurs. These cross-cutting challenges will be discussed in greater detail in Chapter 3.

FIGURE 20 DECOMPOSITION OF MANUFACTURING TOTAL FACTOR PRODUCTIVITY (TFP)



Source: World Bank elaboration based on data from Romanian Ministry of Fitz-Polanec method (Melitz and Polanec, 2015), smoothed out to show annual change.

FIGURE 21 DECOMPOSITION OF SERVICES SECTOR TFP



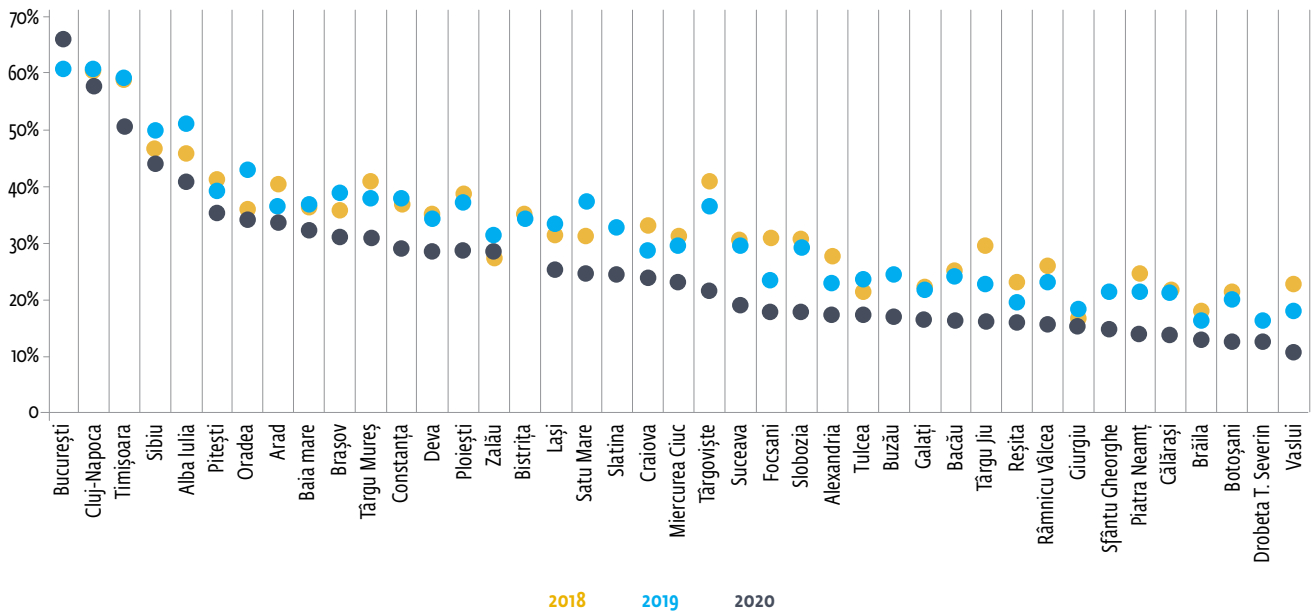
Source: World Bank elaboration based on data from Romanian Ministry of Fitz-Polanec method (Melitz and Polanec, 2015), smoothed out to show annual change.

Regional divides remain a challenge

Despite strong growth and progress on income convergence with the EU, poverty reduction has been slowed and social and regional divides are stark and widening. 18 out of Romania's 42 counties are considered lagging, with GDP per capita lower than 75 percent of the national average. According to Eurostat, GDP per capita in all of the country's Nomenclature of Territorial Units for Statistics (NUTS)-2 regions, with the sole exception of Bucharest–Ilfov, is lower than 60 percent of the EU average, and only 34 percent in the North-East. Disparities in living standards between urban and rural areas are especially striking: the urban-rural income gap is the second highest in the EU, with the mean urban income almost 50 percent higher than the mean rural income. Many communities throughout the country (including a disproportionate share of the Roma) have limited-to-no access to basic services such as piped water, sanitation, internet, or electricity. The uneven quality of education risks perpetuating these divides and undermining Romania's future competitiveness: while the education system produces many excellent professionals who succeed at home and abroad, 40 percent (and potentially 50 percent following the pandemic) of 15-year-olds are functionally illiterate and ill-prepared for future labor market demands. Moreover, social segregation has been increasing, with poor students more likely to attend low-quality schools.

The COVID-19 pandemic has exacerbated social and regional gaps. In 2019, the poverty rate in the North-East region was already 14 times higher than in the capital region (42 percent versus 2.9 percent).²⁹ In this context, pre-existing gaps have made compliance with COVID-19 requirements harder for marginalized people and groups. For example, lack of easy access to water has made it difficult for some communities to comply with hygiene recommendations, while overcrowded dwellings compromised their ability to follow distancing and isolation recommendations. Among poorer groups, limited access to computers and a fast internet connection has made it harder to work, study, and interact with authorities from home, the Romania SCD update finds that while distance from the workplace and limited availability of transportation forced some to stop working. Government social assistance programs have only partially offset these losses, while poor communities have been less likely to benefit from support initiatives at the local level.

Disparities in business development opportunities within the country are wide. On the Romania Aspen Institute's Local Business Environment Index (LBEI), the best-performing municipality (Bucharest) obtained a score nearly seven times higher than the worst-performing one (Vaslui). Other financial indicators and regional statistics also point to major differences across counties in the quality of the business environment, and the capacity of the public administration to leverage the private sector to improve the delivery and reduce the cost of services. The digital and green transitions may further deepen such regional inequalities—e.g., by constraining business development opportunities in regions where the prevalent activities produce high levels of CO₂ emissions, or that have limited capacity to absorb additional EU funds.

FIGURE 22 RANKING OF MUNICIPALITIES ON LOCAL BUSINESS ENVIRONMENT INDEX (LBEI) 2018-2020

Source: Aspen Economic Opportunities and Financing the Economy Program, 2018. "Economic Development and Opportunities in Romania: Local Business environment Index (LBEI)", https://aspeninstitute.ro/wp-content/uploads/2018/10/WHITE-PAPER_Economic-Opportunities-Program_2018.pdf.

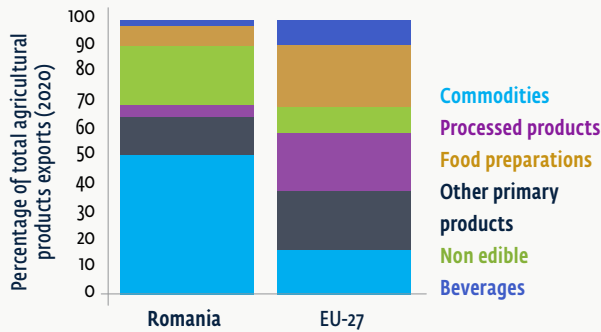
Opportunity Highlight 3: Resilient and Climate-Smart Agriculture that Adds Value

Consolidating farms and addressing major bottlenecks could boost agricultural value-added

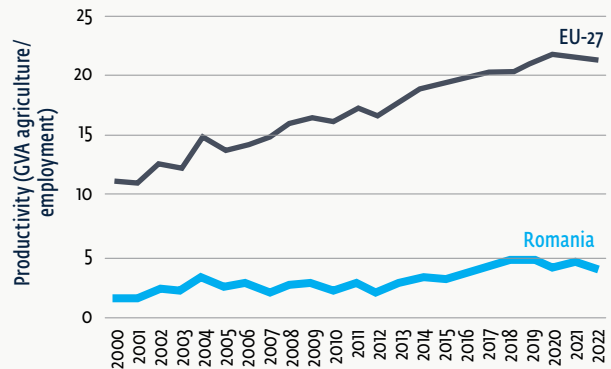
Agriculture remains an important sector of the economy and a large employer in Romania. Agriculture accounted for 4.5 percent of GDP and a fifth of the labor force in 2022. Both shares have been decreasing over time, but the former remains the second highest in the EU, and the latter is still significantly above the EU average.

The share of exports of processed agricultural products is low in Romania compared with the EU-27, indicating scope for increasing value addition. Romania's agricultural exports largely consist of primary, unprocessed products (e.g., corn and wheat). At the same time, Romania imports processed foods and beverages, primarily from the EU, for domestic consumption.

Agricultural productivity in Romania is significantly lower than the EU average, and the gap is not showing signs of closing. Romania ranks poorly in the EU on agricultural labor productivity and land productivity (in output per hectare). Despite a sustained structural transformation and modernization efforts, the pace of growth of agricultural productivity has been slow, amounting to one-quarter of the EU average. Notably, the yields for staple cereals in Romania are below the EU average. This large productivity gap showcases opportunities for income growth, poverty reduction, and social inclusion through targeted rural development policies.

FIGURE OH 3.1 THE SHARE OF EXPORTS OF PROCESSED AGRICULTURAL PRODUCTS IS LOW IN ROMANIA

Source: Eurostat, INS.

FIGURE OH 3.2 AGRICULTURAL PRODUCTIVITY IN ROMANIA IS SIGNIFICANTLY LOWER THAN THE EU AVERAGE

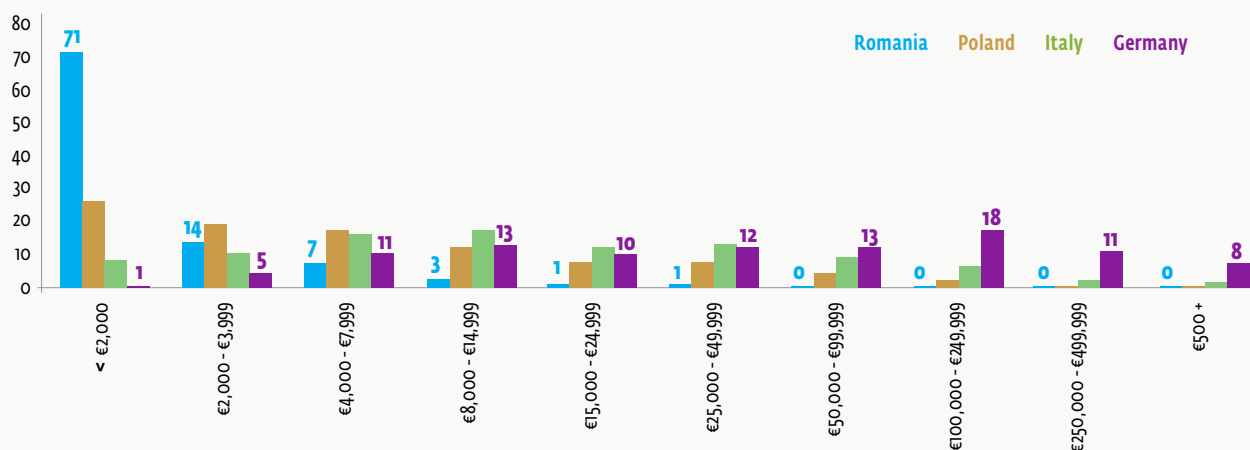
Source: Eurostat, INS.

Romania has not yet established a viable, commercially oriented, mid-sized family farming sector, although a degree of restructuring is underway. In contrast with its main EU competitors, Romania's agricultural sector is split between large corporate farming entities and a plethora of smallholder farms. More than 90 percent (2.88 million) of all farms do not exceed 5 hectares, covering 22.8 percent of the utilized agricultural area. Correspondingly, in 2020, about 70 percent of Romanian farms had an annual output of less than €2,000 and only 1 percent of more than €50,000 (Eurostat);³⁰ for comparison, about 50 percent of German farms produce more than €50,000 in output per year. Farm consolidation is occurring, but at a slow pace. Average farm size increased from 3.45 hectares in 2010 to 4.42 hectares in 2020, still well below the EU average.

Addressing key constraints can boost productivity and value addition. Many farms operate on a subsistence or semi-subsistence basis, and suffer from poor asset endowment, scarce use of fertilizer, underinvestment in mechanization due to limited access to finance, lack of specialized skills, impediments to technology adoption, low economies of scale, and infrastructural and geographical barriers that hinder access to markets. Agri-finance has registered some growth over the past decade, but it is necessary to invest more and work with non-traditional agri-finance investors to reach more small farmers. Agricultural research and development is supported and directly conducted by public entities—including 17 agricultural R&D institutes and centers, and 51 agricultural R&D stations—but generally suffers from underinvestment. These constraints inhibit the growth of agricultural productivity and rural incomes, contributing to poverty and social exclusion in rural areas.

The next generation of younger, more educated farmers could transform Romanian agriculture, with targeted government support. Human capital is a major constraint to labor and land productivity in Romania's agriculture. As outlined in the Romania SCD Update (2023), approximately three-quarters of the rural population and four-fifths of agricultural workers have no formal education or have only completed primary education. The ageing of the farming population will lead to a major shift in farm ownership and management, and likely redefine the sector. Large farms are already more likely to be managed by young farmers, and it is estimated that three-quarters of the utilized agricultural area will be transferred to a new generation of owners/farmers over the next 15-20 years (World Bank, 2015). This structural change may boost land consolidation, enabling a significant increase in the number of medium-sized and large commercially viable farms. Such transformation, however, hinges on support from government policy (e.g., support to rural development, financing) and the regulatory environment (e.g., enhancements to the farm registry and land markets). Major efforts to this effect are underway.

FIGURE OH 3.3 DISTRIBUTION OF FARMS BY STANDARD OUTPUT (IN % OF TOTAL FARMS), SELECT EU COUNTRIES, 2020



Source: Eurostat

Climate change: moving toward low-emissions, resilient agriculture

The impacts of climate change will require adaptation and resilience in agriculture. Climate change is expected to exacerbate the incidence of floods and droughts and the severity of soil degradation, affecting rural livelihoods through reduced agricultural productivity and loss of assets from natural disasters. Livestock and crop production bear approximately 80 percent of the damage and loss caused by droughts, while 25 percent of the damage and loss from all climate-related disasters falls on the agricultural sector (FAO, 2015). Small land holders are particularly vulnerable to the effects of climate change, because of their limited technical and financial resources and constrained access to modern farming techniques for adaptation (World Bank, 2015b). Romania has already been experiencing the impact of climate change, including major floods and droughts, over the past two decades.

Water management, including investment in irrigation, can yield a double dividend: higher productivity, and a pathway for climate change adaptation. The vulnerability of Romanian agriculture to climate change stems from its fragmented land holdings, inadequate agricultural extension services, lack of a modern and efficient irrigation/drainage system that could reduce dependency on rainfed production, and poorly developed ICT systems to provide advisory and support services to farmers—particularly to smallholders who lack the financial and technical capacity to access these services through traditional market channels. Efficient water management in agriculture, including through irrigation, remains a key adaptation pathway, but is also necessary for efficient crop farming. Selecting climate-change resistant crops and optimizing the use of fertilizer are also important tools. The yields of climate-change resistant crops are up to 10 percent higher than those of rainfed crops, while optimizing fertilizer application drives up yields by between 4 and 70 percent, depending on irrigation availability, regional climate, and type of crop.

Rural development strategies to modernize agriculture are critical to boost resilience. Such strategies should focus on putting in place high-quality innovation, knowledge, and extension networks to mainstream climate adaptation knowledge and technologies; facilitating access to financing for farm modernization and/or consolidation; expanding early warning systems; as well as facilitating access to insurance products for all farmers.

Over time, agriculture will play an essential role in ensuring that Romania can meet its emissions targets under the EGD. Agriculture accounted for 17 percent of Romania's total GHG emissions in 2020. This share has declined by more than 50 percent from 1989 levels,³¹ among trends including a drop in livestock production (particularly for cattle and pigs), a reduction of the area allocated to rice cultivation, and lower use of nitrogen-based fertilizers. However, emissions could increase due to the potential expansion of the sector in response to opportunities in global markets, unless appropriate mitigation measures are implemented. Notably, agriculture offers significant opportunities for carbon removal, via improved soil management and nature-based solutions.

Certain emissions from agriculture are difficult or costly to abate, but potential solutions exist. About 47 percent of agricultural emissions in Romania come from crop production, and about 50 percent from livestock via enteric fermentation (39 percent) and manure management (11 percent). The mitigation of emissions from crop production and manure management has relatively straightforward technological solutions, with abatement costs and benefits that can be reasonably forecast.³² On the other hand, mitigating emissions from enteric fermentation requires investment into and coordination of a range of methodologies, including: optimizing feed digestibility and availability; balancing feed rations; promoting better animal health; targeted breeding; and improving pasture management.

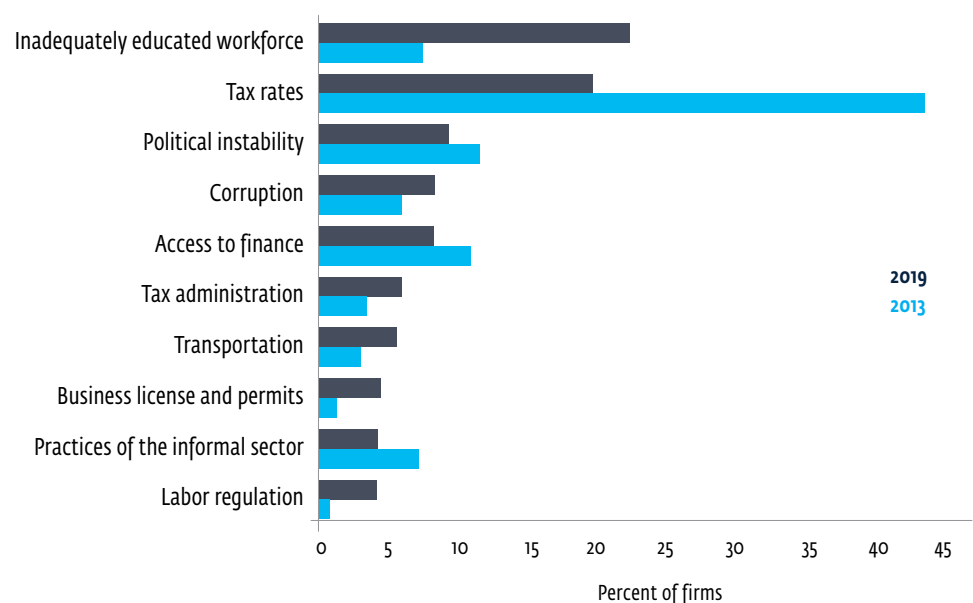
Efficient institutions that support innovation, the generation and dissemination of knowledge, and the adoption of relevant technology are paramount. A public-private network of collaboration and services is key to identify needs, and transfer and apply knowledge to accelerate progress and complement financing of climate-smart investments. In addition, national R&D institutions should be empowered to apply localized research on options for mitigation and adaptation, while monitoring the impacts of improved practices that can benefit farmers (in terms of productivity, cost efficiency, and reduced losses) and the environment (e.g., reduced GHG emissions, and better quality of soil, surface water, and groundwater).

3. CROSS-CUTTING CONSTRAINTS TO PRIVATE SECTOR GROWTH

Inter-related gaps inhibit productivity growth and weaken firm-level incentives to innovate

Romanian businesses face multiple constraints to growth, from a lack and mismatch of skills to governance challenges and shortcomings in the enabling environment (Figure 23). Governance and institutional constraints, red tape, ever-changing regulation, and a disproportionate role of SOEs in the economy are well-documented issues (Section 3.3). An inadequately educated workforce has shot up the list of most-cited constraints to business, with 22 percent³³ of Romanian firms (and 30 percent of medium-sized and large firms) already deeming it a key impediment before the pandemic—see section 3.1 for more detail.³⁴ Shortcomings in key enablers of economic activity—such as access to finance and transportation—are also major barriers and are discussed in chapters 5 and 6. Moreover, key recommendations to address the cross-cutting constraints outlined below have been presented in Figure ES.1.

FIGURE 23 PERCEIVED OBSTACLES TO BUSINESS IN ROMANIA, 2013 AND 2019



Source: World Bank Enterprise Surveys 2013, 2019.

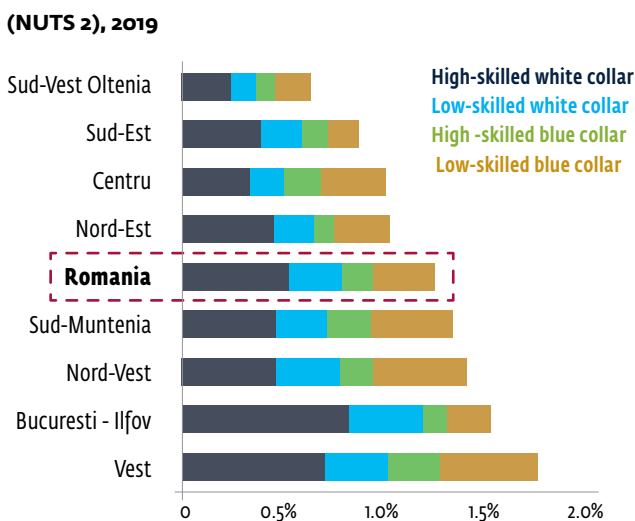
3.1 SKILLS SHORTAGES AND MISMATCHES ARE THE KEY IMPEDIMENT FOR FIRMS

Finding the right people is increasingly difficult

The combination of a fast-growing economy, one of the highest rates of migration in the EU, and challenges in the education system have turned the skills gap into the key impediment to private-sector development. As of 2019, an inadequately educated and shrinking workforce had become the top constraint experienced by Romanian firms (Figure 23). Romania’s population has been decreasing due to ageing and emigration, and the working-age population (20-64 years old) is projected to shrink by an estimated 7.5 percent by 2025 from 2019 levels, with another 3 percent drop between 2025 and 2030. The brain drain has had a major impact in key sectors, as Romanian migrants tend to be younger and better educated than those who stay in the country. At the same time, the labor force participation rates among women and the young are some of the lowest in the EU. The gender gap in labor force participation is the largest in the EU, and the female entrepreneurship is undercapitalized in Romania, with disparities in self-employment rates across genders and with only 17.2 percent of companies having a female top manager - see Romania Gender Assessment (forthcoming) for more details. Inefficiencies in the education system, unfavorable attitudes to lifelong learning, and ineffective vocational training and active labor market policies combine with brain drain to cause skills shortages and mismatches, which reduce innovation capacity as well as growth and earnings potential (see Romania SCD 2023 Update).

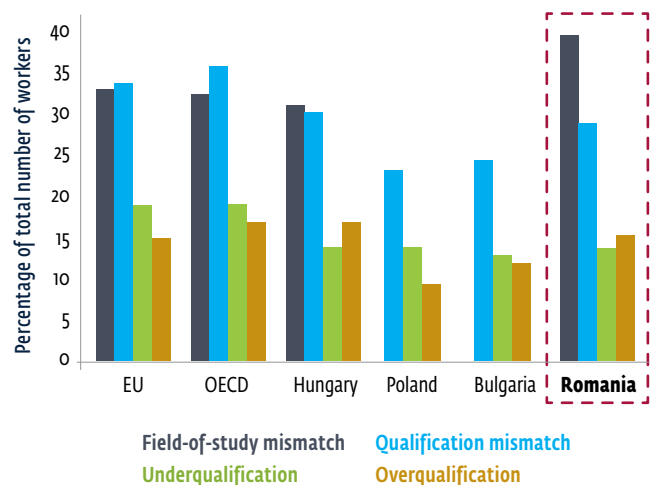
Even before the pandemic, businesses were struggling to find any workers, let alone the right ones. Vacancy rates nearly doubled between 2013 and 2019, highlighting the difficulties employers faced to fill open positions. As of 2019, vacancy rates were high across skills groups (Figure 24), although with considerable regional differences. At a sectoral level, 51 percent of industrial companies were suffering from skills shortages, versus 40 percent of companies in agriculture and services (NBR, 2019).

FIGURE 24 VACANCY RATES HAVE BEEN HIGH ACROSS SKILLS GROUPS, SIGNALING A SHORTAGE OF WORKERS



Source: Eurostat.
Note: Data for 2017.

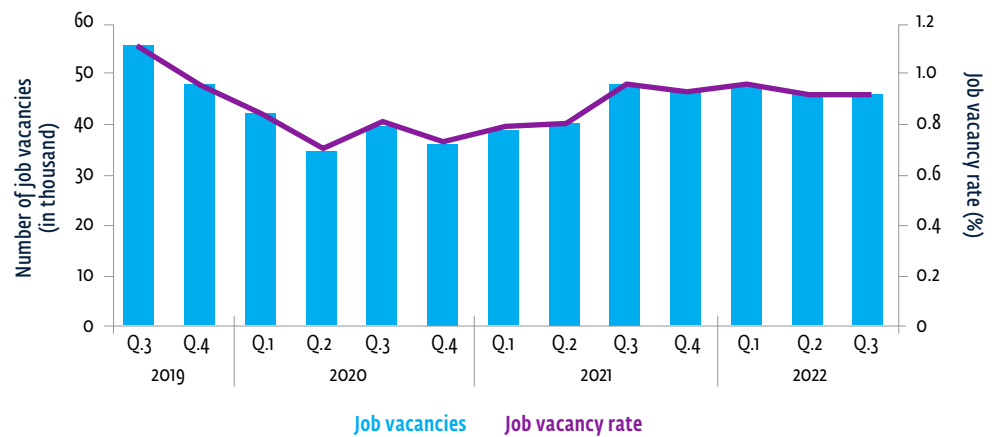
FIGURE 25 WIDE SKILLS MISMATCHES EVIDENCE DIFFICULTY IN HIRING THE RIGHT PEOPLE



Source: OECD.
Note: Data for 2021.

In this context, the pandemic brought disruption from which the labor market is yet to recover. Eurostat data shows that in 2021, the number of people employed in Romania was almost 11 percent lower than in 2019, while the number of unemployed was more than 7 percent higher. Similarly, job vacancies remain below 2019 levels, and job creation in lagging regions has especially suffered. At the same time, certain sectors—such as ICT—are still creating jobs at a relatively high rate.

FIGURE 26 JOB VACANCIES HAVE NOT YET MATCHED THEIR PRE-PANDEMIC PEAK



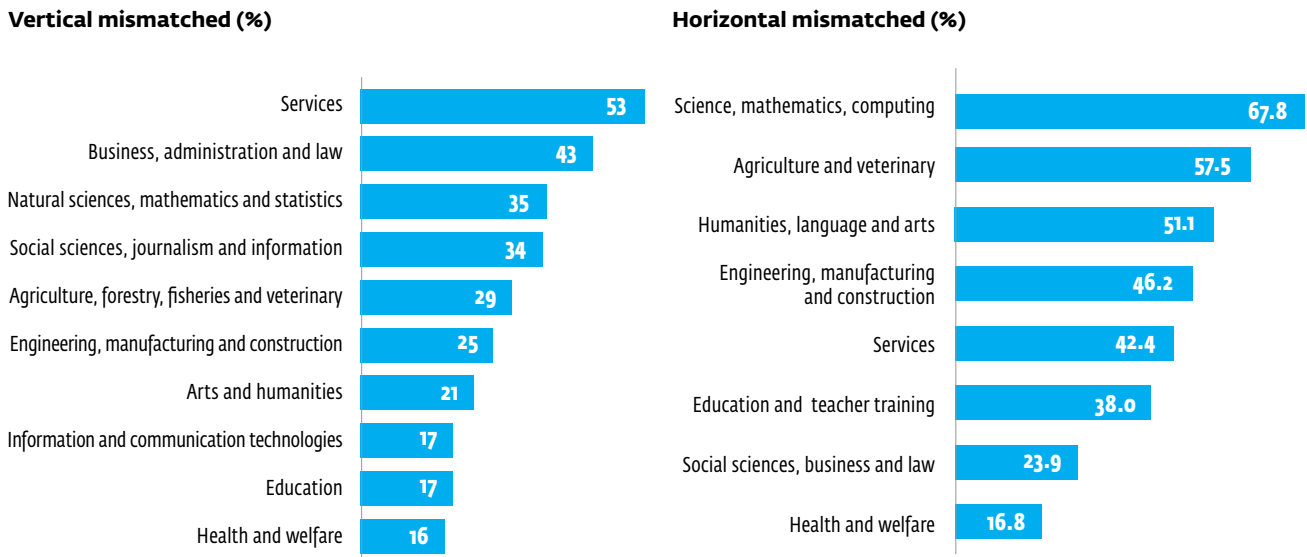
Source: Romania National Institute of Statistics, 2022.

Although unlikely to be unemployed or inactive, tertiary education graduates are frequently overeducated for their occupation, or working in a sector that does not match their field of education. More than one-third of tertiary education graduates working in i) services, ii) business, administration, and law, iii) natural sciences, mathematics, and statistics, and iv) social sciences and journalism are overeducated for their occupation (vertically mismatched). Meanwhile, more than half of those employed in i) science, mathematics, and computing; ii) agriculture and veterinary; and iii) arts and humanities work in a sector that does not match their field of education (horizontally mismatched). Health and welfare is the only sector where both vertical and horizontal matching appear satisfactory.

Firms can do more to close the skills gap, by incentivizing lifelong learning and training their workforce

The deficiencies of the education system are at the root of Romania's skills shortage. Before the COVID-19 pandemic, Romania was already struggling to consistently provide high-quality education, and faced several challenges in human development. Romania has the lowest score in the EU on the Human Capital Index (HCI)—0.58—meaning that children born in Romania today will be 58 percent as productive when they grow up as they could be if they received full education and healthcare.³⁵ As outlined in the Romania SCD Update, in the wake of the pandemic, an estimated 50 percent of school graduates are functionally illiterate, up from an already considerable 40 percent pre-pandemic.

FIGURE 27 A HIGH PROPORTION OF EMPLOYEES EDUCATED TO TERTIARY LEVEL IS EITHER VERTICALLY OR HORIZONTALLY MISMATCHED



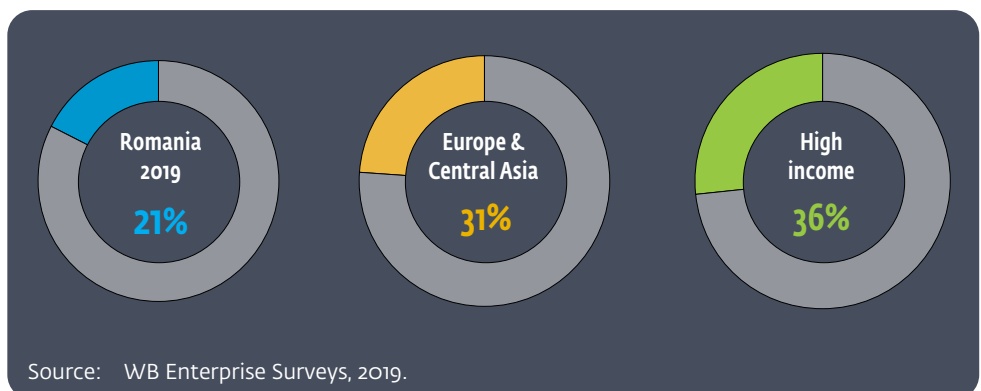
Source: Labor Force Survey.

Note: Vertically mismatched= the level of the employee's qualification is not the one required by the job. Horizontally mismatched= the level of the employee's qualification is of the correct level for the job, but the type of the qualification is not.

In addition, Romania has the lowest rate of participation in lifelong learning in the EU, due to both cultural and systemic barriers. Around 1 percent of those aged 25-64 participate in adult learning activities, well below both national targets and the EU average of 9.1 percent. In Romania, lifelong learning does not usually unlock salary or career progression, nor is it valued on a personal level, especially among those aged over 40. Vocational education and training (VET) has gained public attention over the last decade due to the country's labor shortages, but its quality is suboptimal.

Finally, Romanian firms invest little in skills formation. Only 21 percent of firms offer formal training to their employees—considerably below the averages of both the ECA region (31 percent), and of high-income countries (36 percent) (Figure 28).

FIGURE 28 FEW ROMANIAN FIRMS PROVIDE FORMAL TRAINING TO EMPLOYEES, COMPARED WITH ECA AND HIGH-INCOME COUNTRIES



The digital and green transitions risk deepening the skills gaps

The Romanian workforce has lower levels of digital and soft skills relative to EU standards and is far from ready for a more innovative economy. The EU's 2022 Digital Economy and Society Index (DESI), whose human capital dimension provides comparative data on digital skills in member states, shows that less than 30 percent of Romanians—the lowest share in the EU—have basic or better digital skills, compared with 54 percent in the EU as a whole, and 79 percent in Finland. Although the ICT sector has evolved into a large contributor to the country's GDP (with the sector now accounting for 7 percent of GDP – among the highest in the EU), as of 2018 only 5 percent of Romanian employers provided digital training opportunities to their employees, versus 23 percent in the EU. Moreover, in 2017 Romania had the lowest share in the EU of ICT specialists relative to all employees (2.1 percent). Soft skills such as interpersonal and communication abilities—highly complementary to digital skills from a business perspective—are in high demand, but neither the education system nor the vocational training system focus on them. There is room for the private sector to help address these gaps, especially as the formal education system will struggle to compensate for the additional learning losses caused by the COVID-19 pandemic.³⁶

Romania's skills stock will require upgrades for the country to remain competitive through the green transition. Regionally, the green transition may be accompanied by job losses in brown sectors that are phased out (e.g., coal).³⁷ New, greener industries may demand different skills or be located in different areas, entailing a need for labor mobility (which is low in Romania, given a lack of transport connectivity between regions and between urban and peri-urban localities as highlighted in the Romania SCD Update (2023)) and skills up-grading or re-training (both of which are sub-par in the country). Recent analytical work (i.e. Poland CEM 2022 and the forthcoming Romania CDR) suggests that greener jobs demand more of the higher skills already in short supply in Romania, which may deepen the skills deficit and hamper the green and digital transitions. Box 2 proposes some measures that could facilitate these transitions, particularly for women.

BOX 2 FACILITATING THE LABOR MARKET TRANSITION FOR WOMEN

Workers in brown sectors need well designed reskilling and retraining programs to cope with the green transition. Vandeplas et al. (2022) find that Romania is one of the three most expensive EU countries when it comes to re- and upskilling workers, with a cost of between €600 and €750 per worker. Romania has implemented some measures to minimize the welfare impacts of the phasing out of coal mining, including: efforts to reskill the workforce; promoting entrepreneurship and SME diversification; creating business incubators and supporting start-ups; fighting energy poverty; and enabling access to essential public services. Romania is part of the EU's Just Transition Mechanism, through which it has allocated €2.14 billion across six counties to mitigate the negative effects of the transition.

Involving female entrepreneurs and business owners in the green agenda could accelerate the green transition, and foster more inclusive and sustainable economic models. Only 40 percent of the Romanian self-employed were female as of 2020 (Robayo-Abril and Rude, forthcoming). Female entrepreneurs are more interested in "impact" or socially motivated entrepreneurship: 71.6 percent of

women report that they started a business to make a difference, versus 60.3 percent of men (Global Entrepreneurship Monitoring, 2022).

Targeted interventions can expand the role of female entrepreneurs and business owners in the green transition:

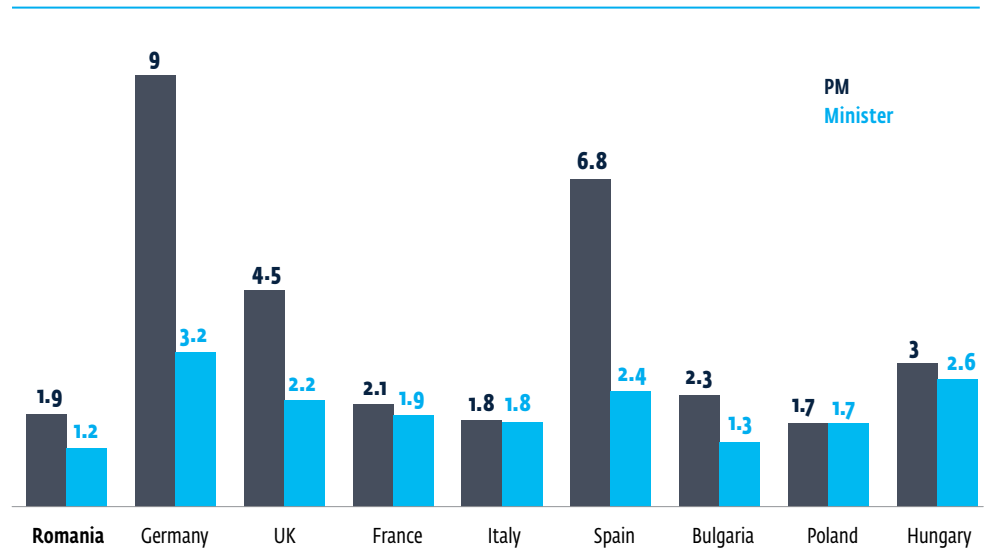
- Financial literacy training for women can help reduce gender gaps in financial inclusion. Those in the financial sector should receive training on gender inequalities in start-up and business funding.
- Expanded access to entrepreneurship-related assets, such as land ownership or digital skills, and decoupling lending criteria from land ownership could enhance women's access to credit, especially in the primary sectors.
- Enhanced norm-based interventions can help mitigate harmful gender norms.
- Investment in public childcare, fostering business models where work is compatible with care responsibilities, and applying gender-sensitive design to green transition training programs could incentivize female entrepreneurship.

3.2 GOVERNANCE AND BUSINESS ENVIRONMENT

A more predictable business environment would help unleash private sector potential

The unpredictability of the business environment, which stems from institutional constraints, is a significant challenge for the private sector in Romania. Romania's high degree of political volatility leads to constant change in priorities, discontinuity in reforms and regulations, and an uncertain and unpredictable environment that hinders public services provision and private sector development and investment (see Figure 29). An unpredictable policy and business environment is among the major constraints to long-term investment among businesses (Figure 23) and tends to affect MSMEs the most due to their lack of scale and resources. Poor institutional quality affects the allocation of productive resources, as entrepreneurs may devote greater efforts to obtaining licenses and preferential market access than to improving productivity. Although Romania has made progress in improving its business environment, many tasks (e.g., obtaining electricity supply and construction permits, navigating insolvency, protecting minority investors, and enforcing contracts) remain onerous for businesses. Romania also stands out for its restrictive regulation of professional, transport, and airline services. A more predictable legislative framework could boost domestic and foreign investment, while enabling productive and innovative Romanian firms to take full advantage of the EU single market.

FIGURE 29 AVERAGE EFFECTIVE TERMS OF PRIME MINISTERS AND CABINET MINISTERS (1990-2021, IN YEARS)—IN ROMANIA, THEY ARE AMONG THE SHORTEST IN THE EU



Source: National School of Political and Administrative Studies.

Inefficiency of the tax administration, perceived corruption, and political instability are other major constraints in the business environment. Romanian firms report that an estimated 18 percent of senior management’s time was spent on dealing with tax regulations as of 2018 (a figure that has risen since 2009), versus 13.5 percent on average in peer countries. However, Romania has made significant progress in recent years: the frequency of tax payments has been reduced from quarterly to biannual, and taxes can now be filed and paid electronically. But the size of the informal sector remains a major issue.

Governance deficiencies are often at the root of shortcomings in the business environment. Despite some positive steps in recent years, Romania still suffers from a governance deficit that hobbles its legal, regulatory, and institutional framework. Better e-government tools can help address certain obstacles (the country ranks 67th out of 193 on the UN E-Government Development Index) but overall government effectiveness is low, and broad reform is overdue. Please see Romania SCD Update for more details.

Romania’s current legal framework for PPPs requires optimization to involve the private sector in financing, developing, upgrading, and operating key infrastructure assets, where suitable. In certain infrastructural domains (e.g., aviation and railways) the private sector can help surmount funding gaps and improve efficiency, including through PPPs. This modality may also be well suited to delivering discrete assets with limited complexity and risks (e.g., waste treatment plants, cogeneration facilities), particularly at the municipal level, though with very careful considerations of subnational implementation capacity not to create contingent liabilities (see Box 3 and subsequent sections in the Part II of this report).

BOX 3 SHORT OVERVIEW OF PPP FRAMEWORK IN ROMANIA AND CURRENT CHALLENGES FOR APPLICATION

The legislative framework for PPPs in Romania is based on the Government Emergency Ordinance No. 39/2018 (the PPP Ordinance 2018). The PPP Ordinance 2018 was last amended through the Government Emergency Ordinance no. 7/2020, which assigned responsibility for PPP project procurement to the relevant line ministries and repealed a previous government decision to deliver 22 strategic projects as PPPs. The PPP Ordinance 2018 and its amendments cover all sectors and PPP models. The Public Investment Management Unit (PIMU) is the MOF's dedicated PPP unit, whose tasks include developing the PPP platform (which encompasses a communication channel about PPPs in Romania, and a PPP project database).

The framework set out in the PPP Ordinance 2018 regulates a number of critical areas such as: (a) the public partner's contribution (including EU funds) to construction financing being capped at 25 percent; (b) the non-availability for PPP projects of express exemption from rules pertaining to feasibility studies that are designed for public procurement projects (canceling thus one of the main benefits of PPPs); (c) the non-availability of an explicit provision that the public partner may make payments to the private partner/PPP company for unpredictable events during the construction phase (e.g., compensation/relief events) and (d) the obligation of the private partner to sign the PPP contract alongside the PPP company, which is not consistent with international best practice as PPPs are financed on a project finance, non-recourse basis, and the PPP company, not the sponsor, assumes all or most rights and obligations.³⁸

Romania lacks a strong pipeline of PPP projects, due to a combination of factors: (a) the availability of EU funds, which public entities often prefer relying on rather than seeking synergies with the private sector; (b) a lack of political support, as traditional public procurement is considered politically safer than PPPs; (c) capacity issues and insufficient institutional development; (d) shortcomings in, and frequent changes to, the relevant legislation and regulation. Although the PPP Ordinance 2018 has simplified the approval process, it does not empower the PIMU to issue binding secondary legislation or to control and approve the project's delivery. In the short term, this has resulted in significant independence for the procuring authorities. However, it may lead to inconsistencies between procuring authorities in the

application of the law, thus increasing political risk and potentially jeopardizing certain PPP projects. In addition, the capacity of PIMU is limited, and the unit needs a clear institutional mandate to comprehensively support PPP development, rather than a narrow focus on capacity building and management of the PPP platform. PIMU staff also require appropriate training and project experience.

Key infrastructure sectors in Romania could benefit from the PPP model. In renewable energy, Romania could benefit from investments in battery storage for at least 400 MW, which would support further development of RE while maintaining grid and frequency stability. Battery storage projects are unlikely to be developed on a fully commercial basis, given the current technology (though the recent expectations for electricity prices make such investments more viable) but piloting the short-term battery storage in form of a long-term contract, such as a PPP is an option that could be considered. Other sectors suitable to use the PPPs model include healthcare, transport (airports and ports concessions but also availability paid roads PPPs), Waste-to-Energy and water treatment. District Heating also offers a range of opportunities for the development of the PPP model at the municipal level in Romania, where municipal budgets have a debt ceiling which affects large-scale investments in services. PPPs would be especially valuable in the case of cogeneration and distribution of heating and electricity, which can deliver a degree of energy independence and security of supply. In the transport sector, PPPs could enable MOT and local authorities to capitalize on available land, combining the construction and modernization of railway stations with wider commercial real estate projects. Furthermore, a more stable environment ensured by the new PSC, the availability of new rolling stock, and the possibility for local authorities to invest in railway modernization can facilitate long-term PPPs for the development of metropolitan train systems, with private operators contributing to the costly upgrades of railway lines or the acquisition of additional rolling stock. PPPs could also support municipal infrastructure that might not be eligible for EU funds such as municipal projects enabling the connection of urban and suburban areas thus linking such projects with wider urban regeneration efforts.

3.3 COMPETITION

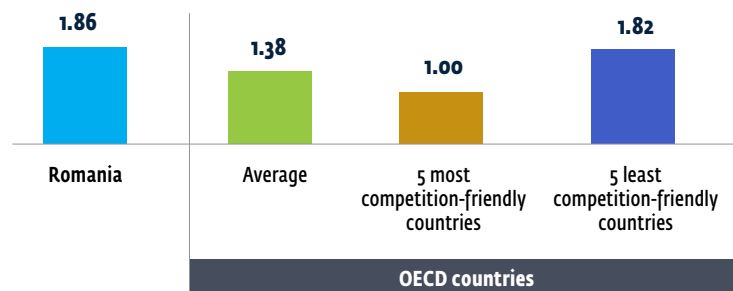
Overbearing SOEs in energy, transport, and other key sectors are a drag on competition

State control of the economy and barriers to entry and competition, especially in services, hamper competition in Romania. The OECD's 2018 Product Market Regulation (PMR) index—which captures state control, barriers to entry and to trade and investment—shows that state control over the economy in Romania is greater than in most OECD countries (Figure 30).³⁹ In addition, barriers to entry that could be removed to boost GDP growth include, among others: i) burdensome administrative procedures; ii) unnecessary entry requirements in road freight services and professional services; and iii) minimum and maximum prices for legal services, as well as recommended price guidelines for engineering and architectural services.

FIGURE 30 PRODUCT MARKET REGULATION (PMR) IN ROMANIA AND COMPARATOR COUNTRIES

Overall PMR indicator

Index scale 0 to 6



Source: OECD, 2018. 2018 Product Market Regulation Country.

Note: https://issuu.com/oecd.publishing/docs/rou_country_note_-_tot_final?fr=sMjAwMz-kzNTk1MQ

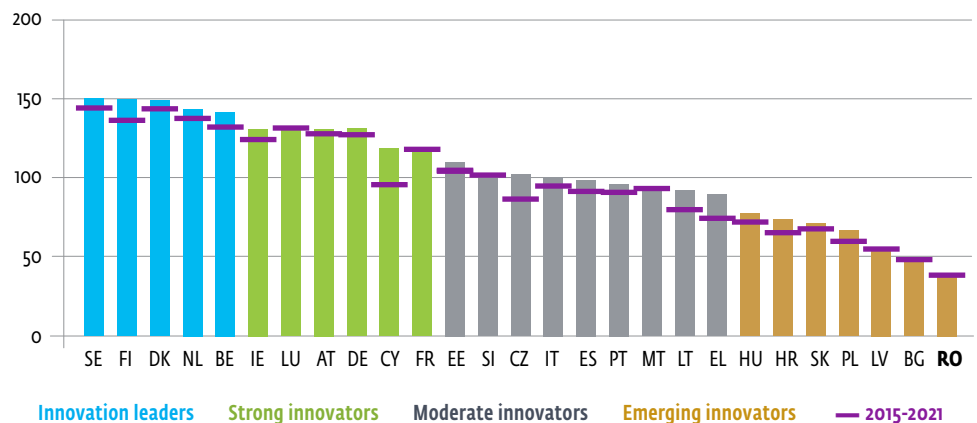
Moreover, Romanian SOEs do not compete on an equal footing with private firms, distorting market outcomes and hampering the efficient allocation of resources. Romania counts more than 1,500 SOEs, and at least one SOE operates in 23 out of the 30 sectors tracked in the OECD PMR indicators—for comparison, SOEs operate in 12 sectors in the Slovak Republic, 17 in the Czechia, 18 in Hungary, and 15 on average in the EU-15. Romanian SOEs are found not only in typical network industries, but also in sectors such as manufacturing of basic metals, shipbuilding, and hospitality, where state ownership does not necessarily have a clear economic or strategic rationale. Furthermore, the government is liable for losses in the railway sector; in the energy sector, it recently reintroduced price regulation, and reversed reforms toward full liberalization. While reforms are ongoing to align with the OECD standards, the regulatory framework features gaps in competitive neutrality, enabling the misallocation of resources and anticompetitive practices. Regulatory shortcomings include SOEs' exemptions from legal requirements on corporate governance, a lack of rules mandating the separation of commercial and noncommercial functions for SOEs, as well as the lack of a requirement for investments made by SOEs to show a positive rate of return. Implementation of the rules also suffers from fragmentation of SOEs oversight, inconsistent reporting, unclear terms of compensation for public service obligations, and poor transparency of state-aid allocation.⁴⁰

3.4 INNOVATION ECOSYSTEM

Lack of funding and skills limits Romania's innovative capacity

Romania's economy is limited in its innovative capacity, mainly due to chronic under-investment and shortages of skills. The EU Innovation Scoreboard considers Romania an “emerging innovator” and ranks it last in the EU, signaling a poor ability of Romanian firms to move up the value chain (Figure 31).⁴¹ Romanian firms underperform their EU peers in product and process innovation, marketing and organizational innovation, R&D innovation expenditure, patent applications, and ICT training. In 2021, the share of MSMEs introducing product or process innovations, marketing or organizational innovations, innovating in-house, or providing ICT training to their staff was well below EU levels, standing respectively at 4.9, 7.6, and 5 percent. Spending on R&D stood at 0.48 percent of GDP in 2019, well below a 2 percent target for 2020 and the EU average of 2.12 percent. The number of patent applications is also very low: in 2021, Romania had 2.79 patent applications to the European Patent Office (EPO) per million inhabitants—the fewest in the EU, and set against the EU average of 147.⁴²

FIGURE 31 ROMANIA'S RANKING ON THE EU INNOVATION SCOREBOARD, 2022



Source: The Digital Economy and Society Index (DESI), European Commission.

Note: SE=Sweden, FI=Finland, DK=Denmark, NL=Netherlands, BE=Belgium, IE=Ireland, LU=Luxembourg, AT=Austria, DE=Germany, CY=Cyprus, FR=France, EE=Estonia, SI=Slovenia, CZ=Czechia, IT=Italy, ES=Spain, PT=Portugal, MT=Malta, LT=Lithuania, EL=Greece, HU=Hungary, HR=Croatia, SK=Slovakia, PL=Poland, LV=Latvia, BG=Bulgaria, RO=Romania.

Romania has by far the lowest share of innovative enterprises in the EU. In 2019, 10 percent of Romanian firms had introduced a new or significantly improved product or service in the past 12 months, fewer than in regional peers such as Bulgaria, Hungary, or Poland. The innovation performance gaps between foreign-owned and domestic firms, and between firms in rural and urban areas, have remained large. Capacity for innovation is driven down by low buyer sophistication (price remains the key factor for most purchasing decisions in Romania), and the lowest levels in the EU of university-industry linkages and cluster development, despite significant investments in flagship R&D infrastructures. A non-meritocratic public sector further undermines the innovation ecosystem. The government has an essential role to play in creating the infrastructure and developing the benchmarks for merit and innovation, yet there is no single agency responsible for the overall management and coordination of innovation policy.

3.5 INFRASTRUCTURE AND CONNECTIVITY

Private investment can help overcome the infrastructure bottlenecks that hold the country back

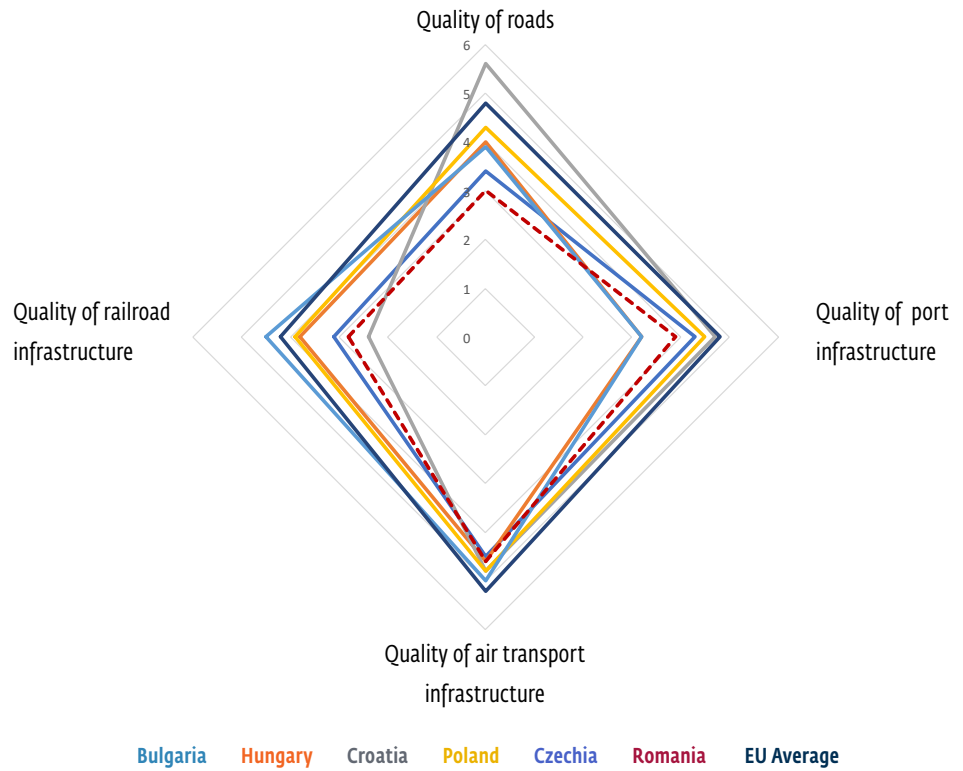
Romania's infrastructure does not reflect the country's status as an EU member, or its overall high level of development. Romania's infrastructure metrics lag the rest of the EU, with the country ranking last in the bloc on quality of overall infrastructure throughout the period 2008-2018 (except in 2015). According to the 2019 Global Competitiveness report, Romania ranked 55th out of 141 countries on quality of overall infrastructure that year, behind Morocco and Mexico. Romania performed especially poorly on quality of roads, ranking 119th—the worst placement in the EU, and well below many upper-middle-income countries. The major role of SOEs in the country's infrastructure sector (especially transport and energy) leads to underinvestment and/or crowds out the private sector.

As highlighted by the Romania SCD Update (2023), better governance is key to achieving higher-quality and greener transport infrastructure. Governance arrangements marked by instability and ineffectiveness in project delivery are, in large part, at the root of Romania's infrastructure deficit.⁴³ Despite major investment needs and the availability of significant financial resources, the Ministry of Public spending on transport is routinely under-executed relative to both original and rectified budget appropriations (by an average of 29 percent in 2015-2019). Romania is also missing out on the opportunity to adopt the Public Private Partnership (PPP) model, where suitable, to involve the private sector in financing, developing, upgrading, and operating key infrastructure assets.

Low, volatile, and inefficient public investment perpetuates infrastructure gaps. Public investment averaged 4.2 percent of GDP between 2000 and 2020, above the EU-27 average of 3.2 percent of GDP, but it was highly volatile. The government's use of cuts to investment as an instrument to meet fiscal deficit targets has been a major contributor to volatility. Moreover, the impact of public investment has been weak, due to factors including insufficient institutional coordination, ineffective policy implementation and monitoring, politicized decision-making, and poor human-resources policies in the public administration. As a result, transport infrastructure remains poor in quality and insufficient in quantity, despite the availability of substantial EU funds.

Except for Estonia and Finland, where vast areas are largely uninhabited, Romania has the lowest transport network density in the EU. Romania is among the EU countries that have made the least progress on building out the Trans-European Transport Network (TEN-T), having completed only 49 percent of the core road network as of 2020, and 4 percent of the conventional core rail network as of 2016.

FIGURE 32 QUALITY OF TRANSPORT INFRASTRUCTURE IN ROMANIA VS EASTERN EUROPEAN PEERS, 2019



Source: World Economic Forum, The Global Competitiveness Report 2019.

FIGURE 33 MOTORWAY DENSITY IN ROMANIA IS AMONG THE LOWEST IN THE EU



Source: Romania InfraSAP 2019, mimeo.

The insufficient coverage of transport infrastructure networks hampers competitiveness and job creation. Shortcomings in core transport infrastructure are oft-mentioned binding constraints to investment and private sector development, and a major cause of persistent regional divides in economic performance. In a 2019 European Investment Bank (EIB) survey, 73 percent of SMEs mentioned inadequate transport infrastructure as a key barrier to expanding investments. In addition, in 2017 the World Bank found a statistically significant correlation between road conditions and access to education (i.e., lower quality of roads goes hand in hand with less access to education). Finally, a lack of metropolitan railways hinders labor mobility.

Romania's energy sector has made strides since the country joined the EU, but much remains to be done on energy security and decarbonization. On the World Economic Forum's 2017 Energy Architecture Performance Index (EAPI), which ranks 127 countries on their ability to deliver secure, affordable, and sustainable energy, Romania came 24th—a jump of 15 places from the 2009 EAPI—and 16th among EU members. According to the index, Romania outperforms the EU average with respect to the energy sector's ability to support economic growth and development but underperforms it on environmental sustainability and energy access/security. Key challenges for Romania's energy security include: (i) making use of natural endowments that favor renewables (especially wind); and (ii) developing interconnectors, which would also boost the country's energy export potential. In 2017, the level of electricity interconnection in Romania was 7 percent, below the 2020 target of 10 percent set by the EU. Heating infrastructure is old and inefficient: 80 percent of the country's heat generation capacity is more than 30 years old, and the age of some installations exceeds 45 years. Greening the energy sector will be central to achieving Romania's decarbonization targets and ensuring energy security (see chapter 4 and Romania CCDR for more details).

Municipal infrastructure—including water, urban transport, street lighting, and solid-waste management—remains underdeveloped and requires significant investment. Urban transport faces challenges in many cities, with Bucharest ranked among the most congested in the world, and the transport sector has been responsible for greatest share of the increase in GHG emissions in the country in recent years, primarily from daily commuting within metropolitan areas. E-mobility remains low. Romania is also lagging on waste disposal, relying on landfills—a polluting and inefficient solution—at the highest rate in the EU; conversely, recycling rates are among the lowest in the EU (0.4 tonnes per capita per year, versus the EU average of 2.3, according to Eurostat data).

On the other hand, digital infrastructure is relatively well developed, albeit with sizeable regional variations. On the 2022 DESI, Romania scored above the EU average on digital infrastructure due to the wide availability of fixed very-high-capacity networks (VHCN)—although VHCN coverage varies greatly between urban areas (68 percent) and rural areas (49 percent). At 49 percent, the share of Romanian households that subscribe to ultrafast broadband (at least 100 Mbps) is the fifth highest in the EU. Despite such assets, Romania ranked 26th out of 27 EU countries on the DESI, as it lags considerably in all other areas considered: human capital, use of internet services, integration of digital technology, and digital public services.

In certain infrastructural domains, the private sector can help surmount funding gaps and improve efficiency, including through PPPs. The 2019 joint WB-IFC InfraSAP found that PPPs had a limited role in large-scale infrastructure in Romania,⁴⁴ as availability of public funding (including EU funds, which remain underutilized) was not the binding constraint to infrastructure investment in the country. Nevertheless, there are opportunities to use PPPs effectively in specific sub-sectors, such as aviation and railways. PPPs may also be well suited to delivering discrete assets with limited complexity and risks (e.g., waste treatment plants, cogeneration facilities), particularly at the municipal level, but with very careful considerations of subnational implementation capacity not to create contingent liabilities. Romania's current legal framework for PPPs, however, requires significant optimization to boost private sector investment.



PART 2:

ENABLING PRIVATE SECTOR INVESTMENTS TO UNLOCK BOTTLENECKS AND YIELD DIVIDENDS ACROSS THE ECONOMY

To identify short- to medium-term opportunities for supporting private sector growth and contribute to service provision across Romania, the Romania CPSD focuses on enabling sectors where substantial gaps have an impact on competitiveness and private sector growth across the whole economy. Additional criteria considered include: (i) potential to support enhanced productivity and export potential, (ii) potential to contribute toward competitive domestic markets, and (iii) contribution to sustainability and greening the economy. The selected sectors include: infrastructure sectors, specifically energy (with a green lens – focus on renewables) and transport (with focus on selected sub-sectors with potential for private sector participation through PPPs) and the financial sector. Transport and the financial sectors have been identified by firms (in surveys) among the top business environment constraints, with rich analytical work confirming gaps in the sectors amenable for private sector solutions. Renewable energy and energy efficiency are strategic areas in the EGD context, coupled with the need to scale energy production and declining trend in their cost. The rest of this report looks at how can private sector could step in to support the development in these sectors.

4. RENEWABLE ENERGY: UNLEASHING THE POTENTIAL FOR A GREENER ENERGY SUPPLY

4.1 CONTEXT FOR THE DEVELOPMENT OF RENEWABLE SOURCES OF ENERGY

The Romanian energy system was built around the energy-intensive industries prevalent in the country before 1989. At its peak, industry consumed 95 percent of the national energy output. However, the Romanian energy sector has struggled to adapt to shifts in demand as the economic landscape has evolved. This is due to a range of factors, including: the scale and long-term nature of the investments required for the modernization of the energy sector; shortcomings in the allocation of responsibilities for sectoral operations and oversight across ministries, SOEs, and regulators in the early 1990s; the continuing prevalence of public participation in the sector; and long delays in upgrades to infrastructure for electricity generation and transmission.

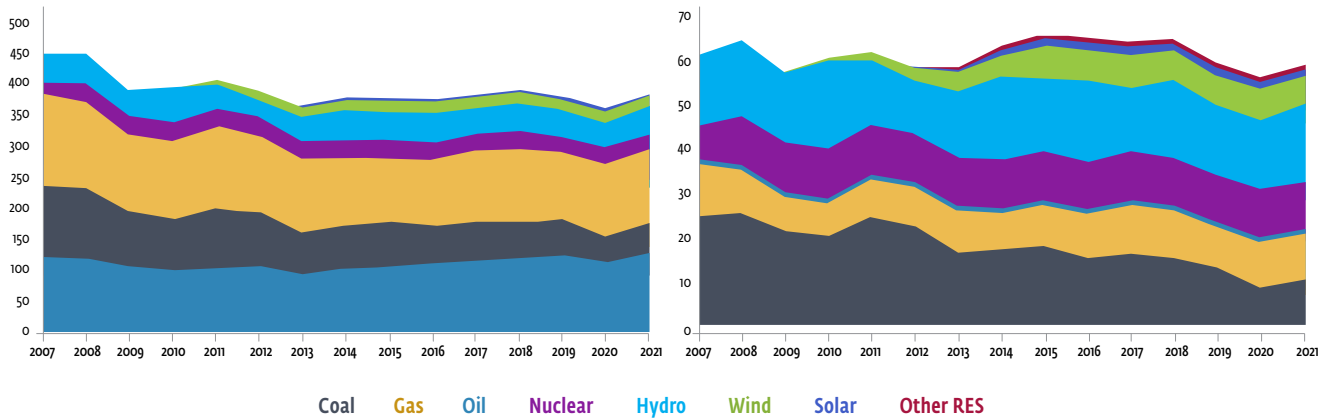
Major trends in key subsectors are summarized as follows:

- 1. Electricity:** Generation capacity has traditionally relied on a handful of large power plants, located in areas with high industrial demand and close to traditional fuel sources. For example, nuclear power plants were planned in the 1980s to be close to the then-large metallurgical industry, even though they became operational much later. Hydroelectric and coal-fired power stations were placed in the center of the country, near their energy sources, and fostered the development of aluminum, petrochemical, mining, and machinery production activities in the area. However, with the ensuing dramatic drop in industrial demand and a shift to urban consumption in different geographical areas, the model based on oversized generation facilities and radial transmission networks serving distant locations may prove inefficient.
- 2. Heating:** Most remaining district heating (DH) systems consist of large co-generation units, located in former industrial platforms near urban areas. Generation facilities were usually intended to meet industrial demand for steam and electricity, with DH for households as an occasional byproduct (i.e., only supplied when not needed by industry). Even after the closure of many industrial platforms, and a shift in demand towards consumption in cities, most investments focused on maintaining the existing oversized—and inefficient—system architecture, instead of promoting more-modern DH systems capable of integrating renewable energy and other unconventional sources of heat.

3. Transport: Prior to 1989, a low motorization rate—explained by restrictions to individual car ownership, fuel rationing, and the mandatory use of railways for freight transport over distances of more than 50 km—led to underinvestment in urban transport infrastructure and overinvestment in railways. After 1989, the liberalization of car ownership prompted a major shift from rail to road and from public to individual transport, with an explosive growth of transport-related CO₂ emissions in cities. However, urban infrastructure and electricity grids have not kept up with the evolution of urban areas, including the ongoing transition to cleaner fuels and electromobility (see below).

In a shift from centralized, large-scale generation units—which may crowd out investment in renewable energy sources (RES)—Romania could consider options for distributed generation, flexible demand, and sizable storage solutions. Although the intermittence of RES has implications for energy security, these can be mitigated through infrastructural upgrades by distribution system operators (DSOs) and transmission system operators (TSOs) (e.g., smart metering and smart grids), and through the development of storage solutions such as battery storage (BESS) and hydro-pump storage (HPSP). Alternative solutions such as large-scale, rapid-response gas-fired generators may not be viable in light of the EU’s green policy ambitions.

FIGURE 34 ROMANIA'S PRIMARY ENERGY MATRIX (LEFT) AND ELECTRICITY MATRIX (RIGHT)



Source: ourworldindata.org.

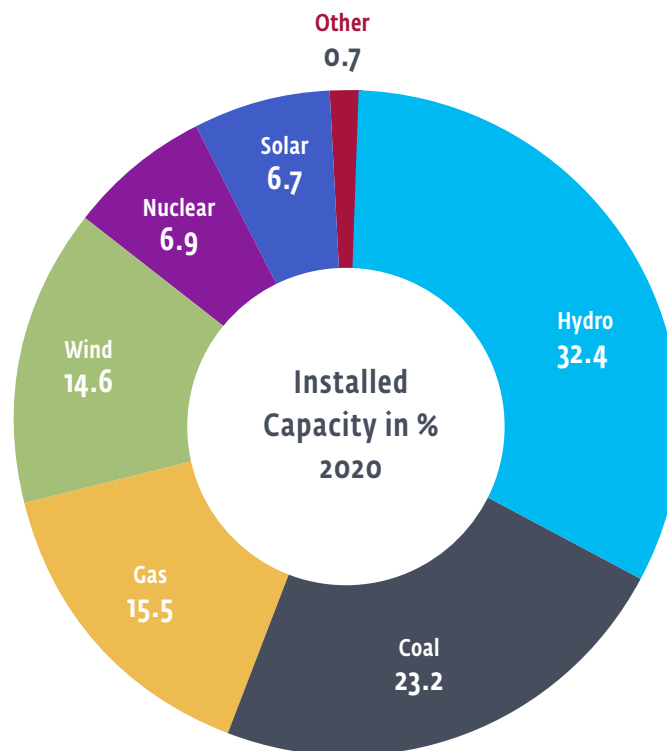
Note: Primary energy consumption and electricity matrix measured in terawatt-hours (TWh).

4.2 AREAS FOR DEPLOYMENT OF RENEWABLE ENERGY

Electricity: Romania has become a net importer of electricity in recent years

Non-hydro RES generation currently accounts for between 9 and 10 percent of Romania's electricity output. The share of hydropower is between 15 and 18 percent, depending on annual rainfall. Fossil fuels (gas, coal) remain key to the generation mix, but their contribution to the electricity output has reduced in recent years—largely due to the closure of units that no longer met environmental standards, technical failures affecting obsolete plants, and increasing marginal costs (including from CO₂ emissions) (Figure 35).

FIGURE 35 INSTALLED ELECTRICITY GENERATION CAPACITY, BY SOURCE



Source: ANRE

Romania's electricity generation capacity has declined significantly in recent years, and the country has become a net importer of electricity. Romania produced 53 TWh of electricity in 2020, versus 60.7 TWh in 2018,⁴⁵ and was a net importer of 1.51 TWh in 2019. As of 2020, renewable installed capacity, including hydro, amounted to 11,120 MW (54 percent of total installed capacity), generating 24.4 TWh (46 percent of total production).⁴⁶ Lower production from coal- and gas-fired power stations explains the drop in total generation in recent years. The country's coal-fired power plants are, on average, 45 years old,⁴⁷ and will have to be decommissioned by 2032 under the government's commitment to phasing out coal. The replacement of such plants with renewable electricity generation is paramount to Romania's decarbonization strategy.

Almost 80 percent of Romania’s electricity generation capacity is state-owned. All nuclear and large hydropower plants, 98 percent of coal-fired power plants, and 73 percent of gas-fired units are owned entirely or in part by the Ministry of Energy and other public entities. The private sector has only been involved in greenfield developments, such as Petrom’s 860 MW combined-cycle gas turbine (CCGT) plant in Brazi, and 4.4 GW of wind and solar capacity installed between 2010 and 2015. However, private greenfield investments are discouraged by the dominant position of state-owned incumbents, which benefited from various subsidies or operate fully amortized assets originally financed out of the public budget. As a result, the private greenfield investments that did take place were only possible either with public support (e.g., green certificates for renewables), or thanks to market distortions (e.g., a price mismatch between the liberalized power market and the regulated gas market, which incentivized Petrom to use gas for electricity production in the early 2010s).

SOEs can contribute to achieving the government’s decarbonization goals if there is a clear political commitment. Between 2000 and 2014, SOEs in OECD and G20 countries increased the share of renewables in their electricity generation portfolios from 9 percent to 23 percent.⁴⁸ In this context, the governance of the SOEs active in Romania’s energy market can be strengthened to develop both a long-term vision, and the short-term flexibility to react effectively to market developments, while improving economic performance and incentivizing the adoption of new technologies and green policies. Moreover, the selection and appointment processes for key SOE managers can be refined, mainly by fully implementation legislation already in place.

To halve its GHG emissions, Romania envisages an SOE-led transition from coal to gas in electricity generation, while also developing RES. As a result of the EU’s decarbonization policy, Romania plans to invest in gas as a transition fuel. Such investments are envisaged in the NECP and the NRRP, with partial support from EU funds; the commitment set out in such plans is that all gas-fired capacity financed by EU funds will in the future be able to use various mixtures of methane and hydrogen. Although a shift from coal to gas would halve the country’s emissions in the short run, there is no concrete plan for a later phase-out of gas to achieve a full energy transition by 2050. At present, the Romanian government’s plans assume that green hydrogen will eventually replace gas; however, so far there has been limited analysis of Romania’s potential to produce green hydrogen on a large scale, where it could do so, and at what cost. A hydrogen strategy is currently in the public consultation phase and is expected to be approved in 2023, while preliminary regulation for hydrogen networks was approved in April 2023. Please see the Romania CCDD for more detail on Romania’s energy transition.

In the current context of high prices for gas and uncertainty about its future availability, private investment in renewable power generation is critical. The transition from coal to RES in electricity generation, with gas as transition fuel, is insufficient to achieve full decarbonization, while the availability and affordability of gas supplies are increasingly uncertain. Private sector participation in generation from renewables, and competition in an open market, are also essential for consumers to reap the full benefits of liberalization in the electricity sector, while allowing energy providers to identify the most economical and efficient technical solutions (e.g., energy storage, energy management systems, flexible demand mechanisms) to cope with RES intermittence.

District Heating: existing generation facilities are old and need major refurbishment

Although the EU promotes district heating (DH) as a decarbonization solution, the sector has been largely neglected in Romania, with DH services discontinued in most cities. Nevertheless, Bucharest boasts the largest DH system in the EU (accounting for 50 percent of Romania's remaining DH sector, in terms of heat supplied), with 940 km of transmission pipes and 2,800 km of distribution pipes that reach 1.2 million people. Several large cities benefited from EU funds for environmental refurbishments of their cogeneration plants in 2007-2014, and currently receive additional funds to upgrade their distribution grids. However, delays in project implementation and a shift in demand from industrial to domestic use have perpetuated existing inefficiencies, and disconnections from DH networks have soared. Bucharest's DH is also expected to refurbish 10 percent of its major pipelines with €254 million from EU structural funds,⁴⁹ but the system would need major structural modifications to be fully decarbonized by 2050. Oradea is the only city that has been developing RES for the supply of heating to households. Its project envisages using a geothermal well and a heat pump to deliver hot water to a DH-supplied neighborhood with about 11,000 inhabitants and is expected to be finalized in 2023.

4.3 DRIVERS OF RENEWABLE ENERGY ADOPTION

The development of RES is not only advantageous, but necessary for Romania. This is due to: (i) energy security considerations; (ii) the EU's commitment to decarbonization; (iii) the increasing economic competitiveness of RES; (iv) the need to improve air quality in cities; and (v) the expected rise in electricity demand from the electrification of various sectors of the economy (e.g., transport), combined with greater demand for green electricity in industrial processes. Each factor is explored in more detail in this section.

Energy security

RES are necessary to replace Romania's dwindling fossil fuel resources. According to the National Institute for Statistics (INS), between 2007 and 2020 Romania's production of coal, gas, and oil dropped by 62 percent, 18.6 percent, and 27.3 percent, respectively, while electricity output from coal- and gas-fired plants declined by 47 percent. The overall drop in primary energy production (18.1 percent) was only partially compensated by energy efficiency measures and by a 4.6 percent reduction in consumption. While the gap has so far been managed through increased imports of fuels and electricity,⁵⁰ it is a major vulnerability in the context of a tight global market for fuels and the limited interconnectivity of Romania's electricity capacity. In the medium term, electricity generation will suffer another significant shortfall as Unit 1 of Cernavoda nuclear power plant (which accounts for about 7 percent of Romania's electricity production) will go offline for a major refurbishment by 2027 at the latest.

The accelerated depletion of Romania's reserves of fossil fuels, the inefficiency of its obsolete fossil fuel power stations, and the phasing out of relevant subsidies are the primary causes of the recent decline in national electricity production from fossil fuels. Romania has shut down major gas- and coal-fired power plants in recent years. In some cases (mainly pertaining to coal stations), this was due to the plants' non-compliance with environmental standards; more often, however, the plants were no longer financially viable, especially as EU rules on state aid became increasingly restrictive in relation to fossil fuel subsidies. Starved of investment, the plants had been suffering repeated breakdowns, while local production of coal and gas decreased. The scarcity of fossil fuels became even more apparent in 2021 and early 2022, when major efforts were needed to substitute Russian gas imports and to face a drought-induced drop in

electricity supply. A 22 percent increase in coal-fired electricity production in the first half of 2022 was only possible through a matching 22 percent increase in coal imports, while domestic coal production grew by a mere 1 percent. Domestic gas production continued to fall, dropping by 5.5 percent compared with the first half of 2021. The start of extraction from a new gas deposit in the Black Sea in July 2022 will only partially compensate the reduction in onshore gas production.

Energy security is becoming one of the most important policy objectives across the EU. It can only be achieved by reducing dependency on fossil fuel imports, which in turn requires further developing domestic renewable energy production. Romania did set more ambitious objectives for energy security, aiming to decrease its energy dependency (i.e., the share of its energy production dependent on imports) to 68 percent by 2030, instead of the previous target of 77 percent. The country's National Energy and Climate Plan (NECP) sets objectives pertaining to source diversification, renewable energy, energy efficiency, and the transition from coal to cleaner sources.

EU commitment to decarbonization

EU policy has become increasingly ambitious in setting targets for the reduction of GHG emissions, energy efficiency, and RES. In the past three years, the EU has revised substantially its climate targets, following the introduction of the Green Deal in 2020, the adoption of the Fit-for-55 package in July 2021, and the RepowerEU plan unveiled in May 2022 (see Table 1). In addition to the ultimate goal of eliminating GHG emissions ("net zero by 2050"), other complementary targets have been maintained and adjusted upwards, including those regarding the share of RES in primary energy consumption.

TABLE 1 EVOLUTION OF RES TARGETS IN EU POLICY (AS SHARE OF RENEWABLES IN FINAL ENERGY CONSUMPTION BY 2030)

Renewable Directive 2009/28 (RED I)	Renewable Directive 2018/2001 European Green Deal	Fit-for-55	RepowerEU
27%	32%	40-45%	40-45% + more solar, biofuels, green hydrogen

RepowerEU⁵¹ increases the emphasis on renewables and energy efficiency to cope with gas shortages in the wake of Russia's invasion of Ukraine, and to meet the EU objective of becoming independent from Russian gas before 2030. Per the EU-wide headline target adopted under the Fit-for-55 package, RES should account for between 40 percent and 45 percent of final energy consumption by 2030. Moreover, RepowerEU places additional focus on the deployment of solar capacity (e.g., solar panels on all public buildings, plans for a new solar energy strategy), and will encourage the uptake of heat pumps, renewable hydrogen, and biomethane to accelerate RES adoption for heating, cooling, and transport.

RepowerEU calls for a faster phase-out of gas as an energy source. On top of the 30 percent reduction envisaged by Fit-for-55, RepowerEU requires additional EU-wide gas savings of 35 billion cubic meters (bcm) by 2030. In parallel, gas and nuclear energy were included in the EU's taxonomy for sustainable activities in the spring of 2022; as a result, investments in their development can be deemed sustainable (in the case of gas, within a given CO₂ emissions threshold), and benefit from EU grants and better financing terms on the market. However, the EC may revisit the topic and determine that only gas projects addressing urgent diversification needs (e.g., investments in interconnectors, LNG terminals, storage) may be included in the taxonomy, but not those involving a growth in gas consumption.

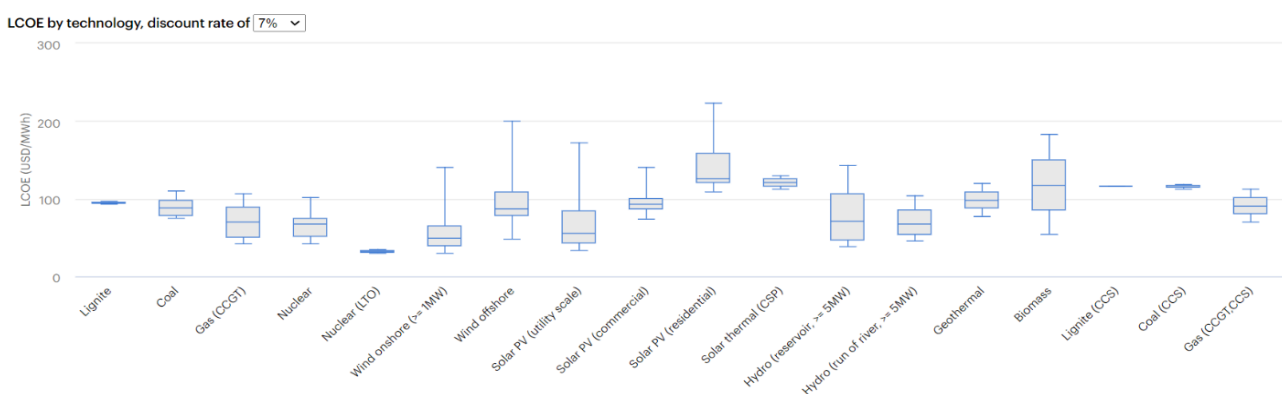
Following the latest developments in EU policy, member states including Romania are expected to revise their National Energy and Climate Plans by 2023. Romania's current RES target of 30.7 percent of final energy consumption by 2030 will most likely be revised.⁵² The current EU target is closer to 45 percent, and Romania will be expected to contribute proportionally—which would entail a significant increase of planned RES capacity, up from the 6.9 GW included in the current NECP. Moreover, the country may need to reconsider planned investments that could increase gas consumption (e.g., to compensate for the phasing-out of coal, and to expand the use of gas for heating), unless it can devise a credible plan to ultimately replace gas with green hydrogen.

Competitiveness of RES

Renewable power production entails a relatively high upfront investment and low operational costs, which has so far justified its support via state aid under EC rules to accelerate decarbonization. The case for public support for RES in the EU is addressed by the Guidelines on State Aid for Climate, Environmental Protection, and Energy (CEEAG), which have set criteria for tailored and proportionate public support to renewables.⁵³

However, in recent years, the levelized cost of energy (LCOE) for renewables has plummeted, thanks to improvements in RES capacity factors and cheaper materials and equipment. According to IRENA, between 2010 and 2020, LCOE dropped by 85 percent for solar and by 56 percent for wind.⁵⁴ Most estimates (e.g., from World Economic Outlook⁵⁵, IRENA, IEA⁵⁶) indicate that the LCOE of RES has been converging toward the levels of conventional technologies. This also suggests that state aid for RES should become more targeted—e.g., focusing on developing newer technologies.

FIGURE 36 LEVELIZED COST OF ELECTRICITY BY TECHNOLOGY



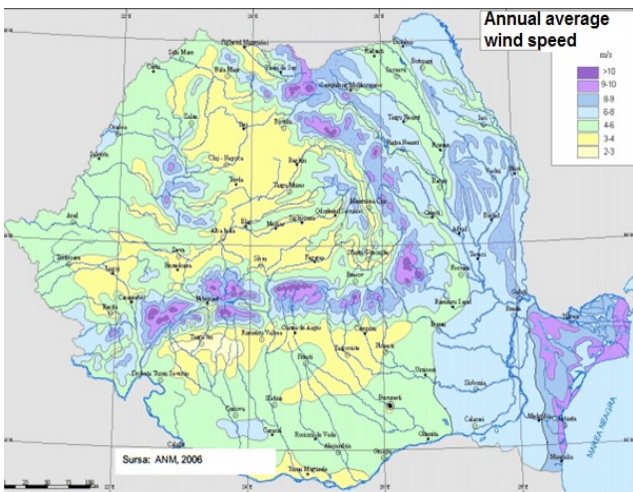
Source: IEA. Note: onshore wind and solar have LCOE values in line with conventional technologies. On the other hand, the competitiveness of offshore wind, commercial PV, and solar thermal (CSP) would benefit from targeted public support.

Opportunities for RES in Romania

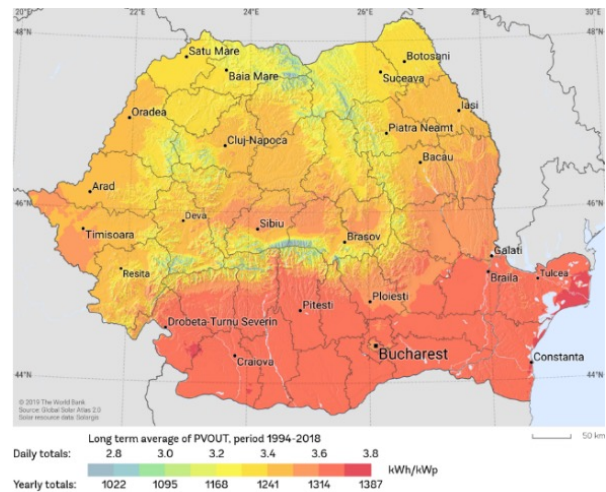
Romania holds substantial RES potential, particularly in solar and wind (both onshore and offshore). A 2019 Deloitte study for the Romanian Wind Energy Association (RWEA)⁵⁷ estimates Romania’s generation potential at 54 GW for solar, 16 GW for wind, and 11 GW for hydro, while the World Bank recently quantified the technical generation potential of offshore wind at 76 GW.⁵⁸ Geothermal potential remains relatively unexplored, but a degree of capacity has been confirmed, particularly in the west of the country. Hydro development is constrained by increasingly restrictive environmental requirements. Biomass suffers from similar concerns, although it is traditionally used for heating by about 40 percent of households, and the government included it in its targets for primary energy consumption from RES, as reported to the EC.

FIGURE 37 RENEWABLE ENERGY SUPPLY (RES) POTENTIAL IN ROMANIA

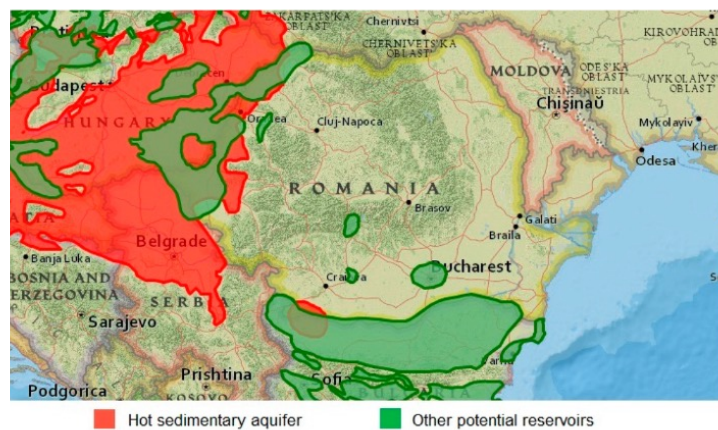
Wind



Solar



Geothermal

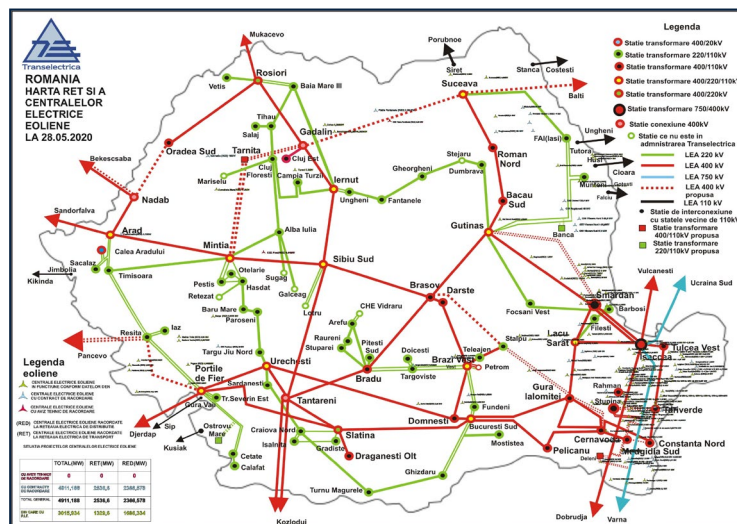


Source: World Bank ESMAP, geodh.eu.

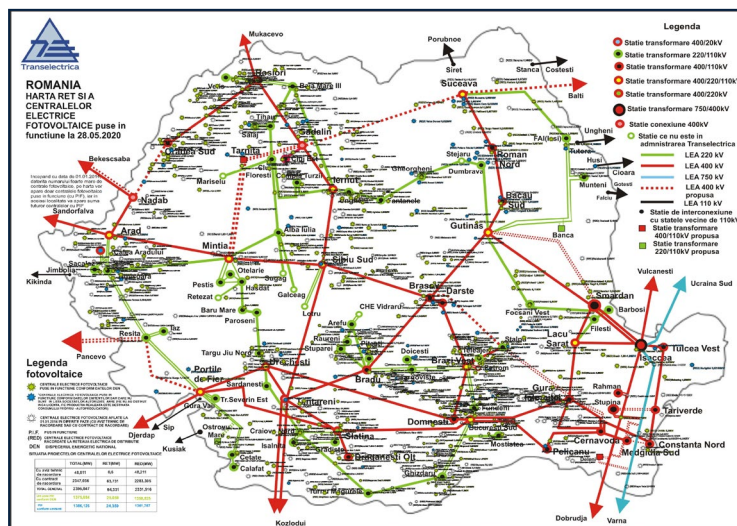
Between 2010 and 2016, a very generous support scheme based on green certificates prompted more than €8 billion of investments in electricity generation from RES. This resulted in a current installed capacity of 3 GW for onshore wind and 1.5 GW for solar (see Figure 38), which however remain well below their potential (e.g., installed solar PV capacity per capita in Romania is 72.8 W, versus the EU average of 355 W). Small biomass facilities (with total capacity of about 170 MW) and geothermal projects for DH (such as the ongoing development in Oradea) mainly benefited from other forms of support, such as EU funds. The green certificate scheme provided investors with a safe stream of revenues, enabling them to access bank credit. However, national legislation de facto forbade long-term power purchase agreements (PPAs), which would have formed an additional guaranteed income stream and enabled further lending. The green certificate scheme was substantially adjusted in 2013-2014, reducing the appetite of investors and banks, while projects that started after 2016 became ineligible for it. As a result, new investments in electricity generation from RES came to a halt.

FIGURE 38 INSTALLED GENERATION FACILITIES

Wind



Solar



Source: Transelectrica.

The EC’s approval of the country’s National Recovery and Resilience Plan (NRRP) in October 2021 has strengthened investor confidence in Romania’s commitment to the green transition and energy decarbonization. The NRRP envisages institutional reforms, as well as grants and low-interest funding for RES investments. The promised institutional reforms include the alignment of energy legislation to EU directives, a reform of the corporate governance of SOEs, a contract-for difference (CfD) scheme for RES, and new legislation for offshore wind. The NRRP offers a total of €460 million in grants for RES, for an expected 950 MW of new installations. As the projects must be finalized in 2024-2026, only those at an advanced stage in terms of studies, approvals, and construction permits were eligible—which raises the question of whether such projects would have proceeded even without NRRP funding. The CfD scheme, expected to be finalized in 2023, should include 15-year contracts that guarantee a minimum sale price for electricity produced by new RE developments.

Moreover, recent legal and regulatory reforms have revived the interest of private investors in electricity generation from RES in Romania. Such reforms include: (i) an amendment to Law 123/2012 in December 2021, which removed the obligation to trade electricity exclusively on the wholesale market (OPCOM), and thus made it possible to sign long-term PPAs; (ii) the approval in 2022 of the first tranche of project funding under the Modernization Fund, a facility with an estimated total value of €16-17 billion financed by the proceeds of the EU Emissions Trading System (ETS); (iii) Transelectrica’s revocation of unused connection rights that had been granted between 2010 and 2015, which allows new projects backed by appropriate execution guarantees to obtain connection rights for one year (to avoid future speculation on such rights); (iv) the EU-wide coupling of intraday electricity markets in 2019-2021, which enhanced the ability to trade renewable energy on the EU market within the day, on the basis of hourly forecasts; and (v) an improved framework for RE prosumers, which since 2018 has allowed net metering for small RE prosumers (up to a threshold of 27 kW) and their connection to the distribution network without the need for ANRE authorization, in addition to tax exemptions on electricity sales from prosumers.

In transport, electromobility is a growing sector that can deliver significant environmental benefits, especially in urban areas. According to the Romanian association of automakers and automobile importers (APIA), 2,846 new electric cars were purchased in Romania in 2020, up 89 percent from 2019. The increase has been fostered by the Ministry of the Environment’s Plus program,⁵⁹ which offers about €9,500 in subsidies for the purchase of an electric car, and €4,200 for a hybrid car.

The public sector can provide planning and incentives for electromobility and ensure the electrification of public transport. For example, the public sector can incentivize the development of a charging network for electric vehicles (Romania has approved a €53 million⁶⁰ scheme to this effect), and mandate that parking lots, service stations, and other public facilities offer a minimum number of charging points. Building on this foundation, the private sector will invest into expanding the charging network and developing other relevant solutions, such as applications for using car batteries for energy storage and balancing.

4.4 CHALLENGES TO PRIVATE SECTOR INVESTMENT IN RES

In a context of significant opportunities for private investment in RES in Romania, several headwinds remain. In 2022, despite high energy prices and in stark contrast with other European countries, virtually no large new RES facilities were installed in Romania. Potential interest from private investors often becomes muted due to frequent changes in government support schemes, legal and regulatory bottlenecks, and time-consuming procedures for obtaining permits and network access.⁶¹ Key challenges are outlined below.

Administrative processes for approvals and authorizations pertaining to RES investments need to be simplified, as recommended by the EC. So far, there has been no attempt on the part of the government to comprehensively identify and address all bottlenecks to investment.

Between November 2021 and September 2022, the government introduced three different schemes to regulate the energy prices charged to consumers, with potential negative effects on RES development. Production from new facilities that came on the market after the approval of each scheme is exempted from regulated pricing, but investors are concerned that new potential schemes to contain prices may cover future projects. The schemes have also impeded cross-border trading of energy, hampered the functioning of PPAs due to the mismatch between regulated and market prices, and diminished interest from potential buyers of electricity in the short term (e.g., if they hope they might buy electricity from producers in the future at regulated prices). Moreover, although suppliers are compensated (up to a certain threshold) for the difference between their cost of procuring energy and the lower price paid by end-users, the government has delayed compensation payments, in turn compromising the suppliers' ability to obtain bank financing.

Establishing a strong PPA market, and ensuring the cross-border transferability of Romania's guarantees of origin, will be important steps for the country's RES sector. Romania is yet to develop a vibrant commercial PPA market, which can foster the long-term competitiveness of industrial and commercial off-takers through predictable prices as well as boost investments in renewables. In addition, making Romania's guarantees of origin (GOs) transferable across borders could be beneficial to the country's RES development and decarbonization targets. GOs are issued by ANRE, the energy regulator, to certify that electricity has been produced from renewables, and are already in use within Romania. However, power trading and contracting in the EU can now be conducted across all countries within the bloc. EU-based buyers interested in sourcing competitive green electricity in Romania under long-term PPAs need GOs to certify its origin, but ANRE has not yet joined the Association of Issuing Bodies (AIB), which ensures the cross-border transferability of GOs across the EU.

Electricity network operators have been in financial distress, hampering investment in the grid. Transmission and distribution (T&D) operators routinely experience losses on the grid, which they must compensate by procuring electricity on the wholesale market. However, the soaring costs shouldered by T&D operators to cover grid losses in 2021 and 2022 were only partially recouped through the tariffs charged to end users; hence, all grid operators have been experiencing financial losses. In this context, operators are unable to invest in the grid; moreover, they are at risk of being ineligible for projects based on EU funding, as applicants are required to have been profitable in the recent past. In addition, long-standing issues around grid modernization remain unresolved.

As noted in the InfraSAP Report 2020, most of the major projects planned by the transmission operator Transelectrica—e.g., for new lines and substations, as well as for grid digitalization—are delayed by up to 15 years. The energy regulator ANRE must approve the investment plans of T&D operators, but it does not adequately penalize them in case of delays. Even though the government’s ambition is to integrate over 7,000 MW of RES by 2030, Transelectrica’s planned investments for the 2023-2032 period mainly comprise delayed projects that are long overdue.

The regulatory framework does not facilitate the development of energy storage solutions. Adding storage to a RES generation unit (e.g., 50 MW of storage combined with a 50 MW plant) requires grid connection approval for the total capacity (in this example, 100 MW), although the unit would normally deliver from storage only when it is not generating electricity. Even if the unit sought to deliver at maximum capacity (100 MW), the grid operator could adopt a less onerous approach by limiting dispatch, instead of requiring connection approval for the full capacity. Moreover, storing electricity with a third-party storage provider is formally recorded as a regular sale and repurchase transaction, and subject to the tax and legal treatment applicable to electricity trading.

Geothermal development for heating faces several barriers, as observed in Oradea. Key constraints include: (i) the risk of incompatibility with the wider heating system, in the absence of major upgrades; (ii) the cost of exploration to identify the heat source and assess its economic potential; and (iii) difficulties for private investors in setting up contractual arrangements, even after obtaining a concession for exploiting a geothermal source.

4.5 ADDITIONAL INSTRUMENTS TO FOSTER PRIVATE SECTOR PARTICIPATION

In addition to improving market conditions and leveraging EU funding, specific instruments can be adopted to accelerate private sector investment in renewable energy in Romania. The following section illustrates such options, which may be used for technologies that are not covered by existing schemes and require additional incentives.

Site-specific auctions and PPPs for Electricity⁶²

Romania may benefit from using site-specific auctions (e.g., sealed-bid auctions), in addition to capacity auctions, to unlock the utility-scale RE market. Sealed-bid auctions can enable price discovery, and set benchmarks for the cost and terms of optimal RE development. Key advantages include:

- (a) No need for bidders to own the land, seabed rights, or other rights for the use of the relevant resource (since the site is publicly owned)—hence, greater competition.
- (b) No need to obtain a grid connection approval, which already comes with the site.
- (c) Site conditions are clear to all bidders, who enjoy equal opportunity.
- (d) The project is utility-scale, has a defined capacity, and is located on an optimal site agreed with the TSO—therefore minimizing the cost of balancing, as well as issues around transmission capacity and grid connectivity.
- (e) PPAs are prepared in advance and ensured to be bankable under the most prudent standards of project financing.

This type of auction can be suitable to the Romanian context—notably, for the development of offshore wind projects, where private parties have historically struggled to secure sites and connection agreements. This structure may be implemented with the support being provided by the World Bank to develop offshore wind in Romania and based on the experience of the WBG with the Scaling Solar Program (Box 4), appropriately tailored to fit the Romanian context, the technical potential of renewable generation, and the requirements of EU legislation. The Scaling Solar Program has proven effective in delivering competitively priced renewable energy through a standardized and scalable package of project documents. Offshore wind is a good candidate for site-specific auctions given the high costs and risks associated with their development, which could be partially mitigated through this auction structure and the early award of exploitation rights.

BOX 4 THE WBG SCALING SOLAR PROGRAM

The WBG Scaling Solar Program is a one-stop shop offering 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. 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 GW of solar PV in developing countries including Uzbekistan, Zambia, Senegal, Ethiopia, and Madagascar. The program

has also become well known among investors and developers of utility-scale solar power plants.

Scaling Solar 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 dropping technology prices. So far, the procured projects have delivered very low prices and spearheaded much larger RE developments. Procurement has been highly competitive, with significant participation from bidders (often as many as 40), and conducted on the basis of bankable 25-year PPAs.

The piloting of sealed-bid, site-specific auctions can bring global competition and set benchmarks for subsequent RE capacity auctions. This type of procurement offers the advantage that the rights and obligations of investors, as well as the guarantees provided to them, are embedded in the contractual package, and do not need to be reflected in prior regulation. A site-specific pilot project at utility scale could yield solutions tailored to and tested in the Romanian context, and optimized for the selected site. This experience would set standards to be accounted for in subsequent capacity auctions, on subjects including qualifying criteria, grid connection conditions, and administrative clarity on the use of land.⁶³ This mechanism addresses a key risk of capacity auctions, where all rights, obligations, and guarantees for private investors must be embedded in the regulatory framework in advance, but may not pass the real-world market test.

BOX 5 SCALING SOLAR AND RENEWABLE ENERGY CAPACITY AUCTIONS IN UZBEKISTAN

Since 2018, the Government of Uzbekistan (GoU) has undertaken structural reforms to introduce market-oriented principles in the electricity market and unbundle the vertically integrated electricity SOE. The local market faced a heightened risk perception, due to the lack of a track record for the recently unbundled companies, tariffs below cost recovery, and the absence of RE IPPs. The sector also faced vulnerabilities to the electricity supply, such as dependence on a single source for electricity generation, while requiring significant infrastructure investment to meet future demand for electricity (~US\$ 14.7 billion).

The GoU requested support from the IFC for the implementation of its reforms and related plans for expanding generation. In 2019, the IFC structured a pilot project—a 100 MW solar PV IPP in the region of Navoi—that was competitively tendered, using standard tender and contractual documents (including a bankable 25-year 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¢ 2.679/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 off-taker's obligations from the PPA,

in addition to financing from other Development Finance Institutions (DFIs). Altogether, US\$110 million in private investment will go towards the country's first privately financed utility-scale IPP, with a capacity of up to 270 GWh of solar electricity. The solar PV plant will displace aging thermal power generation facilities, and prevent nearly 156,000 metric tons of CO₂ per year from being produced over the lifespan of the PPA.

Due to the success of the pilot IPP and interest from investors, the GoU requested support from the IFC in replicating and structuring tenders to develop an additional 900 MW of solar PV generation (~20 percent of the total solar PV generation planned by the country by 2025). The first follow-on tender (~400 MW) attracted interest from various international RE developers, and the winning bidder will develop two solar PV IPPs to sell electricity at tariffs of US¢ 1.79–1.82/kWh. The second follow-on tender (~500 MW) is in the RFP stage and achieved commercial close in 2021.

These tenders, and others replicating them, are expected to catalyze new private players for the expected development of up to ~2.7 GW of solar PV projects (~17 percent of the country's total installed capacity), thus increasing the competitiveness and resilience of Uzbekistan's electricity supply

PPPs for storage

By establishing a sophisticated PPP market, Romania could further mobilize private sector involvement in public infrastructure. Despite having legal and institutional arrangements in place, Romania has so far struggled to tap the potential of PPPs (see Appendix 2). In the electricity sector, PPPs offer promise for the development of storage capacity, as outlined below.

- a. **Batteries.** Romania could benefit from developing at least 400 MW of battery storage, which would support the expansion of RE while maintaining grid and frequency stability. While ideally led by the private sector, battery storage projects are unlikely to be developed on a fully commercial basis given the current technology (although, should electricity prices rise in line with current expectations, such investments would be more viable). A range of measures could boost the adoption of battery storage, e.g., mandating its inclusion in RE generation projects, or making it possible for Transelectrica (which cannot own storage facilities, per the EU energy directives) to procure it under long-term contracts for ancillary services. The benefits of piloting

and developing battery storage in Romania via long-term contract structures (such as PPPs), include: (a) discovering the price of sustainable, utility-scale battery storage on the local market; and (b) enabling greater development of RES and accelerating the phasing out of fossil fuel-fired power generation. However, regulatory reforms may be required to establish clear monetization and investment-recovery mechanisms for developers.

b. Pumped-storage hydro. The Tarnița–Lăpușești Hydropower Plant in Cluj County is the largest proposed pumped-storage hydroelectricity project in the region. The planned 1,000 MW facility consists of a 10 million cubic meter reservoir in which water would be pumped at night, via low-cost wind power, and used during the day for peak load and balancing. The government approved the project to be procured as a PPP in 2018, and the following year it started searching for a private partner to assume an investment cost of €1-1.3 billion; however, the project is still on hold.

PPPs for district heating

DH offers a range of opportunities for the development of the PPP model at the municipal level in Romania. Private participation may benefit municipalities financially and improve service for users, in a context where municipal budgets have a debt ceiling that constrains large-scale investments in services. PPPs could be especially valuable in the case of cogeneration and distribution of heating and electricity, which can deliver a degree of energy independence and security of supply. Moreover, depending on local circumstances, DH networks may allow a large number of individual consumers to access heat produced with potentially low-emission techniques, such as combined heat and power (CHP), large-scale heat pumps, municipal waste incineration, biomass boilers, and industrial-waste heat recovery.

Municipalities would benefit from centralized support to deliver DH PPPs. Municipal PPPs are allowed by law, but municipalities have access to little centralized support in terms of regulation, case studies, or experience from pilot projects. Social considerations are paramount, as is striking a balance between affordable tariffs and adequate investment to achieve good service levels. For DH in particular, revenue collection and financial viability are critical concerns, to be addressed before recruiting private investors. Romania could consider supporting selected pilot PPP projects in cooperation with international financial institutions, while pursuing DH affordability and financial viability with measures including performance-based subsidies from local governments to utilities, where appropriate.

Romania can integrate more decentralized renewable sources of electricity, such as solar PV and wind, into municipal electrical and DH networks. Electricity systems with high renewables penetration can produce excess electricity to be stored for later use, to help balance the grid. Moreover, renewable heat sources such as geothermal and solar heaters can foster the decarbonization of heating, for the benefit of both residential and industrial users.

Multiple models of private participation in DH have been successfully adopted internationally. These range from management contracts, lease contracts, and long-term concession agreements with private operators for generation and distribution, to build-operate-transfer (BOT) arrangements for new assets, and the privatization of existing assets with investment obligations. Private sector participation in DH projects can also foster the application of innovative solutions, such as mobilizing the local potential for biomass, using energy service companies (ESCOs) to guarantee services levels and overcome investment barriers, and integrating local renewable energy production as well as, potentially, green hydrogen.

Romania can achieve the conditions for successful private participation in the DH sector, **adapting international best practice to local conditions.** Tariffs should allow investors to fully recover costs, as long as they remain within municipal affordability limits. Regulation should provide clear incentives for efficiency improvements, ensure that privately developed or operated assets will meet appropriate service levels over the project's lifecycle, and that the assets will be in optimal conditions if returned to the municipality. If the private partner bears tariff risk, the regulatory process should be transparent and predictable, and it should be possible to reasonably forecast the applicable tariff over the project's lifecycle.

4.6 RECOMMENDATIONS

The Ministry of Energy may consider **adapting its energy policy to the sector's ongoing evolution, starting from the expected change in patterns of demand for decarbonized energy.** Romania's energy strategy should take into account the integrated transformation of energy production, consumption, and management required by the EU target of net zero by 2050. This includes considering interventions in areas such as network modernization, flexible demand, and storage, as well as assessing potential trends in demand for various forms of energy by 2050 (e.g., greater electricity demand due to the growing electrification of heating and transport).

Fragmented policymaking is detrimental to progress in the energy sector, and should be avoided. A tendency to disjointed policy action was visible, for example, in the approval of three different laws in quick succession to shield consumers from high energy prices, or in the recently announced potential return to a regulated market. The fundamental driver of high energy prices is excess energy demand relative to the limited available supply, and the solution lies in accelerating investments in new production of electricity and other forms of energy (e.g., heating). However, various private players (e.g., Hidroelectrica's minority shareholder Fondul Proprietatea, the gas producer BSOG, and the DH investor Veolia) have either exited the Romanian energy market in recent years or announced their intention to do so, as a result of a growing loss of confidence from the private sector in the industry's prospects. Such exits will likely favor the powerful incumbents—which tend to be fully or partly state-owned companies—and increase market concentration, reduce the benefits of a liberalized market, and further discourage investments from new players in an increasingly state-dominated sector.

The Ministry of Energy, in coordination with the energy regulator ANRE, should consider reviewing the legal and regulatory framework for RES to address bottlenecks to investment in the sector. Stakeholders in the RES industry widely report major shortcomings in the sectoral framework, such as limited network access, complex and slow permit procedures at both the local and central levels, and an uncertain legal landscape—although some obstacles, such as the impossibility to establish PPAs, have been removed. However, it is unclear how much RES could be installed if each bottleneck were addressed, or what resources would be necessary to remove them. In this context, priority measures range from simplifying administrative processes to modernizing the grids, while ensuring a timely absorption of EU funds for RES, the allocation of state aid to RES projects that would not be possible at market conditions, and the mobilization of private sector investments. In the first instance, Romanian authorities need to fully implement the latest EC recommendation on speeding up permit procedures for renewable energy projects and facilitating PPAs.

Investments in network modernization and digitalization are urgent. The integration of both utility-scale and small-scale RES generation requires a thorough modernization of the electricity networks, and a faster deployment of smart grids and smart metering. It is important for ANRE to carefully monitor the implementation of Transelectrica's 10-year network development plan and the DSOs' 5-year network development plans, and to penalize any delays.

The Ministry of Energy ought to prioritize the milestones and targets set in the NRRP. These concern the selection of RES projects that would benefit from funding under the calls launched in 2022, as well as enhanced competition and transparency in the appointment of the management and boards of key energy SOEs.

The RES targets of Romania's NECP need to be adjusted upwards by 2023. The EC will likely expect Romania to raise its target to at least about 40-42 percent, which would entail a one-third increase from current targets. This would require a significant scale-up of ongoing efforts, the optimization of existing grant funds, and leveraging private investment. For areas or technologies where removing administrative, legal, and regulatory barriers may not be sufficient to mobilize private investment, additional instruments such as PPPs or capacity auctions could be envisaged.

Considering the tight deadlines for project completion under the NRRP (by 2024-2026) and the Modernization Fund (by 2026-2030), it is important for the Ministry of Energy to clearly set out its priorities, and incorporate them in the criteria for project funding. This includes outlining publicly the types of funding and total budget envelopes available for each priority to be supported by the Modernization Fund. The Ministry also needs to finalize and publish the guidelines for funding applications, while ensuring that T&D operators remain eligible for EU financing even if they were loss-making in the recent past. This is particularly important for Transelectrica and Romania's DSOs, which suffered financially when procuring electricity to cover for network losses in the past 12 months—as the higher electricity prices they had to pay were not fully offset by network tariffs.

TABLE 2 PRIORITY RECOMMENDATIONS FOR RENEWABLE ENERGY POLICY

Policy/area/constraint	Recommendations	Expected benefits	Difficulty	Timeline	Responsibility
Reassessment of energy policy in light of regional landscape for security of supply	<ul style="list-style-type: none"> • Increase the priority of security of supply considerations. • Prioritize domestic energy production, especially from renewable sources. • Update energy strategy to reflect new market context. • Conduct further assessments of generation adequacy, reserves, and network development plans. • Review regulatory and permitting constraints for investments in RES according to EC's Guidelines. 	<ul style="list-style-type: none"> • Updated energy strategy with clear road map to achieve security of supply and other high-level targets and commitments, reflecting the sectoral impact of Russia's invasion of Ukraine and the ensuing energy crisis. • Quantifying investment opportunities, based on Romania's RE potential, desired evolution of energy mix, and transmission network capability. • Ensuring clarity of policies and rules for renewable auctions, to attract interest from RE investors and enable adequate risk assessment. • Accelerating market-based investments in RE, and ensuring absorption of EU funds by avoiding delays in project development from lengthy authorization procedures. 	✓	ST 1 year	MoE
Network upgrade in congested areas	<ul style="list-style-type: none"> • Enable investments in high-voltage transport network to avoid grid congestion in areas with new renewables developments. • Enable investments in distribution grids to integrate distributed generation from renewables at local level. • Consider new interconnections, especially to Moldova, to support the offloading of renewable production surplus. 	<ul style="list-style-type: none"> • Enabling uncongested flows of electricity from renewable producers without curtailments. • Increased reliability of interconnection, in particular between load and generation regions. 	✓✓✓	MT - LT 3-5 years	Transelectrica Electricity DSOs ANRE, monitoring of investment plans
Ensure ongoing regulatory support and legal certainty for commercial PPAs	<ul style="list-style-type: none"> • Phase-out market distortions. • Explore alternative options for private sector participation (e.g., GOs). 	<ul style="list-style-type: none"> • Support the development of a vibrant commercial PPA market, which ensures long-term competitiveness of industrial and commercial off-takers and further increases investment in renewables. 	✓	ST 1 year	MoE, ANRE, GoR

✓ Relatively low difficulty ✓✓ medium difficulty ✓✓✓ high difficulty

Note: ANRE= Romanian Regulatory Authority in the field of Energy; CfD=Contract for Difference; DSO=Distribution system operator; EC=European Commission; ESCOs= Energy Service Companies; GO=guarantees of origin; GoR=Government of Romania; MoE=Ministry of Energy; MoF=Ministry of Finance; PPA=Power Purchase Agreement; PPPs= Public-Private Partnerships; RE=Renewable Energy; ST=Short term; MT= Medium term; LT=Long term.

Policy/area/constraint	Recommendations	Expected benefits	Difficulty	Timeline	Responsibility
Untested new auctioning system and CfD framework	<ul style="list-style-type: none"> Pilot utility-scale wind and solar projects through sealed-bid auctions and CfD sys set benchmark for a bankable project structure. Develop new auctioning system with the use of CfD. 	<ul style="list-style-type: none"> Setting a precedent of a bankable structure and building a track record to attract international investments into 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, ensuring adequate supply-demand balance. 	✓✓✓	ST 1 year	MoE Transelectrica
Availability of land for RE development	<ul style="list-style-type: none"> Adopt best practices to allow co-existence of wind generation projects and agricultural production. Assess economic, environmental, and social impact of available options. Use public land for utility 	<ul style="list-style-type: none"> Expanding the availability of land-use rights required for investors to participate in the prequalification stage of RE generation auctions. 	✓	ST 1 year	MoE, Local authorities
Upgrade Transgaz network to facilitate transport of green hydrogen	<ul style="list-style-type: none"> Plan the upgrade of the gas network to make it hydrogen-ready. 	<ul style="list-style-type: none"> Ability to supply a blend of natural gas and hydrogen. Increased security of gas supply . Contribution to the development of green hydrogen in Romania. 	✓✓✓	MT - LT 3-5 years	MoE Transgaz
Develop PPPs as tool for private sector involvement in energy sector	<ul style="list-style-type: none"> Address capacity and regulatory issues around PPPs. Select and pilot strategic projects as PPPs. 	<ul style="list-style-type: none"> PPPs could become standard option to deliver value for money. Possibility of piloting PPP projects in utility-scale renewables, energy storage, and district heating. 	✓✓	MT - LT 3-5 years	MoF
Scale up energy efficiency measures	<ul style="list-style-type: none"> Draft policy for long-term contracting of ESCOs through PPP structures and adequate financial instruments. 	<ul style="list-style-type: none"> Scaling up energy efficiency projects mobilizing private sector investment, in addition to public budget and EU funding. 	✓✓✓	ST 1-2 years	MoE

✓ Relatively low difficulty
 ✓✓ medium difficulty
 ✓✓✓ high difficulty

Note: ANRE= Romanian Regulatory Authority in the field of Energy; CfD=Contract for Difference; DSO=Distribution system operator; EC=European Commission; ESCOs= Energy Service Companies; GO=guarantees of origin; GoR=Government of Romania; MoE=Ministry of Energy; MoF=Ministry of Finance; PPA=Power Purchase Agreement; PPPs= Public-Private Partnerships; RE=Renewable Energy; ST=Short term; MT= Medium term; LT=Long term.

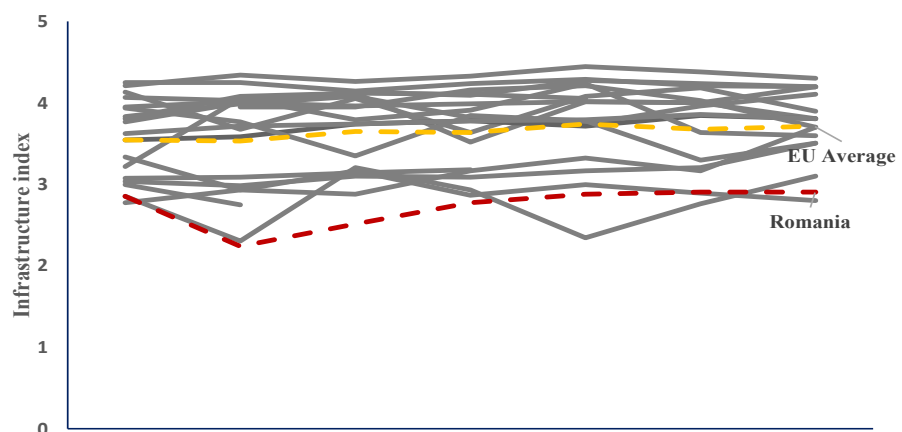
5. ROMANIA'S TRANSPORT SECTOR: SIGNIFICANT GAPS HAMPER DECARBONIZATION AND COMPETITIVENESS

5.1. OVERVIEW OF THE TRANSPORT SECTOR IN ROMANIA

Romania's transport networks are fragmented, underdeveloped, and in need of urgent upgrades

Despite more than 15 years of EU membership, substantial economic development, and access to sizable EU funds, the quality of transport infrastructure remains one of Romania's main challenges. Transport services account for nearly 9.7 percent of the country's GDP,⁶⁴ and land transport infrastructure is extensive—with 86,000 km of roads (including 920 km of motorways), and 20,100 km of railways.⁶⁵ However, the quality of transport infrastructure was either the lowest or among the lowest in the EU throughout 2007-2023 (except in 2015) (Figure 39), and lower than in countries such as Morocco and Mexico, with especially poor indicators regarding the quality of roads and railways. The key barrier to Romania's infrastructural development is the country's governance environment, characterized by instability and ineffectiveness in project delivery.⁶⁶ EU funds have financed more than a quarter of Romania's public investments in transport infrastructure since 2014, but their absorption rate remains low, while project implementation frequently suffers from lack of coordination, delays, and political interference.

FIGURE 39 QUALITY OF INFRASTRUCTURE IN ROMANIA VS EU (2007-2023)

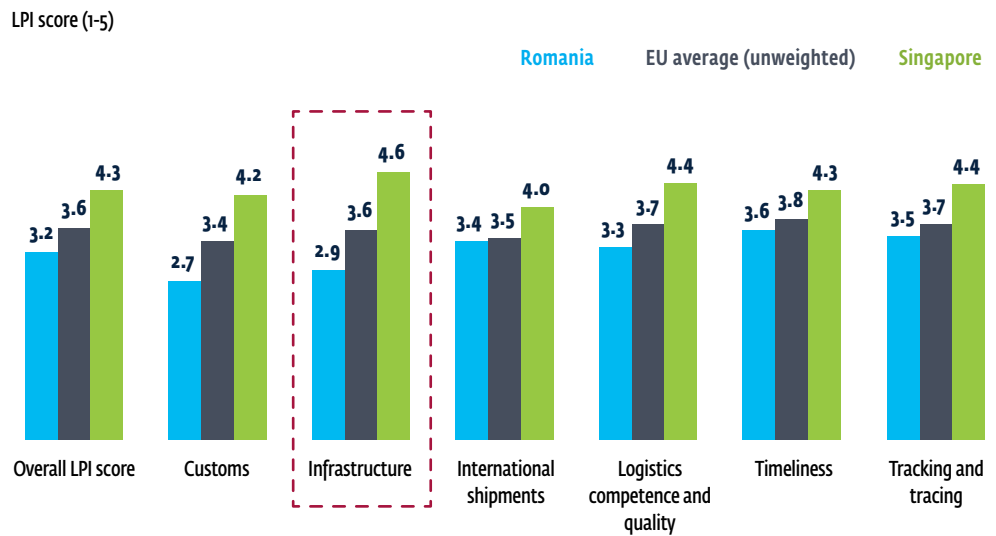


Source: World Bank and Turku School of Economics.

Note: Index ranging from 1=low to 5=high. Grey lines represent the other EU countries.

The Logistics Performance Index (LPI) highlights the challenges of Romania's transport and trade-related infrastructure (Figure 40). The 2023 LPI assigned Romania an overall score of 3.2 out of 5, close to the EU average of 3.6. However, on the infrastructure dimension, Romania's sub-score of 2.9 is further below the EU average (3.6) and much below the score of Singapore, which tops the LPI index globally.⁶⁷

FIGURE 40 LOGISTIC PERFORMANCE INDEX 2023: ROMANIA, EU AVERAGE, AND SINGAPORE (TOP-RANKED), 2023



Source: Logistics Performance Index 2023.

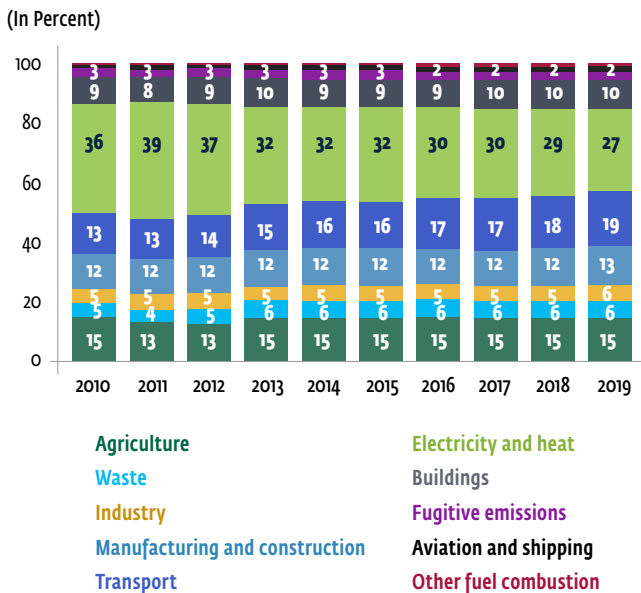
Wide-ranging shortcomings in transport infrastructure compromise Romania's aspiration to act as a bridge between the EU and other markets, and hold back its development. Romania's motorway network is the smallest in the EU relative to the size of the national economy (4.1 km per € billion of GDP), and the quality of road infrastructure in general is poor. At the same time, road transport has been servicing an increasing share of both passenger and freight traffic (68 percent and 80 percent, respectively, as of 2019), magnifying the severity of infrastructural bottlenecks. Romania's extensive railway network, the eight-longest in the EU, connects the main cities and gateway infrastructure assets (e.g., Constanta port on the Black Sea). However, railway services rely on obsolete infrastructure and equipment, which undermine quality of service (measured in terms of availability, travel time, and safety) and the competitiveness of railway as a mode of transport. Notably, the share of railway transport has been declining (4.8 percent and 15 percent of passenger and freight traffic, respectively, as of 2019). Romania has two gateway ports on the Black Sea, and the fifth-largest network of navigable inland waterways in the EU (2,763 km). However, port infrastructure faces capacity, connectivity, and quality challenges, resulting in low performance and efficiency.

Public investment, bolstered by the influx of EU funds since accession to the bloc in 2007, has not yielded the expected boost to the quality and quantity of transport infrastructure in Romania. EU funds have financed more than a quarter of Romania’s public investments in transport infrastructure (especially for motorways and rail renewal) since 2014, and more than 50 percent of the Ministry of Transport’s capital investments for the period 2020-2023. However, the rate of absorption of EU funds in Romania remains low, while project implementation often struggles with poor coordination, delays, and political interference.

Looking ahead, the transport sector faces a dual challenge: supporting both Romania’s development needs, and the achievement of its decarbonization objectives

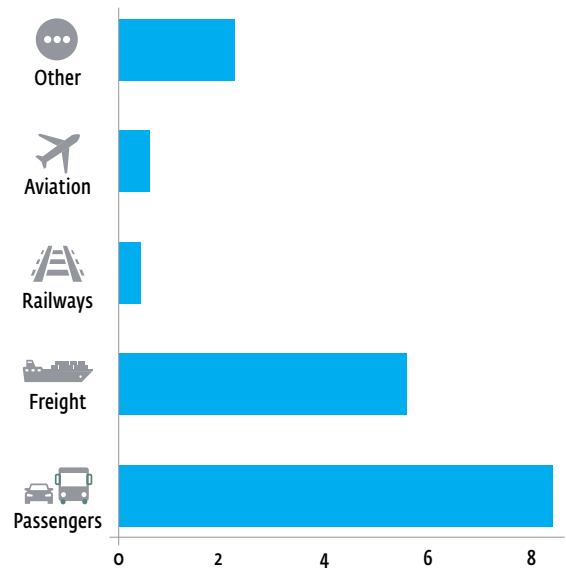
Addressing the key challenges of the transport sector offers an opportunity for Romania to foster broader development. Expanding the coverage and improving the quality of infrastructure, better integrating transport modes across regions and at municipal level, and enhancing the competitiveness of railways can improve connectivity (both domestically and with external markets) for Romanian businesses and people. At the same time, improving transport infrastructure could facilitate Romania’s post-COVID-19 recovery, and provide an alternative logistics platform for Ukraine.

FIGURE 41 CO₂ EMISSIONS BY SOURCE SECTOR IN ROMANIA



Source: Our World in Data.

FIGURE 42 CO₂ EMISSIONS FROM DIFFERENT MODES OF TRANSPORTATION, 2020



Source: Our World in Data.

Note: In million tons of CO₂ equivalent.

Transport is a major GHG-emitting sector in Romania, and improving its performance is instrumental to achieving decarbonization targets. Transport was responsible for 18.7 percent of Romania's GHG emissions in 2019 (Figure 41) and is one of the few sectors of the economy whose emissions have been rising. Notably, road transportation for passengers and freight accounts for more than 80 percent of all emissions from transport (Figure 42). Achieving the net zero target by 2050 would require a large reduction in transport emissions, combined with carbon sinks to offset residual emissions. Greater availability and scale, investments in charging infrastructure, and technological developments should help reduce the cost and mitigate other current disadvantages of low-carbon transport options.

BOX 6 ENHANCED TRANSPORT CONNECTIVITY AND DECARBONIZATION IN THE ROMANIAN NATIONAL RESILIENCE AND RECOVERY PROGRAM (NRRP)

The Romanian government's National Resilience and Recovery Program (NRRP) outlines the country's reform and investment priorities, with a view to supporting resilience and crisis preparedness, and promoting adaptability, sustainability, and inclusive growth. A thorough NRRP is a prerequisite for accessing funds from the EU's Recovery and Resilience Facility.

Romania's NRRP allocates 41 percent of total spending, or €12 billion, toward the green transition in the areas of rail and urban infrastructure, clean energy production, energy efficiency of buildings, and re- and

afforestation. Romania has prioritized investment in sustainable transport and EV charging stations (€8.9 billion), education and training to support digital skills (€4.9 billion), and clean technologies and renewables (€4.5 billion). Overall, Romania's commitment to sustainable transport (30 percent of total NRRP spending) amounts to nearly double the EU average (17.7 percent).

See Appendix 2 for more details of EU funding and the NRRP in Romania.

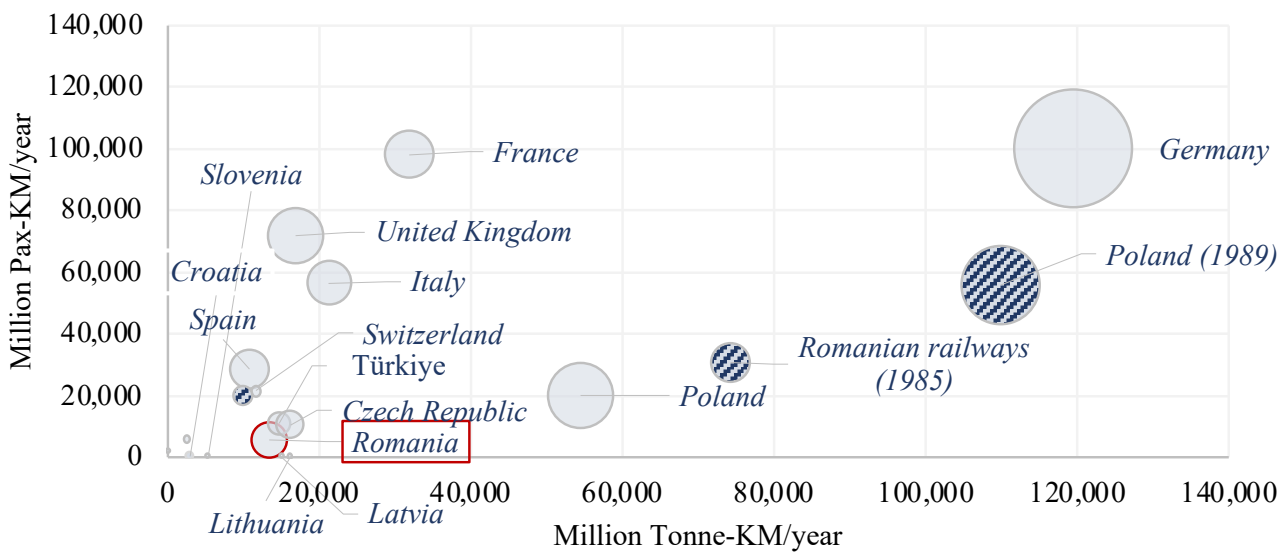
5.2 KEY SUBSECTORS

Railways: Underfunded and underperforming, the railway sector continues to decline

Romania's railway network is one of the most extensive in the EU,⁶⁸ but it is no longer fit for purpose. While approximately 43 percent of active lines are electrified, only 4 percent of the network supports travel speeds of up to 120 km/h, and no part of the network allows for high-speed travel (over 180 km/h). Even ongoing railway modernization projects, mostly along the Rhine-Danube TEN-T corridor, are designed for a maximum speed of 160 km/h. Between 60 and 90 percent of the railway network's assets (tracks, signaling, power lines, and rolling stock) are obsolete,⁶⁹ and 72 percent of the lines need major rehabilitation.⁷⁰ Overall, Romania's railway network is oversized relative to its current use, costly and labor-intensive to maintain and operate, and does not support a competitive transport service.

Rail transport has long been losing passengers and freight customers. Nearly 72 percent of mainline tracks have exceeded their service life, forcing Căile Ferate Române (CFR SA)—the SOE that manages and maintains the public railway infrastructure—to apply between 350 and 400 speed restrictions on heavily degraded segments of the network every year.⁷¹ As a result, travel speed is low across the network (the average technical speed was 69 km/h in 2020) and travel times are longer than 20 years ago; not coincidentally, in passenger transport, the share of train trips to total trips dropped by 51 percent between 2007 and 2019, and currently stands at 59 percent of the EU average.⁷² In freight transport, the average technical speed fell from 42 km/h in 2015 to 29 km/h in 2018,⁷³ mostly due to the removal of many secondary tracks that were used for parking freight trains.⁷⁴ This has had a major impact on important sectors that rely on stable and fast railway connections, such as the automotive industry (e.g., the Ford plant in Craiova and the Dacia plant in Pitești) and the metallurgical industry (e.g., production facilities in Galați, Slatina, and Zalău). Railways remain the only option for heavy goods, but road has become the preferred mode for small and medium-sized shipments. As a result, the volume of freight transported by rail has stabilized around 55 million tons/year, just one-quarter of 1990 levels.

FIGURE 43 PASSENGER-KM AND TON-KM ON SELECTED RAILWAYS, 2019



Source: World Bank, Positioning the Romanian Railways for Future Competitiveness, 2021.

Note: Bubble size= track length.

The railway sector's poor performance stems from decades of underinvestment in the network, while the relevant SOEs face liquidity constraints despite major subsidies. Between 2012 and 2018, the state budget covered only 56.33 percent of network maintenance costs, 19.35 percent of repair costs, and 2.53 percent of renewal costs; and in 2020, it covered only 29 percent of the €94.4 million required for rail modernization works.⁷⁵ Over the last 30 years, only about 6.5 percent of the railway network has been renewed.⁷⁶ In addition to receiving state funds, CFR SA collects track access charges, as well as fees from leasing infrastructure to private operators. 57 percent of all revenue from such charges comes from CFR Călători, the SOE for passenger train transport; 28 percent comes from private operators; and 14 percent from CFR Marfă, the SOE for freight railway transport. Overall, Romania's three state-owned railway companies (CFR SA, CRF Călători, and CFR Marfă) need major subsidies (Table 3), with their commercial revenues only covering 36 percent of operational income. Notably, the three SOE regularly suffer losses and have unsustainable levels of debt.

TABLE 3 OPERATING REVENUE, SUBSIDIES, AND NET PROFIT OF RAILWAY SOEs IN ROMANIA

Company	# of employees 2020	Annual operating revenue (excl. subsidy) 2020	Annual subsidy revenue 2020	Net profit (loss) after subsidies 2020	Net asset value 2020
CFR SA (Infrastructure)	23,218	RON 1,073 million	RON 3,865 million	RON 281.6 million	RON 14,684 million
CFR Marfă (Freight)	4,808	RON 571.9 million	RON 127 million	RON 33.5 million	RON 7,951 million
CFR Călători (Passenger)	11,831	RON 654.7 million	RON 1,367 million	RON 376.4 million	RON 2,988 million

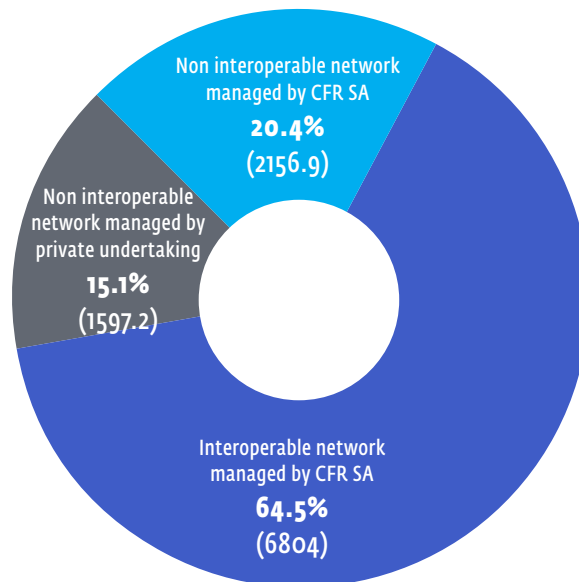
Source: WB 2021. Positioning the Romanian Railways for Future Competitiveness, 2021.

EU funds are available to upgrade existing lines and develop new ones, but railway SOEs cannot fully absorb and deploy them. In 2020, the funding effectively absorbed for railway projects was much lower than the available allocation, especially on the axis dedicated to supporting railway reform, eliminating speed restrictions, and acquiring rolling stock. However, there has been progress in recent years, with the start of multiple purchases of rolling stock as well as of studies for several major initiatives, such as e-ticketing and a transport model update.

Romania has prioritized the modernization of the TEN-T rail network, but works on the key Rhine-Danube railway corridor remain unfinished more than 10 years since their inception. Works are ongoing on essential segments such as Sighișoara – Brașov and Brașov – Predeal, while planned projects under the OPT and the NRRP aim to complete the Orient/East-Med corridor (Arad – Timișoara – Caransebeș – Drobeta Tr. Severin – Craiova) along with important tracts of the national network such as Cluj-Napoca – Oradea, Iași – Pașcani, Bucharest – Giurgiu (cross border), and the touristic route Constanța – Mangalia. The NRRP also envisions minor network improvements to eliminate or reduce speed restrictions, safety upgrades, and so-called “centralization” initiatives to reduce personnel costs. Prioritizing the TEN-T lines has delayed the modernization of other segments of the network.

Romania has adopted a distinctive model for railway services and infrastructure, whereby the state has a dominant role, but specific forms of private participation are possible. In this mixed model, private sector participants can fulfill two atypical roles: i) as service providers on a fraction of passenger rail services, since 1998, and ii) as infrastructure managers, under a lease agreement with CFR, on a section of the railway network known as non-interoperable network. Two companies, SC TRANSFEROVIAR GRUP and SC RC-CF TRANS SRL, manage 82 percent of all non-interoperable sections allocated to private firms. In total, private companies managed 15 percent of the network as of 2020 (Figure 44).

FIGURE 44 NETWORK SHARE OF PRIVATE AND STATE-OWNED INFRASTRUCTURE MANAGERS



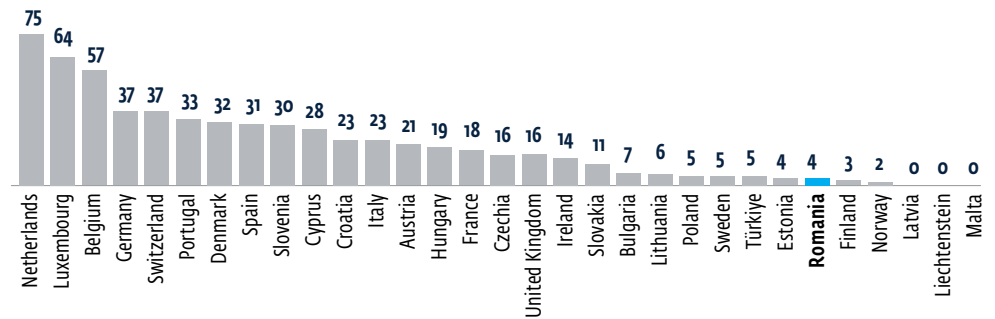
Source: CFR Network Statement 2020.

Note: Absolute numbers expressed in km.

Road transport: Romania's road network remains fragmented

Romania's road network is small, fragmented, and of suboptimal quality. The network comprises 86,000 km of roads, including 920 km of motorways (which thus make up only 1 percent of the network). Romania ranked 119th out of 141 countries for quality of road infrastructure on the 2019 Global Competitiveness Index,⁷⁷ well below EU and regional peers on both quality and density of roads. Romania also ranks poorly on overall speed on roads which, at 73 km/h, is lower than in pre-war Ukraine (75 km/h).⁷⁸ The motorway network is mostly composed of short stretches that are not interconnected; the longest continuous motorway, between Constanța and Bucharest, measures only 195 km. The country's motorway density (less than 4 km per thousand square km) is among the lowest in Europe. Moreover, only 54 out of Romania's 319 cities have a beltway, and those that exist are often incomplete due to funding constraints—with negative implications on congestion and pollution. Recent road upgrades have been focusing on national roads, 95 percent of which are modernized and considered in a good state, compared with 47 percent of county roads.

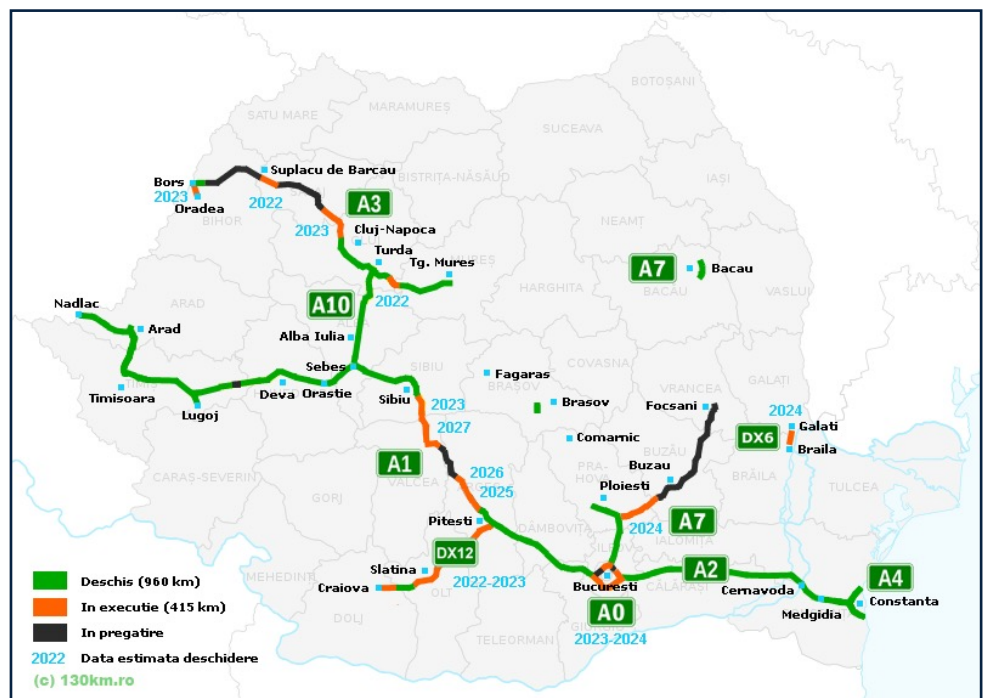
FIGURE 45 MOTORWAY KILOMETERS PER THOUSAND SQUARE KILOMETERS, 2020



Source: Eurostat.

Note: Values for Italy and Croatia are from 2019, UK data is from 2018.

FIGURE 46 MAIN MOTORWAYS IN ROMANIA - IN EXECUTION (ORANGE) AND ADVANCED PLANNING PHASE (BLACK), 2022



Source: <https://www.130km.ro/>.

Note: Legend in the figure: in operation (green), in execution (orange), advanced planning phase (black).

Despite infrastructure shortcomings, road transport has become the main mode of transport for both passengers and freight, as alternatives modes are even less convenient. 69 percent of all inland freight is transported by road, and private cars account for 80 percent of passenger-km.⁷⁹ The motorization rate has more than tripled since the 1990s, boosted by a rapid increase in purchasing power. More than 79 percent of the vehicles in circulation are more than 10 years old, with negative implications on air quality and road safety. The combination of rising motorization rates and unsafe roads⁸⁰ places pressure on the government to improve road infrastructure, while the railway system has been less of a priority.

The electrification of road transport is still at an early stage.⁸¹ Charging infrastructure is quickly expanding (with the number of charging points rising from 311 to 502 between 2019 and 2020) but its coverage remains weak. Most stations are concentrated in Bucharest, and running out of power is still a risk when driving an EV across the country. The NRRP should bring major progress, with more than 16,000 charging points planned to be built by 2027.

Investment in road infrastructure depends on government transfers to SOEs and on institutional capacity to absorb EU funds. Romania's expenditure on recurrent road maintenance (€2,856 per km) is low by international standards, and below the level of smaller EU economies such as Bulgaria.⁸² Over the past decade, public investment in road infrastructure averaged €2.8 billion per year, accounting for 83 percent of total investment in inland transport infrastructure.⁸³ CNAIR is responsible for operating, maintaining, and developing Romania's network of motorways and national roads. 60 percent of its revenues derive from public transfers, and its operating margin depends heavily on subsidies. Moreover, since 2014, EU funds have covered more than a quarter of public investment on road infrastructure, but their absorption rate is low (amounting to 27 percent of available funds as 2020) due to limited institutional capacity. Finally, a tendency to prioritize projects for which technical assessments have been finalized, regardless of their strategic importance, has been detrimental to progress on the TEN-T Core network and to the development of beltways for large, congested cities.

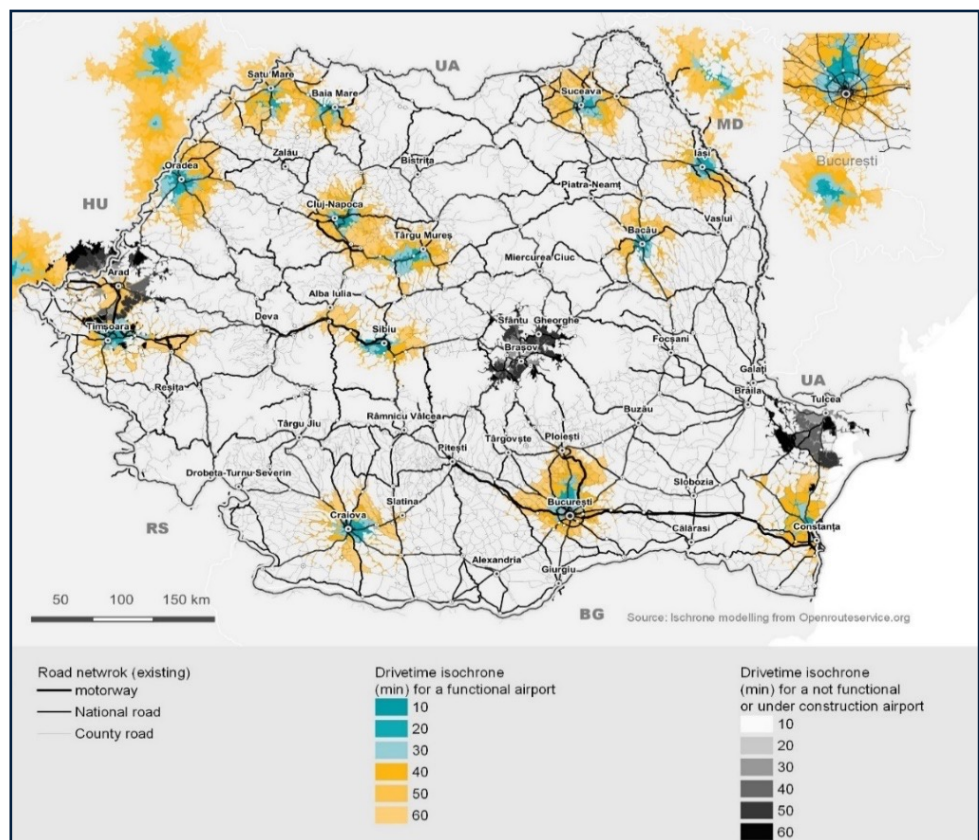
Private sector participation in the development and management of road infrastructure is limited, and concessional funds crowd out commercial finance. The Romanian regulatory framework allows for private participation through PPPs, which the government increasingly considers a viable alternative to EU funds. However, limited institutional capacity for project preparation has recently compromised the financial closure of large-scale PPP motorway projects,⁸⁴ affecting the perception of this modality as a valid complement to public investment. Moreover, although Romania's banking sector has excess liquidity and needs opportunities to deploy it, the high degree of direct government involvement and the legal framework for the selection of sources of finance constrain its participation in road infrastructure projects.

Air transport: Major airports have been slowly recovering from the pandemic, but regional airports are in decline

Romania's air transport infrastructure is generally of higher quality than its rail and road infrastructure. The country has 16 airports that operate scheduled commercial flights. The international airport Bucharest Henri Coanda, located in Otopeni, is the largest, handling more than two-thirds of international passenger traffic and half of domestic passenger traffic. Cluj, Timisoara, and Iasi also have important airports, which together account for one-quarter of domestic and international traffic. Romania ranked 72nd globally on the 2019 Global Competitiveness Index in terms of quality of airport infrastructure, close to regional peers but still behind them.

Major airports are slowly recovering from the pandemic, but regional airports are in decline. The COVID-19 pandemic strongly affected air transport, with many flights suspended for months. To mitigate the impact of the pandemic, all Romanian airports except Bucharest Otopeni received a total of more than €30 million in state aid. Although the sector has been slowly recovering, the number of passengers transported in 2021 was still roughly half the figure for 2019. Major airports such as Bucharest Otopeni, Iași, or Cluj-Napoca are likely to recover fully, but this is not the case for smaller airports that had already been struggling before the pandemic—e.g., Tulcea, Baia Mare, and Arad, some of which have failed to secure scheduled flights and are only served by charter flights. To counter this decline, in late 2021 the municipality of Oradea and Bihor county council established their own airline (SC AIR ORADEA SA), aiming to buy an airplane and operate daily flights between Oradea and Bucharest. On the other hand, large areas such as Galati – Braila, with close to 500,000 inhabitants, have no direct access to an airport.

FIGURE 47 CATCHMENT AREAS (WITHIN 60 MINUTES) OF ROMANIAN AIRPORTS, 2020



Source: World Bank, Urban Policy for Romania.

Romania's major airports are operated by state-owned or quasi state-owned enterprises, some of which can access commercial finance for investment purposes. The National Company Bucharest Airports (BANC) operates Henri Coandă International Airport and Baneasa Aurel Vlaicu International Airport in Bucharest, while Traian Vuia National Company (TVNC) operates Timisoara airport. All other airports are operated by companies wholly owned by the relevant county councils. BANC has obtained financing from commercial banks and has a track record of reasonable debt levels, while TVNC's capacity to obtain new credit is limited. Notably, airports are not eligible for EU funds earmarked for connectivity.

Maritime ports are important transport assets for Romania, but the current infrastructure is inadequate, and hinterland connectivity is poor

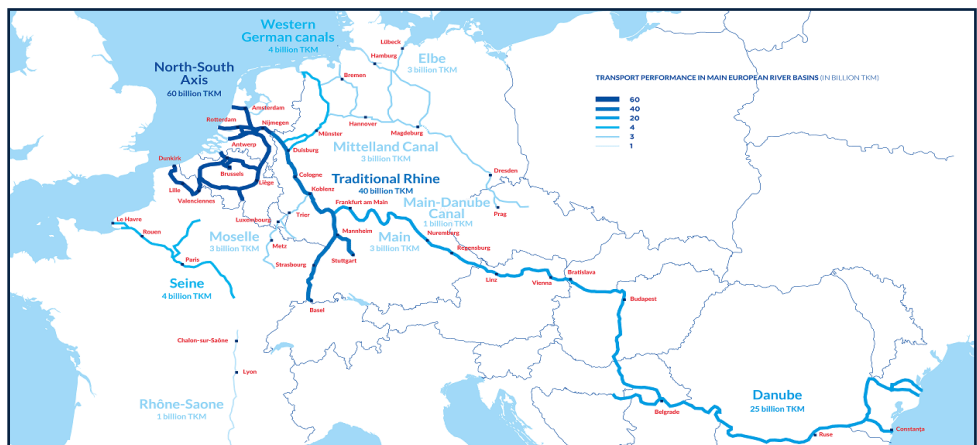
Romania's port infrastructure plays an important role in both transport and trade logistics, but it faces capacity, connectivity, and quality challenges. The country's ports, which include two gateway ports on the Black Sea (Constanta, the 17th-largest port in Europe; and Midia), handled 643,425 Twenty-foot-Equivalent Units (TEU) of cargo in 2021, providing a trade logistics platform on which to build greater connectivity for Romania. On the other hand, the country ranks 66th out of 187 economies in terms of integration into global shipping networks (Q4 2022),⁸⁵ and 76th out of 141 for efficiency of port infrastructure.⁸⁶ The port of Constanta, which handled more than 95 percent of Romania's maritime freight traffic to/ from main ports in 2021,⁸⁷ benefits from good connectivity with Bucharest via modernized railway and motorway. However, the incomplete TEN-T rail and road links to the rest of the country, and the border controls made necessary by Romania's exclusion from the Schengen area, contribute to a low overall performance, with Constanta ranking 261st out of 370 major global ports analyzed by the World Bank Container Port Performance Index.⁸⁸ The port also suffers from inadequate internal infrastructure, such as a shortage of parking space for trucks and a derelict internal railway network that is not compliant with EU interoperability requirements.

Fulfilling the maritime transport potential of Constanta, and of Romania as a whole, requires a systemic approach. A masterplan for Constanta port is in preparation, including strategies for digitalization, environmental protection, green development, and energy, with the latter focusing on the use of alternative fuels. The development projects (e.g., for two new piers) entail investments of more than €500 million. For their implementation, the masterplan suggests a PPP involving the national government and technical assistance from the World Bank. Moreover, the government has approved the modernization of the port's railway infrastructure, which will increase operating capacity. EU funds, the state budget, and CFR SA's own revenues will provide the more than €1 billion required for the project.

Romania's inland waterways transport system performs below its potential, due to limited port capacity, poor hinterland connectivity, and navigability issues.

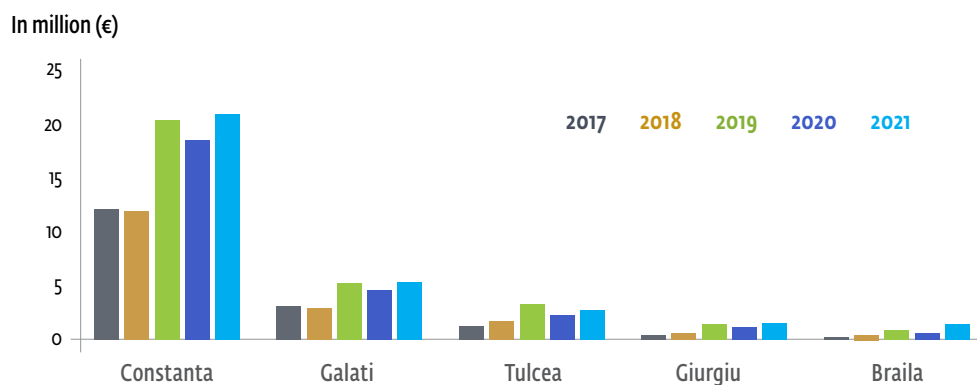
Romania has a 2,763 km network of navigable inland waterways, the fifth largest in the EU after Finland, Germany, France, and Poland.⁸⁹ A key component of this network is the Danube River, which links the Black Sea to harbors in south-eastern and central Europe, with further connections to western Europe and large ports on the North Sea. Romania has 29 small riverine ports along the Danube—with Medgidia, Bechet, Bazinul Nou, Calarasi, Braila, Giurgiu, Orsova, and Moldova Veche among the largest—which in 2021 handled 1,714 TEU of cargo, equivalent to 2 percent of all cargo transported by inland water in the EU. However, most of Romania's riverine ports have limited capacity, and are connected to the hinterland only by road or low-performing railways (non-electrified, single-track, low-speed, and in poor condition). In general, the road and railway infrastructure serving riverine ports is old and poorly maintained, and does not meet the requirements of freight transporters. Moreover, shallow waters hinder the navigability of certain sections of the Danube.

FIGURE 48 TRANSPORT PERFORMANCE OF EU INLAND WATERWAYS



Source: <http://www.inlandnavigation.eu/>

FIGURE 49 TOP 5 ROMANIAN PORTS BY GOODS LOADED AND UNLOADED FOR INLAND WATERWAYS TRANSPORT

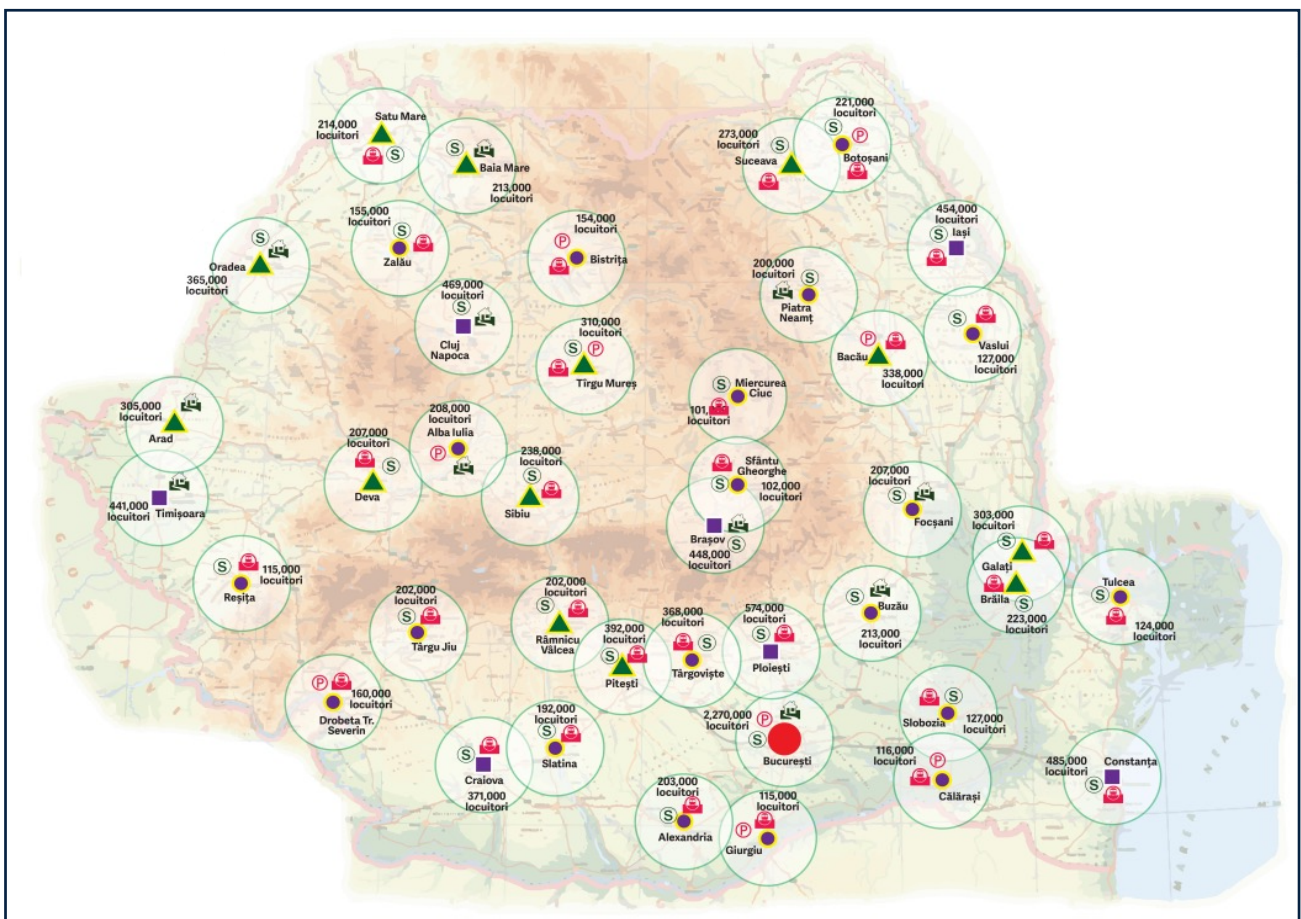


Source: Eurostat (iww_go_apor).

Urban Transport: Sustainable mobility is on the rise but bolder planning is needed, especially for metropolitan rails

The quality of local and metropolitan public transport services remains low, despite investments in related infrastructure. Cities across the country have not been able to develop well-integrated metropolitan transport systems that support mobility in urban and peri-urban areas. As of 2019, only 10 cities provided metropolitan public transport services (Figure 50), while private cars remain the predominant mode of transport. However, with metropolitan public transport becoming a national priority under the NRRP, new modes of public transport (e.g., electric buses, electrified rails, and light rails) have been receiving greater consideration.

FIGURE 50 TYPES OF PUBLIC TRANSPORT AVAILABLE IN LARGE CITIES (COUNTY SEATS)



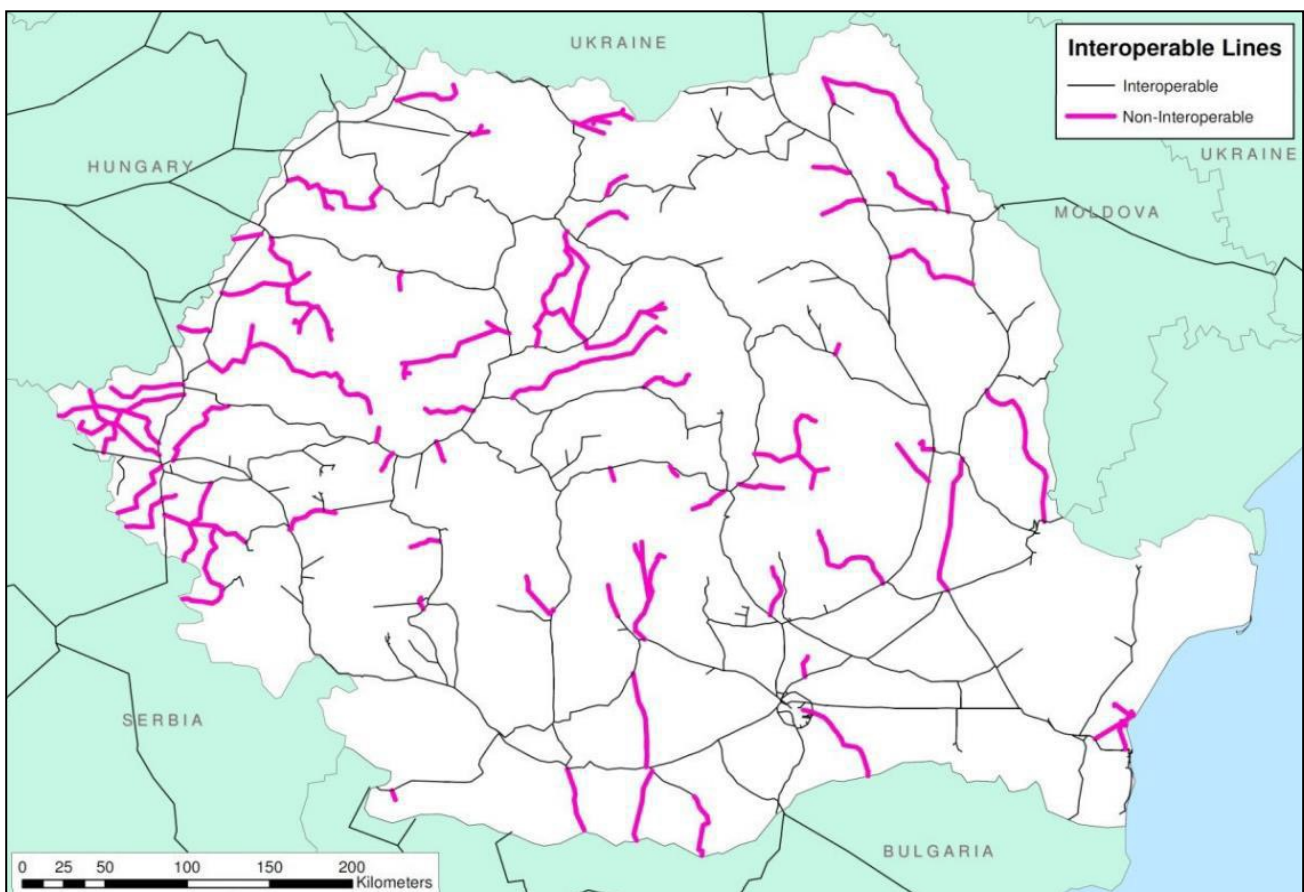
Source: ANM, 2019. Study on the analysis of the existing situation of local and metropolitan public transport at the level of 20 poles of growth/poles of urban development/county seat municipalities (<http://metropolitan.fzmaur.ro/studiutransport.pdf>).

Expanding public transport in lockstep with urban growth is financially challenging for cities. The design of most peri-urban neighborhoods is car-centric, and cities have usually opted to upgrade urban transport fleets rather than extend lines into their peripheries. Where metropolitan transport systems exist, the core city covers at least 60 percent of their cost, and frequently around 80 percent. Small localities in metropolitan areas often lack the resources to co-finance metropolitan public transport systems, and prefer to rely on county-wide public transport networks financially supported by the relevant county councils.

Metropolitan railways have major potential but need substantial investment

Most large cities benefit from a developed railway network, but ensuring good connections with their metropolitan areas requires substantial investment. Usually, more than 50,000 people live within less than 60 minutes of a large city center by train (not counting the population of the city itself). However, many of the lines that could form metropolitan railway systems are non-interoperable,⁹⁰ degraded if not derelict, and do not support speeds of more than 50 km/h (Figure 52). Moreover, the structure of urban settlements and industrial areas has changed since those lines were developed. Many large factories built alongside them are no longer active, while new industrial facilities have appeared in other areas, not always reached by a railway.

FIGURE 51 NON-INTEROPERABLE RAILWAY LINES, 2022



Source: General Transport Masterplan of Romania.

Degraded railways, inefficiently distributed stations, and low demand for transport make many non-interoperable metropolitan lines unattractive to private operators. For private operators of passenger services on these segments (e.g., on the Braşov-Zărneşti, Bucharest-Olteniţa, and Buzău-Nehoiiaşu lines), providing adequate levels of service is a challenge. For example, they cannot run trains with the frequency of a typical metropolitan service (i.e., more than one per hour). The only real metropolitan service currently active in Romania is on the route between Bucharest’s Gara de Nord station and Otopeni airport. Initially seen with some skepticism, the service is now deemed a success.⁹¹ Two operators (one private, the other state-owned) run trains every 30-40 minutes and cover the route in 20 minutes—a very competitive option, since a private car or taxi would need the same amount of time without traffic, but the road is usually congested.

Many cities have been failing to significantly boost the uptake of public transport, cycling, and walking

Over the past 20 years, cities have prioritized investments in road infrastructure to make space for more cars and streamline traffic, but peripheral areas remain underserved. In large cities, the share of modernized roads is usually above 90 percent. However, local authorities have been struggling to develop adequate transport infrastructure in rapidly growing suburbs and peri-urban areas. Most new neighborhoods are built with the help of a Zonal Urban Plan (ZUP) that extends the buildable area of the city, but does not focus on road connectivity with its surroundings. Thus, dozens of uncoordinated ZUPs tend to result in peripheral areas only being served by fragmented local roads.

Electromobility is gaining prominence in public transport, as cities invest to renew their bus fleets. In 2021, 254 electric buses were registered in the country, with many more due to come into service by the end of 2023. The cities of Alexandria and Turda have fully electric public transport fleets, while the average age of the fleet in Braşov is under five years. However, while many investments have targeted improvements in passenger comfort, most cities have neglected reducing the travel time to important destinations. Few cities have invested in dedicated bus lanes or tram lines (Bucharest, Cluj-Napoca, Oradea, and Braşov among others), or in traffic management systems that prioritize public transport (Bacău and Braşov). Moreover, no city in Romania has a fully developed cycling network. Investments in cycling infrastructure have been very circumscribed—usually targeting one or two streets per city—while new cycling lanes have major design flaws that make them unsafe.

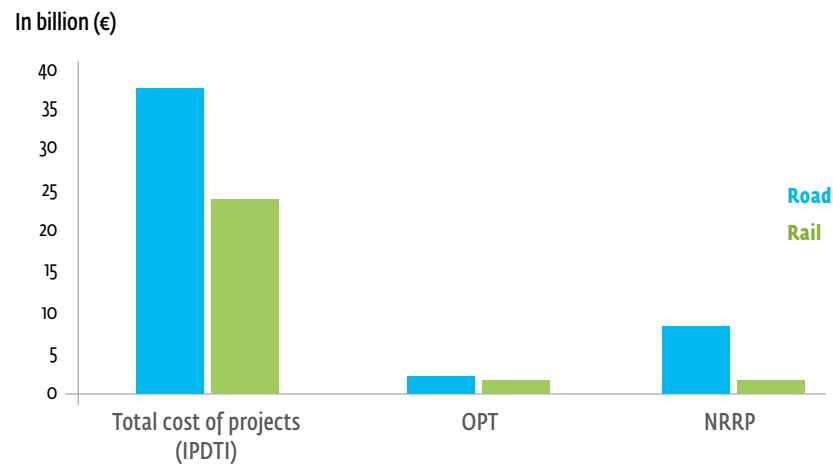
5.3. DRIVERS OF ENHANCED PRIVATE SECTOR PARTICIPATION IN THE TRANSPORT SECTOR IN ROMANIA

Decarbonization of the transport system

The private sector has been playing an increasingly dynamic role in sustainable urban mobility. Platform businesses for ride hailing (e.g., Uber and Bolt) and micro mobility (e.g., Lime and Bolt) have surged in Romanian cities over the past five years, greatly expanding the range of mobility options—albeit with some negative effects on the quality and safety of public spaces. The private sector could also contribute to enhancing the efficiency of bike-sharing schemes and parking management, which tend to remain under the administration of local authorities. When it comes to developing and/or regulating mobility as a service (MaaS), local authorities suffer from a major deficit of technical capacity. Existing MaaS applications usually focus only on one part of the mobility system, either the public (e.g., Trazy in Cluj-Napoca) or the private section (e.g., Urban Air in Bucharest). No stakeholder has so far succeeded in bringing both public and private mobility providers on the same platform, but there is room to do so in large cities, especially Bucharest.

Private investment can complement EU funds to help develop electrified urban transport. Upgrading Romania's transport infrastructure will require major investments. However, the EU funds available for the next programming period will cover less than 15 percent of the investment needs outlined in the Investment Program for the Development of Transport Infrastructure (IPDTI) 2021-2030 (Figure 53). The cost of sustainable urban mobility projects at the local level is difficult to quantify, but funds made available by the NRRP and EFA on a first-come, first-served basis were fully allocated in less than two hours. The funding gap for transport infrastructure can take three forms: i) EU funds do not cover certain types of projects; ii) EU funds are insufficient to achieve certain planned targets; and iii) cities lack the resources to co-finance projects that have secured EU funding.

FIGURE 52 INVESTMENT VS RESOURCES ALLOCATED FROM EU FUNDS, IN €



Source: IMF calculation based on data from NRRP, OPT, and IPDTI.

Note: IPDTI= Investment Program for the Development of Transport Infrastructure 2021-2030, OPT= Operational Program for Transport 2021-2027, NRRP=National Recovery and Resilience Plan.

Private financing could also support municipal infrastructure that, although planned for, is ineligible for EU funds. Connecting urban and suburban areas demands local investment in new roads and other municipal infrastructure (e.g., bridges and tunnels) to facilitate user access to public transport. Linking such projects with wider urban regeneration efforts, such as the development of pedestrian zones and parking areas connected to urban public transport systems, could help achieve the scale necessary to attract private investment through PPPs.

An updated legal framework can boost the development of metropolitan train services

The development of integrated urban transport systems has been attracting growing interest, at both the national and local levels. Most Romanian cities are rolling out their second generation of Sustainable Urban Mobility Plans (SUMPs), a mandatory step to access EU funds for sustainable mobility. The first generation of SUMPs did not drive the desired shift to public transport, due to poor project prioritization and implementation challenges. In most cases, measurements taken during or shortly after

the pandemic revealed that trips by private car had increased and made up between 40 and 55 percent of all trips, while the share of public transport had dropped dramatically, to less than 15 percent in medium-sized cities. However, a combination of factors is opening an opportunity for the private sector to help integrate urban public transport with other mobility solutions. Moreover, cities such as Bucharest, Cluj-Napoca, Iași, Brașov, Sibiu, and Bacău have been preparing feasibility studies for metropolitan train systems, and the IPDTI 2021-2030 used a multicriteria analysis to rank them in order of priority. Ultimately, the success of such projects will hinge on investments to modernize railway lines, stations, and rolling stock.

TABLE 4 GOVERNMENT PRIORITIZATION OF METROPOLITAN TRAIN SYSTEMS, TOP 10 CITIES

	Country	Population	Number of businesses	Number of Economic Agents	Employed	University potential	Airport passengers	TEN-T airport network	Accommodation	Time/congestion	Commercial speed	Priority (%)
1	Bucuresti, Buftea	100	100	100	100	100	100	100	100	100	49	94.9
2	Cluj-Napoca	63	19	100	89	100	100	50	32	64	44	68.4
3	Iasi	100	9	64	53	77	45	50	18	100	55	63.6
4	Brasov	87	16	68	76	31	18	0	65	66	50	53.2
5	Constanța	75	12	67	54	32	4	50	100	52	51	49.6
6	Timișoara	2	21	91	100	60	55	100	28	84	62	54.2
7	Arad	34	100	36	34	13	1	0	8	61	59	37.5
8	Craiova	47	11	44	44	32	18	50	6	60	48	38.0
9	Braila	69	6	39	36	0	0	0	8	64	62	34.6
10	Galați	51	8	42	41	22	0	0	7	73	53	34.6

Source: Investment Program for the Development of Transport Infrastructure (IPDTI) 2021-2030, pg. 157

To incentivize the development of metropolitan train systems and improve passenger rail services, the RRA adopted a new public service contract (PSC) linked to performance indicators. This new approach includes qualitative indicators related to GHG emissions from rolling stock, as well as indicators targeting investments in rolling stock. Using NRRP funds, the RRA has been purchasing new trains that will be distributed to both public and private passenger rail operators. Moreover, the extended duration of the PSC can encourage private operators to seek loans or lease additional rolling stock.

In addition, recent updates to the legal framework⁹² lay the foundation for partnerships between the MoT and local administrations to capitalize on railway assets. Local authorities can invest in the improvement of railways and, with an appropriate rationale, take over real estate owned by CFR SA. Numerous brownfield sites along railway lines offer potential for urban regeneration projects, with railway stations acting as intermodal hubs.⁹³ Additionally, the inclusion of busier lines in the non-interoperable network would entice private operators to contribute to their modernization via joint ventures and/or PPPs, especially on routes with clear demand, manageable funding gaps, and the potential for serving wider regions and metropolitan areas. Achieving this will also require the government to plan with clarity, and to focus its scarce

resources on ensuring connectivity in underserved regions. Romania would benefit from developing a sophisticated PPP market to boost private-sector involvement in infrastructure projects. Despite having legal and institutional arrangements in place, Romania has so far struggled to tap the potential of PPPs across the economy. In transport, PPPs could enable the MoT and local authorities to capitalize on available land, combining the construction and modernization of railway stations with wider commercial real estate projects. Furthermore, a more stable environment ensured by the new PSC, the availability of new rolling stock, and the possibility for local authorities to invest in railway modernization can facilitate long-term PPPs for the development of metropolitan train systems, with private operators contributing to the costly upgrades of railway lines or the acquisition of additional rolling stock.

5.4. CHALLENGES TO PRIVATE SECTOR PARTICIPATION IN THE TRANSPORT SECTOR

Extensive state control of the sector

The dominant position of the state in transport infrastructure and services crowds out the private sector. Romania has privileged an overarching model that relies on SOEs to develop key transport infrastructure— notably railways, roads, and airports—and provide transport services. As a result, the private sector has been assigned unusual roles in service provision (e.g., as operator of passenger and freight railway services on segments of the network that ultimately remain under state control), and SOEs continue to enjoy a preferential treatment that ultimately displaces private investment. The significant EU concessional funding available has so far failed to crowd in substantial private sector investment in infrastructure development—in the form of either PPPs or commercial financing, which Romania's liquid banking system would be well placed to supply.

In the railway sector, Romania has adopted a mixed model for private participation that is not delivering much-needed modernization. As noted previously in this chapter, the private sector fulfills two roles in the Romanian rail transport model, both atypical by international standards: i) as service provider on a fraction of railway passenger services, and ii) as infrastructure manager, under long-term lease agreements with CFR SA, on sections of the railway network known as non-interoperable lines. The latter approach was designed to counter the rapid degradation of the network, as the MoT only provides CFR SA with modest funds for line maintenance and upgrades. However, such model has had limited success. The lines it has been applied to are mostly secondary, of poor quality, and with low transport demand, and thus yield scarce profits. In practice, private operators have little motivation, and receive meagre support, to upgrade the lines that they manage. As a result, private sector investments in the railway network have been extremely limited.

Absence of an updated and holistic transport development plan

Optimizing scarce public resources and mobilizing private investment would require an updated and holistic transport plan, which prioritizes the development of key corridors and sustainable urban mobility. The national transport model has received no major update since the preparation of the General Transport Masterplan (GTM) in 2015, which in turn was based on data from the 2010-2012 period. Instead of revising the GTM, the MoT prepared the IPDTI 2021-2030, a sectoral planning document which did not rely on an updated transport model and ranked priorities through a simplified multicriteria analysis.⁹⁴ Moreover, the IPDTI did not identify development needs for air transport, which should fall under a separate dedicated strategy. Another issue lies in the disconnect between the prioritization of projects during the planning phase and their subsequent execution. For example, after seven years on the list of top priorities,

the Pitești – Sibiu motorway remains unfinished and will likely be completed after other less-critical links, such as the Pitești – Craiova express road or the new Ploiești – Bacău motorway.⁹⁵ Moreover, the development of the North Motorway linking Satu Mare to Suceava was approved by law at the end of 2020 even though it was not covered by the GTM,⁹⁶ obliging CNAIR to prepare feasibility studies before having secured funding.

Limited institutional capacity at both central and local levels

Limited institutional capacity is a barrier to the implementation of long-term plans and the effective mobilization of the private sector. Scarce institutional capacity for project preparation, contracting, and pre-implementation explains the slow progress in the absorption of EU funds, as well as the failure of attempts to execute PPPs and attract private sector participation in large infrastructure projects (see Table 5 below). The WBG InfraSAP (2018) documented several technical deficiencies in the early planning stages of large road projects that affected their subsequent development. Such deficiencies are compounded by a convoluted process for obtaining permits that has an impact on costs, execution time, and the ultimate completion of the projects.

TABLE 5 PRIVATE SECTOR INVESTMENT IN ROMANIA'S TRANSPORT SECTOR, 1998-2017

Year	Project name	Project type	Project subtype	Project status	Gov. support	Other support	Sponsors
1998	Constanta Port	Greenfield	Build, operate and transfer	Active	-	EBRD loan	East Point Holding Ltd. (Cyprus)/Romtrans (Romania)
2007	Brasov-Ghimbav International Airport	Greenfield	Build, operate and transfer	Canceled	-	-	Intelcan Techbosystems Inc. (Canada)
2011	CFR (Caile Ferate Romane) lease	Management & Lease Contract	Lease contract	Active	-	-	Trnasferoviar Group SA (Romania)
2012	CFR (Caile Ferate Romane) RC-CF Trans Lease	Management & Lease Contract	Lease contract	Active	Revenue guarantee	-	RC-CF Trans (Romania)
2017	Constanta Port Cereal terminal	Greenfield	Build, operate and transfer	Active	Debt guarantee	EXIM Bank of Romania loan	Comvex SA

Source: CPSD team compilation from different sources.

A host of unsuccessful attempts to structure PPPs in transport have soured the perception of this instrument among policy makers, and discouraged its use as a driver of private sector participation. In 2018, 22 strategic projects were selected for delivery through PPPs—including for three motorways, two railways, a metro line, an airport, and the port of Constanta. Out of all of them, only the PPP for the Brasov – Ploiesti motorway was tendered, but ultimately it was cancelled (see Box 7 below). Multiple failed attempts to implement PPPs in transport have severely dented the confidence of central and local authorities in this tool. This is especially visible at the local level, where cities prefer using EU funds for projects that would be well suited for PPPs, or fail to attract bidders to PPP tenders as they cannot ensure the conditions for a suitable return on investment.⁹⁷ Despite such challenges, Romania could benefit from building upon the extended pipeline of mature projects that SOEs such as CNAIR have developed over time, some of which can form the basis for further PPPs.

BOX 7 THE TROUBLED HISTORY OF THE PPP FOR THE BRAȘOV–PLOIEȘTI MOTORWAY

The Brașov – Ploiești (Comarnic) motorway—although not included in the TEN-T core network—is a politically valuable project, as it would help connect more than 2.5 million people in the capital and its surroundings with one of the country's main touristic areas. The government has made several attempts to develop the motorway via a PPP, but with no results. The most recent effort, in 2018, was led by the National Commission of Statistics and Prognosis (NCSP), an agency with a different mission and no PPP

expertise, which led to mistakes when structuring the project. The tender was launched without an updated feasibility study, and the contracting authority could not agree contractual terms with the selected bidder. Moreover, the complicated terrain to be crossed by the motorway, and the expected concentration of traffic on its route during the weekend, were not sufficiently considered and limited the project's attractiveness for other bidders.

5.5 RECOMMENDATIONS

Create PPP expertise within the national government and build on success stories for PPPs

Establishing centralized PPP units at national and local level could help build expertise within the government and speed up the procurement of PPP projects. Romania's Public-Private Partnership Strategy, prepared in 2021 but not adopted yet, outlines the allocation of responsibilities for project implementation (e.g., project identification and support), policy and regulatory functions (e.g., issuance of secondary legislation, approval process, policy oversight), and fiscal oversight. The development of PPP projects would be further facilitated with the establishment of three dedicated types of units: i) a Public Private Partnership Unit (PPPU) within each procuring authority (e.g., ministries and regional or local governments); ii) a Public Private Partnership Inter-Ministerial Committee (PPPIC) chaired by the Prime Minister, responsible for coordinating national policy and ensuring communication between relevant ministries; and iii) a Public Investment Management Unit within the Ministry of Finance, in charge of coordinating the management of relevant PPPs and sharing expertise with local authorities. Building on this structure, it will be important to train public servants at both the central and local levels. Including in the process the Ministry of Development and Public Administration—which leads or coordinates most funding schemes for local authorities and is responsible for the promotion of SUMPs—would help enhance communication with subnational governments. Combined with much-needed reforms of transport SOEs, the development of technical capacity for PPP preparation and implementation can be key to boosting PPP uptake.

Demonstrating the impact of PPPs at the local level is critical, as successful projects can kickstart wider adoption. Romanian cities monitor and learn from each other—for example, after Cluj-Napoca introduced a €2 parking tariff in the city center, many other cities started reconsidering their parking policies. Although there have been few success stories for transport PPPs in the country so far, it will be essential for the government to focus on projects with a high probability of success, which could become positive examples and encourage local authorities to make use of PPPs.

Develop data-driven planning instruments for multimodal transportation

The MoT would benefit from updating the national transport model while accounting for multimodal transport. An updated transport model will enable an efficient, data-driven prioritization of key transport projects by the MoT and other relevant ministries, with an emphasis on their contributions to transport decarbonization. Together with a stable GTM, an updated transport model is also fundamental to attract private investment, as it provides essential data for cost-benefit analyses, risk assessments, and other relevant evaluations. The MoT has also room to review its planning approach and documentation with a view to selecting projects suitable to be developed as PPPs.

Moreover, a coherent and coordinated strategy for airport development is necessary, whether as a dedicated sectorial plan or as part of the GTM. The likely unavailability of EU funds for airports, the planned expansion of certain regional airports despite declining traffic, and the desire of several cities to build new airports underscore the urgency of such a strategy. Key priorities include streamlining the routes served by each airport to avoid unnecessary duplication, as well as accounting for the competition from foreign airports near the border (e.g., Debrecen airport in Hungary, within a short distance of Oradea).

Engage with local authorities and the private sector to modernize railways

Collaboration between government, local authorities, and the private sector is key to modernizing the railway system and meeting Romania's decarbonization targets. Although Romania's vast but obsolete railway network needs major investment, the country will allocate close to three times more EU funds (from both the NRRP and the OPT) to road infrastructure than to rail over the next seven years, with a focus on developing motorway connections across regions. In this context, raising the resources to accelerate railway modernization—and having a real chance of reducing transport emissions in line with the goal of net zero by 2050—hinges on drawing in private sector investment and enhancing cooperation with local authorities.

In an SOE-dominated railway system, private sector participation is challenging but has slowly been growing. More lines are being leased to private operators, while reforms enacted by the RRA are laying the groundwork for better public-private collaboration. Local authorities can now act as infrastructure managers, and either directly invest in the renewal of railways (especially on non-interoperable lines) or attract private sector support (e.g., financing, operational, or technical expertise). Moreover, the inclusion of busier lines in the non-interoperable network would entice private operators to contribute to their modernization via joint ventures and/or PPPs—especially on routes with clear passenger or freight demand, manageable funding gaps, and the potential for serving wider regions and metropolitan areas or improving logistics corridors. Achieving this will also require the government to plan with clarity, and to focus its scarce resources on maintaining connectivity in underserved regions.

BOX 8 INTERNATIONAL EXPERIENCE WITH RAILWAY CONCESSIONS

Under a typical railway concession contract, the state maintains ownership of the land under the railway, while transferring most infrastructure, rolling stock, and the right to operate rail services to a private company, which operates them on a for-profit basis for a period determined in the contract. Concessions are usually long-term, to take advantage of private sector investment and commercial management practices. Railway concessions can be all-encompassing, or limited to specific components—e.g., freight operations, commuter services, or long-distance passenger services. Concession contracts that include upgrades to rail infrastructure usually last between 25 and 40 years, so that the concession operator can obtain a return on its investment in long-term assets. A concession contract can also include government commitment to invest in assets, such as infrastructure or passenger rolling stock. Infrastructure concessions are generally exclusive—i.e., the concession operator has the exclusive right to invest, maintain, and operate the infrastructure and run trains—although they can require the concession operator to provide access to other train operators providing specific transport services (passenger, freight, or both).

Concessions involve competitive tendering, engage private investment and management directly, and

can transform a state-owned enterprise. Some countries have emphasized the use of concessions to both promote competition within the rail sector and seek private sector investment and management. Large national rail networks, such as those of Brazil, Argentina, and Mexico, were concessioned into self-contained viable sub-networks, each constituting a natural geographic monopoly. In some cases, the government has required new private operators to allow other licensed railway operators access to the concessioned network. In Mexico, the national railway was disaggregated into competing networks, plus a jointly owned concession serving Mexico City. Network segments with lighter traffic density were separately concessioned as short-line railways. These concessions have created competitive rail services, attracting large private sector investments and new, commercially focused railway management teams. Rail traffic in Mexico has soared, the need for subsidy and government investment has plummeted, and the condition of assets (infrastructure as well as rolling stock) has improved greatly. In Cameroon, while results have been less dramatic, there have been significant investments by both the government and the operator, traffic has grown steadily, and the 20-year term of the original 1990 agreement was extended to 30 years.

Partner with real estate developers to finance the expansion of public transport

Capitalizing on the added real estate value from public transport can help cities fund better connectivity with sprawling suburbs. Real estate developers could co-finance the operations of public transport lines that serve their developments, at least up to the point where transport demand makes it possible to run services without large losses. Local authorities could focus on concessions and/or test other mechanisms (e.g., BOT contracts and availability payment mechanisms, or BOT contracts in exchange for development rights over land in attractive areas) to draw in private investment through PPPs, especially for projects that offer clear public benefits but could not tap into EU funds.

BOX 9 BOTs IN RAILWAYS: THE CASE OF SYDNEY METRO NORTHWEST

Sydney Metro Northwest is Australia's first fully automated driverless metro railway. A 36 km link servicing Sydney's north-west, it includes eight new railway stations and upgrades to five existing stations. In 2014 the New South Wales government contracted the Northwest Rapid Transit (NRT) consortium to deliver the A\$3.7 billion Sydney Metro Northwest Operations, Trains and Systems (OTS) Public Private Partnership (PPP) contract, structured on a BOT model. The project is an example of how the private sector can bring in innovative financing structures (in this case, the securitized license model) to fund the development of important public infrastructure. It also shows how large infrastructure projects may be partitioned between several different private participants, with the host government playing the

central coordinating role. The contract includes availability-based payments, and most of the operating company's project costs are recovered through service payments during the operational phase. Such payments are calculated based on the availability of the railway system, and subject to abatement for failure to meet various KPIs (e.g., on timeliness and service quality). The government agency Transport for NSW retains the revenue risk on the infrastructure during the operational phase. Finance for the project was partially raised through a securitized license structure; this enables a separate financing company (stapled to the operating company) to provide indirect finance to Transport for NSW, which is then refunded out of the service payments during the operational phase.

Source: Adapted from WBG PPP library and case studies.

Stock exchange listing can provide resources to develop transport hubs

With the appropriate legal framework, a stock exchange listing can boost private sector participation into profitable transport SOEs. For example, a public listing of the Port of Constanța has been repeatedly mooted over the past 15 years, but with no results. The port's administrator—the National Company Administratia Porturilor Maritime SA Constanța—is 80 percent-owned by the Ministry of Transport, while Fondul Proprietatea (another state-related entity) owns the remainder. The port's profitability, its ability to generate dividends for shareholders, and growth opportunities are prerequisites for encouraging private sector participation. However, current port legislation limits the dividends that can be distributed to shareholders to no more than 25 percent of profits (after deducting the profit tax), which certain investors would consider unattractive.

Boost local and metropolitan transport systems

The second generation of SUMPs and additional funds from the NRRP offer Romanian cities a major opportunity to develop local and metropolitan transport systems. Efforts should focus on better integrating different modes of transport and enhancing their attractiveness as alternatives to the use of private cars. To this end, an effective allocation of resources to major mobility projects, and the involvement of complementary private investment, will be key. Cities can ensure that key enablers of private sector participation are in place—e.g., well-designed parking policies, to stimulate private investment in multistorey parking garages; coherent cycling networks, to attract private micro-mobility operators; and an appropriate data management framework, to encourage the uptake of MaaS. Moreover, recent updates to the legal framework for urban regeneration—especially the possibility to take over assets from the MoT—enable local authorities to capitalize on railway stations as intermodal hubs, integrated within larger urban regeneration projects to be developed through PPPs. In this context, BOT contracts can be a valuable tool for the renewal, upgrade, or construction of railway stations, bus terminals, and other transport hubs.

TABLE 6 POLICY RECOMMENDATIONS FOR TRANSPORT

Policy/area/constraint	Recommendations	Expected benefits	Difficulty	Timeline	Responsibility
Updated long-term transport planning	<ul style="list-style-type: none"> Update the national transport master plan, as a framework to develop integrated transport corridors and synergies between national, regional, and urban transport systems, ensuring consistency with Romania's major development goals (competitiveness and decarbonization of transport). 	<ul style="list-style-type: none"> Balance the allocation of scarce public resources. Identification of synergies with the private sector and leveraging of EU funds. Set a holistic strategic framework to signal transport sector priorities (decarbonization, sustainable urban mobility, transport corridors) and investment needs that require the private sector as a partner. 	✓✓	ST 1 year	MoT
Limited technical capacity for project preparation and PPP management	<ul style="list-style-type: none"> Develop centralized units at both national and local level with the expertise to develop projects and PPPs. Promote success stories and ensure transferability of good practices in PPP development. 	<ul style="list-style-type: none"> Higher quality and faster implementation of transport infrastructure projects. 	✓✓	ST 1 year	Secretary of the Government and other ministries (MoF)
Slow shift to sustainable urban mobility	<ul style="list-style-type: none"> Pilot test PPPs as a modality to attract private sector to municipal/regional projects focused on: integrated urban transport, regional/metropolitan railways, electrified mass transport modes, e-mobility, cycling and urban regeneration projects (e.g., park & ride facilities linked with transport network optimization). Update and develop technical specifications and design guidelines at national level for sustainable urban mobility projects, especially those related to cycling infrastructure, street reconfiguration (shift to the concept of "complete streets"), and dedicated public transport lanes. 	<ul style="list-style-type: none"> Decarbonization of transport. More attractive and sustainable public transport services. Recovery of valuable land for public spaces or for integrating other modes of transport (cycling or BRT). 	✓✓	MT 3 years	Secretary of the Government and other ministries (MoT and MDPWA) MoT / CFR Local and metropolitan authorities

✓ Relatively low difficulty ✓✓ medium difficulty ✓✓✓ high difficulty

ST – Short-term, MT – Medium-term, LT – Long-term

Note: BOT=Build-Operate-Transfer; BRT= Bus Rapid Transit; CESTRIN= Center for Technical Road and Computer Studies; CFR= Căile Ferate Române, Romanian State Railway Carrier; CNAIR= National company for road infrastructure administration; MDPWA= Ministry of Development, Public Works and Administration; MOT= Ministry of Transport; PPPs=Public-private partnerships; SOEs=State-owned enterprises

Policy/area/constraint	Recommendations	Expected benefits	Difficulty	Timeline	Responsibility
Unusual roles for private sector participation in railway infrastructure management and passenger service provision	<ul style="list-style-type: none"> Finalize reform of railway sector SOEs to enhance commercial focus, enable network optimization, and facilitate the development of regional and suburban railway services. Pilot PPP concessions on segments of the railway network. Prepare framework for BOT contracts for central railway stations. 	<ul style="list-style-type: none"> Increased commercial focus and reduced SOE debt, allowing them to invest in modernizing key assets. Faster uptake of non-interoperable lines, providing suitable conditions for the modernization of the secondary railway network. Capitalize on the potential of railway passenger networks to develop regional and sub-urban transport services that support sustainable mobility. Additional modernized railways with improved commercial speed, and an attractive / sustainable alternative to travel by car. Modernized railway stations functioning as real intermodal hubs and attractive public spaces. 	✓✓✓	LT 5 years	Secretary of the Government and other ministries (MoT and MDPWA)
Integrated motorway corridors	<ul style="list-style-type: none"> Identify one to three motorways to be developed via PPPs, linked to urban transport and logistic nodes. 	<ul style="list-style-type: none"> Faster completion of key transport corridors, and demonstration of viability of well-developed PPP projects. 	✓	MT 3 years	MoT / CNAIR / CESTRIN

✓ Relatively low difficulty ✓✓ medium difficulty ✓✓✓ high difficulty

ST – Short-term, MT - Medium-term, LT – Long-term

Note: BOT=Build-Operate-Transfer; BRT= Bus Rapid Transit; CESTRIN= Center for Technical Road and Computer Studies; CFR= Căile Ferate Române, Romanian State Railway Carrier; CNAIR= National company for road infrastructure administration; MDPWA= Ministry of Development, Public Works and Administration; MOT= Ministry of Transport; PPPs=Public-private partnerships; SOEs=State-owned enterprises

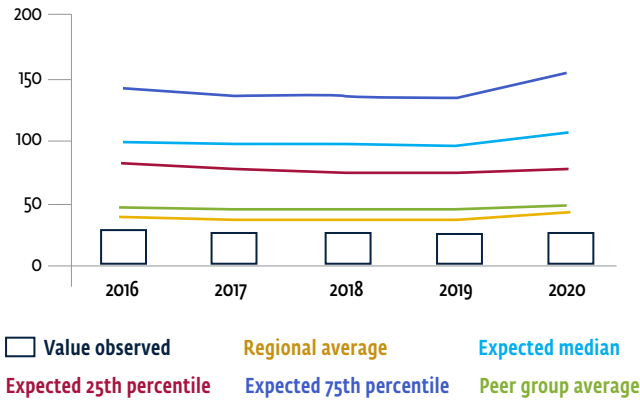
6. IMPROVING FINANCIAL ACCESS FOR INDIVIDUALS AND MSMEs AND SUPPORTING THE GREEN TRANSITION

Improved access to finance for individuals and MSMEs and the development of green finance can help drive private sector growth in Romania, and foster innovation essential to a successful green transition. Romania's financial sector remains small relative to its regional peers. Low levels of financial intermediation and inclusion hinder the financial sector's ability to support productive, inclusive, and green growth, and addressing such bottlenecks will require significant efforts from the public and private sectors. This chapter considers challenges and opportunities to expand financial inclusion and digital financial services for individuals and MSMEs in Romania (Section 6.2). Then, it outlines what role the financial sector can play in greening Romanian MSMEs (Section 6.4). Finally, it offers policy recommendations in both areas (Section 6.3, Section 6.4 and Table 8).

6.1. SECTOR CONTEXT: STRUCTURE OF THE FINANCIAL SECTOR IN ROMANIA

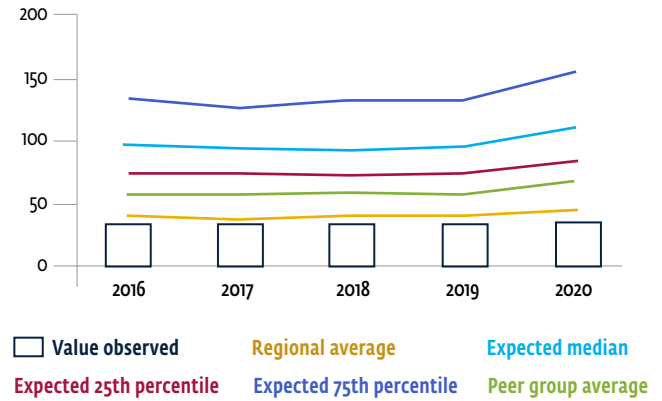
Romania has the lowest level of financial intermediation in the EU. The total assets of the banking sector as a share of GDP stood at 52.5 percent as of June 30, 2022, lower than in comparable countries such as Poland (95 percent), Bulgaria (95.3 percent), Croatia (140 percent), and Czechia (147 percent), and significantly lower than the Euro area average of 289.1 percent.⁹⁸ According to Finstats 2020, total credit as a percentage of GDP amounted to 26 percent in 2020, significantly below the expected 25th percentile (77.3 percent), and lower than the Europe and Central Asia (ECA) average of 41 percent (Figure 53).⁹⁹ Similarly, domestic deposits as a percentage of GDP (37.8 percent) are below the expected 25th percentile (83.8 percent) and the ECA average (43.8 percent) (Figure 55). In 2021 and 2022, bank assets grew by 14.2 percent and 9.6 percent respectively year-on-year (y-o-y), while credit grew by 8.4 percent y-o-y in 2022. Loans to households are equivalent to 14.2 percent of GDP, and loans to enterprises to 12.9 percent of GDP.¹⁰⁰ Access to housing finance is limited (in 2021, the mortgage-to-GDP ratio was 8.5 percent, versus 46.1 percent in the EU), which constrains economic opportunities and flexibility as well as household finances, savings, and investment.¹⁰¹

FIGURE 53 PRIVATE CREDIT TO GDP, (%)



Source: Finstats, 2020.

FIGURE 54 DOMESTIC BANK DEPOSITS TO GDP, (%)



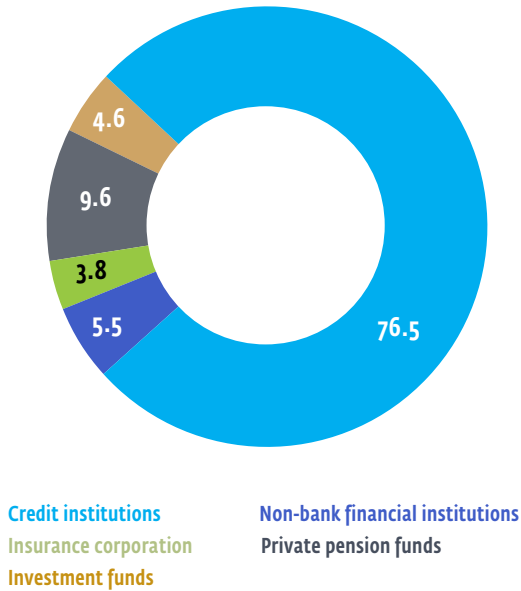
Source: ECB Data Warehouse.

Note: For majority foreign-owned banks, the data includes the assets of their local branches and subsidiaries.

The Romanian financial sector is dominated by banks, which tend to offer basic products and have ample lending capacity. As of 2022, credit institutions (mostly banks) held 76.5 percent of Romania’s total financial sector assets (Figure 55), with the remainder held by private pension funds (9.6 percent), investment funds (4.6 percent), non-bank financial institutions (NBFIs) (i.e., microfinance institutions, consumer finance companies, leasing companies—5.5 percent), and insurance companies (3.8 percent) (Figure 55). The banking system’s loan-to-deposit ratio stood at about 70 percent, demonstrating ample lending capacity. Sizable bank financing to the government, however, risks crowding out intermediation for the private sector: Romanian banks’ claims to the government accounted for about 22 percent of their total assets at the end of 2022, the highest share in the EU. financial technology companies (fintechs) have started to enter the market, particularly for innovative digital payment services.

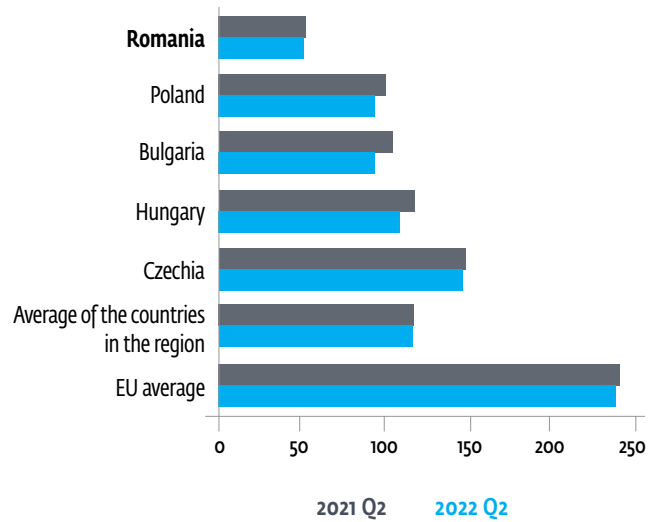
NBFIs and cooperative banks are small, but play an important role in financing micro-entrepreneurs and rural consumers. Cooperative banks are important for financial inclusion, as most of their clients are based in rural areas and small towns. The cooperative banks’ network counts 34 banks, 800 branches, and more than 650,000 members (with a further 550,000 customers who are not members). Cooperative banks offer accounts, loans, and other basic financial services to consumers who would otherwise have little access to them. Microfinance institutions (MFIs) are small and serve mainly micro-entrepreneurs (77 percent of NBFI loans).

FIGURE 55 BREAKDOWN OF FINANCIAL SECTOR ASSETS, IN PERCENTAGE (Q3 2022)



Source: NBR Financial Stability Report, 2022.
 Note: NBFIs = Non-Bank Financial Institutions.

FIGURE 56 TOTAL ASSETS OF THE BANKING SECTOR AS A PERCENTAGE OF GDP (Q2 2022)



Source: NBR, ECB Data Warehouse.
 Note: For majority foreign-owned banks, the data includes the assets of their local branches and subsidiaries.

Disparities in access to finance are wide, both by region and by income bracket. Access to financial services is concentrated in the Bucharest region, with gaps in financial inclusion in rural areas and smaller towns, as well as among lower-income and less-educated population segments. The poorest 40 percent of the population are 20 percentage points less likely to have a bank account than the richest 60 percent, a gap that has narrowed since 2017 but remains substantial. Lending is highly concentrated in the Bucharest-Ilfov region, followed by the South-Muntenia, South-East, and North-West regions. The Bucharest-Ilfov region accounts for about one-third of total loans to individuals and firms, with loans to individuals and to firms having a similar regional distribution. Loans in the capital region are also typically larger in size, with an average of RON 84,238 (approximately €17,000) compared with an average of RON 56,562 (approximately €11,450) in other regions.

Capital markets are shallow, both for equity and corporate bonds, and venture capital in support of innovative firms is limited. Romania’s capital markets remain the shallowest in Europe, and the institutional-investor base is narrow. Government bonds dominate the domestic debt market, while the corporate debt landscape remains underdeveloped. The Bucharest Stock Exchange has scarce liquidity and is significantly smaller than its regional peers: its main market counted only 83 listed companies as of September 2022, for a total market capitalization of €28.5 billion (or 11.9 percent of GDP).¹⁰² Financing from venture capital and private equity is also limited.

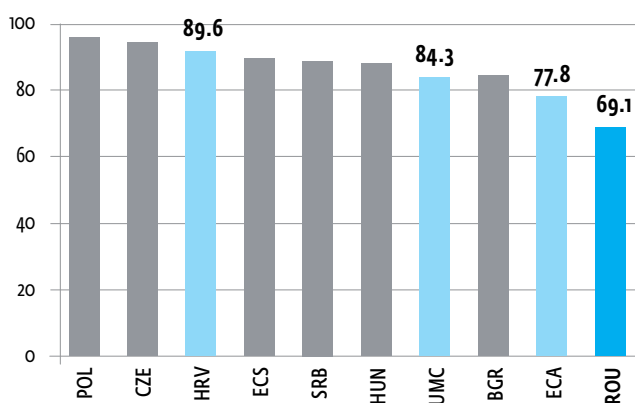
6.2. IMPROVING FINANCIAL INCLUSION AND DIGITAL FINANCIAL SERVICES FOR INDIVIDUALS AND MSMEs

Romania faces significant challenges in financial inclusion for individuals

Romania has low levels of financial inclusion, including account ownership and usage, access to finance, and use of digital payments. According to the World Bank’s Global Findex database, 69.1 percent of adults in Romania owned a transaction account in 2021, a share more than 10 percentage points higher than in 2017, but still below the averages of both regional and income peer countries (Figure 57). Account usage and savings is also lower than regional peers. According to the Global Findex 2021, 26.6 percent and 32.3 percent of those who had an account had made no withdrawals or deposits, respectively, in the previous year—a pair of dormancy rates higher than in several regional peers.¹⁰³ Only 44.9 percent of adults had saved in the previous year, and less than half of those adults placed their savings with a formal financial institution—again, lower rates than in many regional peers.¹⁰⁴

While card ownership and usage have historically been limited, digital payments have increased significantly in recent years. According to the IMF’s Financial Access Survey (FAS), the number of debit and credit cards per 1,000 adults in Romania was 1,149 in 2020, still the lowest among regional peer countries despite previous growth.¹⁰⁵ At the same time, data from the Global Findex 2021 indicated a rise in the use of digital payments since 2017: 63.5 percent of adults had made or received a digital payment in the previous year (still a lower share than in regional peers),¹⁰⁶ but 61.9 percent paid utility bills in cash only (a significantly higher share than in regional peers).

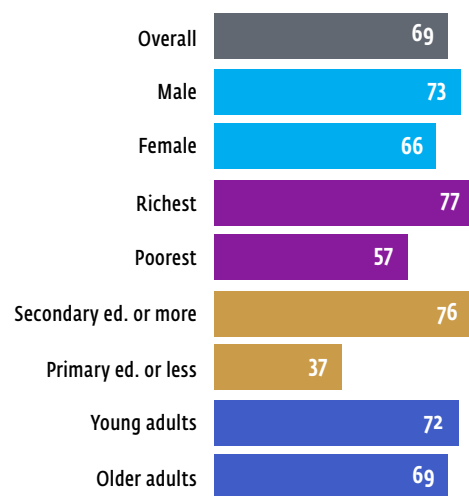
FIGURE 57 OWNERSHIP OF TRANSACTION ACCOUNTS (% OF INDIVIDUALS AGED 15+)



Source: Global Findex Database, 2021.

Note: ECS = Europe and Central Asia, ECA = Europe and Central Asia excluding high income, UMC = Upper-middle-income countries, POL=Poland, CZE=Czechia, HRV=Croatia, SRB=Serbia, HUN=Hungary, BGR=Bulgaria, ROU=Romania.

FIGURE 58 ACCOUNT OWNERSHIP BY POPULATION SEGMENT (% OF INDIVIDUALS AGED 15+)



Source: Global Findex Database, 2021.

Note: Ed = education.

Digital financial services (DFS) have been expanding rapidly, benefiting the underserved particularly. Many financial services providers (FSPs) have been shifting to digital channels, while reducing physical access points. Moreover, new players have been injecting innovation and competition, particularly in digital payments—which have been boosted the pandemic. For example, there were 16.1 mobile money accounts per 100,000 adults in 2020 compared with 7.9 in 2018, and the number has likely grown since.¹⁰⁷ While the uptake of DFS appears greater among younger and urban consumers, its scale indicates that DFS help address previously unmet demand. Romania’s relatively advanced ICT infrastructure provides a strong foundation for expanding DFS; notably, 99.7 percent of the country’s populated areas had 4G coverage in 2021, in line with the EU average.¹⁰⁸

Both supply- and demand-side factors contribute to Romania’s low level of financial inclusion. For individual consumers, key issues include poor financial literacy, mistrust of the financial sector, comfort with using cash, as well as a limited rural payments infrastructure—with a dwindling number of physical access points (such as ATMs and bank branches) in rural areas. Certain FSPs have launched initiatives to expand financial inclusion, but they tend to be limited and ad-hoc. Broader policy efforts have intensified in recent years, with the launch of a draft National Strategy for Financial Education in April 2022 marking a significant step forward.

Access to Finance for MSMEs is a key barrier to private sector growth

Micro, small, and medium-sized enterprises (MSMEs), which are important economic agents in Romania, also experience significant gaps in access to finance. In 2019, MSMEs accounted for 53 percent of GDP, and employed 66 percent of the country’s labor force (see Table 7). However, outstanding SME loans from commercial banks amounted to 7.5 percent of GDP in 2020, the lowest share among regional peers except Poland.¹⁰⁹ The World Bank’s Enterprise Surveys 2019 found that 36 percent of small enterprises and 46.6 percent of medium-sized enterprises had a loan/line of credit.¹¹⁰ Less than one-third of firms rely on banks to finance their investments (a lower share than in regional peers), while many firms count primarily on internal sources of financing. The 2022 EIB Investment Survey echoed these findings.¹¹¹

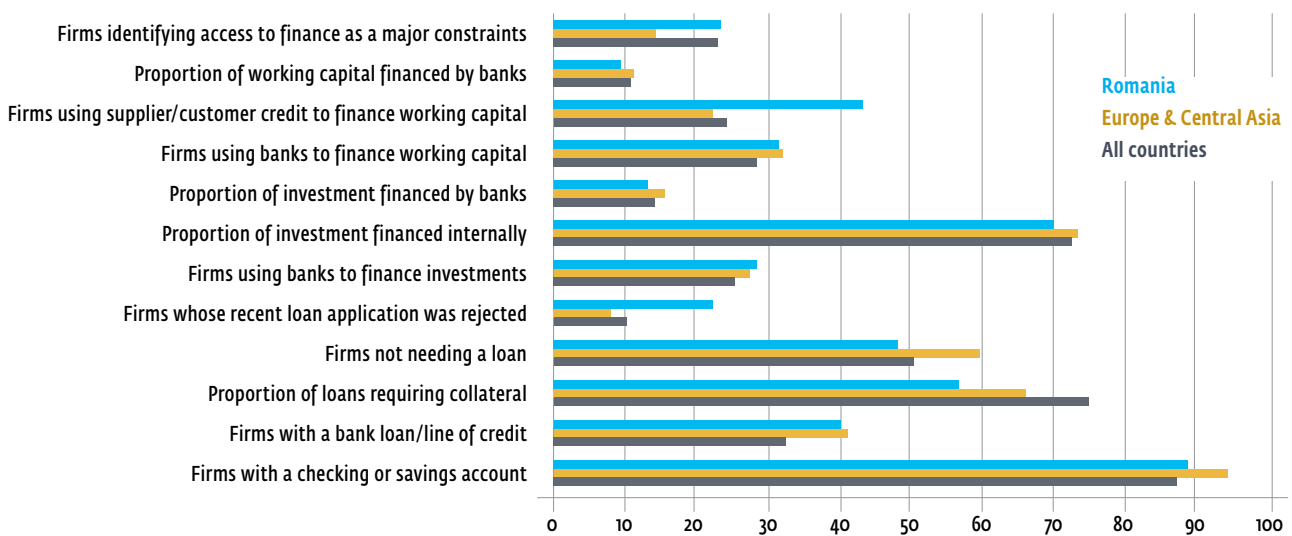
TABLE 7 DISTRIBUTION OF FIRMS IN ROMANIA, BY SIZE 2019

	NUMBER OF COMPANIES		NUMBER OF COMPANIES		ADDED VALUE	
	Number	%	Number	%	€ bin	%
Micro	430,925	88.4	930,720	22.8	13,6	17.6
Small	46,299	9.5	903,635	22.1	13,5	17.5
Medium	8,533	1.8	857,129	21.0	13,6	17.6
All SMEs	485,757	99.7	2,691,484	65.8	40,7	52.7
Large	1,667	0.3	1,397,566	34.2	36,6	47.3
Total	487,424	100.0	4,089,050	100.0	77,3	100.0

Source: Small Business Act, 2019.

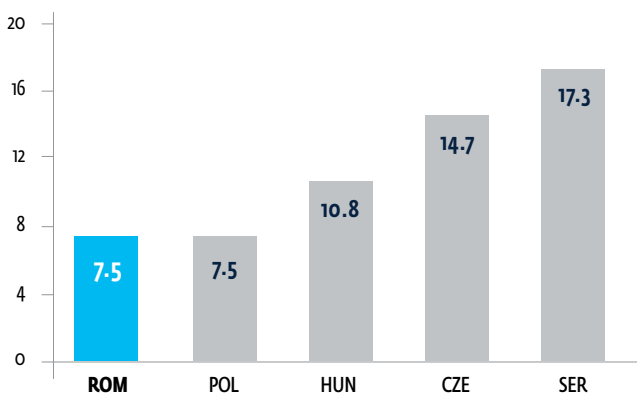
The MSME financing gap is estimated¹¹² at 26 percent of GDP, with about 36 percent of micro enterprises and 14 percent of SMEs either fully or partly credit-constrained. Access to finance is necessary to develop the private sector, boost productivity and growth, and ultimately create jobs and reduce poverty. Yet, up to 26 percent of Romanian firms identify access to finance as a major constraint, with the share of firms that applied for a loan and were denied it amounting to 22.5 percent—almost three times higher than the ECA average (Figure 59).

FIGURE 59 MSME ACCESS TO FINANCE IN ROMANIA, ECA REGION AND ALL COUNTRIES (PERCENTAGE OF TOTAL FIRMS)



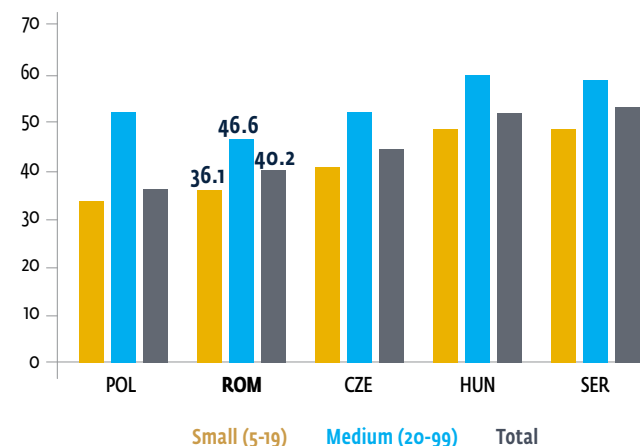
Source: World Bank, Enterprise Surveys, electronic dataset (World Bank, Washington, DC, 2019).

FIGURE 60 OUTSTANDING SME LOANS FROM COMMERCIAL BANKS (% OF GDP), 2020



Source: IMF Financial Access Survey, 2020.

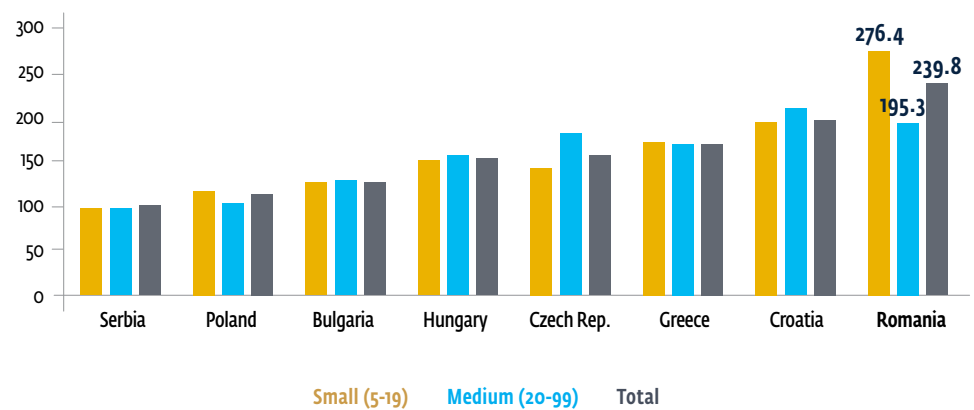
FIGURE 61 PERCENTAGE OF SMEs WITH A BANK LOAN/LINE OF CREDIT, 2020



Source: Enterprise Surveys.

The low levels of MSME finance in Romania stem from both demand- and supply-side factors. On the demand side, many firms are undercapitalized (34 percent of all firms in 2020, according to NBR data)¹¹³ and have poor quality financial statements (when available), a high degree of informality, limited hard collateral, and poor financial literacy. On the supply side, deficiencies in financial infrastructure increase the cost and risk for lenders in serving MSMEs. As a result, banks are very risk averse, and rely heavily on hard collateral and guarantees (both from national schemes and EU-funded programs). At nearly 240 percent of loan value, the collateral required from SMEs in Romania is the highest among regional peers (see Figure 62), and very few loans are secured by movable collateral.

FIGURE 62 VALUE OF COLLATERAL NEEDED FOR A LOAN, BY FIRM SIZE (% OF LOAN AMOUNT, FIRM SIZE BY NUMBER OF EMPLOYEES)



Source: World Bank, Enterprise Surveys, electronic dataset (World Bank, Washington, DC, 2019).

6.3. POLICY RECOMMENDATIONS FOR IMPROVING FINANCIAL INCLUSION FOR INDIVIDUALS AND MSMEs

Addressing the challenge of financial inclusion for individuals and MSMEs in Romania requires multi-pronged strategies. The following sections examine barriers and opportunities in four areas that are key to greater financial inclusion in Romania: (1) developing a holistic approach to financial inclusion; (2) increasing account ownership and usage; (3) leveraging digital financial services; and (4) expanding MSME finance.

Developing a holistic approach to financial inclusion

A holistic and coordinated approach to financial inclusion is necessary. Despite recent policy efforts to advance this agenda, and particularly on financial education, such an approach should bring together demand-side, supply-side, and infrastructural initiatives in a holistic and coordinated fashion. It will also entail determining where financial inclusion ranks as a high-level policy objective, identifying a clear champion for it, and clarifying institutional roles and responsibilities for supporting it. A dedicated national working group could be established to advance the financial inclusion agenda and coordinate with other stakeholders. Notably, several central banks globally have a mandate to focus on financial inclusion, and even those that do not have it are often active in this area—for example, by promoting financial education, innovation in payments, or microfinance programs.

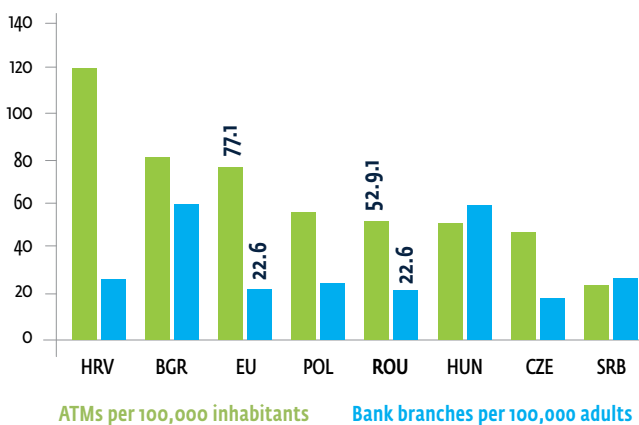
Increasing account ownership and usage, particularly among rural consumers

Increasing account ownership and usage requires developing a “business case” for them, with a focus on rural and unbanked consumers. Rural and low-income consumers have long-standing familiarity and comfort with cash, operate within a cash-based economy, and have limited opportunities to utilize accounts given a shortage of access points in rural areas. Meanwhile, FSPs have little motivation to serve such segments, given suppressed demand and higher operational costs. Addressing these systemic factors requires a holistic approach.

On the demand side, greater efforts are necessary to increase consumer awareness of the benefits and uses of accounts and digital payments. Moreover, digitizing person-to-government (P2G) and government-to-person (G2P) payments can motivate consumers to shift away from cash, and thus create sufficient demand for FSPs to develop rural infrastructure. In parallel, policy efforts to enhance the rural payments infrastructure should intensify, particularly to increase card acceptance among merchants. Finally, DFS and existing rural networks—such as Posta Romana branches and third-party retail agents—could be better leveraged as low-cost channels for the delivery of financial services. These points are outlined in more detail in the following sections.

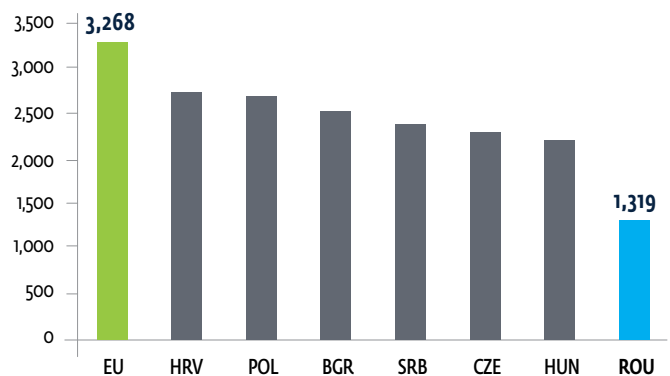
On the supply side, the rural payments infrastructure remains limited and having physical operations in rural areas is expensive and cost prohibitive for FSPs. Physical access points in rural areas (such as ATMs and branches) have experienced steady declines. ATM penetration (53 ATMs per 100,000 inhabitants) is underdeveloped compared to the EU average (77 ATMs per 100,000 inhabitants) and has been declining over the last years (-11.8 percent fewer ATMs in December 2021 compared to December 2015). There were also 22.6 branches per 100,000 adults, lower than peer countries (Bulgaria has 60.3, Croatia 27.1, and Poland 25.7) and steadily declining since 2008 (when it had 36.7) - particularly in rural areas. The penetration of POS terminals (1,319 POS terminals per 100,000 inhabitants) also remains severely underdeveloped compared to EU average and peer countries average (3,268 and 2,300, respectively)¹¹⁴, despite recording 105.5 percent growth between 2016 and 2021.

FIGURE 63 NUMBER OF ATMs AND BRANCHES PER 100,000 INHABITANTS, 2020

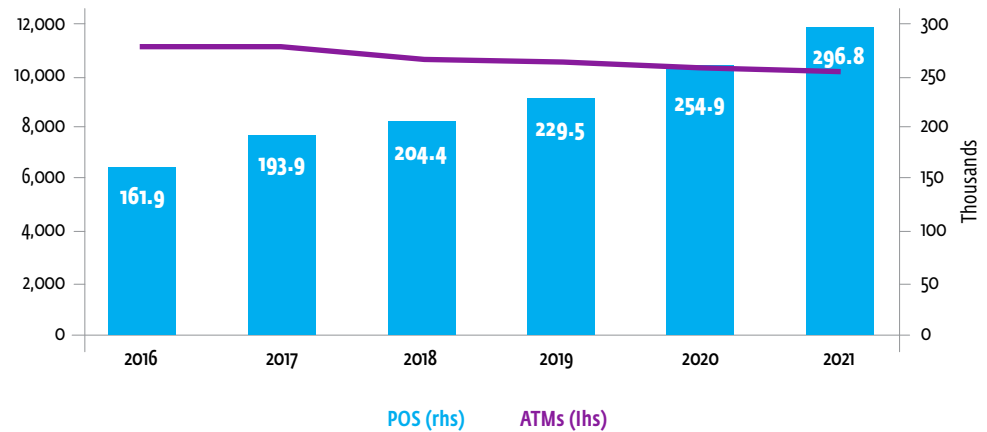


Source: ECB Payment Statistics, 2020 and IMF FAS.
 Note: ATMs data for Bulgaria and Serbia as of 2019.

FIGURE 64 NUMBER OF POINT OF SALE (POS) TERMINALS PER 100,000 INHABITANTS, 2020



Source: ECB Payment Statistics, 2020.
 Note: POS terminals data for Croatia and Bulgaria as of 2019.

FIGURE 65 ROMANIA: NUMBER OF POS TERMINALS AND ATMs PROVIDED BY PSPs

Source: NBR.

Increasing financial literacy among underserved consumers

Poor financial literacy is one of the main barriers to financial inclusion in Romania, but ongoing efforts to enhance it appear limited and fragmented. Broader policy efforts in this area have intensified in recent years, including a collaboration agreement signed by the Ministry of Finance, NBR, FSA, the Ministry of Education, and the Romanian Association of Banks in July 2018 for joint activities in financial education, and the launch of a draft National Strategy for Financial Education in April 2022. In addition, the NBR has approved an Action Plan for increasing the financial education of entrepreneurs, and is conducting surveys measuring their level of financial education. The National Committee for Macroprudential Supervision (NCMO) issued Recommendation no. R/3/2022 on the sustainable increase in financial intermediation, including recommendations to improve entrepreneurs' financial education. However, a more comprehensive approach is required, including initiatives to target key segments of the population with tailored messages on priority topics—while ensuring accountability in, and resources for, implementing the abovementioned National Strategy.

Targeted initiatives to raise consumer awareness of basic bank accounts, and to facilitate the comparison of fees, could be beneficial. Since the impact of the basic bank account requirement introduced in 2017 seems to have been limited so far, focused initiatives could aim to raise consumer awareness of the availability of free or low-fees basic bank accounts, and to enable an easy comparison of basic account products. The law that introduced basic bank accounts required the National Authority for Consumer Protection (ANPC) to establish a website where the fees charged by providers FSPs could be easily compared, but this is yet to be developed and launched.¹¹⁵ Policymakers could also consider requiring FSPs to provide a simple summary sheet of account fees in a standardized format.

Digitizing P2G and G2P payments

Efforts to digitize P2G and G2P payments should continue, in order to facilitate a widespread shift away from cash. Digitizing large-volume, recurrent payment streams such as P2G and G2P payments will help increase familiarity and comfort with digital payments, and encourage a broader shift away from cash. The Romanian government launched the National Electronic Payment System (SNEP) in 2011, which enables individuals to make payments to public institutions that hold accounts with the state treasury, as well as to certain other entities, using payment cards. In 2017, the government also mandated that public utilities and public institutions that collect taxes, fines, and other mandatory payments use modern payment systems, which includes accepting electronic payments.¹¹⁶

Existing initiatives should be expanded, and ensure that digital payment platforms become accessible to rural consumers. In 2022, SNEP was utilized by 1,383,000 users (900,000 more than in 2020) and more than 1,000 public institutions. The system facilitates 350 types of online payment, reinforcing the substantial shift toward digital payments that started during the pandemic. However, there is room for further growth, particularly in rural areas and small towns: among municipal authorities, 99 percent of cities are enrolled in SNEP, but the share drops to 76 percent for towns, and 25.7 percent for villages.¹¹⁷ The Authority for the Digitalization of Romania (ADR) is making significant efforts to increase outreach and enrollment in SNEP—including awareness campaigns with local governments—which should receive continued support. Policymakers may also consider whether more differentiated pricing structures for connecting to SNEP are warranted for villages, in order to encourage enrollment.

At present, G2P payments are only partially digitized. Digitized G2P payments include those for government wages, pensions, and social welfare programs. According to the Global Findex 2021, 39.5 percent of the recipients of government payments receive them in cash (a much higher percentage than in peer countries), and nearly one-third of unbanked adults receive some form of government payment in cash. Among pensioners, almost half receive their pension in cash—once again, a much higher percentage than in regional peers.¹¹⁸ In rural areas, pension payments are primarily delivered manually by Posta Romana postal workers, which entails delivery costs of about €600 million per year.¹¹⁹ Social welfare payments are partly digitized, but an estimated 94 percent are still made in cash.¹²⁰ Overall, the public institutions that distribute G2P payments do not have consistent standards and internal processes for managing them.

Further digitizing G2P payments in a coordinated manner would help motivate both rural consumers to own accounts, and FSPs to develop the necessary payment infrastructure. Efforts to increasingly digitize G2P transfers, and to encourage recipients to choose electronic channels for such payments, would reduce payment costs for the government, provide more timely and convenient transfers to consumers, and increase account ownership.¹²¹ Policymakers could explore the development of a shared payment platform across multiple government programs and FSPs, which would offer numerous potential advantages: fewer bureaucratic obstacles, greater efficiency through economies of scale, more incentives for users, as well as real-time reconciliation and secure data exchange through application programming interfaces (APIs).¹²²

Expanding rural payments infrastructure

It will be critical to enhance the rural payments ecosystem. Considering the size of Romania's unbanked population, the expansion of DFS alone cannot close all financial inclusion gaps. Physical access points where rural consumers can use their accounts and make transactions are necessary. However, with 1,319 POS terminals per 100,000 inhabitants, the penetration of POS terminals remains limited nationally despite recent growth, and is significantly lower in rural areas.

Policy measures have attempted to boost the use of POS terminals among merchants, but card acceptance has not increased in rural areas. Government Decision No. 949/2017 called for all legal entities active in retail trade and with annual turnover of at least €10,000 to use modern payment systems, including POSs. However, this decision did not cover certain businesses (such as restaurants or wholesalers) and the threshold was subsequently raised to €50,000, reversing initial gains in POS growth. As a result, card acceptance by merchants in rural areas has been low, especially since many small merchants in such areas are informal and reluctant to bear the hardware costs and recurring fees associated with POSs. In 2022, Law No. 128/2022 amended Decision No. 949/2017 and expanded the category of agents obliged to accept digital payment methods, namely legal entities engaged in retail trade and achieving an annual turnover greater than €10,000. In addition, targeted financial and regulatory incentives to POS adoption could be considered, such as subsidizing the purchase of POS terminals, disincentivizing the use of cash via limits to cash transaction, or offering tax incentives for card transactions.¹²³

At a higher level, it would be useful to conduct a broader analysis of constraints and opportunities in digital payments, and to develop a comprehensive dedicated strategy. Progress on digital payments and financial inclusion requires a holistic approach that addresses barriers along multiple dimensions, including infrastructure, pricing, interoperability, competition, market dynamics, and legal and regulatory frameworks—along with demand-side factors, such as the financial and digital literacy of consumers and small merchants. A deeper and more comprehensive analysis could be conducted utilizing the CPMI/WBG Payment Aspects of Financial Inclusion (PAFI) framework.¹²⁴ The results of such an assessment could inform a national retail or digital payments strategy, to be developed in close coordination with public and private sector stakeholders.

Leveraging existing rural networks as low-cost delivery channels

Existing rural networks and infrastructure could be better leveraged to provide low-cost channels for the delivery of financial services in rural areas.¹²⁵ As noted above, the number of physical access points in Romania has been steadily declining, particularly in rural areas. As of September 2018, rural areas only hosted 14 percent of the Romanian bank branch network despite being home to a large population, for a penetration rate of 8 branches per 100,000 adults (compared with 49 branches per 100,000 adults in Bucharest).¹²⁶ Boosting account ownership and, more broadly, the use of financial services in rural areas requires the availability of physical access points that are economically sustainable for FSPs.

Posta Romana's extensive network of post offices and staff in rural areas has major potential to serve as a delivery channel for financial services. Rural Romania has 58 post offices per 100,000 adults, a ratio seven times higher than that of bank branches. Every year, post offices and postal workers deliver on average 17 cash payments per financially excluded adult in rural Romania. However, to serve as a vehicle for greater rural financial inclusion in partnership with financial institutions, PR first needs to undergo comprehensive structural reforms.

There is also potential for FSPs to better utilize third-party agents, such as retail stores, as service points for FSPs. Leveraging third-party agents is a common strategy utilized to advance financial inclusion, particularly where there are operational and logistical challenges in reaching rural and remote areas on a sustainable basis. Few FSPs currently appear to leverage agents in Romania, and mostly use them to attract loan customers and not to conduct basic transactions such as cash in/cash out (CICO) as is typical in other countries. Policymakers should consider identifying and addressing any barriers or disincentives for FSPs to use agents for conducting basic banking transactions.¹²⁷

Leveraging Digital Financial Services

Romania benefits from a strong foundation for DFS. Romania's robust ICT infrastructure favors the development of DFS, which can reach a large number of consumers at a relatively low cost. Moreover, substantial policy efforts have created an enabling DFS ecosystem. These include large-scale initiatives on the digitalization of government services, the establishment of the ADR, recent ADR regulation on digital onboarding, the full transposition of Directive 2015/2366/EU on payment services (PSD2),¹²⁸ the establishment of a Fintech Innovation Hub at the Romanian central bank, and the introduction of open banking.

Certain reforms would further facilitate the growth of DFS. These include: (i) clarifying the rules on the use of advanced e-signature to help facilitate digital onboarding and digital transactions; (ii) exploring options for granting FSPs direct access to the national registry of IDs, while working to advance the roll-out of the eID program (although FSPs have developed their own processes for digital onboarding, direct access to the national ID registry for remote verification would save significant time and costs); and (iii) monitoring developments in digital onboarding and determining whether further clarifications may be needed, in line with the EBA guidelines. More broadly, efforts to foster fintechs and broader innovation and to support the expansion of open banking should continue.

Policymakers should ensure that regulatory and supervisory frameworks are updated to address new and enhanced risks related to DFS. Such risks concern a range of areas, from operational reliability and continuity of service, to outsourcing, cybersecurity, and data privacy and protection. Fraud concerns could deter the unbanked and underserved, who already tend to have little trust in the financial sector, from adopting DFS. In addition, the existing framework of consumer protection in financial services will likely require revision and enhancement to keep up with the development of DFS and fintechs, especially in areas such as digital disclosure, responsible lending, aggressive sales practices, and algorithmic discrimination, among others.

Expanding MSME finance

Expanding access to finance for MSMEs will require a broad range of initiatives that address demand-side, supply-side, and financial infrastructure barriers. On the demand side, policymakers should invest in financial and digital literacy programs for MSMEs, preferably as part of a broader, coordinated approach to financial literacy in Romania as discussed above. Such initiatives could be coordinated with those to formalize and digitalize MSMEs for greater combined impact—e.g., initiatives under the Intelligent Growth, Digitalization and Financial Instruments Operational Program (POCIDIF) and the NRRP. NBR has also started to include financial literacy questions for entrepreneurs in its surveys on access to finance of non-financial companies in Romania.

On the supply side, the scope, targeting, and additionality of guarantee programs should be assessed and optimized. Several existing credit guarantee funds have similar scopes and target clients, and offer opportunities for improvement. Notably, lenders often rely on such guarantees while also requiring hard collateral from borrowers, which results in loans being overcollateralized. Policymakers should consider evaluating current guarantee schemes to improve their additionality and targeting, and ensure that they operate efficiently and effectively. The new Development Bank (expected to be operational in 2025) should play a key role in offering a well-designed partial credit guarantee scheme, and further ahead in the future it could become a centralized provider of credit guarantees.

Continuing to facilitate FSP access to government data on MSMEs would be beneficial. A range of government tools and institutions—e.g., the trade registry and the National Agency for Fiscal Administration (ANAF)—hold useful information on MSMEs that FSPs could utilize to assess potential borrowers. Although stakeholders can currently access some of this data, doing so can be time-consuming and costly. Faster and smoother access to such databases (e.g., via APIs) would be beneficial, and the extensive e-government initiatives already underway will likely help to make it possible. Alternatively, a database with verified and standardized financial information on SMEs could be designed to provide financial institutions with more transparent information for credit risk assessments.

Greater support could be considered for cooperative banks and MFIs, which have unparalleled access to some underserved MSME segments. CREDITCOOP, the central cooperative bank, is implementing a broad digitalization project, with plans to introduce card systems. Cooperative banks would benefit from support to further modernize their core banking systems, and expand their capacity to serve more consumers with a broader range of products and services. Furthermore, cooperative banks should be allowed the flexibility to consolidate. Similarly, MFIs would benefit from greater support to modernize systems and expand operations, as well as from greater access to lower-cost financing. Furthermore, an analysis should be conducted on whether cooperative banks should be allowed the flexibility to consolidate further—for example, by lowering the threshold of at least 30 banks currently required to form a cooperative banking network.

Initiatives to strengthen the financial infrastructure should be pursued, including with respect to credit infrastructure. While both the NBR's Central Credit Registry (CCR) and the private credit bureau (CB) operate well, their coverage could be expanded. For example, the CB could grow to encompass data from alternative sources (e.g., positive and negative repayment data from utilities, telecoms operators, and debt collection companies), as well as data on companies. Data expansion would be to access to finance, particularly for potential borrowers with thin credit files, although it may require a revisions of data privacy rules. Furthermore, upon a technical review, policymakers could consider lowering the value threshold of loans covered by the CCR (currently set at RON 20,000, equal to approx. €4,000) to capture borrowers with small loans;¹²⁹ updating CCR data more frequently; and making it accessible digitally, while ensuring compliance with data protection rules. The regulation on the functioning of the CCR is in the process of being amended to enable the possibility of using electronic formats and a qualified electronic signature.

In addition, policymakers should review and address challenges in the insolvency and secured transaction frameworks, which hinder MSME finance. Although due to successive reforms progress has been made in insolvency and restructuring frameworks in Romania, there are certain flaws that should be addressed, including, the length of the proceedings and limited protection for creditors secured with movable assets. This is especially detrimental to MSMEs, as procedural length and complexity discourage them from resorting to the available restructuring and liquidation tools in a timely manner. Improvements may also be warranted to the secured transaction framework, including the registry of movable collateral.

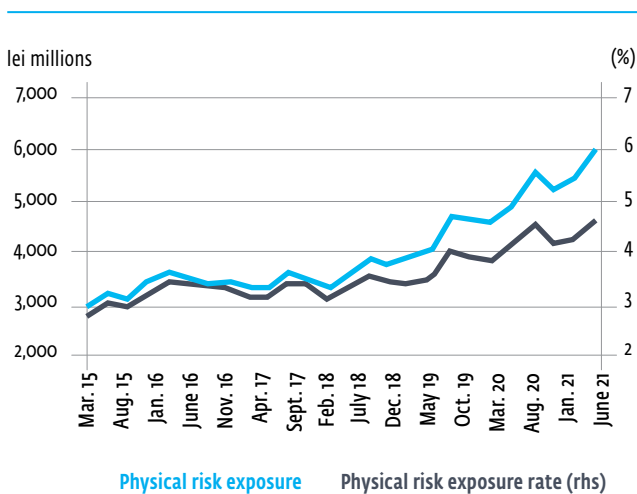
6.4. GREENING ROMANIA'S FINANCIAL SECTOR AND EXPANDING GREEN FINANCIAL INSTRUMENTS

Mobilizing and efficiently allocating private capital is essential to Romania's decarbonization. The green transition will require substantial investments, based on multiple sources and types of financing.¹³⁰ The effective mobilization of public, blended, and private finance hinges on putting in place appropriate institutional frameworks. While a significant portion of investments is expected to be funded by public funds (including EU funds), the financial sector will have a crucial role to play to re-orient commercial capital towards net-zero purposes, and set the stage for green growth and a market-based shift to a low-carbon economy.

Green finance has been gaining momentum and has room for further expansion.

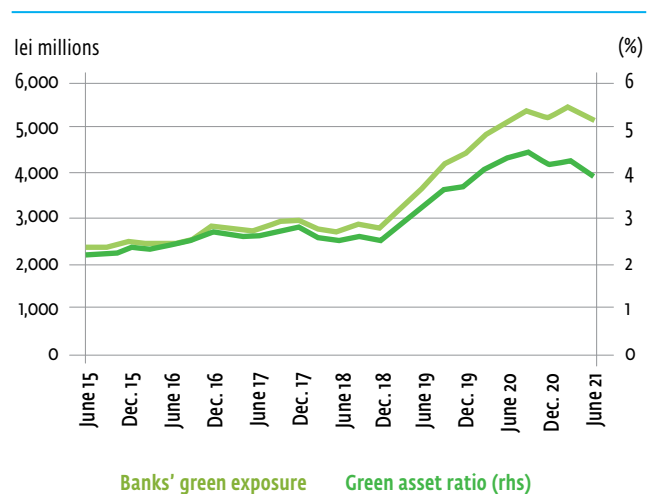
According to National Bank of Romania, the banking sector's exposure to green assets amounted to RON 5.1 billion (just over €1 billion) in June 2021—equal to 4 percent of its total non-financial corporate exposure, and three times as high as at the onset of 2021.¹³¹ The rapid surge demonstrates banks' increasing appetite for green lending, and there is room for further growth, with estimated potential green lending to domestic companies of up to RON 15 billion (approx. €3 billion).

FIGURE 66 ROMANIAN BANKS' EXPOSURE TO PHYSICAL RISK, 2021



Source: Climate risk dashboard for the banking sector in Romania 2021, NBR.

FIGURE 67 ROMANIAN BANKS' EXPOSURE TO GREEN ASSETS, 2021



Source: Climate risk dashboard for the banking sector in Romania 2021, NBR.

At the same time, the Romanian financial sector faces climate-related risks, which require new approaches and action from financial practitioners and policymakers. It is estimated that 50 percent of the total loan portfolio of Romanian banks is allocated to companies that may be affected by climate-related financial risks (NCMO 2021).¹³² Bank loans to high-emissions sectors (energy, industrial production, agriculture) stood at more than €15.7 billion at the end of September 2022, equivalent to about 21.4 percent of total loans. Moreover, according to the NBR, the banking sector's exposure to firms facing climate-related physical risks is significant, accounting for about 30 percent of lending to non-financial corporations in 2021.

Banks are still developing their core systems and capacity to engage more in green finance. Banks require more detailed information on sectoral pathways for the transition to the green economy, to identify business opportunities and assess whether companies are transition-ready. They also need to make their own commitments to net zero, while identifying and assessing climate-related risks in their portfolios. Romanian banks are still developing the necessary data architecture, but many of them—especially the subsidiaries of international groups—are making progress towards developing their approach to green finance.

Demand-side constraints exacerbate supply-side issues, resulting in limited bankability for green projects. Firms, including SMEs, must demonstrate their commitment to transitioning to a low-carbon business model. However, their understanding of the risks and opportunities associated with climate change, and their ability to develop transition plans, remain limited. This constraint—compounded by traditional barriers limiting SMEs' access to finance, such as informality, low financial literacy, low levels of innovation, low firm density, and a weak financial position—result in low demand for green investment, and poor bankability of the green projects submitted to lenders.

Romania's development finance institutions (DFIs) do not yet have an explicit mandate to promote green development. Since DFIs are uniquely placed to connect the government, international financial institutions, and the local private sector, they could play an important role in fulfilling public policy objectives, crowding in private capital, and catalyzing markets. The four DFIs currently in operation¹³³ in Romania—which mostly focus on SMEs and rural development—could aim to enhance their capacity and expertise on green financing, and consider adjusting their offering of financial instruments to meet the needs of green projects. Authorities are working on the preparation of a sovereign bond framework, with the aim of issuing a green bond. Such a framework will be useful for DFIs and the overall market. By issuing green bonds, the Government of Romania intends to align its funding strategy with its commitment to the Paris Agreement, its environmental priorities and the achievement of the UN SDGs.

The new national development bank should play a crucial role to catalyze private capital for green and sustainable investments. The Investment and Development Bank of Romania, expected to be operational from 2025, can play a major role as a champion of the green agenda. To do so, it will be important for the bank to uphold high standards of classification for green investments, implement a robust disclosure and reporting framework, and integrate green and sustainability considerations into its governance, risk management, and financial decision-making.

Beyond the banking sector, capital markets can play an important role in greening the economy, but they remain underdeveloped in Romania. Debt and equity capital markets can fund innovative sectors with intangible assets and/or provide a long-term investment horizon. They can also mobilize a wide range of investors and offer a variety of green financial products, including bonds, funds, and indices tailored to the needs of companies and investors.¹³⁴

Romania’s markets for green bonds, equity, and private equity/venture capital (PEVC) have potential but are still nascent. The Romanian green debt market counts six issuances to date, in euro and local currency, from the domestic subsidiaries of international banks and real estate companies. The Bucharest Stock Exchange is a partner exchange to the United Nations (UN) Sustainable Stock Exchanges (SSE) initiative, and is working proactively to develop the Romanian capital market for debt and equity instruments, including through ESG reporting guidelines. Despite a handful of PEVC green deals, domestic fund managers have little experience in identifying, structuring, and managing green investments.

Financial sector authorities should continue efforts to ensure the application of the EU’s green finance framework, provide supervisory guidance to financial institutions, and encourage the development of new green finance instruments. The authorities should refine and expand supervisory expectations for the financial sector on climate and sustainability-related obligations,¹³⁵ encompassing corporate strategy, risk management, sustainability-related financial reporting, and scenario analysis/stress testing, among others. A comprehensive legal, regulatory, tax, and investment allocation review will be helpful to identify challenges in developing a market-based finance ecosystem. Financial regulators should also encourage the expansion of innovative green financial instruments (e.g., sustainability-linked bonds and loans) in line with investors’ needs. The National Committee for Macroprudential Oversight issued a recommendation to support green finance. The NBR has started to publish on an annual basis the climate risk dashboard for the banking sector, and has sent supervisory expectations to supervised entities regarding a prudent approach to climate risk. To understand the industry’s adoption rate of NBR’s recommendations and expectations, the NBR is also undertaking Climate Change Questionnaires for banks and some NBFIs. Financial regulators should also work encourage the expansion of innovative green financial instruments (e.g., sustainability-linked bonds and loans) in line with investors’ needs.

The financial industry must build capacity in green finance, possibly through a combination of private and public sector initiatives. The NBR, ASF, industry bodies, and experienced commercial banks can play a leading role. Green finance coalitions (e.g., in the form of an implementation committee) or sustainable finance knowledge centers could also be set up to provide thought leadership, raise awareness on excellence and best practice, build capacity in the sector, host peer networks, and facilitate innovation with supportive frameworks and tools. The planned new national development bank in Romania should also play a key role in expanding capacity for green finance.

DFIs need a formal mandate for green development and targeted interventions. Policymakers should consider clarifying the role of DFIs in green and sustainable development, and incorporating it into their charters and performance evaluation metrics—especially for the new NDB. DFIs should be expected to meet pre-determined targets, and to apply a comprehensive approach to green financing visible in their corporate strategies, risk management, reporting, and disclosures. It is also critical for DFIs to identify failures in green finance markets upfront and intervene as appropriate, with the ultimate goal of mobilizing private capital for green investments.

At a higher level, Romanian policymakers ought to take a holistic view of green finance development, embed it in overall financial sector strategies, and consult with sectoral stakeholders. A strategic and coordinated approach is needed to foster financial inclusion, financial literacy, capital market development, and a green financial sector. It will be important for the authorities to identify gaps in green finance and draft a roadmap for its development, in close coordination with sectoral ministries, while ensuring alignment with the national green agenda and climate objectives.

TABLE 8 POLICY RECOMMENDATIONS TO ENHANCE FINANCIAL INCLUSION FOR MSMEs AND BOOST FINANCIAL SECTOR'S ROLE IN THE GREEN TRANSITION

Policy/area/ constraint	Recommendations	Expected benefits	Difficulty ^a	Timeline ^b	Responsibility
Improving Financial Inclusion and Digital Financial Services for Individuals					
Policy approach	<ul style="list-style-type: none"> Clarify policy priorities for financial inclusion, coordinate through a financial inclusion working group/committee, and improve data collection. 	<ul style="list-style-type: none"> Improved prioritization, strategic coordination, and data collection on financial inclusion, especially on the urban/rural gap. 	✓✓	ST	NBR, MOF, INS
Account ownership and usage	<ul style="list-style-type: none"> Adopt a comprehensive and strategic approach to financial literacy. 	<ul style="list-style-type: none"> Improved financial literacy, account ownership and usage among underserved individuals. 	✓✓✓	LT	MoF, MoEd, NBR, ASF, ANPC
	<ul style="list-style-type: none"> Pursue initiatives to digitalize P2G and G2P payments, to facilitate a shift away from cash and ensure accessibility of digital payment platforms. Develop a shared platform across various government programs and multiple FSPs. 		✓✓	MT	MRID, in coordination with respective Ministries
	<ul style="list-style-type: none"> Continue to pursue initiatives to increase card acceptance infrastructure in rural areas and among smaller merchants. 		✓✓	MT	MOF, BNR
	<ul style="list-style-type: none"> Develop a retail or digital payments strategy, utilizing the CPMI/WBG Payment Aspects of Financial Inclusion (PAFI) framework. 		✓	ST	NBR, MoF and other relevant Ministries
	<ul style="list-style-type: none"> Leverage existing rural networks as low-cost delivery channels (Posta Romana reforms), analyze and address barriers to more widespread use of agents. 		✓✓	ST	MRID, Posta Romana
Leveraging digital financial services	<ul style="list-style-type: none"> Clarify rules on the use of e-signature to facilitate digital onboarding and digital transactions. 	<ul style="list-style-type: none"> Improved enabling environment for DFS. 	✓✓	ST	ADR
	<ul style="list-style-type: none"> Explore options for allowing FSPs direct access to the national registry of IDs, advance eID roll-out. 		✓✓	ST	Ministry for Internal Affairs
	<ul style="list-style-type: none"> Foster fintechs and broader innovation, while ensuring regulatory and supervisory frameworks are updated in line with new risks. 		✓✓✓	LT	NBR, ASF

✓ Relatively low difficulty ✓✓ medium difficulty ✓✓✓ high difficulty

ST – Short-term, MT - Medium-term, LT – Long-term

Note: ASF= Romanian Financial Supervisory Authority; BV= Bucharest Stock Exchange; CCR= Central Credit Registry; DFIs= Development Financial Institutions; FSP= Financial Service Provider; G2P= Government to Person; MoEd= Ministry of Education; MOF= Ministry of Finance; MOJ= Ministry of Justice; MSMEs=; BNR/NBR= National Bank of Romania; NDB= National Development Bank; P2G= Person to Government; ST= short term; MT= medium term; LT= long term.

Policy/area/ constraint	Recommendations	Expected benefits	Difficulty ^a	Timeline ^b	Responsibility
Expanding Access to Finance for MSMEs					
MSME finance	<ul style="list-style-type: none"> Assess scope, targeting, and additionality of public credit guarantee programs. 	<ul style="list-style-type: none"> Increased efficiency and effectiveness of public credit guarantee schemes. Increased capacity of cooperative banks and MFIs. Improved credit reporting system to facilitate MSME finance. Strengthened insolvency and secured transactions framework. 	✓✓	ST	MOF
	<ul style="list-style-type: none"> Facilitate further financial institutions' access to government data on MSMEs, or alternatively consider establishing a database with verified MSME financials. 		✓✓	MT	MOF
	<ul style="list-style-type: none"> Credit reporting: Consider lowering threshold of coverage for the CCR to capture borrowers with small loans, digitalize data, expand credit bureau coverage with alternative data sources and data on companies. 		✓✓	ST	NBR, Credit Bureau
	<ul style="list-style-type: none"> Address remaining challenges in the insolvency, restructuring and securing transaction framework. 		✓✓✓	MT	MOJ

✓ Relatively low difficulty
 ✓✓ medium difficulty
 ✓✓✓ high difficulty

ST – Short-term, MT - Medium-term, LT – Long-term

Note: ASF= Romanian Financial Supervisory Authority; BvB=Bucharest Stock Exchange; CCR=Central Credit Registry; DFIs= Development Financial Institutions; FSP=Financial Service Provider; G2P=Government to Person; MoEd= Ministry of Education; MOF=Ministry of Finance; MOJ=Ministry of Justice; MSMEs=; BNR/NBR=National Bank of Romania; NDB= National Development Bank; P2G=Person to Government; ST= short term; MT=medium term; LT= long term.

Policy/area/ constraint	Recommendations	Expected benefits	Difficulty ^a	Timeline ^b	Responsibility
Accelerating Greening of the Financial System and Expanding Sustainable Finance Products					
Regulation and policy approach	<ul style="list-style-type: none"> Incorporate green finance into broader financial sector strategies/roadmaps, leverage stakeholders. 	<ul style="list-style-type: none"> Improved strategic alignment with national climate and green development goals. Enhanced green finance regulatory and supervisory framework. Broader range of green finance instruments. Increased private capital participation. 	✓✓	ST	NBR, ASF, MOF
	<ul style="list-style-type: none"> Continue to provide supervisory guidance to financial institutions and encourage expansion of innovative green financial instruments. 		✓✓	ST/MT	NBR, ASF
	<ul style="list-style-type: none"> Conduct comprehensive legal/regulatory/tax/investment allocation review to remedy challenges to development of market-based finance ecosystem identified by market participants. 		✓✓	ST	Financial professional associations/ ASF/NBR, BvB
	<ul style="list-style-type: none"> Formalize green mandate for DFIs mandate, and enable them to de-risk private investment and catalyze private capital (especially applicable to the new NDB). 		✓✓	ST/MT	MOF, DFIs
Capacity building	<ul style="list-style-type: none"> Build financial industry capacity on green finance topics, through new vehicles such as green finance coalition or knowledge platforms. Ensure a critical role for the new NDB as champion of the green agenda. 	<ul style="list-style-type: none"> Improved knowledge among financial institutions and market participants. 	✓	MT	NDB, banks, industry associations

✓ Relatively low difficulty ✓✓ medium difficulty ✓✓✓ high difficulty

ST – Short-term, MT - Medium-term, LT – Long-term

Note: ASF= Romanian Financial Supervisory Authority; BvB=Bucharest Stock Exchange; CCR=Central Credit Registry; DFIs= Development Financial Institutions; FSP=Financial Service Provider; G2P=Government to Person; MoEd= Ministry of Education; MOF=Ministry of Finance; MOJ=Ministry of Justice; MSMEs=; BNR/NBR=National Bank of Romania; NDB= National Development Bank; P2G=Person to Government; ST= short term; MT=medium term; LT= long term.

APPENDIX 1:

THE ROMANIAN ENERGY SECTOR: A BRIEF HISTORY

The current architecture of the Romanian energy sector originates from a centralized ministry which, until 1990, controlled virtually the entire sector as a vertically integrated unit. The separation of energy ministry, regulatory agencies, state-owned companies, trading platform, and other relevant entities started in the 1990s; however, it was not fully completed, and relations between the separated entities never became entirely institutionalized, formalized, and at arm's length. This evolution has had long-standing implications, from the informal relations that persist between regulators and regulated industry, to a preference for central planning, micromanagement of SOEs, attachment to existing technologies, public support for incumbent players, and scarce consideration for the role of greenfield private investment. The policy approach is supply-driven, while links between energy authorities and stakeholders other than the incumbent producers and infrastructure operators—e.g., with the ministries responsible for infrastructure and the environment, as well as with private-sector consumers—are weak.

The sector underwent substantial reform between 1998 and 2004, as energy was an important chapter in negotiations for accession to the EU. The late 1990s saw the establishment of energy regulators—initially separated between electricity (ANRE) and gas (ANRGN)—and the incorporation of energy assets into commercial companies. In 1998 the integrated energy company was restructured as the National Electricity Company (CONEL), which in 2000 was unbundled into Hidroelectrica (comprising all hydro assets), Nuclearelectrica (nuclear power), Termoelectrica (coal and gas-fired power, including cogeneration units for DH), Transelectrica (transmission assets), and Electrica (distribution assets). In 2003, cogeneration units for DH (except for very large units in Bucharest and Constanta) were spun out of Termoelectrica and transferred to local authorities. However, cogeneration units were suffering financial losses that most municipalities could not sustain. As a result, the majority of the 300 DH systems active at the time were gradually shut down. About 40 DH systems remain active but are in steady decline, in the absence of a national plan to revitalize DH as a decarbonized solution for heating.

In 2003, Romania adopted a well-designed energy strategy—the Energy Roadmap—as a condition for EU accession. The Roadmap envisaged transforming the newly established OPCOM trading platform into an effective power exchange, strengthening the regulators (ANRE and ANRGN), establishing commercial codes for wholesale markets for electricity and gas, liberalizing the electricity and gas markets, as well as privatizing the gas producer Petrom, two regional gas distribution companies, and eight regional electricity distribution companies. Coal-fired electricity generation was split into units focusing on mining and electricity production from hard coal (Paroseni, Deva-Mintia) and lignite (Turceni, Rovinari, Craiova, Isalnita), while the government organized tenders to privatize lignite-fired generation units after 2005. The privatization

of coal-fired generation would have diversified ownership in the generation sector and ensured investment in aging plants, but it was abandoned after a change in government in late 2004. Overall, the reforms envisaged in the Energy Roadmap of 2003 slowed down after the conclusion of EU accession negotiations in 2005, and significant reversals took place after accession in 2007—although the abovementioned privatization of eight electricity DSOs and two gas DSOs went ahead in 2005-2007.

The economic crisis of 2009-2011 brought new impetus for reform, as the government needed support from the IMF, the WB, and the EC—which came with conditions. The period also coincided with the final EC approvals for Romania’s legislation to encourage RES investments, which created a generous Green Certificates support scheme. Under an IMF/WB/EC program, the government transposed the EU’s Third Energy Package into national law in 2012, resumed liberalization on a phased schedule over 2012-2017, and introduced legislation to enhance the corporate governance of SOEs. Coupled with the Green Certificates scheme, the perception of reform in the energy market encouraged significant investments in wind and solar energy over several years.

Once more, however, the implementation of reforms was only partial and slowly came to a halt after 2014, as external pressure from international financial institutions eased. Incumbent players (notably, large consumers and coal-fired power plants) pushed for substantial adjustments to the support for renewables, which was slashed significantly in 2013-2014; at that point, new investments in RES, as well as in other forms of power generation, stopped. The electricity and gas markets for households were temporarily placed under a regulated regime in 2019, then liberalized again in 2020-2021. Overall, frequent changes in legislation and regulation have had the effect of discouraging potential investments.

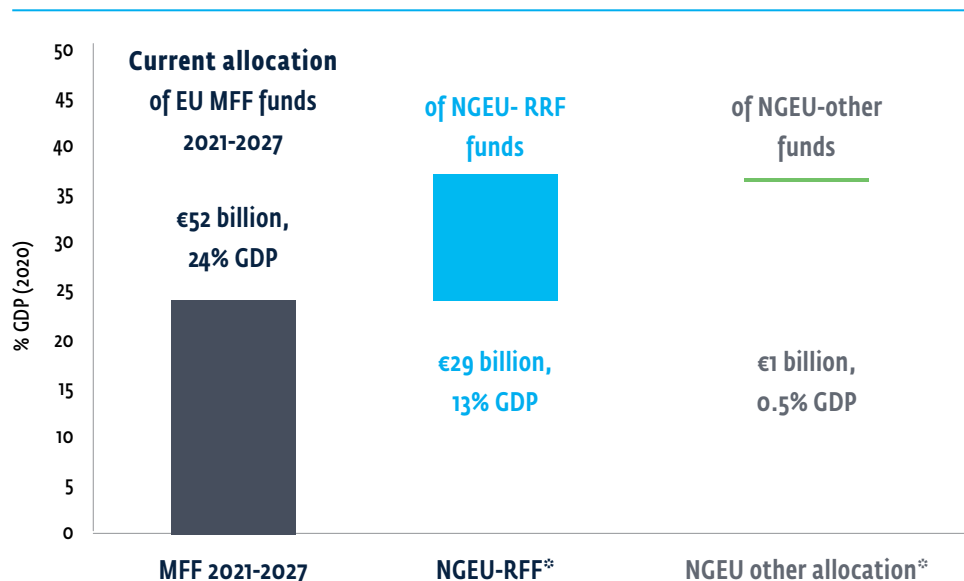
APPENDIX 2:

EU FUNDING IN SUPPORT OF ROMANIA'S GREEN TRANSITION

Romania has access to EU funds to boost sustainability, growth, and inclusion, equivalent to about 37 percent of its GDP over the next five years. Such funds are available from two sources: i) the EU's Multiannual Financial Framework (MFF) 2021-2027; and ii) the Next Generation EU Fund (NGEU) for 2021-2026.

The regular allocation of EU structural funds from the MFF amounts to 24 percent of Romania's GDP compared to 16 percent the previous MFF (Figure 68). It will provide major resources to support the EGD's objectives of resilience, adaptation, and mitigation. In addition, Romania is eligible to receive the equivalent of 13 percent of its GDP—one of the highest shares in the EU—from the NGEU to support the green and digital transitions, as well as broader post-pandemic recovery. These special funds (a combination of grants and loans) are primarily distributed through the Recovery and Resilience Facility (RRF) for the purpose of implementing each member state's National Recovery and Resilience Plan (NRRP) (Figure 69). Under Romania's NRRP, 41 percent of the country's RRF funds have been allocated to green measures (see Table 9).

FIGURE 68 OVER THE NEXT 5+ YEARS, AVAILABLE EU FUNDING WILL EFFECTIVELY DOUBLE AND COVER NEW THEMATIC AREAS, FURTHER STRAINING CAPACITY



Source: World Bank, based on National and European Commission documents. Notes: MFF refers to the EU Multiannual Financial Framework, and includes allocations under Cohesion Policy, Common Agricultural Policy, and other MFF funding (incl. Just Transition Funds). 'NGEU-RRF' refers to Next Generation EU Recovery and Resilience Facility (grants and loans); 'NGEU-other' includes Just Transition Fund and React-EU Facilities.

* computed as percentage of 2020 GDP.

However, Romania’s historical track record in absorbing and using EU funds highlights persistent institutional challenges, while private sector investment remains essential. Between 2014 and 2020, Romania was eligible for an overall funding envelope of €34.8 billion. However, by the end of the programming period, it had only absorbed 56.7 percent of its allocation, due to institutional bottlenecks (e.g., low capacity, especially at the municipal level); complex processes; and the extended time usually required for completing investment projects. With both new mechanisms (e.g., the results based NRRP disbursements) and thematic areas (digital, green, just transitions) being introduced, the government will need to build additional institutional capacity. Even if absorbed fully, supranational funds alone will not be sufficient, and complementary domestic investment will be necessary—particularly from the private sector.

TABLE 9 ALLOCATION OF ROMANIA’S NRRP GREEN TRANSITION FUNDS ACROSS THEMATIC PRIORITIES AND SECTORS

Romania NRRP allocations	EUR Bn
Digital transformation	2.6
Green transition	16.3
Air and water quality (includes sewage)	2.3
Biodiversity (includes land restoration, marine & maritime)	1.2
Buildings’ energy efficiency	1.1
Climate change adaptation projects	1.4
Electric mobility (charging stations + vehicles incentives)	0.0
Green tech innovation	1.3
Hydrogen	1.1
Other sustainable transport infrastructure (excludes highways and roads)	0.1
Public transport	7.6
Renewable energy sources (includes wind & solar and alternative fuels)	0.2
Social, economic, and institutional development	10.5
Total Romania NRRP (2021-2026) Allocation	29.4

Source: World Bank Calculations using Bruegel.org dataset.

Notes

1. World Bank. 2018. From Uneven Growth to Inclusive Development: Romania's Path to Shared Prosperity. Systematic Country Diagnostic; Washington, DC: World Bank. <http://hdl.handle.net/10986/29864>
2. World Bank. 2023. Romania - Systematic Country Diagnostic Update. Washington, DC. <http://hdl.handle.net/10986/40192>.
3. NBR, 2019
4. World Bank. 2023. Poland Country Economic Memorandum: The Green Transformation in Poland – Opportunities and Challenges for Economic Growth. Washington, D.C.: World Bank Group. <http://documents.worldbank.org/curated/en/099855010032219698/P1776730bee10d096087ca0b19e448af8e1>
5. As of May 2023, Romania is a candidate.
6. Data from European Central Bank (ECB) data warehouse.
7. SME Finance Forum, <https://www.smefinanceforum.org/sites/default/files/Data%20Sites%20downloads/MSME%20Report.pdf>
8. There is a high share of loss-making companies in Romania – accounting for about 32 percent of active companies in the economy in 2020. These firms reported negative results during the last three years.
9. For more details, see Romania Country Climate Development Report, <http://hdl.handle.net/10986/40500>.
10. National Bank of Romania (BNR). 2021., Climate risk dashboard for the banking sector in Romania 2021, <https://www.bnr.ro/PublicationDocuments.aspx?cid=31984>
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13. European Commission. 2019. Education and Training Monitor 2019 – Romania. European Union, 2019. Luxembourg: Publications Office of the European Union, 2019
14. World Bank. 2023. Romania - Systematic Country Diagnostic Update. Washington, DC. <http://hdl.handle.net/10986/40192>.
15. Romanian National Institute of Statistics, 2022
16. World Bank Enterprises Surveys, <https://www.enterprisesurveys.org/en/enterprisesurveys>.
17. The ratio between emission levels and value-added produced.
18. World Bank. 2021. Inclusive Growth at a Crossroads: Part One of Strengthening Inclusion and Facilitating the Green Transition. EU Regular Economic Report;7. Washington, DC: World Bank. <https://openknowledge.worldbank.org/entities/publication/dazafbce-c7f8-5478-b769-0c1425e82977>
19. Wind power is currently one of the largest sources of renewable electricity generation, second to only hydropower. Total global installed wind capacity has grown steadily over the past decade from 181 GW in 2010 to 622 GW in 2019, representing a compound annual growth rate of around 13%. Dominating both onshore and offshore wind production, China accounted for almost half of net global wind capacity additions in 2020. The US and Europe made the second and third largest additions to net global onshore wind capacity in 2020. Going forward, the IEA's net-zero pathway projects annual additions of wind capacity to increase to 390 GW in 2030. This represents a three-fold increase in 2020 levels. See <https://green-transition-navigator.org>.
20. International Energy Agency (IEA) .2021. Net Zero by 2050: A Roadmap for the Global Energy Sector, <https://www.iea.org/reports/net-zero-by-2050>
21. Eurostat 2021.
22. Khort, M. 2022. Overview of IT companies in Romania: hubs, expertise, and client focus. <https://www.n-ix.com/it-companies-romania/>
23. http://anis.ro/wp-content/uploads/Studiu-asupra-economiei-digitale-din-Romania_2021-1.pdf
24. Eurostat, 2022.
25. Eurostat.2021. COVID-19 Impact on ICT usage among enterprises. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Impact_of_COVID-19_on_the_use_of ICT_in_enterprises&oldid=558334#:~:text=During%202020%2C%2033%20%25%20of%20EU,ICT%20systems%20of%20the%20enterprise.
26. Industry 4.0 is a term used to describe a growing trend towards automation, digitization, and data use in processes and technology in the manufacturing industry. Examples of Industry 4.0 technologies include the internet of things, smart factories, cloud computing, or artificial intelligence.
27. The Economic Complexity Index considers the diversity of a country's export basket, and the number of countries able to produce and export the same products. A country scores highly on the complexity index if it exports a wide range of products that few other countries can produce.
28. Harvard Atlas of Economic Complexity, <https://atlas.cid.harvard.edu/countries/185/export-complexity>.

29. Based on national poverty thresholds.
30. Standard Output refers to the average monetary value of the agricultural output at farm-gate prices.
31. Romania's 8th National Communication on Climate Change, December 2022.
32. For example, two mitigation measures - both supported by the current National Rural Development Program - minimum tillage (especially in drier regions) and manure management show high abatement potential in Romania at a relatively modest cost (World Bank, 2016). The total discounted net cost of both measures in the period 2015-2050 equals to €516.0 million or just 0.01 percent of GDP. Therefore, significant investment support should be earmarked for these measures within the next CAP programming period while ensuring that the proposed schemes contain embedded incentives to increase uptake by farmers.
33. Considerably above the ECA average of 15 percent.
34. World Bank Enterprises Surveys, <https://www.enterprisesurveys.org/en/enterprisesurveys>.
35. According to the HCI, a four-year-old child born in Romania today can expect to have completed 11.8 years of schooling by the age of 18, compared with 12.6 years for a child born in 2010. Factoring in actual learning, the number of expected years of schooling is only 8.4, the lowest in the EU.
36. The effect of COVID-19 on education will have a decades-long impact on the economy, unless authorities act to recover learning losses and protect the human capital of affected cohorts. Learning losses and reduced years of schooling for student cohorts affected by COVID-19 will reduce their expected earnings by an estimated 3.6 percent, assuming that one year of schooling increases earnings by 8 percent on average. This may amount to an overall economic loss of up to US\$2 billion (2011 PPP) every year. Romania needs to protect the education budget, ensure remediation of learning losses, prevent student dropout, and invest in a resilient education system ahead of future crises.
37. In 2021 the government committed to phasing out Romania's reliance on coal in 2032. Although mining and quarrying only employed less than 1 percent of the labor force in 2020, the transition will likely affect communities that rely heavily on this sector for employment. To ensure that affected workers have a change of transitioning to non-polluting activities, the NRRP details measures for reskilling and compensating workers. Yet, given the delays in reforms of the National Agency for Employment, its capacity to effectively provide reskilling services may be limited.
38. Recently, PIMU initiated proposals to amend the Government Emergency Ordinance No. 39/2018 including to eliminate the maximum threshold of 25 percent in the financing of investments by the public partner for social infrastructure, health and education projects and further alignment with international good practices such as their content being project output oriented rather than input oriented.
39. See also Iootty, M.; Pop, G.; Pena, J. 2020. Corporate Market Power in Romania: Assessing Recent Trends, Drivers, and Implications for Competition. Policy Research Working Paper; No. 9487. World Bank, Washington, DC. <http://hdl.handle.net/10986/34909>.
40. For more information see World Bank. 2020. Markets and People: Romania Country Economic Memorandum. International Development in Focus; Washington, DC: World Bank. <http://hdl.handle.net/10986/33236>
41. In 2021, the percentage of Romanian MSMEs that introduced product or process innovations, marketing or organizational innovations, or provided ICT training to their staff were all below EU levels. Spending on R&D equaled 0.48 percent of GDP in 2019, well below a 2 percent target for 2020 and the EU average of 2.12 percent. In 2021, Romania was last in the EU for number of patent applications to the European Patent Office per million inhabitants (2.79 versus, the EU average of 147).
42. https://ec.europa.eu/eurostat/databrowser/view/sdg_09_40/default/table?lang=en
43. World Bank. 2019. Romania - Infrastructure Sector Assessment Program, mimeo.
44. The World Bank's Private Participation in Infrastructure (PPI) database shows 38 private investments in infrastructure in Romania between 2008 and 2018, for a total of US\$7.25 billion—largely in electricity distribution and renewables (US\$6.8 billion), followed by telecommunications (US\$268 million) and gas infrastructure (US\$150 million). The largest private investment (Electrica Muntenia Sud, electricity distribution, US\$768 million) is currently rated as "distressed." Aside from a small leasing contract for railways (US\$2.5 million) and a cereal terminal at Constanta Port (US\$50.4 million), there was no successful private investment in transport, water, or sewerage during that time (InfraSAP, 2019).
45. Transelectrica. 2021. Transelectrica Financial Results for 2020. Annual Report. <https://www.transelectrica.ro/documents/10179/12130285/Raport+Anual+2020+ENG.pdf/1304c222-c660-4abo-bada-48a3e2d2b42a>.
46. Romania Energy Center. 2023. Romania's Approach To Energy Transition: Too Little, Too Slow. <https://www.roec.biz/project/romanias-approach-to-energy-transition-too-little-too-slow/>
47. Stoica, A. 2019. Thermal power plants in Romania: How to cope with new European pollution standards. In Energy Industry Review. <https://energyindustryreview.com/analysis/thermal-power-plants-in-romania/>
48. Organisation for Economic Cooperation and Development (OECD). 2018. Energy Sector SOEs: You Have the Power!. <https://oecdonthellevel.com/2018/04/19/energy-sector-soes-you-have-the-power/>
49. Euroheat.org
50. According to Ministry of Energy data, as of 2020, Romania imported 20 percent of the coal, 62 percent of the oil, and 15 percent of the gas that it consumed.

51. European Commission. 2022. REPowerEU: A Plan To Rapidly Reduce Dependence On Russian Fossil Fuels and Fast Forward The Green Transition. https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131.
52. Romania NECP, official version approved in October 2021: <https://energie.gov.ro/wp-content/uploads/2021/10/Anexa-HG-PNIESC.pdf>
53. European Commission. 2022. Guidelines on State Aid for Climate, Environmental Protection and Energy 2022. https://ec.europa.eu/commission/presscorner/detail/en/qanda_22_566
54. International Renewable Energy Agency (IRENA). 2021. Renewable Power Generation Costs in 2020: https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2021/Jun/IRENA_Power_Generation_Costs_2020.pdf
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56. International Energy Agency (IEA). 2020. Projected Costs of Generating Electricity 2020. IEA, Paris, <https://www.iea.org/reports/projected-costs-of-generating-electricity-2020>.
57. Deloitte. 2019. Renewable Energy in Romania: Development Potential by 2030”, https://rwea.ro/wp-content/uploads/2021/05/20190307_RES_Roadmap_2030_EN.pdf.
58. World Bank. 2020. Offshore Wind Technical Potential in Romania. <https://documents1.worldbank.org/curated/en/141221587050442759/pdf/Technical-Potential-for-Offshore-Wind-in-Romania-Map.pdf>
59. Interreg Europe (2020). Rabla Plus- Funding Program Promoting Energy-Efficient Road Transport Vehicles. <https://www.interregeurope.eu/good-practices/rabla-plus-funding-program-promoting-energy-efficient-road-transport-vehicles>
60. Energy Industry Review, 2020. EUR 53mln Public Support Scheme for Charging Stations for Low Emission Vehicles in Romania, <https://energyindustryreview.com/power/eur-53mln-public-support-scheme-for-charging-stations-for-low-emission-vehicles-in-romania/>.
61. World Bank. 2019. Romania - Infrastructure Sector Assessment Program, mimeo.
62. In site-specific auctions, the government preselects and may even develop a specific site for a future renewable project. During the auction, bidders compete for the right to use the site to develop the project. The approach helps coordinate various authorizations required from public institutions and grid development and reduces the related risks for the bidders.
63. In parallel, it is best practice to determine clear conditions for land usage, planning, and environmental assessments for RE, limiting its impact 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.
64. Emerging Markets Information Service (EMIS) Insights. 2021. Emerging Europe Transportation Sector Report 2021-2022. https://www.emis.com/php/store/reports/CZ/Emerging_Europe_Transportation_Sector_Report_2021-2022_en_712729469.html.
65. Based on ITF OECD data as of January 2023.
66. World Bank. 2019. Romania - Infrastructure Sector Assessment Program, mimeo.
67. Low scores in customs are attributable to long clearing times.
68. Ranked eighth for total length of railway lines in use in 2019, according to Eurostat.
69. World Bank 2021. Positioning the Romanian Railways for Future Competitiveness, 2021
70. CFR. 2020. Activity Report for 2020. <https://www.cfrcalatori.ro/en/activity-quality-reports/>.
71. In 2020, speed restrictions affected 809 km of lines. For comparison, in 2001 there were 186 speed restrictions affecting 624 km of lines.
72. Figures for 2020 have not been considered given travel disruption from the COVID-19 pandemic.
73. Consiliul Concurenței România, 2019. Studiu privind infrastructura de transport feroviar.
74. When using the same rail line, passenger trains have priority over freight trains. The latter must wait on a sidetrack until the former have passed.
75. CFR. 2020. Activity Report for 2020. <https://www.cfrcalatori.ro/en/activity-quality-reports/>.
76. NRRP – Sustainable Transport.
77. Since 2019, Romania has built another 122 km of motorways (equivalent to a 14 percent addition to the network).
78. https://www.imf.org/en/News/~/link.aspx?_id=A9o8C7853AC14CoF89CBAo7F82427479&_z=z
79. OECD ITF statistics as of January 2023.
80. Romania has the highest road mortality in the EU, with 92 road deaths per million inhabitants. The second-highest rate in 2021 was 81, recorded in Bulgaria. Source: ETRSC, 2022. 16th Road Safety Performance Index Report.
81. The share of EVs stands at only 0.25 percent of the total, with a further 1.2 percent of hybrid vehicles (2022). Generous subsidies are available, granting deductions of up to €11,800 on the purchase of a new EV.

82. World Bank. 2019. Romania - Infrastructure Sector Assessment Program, mimeo.
83. OECD ITF statistics as of January 2023.
84. For example, Ploiesti-Brasov motorway, which was tendered as a PPP in 2018.
85. UNCTAD Liner Shipping Connectivity Index; <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=92>
86. World Economic Forum (WEF). 2019. Global Competitiveness Index, 2019.
87. https://ec.europa.eu/eurostat/databrowser/view/mar_go_am_ro/default/table?lang=en
88. World Bank. 2022 Container Port Performance Index; <https://thedocs.worldbank.org/en/doc/66e3aa5c3be4647addd01845ce353992-0190062022/original/Container-Port-Performance-Index-2021.pdf>
89. Eurostat, 2022. https://ec.europa.eu/eurostat/databrowser/view/iww_if_infrastr/default/table?lang=en
90. Non-interoperable lines are those that CFR SA leases to private entities. In most cases they are remote lines that CFR Călători, the state-owned passenger services operator, no longer uses.
91. According to Europafm.ro, during the first six months of 2021 the number of passengers transported on the route by the private operator TFC had grown by 220 percent, with 4,800 passengers in June 2021.
92. Emergency ordinance no 12/1998, updated by emergency ordinance 107/2022.
93. World Bank, Guideline Proposal Regarding the Valorization and Sustainable Regeneration of the Urban Assets of the Romanian Railways. <https://arf.gov.ro/web/propunere-ghid-banca-mondiala/>
94. The national road census, conducted in 2022, could provide essential up-to-date information about vehicle flows.
95. In these examples, the difference in timeframes is partly due to geography: the Pitești – Sibiu motorway crosses mountainous terrain, while the other two links run mostly through plains.
96. Half of the project was included in the IPDTI, as part of the reserve list of initiatives to be funded under the OPT.
97. The latter issue is especially relevant to the development of multilevel parking facilities. Local parking policies often do not allow for the proper capitalization of such projects, usually due to the availability of free or cheap parking around the desired facility.
98. Data from ECB Data Warehouse.
99. World Bank, World Development Indicators.
100. Household lending accounted for 52.5 percent of total credit as of end-2021. It consisted mainly of housing loans (61.6 percent of total household lending) and consumer loans in domestic currency.
101. More than half of households live in dilapidated or overcrowded housing. In 2021, Romania's overcrowding rate was estimated at 41 percent, compared with the EU average of 17 percent. Moreover, 67 percent of the residential stock was built before 1967, and lacks many of the modern energy-saving features found in stock constructed after 2010.
102. Bucharest Stock Exchange Monthly Report for September 2022. World Bank calculations based on domestic market capitalization of the BSE (per BSE monthly reports for December 2020 and December 2021). GDP estimates from the IMF WEO October 2022 database.
103. For deposits, the dormancy rate is 34 percent for Bulgaria, 14 percent for Hungary, 21.8 percent for Serbia, 12.4 percent for Croatia, 9.9 percent for Poland and 5.7 percent for the Czechia. For withdrawals, the dormancy rate is: 30.1 percent for Bulgaria, 11.3 percent for Hungary, 23.6 percent for Serbia, 12.2 percent for Croatia, 11.7 percent for Poland and 7.8 percent for the Czechia.
104. The share of adults saving in a formal financial institution in the past year is: 44.7 percent for Serbia, 44.2 percent for Bulgaria, 54.3 percent for Hungary, 62 percent for Poland, 73.1 percent for Czechia, and 51.5 percent for Croatia.
105. Similarly, Global Findex shows debit card ownership among Romanian adults at 52.6 percent, lower than regional peers such as Serbia (61.5 percent), Hungary (79 percent), Bulgaria (71.3 percent), Poland (83.9 percent), Czechia (89 percent), and Croatia (67.5 percent).
106. For example, the same metric was 87.5 percent in Serbia, 87.1 percent in Croatia, 93.2 percent in Poland, 94.1 percent in Czechia, 86.4 percent in Hungary, and 75.2 percent in Bulgaria.
107. IMF Financial Access Survey 2020, <https://data.imf.org/?sk=e5dcab7e-a5ca-4892-a6ea-598b5463a34c>.
108. Romania Digital Economy and Society Index (DESI) 2021.
109. IMF Financial Access Survey 2020, <https://data.imf.org/?sk=e5dcab7e-a5ca-4892-a6ea-598b5463a34c>.
110. According to the World Bank Enterprise Survey (wave 2019), 40 percent of firms had a loan/line of credit.
111. Financial Inclusion in Romania: Issues and Opportunities. World Bank, March 2020. Similar findings are reported in NBR 2021 "Survey on the access to finance of non-financial corporations in Romania". 85 percent of respondents used only internal sources for financing, while only 7 percent of enterprises used bank loans as a financing source.
112. SME Finance Forum, <https://www.smefinanceforum.org/sites/default/files/Data%20Sites%20downloads/MSME%20Report.pdf>

113. There is a high share of loss-making companies in Romania – accounting for about 32 percent of active companies in the economy in 2020. These firms reported negative results during the last three years.
114. European Central Bank Payment Statistics, 2020.
115. For good practices and country examples on developing public-sector operated price comparison websites, see World Bank. 2013. Public Sector-operated Price-comparison Websites: Case Studies and Good Practices. Washington, DC.
116. Decision of the Romanian Government No. 949 of 2017.
117. Data from Authority for the Digitalization of Romania (ADR).
118. The same metric was 9.7 percent in Serbia, 9.5 percent in Bulgaria, 23.6 percent in Hungary, 2.7 percent in Croatia, 4.4 percent in Poland, and 3.2 percent in the Czechia.
119. World Bank. 2020. Digital Financial Inclusion. mimeo.
120. World Bank. 2020. Digital Financial Inclusion. mimeo.
121. The National Strategy on Social Inclusion and Poverty Reduction 2015-2020 itself notes that the existing system of social welfare payments is mostly manual, inefficient, fragmented, overly complex, outdated, and not secure, and inadequately audited.
122. Key design principles for modern G2P architecture include the following: multiple G2P programs using shared infrastructure; customer choice in selecting an FSP; numerous and widely accessible access points for consumers; receipt of G2P payment into a fully functional account; enabling uses besides cash-out (such as transfers or savings); and behavioral design that considers recipients' needs. For further information, see https://assets.website-files.com/5e540242678f9f3ccb231a54/61517b16d8389feb896935of_SA%20G2P%20workshop%20_%20Sept%2022%202021.pdf.
123. In the Netherlands, efforts to reduce cash use and promote electronic payments have included creating card-only cashiers at all grocery stores, rewards and lotteries for consumers and merchants (and their employees), and a public campaign that was jointly launched by banks and retailers to increase debit card use. For further examples, see World Bank. 2020. "Electronic Payments Acceptance Incentives: Literature Review and Country Examples". World Bank, April 2020, mimeo.
124. The PAFI framework aims at assessing seven pillars that will have an impact on financial inclusion, including legal aspects, infrastructure, products, government payments, collections, and other pillars. The results of such assessments are a number of recommendations that are intended to lead to greater penetration of financial services.
125. There is a lack of data for analyzing financial inclusion in rural areas.
126. World Bank. 2020. Financial Inclusion in Romania: Issues and Opportunities. World Bank, March 2020, <https://documents1.worldbank.org/curated/en/830431587015032573/pdf/Financial-Inclusion-in-Romania-Issues-and-Opportunities.pdf>
127. For further information on the core components of enabling regulatory frameworks for agents, see Kerse, M., Patrick M., and Staschen, S. 2020. "The Use of Agents by Digital Financial Services Providers." Technical Note. Washington, D.C.: CGAP.
128. Open banking was introduced in Romania with the adoption of the Law No. 209/2019 on payment services and amending other normative acts.
129. For example, one MFI indicated that the average loan size for microfinance falls below this threshold.
130. For more details see World Bank. 2023. Romania Country Climate Development Report (forthcoming).
131. National Bank of Romania (BNR).2021., Climate risk dashboard for the banking sector in Romania 2021, <https://www.bnr.ro/PublicationDocuments.aspx?cid=31984>
132. Climate-related financial risks are typically broken down as transition risks and physical risks (see Network for Greening the Financial System (NGFS), 2018, "NGFS First Progress Report", <https://www.ngfs.net/sites/default/files/medias/documents/818366-ngfs-first-progress-report-20181011.pdf>). The former result from the adjustment towards a lower-carbon economy due to changes in climate policy, technology, or market sentiment. The latter stem from climate- and weather-related events, such as droughts, floods, storms, and sea-level rise and/or increasing temperatures, resulting in damages to property and reduced productivity.
133. One export-import bank with a commercial banking arm (Exim Bank), and three credit guarantee institutions, focusing respectively on SMEs (FNCGIMM), the agriculture and rural areas (FGCR), and on the provision of counter guarantees (FRC).
134. Globally, since 2019, the assets of ESG growth funds, which invest mainly in young and innovative companies, have grown over four times faster than those of non-ESG growth funds, as an increasing number of international investors commit to align their portfolio with a net zero target. <https://www.unepfi.org/industries/investment/net-zero-asset-owner-alliance-members-to-cut-portfolio-emissions-25-30-by-2025/>
135. For instance, Financial Supervisory Authority (ASF) has already launched sustainable finance and green transition guidelines for investment funds.

IFC

2121 Pennsylvania Avenue, N.W.
Washington, D.C. 20433 U.S.A.

CONTACTS

Mariya Maerkova

mmaerkova@ifc.org

Emilija Timmis

etimmis@worldbank.org

ifc.org



WORLD BANK GROUP

THE WORLD BANK
1818 • L.A.



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