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Bulgaria

Country Economic Memorandum

A Path to High Income

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Background papers prepared for this report:

1. How Large are Fiscal Multipliers on European Structural and Investment Fund Spending?
2. Inequality of Opportunity in Bulgaria
3. Firm Dynamics, Productivity and Competition
4. Foreign Direct Investment in Bulgaria and Spillovers to Local Firms
5. Boosting Productivity Through Competition Policy
6. Measuring the Risk of Corruption and State Capture in Bulgaria
7. Developing Collusion Risk Indicators for Public Procurement in Bulgaria

This report is available online at:
https://www.worldbank.org/en/country/bulgaria/publication/

Executive Summary

Bulgaria's European Union (EU) accession 15 years ago raised expectations that living standards would rise to the average EU level. As was the case with other EU-accession countries, Bulgaria's reform momentum was strong when it joined the EU in 2007, with the country adopting a comprehensive set of legal changes to align with the EU *acquis*. Following a series of external crises—including the global financial crisis (GFC) and European debt crisis—foreign investment inflows dried up and reform progress slowed, dampening the pace of convergence toward average EU incomes. On top of these adverse shocks, the fundamental drivers of long-term growth decelerated, with demographic trends rapidly worsening in the 2010s (and expected to continue to do so, with the population projected to shrink by 29 percent by 2070). Similar to the experience of other EU countries, Bulgaria's economy grew by only 2.1 percent in 2010-2019, the decade preceding the Covid-19 pandemic outbreak. As a result, improvements in living standards were more modest for most Bulgarians as income convergence to average EU levels slowed and inequalities persisted.

Rekindling Bulgaria's economic prosperity is possible. Average income levels can reach parity with the rest of the EU within 15 years if annual average economic growth in the post-Covid-19 era doubles to over 4 percent annually, corresponding to GDP growth of over 5 percent clean in per capita terms. Simulating the future growth path of Bulgaria's economy shows that improvements in productivity bring the largest growth dividend. Stronger private capital investments are the key driver to boost growth in the next few years. But they also hinge on productivity growth since raising private investment above 20 percent of GDP requires investment in new technology to replace outdated physical capital stocks. In this regard, investment in energy and green technologies, including through the effective absorption of EU funds, provides opportunities to raise firms' competitiveness. While an analysis of the transition to clean energy beyond firms' adoption of green technology is outside the scope of this report, it is noted that the transition process can also raise energy costs in the near term, requiring thorough change management and the use of mitigation measures when appropriate. Simulations further reveal that investments in human capital accumulation today will help address the economy's skill shortages, cushion the unfavorable demographic trend, and spur growth over the longer term. Raising average GDP growth thus also requires stronger inclusion by addressing the substantial regional inequalities in access to public services, which undermine human capital formation.

Ambitious policy reforms are needed to support Bulgaria's income convergence with the EU. Should GDP growth remain at pre-Covid-19 rates of 2.1 percent on average, incomes are not likely to converge to average EU levels in the foreseeable future. While Bulgaria has followed sound macroeconomic policy in recent years and has weathered the Covid-19 economic crisis relatively well, this has not been enough to propel growth. High growth in the early 2000s was driven by capital and labor accumulation and by firms' initial productivity catch-up, supporting Bulgaria's transition to an upper-middle income country. But growth in the last decade was muted as investment ran into diminishing returns once initial shortages in the supply of basic capital and labor eased when the country became richer and the economy more sophisticated. Stronger physical capital accumulation hinges on firms' more effective

use of resources and investment in state-of-the-art technology to create a virtuous cycle between investment and productivity. But productivity and human capital growth also slowed, limiting the scope for those new productive investment opportunities. As the accumulation of basic capital and labor has lost steam, Bulgaria needs to enhance firms' efficiency and people's skills to move the economy closer to the productivity frontier. Without a new reform impetus, growth is projected to decelerate further, to 1.2 percent by 2050, as demographic trends cause a sharp decline in the working age population and total factor productivity (TFP) growth reverts to its medium-term trend.

What will it take to boost Bulgaria's long-term growth?

First, accelerating investment and efficient absorption of EU funds can speed up long-term growth and promote the greening of the economy. The total investment rate in Bulgaria fell below 20 percent of GDP in recent years, lagging the rates in Central and Eastern European (CEE) and EU countries. But near-term EU funds can be a boon for investment. The NextGenerationEU recovery funds for Bulgaria for 2022-2026 are expected to reach EUR 7.524 billion or 12.5 percent of 2019 GDP. While policymakers may wish to moderate their expectations of the short-term stimulus effects of these funds, their long-term benefits for raising the economy's potential are undoubtful and powerful. In line with their design, EU-funded projects are projected to have strong growth dividends in the long term with contribution of up to 1 percentage point (pp) to economic growth in the next 8 years. Ensuring a strong growth impact requires improving public investment management and enforcing competition policy so that all entrepreneurs operate in a level-playing field. If Bulgaria maintains high levels of public investment by effectively absorbing EU funds and increasing the share of private investment in GDP to South Korea's post-Asian crisis average of 25 percent, annual GDP growth is projected to rise by 0.8pp on average in 2022-2050.

Second, faster growth calls for strengthening inclusion by addressing the current shortages in skills and promoting equality of opportunity to accelerate human capital and thus labor productivity growth. Bulgaria can gain significantly from advancing equality of opportunity and intergenerational mobility of education, which are currently among the most limited in the EU. Moreover, ensuring that disadvantaged groups are able to acquire human capital to their full potential can reap returns, since the performance of these groups contributes to the more than half of 15-year-olds found in the 2018 PISA round to be functionally illiterate, implying that they lack the basic skills for productive jobs in a modern economy. Ensuring that a large share of the new generation have access to quality education and health services despite the factors that fall beyond their control–such as the education and socioeconomic status of their parents, birthplace, gender, and ethnicity–can advance Bulgaria's pool of tomorrow's skilled workers and entrepreneurs. The combined impact of improving years of schooling, education quality, and health on annual human capital growth could be over 0.6pp in 2022-2050. To accomplish this, policies would need to address inequalities at each level of education starting with early childhood development. A coherent approach to quality assurance and labor market relevance of all educational tracks is also needed, including in vocational education and training. If Bulgaria implements ambitious education and health reforms bringing human capital–especially the quality of education–to the level of the Baltic

countries, annual GDP growth is projected to increase by 0.4pp in 2022-2050. Reforms accelerating the convergence of incomes to EU levels can bring an additional growth dividend of up to 0.2pp annually by reversing net emigration and mitigating the negative impact of demographic trends.

Third, faster private sector productivity growth can be untapped by further advancing the efficiency of market mechanisms. Raising private sector productivity is key to achieving and sustaining economic growth rates of 4 percent and above in Bulgaria. Productivity grew over the last two decades, but growth could have been much higher if markets functioned more effectively; that is, if more productive firms gained market shares instead of losing markets to less productive competitors in their sector, as was the case in Bulgaria over the last years. Productivity growth of firms would have also been stronger if firms innovated more, but firms in Bulgaria have lagged their peers in using new technologies, including digital technology. This misallocation of resources to less efficient firms and the weak incentives of firms to use new technology held back productivity growth in most sectors, including in manufacturing and knowledge-intensive business services despite these sectors' strong exposure to international competition, pointing to significant domestic barriers to competition.

Moreover, productivity and green growth are complementary in Bulgaria: empirical evidence shows that more productive firms are more likely to adopt green management practices. But relatively few firms in Bulgaria have so far introduced green practices, slowing down not only the clean energy transition but potentially also productivity growth. On the other hand, FDI has led to positive productivity spillovers to local suppliers in the manufacturing sector contributing to productivity growth. The market inefficiencies misallocating resources to less productive firms, as well as firms' feeble innovation activity, can be explained, at least in part, by weak enforcement of competition policy and state capture. If Bulgaria addresses these institutional shortcomings, total factor productivity may increase at a rate of up to 2 percent per year after 2030–the level of the top quartile performers in Europe and Centra Asia – which is projected to lift annual GDP growth by 0.9pp on average over the 2022-2050 period.

Bolstering key public institutions will unleash the human capital and productivity potential

Fully enforcing Bulgaria's legislative framework to promote private sector competition will remove market inefficiencies. At Bulgaria's current stage of development as an upper-middle income country, strengthening Bulgaria's public institutions that level the playing field is critical to enhance private sector efficiency and approach the EU productivity frontier. But regulatory barriers to competition and anti-competitive firm behavior in Bulgaria constrain productivity. Firms in several services sectors face more anti-competitive product market regulations than their peers in all other EU countries. Architects, civil engineers, attorneys, and notaries, for example, are obliged to become members of professional chambers that are involved in entry and price regulation. Removing these barriers can raise service quality, leading to productivity gains for the many other firms in the economy using these services. Further, the enforcement of antitrust law has to be strengthened. Analysis of public data on more than 200,000 public procurement contracts reveals that about 50 percent of contracts in

Bulgaria may have been awarded to firms with high collusion risk. While collusion risk is not uncommon across the world, the potential risk in Bulgaria is found to be higher than in other European countries such as Sweden, France, Portugal, Latvia, and Hungary. Better antitrust enforcement would include strengthening the capacity of the competition authority to deploy advanced cartel screening tools, making more frequent use of surprise inspections, and promoting its leniency program.

Greater transparency and competition in public procurement will further level the playing field among entrepreneurs, encouraging productivity growth. Public procurement amounts to 12 percent of GDP in Bulgaria, implying that access to procurement contracts affects the allocation of resources in the economy. Combining the data on procurement contracts with firm census data in Bulgaria in the period 2011-2018 reveals that less productive firms were often more likely to obtain more and larger public procurement contracts. These contracts were often assigned through uncompetitive procedures, for example, by not publishing tenders or selecting single bidders. Making public procurement procedures competitive can support the flow of capital to more productive firms, supporting growth of more dynamic firms and away from those that are co-owned or managed by persons with a political post (see Box 1). While politically connected firms tended to be less productive in 2011-2018, they were four times more likely to obtain a public procurement contract, and one-third of these contracts had a higher risk of corruption. Consistent with more market power, connected firms also tended to charge higher price markups than their competitors despite their lower productivity. The results suggest that a comprehensive institutional approach is needed to increase transparency and shield policies from vested interests. Moreover, green procurement with stricter environmental standards had lower corruption risks, indicating potential synergies between Bulgaria's green and anti-corruption agenda.

Unleashing Bulgaria's full productive potential through policies and institutional reforms that level the playing field among all economic agents in the country would pave the path to high income. It requires ambitious reforms that promote human capital development as well as institutional independence and accountability to untap productivity growth. Countering the demographic trend through advancing equality of opportunities and nurturing human capital is a primary task. It requires deep reforms in the education system towards skills development and ensuring equal access to quality public services throughout the territory. As far as private sector growth is concerned, ensuring the enforcement of competition rules and openness of public procurement to competition will contribute to faster productivity growth and improve resource allocation. Institutional change towards building capacity, ensuring independence, and promoting transparency and accountability of public agencies is thus the key transformational pathway towards Bulgaria's transition to high income. By implementing ambitious structural reforms in these areas, the Bulgarian economy has every chance to achieve growth rates at least twice as high as those observed in the decade prior to the Covid-19 pandemic, implying that real incomes would converge to the average EU level in about 15 years.

Figure ES.1. Growing the economy at above 4 percent per year can bring income levels on par with the EU in 15 years.

(Bulgaria will not be able to converge to average EU GDP per capita in PPS terms in the foreseeable future if recent growth rates are kept)

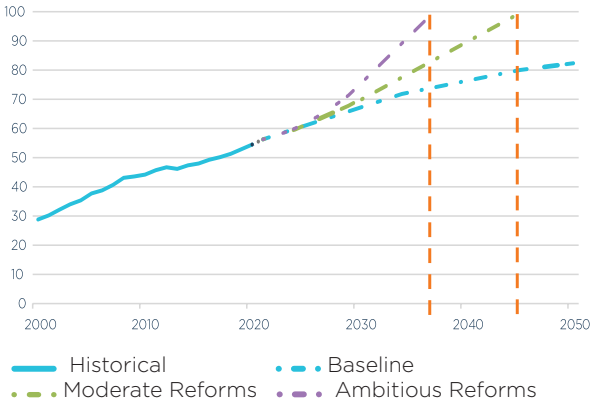


Figure ES.2. This requires a new generation of policies boosting people's skills and firms' efficiency.

(Ambitious reforms boosting TFP, human capital, and investment growth can reverse a slowdown of growth to 1.2% by 2050)

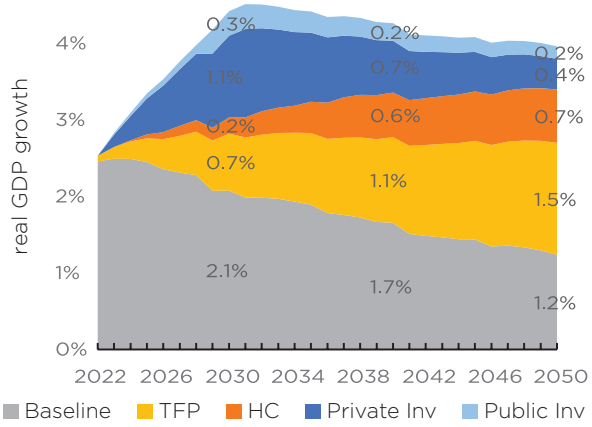


Figure ES.3. Overcoming the high inequity in access to quality education and health will support human capital formation.

(Bulgaria has strong potential to reduce inequality of opportunity from the highest level in the EU)

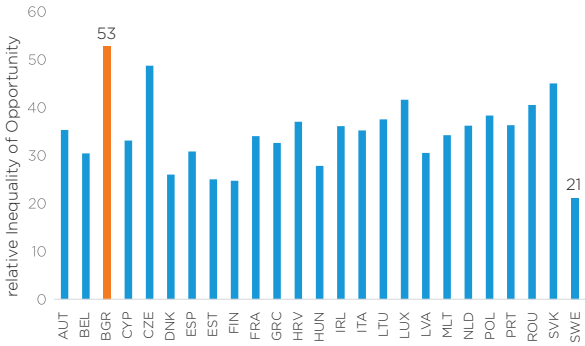


Figure ES.4. Removing market inefficiencies will unleash faster private sector productivity growth …

(Resource misallocation: More productive firms have lost market shares, as illustrated by the negative "between" part)

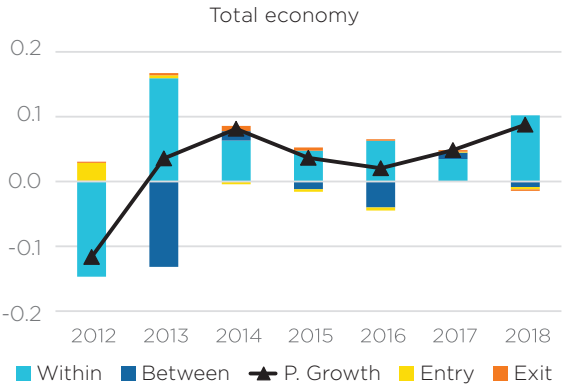


Figure ES.5. … and bring firms' innovation activities closer to EU levels.

(Firms in Bulgaria lag their peers in innovation)

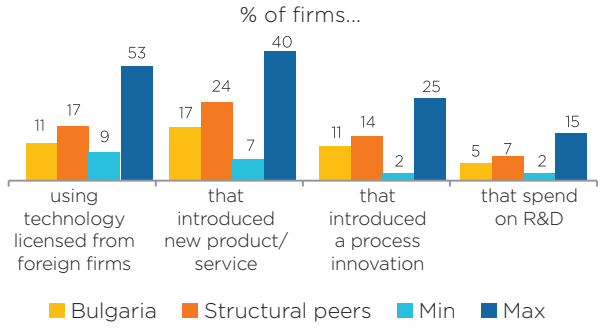
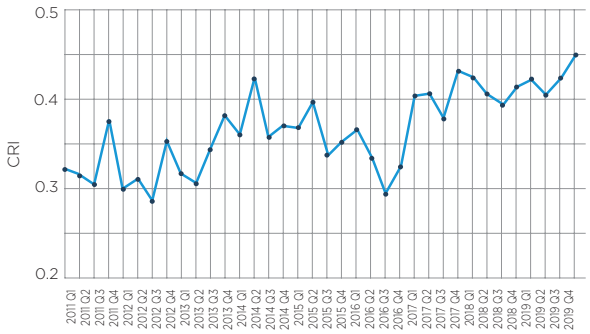


Figure ES.6. Transparent public institutions can level the playing field and raise productivity growth.

(Uncompetitive public procurement, i.e., a high CRI, has increased since 2011 adding to the resource misallocation that limits growth)



List of abbreviations

AI	artificial intelligence
CBAM	Cross-Border Adjustment Mechanism
CE	circular economy
CEE	Central and Eastern Europe
CEM	Country Economic Memorandum
CF TED	Conference Board Total Economy Database
CO2	carbon dioxide
CO2e	carbon dioxide equivalent
CPC	Commission for Protection of Competition
CPV	common procurement vocabulary
CRI	corruption risk indicator
CRM	customer relationship management
ECA	Europe and Central Asia
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GHG	greenhouse gas(es)
ERP	economic resource planning
EU	European Union
FDI	foreign direct investment
HCI	Human Capital Index
HE	higher education
HEI(s)	Higher education institution(s)
ICT	information and communication technology
IT	information technology
IoT	internet of things
LTGM	long-term growth model
NGEU	NextGenerationEU
NUTS	nomenclature of territorial units for statistics
OECD	Organization for Economic Cooperation and Development
OFAC	Office of Foreign Assets Control
PEP	politically exposed persons
PP	percentage points
PIMA	Public Investment Management Assessment
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
PMR	product market regulation
PPS	purchasing power standard
PWT	Penn World Table
R&D	research & development
RIOO	relative inequality of opportunity
RRF	Recovery and Resilience Facility
RRP	Recovery and Resilience Plan
SOE(s)	state-owned enterprise(s)
TIMSS	Trends in International Mathematics and Science Study
UMI	upper middle income
VET	vocational education and training
WB	World Bank
WBES	World Bank Enterprise Survey

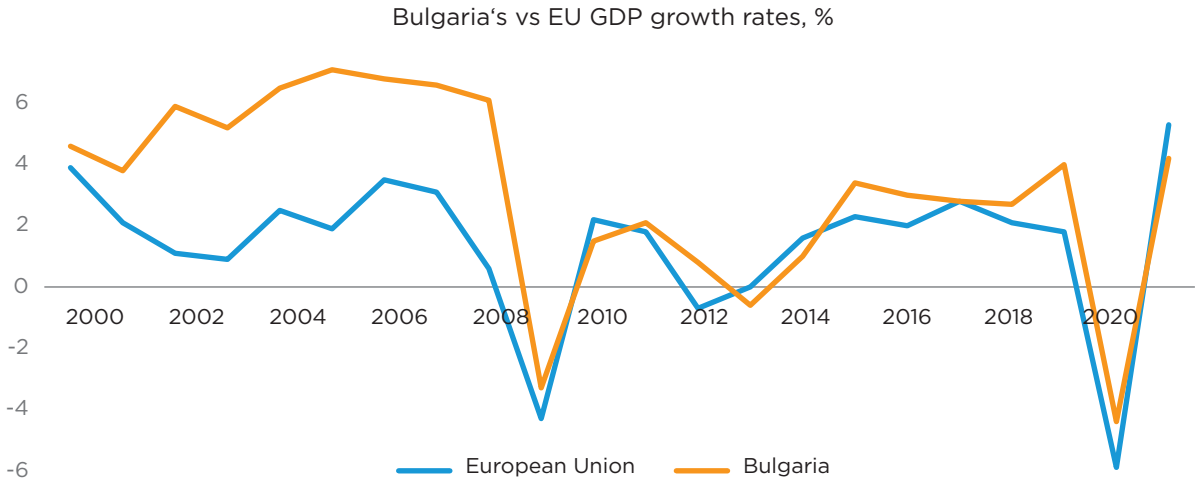
Introduction

Bulgaria has followed sound macroeconomic policy in recent years and has weathered the Covid-19 economic crisis relatively well. The macroeconomic policy course has been anchored by a currency board arrangement since mid-1997, underpinned by a prudent fiscal stance. The fiscal position in the last two decades has been characterized by either budget surpluses or relatively low budget deficits by EU standards, and one of the lowest public debts in the EU at 24.5 percent of GDP as of end-2020.

The country embarked on a thorough transformation to a functioning market economy in the run-up to EU membership in 2007 which, since 2018, has been followed by a firm course towards eurozone entry. After the Bulgarian government successfully delivered on a list of prior commitments in the areas of banking and non-banking financial sector supervision, insolvency framework, SOE governance and money laundering, the Bulgarian Lev was included in the Exchange Rate Mechanism II in July 2020. In October the same year, Bulgaria also joined the European Banking Union's first two pillars–the Single Supervisory Mechanism and the Single Resolution Mechanism, whereby the European Central Bank took over the direct supervision of the banks, classified as "significant institutions" in Bulgaria. Thus, despite the Covid-19-induced crisis and its toll on the national economy, the country succeeded in moving closer to the core of the EU and the near-term prospect of euro adoption.

But income convergence to average EU levels has been held back by low pre-crisis economic growth averaging only 2.1 percent in 2010-2019. Economic growth has decelerated in recent years despite a cyclical upturn in main export destinations, suggesting that faster growth is limited by structural constraints. The slowdown of Bulgaria's growth after the GFC has been stronger than the average EU growth decline in that period, despite the closer integration of Bulgaria's and EU's business cycles as illustrated in Figure 1—the correlation between the two real GDP growth series increased from 0.02 to 0.7 for the two periods, respectively. This suggests that the factors behind Bulgaria's lackluster growth after 2010 go beyond the cyclical effect and, instead, are driven by domestic structural constraints. Moreover, Bulgaria's real GDP growth rates have slowed down closer to the EU levels after the GFC implying slower income convergence (Figure 1).

Figure 1. While the Bulgarian economy's business cycle has converged closer to the EU one after the GFC, the gap in growth rates has narrowed implying slower income convergence to average EU levels



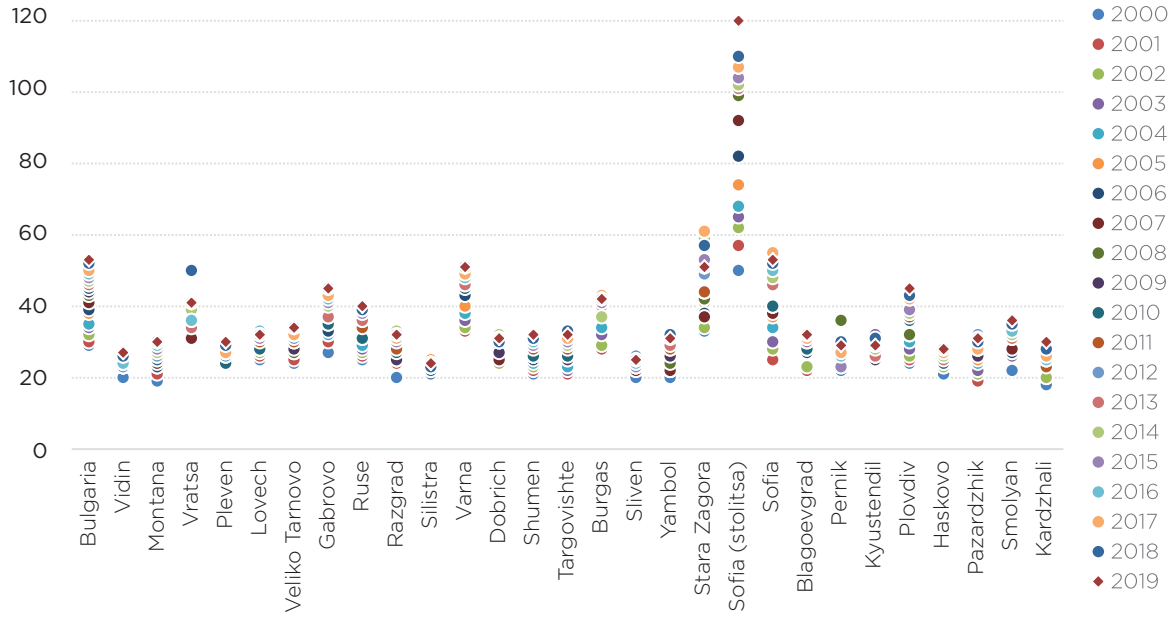
Source: Eurostat. *Note:* Real GDP growth rates, Bulgaria versus EU-27 average, in percent

At pre-Covid-19 crises growth rates, Bulgaria is not expected to converge to average EU income levels in the foreseeable future. Potential GDP growth in the last decade dropped by half to only 2 percent. The long-term trend of real GDP growth shows a comparable decline over the last decade. In order to raise national GDP per capita on par with the EU average within 15 years, annual average GDP growth in the Covid-19 recovery phase needs to more than double to at least 4 percent or over 5 percent in GDP per capita terms. This would require ambitious reforms that bring the country closer to the production possibility frontier.

The average income level masks substantial regional inequalities which continue to widen and undermine human capital formation and growth. Convergence to average real EU income levels, as measured by EU per capita in purchasing power parity terms, has varied substantially across Bulgaria's NUTS-3 regions (districts). While the national-level GDP per capita reached 53 percent in 2019 and 55 percent of the EU average in 2020, convergence in some districts has almost stalled in the last two decades – among these, the Silistra district stands out as the slowest convergence story as it inched up from 21 percent in 2001 to 24 percent of the EU average in 2019. Vidin, Sliven, Haskovo, Kyustendil are also among the worst performers in terms of both their relative GDP per capita growth vis-à-vis the EU average, and progress since 2000. Most of the country's districts flock in the 20-40 percent range, with just a few succeeding to jump to the 40-60 percent band. In contrast, the Sofia city district is ahead of the rest of the country and already reports average incomes in terms of PPP-adjusted GDP per capita that exceed the EU average with a comfortable margin. Still, even the districts surrounding the capital have hardly managed to reach half of Sofia's relative incomes per capita.

In-country disparities have widened markedly over the last two decades. Judging by the variance of the district-level GDP per capita, the process of internal divergence was more pronounced in the run-up to the 2008-2009 global financial crisis, but it continued after 2010 (Figure 2). Among the key reasons for the observed divergence is rapid depopulation, aging and ensuing labor shortage in some districts, poor infrastructure connectivity (particularly in Northern Bulgaria and in some peripheral or mountainous areas), and gross differences in the availability of quality public services in the districts, which drives away individuals and investors from those where access is limited.

Figure 2. District-level incomes per capita have been diverging since 2000



Source: Eurostat. Note: GDP per capita in Bulgaria's NUTS-3 regions (districts) in PPS, percent of the EU average (EU average=100).

Bulgaria needs to take its economy convincingly on a green growth path. The country has successfully achieved decoupling of output and CO2 emissions since 2008.[1] In addition, the carbon intensity of the Bulgarian economy more than halved between 2005 and 2019 for each euro of gross output, the country emitted 934 grams of CO2e in 2019, compared with 2,691 grams of CO2e per euro in 2005. Despite that, the country remains by far the most carbon-intensive in the EU (2019). The power generation sector remains the main source of GHG emissions in Bul-

1 Papiez, Monika, Sl. Smiech, K. Frodyma, The Role of Energy Policy on the Decoupling Processes in the European Union Countries, Journal of Cleaner Production, October 2021

garia in terms of its share in total emissions. In 2019, energy producers emitted 39 percent of all emissions, followed by transport (16 percent), industrial processes and product use (12 percent), and agriculture (11 percent).[2] In addition to coal-fueled power generation and gas- and coal-fueled district heating companies, the manufacturing industry as well as a number of sectors in its upstream and downstream supply chains, will be most strongly impacted by the decarbonization process.[3] Moreover, the clean energy transition is also critical to maintain Bulgaria's export competitiveness in the EU. Once the EU's carbon border adjustment mechanism (CBAM) is extended to include the carbon footprint of electricity generation, Bulgaria needs to transition away from coal to maintain its export competitiveness in the EU. In addition, Bulgaria's transition to a circular economy is in its infancy. The country displays one of the lowest circular material use rates among EU member states (2.3 percent in 2019). Moreover, Bulgaria and Romania are among the countries with lowest economic impact of the circular economy.[4] The above-mentioned issues are a few examples that aim to illustrate Bulgaria's serious challenges towards greening its economy.

Newly emerged geopolitical challenges undermine growth prospects and reinforce the need of a stronger focus on productivity. Following the Covid-19-induced crisis in 2020-2021, the war in Ukraine has created new challenges that may have a lasting scarring impact on the local economy. The suspension of gas supplies to Bulgaria by Russia, the rapid acceleration of inflation, and the disruption of supply chains regionally and globally threaten to take a serious toll on the country's economic growth in the coming years. The scale of the impact and its longevity depend on the length of the conflict. The country is in close proximity to the war zone and has so far relied on Russia for most of its gas and oil supplies. Nuclear fuel–used in the generation of 41 percent of Bulgaria's electricity – is also entirely imported from Russia. While trade links with Ukraine and Russia (beyond energy sources) are relatively limited, the two countries are important markets for Bulgaria's tourism. The quake stemming from the war calls for an even stronger focus on raising Bulgaria's productivity, if the country is to remain competitive and stay on its convergence path.

A key constraint that can be seen in all growth policy areas, and also limits the pace of greening of the Bulgarian economy, is weak governance capacity and institutions. The recent Institutional Assessment of Bulgaria, completed in 2021, shows that Bulgaria scores in the bottom 33 percent in almost all institutional families[5], as compared to a group of aspirational peers. With regard to structural peers, the picture is more mixed but labor market institutions, governance of SOEs and legal institutions are three areas where Bulgaria scores in the bottom 33 percent compared to the structural comparators, too. There, the distance to frontier is also larger which implies that a sustained reform effort will be required to put the country on a convergence path. Bulgaria also features at the bottom or below the average of EU countries with regard to key institutional and governance indicators, such as the rule of law, corruption, and judicial independence, among others. Institutional challenges manifest strongly in high administrative costs on businesses, uncompetitive public procurement practices, weak enforcement of legislation, including antitrust rules, and restrictive product market regulations. Thus, institutional issues, similarly to green growth and decarbonization, have been treated as a cross-cutting issues and can be found throughout all chapters of the report.

Bulgaria's growth prospects are challenged by one of the worst demographic trends in the EU. Bulgaria is one of the 5 EU countries with the worst demographic projections until 2070. The latest Aging Report of the EC (May 2021) projects that the population of Bulgaria will shrink 29 percent by 2070, against the 2019 base year, with direct implications for the labor force (15-64 years of age) and the total economic dependency ratio[6]. The former is forecasted to shrink by more than a third, while the latter will rise by almost 40pp, from 116.6 to 156.1 percent.

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2 European Parliament, Climate Action in Bulgaria: Latest State of Play, Briefing on EU Progress on climate action – How are the Member States doing?, 2021

3 World Bank (2022), Economic, Social, and Environmental Impacts of the Transition in Carbon-intensive Districts.

4 The indicator of the circular economy impact includes "gross investment in tangible goods", "number of persons employed" and "value added at factor costs" in three sectors: the recycling sector, repair and reuse sector and rental and leasing sector. Data is from 2008 to 2018 and is sourced from Eurostat.

5 The institutional families include labor market institutions, governance of SOEs, legal institutions, political institutions, social institutions, financial institutions, accountability institutions, public sector institutions, business and trade institutions. See Institutional Assessment, Annex 1 of the Bulgaria Systematic Country Diagnostic Update, 2022, for more details on the methodology and results of the study.

6 Ratio between employed (aged 20-64) and inactive population

This report is organized around the World Bank long-term growth model (LTGM) which allows to simulate Bulgaria's growth path under different scenarios. The key aim of the LTGM[7] is to present a baseline growth scenario for the Bulgarian economy should current trends remain intact and explore the conditions under which growth rates can be effectively more-than-doubled against the average for the last 10 years, so that Bulgaria achieves an average growth rate in the order of 4 percent and converge to average EU income levels in the next 15 years. Thus, the first chapter presents the model's key parameters, scenarios, and takeaways. Chapter 2 dwells on public and private investment and how these could be accelerated, while Chapter 3 focuses on human capital and particularly the national system of skill building and upgrade, as well as the equality of opportunities as a key condition for inclusive human capital development. Chapter 4, in turn, is dedicated to total factor productivity growth from a firm-level perspective, including constraints to productivity growth, and options to overcome resource misallocations and boost productivity. Finally, Chapter 5 tackles key institutional challenges to growth by looking into competition policy enforcement and product market regulations, as well as non-competitive practices in public procurement and how these can signal a risk of corruption or act as a marker of preferential treatment of politically connected companies. The report concludes with a schematic presentation of policy recommendations that may help address identified challenges in the preceding chapters.

The structure of the report focuses on the key identified constraints to and opportunities for Bulgaria's faster long-term economic growth and income convergence. The report discusses complementary policy areas when needed and refers to related studies for more in-depth analysis and policy options in these cases. For example, Chapter 4.1 includes an analysis on firms' R&D and innovation activities. A specific innovation policy framework is provided in a complementary World Bank report.[8] Moreover, Chapter 3.1 estimates the impact of gender inequalities on human capital formation, Finally, environmental and climate change policies for Bulgaria are discussed throughout the report when they have a direct impact on economic growth. For example, while Bulgaria's decarbonization policies primarily have large regional and distributional impacts, their impact on firms' export competitiveness is briefly discussed in Chapter 2.2. Chapter also 2 estimates the short- and long-term growth impact of the absorption of EU funds for green public investments. Chapter 4.1 analyzes the investment in green technologies through the lens of private sector firms and Chapter 5.2 evaluates the scope for competition in green public procurement. All chapters of this report are based on in-depth background notes applying state-of-the-art methodologies to provide new insights into the different growth constraints and policy options for Bulgaria.

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

8 World Bank (2021), Bulgaria's Country Needs and STI Policy Mix Assessment.

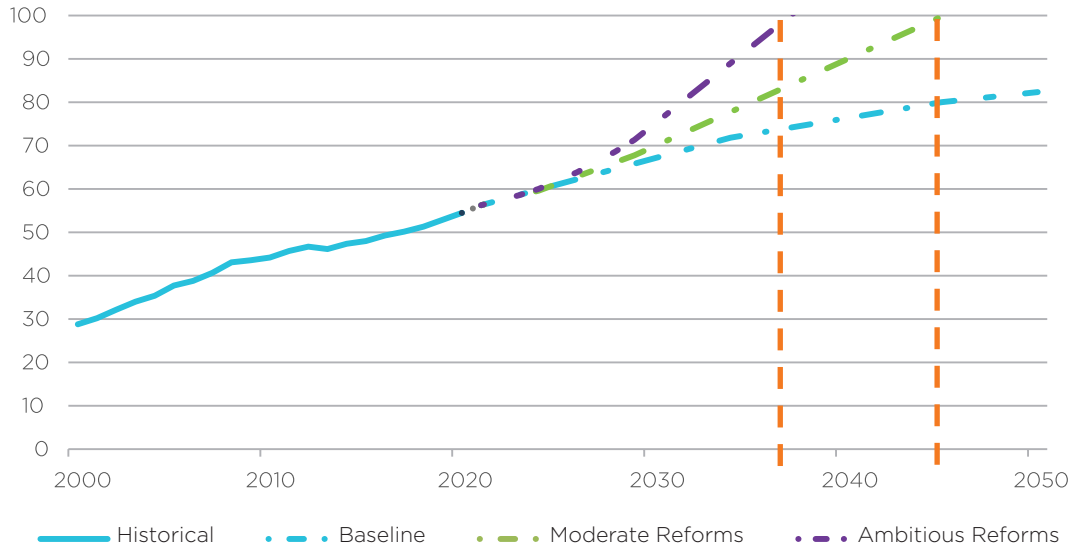
1

What would it take for Bulgaria to converge to average EU income levels within 15 years?

Bulgaria has adhered to sound macroeconomic fundamentals in recent years, but faster income convergence to average EU levels has been held back by low pre-Covid-19 growth. Preparation for EU accession in the period 2000-2007 spurred reforms across the board, as the country moved towards a fully-fledged liberal democracy with a functioning market economy. Yet, this reformist period was followed by a reform slack until mid-2018, when the government embarked on a firm course toward euro adoption and committed to undertake a number of reforms in banking and non-bank financial supervision, the insolvency framework, SOE governance, and money laundering. Even though the country has generally maintained fiscal prudence since the full-blown economic, financial and currency crisis in 1996-1997, growth has decelerated markedly after the Global Financial Crisis in 2009.

If Bulgaria continues to grow at the average pre-pandemic rate, GDP per capita will not converge to average EU income levels in the foreseeable future. As pre-Covid-19 economic growth averaged only 2.1 percent in 2010-2019, convergence to average EU income levels was slow and Bulgaria continues to have the lowest GDP per capita among EU countries. Assuming that the average EU growth rate remains more or less stable, Bulgaria will not converge to average EU income levels in the foreseeable future unless growth is accelerated through impactful structural reforms (Figure 3).

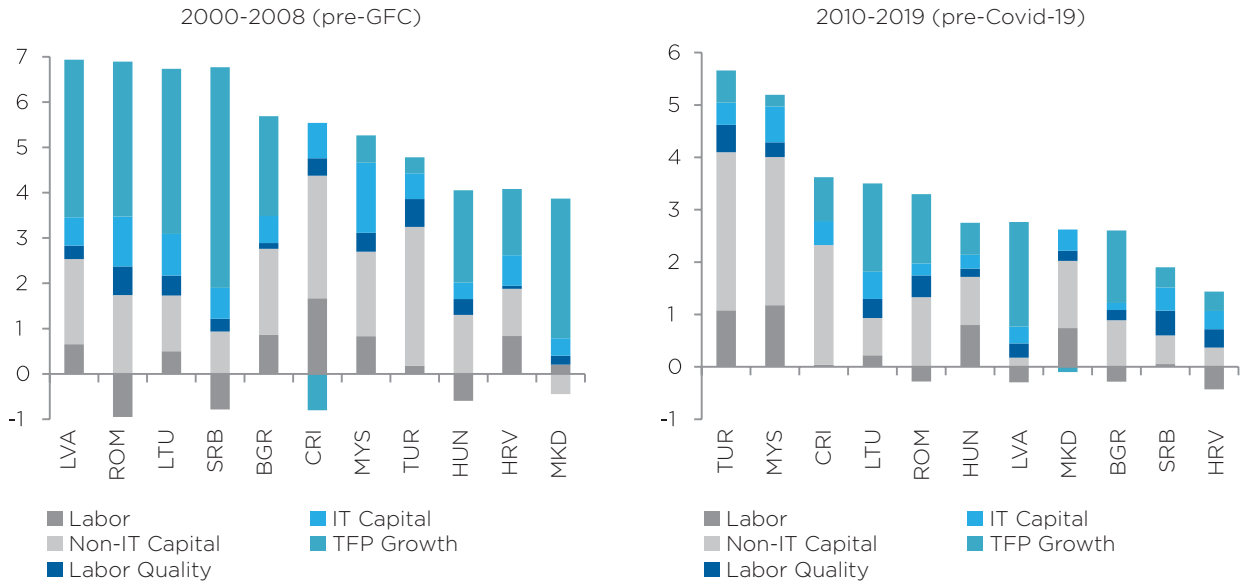
Figure 3. Without structural reforms Bulgaria will not converge to the average EU income level



Source: World Bank staff based on Conference Board data. *Note:* (projected) evolution of GDP per capita in purchasing power terms as a share of EU-27 average under different reform scenarios.

Pre-Covid-19 growth was limited as capital and labor accumulation lost steam. In the 2000 – 2008 period, the Bulgarian economy grew rapidly, averaging 5.8 percent due to positive investment sentiment and foreign capital inflows, paralleled by a domestic credit and consumption boom. A growth decomposition based on factor contributions shows that Bulgaria's high growth in this period was driven by non-IT capital and labor accumulation and strong total factor productivity and IT capital growth. Yet, following the GFC, Bulgaria's growth decelerated markedly as capital and labor accumulation levelled off with Bulgaria becoming richer. At the same time, total factor productivity and IT capital expansion also slowed down (Figure 4).

Figure 4. Bulgaria's high growth prior to the GFC slowed as capital and labor accumulation levelled off after 2009



Source: World Bank staff based on Conference Board Total Economy Database. Note: Growth decomposition.

Without structural reforms, economic growth will decelerate further to 1.25 percent by 2050 due to the declining share of its working age population and total factor productivity growth reverting to its medium-term trend. The baseline scenario of the long-term growth model for Bulgaria is designed to capture business-as-usual trend growth.[9] It is based on the continuation of historical trends and assumes no major reforms. This means that it rests on preservation of investment at recent historical rates, total factor productivity growth slowing in the long run, a human capital path based on the Human Capital Index and demographic trends based on the UN projections. Under this scenario, Bulgaria's potential real GDP growth will slow down from 2.5 percent in 2022 to 1.25 percent by 2050. This projection rests on the assumption that total factor productivity growth, the key determinant of long-term growth, will gradually decline from 1.5 percent in 2022 to 1.0 percent in 2050 as it is assumed to revert to its medium-term trend after a recent upside cycle.[10] In GDP per capita terms this growth rate translates to 1.8 percent average growth of GDP per capita in the long run, that can be broken down into 2.2 percent average for 2022-2035, and 1.5 percent for 2036-2050. Again, such a growth rate is insufficient to achieve convergence to average GDP per capita levels in the EU-27 by 2050.

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

Rekindling Bulgaria's economic growth is possible. The transition to a high-income country requires strong private sector productivity growth. Past policies facilitated capital accumulation and initial human capital and private sector productivity catch-up, supporting Bulgaria's transition to an upper middle-income country. This pattern of growth and convergence based on the accumulation of input factors–capital and labor– has been shared by many middle-income countries around that world. Yet only few countries managed to transition to high-income status, reflecting that factor accumulation runs into diminishing returns when countries become richer. These successful countries have experienced stronger productivity and human capital gains.[11]

9 LTGM captures only the supply side of the economy and does not include short-run demand effects.

10 Penn World Table (PWT) version 10 estimates a 10-year average TFP growth of 0.6 percent; the Conference Board Total Economy Database (CB TED) - a 10-year average of 1.4 percent and the EC 2021 Ageing Report assumes TFP growth of 1.4 percent for the period 2019-50.

11 The few countries that transitioned to and maintained high-income levels in recent decades without relying mostly on natural resources such as oil include South Korea, Chile, Uruguay, Poland, Hungary, and Czech Republic. In contrast, a long list of countries have stayed at high-middle income levels for decades (see, for example, World Bank 2016, Lessons from Poland, Insights for Poland; Aghion and Howitt 2006, Appropriate Growth Policy: A Unifying Framework)

Thus, as growth through factor accumulation runs out of steam, Bulgaria needs to boost firms' efficiency and people's skills to move the economy closer the productivity frontier. In other words, the policies that supported its transition to its current income level will not carry Bulgaria to high income. The set of policies required to steepen the convergence trajectory by boosting the efficiency of the private sector and help overcome the current skills shortage are the focus of this report.

Simulating the future growth path of Bulgaria's economy shows that improvements in productivity bring the largest growth dividend (Figure 6). This Country Economic Memorandum (CEM) synthesis report uses the World Bank long-term growth model (LTGM) to simulate Bulgaria's growth path under different scenarios. It shows that reforms boosting productivity have the largest growth impact. It also reveals that investments in human capital accumulation today will help address the economy's skill shortages and spur growth over the longer term while stronger capital investments would boost growth primarily in the next few years. Raising investment or even maintaining its current level of about 20 percent of GDP, however, requires new, more productive investment opportunities. Higher productivity growth is thus also critical for preventing capital investments running into diminishing returns. This report aims to identify the structural reforms that would boost Bulgaria's post-Covid-19 growth rate to above 4 percent (over 5 percent in per capita terms), a level required to achieve income convergence to the average EU level within the next 2.5 decades.

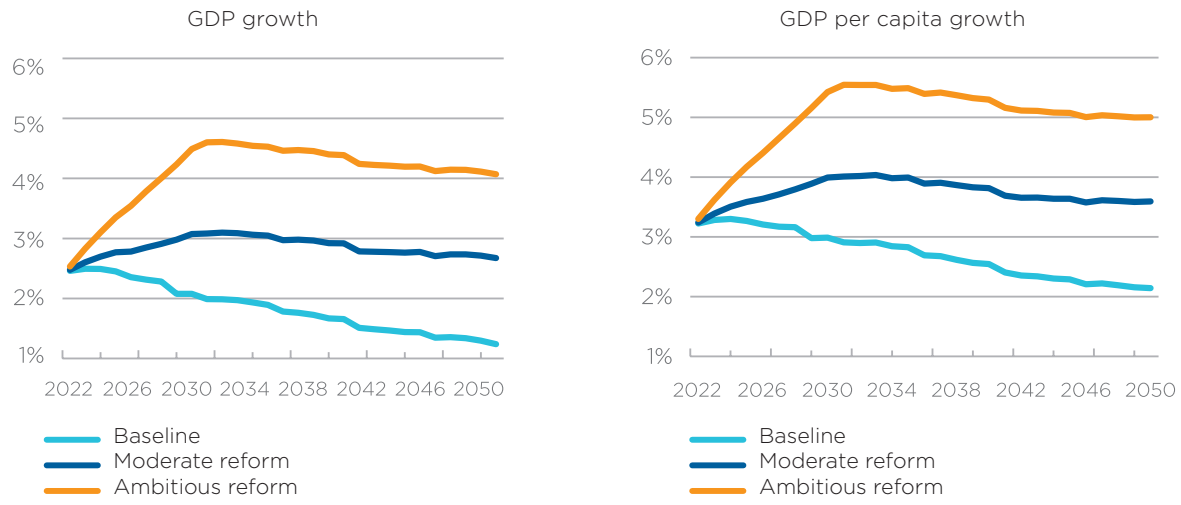
The LTGM puts forward two reform scenarios under which Bulgaria's growth and convergence to average EU income speeds up. Given the persistent gap in real incomes vis-à-vis the EU average under a no-reform scenario, two alternative scenarios have been simulated, a moderate reform and an ambitious reform one, with the aim of exploring the factors that can help the country achieve faster convergence. Both scenarios are achievable if there is sufficient reform determination on the part of the Bulgarian government. They are based on bringing certain LTGM parameters up to levels already achieved by income group or regional peers, hence they are within reach with the right set of policies. More specifically, independent variables of the LTGM are benchmarked to averages of all other Upper Middle-Income countries and regional peers–in Europe and Central Asia (ECA), Central and Eastern Europe (CEE) or the Baltic countries–which appear to rank among the frontrunners on some human capital development indicators such as the PISA test scores.

Under a moderate reform scenario, Bulgaria's GDP growth is simulated to accelerate and reach an average of 2.9 percent in 2022-2050. A moderate reform scenario assumes that Bulgaria keeps its total factor productivity growth at 1.5 percent TFP growth for 2022-2050 which is in line with the CEE median for 2010-2019 (Figure 5).[12] Public investment as a share of GDP stays flat at 6 percent throughout the whole period until 2050 – for comparison, under the baseline, this share is 6 percent for 2022-27 but declines to 5 percent for 2028-2050 as NextGenerationEU funds are no longer available after 2027. The share of private investment in GDP is assumed to increase by 4pp against the baseline to 20 percent of GDP, which is equal to the ECA and CEE median. Finally, the human capital variables are improved as follows: the Human Capital Index is raised from 0.61 to 0.7, or similar to the ECA, CEE and Baltic countries' medians; the adult survival rate is increase from 0.87 to 0.9 and the not-stunted rate – from 0.93 to 0.96 or half-way to the frontier set by the best performers in CEE and the Baltics. Also, harmonized PISA test scores are raised from 0.71[13] currently to 0.8, which is equal to the CEE and Baltic medians and expected years of schooling in Bulgaria are raised from 12.3 years currently to 13.4, based on the ECA and CEE medians. All the above stated reforms will bring average growth up to 2.9 percent for the 2022-2050 period, or more than 1pp higher as compared to the baseline. Given the projected decline of the population, this translates into GDP per capita growth of 3.7 percent on average for the 2022-2050 period.

12 This the roughly equal to the average of the data for 2010-2019 provided by Conference Board Total Economy Database (CB TED) and Penn World Table (PWT).

13 Source: GovData360. Harmonized test score are derived from the 444/625 ratio between Bulgaria's performance and advanced achievement. Harmonized Test Scores are sourced from major international student achievement testing programs and are measured in TIMMS-equivalent units, where 300 is minimal attainment and 625 is advanced attainment. Most recent estimates are used.

Figure 5. Under a moderate (ambitious) reform scenario, GDP growth accelerates to 2.9 (4.1) percent and GDP per capita growth to 3.7 (5) percent

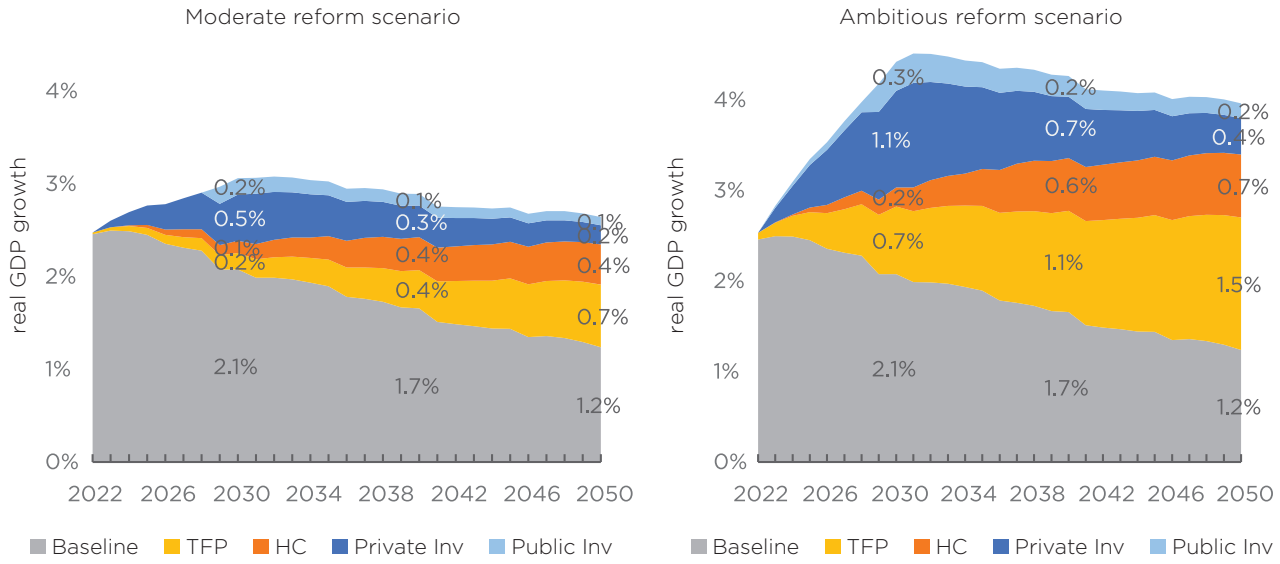


Source: WB team, Bulgaria's LTGM simulations.

Under an ambitious reform scenario, GDP growth can accelerate to 4.1 percent on average in the long run, while average GDP per capita growth can reach 5 percent (Figure 5). The ambitious reform scenario assumes that total factor productivity growth speeds up to 2 percent after 2030, in tune with the ECA and CEE 75th percentile. In addition, this reform scenario rests on the assumption of 7 percent share of public investment in GDP (in tune with the UMI group's 75th percentile); a share of private investment of 25 percent (equal to South Korea's 1998-2010 values after the Asian Financial Crisis); a human capital index (HCI) to ECA's 75th percentile or similar to that of Baltic countries. It implies an adult survival rate of 93 percent, a 100 percent non-stunted rate of children under 5, average years of schooling of 13.6 years comparable to the Baltic countries' median, a harmonized PISA test score equal to Estonia's performance (0.87) or the CEE and ECA 75th percentile. If the reforms necessary to achieve these targets are implemented successfully, Bulgaria's GDP growth can speed up to 4.1 percent on average in 2022-2050, or more than 2pp relative to the no-reform baseline. In GDP per capita terms, the growth will be more pronounced at 5 percent on average in the long run.

The biggest contribution to GDP growth in both scenarios comes from higher total factor productivity. In both scenarios, the biggest contributor to economic growth is higher total factor productivity, followed by private investment in the near-term and human capital reforms primarily to raise the quality of education in the long term (Figure 6). The improvements in total factor productivity (TFP) are projected to spur GDP growth by 0.3pp on average until 2050 in the moderate reform scenario and 0.9pp in the ambitious reform scenario. The impact increases towards the end of the period in both cases (Figure 6). Raising the private investment share by 4pp in the moderate scenario and 9pp in the ambitious scenario are projected to boost GDP growth by 0.3pp and 0.7pp on average over 2022-2050. The impact is strongest in the early part of the period (0.5pp and 1.1pp until 2030) but slows significantly after due to declining marginal returns to capital. In contrast, the education reforms are expected to have a stronger growth impact towards the end of the period since the full impact will only show once the new, better educated generation of students have entered the labor market. The combined human capital reforms are projected to boost GDP growth by 0.4pp and 0.6pp after 2034 in the moderate and ambitious reform scenarios, respectively. Noteworthy, under both scenarios growth gradually slows down after its initial boost, as total factor productivity growth is assumed to be mean-reverting, the working age population declines, and investment (as a share of GDP) levels off.

Figure 6. The biggest contributors to faster growth are higher total factor productivity, increased private investment in the near-term, and stronger human capital in the long-term

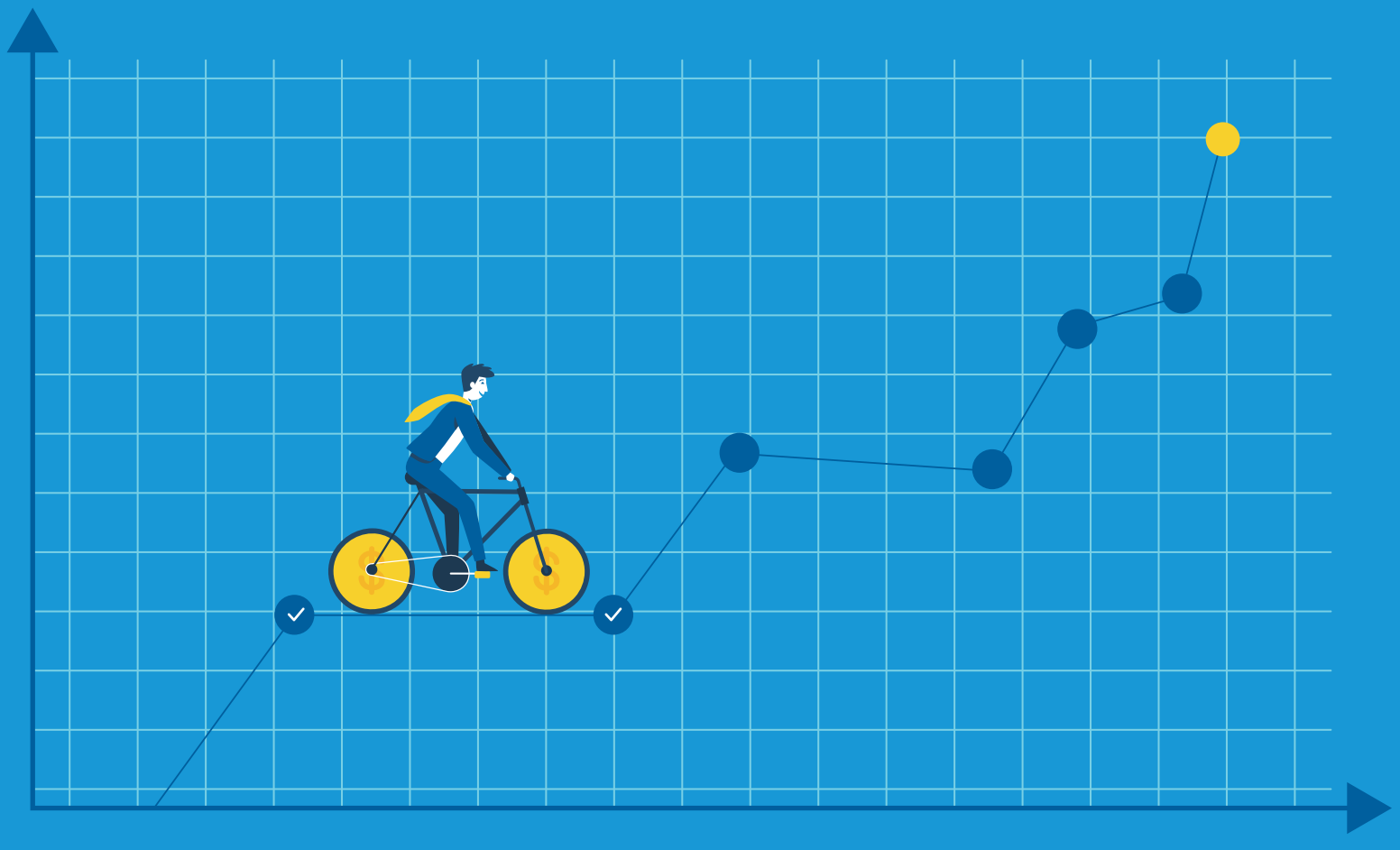


Source: WB team, Bulgaria's LTGM simulations. Note: Grey area shows growth under the baseline scenario.

The presented simulations with the help of the long-term growth model for Bulgaria suggest that its output expansion can accelerate most markedly if it focuses on education reforms and the promotion of private sector productivity growth. The presented model scenarios suggest that reforms aimed at improving the quality of education would have a particularly strong boost to human capital and economic growth. These need to be combined by stepped up efforts to enroll more kids in school and keep them in education as long as possible, with particular attention on the transition between education levels. In addition, hindrances to private sector investment and expansion that stem from regulatory and governance weaknesses as well as non-competitive market conditions, including in public procurement, also have a great potential to spur private sector growth. This, together with a more enabling environment for research and innovation activity could help boost total factor productivity growth and bring the country closer to the best performers in the CEE and ECA regions. Chapters 3-6 provide in-depth analysis of key challenges in each of these domains and propose policy reforms to address them.

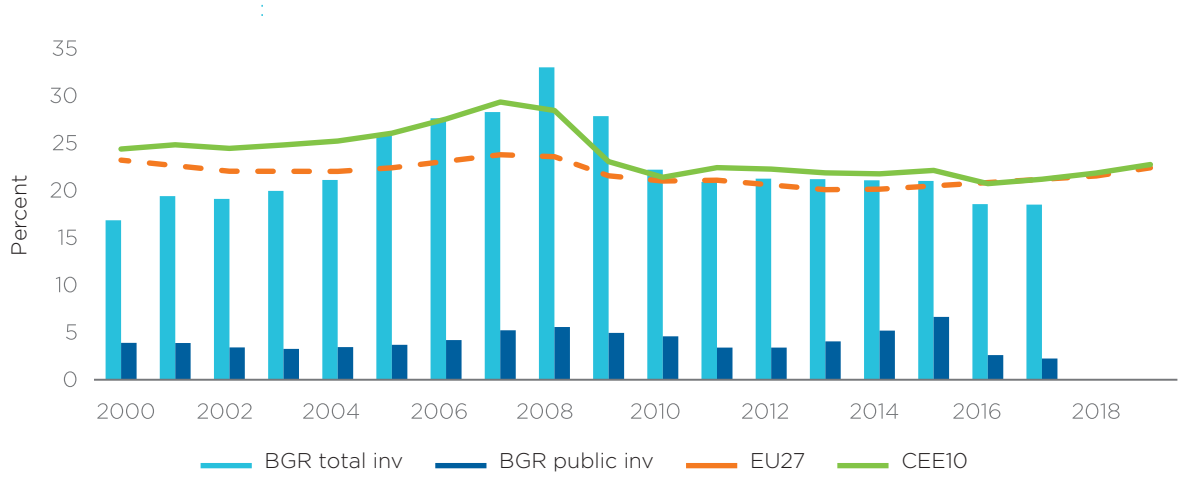
2

Accelerating private and public investments



The total investment rate in Bulgaria fell below 20 percent of GDP in recent years, lagging the average investment rates among CEE and EU countries. As shown in the previous chapter, in order to speed up economic growth, Bulgaria needs to accelerate capital investment, both public and private. While the share of public investment has hovered around the CEE average of around 4 percent of GDP since 2010, the share of private investment in GDP decreased from an average of 19.4 percent in 2000-2008 to 16.6 percent in 2010-2019, also due to a drop in FDI (Figure 7). Gross FDI inflows to Bulgaria declined more than fourfold after the GFC—from an annual average of 14.1 percent of GDP in 2000-2008, to 3.2 percent of GDP in 2010-2019. This decline can be in part attributed to the worsened investment sentiment globally and regionally after the GFC, but also by deteriorating domestic conditions such as growing labor shortages, deficiencies in the quality of infrastructure, and regulatory business constraints, arising from governance and institutional weaknesses.

Figure 7. Investment as a share of GDP declined in pre-Covid-19 years



Source: Eurostat. *Note:* total and public investment share of GDP.

Institutional weaknesses and regulatory constraints are a cross-cutting factor that affects private sector decisions to invest and grow and the delivery and quality of public services. Institutional and governance challenges continue to reduce the country's economic potential, while Bulgaria continues to lag most EU countries on key governance indicators. The gap to the rest of the EU is most pronounced along institutions critical for economic growth such as the rule of law, control of corruption, and government effectiveness. For instance, the Transparency International's Corruption Perception Index shows a significant and persistent gap with the EU average and a stagnation since 2012. Problems with the independence of the judicial system also continue to linger: the European Commission's (EC) indicator of perceived independence of courts and judges by the general public ranks Bulgaria's judiciary system as the 4th least independent in 2021 (EU Justice Scoreboard 2021).

2.1 Will EU funds stimulate a strong post-Covid-19 growth recovery period?

Bulgaria is set to receive the second largest package of the EU post-Covid recovery package, NextGenerationEU. The NextGenerationEU (NGEU) recovery package for the 2021-2026 period totals EUR806.9 bn, with the largest chunk of it being the Recovery and Resilience Facility of EUR724 billion. While the Recovery and Resilience Facility has been prepared in the context of supporting a quick recovery from the Covid-19 pandemic, the objective is in fact long term: the transformation towards more sustainable, green and digital EU economies. Planned NGEU grant spending for Bulgaria is expected to reach EUR7.524 billion in current prices or 12.5 percent of the 2019 GDP (spread across five years, 2022-2026)–the second highest amount in the EU after Croatia as a share of GDP. The NGEU funding comes on top of the Multi-annual Financial Framework's funding instruments, of which EUR18.6 billion or 30.2 percent of the country's 2019 GDP are committed for Bulgaria.

Several, though not all, recent contributions in the literature have found large fiscal multiplier estimates for European funds. For instance, Coelho (2019) finds fiscal multipliers on past rounds of structural EU spending of around 1.8 contemporaneously to 0.9 three years later when estimated at the subnational level.[14] More recently, Durant and Espinoza (2021) also find large multipliers of EU funds at the national level, ranging from an increase in output of 1.2 percent on impact to 1.8 percent a year later. Yet, some other papers find smaller multipliers or mixed effects such as Canova and Pappa (2021) who find a large fiscal multiplier for the European Regional Development Fund (ERDF) of 1.8 (for private gross value added) but a negative multiplier in the short term on the European Social Fund of -0.5.[15]

In contrast to some of the existing literature, this report finds little evidence of an impactful short-term GDP multiplier on historical EU funds, but a significant long-term economic dividend for growth. The estimates of the fiscal multipliers of EU funds on GDP vary across samples and specification but are either not statistically different from zero or less than 1 in the year of absorption and up to two years after it. In the baseline estimation (Panel A in Table 1 below), which looks at same-year impacts, the multiplier is around 0.6 and statistically different from zero when estimated at the subnational level for regions of CEE countries, and close to zero (0.14) for the sample of all EU countries. Using country-level data for all EU countries (which puts more weight on smaller countries), the multiplier is around 0.7.[16] In the preferred instrumental variable specification (Panel B in Table 1),[17] the point estimate of the subnational multiplier is close to zero when using the richer subnational data.[18] The approach generally finds that multipliers in CEE countries are slightly larger than in the rest of Europe, though differences are often not significant.[19] The estimates differ from the literature in 2 aspects. First, recently released EU data are used that partially correct for the time gap between the disbursement of funds from the European Commission and the actual spending by beneficiaries. This differs from Coelho (2019) who uses raw EU data on disbursement of funds from the Commission.[20] Second, subnational data for EU NUTS2 regions are used which provide larger, more robust sample sizes. This contrasts with Durant and Espinoza (2021) who also use the adjusted EU spending data but rely on more aggregate country-level data.[21]

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14 Coelho (2019) reports fiscal multipliers for EU funds adjusted for 40 percent co-financing (in the text her tables report the result without this adjustment).

15 After three years, the ERDF multiplier falls to 1.1, but the ESF multiplier rises to 5.

16 If country-level regressions are disaggregated into CEE and non-CEE subsamples the sample size is much smaller and estimates are insignificant.

17 An instrumental variable approach is needed because (i) stronger domestic aggregate demand may boost applications for EU co-funded projects and (ii) the anticipation of EU funds may raise economic activity and investment around the time of disbursement. Both factors imply that the OLS approach overestimates the size of the short-term fiscal multipliers. Moreover, the OLS approach may also underestimate the size of the multipliers if the demand for EU funds is stronger during economic recessions. Using predicted disbursements based on the disbursements in other regions as instruments removes these potential biases.

18 The first stage of the IV regression generally has a coefficient close to one (indicating that actual and predicted spending move one for one), and have first stage F-statistics above 100, indicating a very relevant instrument.

19 Estimates, which should not be reported causally, do not suggest that "green" investment spending is more substantially correlated with GDP growth than other spending. It is, however, difficult to separate "green" multipliers on environment-related spending from other categories in EU funds data, and appropriate instrumental variables for green spending are not available.

20 To be precise, Coelho uses partially interpolated EU data on unadjusted disbursements (disbursements at the country level combined with commitments at the NUTS2 level).

21 Moreover, the results are subjected to a range of robustness tests to check they are not caused by outliers, influential individual observations, and omitted variables such as institutional indicators.

Table 1. Contemporaneous GDP Multipliers for EU Structural Spending

	Subnational Regions (NUTS2)		Country Level	
	1. All Europe	2. CEE	3. Non-CEE	4. All Europe
Panel A: Methodology - Standard Regression (OLS)				
Multiplier	0.14*	0.57**	-0.04	0.72**
Observations	3,354	802	2,552	399
Panel B Methodology - Instrumental Variables (IV)				
Multiplier	-0.03	-0.02	0.00	0.62*
Observations	3,354	802	2,552	399

Source: CEM background note "How Large are Fiscal Multipliers on European Structural and Investment Fund Spending?" *Note:* * and ** indicate significance at the 10 and 5 percent levels. Regressions of the annual growth rate of real GDP on scaled "modelled" EU Spending. Country level regressions exclude influential observations, Croatia (2016) and Estonia (2011), and outliers are scaled back (winsorized). CEE is Central and Eastern Europe.

These results imply that the implementation of EU funded projects may not immediately stimulate the economy in the short term via the standard demand channels. The multiplier estimates imply that each euro spent on physical or social investment funded by the EU raises GDP by less than 1 euro in the short term. Possible explanations for small multipliers include demand spillovers across very open regions, output being less demand-determined, or the fact that spending is anticipated.[22] Specifically, the standard Keynesian aggregate demand channels could be weakened if the demand fell on neighboring areas, or higher demand was reflected on higher prices and wages. Moreover, given that EU spending is anticipated, firms could smooth their output over time, rather than increase it when spending is recorded.

Instead, and in line with their design, EU-funded projects are projected to yield strong growth effects over time. When using the LTGM, which looks into supply-side effects only, a hypothetical withdrawal of EU funds from Bulgaria suggests that GDP growth would decline by around 1ppt until Bulgaria was able to find other sources of financing, and 0.15pp after that. Supporting evidence can be also found in a separate strand of the literature, which examines the long-run effects of EU funds. This literature assesses the effect of *levels* of EU funds (which affect long-run productive capacity growth), whereas the multipliers literature examines the impact of short-term *changes* in EU funds (which induce a change in demand). For example, Becker et al (2010) finds a positive growth effect of EU transfers for regions eligible to receive them. Becker et al (2012, 2013) also finds positive effects in general, but dependent on absorption capacity. EU funds, if used efficiently, can increase the long-run productive capacity of EU countries, and help achieve other objectives such as greening economic growth.

2.2 The scope of investment to boost long-term growth

Faster capital accumulation can be achieved through removing hindrances to private investment and improving the quality and effectiveness of public investments. As shown in the LTGM, if the shares of public and private investment rise to 7 percent and 25 percent of GDP, respectively, with ambitious reforms, GDP growth can be boosted by additional 0.9pp on average for the period 2022-2050. Chapters 4 and 5 of this report provide a rich menu of competition-enhancing policy options that can help ensure a level playing fields for all market participants, be it in public procurement or in other markets. Moreover, strengthening public institutions, including via capacity building and more effective control and accountability mechanisms, would be key to overcoming institutional gaps, curbing state capture, raising the effectiveness of public services and ensuring better quality of public investment. This concerns equally central and local government

22 Several other factors also suggest estimated EU fund multipliers should be larger. First, the spending in regressions is undercounted because local co-payments are not included, which will bias positive multipliers upwards (i.e., the estimated coefficient is too large). Second, EU funding means local taxes do not need to be raised, which generally increases local multipliers because EU spending is persistent (see CEM background note "How Large are Fiscal Multipliers on European Structural and Investment Fund Spending?" for details).

administrations, independent regulatory and audit agencies, and the judiciary (see chapters 4-6 for more detailed reform recommendations).

Further improvement of public investment management would be key to raising efficiency of public capital spending. While the LTGM analysis presented here looks solely on levels of public investment, its quality, as well as wider fiscal policies[23] are also important for the growth potential of the economy. According to the 2021 Article IV consultations report, published by the IMF, there is scope to improve the efficiency and quality of public investment further. The recent Public Investment Management Assessment (PIMA) completed by the IMF in 2018[24] showed that the largest scope for improvement can be found in the areas of project appraisal, multi-year budgeting, and procurement. More specifically, the government needs to develop standard guidelines for project appraisal, as well as establish a central unit on public investment management at the Deputy PM's office, according to the PIMA recommendations. Moreover, public investment management can be strengthened by improving public investment forecasts in the medium-term budget framework, developing a project pipeline and selection criteria for all major projects and systematizing ex-post reviews for monitoring and follow-up. It is worth noting that in 2020-2022, the government took steps to improve PIM and answer some of the above-mentioned recommendations, particularly with regard to project selection criteria[25]. Delivering on these recommendations would be crucial for strengthening absorption capacity and maximizing the benefits of the sizeable NextGenerationEU and EU cohesion policy envelope for Bulgaria until 2027, including the government's green investment projects which constitute 59 percent of the grants allocated under the Recovery and Resilience Facility (the latter accounting for some 90 percent of the total NextGenerationEU package at the EU level).

Private investment can be encouraged by removing hindrances that stem from unfair competition, skill shortages, governance weaknesses, and bureaucracy. According to the latest World Bank Enterprise Survey (WBES), completed just before the Covid-19 pandemic in 2019, the biggest hindrance to firms in Bulgaria are the informal sector practices, with 23.4 percent of surveyed firms noting them to be their key obstacle. Noteworthy, such practices are also among the top constraints for the group of structural peers.[26] This is followed by the lack of skilled labor (22.6 percent of firms quoting it as their biggest obstacle), which reinforces the focus on access to and quality of education. The share of firms which quote business licensing and permits as their biggest obstacle is also high, at 9.9 percent, and among the highest in the peer group. In addition, Bulgaria fares worse-than-average on most corruption-related indicators when compared to its structural peers. Even if on all corruption-related measures Bulgaria does not show the worst performance in its peer group, its results are worse-than-average when it comes to the share of firms expected to give gifts for government contracts, operating licenses, construction permits or just "to get things done".

Higher investment in green policies and technologies is needed to untap the greening of Bulgaria's economy, supporting its competitiveness and long-term growth. Investment in renewable energy and green technologies is key to lead the transition towards clean energy and lower greenhouse gases (GHG) emissions in Bulgaria's economy. This transition will be strongly supported by the Resilience and Recovery Facility of the EU, which would finance both private and public sector projects for post-crisis recovery, as well as green and digital transformation of EU countries. Under Bulgaria's national Recovery and Resilience Plan (RRP), green transition measures and projects account for 53.7 percent of the entire RRP envelope, which is among the highest in the EU and significantly above the minimum of 37 percent set by the EC, underscoring the country's commitment to the green goals of the EU. Efforts in Bulgaria are to be channeled in three directions: (i) renewable energy sources and hydrogen; (ii) energy efficiency; (iii) sustainable mobility. Once the EU's cross-border adjustment mechanism (CBAM) is extended to the scope 2 emission–the carbon footprint from electricity generation–Bulgaria needs to transition away from coal to maintain its exports competitiveness to the EU. The access to clean energy will thus play a critical role to support firms export competitiveness in the EU.[27]

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23 A more detailed look into fiscal policy as a factor for accelerating economic growth can be found in the recently published Bulgaria Systematic Country Diagnostic Update (World Bank, 2022)

24 This has not been published in full, but is referenced to in the 2021 Article IV Consultations Report

25 Starting from the 2020 state budget cycle, first-level spending units are required to prioritize their public investment projects; for that purpose, they approved and published explicit criteria for selection and prioritization of investment projects.

26 The list of structural peers of Bulgaria, used for the needs of benchmarking the country's performance along key dimensions throughout the CEM, includes Romania, Croatia, Hungary, Lithuania, Serbia, North Macedonia, Turkiye, Malaysia, Costa Rica, and the CEE average.

27 Under the CBAM system, EU importers will buy carbon certificates corresponding to the carbon price that would have been paid, had the goods been produced under the EU's carbon pricing rules. The CBAM will be initially introduced only for selected products – iron and steel, cement, fertilizers, aluminum, electricity.

3

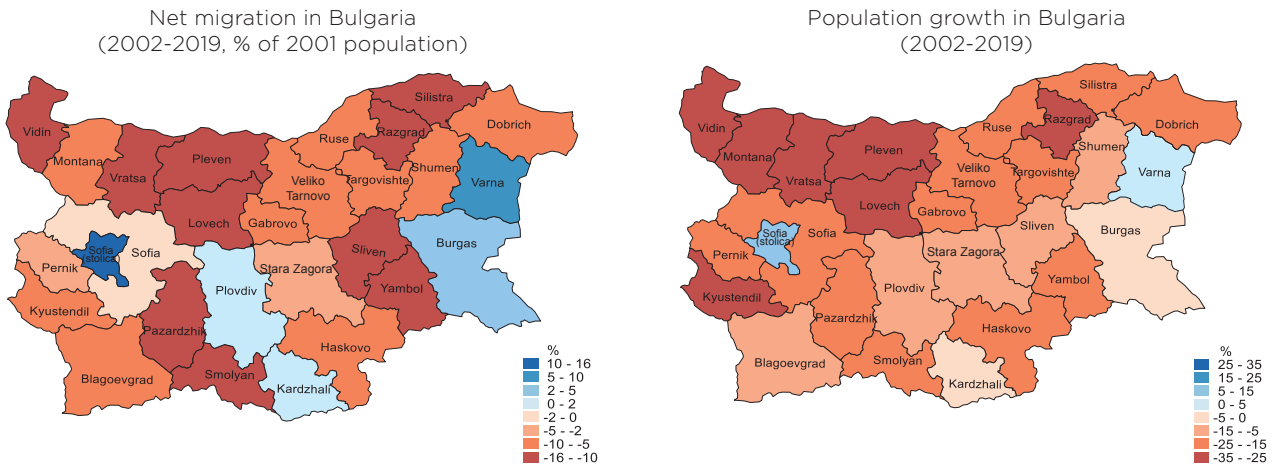
Unleashing Bulgaria's human capital potential

3.1 Negative demographic trends call for enhancing the quality of human capital and reversing net outward migration

Bulgaria is among the EU countries that will face the steepest declines of its population by 2070. The EC's latest Aging Report (2021) projects that the population of Bulgaria will shrink by 2 million people or 28.6 percent in 2070 against the 2019 base year – one of the sharpest declines in the EU. What is more, the prime age population (aged 25-54) will decline from 41.6 percent of the population in 2019 to 33.1 percent by 2070, while Bulgaria will be among the 6 EU countries where the labor force will shrink by more than a third by 2070. The projected decline in the labor force holds despite the expected reversal of negative net migration after 2030. In addition to their adverse impact on the economic dependency ratio (which is projected to grow more than 40pp between 2019 and 2070) and the ensuing pressure on public systems, the unwelcome demographic projections have a direct bearing on the pool of the workers that the economy can rely on in the coming decades.

Net outward migration of the working-age population has been a key factor contributing to negative demographic trends. Bulgaria has one of the largest emigrant populations in the Europe and Central Asia region. According to data from UNDESA, approximately 1.7 million Bulgarians lived abroad in 2020, which is the third largest amongst the new EU member states, after Romania and Poland. The emigration rate as measured by the size of the emigrant population relative to the population in the home country, is equally high, at 24 percent in 2020, the second highest among the new EU member states. A recently published note on migration trends in Bulgaria[28] shows that emigration is mostly led by sizable wage differentials and that Bulgarian emigrants tend to be young, contributing to a decrease in the working-age population in the country, particularly in less-developed regions. Lower wages and higher unemployment are push factors for migration, implying that depopulation is especially pronounced in lagging regions of the country (see Figure 8).

Figure 8: Emigration adds to the population decline, especially in less-developed regions



Source: Garrote-Sanchez, D., J. Kreuder and M. Testaverde, Migration in Bulgaria: current challenges and opportunities, World Bank, 2021. *Note:* Net migration and population growth in Bulgaria's NUTS-3 regions.

Reforms accelerating income convergence would bring an additional growth dividend by increasing return migration and reducing outward emigration. The factors that drive Bulgarians' emigration are primarily structural and will remain in place until a higher level of convergence with the EU is achieved. While substantial wage, prosperity and life quality gaps persist between Bulgaria and wealthier migrant-destination EU countries, migration flows are likely to continue.[29] Conversely, income convergence with the EU can lead to higher return migration or lower migration out-

28 Garrote-Sanchez, D., J. Kreuder and M. Testaverde, Migration in Bulgaria: current challenges and opportunities, World Bank, 2021.
29 Bobeva, D., Zlatinov, D., & Marinov, E. Economic Aspects of Migration Processes in Bulgaria. Economics Studies, 28, 5, 2019.

flows. Bulgaria's LTGM shows that if negative net migration is replaced by a positive balance of 0.25 percent annually by 2050 under a moderate reform scenario, annual GDP growth will be boosted by additional 0.11pp over 2022-2050. In the ambitious reform scenario, it is assumed that net migration reaches 25 percent annually from 2030 onwards boosting annual GDP growth by additional 0.19pp until 2050. If the latter scenario is further combined with higher labor force participation, rising from 73 percent in 2019 to 80 percent of the working-age population by 2050–which is similar to the level of some of the best performers in the CEE region–GDP growth would be 0.40pp higher overall.

Policy interventions that raise economic activity, retain potential migrants, and help returnees resettle would boost growth. Labor force participation is lower than the EU average specifically for young people (15-29 years of age). Thus, measures aimed at making secondary and higher education more skills- and practice-oriented, as well as strengthening dual education and incentivizing internships, flex-work, and part-time work options would have a beneficial impact on the economic activity of the youth. Regarding migration, policy interventions could aim to discourage outmigration and incentivize the return of migrants by helping returnees reintegrate in the domestic labor market. Among these, providing clear and objective information to migrants before they start their journey can help them avoid overestimating their potential earnings and cost of living, as well as safeguarding them from other risks (e.g., human trafficking). Also, reintegration programs could play an important role in facilitating labor market reinsertion for returnees, while strong links with the Bulgarian diaspora, outreach campaigns, and networking events could incentivize the return of high-skilled migrants.

3.2 Human capital formation requires more equality of opportunities

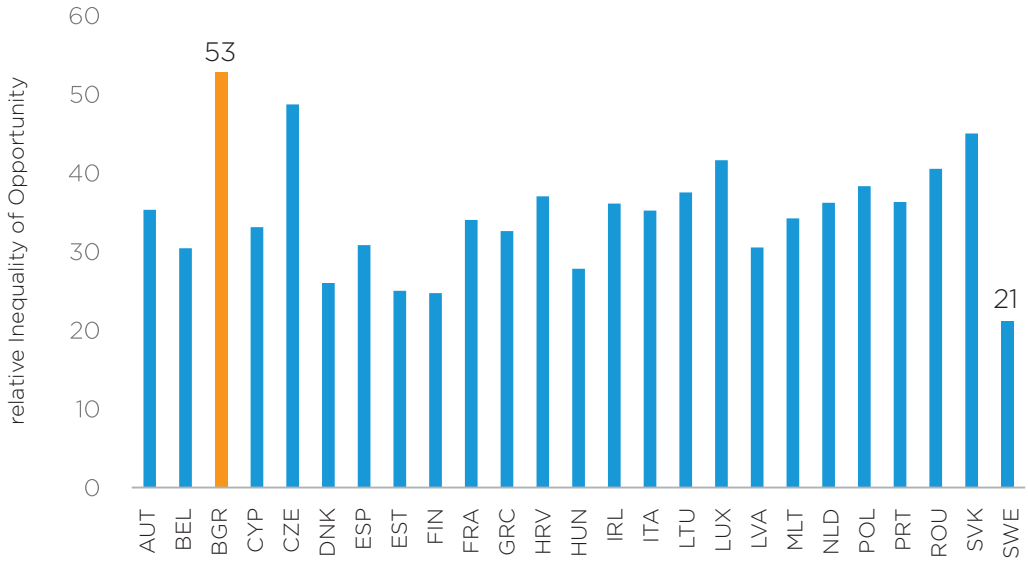
Bulgaria has persistently recorded one of the highest income inequalities in the EU, which can be largely attributed to inequality of opportunity. Since 2016, the country's Gini coefficient of disposable income has been the highest in the EU-27, reaching 40.0 in the 2020 survey year (corresponding to the 2019 income year). The impact of income inequality on economic growth has been extensively explored in economic literature, with most of the studies testifying to the detrimental impact of income inequality on economic growth.[30] The World Bank's new in-depth analysis on inequality of opportunities in Bulgaria suggests that high levels of income inequality in Bulgaria can be largely explained by circumstances at birth that are outside the individual's control.[31] Bulgaria features the highest level of relative inequality of opportunity (RIOO) in income in the EU-27 at 52.8 percent in 2018.[32] This is more than double that of Sweden, the country with the lowest RIOO at 21.1 percent (Figure 9).

30 See, for instance, OECD, Trends in income inequality and its impact on economic growth, 2014; Brueckner and Lederman, Effects of Income Inequality on Aggregate Output, 2015.

31 In this analysis, the WB team has followed a similar approach used in the EBRD's transition report 2016-2017 to compute inequality of opportunity. A broader interpretation of inequality of opportunities as disparities in access to key public services (education, health care, social services and elderly care) and the varied quality thereof can be found in the recently published Bulgaria Systematic Country Diagnostic Update (2022).

32 Excluding the ethnicity variable.

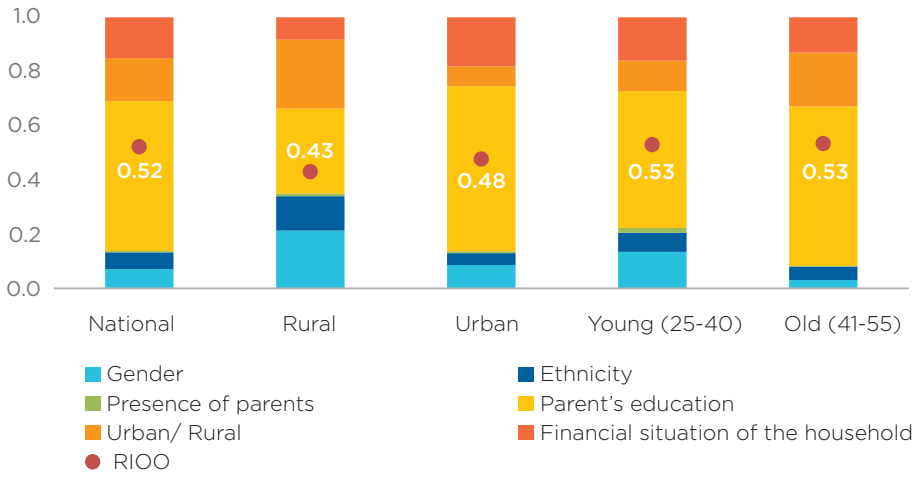
Figure 9. Bulgaria has the highest relative inequality of opportunity among the EU-27 countries



Source: CEM background note "Inequality of Opportunity in Bulgaria", EU-SILC, 2018.

Being male, having a parent with tertiary education, and growing up in an urban, financially well-off household all have a positive impact on labor income. The main variable of interest is labor income as the persistently high income inequality in Bulgaria can largely be attributed to disparities in labor income. Being male, having a most educated parent with tertiary education, growing up in an urban area, and growing up in a household in which the financial situation was described as "Good/Very Good" all have a positive impact on labor income (Figure 10).

Figure 10. Parental education and the urban/rural place of growing up have the highest impact on labor income among circumstances at birth

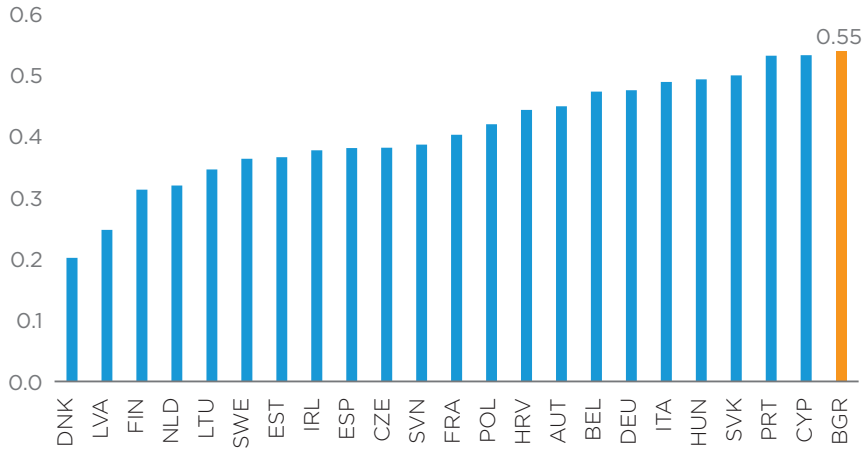


Source: CEM background note "Inequality of Opportunity in Bulgaria". *Note:* Shapley decomposition of R-squared of income regression on circumstances by national, region, and cohort. RIOO: Relative inequality of opportunity.

Parental education is the most important determinant of inequality of opportunity in Bulgaria, followed by the degree of urbanization. At the national level, a Shapley decomposition suggests that parental education accounts for 55 percent of the total inequality of opportunity. It has about twice as high a weight in urban areas compared to rural areas, most likely due to the bigger variation of education there. Interestingly, Bulgaria emerges as one of the EU countries where parental education matters strongly for inequality of opportunity, along with Malta, Luxembourg and Romania. The degree of urbanization of the place where the individual grows up is the second most important factor at the national level accounting for 16 percent of the inequality of opportunity, followed by the financial situation of the household, which accounts for 15 percent of inequality of opportunity. Being male is a strong determinant of inequality of opportunity in rural areas, accounting for just over a fifth compared with 10 percent in urban areas. By contrast, ethnicity and the presence of both parents growing up have a relatively low importance in explaining inequality of opportunity with the exception of rural areas in which ethnicity accounts for 13 percent of inequality of opportunity, potentially due to more variation in ethnicity in rural areas.

Bulgaria features the lowest level of intergenerational mobility of education in the EU. The European Social Survey conducted by the European Research Infrastructure in 2019 shows that in addition to high inequality of opportunities, Bulgaria also has the highest level of intergenerational persistence of education in the EU. Put differently, Bulgaria features the lowest level of relative intergenerational mobility of education, that is, the education of children is highly correlated with the education of their most educated parent (Figure 11).

Figure 11. Bulgaria is characterized by the highest correlation between children and parent's years of schooling in the EU, suggesting the lowest intergenerational mobility of education



Source: CEM background note "Inequality of Opportunity in Bulgaria", 2019 European Social Survey. *Note:* correlation of children's and parent's years of schooling.

The dependence of individuals' outcomes on their birthplace as well as the education and incomes of their parents results in an inter-generational persistence of poverty and inequality that is challenging to reverse. Indeed, Bulgaria shows strong signs of intergenerational transmission of disadvantages – poverty rates among individuals in the sample whose most educated parent has primary education stands at 36.9 percent compared with 9.2 percent for secondary education and 3.5 percent for those with tertiary education. Similarly, for individuals who grew up in an urban area, poverty rates are 14.8 percent compared with 16.7 percent for those who grew up in rural areas.

There is potential growth to be unlocked if Bulgaria manages to reduce inequality of opportunity. As demonstrated in Chapter 1, the combined impact of improving years of schooling, education quality, and health on human capital growth could be as high as 0.63 percentage points (pp) during 2022-2050. The combined impact translates into improvements in GDP growth of 0.4pp annually during 2022-2050.

Inequality of opportunity in Bulgaria needs to be addressed at each level of education starting with early childhood development. In addition to the welcome re-

moval of kindergarten fees for all children from April 2022, greater financial support and social work with parents from disadvantaged backgrounds remains a necessary precursor to improving access to early childhood education. Additionally, increased access needs to be partnered with improved quality of pre-school education to make meaningful gains in reducing inequality. At the secondary level, delaying tracking[33] until children are older can allow students the time to develop crucial math and reading skills to boost future long-term employability. Moreover, early warning systems supported by regular monitoring of educational outcomes can be used to identify children at risk of being left behind or dropping out. Students identified as being at risk can then be placed in remedial and re-engagement programs. Financial incentives to attract and retain high-quality teachers in rural and disadvantaged areas, together with modernizing the curricula to reflect the evolving nature of education can help to boost the employment prospects of future graduates.

Encouraging continued adult learning can help to reengage parents and young adults and reduce the intergenerational transmission of poverty and inequality. This would be particularly beneficial for those who may have become disenfranchised by the formal education system and left with low levels of education. Such programs should be sufficiently flexible to allow for continued participation in the labor market. Also, boosting connectivity in rural areas via physical and digital infrastructure can go some way to reducing inequality of opportunity due to geography. Improved access to quality public services (education, health care, social services, elderly care, etc.) in disadvantaged and remote areas could also help overcome inequality of opportunity stemming from the rural-urban divide. To this end, targeted incentives for professionals to work in such areas as well as pooling of local resources for the provision of shared services (e.g. elderly residential homes, day care centers), based on up-to-date mapping of the needs, could be some of the steps to reduce regional disparities in access to public services. Within the labor market itself, facilitating the upskilling and re-skilling of workers through more relevant active labor market policies will help to address employment and wage disparities by educational attainment.

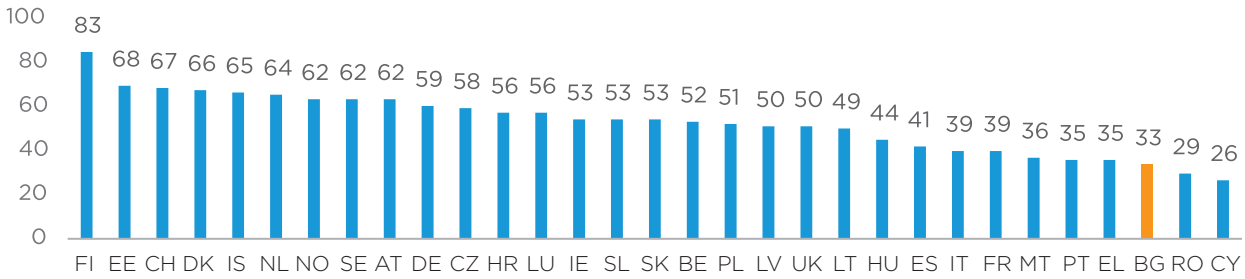
3.3 Education policy reforms to match the rising demand for high-skilled employees

Skills development has been identified as a major national priority. Even if the development of skills is identified as a major priority in the National Development Strategy Bulgaria 2030 and other strategic documents, the role of education in providing necessary skills in practice remains limited. In recent years Bulgaria made significant progress in the implementation of policies aimed at (i) expanding the outreach of schooling and promoting participation of young people in education and training; (ii) making education more inclusive; (iii) modernizing curriculum and introducing competency-based approach; (iv) improving the quality of education; (v) reducing early school leaving and increasing graduation rates; and (vi) making education more responsive to the needs of the labor market.

Yet, Bulgaria's education system continues to score among the worst performers in the EU (Figure 12). Important challenges remain, however, impeding skill development within the education system. Enrolment rates in early childhood and compulsory school education remain relatively low, fostering the accumulation of illiteracy and endangering skills formation and human capital development (Hristova, et al. 2020). The net enrolment rate in early childhood education has declined in recent years, reaching 79.1 percent in 2021/22 school year, considerably below the EU average. Participation in primary education (ISCED-1) decreased to 83.6 percent in 2021/22 school year, the lowest level in the last 20 years. One in five young people (aged 14-18 years) did not attend school in 2021/22. The completion rate for upper secondary education is low and decreasing – from 86.3 percent in 2012/13 to 85.7 percent in 2018/19. The net enrolment rate in tertiary education slightly decreased to 41.9 percent in 2021/22 academic year.

33 The term "tracking" refers to grouping of students in "tracks" according to their abilities and academic achievements.

Figure 12. Bulgaria ranks close to the bottom of European countries in terms of skills development

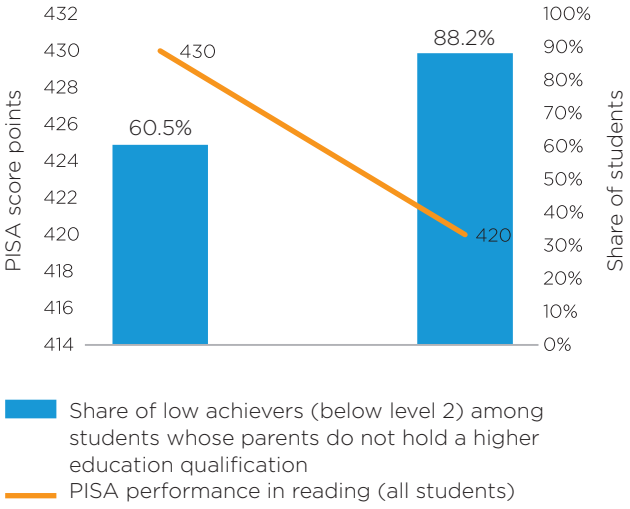


Source: CEM background note "Inequality of Opportunity in Bulgaria", CEDEFOP, skills development component of the European Skills Index (2022).

Almost half of secondary students are functionally illiterate. Cognitive skills of Bulgaria's youth remain stuck at a relatively low level. Bulgarian 4-graders perform relatively well in curriculum-based PIRLS[34] and TIMSS[35] assessments, but 15-year old students achieve a consistently low average score on skills-based PISA[36] assessments. Moreover, the share of secondary students that are functionally illiterate–without the basic skills for the productive participation in the modern economy (PISA test score below level 2)–remains alarmingly high (between 44 and 47 percent) in all three core cognitive areas, while the proportion of top performers scoring above level 5 remains insignificant between 2 and 4 percent. The high share of functionally illiterate secondary students is driven by the poor performance of disadvantaged groups–the share of functionally illiterate in the lowest socioeconomic quartile is 70 percent.

Students from households with lower socioeconomic status are strongly disadvantaged in their academic progression and achievement. The PISA test results consistently indicate existing inefficiencies in terms of equity and quality of education, evident by the high variations in performance related to schools and students' characteristics. The most advantaged students (defined as those in the top quarter of the distribution in the PISA index of economic, social and cultural status) outperformed the most disadvantaged students in the bottom quarter by 106 score points in reading in PISA 2018, which is equivalent to almost three years of schooling. Moreover, there are no disadvantaged students among the top performers in reading. At the same time, the share of functionally illiterate secondary students whose parents do not hold a higher education qualification increased from 60 percent in 2000 to 88 percent in 2018 (Figure 13). Consistent with the earlier findings on inequality of opportunities, these results suggest that Bulgaria's education system does not effectively support the skills formation of vulnerable students, which impedes their future productivity and employability prospects.

Figure 13. PISA scores have worsened since 2000 while the influence of parental education has increased

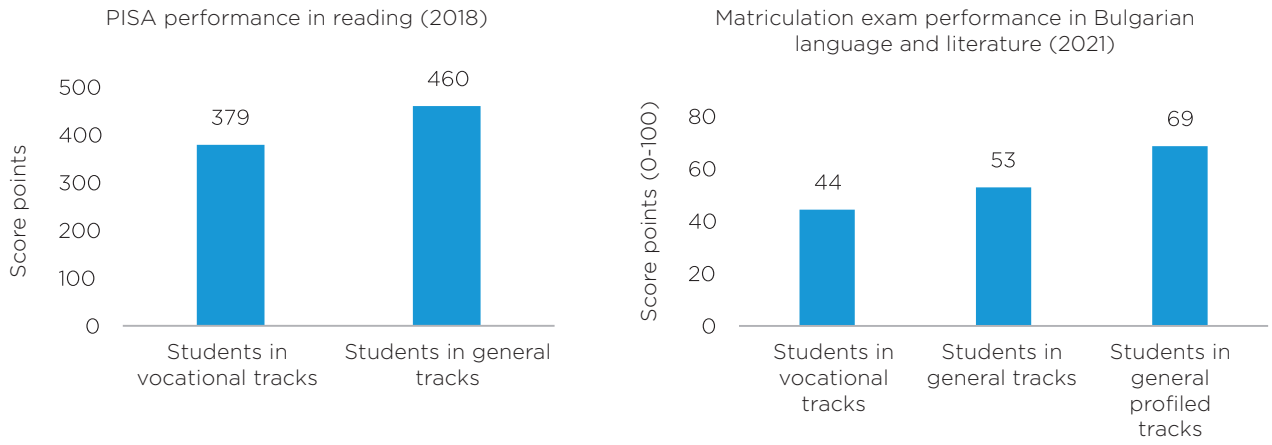


Source: PISA 2018 database.

34 Progress in International Reading Literacy Study (PIRLS).
35 Trends in International Mathematics and Science Study (TIMSS).
36 OECD Programme for International Student Assessment.

Bulgaria has made important efforts to improve the quality and relevance of Vocational Education and Training (VET) offerings, but its survival rate and efficiency remains substantially worse than in general education. PISA 2018 data reveal large achievement gaps at the beginning of their upper secondary education with a difference of 81 score points in the performance of students enrolled in general and vocational pathways. This means that young people enrolled in vocational tracks are 2 years of schooling behind their peers enrolled in general tracks (Figure 14). In addition, dropout rates in VET are more than double the rate seen in general education, and completion rates are much lower (World Bank, 2021). The observed gaps in achievement and progression between general and vocational pathways reflect not only a difference in the curriculum but also highly selective admission procedures and large segmentation in upper secondary education. The concentration of vulnerable students in VET schools is disproportionally higher compared to profiled general schools, with over 1/3 of vocational schools enrolling a significant number of students from families with low social-economic status (Institute for Research in Education, 2019). Often, due to high curricula demands and limited opportunities for parents to support their learning, these students fall behind academically, are discouraged and drop out (Hristova et al., 2020).

Figure 14. Academic performance of upper secondary students varies widely depending on educational track with vocational tracks showing worst relative results



Source: PISA-2018 database and Ministry of Education and Science (2021).

Bulgaria has implemented important measures to improve the quality and labor-market relevance of higher education in recent years, but still faces significant challenges. The latter relates to the (i) low tertiary attainment; (ii) falling number of students; (iii) low enrolment in professional fields of key importance for the country's economy; (iv) existing imbalances in terms of gender and socio-economic background of students; (v) outdated and predominantly theoretically focused curricula; (vi) the quality of instruction; (vi) poor labor market outcomes in some professional areas. Since 2015 Bulgaria implemented a series of measures aimed at incentivizing the higher education institutions (HEIs) to perform better and students to enroll in professional fields that are highly demanded from the labor market. In addition, significant EU and national funds have been invested in upgrading HE staff's qualifications, updating curricula and programs, introducing online forms of learning, etc. An opportunity for internships and full or partial funding of tuition fees from the state budget was introduced for students having a labor contract with an employer.

Yet, tertiary education attainment remains low. The share of 25-34 year-olds with tertiary education who are expected to be the backbone of the country's workforce over the next 3 decades was 33 percent in 2020, below the EU average of 40.5 percent. Between 2013 and 2020 the number of students enrolled in HE declined by 18 percent, with 16 professional fields experiencing a drop in the number of students as high as 40 percent[37]. The severe demographic pressure as a result of continued net migration outflows and

37 National Statistical Institute and Bulgarian University Rating System

negative natural growth rates poses significant challenges to HEIs which are rather slow in adjusting their offerings, thus threatening the efficiency and quality of HE programs. Furthermore, most of the HE studies are predominantly theoretically focused, offering little opportunity for practice-oriented training aligned with technological advances and employers' needs (Ministry of Education and Science, 2021b). As a result, many tertiary graduates face poor labor market outcomes, with around 30 percent of them appearing to be overqualified for their jobs[38].

Emerging evidence suggests that the Covid-19 pandemic is associated with deepening inequalities and a higher risk of learning loss and intensified drop-outs, which in turn impacts negatively skills formation. Two large-scale surveys reveal increased truancy and deteriorating motivation, engagement with learning, knowledge and certain skills, such as organizational skills, time management skills, teamwork and critical thinking (Institute for Research in Education, 2020; 2021). Moreover, half of Roma students have very low levels of behavioral and cognitive engagement with learning which is a source of concern (Institute for Research in Education, 2021). This implies potential negative long-term consequences for skills formation and future economic prospects of the current generation of Bulgarian students, with the higher risks seen for the most disadvantaged students.

Bulgaria needs to introduce a clear and coherent approach to quality assurance in education that integrates skills-related quality goals and standards. Also, the authorities need to equip all schools and teachers with effective tools and indicators that provide comparable evidence of the quality, equity, and efficiency of educational programs and processes. A credible and trusted assessment system is needed to place more emphasis on students' mastery of desired skills and less emphasis on students' ability to memorize and reproduce facts. This could provide reliable and comparable data to inform adequate and timely changes to curriculum and teaching practices and to support students' progression. Furthermore, there is a need to collect relevant data and use it to design evidence-based policies to mitigate the disadvantages and vulnerabilities faced by different groups of students. Also, the country needs to continue making focused investments in VET to (i) improve equity in access and completion; (ii) offer quality professional development for VET teachers; (iii) strengthen the quality and relevance of work-based learning and (iv) increase attractiveness and flexibility of VET pathways.

Reforms in higher education should aim to strengthen quality and align it better to skills needs and regional economic profiles. In tertiary education, Bulgaria could increase participation and equip students with relevant skills by introducing a flexible mechanism for updating curricula and programs and creating opportunities for HEIs to introduce programs and courses aligned with the regional innovation and skills needs. Moreover, enriching the opportunities for practical training by promoting the cooperation between HEIs and employers and improving quality of teaching in HE by updating quality assurance mechanisms in tune with good international practices are also highly recommended to improve the skills of HE graduates.

The recent Covid-19 crisis and ongoing war in Ukraine reinforce the long-standing need of higher flexibility of the local skills formation system. Bulgaria's skill formation system needs increased flexibility to accommodate different demands, abilities and interests with the aim of optimizing its results. This necessity has become even more pressing after the Covid-19 shock to the system and the inflow of thousands of displaced Ukrainians to Bulgaria that are willing to get into formal education and training. The negative consequences as a result of the Covid-19 pandemic and the needs of Ukrainian displaced children that are already entering the Bulgarian school system should be addressed appropriately, including through introduction of more adaptive and personalized teaching and learning and more flexible teaching methods. Moreover, implementation of age-appropriate language, digital literacy and other training programs would be also highly beneficial for both displaced people and such coming from less advantageous backgrounds. The ability of the national skill formation system to overcome the learning losses as a result of the pandemic and to help Ukrainian displaced people integrate smoothly into the Bulgarian economy carries a high potential for boosting human capital over the medium to long run, against the backdrop of a rapidly shrinking local population.

38 CEDEFOP (2020). Skills panorama, https://skillspanorama.cedefop.europa.eu/en/indicators/over-qualification-rate-tertiary-graduates

4

Boosting private sector productivity growth

4.1 Market inefficiencies and too little innovation prevent faster productivity growth

Boosting private sector productivity is the key to achieving and sustaining economic growth rates close to 4 percent in Bulgaria. The LTGM shows that productivity growth has the largest impact on income convergence. Raising Bulgaria's productivity to the level of the more productive CEE countries–about the average of the three Baltic countries' productivity–would boost long-term economic growth by 1.5pp or two-third of the growth acceleration required to converge to the EU average income level in 15 years. Moreover, the stronger productivity growth would also open up more productive investment opportunities and thus bring additional growth dividends by raising investment.

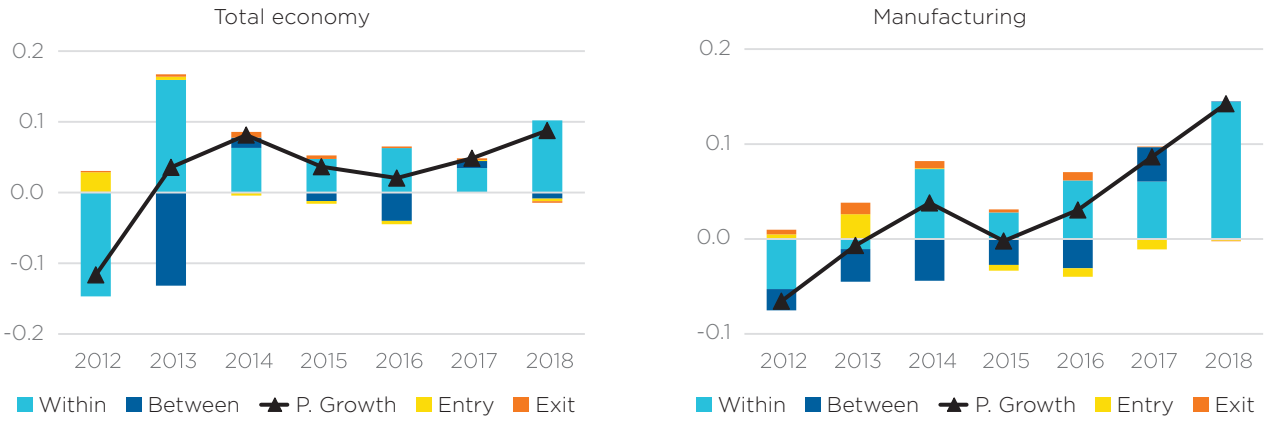
Aggregate productivity growth before the Covid-19 crisis was driven by incumbent firms raising their cost efficiency. Incumbent firms' productivity grew steady from 2013 to 2018 in manufacturing and services sectors (Figure 15). It was especially strong among business services firms, including firms in knowledge-intensive sectors such as ICT and back-office services. The improvements in efficiency were driven by large firms, and to some extent also by younger firms–during the first 5 years of their operations–across all economic activities. The strong productivity growth of young firms indicates that firms face relatively few growth constraints in the first years of their operation.

Structural change further supported aggregate productivity growth. At the broader level of economic activity, more productive economic sectors have expanded, implying the reallocation of resources from less to more productive sectors throughout the economy. In other words, the structural change–the reallocation of resources among broad economic activities–has supported aggregate productivity growth. Notably, more productive, knowledge-intensive business services sectors such as IT saw stronger sales growth, reflecting the strong expansion of high-skilled service sectors in the last 10 years. Similarly, the more productive manufacturing sectors such as machinery or chemicals experienced a stronger increase in their sales.

But more productive firms have lost market shares to other, less productive firms in their sector, reducing aggregate productivity growth and exposing market inefficiencies. The use of firm census data makes it possible to present new analysis on the reasons behind Bulgaria's moderate productivity performance. It allows, for example, to decompose aggregate productivity growth among firms into four components: (i) changes in the average productivity of incumbent firms (*within* component); (ii) the reallocation of value added between firms with different levels of productivity measuring the efficiency of resource allocation (*between* component); and (iii) *entry* and (iv) *exit* components accounting for differences in the average productivity of new entrants and exiting firms relative to incumbent firms' productivity. It reveals that incumbent firms have become more efficient in the 2012-2018 period (*within* component, Figure 15), for example, by optimizing their cost structure. But Bulgaria's aggregate productivity growth was held back by misallocation of resources to less productive firms in most years (*between* component, Figure 15), revealing severe market inefficiencies.[39] Without any frictions, the market should reward the most productive firms. But this was not the case in Bulgaria. Aggregate growth could have thus been much higher in Bulgaria over the last decade if markets had functioned more effectively. Given that sales growth was strongest among large firms, the findings suggest that some less productive large firms must have enjoyed protection from competitive market forces.

39 Firm entry and exit rates contributed little to aggregate productivity growth (Figure 16).

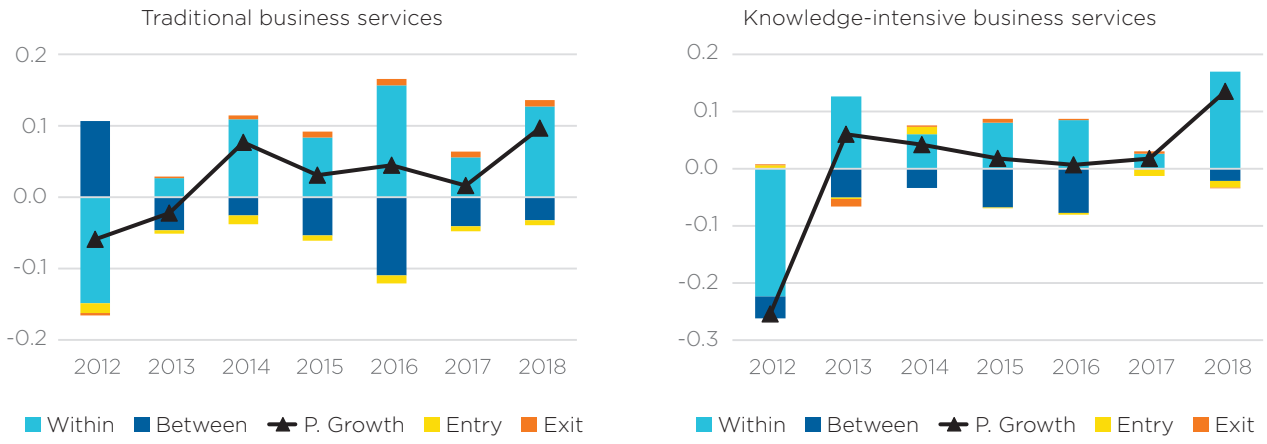
Figure 15. More productive firms have lost market shares in Bulgaria



Source: CEM background note "Firm Dynamics, Productivity and Competition: An Analysis of the Bulgarian Economy from a Micro Perspective"; Orbis firm census data with more than 4 million firm-year observations from 2011-2018. *Note:* Melitz-Polanec decomposition of aggregate TFP growth into four components: (i) changes in the average productivity of incumbent firms (within); (ii) the reallocation of value added between firms with different levels of productivity measuring the efficiency of resource allocation (between); and (iii) entry and (iv) exit accounting for differences in the average productivity of new entrants and exiting firms relative to incumbent firms' productivity.

The misallocation of resources limited productivity growth in most sectors, including in knowledge intensive business services such as IT. Only the retail trade sector saw productivity gains from more efficient reallocation of resources across firms (*between* component, Figure 16). While such market inefficiencies may be more likely to emerge in more regulated sectors such as utilities, in Bulgaria, they prevail even in manufacturing where, similar to retail trade, firms should face more international competition in domestic or foreign markets. A significant share of manufacturing firms is thus operating in local market niches or receives some form of protection from import competition, allowing them to grow despite their lower productivity. Market inefficiencies (mis)allocating capital and labor to less productive firms are also strong in traditional business services such as accommodation and restaurants, as well as in knowledge-intensive business services including IT and back-office outsourcing. Business services could thus have grown even faster in Bulgaria if barriers to competition were removed.

Figure 16. Resources are misallocated even in knowledge-intensive business services such as IT



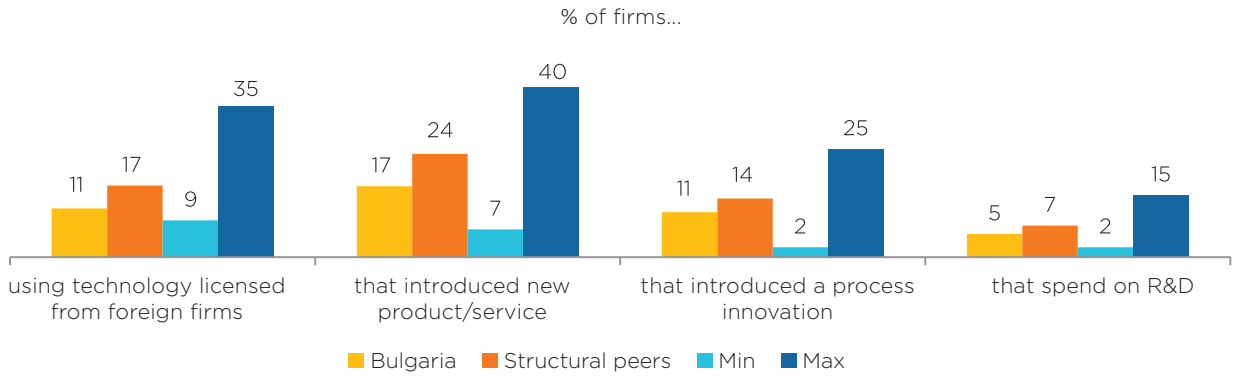
Source: CEM background note "Firm Dynamics, Productivity and Competition: An Analysis of the Bulgarian Economy from a Micro Perspective"; Orbis firm census data with more than 4 million firm-year observations from 2011-2018. *Note:* Melitz-Polanec decomposition of aggregate TFP growth into four components: (i) changes in the average productivity of incumbent firms (within); (ii) the reallocation of value added between firms with different levels of productivity measuring the efficiency of resource allocation (between); and (iii) entry and (iv) exit accounting for differences in the average productivity of new entrants and exiting firms relative to incumbent firms' productivity.

Markups are relatively high among services firms, especially in sectors with lower productivity growth, pointing to higher market power and less competition in these sectors. Average markups measure the ratio between the price that firms charge to consumers and their marginal production cost. Higher markups can signal market power.[40] In Bulgaria, firms' markups were more or less constant over time in most sectors. They were about 20 percent higher among services firms relative to manufacturing firms where firms face more international competition. Markups are also higher in sectors with a lower average firm productivity growth, indicating that firms in these sectors are protected from competition leading to higher market power which allows them to charge higher prices to consumers relative to their marginal costs. Specifically, firms in low productivity growth sectors were able to charge prices about 75 percent higher than their marginal costs. The higher market power is consistent with barriers to competition leading to inefficient markets that (mis)allocate resources to less productive firms.

Firms in Bulgaria lag their peers in adopting digital technology after the Covid-19 crisis

Productivity growth could have also been stronger if firms innovated more. Firms in Bulgaria lag their peers in innovation and technology. Only 5 percent of formal firms in Bulgaria invest in Research and Development (R&D) and only 11 percent license foreign technology compared to an average of 17 percent among their peers in the region (Figure 17). Firms also innovated little–only 11 percent of firms introduced new processes including changes in their organizational structure. Innovation activities have declined between 2013 and 2019, indicating that even fewer had the incentives or capabilities to invest in riskier but more productive innovation activities. The findings suggest that, while incumbent firms have become more efficient in 2012-2018 (*within* component), efficiency increases do not appear to come from innovation. That is, incumbent firms seem to have raised their efficiency by optimizing their cost structures–e.g., reducing redundant activities or staff, or finding cheaper suppliers–rather than by investing in R&D, introducing new products, licensing new technologies, or introducing new organizational processes in their management.

Figure 17. Firms in Bulgaria lag their peers in innovation and technology



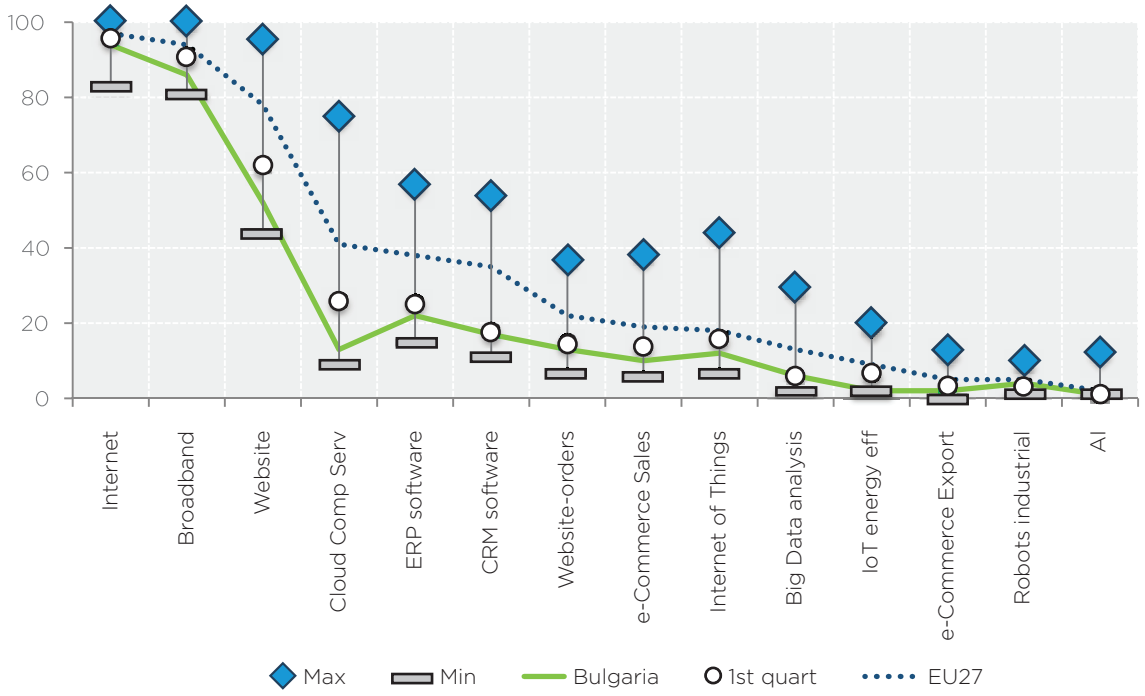
Source: CEM background note "Firm Dynamics, Productivity and Competition: An Analysis of the Bulgarian Economy from a Micro Perspective"; World Bank Enterprise Surveys (WBES), 2019.

Low innovation is also reflected in the weak adoption of digital technologies in 2021, attenuating a strong economic recovery after the Covid-19 crisis. Firms in Bulgaria lag their peers in the adoption of digital technologies (Figure 18). As in other EU countries, the majority of firms with at least 10 employees in Bulgaria use broadband internet. But only about half of the firms have a website compared to an average among EU firms of 80 percent. The performance of Bulgarian firms in adopting more recent digital technologies is even weaker. Bulgaria has among the lowest share of firms (13 percent) in the EU that use cloud computing services to access modern management applications such as Customer Relationship Management or Economic Resource Planning software or to buy more computing power. The share of firms selling their products or services through their website or e-commerce platforms (6 percent)

40 Especially when paired with higher profits and constant fixed costs and when high-markup firms are not more productive.

is also significantly lower than in most other EU countries. Moreover, only 2 percent of firms use digital technology such as smart meters to enhance their energy efficiency which is the lowest in the EU. The lagging adoption of digital technology among firms in 2021 may jeopardize the benefits of the recent digitalization trend since the start of the pandemic for Bulgarian firms and can undermine their competitiveness moving forward.

Figure 18. Firms in Bulgaria lag their peers in the adoption of digital technologies



Source: CEM background note "Firm Dynamics, Productivity and Competition: An Analysis of the Bulgarian Economy from a Micro Perspective"; Eurostat, 2021. *Note:* Percentage of firms with at least 10 employees. CRM: Customer Relationship Management, ERP: Economic Resource Planning; Cloud computing services include email, software applications (CRM, ERP, etc.), computing power; Website orders: firms with websites providing online ordering or reservation or booking; Internet of Things (IoT) include smart censors, meters, geo-locating; AI: use of Artificial Intelligence such as machine learning tools.

Market inefficiencies (mis)allocating resources to less productive firms in Bulgaria and to some extent also firms' weak innovation activity can be linked to shortcomings in competition policy. Chapter 5 documents barriers to competition that can help explain the observed inefficiencies of markets and the lack of incentives for firms to innovate. It shows that incumbent firms are protected by regulatory barriers to entry in several services sectors, the enforcement of antitrust law has been lagging other EU countries, and uncompetitive public procurement procedures such as not publishing tenders or selecting single bidders have contributed to inefficient capital allocations. Other policy constraints that can cause factor misallocation across firms in a country have been identified in the literature, but these do not seem to apply to Bulgaria.[41] The barriers to fair market competition help explain why some firms were able to gain market shares despite their lower productivity, dragging down aggregate growth. They also help explain why many firms did not need to invest in risky, productivity-enhancing innovation activities to grow and make profits. Other factors, such as a weak innovation support system with too few incentives to finance R&D or train workers or managers, can also help explain Bulgarian firms' weaker innovation outcomes.[42]

41 First, SOEs have been shown to cause factor misallocation but we find misallocation in manufacturing and services sectors which do not contain SOEs in Bulgaria. Second, Bulgaria does not have size-dependent policies that can cause misallocation such as stricter labor regulations for large firms as in France. Third, uneven access to credit can explain misallocation if more productive firms are credit constrained. While smaller firms may be credit constrained in Bulgaria, they are not more productive. Fourth, less productive firms may be gaining market shares if they are pioneering superior technologies and thus have a higher expected future productivity than their competitors. But we do not find evidence that less productive firms in Bulgaria are more innovative.

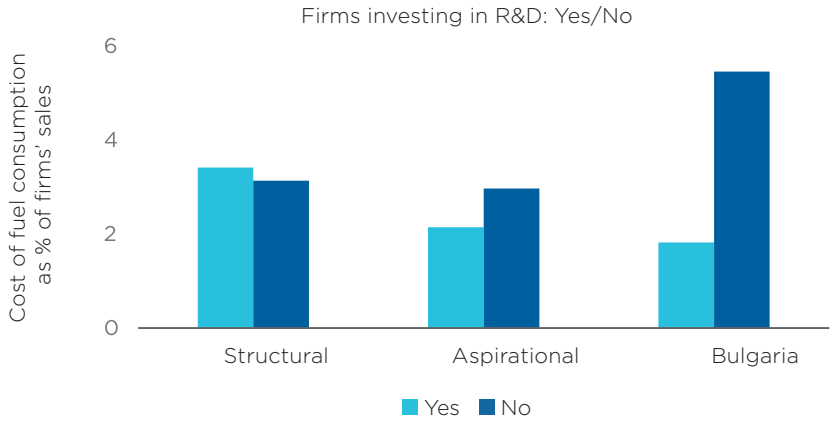
42 See World Bank (2020), Enhancing the Contribution of Bulgaria's Public Research to Innovation.

4.2 Boosting firms' productivity also reduces their GHG emissions

Firms' investments in green technology are needed to contribute to Bulgaria's energy transition and maintain competitiveness in the EU market. Private sector investment in green technology and management practices is critical to lead the transition towards lower greenhouse gas (GHG) emissions, especially in energy, industry, transport, and other services. Carbon pricing and regulation are powerful policy tools to promote private sector investments into green technologies. A renewable energy transition is also critical to maintain Bulgaria's export competitiveness in the EU given the EU's cross-border adjustment mechanism (CBAM) which will also include the carbon footprint from electricity generation. Firms' investments in energy efficiency, green technology and management practices are thus critical to secure Bulgarian firms export competitiveness which has been a motor of their productivity growth.

In Bulgaria, productivity and green growth are complementary. Firms that invest in R&D activities and that are innovators–adopted new products and processes–are less electricity and fuel intensive in Bulgaria, arguably due to productivity improvements (Figure 19). Moreover, firms with higher output per worker and innovative firms are much more likely to adopt climate-related objectives. Firms with higher output per worker are also more likely to adopt green management practices.

Figure 19. Firms that invest in R&D consume less energy

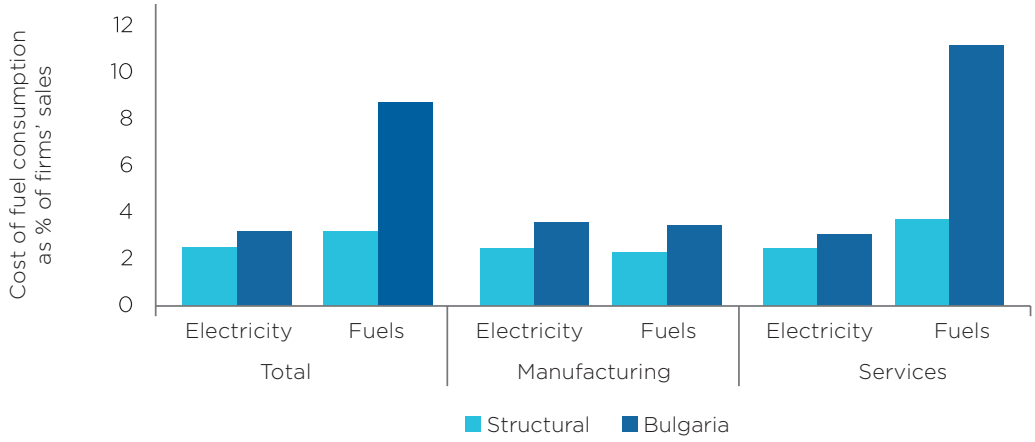


Source: World Bank Enterprise Surveys, 2019. *Note:* Firms' average cost of fuel consumption by R&D investment decision; structural peers: Croatia, Estonia, Hungary, Lithuania, Romania, Serbia, Slovakia, Turkiye.

Bulgarian firms are energy intensive, especially in services sectors. The average consumption cost share for electricity and fuels, as percentage of total sales, is higher than the cost shares of firms in Bulgaria's peer countries (Figure 20). The fuel costs share for Bulgarian firms almost triples that of their structural peers. Fuel consumption over sales accounts for 11 percent of input costs for firms in Bulgaria's services sectors, 3.5-times higher than the fuel cost share of services firms in structural peer countries, which could be attributed to the significant share of Bulgaria's energy-intensive trade and transport sectors.[43]

43 Trade and repair works; transport, warehousing and posts; hotels and restaurants account for 21.4 percent of the (constant-price) gross value added on average in the 2017-2021 period.

Figure 20. The fuel cost share for Bulgarian firms almost triples that of structural peers



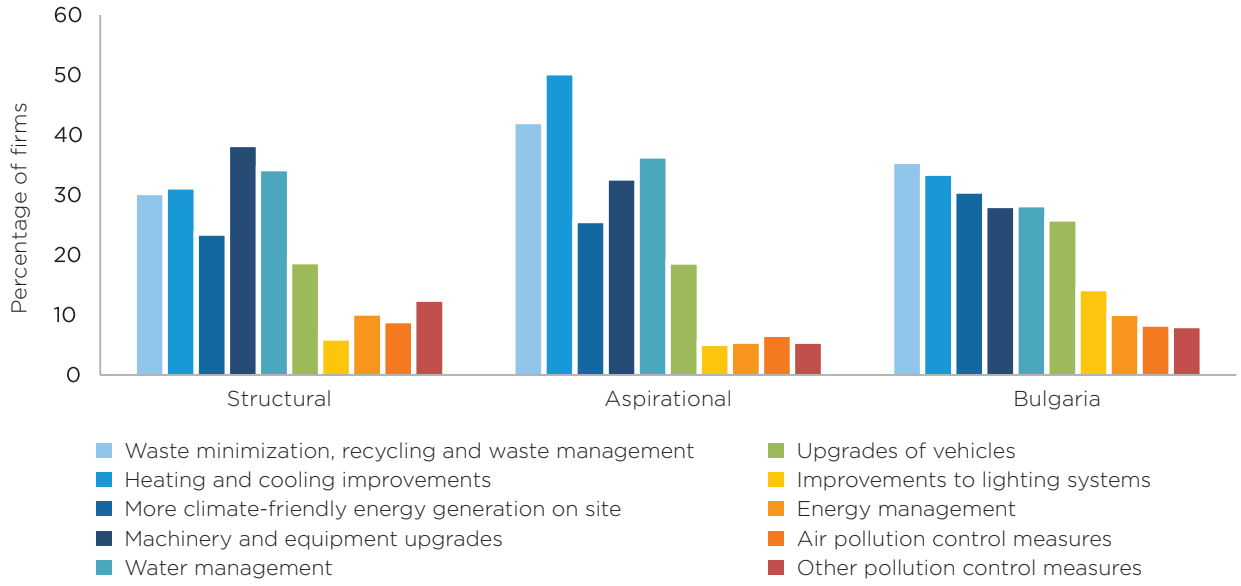
Source: World Bank Enterprise Surveys, 2019. *Note:* structural peers: Croatia, Estonia, Hungary, Lithuania, Romania, Serbia, Slovakia, Turkiye. Note: Firms' cost of electricity and fuel consumption as percentage of total sales.

Bulgarian firms match their regional peers in adopting green technology. As in other countries, *waste and recycling management* was the most common green investment measure implemented by firms in Bulgaria. Relative to peers, firms in Bulgaria were more likely to implement measures related to *heating and cooling improvements, upgrades of vehicles,* and use of climate-friendly energy generation on site such as solar panels. But Bulgarian firms lagged their regional peers in investing in more efficient lighting systems and machinery and equipment upgrades.

Still, less than one-fourth of firms in Bulgaria invest in green measures to reduce their energy intensity, GHG emissions, or pollution. Only 23 percent of firms invested in green technology and measures, driven by the weak performance of services firms (Figure 21). Moreover, the in-house development of such green technology and measures is significantly below that of firms in peer countries. Firms in Bulgaria further report that their lagging investment in green technology and measures originates from the lack of priority they give to such green investments relative to other investments, and not because of a lack of profitable green investment opportunities, price or regulatory uncertainty, or lack of financing. Moreover, service sector firms' use of petroleum as major source for fuel consumption is 57 percent higher than that of services firms in peer countries.

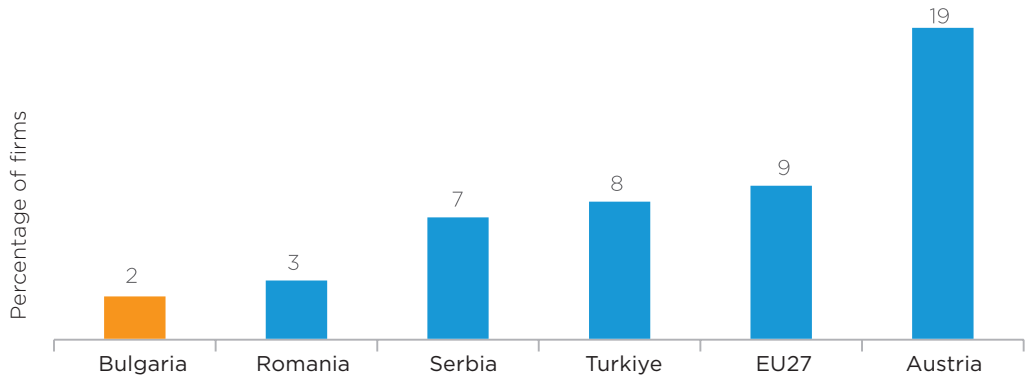
Firms in Bulgaria are more reluctant to adopt green management practices. Firms in Bulgaria report to be more vulnerable to extreme weather events, induced by climate change, as compared to both aspirational and structural peers. About 13 percent of firms report to have experienced monetary losses due to extreme weather events, significantly higher than the share of firms in peer countries. Despite their high exposure to climate change related extreme weather events, however, firms are not only reluctant to invest in green technology, but they are also lagging their peers in adopting green management practices. Only 21 percent of firms monitor CO2 emissions, significantly below the share of firms in structural peer economies. And only 27 percent of Bulgarian firms monitor their energy consumption, significantly below the 53 percent for structural peers. The low share of firms monitoring energy consumption can be explained by the lack of investments in digital technologies–only 2 percent of firms with at least 10 employees have invested in smart meters or censors to reduce energy consumption (Figure 22).

Figure 20: Less than one-fourth of firms in Bulgaria invest in green measures



Source: World Bank Enterprise Surveys, 2019. Note: structural peers: Croatia, Estonia, Hungary, Lithuania, Romania, Serbia, Slovakia, Turkey. *Note:* Investment in implementing green technologies.

Figure 22. The share of firms that use digital technology to reduce their energy consumption is the lowest in the region



Source: Eurostat, 2021. *Note:* Share of firms with 10+ employees. Use of smart meters or censors to reduce energy consumption.

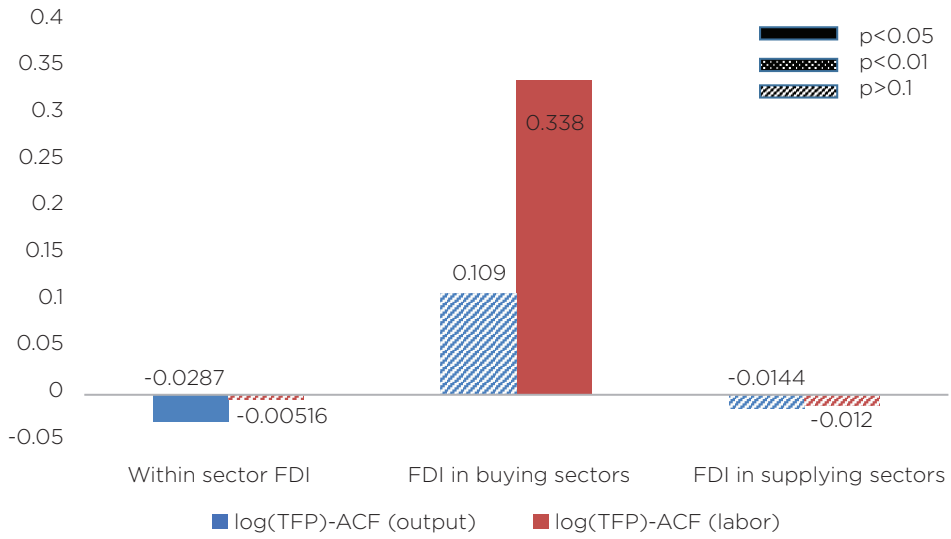
The environmental footprint of firms in Bulgaria is regulated through standards and certifications rather than through energy taxes or levies which does not seem to be as effective. Only 11 percent of firms in Bulgaria are subject to an energy tax or levy which is significantly lower than the share of 25 percent in structural peer countries. The percentage of firms subject to taxes is higher in manufacturing (15 percent) but remains below that of manufacturing firms in peer countries. In contrast, 14 percent of firms in Bulgaria report that customers require environmental certifications or adherence to certain environmental standards as a condition to do business with them, exceeding the share in peer countries (10 percent). The share of firms subject to environmental certifications increases up to 22 percent for manufacturing firms relative to 12 percent of manufacturing firms in peer countries.

4.3 Maximizing technology and knowledge spillovers from FDI

Foreign firms are an important player in Bulgaria's economy, accounting for 14.4 percent of total output and 6.2 percent of employment. Foreign firms in Bulgaria are larger and more productive than domestic firms. The average number of employees in foreign firms is close to 47, while for domestic firms it is 7. Foreign firms also have higher sales, use more capital and raw materials, and are more capital intensive. Although foreign firms accounted for only one percent of all firms, they produced on average 14.4 percent of output and accounted for 6.2 percent of employment in 2011-2018. The sectors with the highest proportion of foreign output are mining, financial services, ICT, and manufacturing. Total FDI as a share of output declined overall (even if it rose in the knowledge-intensive sectors) in 2011-2018, but supply chain-relationships across industries have increased.

FDI has boosted the productivity of domestic suppliers, supporting aggregate productivity growth. Domestic firms in sectors supplying to economic activities with a high share of FDI see productivity increases (Figure 23). While FDI has a positive effect on the productivity of domestic suppliers for all firms, the effect is larger for domestic suppliers of services. Knowledge-intensive services, however, are not affected by FDI concentration in their own sectors or the sector to which they supply their services. Moreover, the concentration of FDI in a sector reduces the productivity of domestic firms operating in the same sector, suggesting that the larger and more productive foreign firms crowd out domestic firms in their sectors. This crowding-out effect of same-sector domestic firms is stronger in manufacturing.

Figure 23. FDI in Bulgaria leads to productivity spillovers to domestic suppliers



Source: CEM background note "FDI in Bulgaria and spillovers to local firms", Orbis firm census data with more than 4 million firm-year observations from 2011-2018.
Note: The solid bars indicate that the underlying estimation coefficient is statistically significant at the 5 percent level. The patterned bars indicate that the coefficient is not significantly different from zero.

Larger domestic suppliers benefit more from productivity spillovers from FDI, suggesting that domestic suppliers need to reach a certain size or productivity level to be able to benefit. FDI spillovers to domestic firms in supplying sectors increase by domestic firm size. Productivity spillover effects are smallest for micro firms, increase for small firms, and are largest for medium firms. For large firms the effect is even higher but also less precisely estimated. This suggests that domestic suppliers need to reach a certain size or productivity level to be able to reach the scale or product quality demanded by the foreign firms potentially buying their products or services.

FDI has led to productivity spillovers to domestic suppliers which contributed to the efficiency increases among incumbent firms. Attracting more FDI, especially in sectors with strong linkages to domestic suppliers can raise the overall productivity growth in the economy. At the same time, the results suggest that domestic suppliers need to reach a critical size or productivity level to be able to benefit from technology spillovers from foreign firms buying their products. Policies improving the efficiency of markets and allowing more productive firms to grow thus also boost the potential for domestic suppliers to benefit from technology spillovers from foreign firms buying their products or services.

5

Shaping public institutions to advance the growth policies is needed to unleash Bulgaria's full productive potential

What are the barriers to market entry and competition that have limited Bulgaria's aggregate productivity growth? The productivity analysis reveals inefficient resource allocations in Bulgaria as more productive firms have lost market shares and employ less capital and labor over time. Bulgarian firms also lag their peers in innovation, and some seem to enjoy high and rising market power. These results point to significant barriers to market entry and competition. This Chapter analyzes the extent of such barriers. Chapter 5.1 suggests that there is potential for stronger enforcement of competition policy to improve the efficiency of markets in rewarding innovators and more productive firms. Chapter 5.2 finds that more competition in public procurement helps allocate contracts to more productive firms, further reducing resource misallocation. Chapter 5.3 shows that, on average, politically connected firms made higher profits despite their lower productivity and controlled a significant share of public procurement contracts through uncompetitive procedures, suggesting that containing the influence of vested interest groups, alongside strengthening institutional capacities, contributes to more efficient markets.

5.1 Boosting productivity through competition policy

Enforcing antitrust regulation

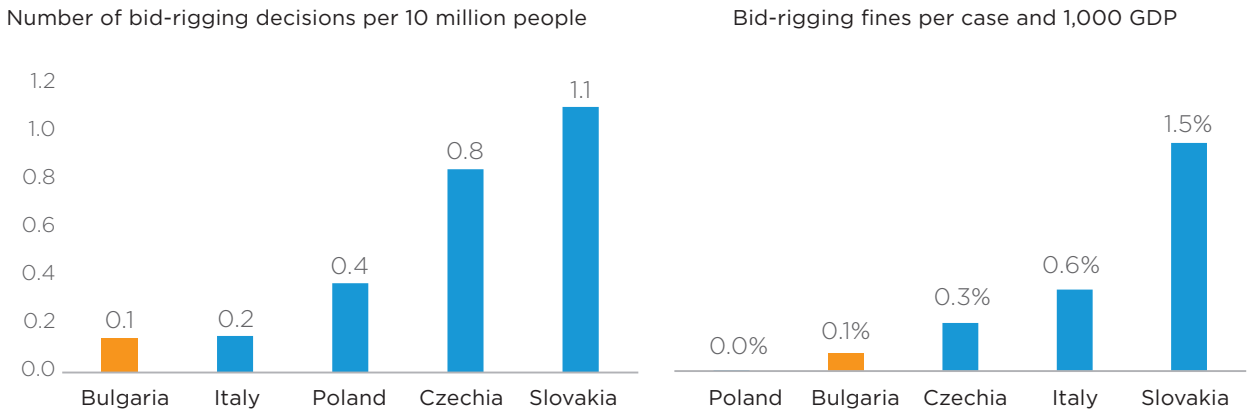
International experience shows that cartels are not only costly to consumers and governments, but also undermine the functioning of markets in allocating resources efficiently. The most comprehensive international database of 1,530 cartel cases suggests that cartels charge on average 49 percent above competitive prices.[44] Bid-rigging through cartels has also been shown to increase the cost of public procurement by up to 50 percent. Cartels can also limit product availability, variety, and quality. Left undetected, cartel activity can thus yield direct economic losses. If the Bulgarian CPC detected 5 percent of all cartels and if the average overcharge rate by cartel firms was 80 percent, total direct losses due to bid-rigging cartels would amount to 0.3 percent of GDP.[45] But the economic harm caused by cartels goes beyond the transactions involving cartel members. Cartels reduce productivity by wasting resources, weakening the incentives for all firms in the affected market to perform and innovate, and obstructing entry. Cartel overcharges on supplies or backbone services are passed on to other sectors in the economy, reducing their productivity. These indirect dynamic productivity growth losses due to less efficient resource allocation across firms or discouraged entry and innovation in the affected markets are likely much higher (see Section 5.2).

Cartel fines in Bulgaria have been low compared to those imposed by peers. After joining the EU, the Bulgarian Commission for Protection of Competition (CPC) has focused predominantly on mergers and abuse of dominance cases. The number of CPC decisions peaked shortly after joining the EU in 2007 and declined thereafter. Bulgaria detected 5 bid-rigging cartels in the 2010-2019 period as a result of the investigation of 10 cases; by 2016, only one bid-rigging investigation has led to a fine. In comparison, Slovakia and Italy detected 2 and 6 bid-rigging cartels in 2019 alone. In 2019, the CPC concluded its largest ever bid-rigging investigation involving 40 parties. However, the fines issued by the competition authority are still very low by EU standards when compared to the size of the economy. The average fine per cartel case as a share of GDP in Bulgaria in 2019 is 6 times lower than in Slovakia and 15 times lower than in Italy (Figure 24, Figure 1).

44 See CEM background note "Boosting productivity through competition policy".

45 It has been estimated that competition authorities in developed economies detect only 10-20 percent of actual cartel activity. But cartel detection rates in Bulgaria are likely lower and overcharges by cartel members likely higher than in richer countries with better enforcement records. Connor (2014) also finds that the overcharges of cartels that operate at peak effectiveness are 60 to 80 percent higher than the overcharges for the total duration of the cartel.

Figure 24. Few bid-rigging cartels have been detected in Bulgaria and fines are low



Source: CEM background note "Boosting productivity through competition policy"; OECD annual reports; case decisions and other information published by the competition authorities of Bulgaria, Poland, Czechia, Slovakia, and Italy. *Note:* Bid-rigging decisions per 10 million people and bid-rigging fines per case, as percent of 1,000 GDP, 2017-2019.

While collusion risk is not uncommon across the world, the potential risk in Bulgaria is estimated to be higher than in other European countries. Screening of more than 200,000 public procurement contracts in Bulgaria and contract data from actual proven cartel cases from 7 EU countries, including Bulgaria, highlights the need to scale up enforcement against collusion. Detailed information from the publicly available data on public procurement contracts, such as the ratio between the final and the estimated contract prices or the use of single-bidding contracts, allowed for the definition of seven risk indicators for bid-rigging cartels[46] The seven sub-indicators for collusion risk practices are combined into a single weighted cartel risk indicator to predict bid-rigging cartel cases, whereby the weight of each sub-indicator is computed based on a machine learning model trained with a unique dataset of 87 actual proven bid-rigging cartel case contracts (contracts won by firms found guilty of cartel behavior) and with data from contracts that very likely did not involve any collusive behavior from Bulgaria and six other EU countries in recent years.[47] The weight of each sub-indicator thus reflects its ability to predict the actual proven cartel cases from EU countries.[48] The cartel risk indicator shows that 49 percent of contracts between 2007 and 2019 were awarded with high collusion risks in Bulgaria. When applying the same model with the same set of indicators as those used for Bulgaria to the other six countries, we find that collusion risks in public procurement is also not uncommon in other EU countries, but that Bulgaria faces considerably higher collusion risks than other countries such as Sweden, France, Latvia, and Hungary.

Strengthening the capacity of CPC, including through more frequent surprise inspections, usage of advanced screening tools, and increased awareness about its leniency program, can support the detection and deterrence of cartels in Bulgaria. The CPC employed 117 staff in 2019. Total employment compares favorably to other countries in the region, with, for instance, 76 staff employed in the Slovak Republic and 41 staff in Austria. But the scope of the work carried out by competition authorities differs widely across countries and only 10 percent of the CPC staff works in the antitrust department, compared to, for example, 30 percent of staff in the Slovak Republic. The CPC could thus consider internal restructuring to dedicate more investigators to anticartel enforcement and change the composition of staff to employ more data scientists and engineers. Moreover, the use and effectiveness of screening methods can be improved by adopting more advanced IT tools to investigate anti-competitive agreements. The CPC can also strengthen its capacity to detect

46 The following seven cartel risk indicators are used: the ratio between the final price and the estimated contract prices, single-bidding contracts (as a binary yes/no variable and as the absolute number of bidders), whether the winning bid was a consortium, whether the winning bid has a subcontractor, and missing bidders (company-year level) by market number and by buyer number.

47 The cartel case data have been harmonized across countries, e.g., for market definitions for this study, and provide a large dataset of harmonized actual cartel cases to train the algorithm (for more details see CEM background note "Developing collusion risk indicators for public procurement in Bulgaria", forthcoming).

48 The trained learning algorithm has a 91 percent prediction accuracy to detect actual bid-rigging cartel cases. The prediction accuracy can be tested by applying the trained learning algorithm to new, different procurement contract data from proven cartel cases that the algorithm had not seen yet.

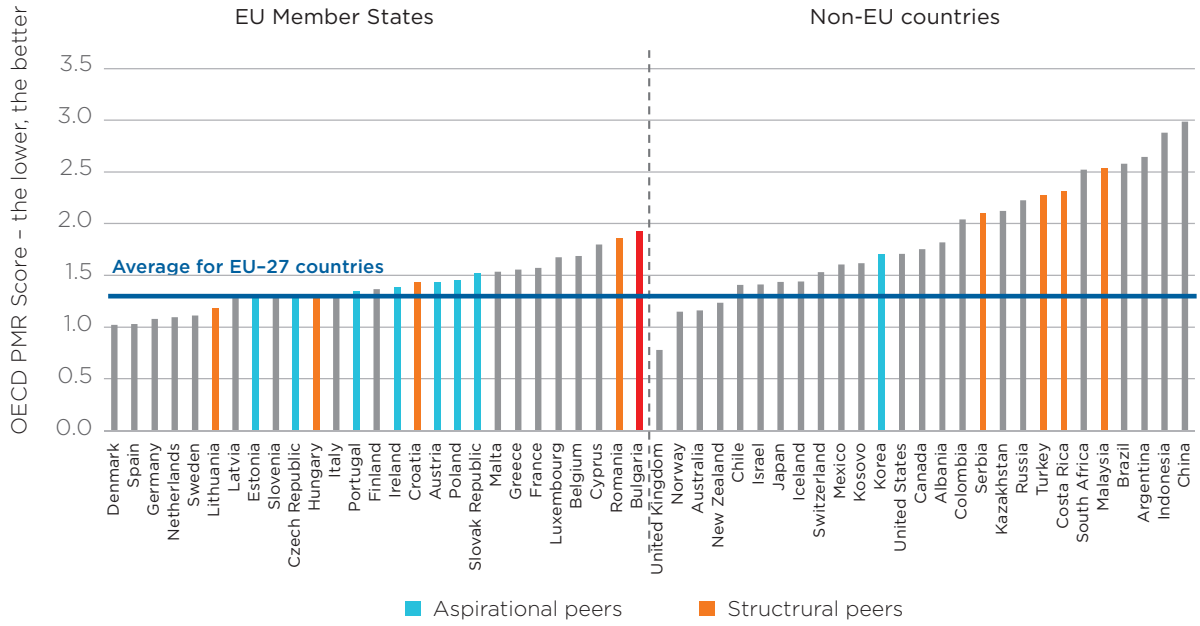
cartels by making more frequent use of "surprise inspections" that do not announce onsite visits in advance, ramping up screening and pre-investigations using newly available statistical tools, and raising awareness about its leniency program.

Eliminating regulatory barriers to product market competition

There is scope to strengthen Bulgaria's product market regulations, which are more likely to lead to anti-competitive practices than in other EU countries.

The Product Market Regulation (PMR) Index, produced and updated by the OECD, sheds light on the extent to which government interventions restrict competition.[49] Bulgaria's product market regulations are more restrictive than those of all OECD member states except for Turkiye, Colombia, and Costa Rica (Figure 25). The restrictive regulations create barriers to market entry and competition that hinder efficient resource allocations among firms and reduce aggregate productivity growth, especially in services.

Figure 25. Bulgaria has the most restrictive product market regulations among EU countries



Source: CEM background note "Boosting productivity through competition policy", OECD annual reports, OECD-World Bank PMR Database. *Note:* Economywide PMR scores; PMR scale is 0-6, from least to most restrictive of competition.

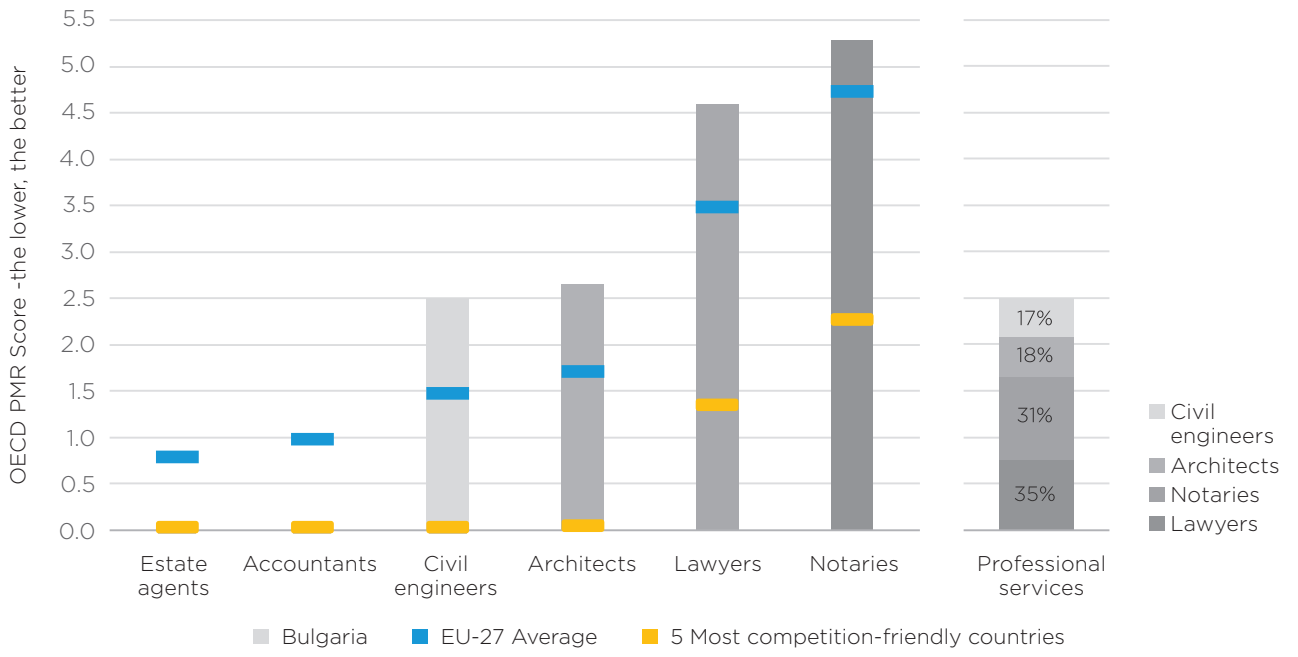
Advancing reforms that reduce regulatory barriers in services, administrative bottlenecks for start-ups, and direct state involvement in markets have the potential to unlock challenges faced by firms. Registering a limited liability company, for example, is more cumbersome in Bulgaria than in high-income countries as it involves 10 public authorities, including a notary, and costs are higher than in other countries. The process is only slightly less burdensome for sole proprietorships. Regulations in services and network sectors are also among the least competition-friendly, while the state continues to intervene directly in markets through command-and-control regulation. For instance, electricity tariffs for individual consumers in the so-called regulated market are set administratively. Consumers have the right to choose their supplier, but few households have done so and most remain in the regulated market. At the same time, despite a new law on public enterprises passed in 2019 that introduced modern corporate

49 The index is based on information from more than 1,000 features of (sector) regulations in areas where competition is viable and provides internationally comparable indicators that measure the degree to which regulations on the books foster or inhibit firm entry and competition. The data has been collected in five-year intervals for more than 57 countries around the world.

governance standards for SOEs, there are still areas for further improvement: SOEs that are registered as state enterprises are unincorporated[50], the national ownership policy, even if recently published[51], is yet to be put into action, and competitive procedures for selecting members of company boards yet need to be rolled out for all SOEs.

Removing regulatory barriers to competition in legal and engineering services can raise service quality, leading to productivity gains for the many other firms in the economy using these services. Out of the services sectors covered by the PMR indicators, the barriers to competition in professional services are particularly pronounced (Figure 26). Firms providing legal and engineering services face more restrictions than in all but three of the 57 countries with comparable data. Architects, civil engineers, and notaries hold more exclusive rights than their peers in comparator countries. Architects, civil engineers, attorneys, and notaries are also obliged to become members of professional chambers which are involved in entry and price regulation. Attorneys and notaries are prohibited from advertising their services. They also face restrictions on the legal form of their business and association with other professions. At the same time, notary services are required by law for key economic transactions such as the incorporation of a company or conveyancing. Considering that the number of notaries is fixed by law, this creates local monopolized markets for their services. Pro-competition reforms of professional services have improved access to services and reduced prices in other EU countries such as France and the Netherlands. Access to and affordability of professional services can also raise the efficiency of the many other firms in the economy that rely on these services.

Figure 26. Barriers to competition are strong for civil engineers, architects, lawyers, and notaries



Source: CEM background note "Boosting productivity through competition policy", OECD annual reports, OECD-World Bank PMR Database. *Note:* Economywide PMR scores; PMR scale is 0-6, from least to most restrictive of competition.

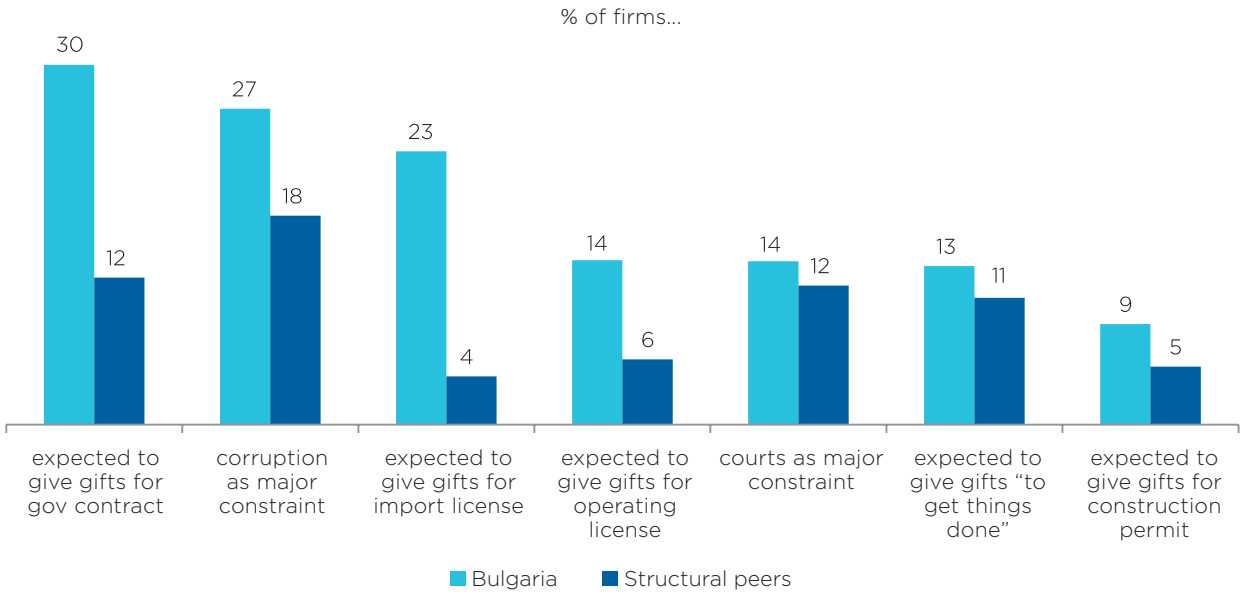
50 In December, 2022, the Council of Ministers approved a programme for transformation of those state enterprises that are unincorporated, i.e. created under special laws. The programme sets a 6-month timeline for ministries that exert the ownership rights over such companies to draft detailed programmes for their transformation. The decision was taken as a part of Bulgaria's commitments for eurozone entry, its OECD accession bid and the Recovery and Resilience Plan.

51 The national ownership policy was published in October, 2022.

5.2 Reducing the risk of corruption in public procurement

Firms in Bulgaria report the need to strengthen control of corruption, particularly in public procurement. Firms in Bulgaria are more likely than their peers in the region to report incidences of corruption (Figure 27). One-third of all firms in Bulgaria report bribes in order to obtain public procurement contracts compared to only 12 percent of all firms in peer countries in the region. Firms in Bulgaria are also more likely to report bribes to obtain import licenses (23 percent), operating licenses (14 percent), and construction permits (9 percent). Consistent with these findings, 27 percent of firms in Bulgaria consider corruption as a major constraint for their business development and growth compared to 18 percent of their peers in the region. Firms in Bulgaria thus perceive corruption as a relatively common phenomenon, especially in public procurement.

Figure 27. Firms in Bulgaria are more likely than their peers to reports incidences of corruption



Source: World Bank Enterprise Surveys, 2019. *Note:* Structural peers: Croatia, Estonia, Hungary, Lithuania, Romania, Serbia, Slovakia, Turkiye.

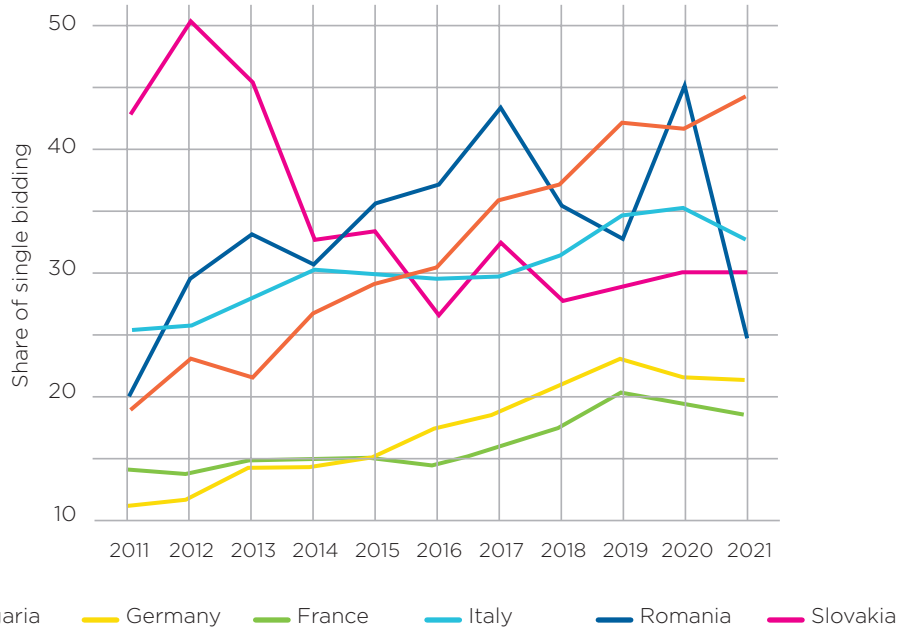
More competitive public procurement procedures improve the efficiency of resource allocation across firms and promote a level playing field, boosting productivity growth. Public procurement amounts to 12 percent of GDP in Bulgaria. The access to contracts has thus a major impact on the allocation of resources in the economy. It can either save scarce fiscal resources and support the growth of more productive firms or waste public money and help unproductive firms to bundle scarce physical and human capital and stay in the market. Reducing the risk of corruption in public procurement also supports a policy environment encouraging competition based on innovation and efficiency instead of lobbying for policy privileges. Competitive public procurement practices can thus contribute to a level playing field among all firms in the economy.

The analysis in this report is based on novel approaches using microeconomic databases to identify the drivers of productivity, risk of corruption, and the links between them. The key data sources include: Orbis comprehensive firm-level panel dataset for 2011-18 which include about 500,000 firms per year and firms' immediate and ultimate ownership information; public information from the Bulgarian national e-procurement system comprising more than 150,000 public procurement contracts for 2011-2019 to create indices for uncompetitive practices at the firm and contracting authority levels; publicly available asset declarations, sanction lists and offshore leakages to identify politically connected firms co-owned or managed by a politically exposed person (see Box 1 below). These three databases are combined through unique firm-level identifiers to study the extent to which connected firms bene-

fitted from uncompetitive public procurement procedures, as well as their impact on the firm dynamics and market structures underlying productivity growth. Key indices from these databases will be made available to the public for future research.

Uncompetitive procurement practices that lead to an elevated risk for corruption are more common relative to other EU countries. The share of single bidding contracts has increased steadily in Bulgaria since 2011 and it is higher than the corresponding shares in the other EU countries where data is available (Figure 28). Bulgaria has the highest single bidding rate in 2021 compared to Germany, France, Italy, Romania, and Slovakia. Apart from Slovakia, there has been a consistent upward trend for most of these countries since 2011. But Bulgaria experienced by-far the steepest increase in the share of single bidding public procurement contracts. A similar pattern is observed when comparing Bulgaria to the average share of single-bidding contracts for the European Economic Area (EEA) countries as a group.[52] Even though had Bulgaria started with a lower rate, its share of single bidding contracts overtook the EEA average in 2018 and has remained well above it since. While Bulgarian public procurement has lagged the average European competition level since 2018, this difference is not yet drastic and can be reversed.

Figure 28. The share of single bidding contracts is higher than in other European countries



Source: CEM background note "Measuring the risk of corruption and state capture in Bulgaria"; e-procurement data, about 150,000 contracts. *Note:* Annual average share of single bidding contracts in total contracts per year, EU countries with available data.

More competitive procurement practices reduce the risk of corruption in public procurement. Detailed data from more than 150,000 public procurement contracts from 2011-2019 from the national public procurement portal has been used to identify non-competitive procurement practices. This data contains contract details allowing to uncover uncompetitive practices in procurement procedures that could lead to elevated corruption risk. Such uncompetitive practices include single bidding, not publishing tenders, setting unrealistic decision and advertisement periods, or a high dependence rate on the same supplier for contracting authorities. The resulting six indicators for uncompetitive procurement practices are compounded into a single Corruption Risk Indicator (CRI). For almost 10,000 public procurement contracts, all six indicators signal an elevated risk of corruption. Almost 200 government agencies always use procurement practices prone to a higher risk of corruption for their contracts. While most of the awarded 17,116 firms faced procurement procedures allowing for

52 The EEA countries include the 27 EU Member States, Iceland, Liechtenstein, and Norway.

potential competition, there is a considerable group of firms accounting for about 10 percent of all suppliers which possibly benefitted from privileged, uncompetitive procurement practices.

Lower risks of corruption are found in more developed regions, as seen in other countries. The aggregate results mask considerable subnational variation in the use of uncompetitive procurement procedures prone to corruption. Some districts show high levels of integrity with few contracts involving corruption risks, mostly in the central and southern districts. Districts in the less developed northern regions, however, often have high average corruption risk. The subnational distribution is correlated with regions GDP per capita in PPP terms with the least developed districts, prone to higher incidence of corruption risk in public procurement. This finding is in line with abundant literature on the positive correlation between corruption and economic development, including at the regional level. The higher corruption risks in public procurement in Bulgaria's northern regions suggest that corruption may be a key constraint that comes in the way of faster economic growth in Bulgaria's less developed regions.

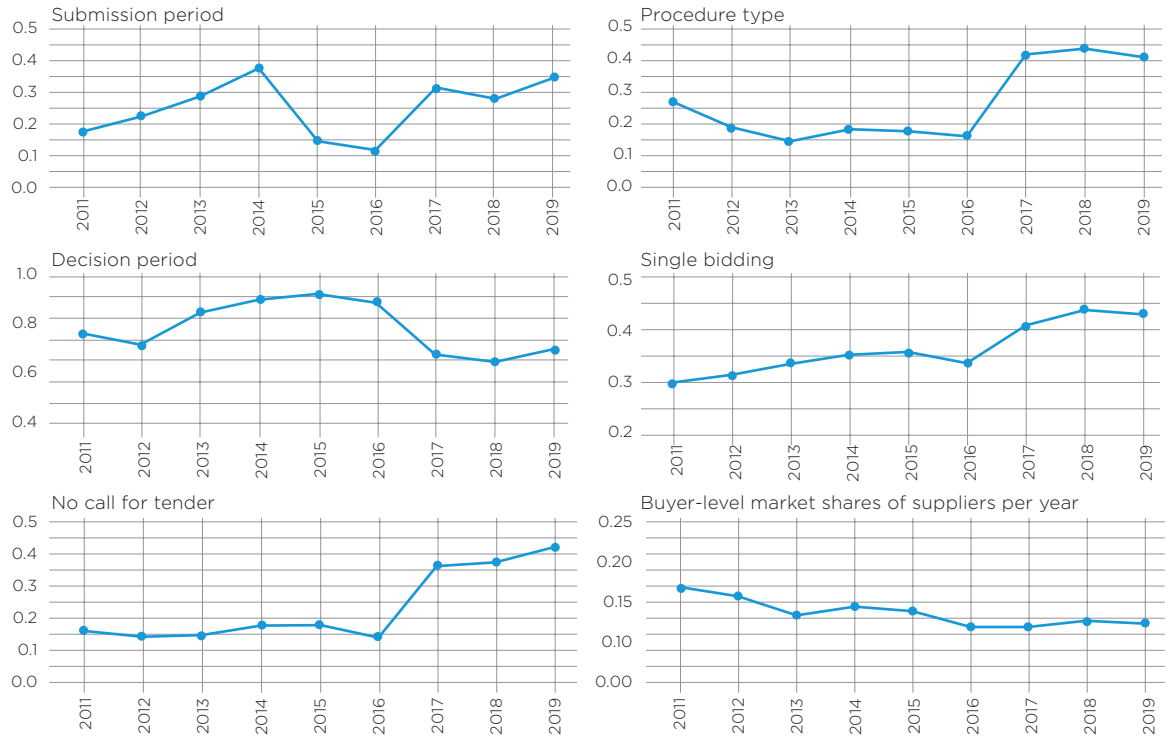
The use of uncompetitive procurement procedures is present in all sectors including professional business services such as ICT where it contributed to inefficient resource allocations. Sectors dominated by SOEs and former state monopolies such as collecting and purifying water, public utilities, and fuel and electricity are most prone to corruption risks. Notably, there are also fewer firms offering utility services compared to other economic activities. The less competitive market structure in these sectors thus accounts in part for their higher risk of using uncompetitive procedures such as single-bidding. The fewer market participants thus imply that the risk of uncompetitive procurement procedures may be elevated in these sectors. As highlighted in Chapter 5.1, regulatory barriers to competition prevent more competition in network sectors in Bulgaria. Removing these barriers will thus also reduce the risk of corruption in public procurement in utility sector. At the other end of the spectrum, medical equipment and pharmaceutical products, furniture, and domestic appliances score relatively low on corruption risk. The variation can be explained with the specific characteristics of these sectors such as their size or the presence of high fixed entry costs in utilities limiting the number of competing firms. But several sectors dominated by private firms and characterized by high competition in other countries–most notably knowledge intensive business services–also carry high risks of corruption in public procurement in Bulgaria. The widespread use of uncompetitive procedures in procuring knowledge intensive business services reveals that many contracts have been awarded to only a few firms, which has likely contributed to the growth-reducing resource misallocations in these services sectors in Bulgaria as identified in Chapter 4.1.

Increasing competition in public procurement enhances the efficiency of capital allocation in the economy, raising aggregate productivity growth. Combining the data on public procurement contracts with the firm census data reveals that firms awarded with public procurement contracts through non-competitive procedures–with higher risk of corruption make higher profits but are less productive than their competitors of similar size and age operating in the same 4-digit sector. In other words, public procurement contracts assigned through non-competitive procedures in Bulgaria have been (mis)allocated to less productive firms within each 4-digit sector. As discussed in Chapter 4.1, resource misallocation has contributed to dragging down aggregate growth in Bulgaria as less productive firms have absorbed more capital and labor, especially in services sectors. Taken together, the results suggest that the more prevalent use of uncompetitive public procurement procedures than in other EU countries has undermined Bulgaria's aggregate productivity growth in the period 2011-2018.

Uncompetitive public procurement procedures have been on the rise since 2011. The overall corruption risk indicator reveals a declining trend after 2013 which was reversed in 2016. The data reveals a more widespread use of single bidding and other uncompetitive practices such as not publishing a call for tenders after 2016 (Figure 29). The quarterly corruption risk trends also show a marked seasonality, largely following annual budgeting cycles: the first quarters are often characterized by a decline in corruption risks while the latter typically surge in the fourth quarter.

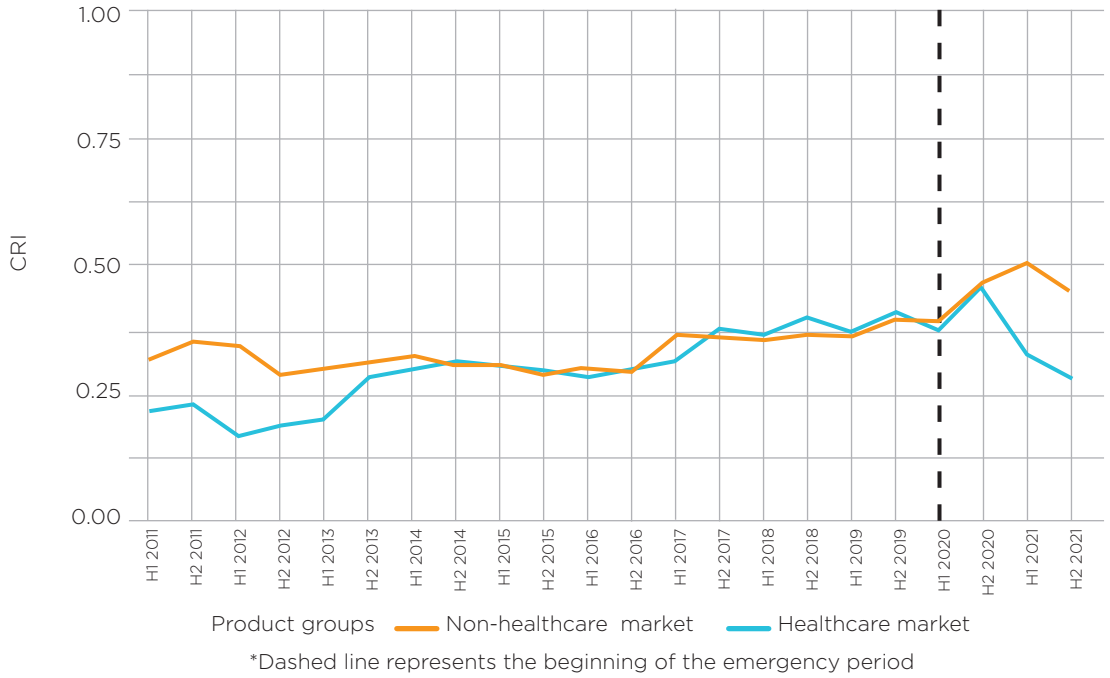
In contrast to other EU countries, uncompetitive public procurement has surged for products unrelated to healthcare since the start of the Covid-19 crisis. The risk of corruption has increased since the start of the pandemic (Figure 30). The increase is expected for emergency products related to healthcare during a pandemic. In fact, almost all EU countries have introduced accelerated or eased public procurement procedures for healthcare products in 2020 to be able to respond more quickly to the health crisis. But, in contrast to trends in other EU countries, the use of such less competitive fast-track procedures surged also for products unrelated to healthcare in Bulgaria. The risk of corruption in procuring healthcare products has peaked in the second half of 2020 and declined sharply since, returning to pre-pandemic levels at the end of 2020. In contrast, for products unrelated to healthcare the use of such uncompetitive procurement practices continued rising and was still well above pre-Covid-19 levels at the end of 2021.

Figure 29. The use of uncompetitive procedures has increased since 2011, especially after 2016



Source: CEM background note "Measuring the risk of corruption and state capture in Bulgaria"; e-procurement data, about 150,000 contracts. *Note:* Annual trends for individual red flags; single bidder contracts: 0: more than one bid received, 1: one bid; call for tenders publication: 0: call for tenders advertised, 1: not advertised; procedure type: 0: open procedure, 0.5: negotiated/accelerated procedures, 1: non-open procedure (e.g., direct contracting); length of submission period: 0: 12-183 days, 0.5: 7-11 days, 1: 1-6 days; length of decision period: 0: 9-365 days, 0.5: 5-8 days, 1: 1-4 days; buyer's dependence: contract share for each government agency (contracting authority) awarded to the same supplier in a given year.

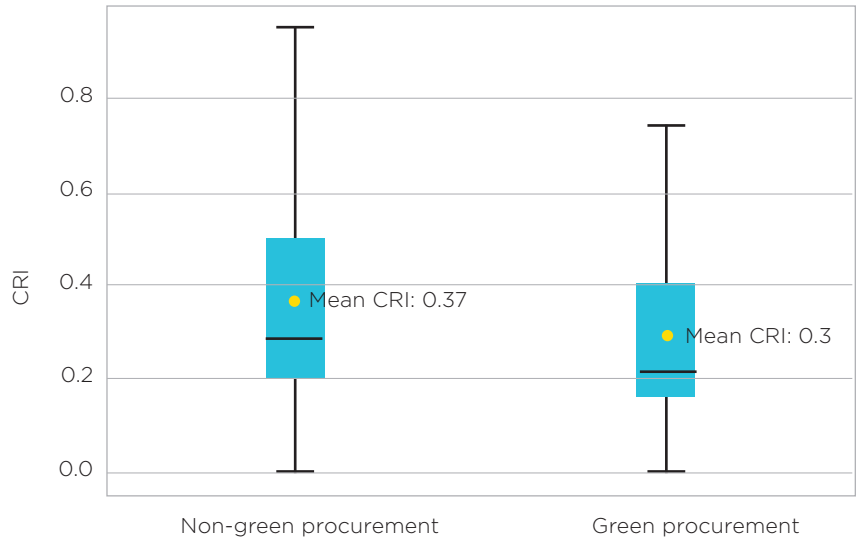
Figure 30. Corruption risk in public procurement has risen since the start of the pandemic



Source: CEM background note "Measuring the risk of corruption and state capture in Bulgaria"; e-procurement data, about 150,000 contracts. *Note:* Covid-19-related CRI trends, Bulgaria, 2017-2019, quarterly averages.

Green public procurement contracts with stricter environmental standards have lower corruption risks. Green public procurement contracts are defined as contracts that focus on improving energy efficiency improvements, sustainable waste management, low GHG emissions, and pollution reduction. An algorithm is used to identify these environmental criteria in contract descriptions. The contract is labelled as "green" if at least one of the environmental criteria has been identified.[53] Overall, about 11,000 green contracts have been identified accounting for 8 percent of all public procurement contracts between 2011 and 2019. The share of the value of green procurement contracts in all contracts grew from 2011-2016 to 15 percent and declined thereafter, accounting for only 6 percent in 2019. Noteworthy, green public procurement contracts are associated with lower corruption risks and have a significantly lower probability of having only a single bidder (Figure 31).

Figure 31: Green public procurement contracts have a lower risk of corruption



Source: CEM background note "Measuring the risk of corruption and state capture in Bulgaria"; e-procurement data, about 150,000 contracts.
Note: Green contracts use energy efficiency, sustainability, GHG emission, and pollution criteria.

Part of Bulgaria's public procurement system has been captured by groups of the same public agencies and firms that are repeatedly partners in signing contracts through uncompetitive procurement practices. Network analysis shows that some contractual relationships seem to be fully captured in that the same group of firms and public agencies colluded and extracted private rents from public procurement contracts. More specifically, public agencies repeatedly channeled public contracts to the same firms using closed, untransparent procedures. After 2016, the same groups of public agencies and firms that repeatedly colluded by channeling uncompetitive contracts to the same firms have become more powerful. Consistent with the increase in corruption risk in public procurement after 2016 presented earlier, network analysis shows that high corruption risk ties between the same public agencies and firms started to dominate the contractual arrangements in 2017-2019 compared to 2014-2016. In other words, the same pairs of public agencies and firms that repeatedly engaged in uncompetitive procurement procedures have expanded their control over a higher share of contracts after 2016.

53 To identify green procurement procedures, a keyword-based matching on public procurement contracts' text fields is used. It is complemented with identifying procured green products using detailed (CPV) product classifications. These results are robust for more strict green procurement definitions, e.g., removing the two most common keywords "energy efficiency" and "sustainability". The full approach and results are presented in the CEM background note "Measuring the risk of corruption and state capture in Bulgaria".

5.3 Policy privileges of few connected firms discourage productivity growth

Why do firms' political connections matter for economic growth?

Conceptually, the impact of firms' political connections on growth is ambiguous, depending on how they affect the efficiency of markets in channeling capital and labor to more productive activities. Per se, firms (co-)owned or managed by persons that have held a political position are not necessarily a concern for economic growth. Such connections could raise growth if they help reduce public-private information asymmetries to channel more resources to more productive firms. However, the literature also highlights that, in any country, firms' political connections can also be used to tilt policies to their favor undermining the market forces that promote productivity and economic growth. Specifically, in the Schumpeterian growth framework, firms can make profits by innovating, allowing them to escape competition at least temporarily. But innovating is risky and costly and successful firms raise their productivity and make high profits while unsuccessful firms lose market shares or exit. Influential political connections, however, may provide firms with a less risky outside option. They can escape competition and be profitable by using their connections to tilt policies and regulations in their favor instead of innovating. Such policy privileges can take different forms such as obtaining public procurement contracts at favorable terms, receiving more state aid or subsidies, or benefitting from regulatory protection from entry and competition. If such privileges are granted to some firms but not others, they can undermine competition and end up reducing aggregate productivity growth by channeling capital and labor to less productive firms and reducing the benefits stemming from innovation. Determining the economic impact of firms' political connections thus requires careful empirical analysis.

Box 1. How are politically connected firms identified?

Politically connected firms are identified as firms that are (co-) owned or managed by a politically exposed person (PEP) that had a political post at one point between 2011 and 2021, allowing her to tilt policy in their favor. All firms that were (co-)owned or managed by a PEP at one point in time are considered to be politically connected for the whole sample period (2011-2018).[54] Several public data sources are exploited to identify PEPs and their firms in Bulgaria, including asset declarations of persons holding senior public office positions who are obliged to disclose a list of PEPs and their relatives that co-own or manage a private company.[55] The list of PEPs is complemented with businessmen who have been sanctioned because of involvement in significant corruption by the Office of Foreign Assets Control (OFAC) of the U.S. Department of the Treasury, known as the Global Magnitsky list.[56] Other additional politically connected firms have been identified by (i) using ownership information of firms for PEPs and their relatives in the Bulgarian Business Register and (ii) using hidden ownership information that has been disclosed in business registry data from other countries and in offshore leakages (such as the Panama Papers, Paradise Papers, Luxemburg Leaks, etc.) and other investigative journalism reports that prove firms' co-ownership by Bulgarian PEPs. [57]

The rich public data sources to identify PEPs allow to include a comprehensive list of political positions taken by businessmen. Specifically, all firms are defined to be politically connected that have been (co-) owned or managed by a person that has held at least one of the following political posts: local government mayor, deputy mayor, (deputy) district governor, chief municipal architect, municipal councilor (i.e., positions in local governments);

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54 It is thus assumed that businessmen who take influential political posts already had some degree of political connection and thus influence even before taking (or after leaving) the official political position. Moreover, not all political positions in the earlier sample years may be reported as the quality of information in asset declarations has improved over time. Note that the results on the differences between connected and unconnected firms would be even stronger in case some connected firms were in fact unconnected in earlier periods since this would water down differences between both firm groups.

55 The list of persons holding senior public office is defined in the Counter-Corruption and Unlawfully Acquired Assets Forfeiture Act. The asset declarations are published by the Commission for Counter Corruption and Forfeiture of Unlawfully Acquired Assets.

56 Persons and legal entities as published by OFAC on 2 June 2021 and the respective lists of related persons and companies, published by the Bulgarian Ministry of Finance on 5 June 2021.

57 https://www.icij.org/investigations/

member of national or European parliaments, commissioner of regulatory agencies, member of the governing bodies of a political party (i.e., positions in national government with legislative power); chief expert and head of government departments, secretary general, deputy minister, minister, (i.e., positions in national government with executive power); and director or member of governing boards of SOEs.

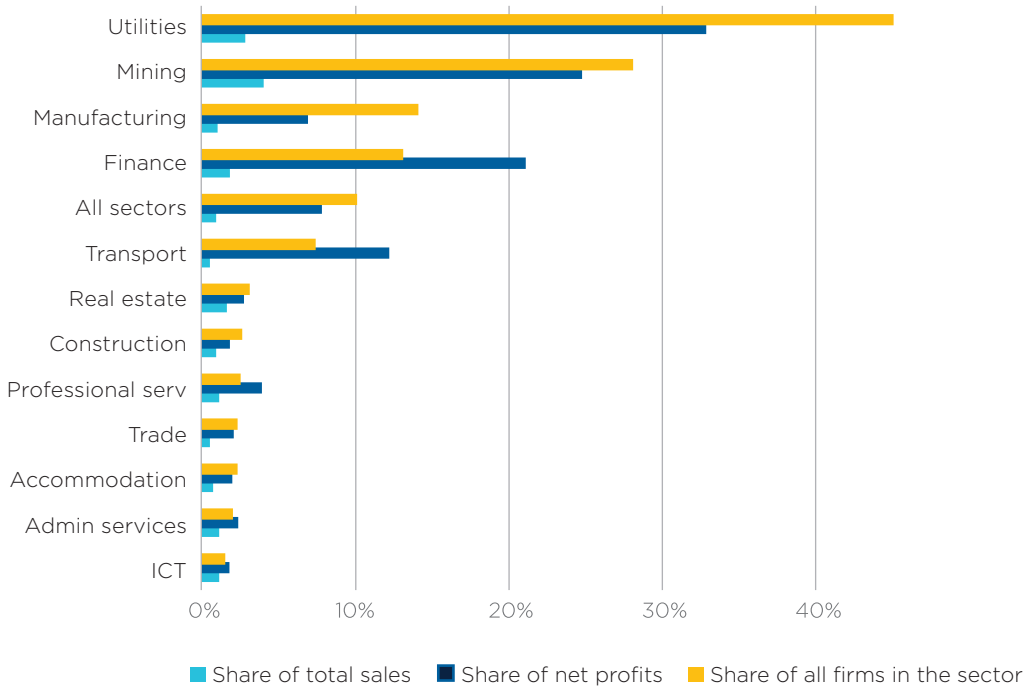
The list of politically connected firms has been matched through unique firm-level identifiers with the Orbis firm census data including more than 4 million firm-year observations from 2011-2018 (see Chapter 4.1) and the list of firms that have received public procurement contracts based on the public information from the Bulgarian national e-procurement system comprising more than 150,000 public procurement contracts for 2011-2019 (see Chapter 5.2). In total, 4,566 politically connected firms have been identified in the Orbis firm data.

Politically connected firms are less productive but have higher profits

Shielding policies from vested interests will lead to more efficient markets

A small group of firms with political connections accounted for 10 percent of all sales and 6.4 percent of profits in the economy throughout 2011-2018. Politically connected firms account for 0.8 percent of all firms in the economy. They are overrepresented in mining (3.9 percent), utilities (2.7), finance (1.7) and real estate sectors (1.5). In all economic activities in Bulgaria, they accounted for a larger share of sales and profits relative to their number (Figure 32). In utility sectors, almost half of all sales and one-third of all positive net profits stemmed from politically connected firms. In mining, they accounted for a quarter of all sales and net profits. Politically connected firms also accounted for a significant share of sales in manufacturing (14 percent) and finance (13) and a significant share of net profits in finance (21) and transport (12). The ICT sector had the lowest share of total sales (1.4 percent) and net profits (1.7 percent) controlled by politically connected firms.

Figure 32. Politically connected firms account for a significant share of sales and net profits in utilities, mining, finance, transport, and manufacturing



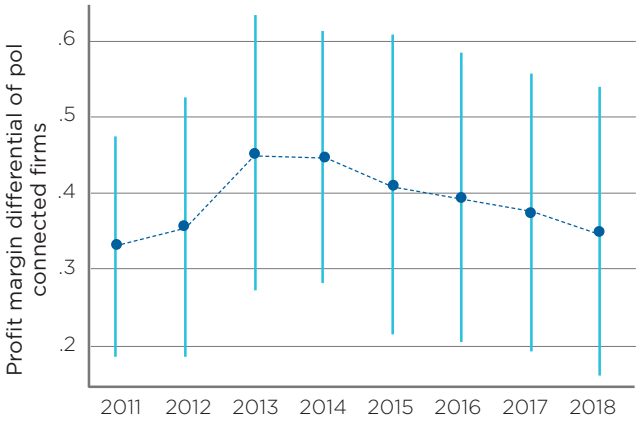
Source: Center for the Study of Democracy (CSD), World Bank, and Orbis data. Note: Net profits are measured as firms' net income among profitable firms.

Politically connected firms were more profitable than their competitors. Politically connected firms made on average 80 percent higher profits between 2011 and 2018 compared to non-connected profitable firms operating in the same 4-digit sector. Part of the profit differential is explained by connected firms' larger size and age. But their net profits were still up to 30 percent higher compared to equally large and old firms operating in the same 4-digit sector (Figure 33).[58] Consistent with the higher profits, politically connected firms seem to have enjoyed some market power since they tended to charge higher markups–the ratio between the price that firms charge to consumers and their marginal production cost (Figure 34).

But politically connected firms were also less productive. Politically connected firms' average value added per worker was 27 percent lower than that of comparably large and old non-connected firms operating in the same 4-digit sector (Figure 34). The lower labor productivity of politically connected firms cannot be explained by their lack of access to capital given that they were on average more capital intensive–their average capital-labor ratio was 16 percent higher. Consistent with these results, politically connected firms as a group were less efficient–their total factor productivity (TFP) was 5 percent lower than that of equally large and old same-sector firms.

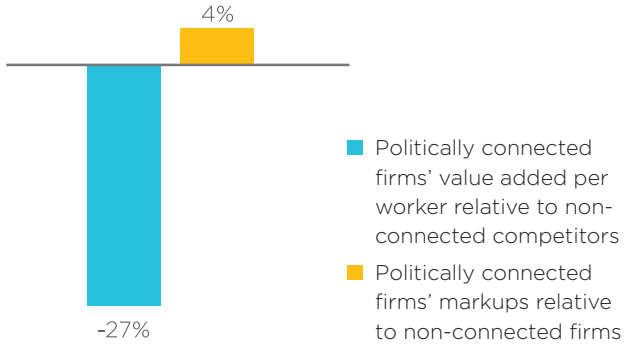
Shielding regulations and their enforcement from vested interests can spur private sector competition and productivity. Chapter 4 shows that Bulgaria's modest recent performance with aggregate productivity was caused by resource misallocations across firms–more productive firms have lost market shares to other, less productive firms in their sector. Politically connected firms' higher profitability despite their lower productivity suggest that they were among the less productive firms in Bulgaria that have gained market shares, reducing aggregate productivity growth. These firms found ways to make high profits without raising their productivity which points to regulatory barriers or other privileges protecting them from competition. In fact, politically connected firms' higher capital intensity compared to their direct competitors suggests that they had preferential access to capital, resulting in the (mis)allocation of capital to less productive firms. Below, it is shown that one important channel of their preferential access to capital was their access to more and larger public procurement contracts, at times, through uncompetitive procedures.

Figure 33. Net profit differential of connected versus other firms rose until 2014 and declined after



Source: Center for the Study of Democracy (CSD), World Bank, and Orbis data. Note: Based on a regression of log net profits on a politically connected firm dummy which is equal to 1 for politically connected firms and 0 otherwise, controlling for firms' sales, age, 4-digit sector and year dummies. Standard errors are clustered at the 4-digit sector level; marginal effects by year with 95 percent confidence intervals. The difference in net profits is statistically significant from zero at the 5 percent level in all years.

Figure 34. Politically connected firms' labor productivity was 27 percent lower



Source: Center for the Study of Democracy (CSD), World Bank, and Orbis data. *Note:* Results are based on a regression of log TFP or Markups on a politically connected firm dummy which is equal to 1 for politically connected firm and 0 for firms without any type of political connection. All regressions control for firms' log age, log sales, and 4-digit sector fixed effects. Standard errors are clustered at the 4-digit sector level. The difference in value added per worker is statistically significant at the 5 percent level. Markups are computed following de Loecker and Warzynski (2012). The estimation is based on firm census data including over 1.3 million firm-year observations with information on value added per worker.

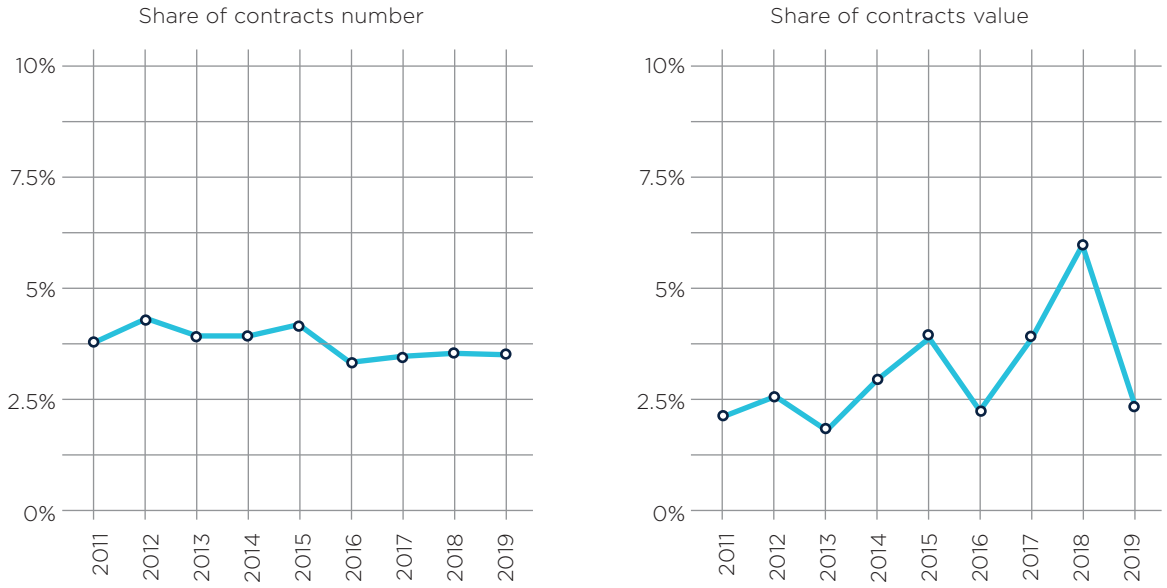
58 Given the large firm census data of about 500,000 firms in each year, there are sufficient observations for detailed comparison of firms operating in the same 4-digit sector. The variation across firms is also meaningful in utility sector which have the fewest firms per year. For example, there were 1,528 firms electricity generation (NACE code 3551) in 2018 of which 50 were politically connected. In transmission of electricity (NACE code 3552) 2 of the 22 firms were connected; there were no connected firms in distribution of electricity. In water collection, treatment and supply (NACE code 3600) 1 of the 60 firms was politically connected in 2018, and in sewerage (NACE code 3700) 1 of the 59 firms.

More transparent public procurement helps contain vested interests

Strengthening competitive procurement practices can level the playing field for all firms. Politically connected firms in Bulgaria were 4 times more likely to obtain a public procurement contract. Three percent of all politically connected firms obtained a public procurement contract compared to only 0.8 percent of non-connected firms between 2011 and 2018. Sectors with the highest share of contracts won by politically connected firms are financial and insurance services, accounting for one-fourth of all contracts obtained by politically connected firms.

The share of public procurement spending awarded to politically connected firms surged in 2016-2018. Of all 146,578 public procurement contracts awarded to 17,116 firms between 2011 and 2019, 5,652 contracts were awarded to 118 politically connected firms. In other words, politically connected firms accounted for 0.7 percent of all suppliers but obtained 3.9 percent of all contracts. The value of contracts won by politically connected firms significantly increased over time, while the number of such contracts remained the same (Figure 35, left). The share of contract value surged substantially after 2017 and peaked at 6.2 percent of total public procurement spending in 2018 (Figure 35, right).

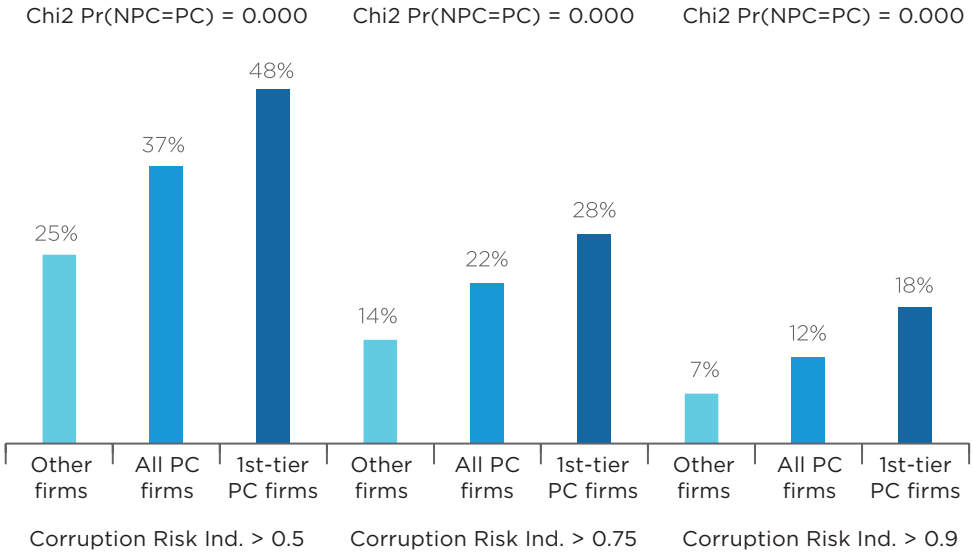
Figure 35. In 2018, 6.2 percent of public procurement spending was awarded to connected firms



Source: CEM background note "Measuring the risk of corruption and state capture in Bulgaria"; e-procurement data on about 150,000 contracts, Center for the Study of Democracy (CSD) and World Bank database on political connected firms.

More than one-third of all contracts obtained by a small group of politically connected firms were awarded through uncompetitive procedures (Figure 36). The risk of corruption (CRI) in public procurement contracts in Bulgaria is defined in Chapter 5.2. Specifically, a CRI above 0.5 indicates that 3 of the 6 sub-indicators–such as single bidding, not publishing the call for tenders, and other uncompetitive practices–apply to a given contract awarded. The data show that this was the case for 37 percent of all public procurement contracts won by politically connected firms compared to 25 percent of all contracts won by non-connected firms. A CRI above 0.75 indicates that five out of six indicators applied, suggesting that the contract was channeled to a specific firm that was designated to obtain the contract before the procedure started. Again, politically connected firms were more likely to benefit. Finally, 9 percent of all public procurement contracts obtained by politically connected firms in the 2011-2018 period relied exclusively on non-competitive procedures, compared to 6 percent of all contracts obtained by non-connected firms.

Figure 36. More than one-third of all public procurement contracts obtained by a small group of politically connected firms had a high risk of corruption



Source: Center for the Study of Democracy (CSD), World Bank, and Orbis data. *Note:* The Corruption Risk Indicator (CRI) is defined in Chapter 5.2. Chi2-test shows that the results by firm groups are statistically different from each other in all cases.

The path to high income requires unleashing Bulgaria's full productive potential through public institutions levelling the playing field among all Bulgarian entrepreneurs and citizens. At Bulgaria's current stage of development, strengthening its public institutions that level the playing field is critical to approach the productivity frontier. Boosting firms' productivity in Bulgaria requires better enforcing competition policy. This includes eliminating regulatory barriers to product market competition and entry and enforcing antitrust regulation. And, along with ensuring equal access to quality social services for all citizens, unleashing Bulgaria's full productive potential to pave the path to high income requires reducing the risk of corruption and state capture to ensure equal opportunities for all entrepreneurs. Politically connected firms in Bulgaria are associated with positions in different local and central government bodies (see Box 1) which suggests that a comprehensive institutional approach is needed to address this growth constraint. Given that the judiciary and the Commission for Combating Corruption and for Confiscation of Illegally Acquired Property are the key anticorruption bodies, increasing their accountability and effectiveness is a critical component in countering state capture by private vested interests.

6

Key policy options to accelerate growth

Bulgaria's economy needs a new set of policies in order to converge faster to average EU income levels and climb to the high-income club. As demonstrated in the analysis so far, Bulgaria needs a set of policies that is different from those that helped the country join the upper middle-income group. During the transition and pre-accession period the economy's growth relied on expansionary development via factor accumulation thanks to a favorable investment climate, increased labor market participation, strong exports, and a domestic credit and consumption boom. Yet, economic growth after the GFC has markedly slowed down with Bulgaria's convergence to average EU incomes advancing at a modest rate. This implies that the country has already exhausted to a large extent the potential for growth that comes from extensive growth. In the coming years, policy focus should fall on raising the quality and deepening of factors of production. If the country is to accelerate its growth and move to a high-income country, a new set of policies that focuses on raising the quality and more intensive use of production factors is needed.

Mitigating the negative demographic trend could yield a non-trivial return to growth. Increased labor force participation, combined with positive net migration could slow down the decline of population and help boost GDP growth by up to 0.4pp per annum under an ambitious reform scenario. This could be achieved by stepping up policy interventions that seek to retain potential migrants at home and help returnees integrate in the domestic labor market. Providing clear and objective information to migrants, as well as investing in reintegration programs and outreach campaigns are some of the instruments available to policymakers in that regard. Increased labor force participation of the youth (aged 15-29), which is the age group with the biggest gap to the EU average, could be achieved by measures aimed at making secondary and higher education more skills- and practice-oriented, including by strengthening dual education. Also, incentivizing internships, flex-work and part-time work options could have a beneficial effect on the economic activity of younger populations.

Addressing inequality of opportunities to boost human capital. Given that parental education is a key factor for inequality of opportunities, policies that address it include greater financial support and social work with parents from disadvantaged backgrounds, encouraged adult learning that is flexible enough to accommodate parallel employment and better opportunities for upskilling and re-training. Targeted policies for children at risk would be also needed to overcome socio-economic disadvantages, including efforts for inclusion in early childhood education, as well as stronger early warning systems and regular monitoring of educational outcomes to identify kids at risk of dropping out or being left behind. The urban-rural divide as a source of inequalities, in turn, can be bridged with financial incentives to attract and retain high-quality teachers in rural and disadvantaged areas, as well as improved connectivity in rural areas in terms of both physical and rural infrastructure.

Unleashing the human capital potential requires thorough transformation of Bulgaria's skill formation system. Given Bulgarian students' high and rising share of functional illiteracy and unsatisfactory test scores in international assessments vis-à-vis peers, raising the quality of formal education should become a top policy priority in education. This could be pursued with the introduction of a coherent approach for quality assurance at all levels of education, more effective and systematic teacher training, modernization of curricula with a focus on skills development, and focused investment in VET. Targeted support for the skills formation of vulnerable students as well as increasing participation in tertiary education will also raise the returns to human capital in the longer term. The importance of increased flexibility and adaptability of the education system has grown after the Covid-19 pandemic and its toll on skill formation. Flexible approaches are needed also for the swift and effective integration of Ukrainian displaced children and youth in all education levels.

Productivity growth needs to be encouraged by stepping up competition enforcement and implementing an enabling environment for all entrepreneurs which would also create more productive investment opportunities. More specifically, the authorities need to create an enabling environment for companies to step up research and innovation, introduce technology and business process improvements, and raise productivity growth by removing regulatory hindrances to competition and enforcement-related bottlenecks. As shown in the earlier analysis, between-company growth can be boosted by ensuring a level-playing field for all companies, while within-company growth can be encouraged with targeted incentives and programs for R&D and technological upgrades, especially in large, incumbent firms. Moreover, efforts should be focused on safeguarding competition by strengthening the investigative capacities of the Commission for Protection of Competition, as well as equipping the Public Procurement Agency and the Public Financial Inspection Agency with the tools and resources to monitor procurement procedures and contracts and identify corruption risks in a timely manner. As SOE's participation in public procurement appears to increase the likelihood of single bidding and reduced completion, optimizing the SOE portfolio and reducing the state's participation in the economy would also help improve the competitive environment in the domestic market.

The economy's green transformation may also bring productivity- and governance-related benefits. While decarbonization and greening of the economy may inflict temporary adjustment costs on households and selected businesses, and may be particularly costly for some regions, the lower corruption risk of green public procurement contracts is a strong argument for introducing green selection criteria in public procurement. As Bulgarian companies are falling behind peers in adopting green management policies and practices, policymakers may try to address this with targeted (fiscal and other) incentives for behavioral changes. Given that corporate innovations are strongly linked to green policies at the company level, the greening of Bulgaria's business is likely to go hand in hand with productivity growth.

Better quality public investment can also raise the growth potential. Raising the quality, efficiency and effectiveness of public investment, so that it brings value for money and upgrades the quality and outreach of public infrastructure, can also raise the potential for private sector growth. Ensuring access to key physical and digital infrastructure and quality public services, even in remote and rural areas would increase connectivity, strengthen competition, and remove bottlenecks to growth stemming from poor and lacking infrastructure.

Institutional weaknesses surface as a crucial growth constraint that concerns all factors of production, directly or indirectly, and concerted reform efforts to overcome these would untap growth opportunities. Institutional constraints have been a cross-cutting weakness that is encountered in all public sector domains and act as a growth impediment. As Bulgaria's Institutional Assessment (World Bank, 2021) and the country's position in international rankings show, institutional reforms would need to be thorough and long-lasting, but carry high transformational power for Bulgaria's society and economy. They may be grouped into the following strands depending on the aim that is pursued: (i) control of corruption and a level-playing field in domestic markets; (ii) higher quality of public services; (iii) stronger enforcement of legislation.

Reform area	Reform measure	Time horizon
Improve quality, efficiency and effectiveness of public investment	**1. Improve public investment management,** including:[59] • Development of standard guidelines for project appraisal • Establishment of a central unit on public investment management at the deputy PM's office • Improvement of public investment forecasts in the 3-year budget framework • Development of a pipeline of public investment projects and selection criteria • Systematization of ex-post reviews for monitoring, evaluation and follow-up. **2. Strengthen absorption capacity for EU funds** in view of substantial envelope for the country for the period until 2027	**Short to medium term**
Unleash human capital potential	**1.** Incentivize increased **labor force participation of the youth** by: • Making secondary and higher education more **skill-oriented** • Strengthening **dual education** • Creating incentives for employers to offer **internships, flexwork and part-time work options** to younger workers **2.** Designing policy interventions aimed at **discouraging potential migrants, incentivizing return migrations and helping returnees** resettle by: • Disseminating **clear and objective information** on potential risks and benefits of migration • Maintaining close **ties with Bulgarian diasporas** • Organizing **outreach campaigns and events** such as job fairs to incentivize return migration • Implementing **reintegration programs** for returnees that help them reintegrate in local labor market	**Medium to long term**

59 These recommendations are consistent with the IMF's Public Investment Management Assessment for Bulgaria.

Reform area	Reform measure	Time horizon
	3. Reduce inequality to opportunities at each point they occur, including: • **greater financial support and social work with parents** from disadvantaged backgrounds to improve access to early childhood education. • **improved quality of pre-school education and school education.** • **strengthened early warning systems** to identify children at risk of dropping out. • **regular monitoring of educational outcomes** to identify kids at risk of being left behind. • placement of kids at risk in **remedial and re-engagement programs.** • **delayed tracking at the secondary level** until children are older can allow students the time to develop crucial skills. • allocation of financial incentives to **attract and retain high-quality teachers in rural and disadvantaged areas.** • **modernizing the curricula** to help boost the employment prospects of future graduates. • Encouraging **continued adult learning** via flexible programs to allow for participation in labor market • boosting **connectivity in rural areas** via physical and digital infrastructure • facilitating **the upskilling and re-skilling of workers** through more relevant active labor market policies	**Medium to long term**
	2. Implement education policy reforms to match the rising demand for skilled labor that: • **support the skills formation of vulnerable students** by developing teachers' skills and motivation • **make focused investments in VET** to strengthen the quality and relevance of work-based learning. • introduce a clear and coherent approach to **quality assurance in education** that integrates skills-related quality goals and standards • **address the negative consequences on skill formation of the Covid-19 pandemic** by introducing more adaptive and personalized teaching and learning • **integrate swiftly and effective displaced Ukrainian children and youth in Bulgaria's education system** via allocation of adequate human and financial resources • **increase participation in tertiary education and equip students with relevant skills** by updating quality assurance mechanisms, curricula, and programs.	
Enhance competition for private sector investment and productivity growth	**1. Reduce corruption risks in public procurement to strengthen competition and private sector** by (i) Improving the data publication framework; (ii) Introducing continuous monitoring of corruption risks and use of data-driven insights in day-to-day policy making; (iii) Improving public procurement policy via legal amendments that aim to reduce single bidding, extend bidding periods, require publication of call for tenders, and limit the scope of non-competitive procedures such as direct negotiations.	**Medium to long term**

Reform area	Reform measure	Time horizon
Enhance competition for private sector investment and productivity growth	2. **Dedicate more skilled resources to anticartel enforcement and strengthen the capacities of the Commission for Protection of Competition** by (i) increasing the number of surprise inspections; (ii) ramping up screening and pre-investigations; and (iii) promoting the leniency program. 3. **Continue implementation of SOE reforms,** including in particular (i) optimizing SOE portfolio and reducing state participation in the economy; (ii) implementation of the Law on Public Enterprises; (iii) improve reporting standards for SOEs; (iv) strengthen capacity of Public Enterprise Control Agency. 4. **Remove regulatory barriers to competition by reforming product market regulations**, including in particular (i) reducing administrative burdens for start-ups; (ii) removing quotas, price controls, advertising bans and ownership restrictions in professional services; (iii) removing route authorizations and price controls in road passenger transport; (iv) relaxing ownership restrictions for pharmacies and restrictions on the sale of over-the-counter drugs. 5. **Enhance monitoring and introduce stricter control of higher public officials' equity participation** and management of companies, directly or indirectly, with the aim of curbing non-competitive practices in sectors where politically connected companies operate.	**Medium to long term**
Strengthen institutions towards higher control of corruption, increased capacity and improved enforcement of regulations	1. **strengthen control of corruption** and ensure a level playing field in local market (including by building capacity to detect corruption risks at Public Procurement Agency and Public Financial Inspection Agency); 2. **raise quality of public service** by modernizing public institutions and stepping up development of e-government 3. **strengthen enforcement of legislation**	**Long term**
Green economic growth model	1. **introduce "green" selection criteria in public procurement** tenders, where feasible 2. **create (fiscal and other) incentives for companies** to adopt green management policies and practices 3. adopt **programmes for greening of public institutions**	**Medium to long term**

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