

# Croatia Country Economic Memorandum

Laying the foundations:  
Boosting productivity to ensure future prosperity





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## List of Acronyms

AI	Artificial Intelligence
AMECO	Annual Macro-Economic Database of The European Commission's Directorate General for Economic And Financial Affairs
CBS	Croatian Bureau of Statistics
CEE	Central And Eastern Europe
CEM	Country Economic Memorandum
CEM	Customer Experience Management
CLIAR	Country Level Institutional Assessment and Review
CNB	Croatian National Bank
COVID-19	Pandemic Started in 2020 caused the Steepest Recession in Croatia's History and led to widespread supply chain disruptions
CPII	Characteristics & Performance Intelligence Information
CTA	Call To Action
DIOC	Database On Immigrants in OECD And Non-OECD Countries
EC	European Commission
ECA	Europe And Central Asia
ECI	Economic Complexity Index
EU	European Union
EU27	The 27 member states of the European Union as of February 2020.
EUR	Euro currency
FDI	Foreign Direct Investment
FINA	The Financial Agency
FY19	Fiscal Year 2019
FY20	Fiscal Year 2020
FY21	Fiscal Year 2021
G2B	Government To Business
GDP	Gross Domestic Product
GDP PC	Gross Domestic Product Divided By Midyear Population
GFC	Global Financial Crisis
GVC	Global Value Chain
HCI	Human Capital Index
ICT	Information And Communications Technology
IMD	International Institute for Management Development
IMF-FAD	The Fiscal Affairs Department
IT	Information Technology.
LFP	Labor Force Participation
LLC	Limited Liability Companies
LTGM	Long-Term Growth Model

LTGM-HC	LTGM-HC Combines Average Years of Schooling by Age Cohort With the Quality Of Education and Health Components to Determine Human Capital
LTGM-PC	Extension Of The Standard LTGM (Above) Which Separates The Total Capital Stock Into Public And Private Portions, And Adjusts The Public Component For Quality
LTGM-TFP	An Excel-Based Companion to the Standard LTGM that helps Users Assess A Country's Potential for Improving Its
TFP	Growth Rate Over the next few decades
MFF	Multi-Annual Financial Framework
MS	Member States
NACE Rev 2	Statistical Classification Of Economic Activities
NGEU	Next Generation Eu
NRRP	National Recovery and Resilience Plan
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organization For Economic Co-Operation and Development
PP	Producer Price Index
PPP	Purchasing Power Parity
PPS	Price Per Share
PWT	Penn World Table
R&D	Research And Development
RCA	Revealed Comparative Advantage
RIA	Regulatory Impact Assessment
RRF	Recovery And Resilience Facility
RRP	Recovery And Resilience Plan
SCD	Systematic Country Diagnostic
SLLC	Simple Limited Liability Companies
SME	Small And Medium-Sized Enterprises
SOE	State-Owned Enterprise
START	A Digital Careers Platform with The Information, Advice and Tools to help students to explore and plan for their Future
TFP	Total Factor Productivity
UN	United Nations
US	United States
VA	Value Added
VAP	Value-Added Price
WB	World Bank
WDI	World Development Indicators
WDR 2017	World Development Report 2017
WEF	World Economic Forum
WIIW	The Vienna Institute for International Economic Studies
WIOD	World Input-Output Database

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# Executive summary

**Croatia's economy has experienced turbulent two decades as a result of a variety of major shocks. The global financial crisis in 2008 led to a six-year recession and was a major setback on Croatia's path to convergence with the EU. More recently, the COVID-19 pandemic in 2020 caused the steepest recession in Croatia's history and led to widespread supply chain disruptions. In 2022, the war in Ukraine increased the global supply chain crisis, and contributed to surging commodity prices, especially for energy and food, which have had a significant inflationary effect in Croatia.**

Croatia's economy has experienced turbulent two decades as a result of a variety of major shocks. The global financial crisis in 2008 led to a six-year recession and was a major setback on Croatia's path to convergence with the EU. More recently, the COVID-19 pandemic in 2020 caused the steepest recession in Croatia's history and led to widespread supply chain disruptions. In 2022, the war in Ukraine increased the global supply chain crisis, and contributed to surging commodity prices, especially for energy and food, which have had a significant inflationary effect in Croatia.

**Croatia's preparedness and response to the global recession caused by the COVID-19 pandemic was effective, with GDP rebounding to its pre-pandemic level by 2021.** This was a remarkable outcome considering the pandemic had a particularly detrimental impact on tourism, which is a major component of the economy. The Government's package of fiscal measures was perhaps most beneficial to this industry that accounts for the majority of Croatia's services exports. The resilience to this unprecedented shock also indicates that macro-financial vulnerabilities have been reduced compared to the time of the global financial crisis, with favorable effects of the country's EU accession.

**But while the economy has improved its resiliency, the fundamental drivers of growth are concerning.** Productivity growth has been very weak for many years, and Croatia is falling behind its peers in Central and Eastern Europe. The Croatian economy is heavily skewed toward low-skilled services, including tourism, in contrast to some of its peers where manufacturing and high-skilled services such as ICT play a larger role. A key risk for Croatia is that it is unable to grow at sufficient rates to enable its income per capita to catch up with its EU peers.

**Based on current trends, Croatia's potential growth is likely to remain robust over the next few years, but will then slow sharply, falling to 1.1 percent by 2050.** Income per capita is expected to plateau at 80 percent of the EU27 average. The slowdown in growth is due to a variety of adverse factors, including adverse demographics, weak and deteriorating productivity growth, and a falling contribution from investment in capital. Besides, reliance on an industry as volatile as tourism is risky.

**Improving productivity would effectively shift the economy to a stronger growth, with even greater impacts if a broader reform agenda is taken.** The analysis suggests that reforms to boost productivity could have the greatest impact on raising long-run potential growth. In a moderate reform scenario, the boost to productivity would lift the potential growth rate by 0.6 percentage points, while under an ambitious scenario, it could raise the potential growth rate by as much as 1.1 percentage points. A more complete package of reforms, including labor market and education reforms, would have even larger benefits—even under the moderate reform scenario, the improvement in potential growth would allow Croatia to significantly accelerate its income convergence with the EU.

**Croatia's productivity performance has been significantly lagging compared to peers, as examined on macro-and firm-level data.** The weakness in productivity relative to Germany (the frontier) is primarily due to poor within-sector performance. For example, productivity in the Croatian manufacturing sector is just one-quarter of that in Germany. The sectoral composition of Croatia's economy—the large role for low-skilled services such as tourism, and relatively small manufacturing sector—only accounts for a fairly modest share of the productivity gap.

**Low productivity within sectors reflects, among others, market frictions and inefficiencies, which likely stems from barriers to competition between firms.** Firm level data shows that old, inefficient firms are not outcompeted by new, more productive firms. Market frictions and inefficiencies are a key issue for the services sector, with restrictive regulations still in place in several professional services industries and regulatory barriers to services trade remaining high. This also weighs on productivity across the economy by reducing the availability of high-quality intermediate services for downstream firms.

**The role of institutions is particularly important for promoting competition and boosting the dynamism of the Croatian business environment.** Despite considerable progress in institution-building made as part of the EU accession in 2013, this area has since then been neglected. Analysis shows that the competition is highly susceptible to the institutional efficiency. Additional labor market liberalization, reducing bureaucracy and administrative burdens on firms, and improving the effectiveness of the Competition Act and of the Competition Agency are some of the areas needed to boost the business environment.

**A range of specific measures could increase the dynamism of the Croatian business environment, reduce market inefficiencies, and level the competitive field.** These include measures to reduce entry costs and barriers to entry (including regulatory burdens on firms), remove existing privileges that protect firms from fair competition, and improve the enforcement of antitrust regulations. Better bankruptcy procedures could help improve the efficient reallocation of capital as firms exit the markets. Finally, policymakers could also promote interventions and improvements in business management through best practices, as well as business and entrepreneurial education.

**To achieve convergence with the EU27, Croatia needs to boost its long-term growth potential by primarily lifting productivity and strengthening the institutions.** To maximize the gains from improved productivity, these would ideally be paired with institutional changes in competition and business environment. However, there are underlying issues to accomplish this and which require reforms to labor markets and the education system. Beyond the scope of this report, the World Bank has been working with the Government on policy options to tackle the issues of the labor market, education and pension systems – to increase the labor supply and improve the quality of human capital in Croatia.

# Laying the Foundations: Boosting Productivity to Ensure Future Prosperity in Croatia

## Overview

### Introduction

Croatia has made significant progress in living standards over the last two decades, with **Gross Domestic Product (GDP) per capita (in Purchasing Power Parity nominal terms) reaching 70 percent of the average EU27 level in 2021, from 50 percent in 2001**. During this period, the country has improved its resilience by achieving advancements in the business environment and institutional quality, liberalizing labor and product markets and maintaining macroeconomic and financial stability. By entering the EU in 2013 and the euro area and Schengen zone in 2023, Croatia has achieved its key objective of Euro-Atlantic integration and gained access to abundant EU resources and a safety net for its financial system.

**Further improvements in living standards of Croatians would be critically dependent on productivity improvements.** Headwinds to long-term growth arising from limited improvements in productivity and an ageing population would limit Croatia's GDP per capita growth to 1.6 percent a year over 2025-50. Croatia's productivity is lagging not only the developed EU countries, but also its regional peers. This reflects low levels of Research & Development (R&D) investments, innovation and technology adoption, weaknesses in managerial and organizational practices, and constraints on competition. In addition, while institutions have improved, some lingering issues remain.

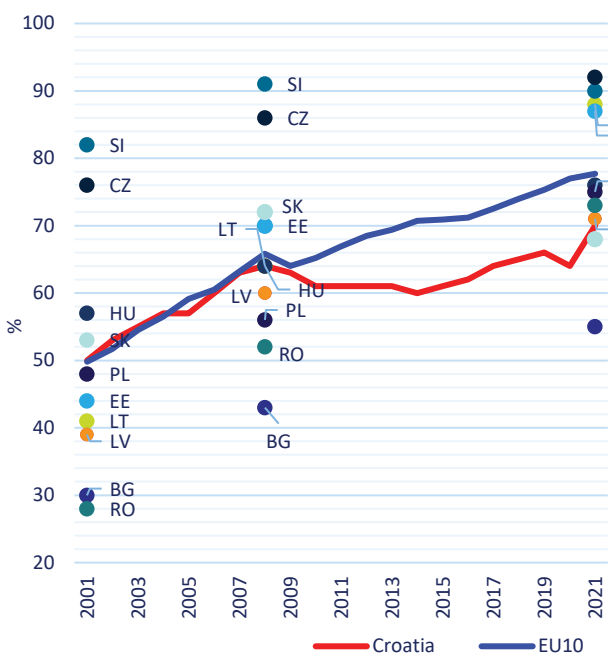
**An ambitious and comprehensive set of reforms could almost double Croatia's GDP per capita growth from 1.6 percent to 3 percent a year over 2025-50 period.** This would imply that Croatia's per capita income could exceed the EU27 average by the end of the period. While tackling constraints, particularly firms' productivity, requires significant efforts by both the private and the public sector, the goal of this overview and the detailed report is to focus on a subset of the policy measures related to the service sectors and reforms in the domain of public policies and institutions.

**This overview summarizes the main findings of the Croatia Country Economic Memorandum (2023), which focuses on long-term growth prospects and productivity of its economy.** The overview first reviews Croatia's economic developments over the last decade. It then applies the World Bank's Long-Term Growth Model (LTGM) to estimate Croatia's growth prospects until 2050 in the baseline, business-as-usual, case. It then simulates different policy reform scenarios—including improvements in pre-tertiary education, labor market participation, and productivity—to estimate the growth dividend from these reforms and the impact on convergence towards higher levels of income. Thereafter, it focuses on productivity performance using both aggregate and firm-level data and compares Croatia to the regional frontier economy and its EU peers. It also aims to link productivity with the most relevant institutional constraints faced by firms and provides recommendations for improvements.

## Croatia's solid growth after 2015 was interrupted by the COVID-19 pandemic and Russian Federation's invasion of Ukraine

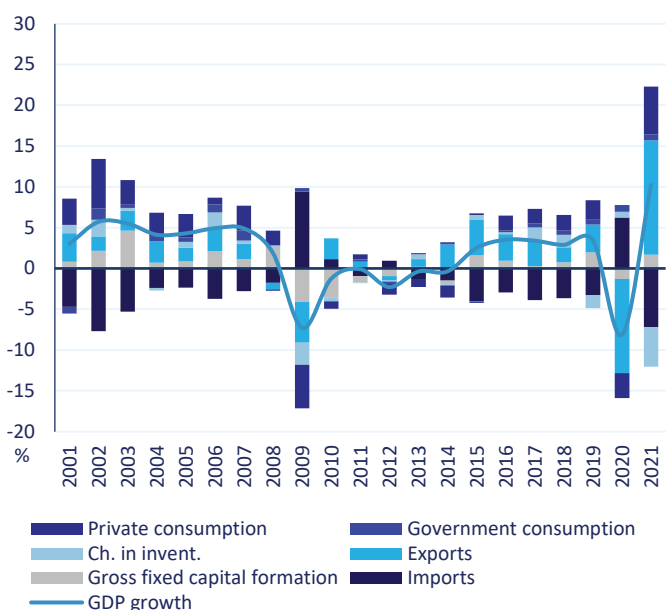
Croatia GDP growth after 2015 has been solid with steadily improving composition, that shifted away from debt-financed domestic demand towards more export-led growth. Over the last two decades Croatia's growth and its composition have varied. Over 2002-2008 period, GDP growth averaged a robust 4.5 percent a year, accelerating per capita income convergence with the EU to a pace comparable with Croatia's peers of Central and Eastern Europe (CEE) (Figure 1). However, the rise in consumption and investment during this period was largely financed by debt, leading to a significant increase in financial liabilities of households and firms. Investments were, to a larger extent, directed toward non-tradable sectors with limited spillovers to overall productivity growth. Export performance remained modest while the rapid increase in domestic demand drove a surge in imports, with the current account deficit as a share of GDP reaching double digits by 2008. These macroeconomic imbalances left Croatia vulnerable at the onset of the Global Financial Crisis (GFC) and the European sovereign debt crisis and resulted in recession that lasted until 2014. Income convergence was derailed, the unemployment rate more than doubled, and both external and public debt reached the highest levels relative to GDP in the country's history. A more favorable external environment, along with the positive effects of EU accession in 2013, helped to reignite growth in the 2015-19 period and to reduce unemployment. While average GDP growth was lower compared to pre-GFC period, averaging slightly above 3 percent, the growth composition became more balanced, shifting from debt-financed domestic demand toward more export-led growth (Figure 2). Croatia reached about 70 percent of the average EU27 income per capita level in 2021—this, however, also reflected a fall in population.

**FIGURE 1. GDP per capita, percent of EU27 GDP per capita, in Purchasing Power Standards**



Note: EU10 includes Bulgaria, Czechia, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia and Slovakia. Source: Eurostat, World Bank staff calculations.

**FIGURE 2. GDP growth and contributions to growth in Croatia, percentage points**



Source: Eurostat, World Bank staff calculations.

**The COVID-19 pandemic, however, derailed Croatia's growth path and caused the deepest recession in the country's history, given its dependence on tourism.** The country was hit hard by the pandemic and consequent social distancing restrictions. Real GDP fell by 8.1 percent in 2020—one of the worst recessions in the EU. The relatively sharp decline can primarily be attributed to Croatia's large reliance on tourism, an industry that bore the brunt of the COVID-19 induced recession.<sup>1</sup> The country also suffered from two earthquakes in 2020, with significant damage to infrastructure in the central-north part of the country, including the capital Zagreb.

<sup>1</sup> According to the World Travel and Tourism Council (WTTTC), total contribution of travel and tourism to Croatian GDP nearly halved because of the pandemic, from 24.8 percent of GDP in 2019 to 13.2 percent of GDP in 2020.

**Nevertheless, Croatia's economy rebounded rapidly in 2021, with economic activity reaching pre-pandemic levels by the second half of the year amid the reopening of the economy and a large fiscal stimulus package.** The improvement in economic activity in 2021 reflected a significant pick-up in tourist arrivals, owing to easing COVID-19 outbreaks during the summer months, the rollout of COVID-19 vaccines, and close proximity to large tourist-originating markets. As a result, revenue from tourism in 2021 reached nearly 90 percent of its pre-pandemic level, which gave a substantial boost to the overall economic recovery. Croatia was also less affected by global supply chain bottlenecks given its export structure, which, together with the strong global recovery, led to a marked rise in its exports of goods. Finally, a large fiscal stimulus package, which focused on protecting employment, prevented a sharper fall in household consumption.

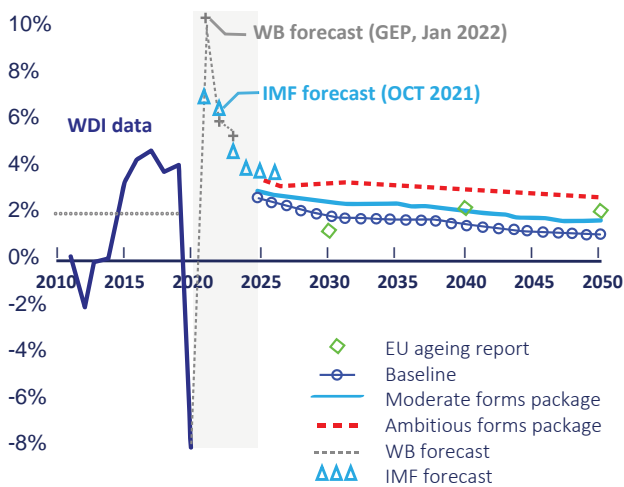
**Despite the headwinds to growth arising from the Russian Federation's invasion of Ukraine in early 2022, economic activity has been resilient in Croatia.** The war in Ukraine initially caused a sharp spike in global commodity prices, which exacerbated inflationary pressures, including in Croatia despite its economy being less reliant on natural gas from Russia relative to other CEE countries. The war has also disrupted trade and financial flows and sharply increased uncertainty. Nevertheless, Croatia's economy has continued to experience rapid expansion, with output growing at around 6 percent in 2022. Strong economic growth in 2022 reflected double-digit export growth and robust domestic demand, with firm and household activity supported by government fiscal support schemes that prevented major increases in energy prices.

**Over the medium term, Croatia's growth is expected to benefit significantly from the Recovery and Resilience Facility (RRF), as well as the structural and investments funds from the new financial perspective (2021-2027).** The RRF was introduced by the EU to address the economic and social impact of the COVID-19 pandemic and to make European economies more resilient in the future. Until 2026, Croatia has at its disposal grant funding from the RRF, totaling EUR 5.5bn (close to 10 percent of 2019 GDP), to finance important reforms and investments. However, the disbursement of RRF grants will take place only if the agreed reforms and investments set out in the National Recovery and Resilience Plan (NRRP) are fulfilled and implemented. A large part of the investment is focused in areas that advance digital infrastructure and the ambitions of the green transition, through investments that support energy efficiency, sustainable mobility, lower carbon energy and the green transition of businesses. An additional EUR 9.1bn of cohesion policy funding from the new Multiannual Financial Framework of the EU, 2021-2027, is available for public and private investments and programs. Growth is expected to be supported by these investments, as well as by NRRP reforms that aim to tackle challenges related to education, productivity, and the business environment in a sustainable manner. In turn, these reforms could boost Croatia's potential growth by lifting gains from physical and human capital accumulation and productivity—the latter of which is low by EU standards.

**Along with the EU funds, further reforms will be critical to accelerate growth and income convergence over the longer term.** GDP growth is expected to remain relatively robust over the next three years, supported by strong investments, in part financed by the EU. However, based on the WB's LTGM, GDP per capita growth is expected to decline gradually thereafter, falling to just 1.1 percent by 2050 (Figure 3), which would not be enough to further increase Croatia's income per capita compared to the EU27 average. The long-term growth slowdown arises from various structural headwinds. The long-term growth slowdown arises from various structural headwinds. Croatia is aging rapidly, and the share of the working age population is forecast to fall from 64 percent in 2020 to 57 percent in 2050. Human capital growth is expected to be sluggish due to only weak improvement in pre-tertiary education. The contribution from capital deepening is set to decline toward its historical average after 2030 as the boost from one-off EU funds wanes (Figure 4). Finally, total factor productivity (TFP) growth, which has been already comparably low in the past, is projected to decline further, from 0.6 percent in 2020 to 0.4 percent in 2050, based on expected trends in innovation, education, market efficiency, infrastructure, and quality of institutions. Although the outlook is weak, growth scenarios suggest that Croatia's economy could benefit significantly from reforms that improve the quality of education, labor market participation, and productivity of the economy.<sup>2</sup> Such reforms would lift Croatia's per capita growth and accelerate income convergence with the rest of the EU.

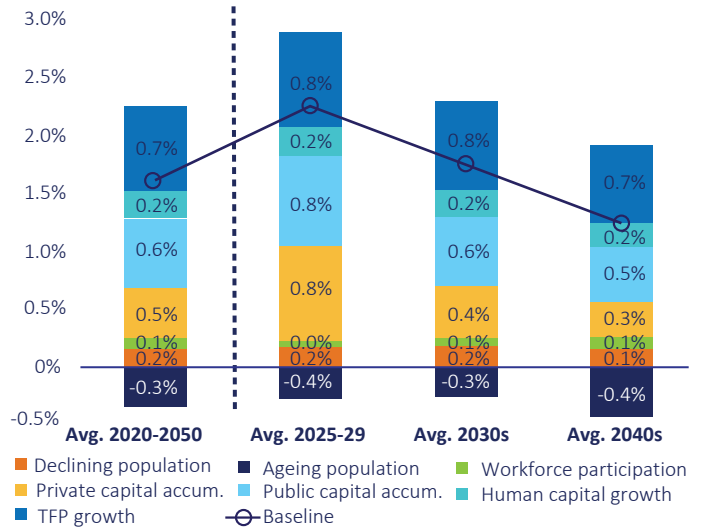
<sup>2</sup> The report focuses on productivity and institutional reforms that could support higher productivity growth and is therefore not exhaustive in terms of the reforms that could potentially have large growth effects in the long run. These include reforms that would improve the quality of pre-tertiary education, increase the labor-force participation rate, improve the efficiency of the justice sector, as well as the activities of the private sector such as increased investments in R&D, innovation and technology adoption, and managerial and organizational practices.

**FIGURE 3. Baseline GDP per capita**  
Annual growth rate, Percentage



Source: Author's calculation based on the LTGM-PC.

**FIGURE 4. Drivers of growth**



Notes: the decomposition is an approximation which abstracts from the interaction between the growth drivers. In this case, the sum of contributions of each driver does not match exactly the actual baseline growth rates.  
Source: Author's calculation based on the LTGM-PC.

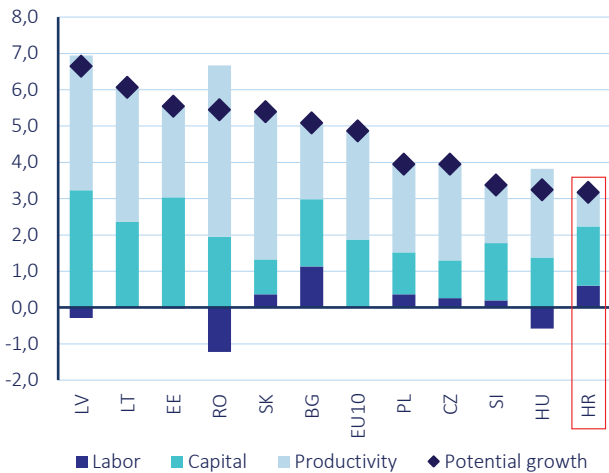
## Croatia can strengthen potential growth through addressing weaknesses in total factor productivity

**Croatia's potential growth is among the lowest in the CEE region, with productivity contributing the least to potential growth.**<sup>3</sup> Despite relatively high growth rates in the 2002-08 boom period, potential growth averaged 3.2 percent, compared to 4.9 percent in the CEE region—the weakest rate in the region (Figure 5). This largely stemmed from sluggish productivity growth, measured as TFP, which made the smallest contribution to potential growth in Croatia, at only 0.9 percentage points on average, compared to 3 percentage points (out of 4.9 percent) in the CEE region. The level of TFP in 2021 was only around 10 percent higher than in 2001, while the cumulative average increase in TFP in other CEE countries over the same period was about 30 percent, albeit with significant differences among countries. Potential growth has remained low even during the recovery leading up to the pandemic. The European Commission (EC) estimates that potential output grew only 1.6 percent per year on average over 2015-19—the slowest pace among regional peers and about half of the average growth rate for the CEE region (Figure 6).

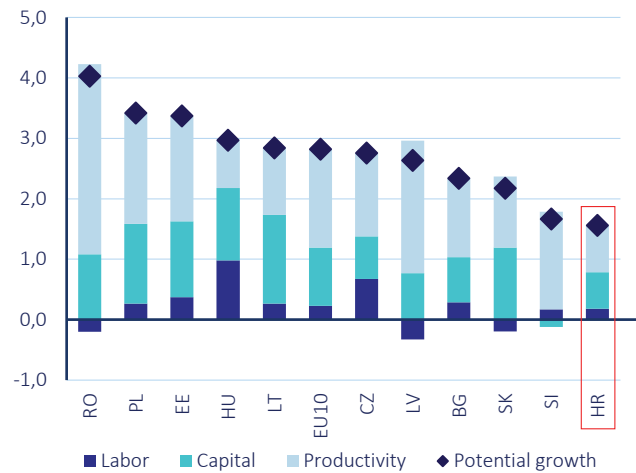
**Labor productivity has been on a rise but significant gaps between Croatia and its peers as well as more advanced frontier economies persist.** Although Croatia has made progress in labor productivity over the last two decades, it remains among the lowest compared to its EU peers. Also, in this period Croatian labor productivity has risen by 27 percent compared to an average of 73 percent for other CEE economies. Furthermore, while there has been some catch-up with Germany, which is considered to be the regional frontier economy, it took on average almost three Croatian workers to produce the same value-added generated by a single German worker in 2019 (Figure 7). Croatia's gap with other countries has partly reflected sluggish improvement in key drivers of labor productivity, including business dynamism, competition, management practices, and the use of technology.

<sup>3</sup> Potential growth is the rate of growth that an economy can sustain over the medium term without generating excess inflation. While the LTGM used in this paper and report does produce year-to-year movements in growth, in the short term these should be interpreted as the growth rate of potential gross domestic product (GDP), not actual GDP.

**FIGURE 5. Potential Growth (Contribution to potential growth, percentage points), 2002-2008 average**



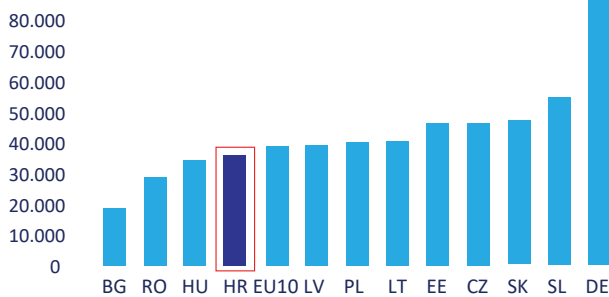
**FIGURE 6. Potential Growth (Contribution to potential growth, percentage points), 2015-2019 average**



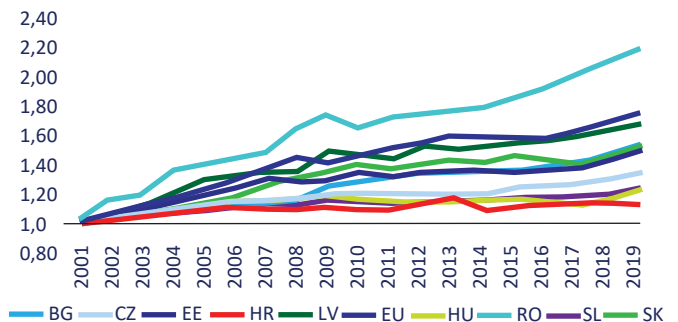
Source: EC, WB staff calculations.

**FIGURE 7. Labor productivity, value added (constant price, 2015 EUR) per worker**

**Labor productivity in 2019 (2015 EUR)**



**Labor productivity relative to Germany (2001=1)**

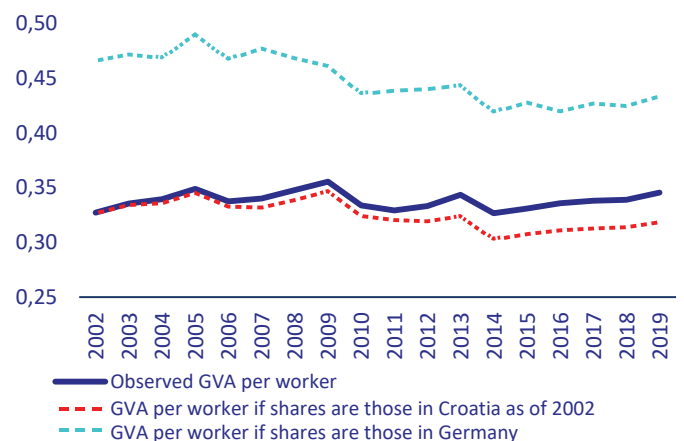


Note: Labor productivity is measured as gross value added in euro (constant prices, 2015) per worker.

Source: Eurostat.

The labor productivity shortfall in Croatia relative to Germany as the regional frontier economy is mainly accounted for by differences in productivity within sectors, and only partly the composition of the economy. The low level of productivity in Croatia relative to Germany is not fully explained by Croatia's larger share of low-productivity sectors, including those related to tourism, and lower share of sectors with the potential for high productivity, such as manufacturing. Differences in the economic structure account for only a modest amount of the productivity gap between Croatia and Germany (Figure 8). Even if Croatia had the same sector composition as Germany, it would still be 57 percent less productive. Differences in within-sector productivity—for example, differences in the productivity of firms in the manufacturing or transport sector in the two countries—are large and explain almost 90 percent of the productivity gap between the two countries.

**FIGURE 8. Structural transformation and the labor productivity gap, 2002-19, percentage of Germany aggregate labor productivity**

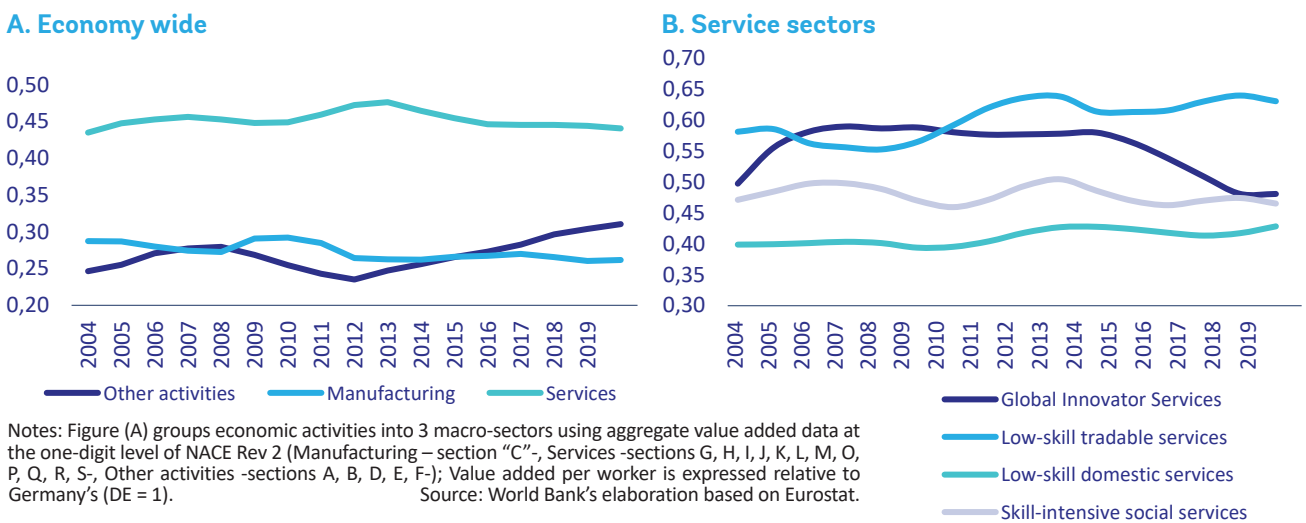


Notes: Figure computes the observed labor productivity gap (i.e., relative gross value added per worker between Croatia and Germany) and estimated productivity gap if employment shares in Croatia are those as of 2002 (i.e., no change in the employment distribution across sectors) and if Croatia has Germany's employment shares (i.e., the same employment distribution for each year as in Germany). Source: World Bank's calculations based on Eurostat.

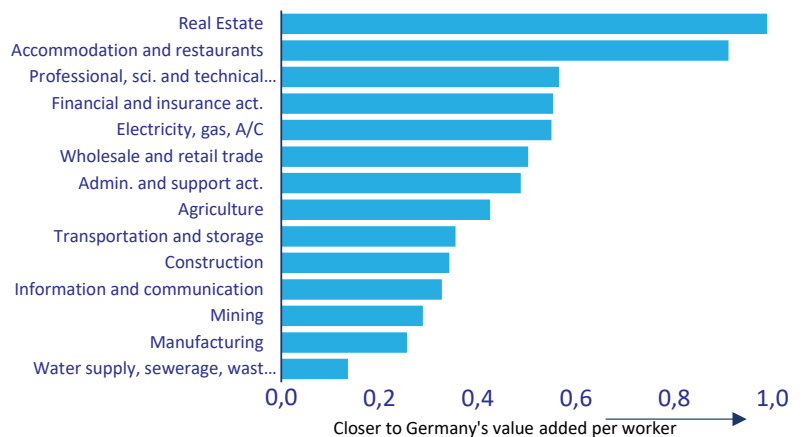


**Manufacturing and ICT are among the sectors with the largest gaps in labor productivity, while Croatia’s real estate and tourism sectors perform comparatively well.** Croatia’s labor productivity in manufacturing lags that of Germany’s by a wide margin (Figure 9 and 10). A worker in the Croatian manufacturing sector produces roughly one-quarter of the value added produced by a German manufacturing worker. Croatia performs better in several services sub-sectors, however, particularly in low-skill tradable services. Labor productivity in real estate and accommodation and restaurants – two sectors that benefited from the recent recovery in tourism – is less than 10 percent lower than that observed in Germany. In contrast, many of the knowledge-intensive service industries with high export potential, such as ICT, have been losing competitiveness relative to the productivity frontier. These service activities are critical for driving future productivity growth and play a key role as intermediate inputs for other downstream sectors of the economy, including manufacturing.

**FIGURE 9. Labor productivity in Croatia relative to Germany, by sector 2004-2019, 3-year moving average (Germany labor productivity = 1)**



**FIGURE 10. Differences in labor productivity across sectors between Croatia and Germany 2019, value added per worker relative to Germany (DE = 1)**

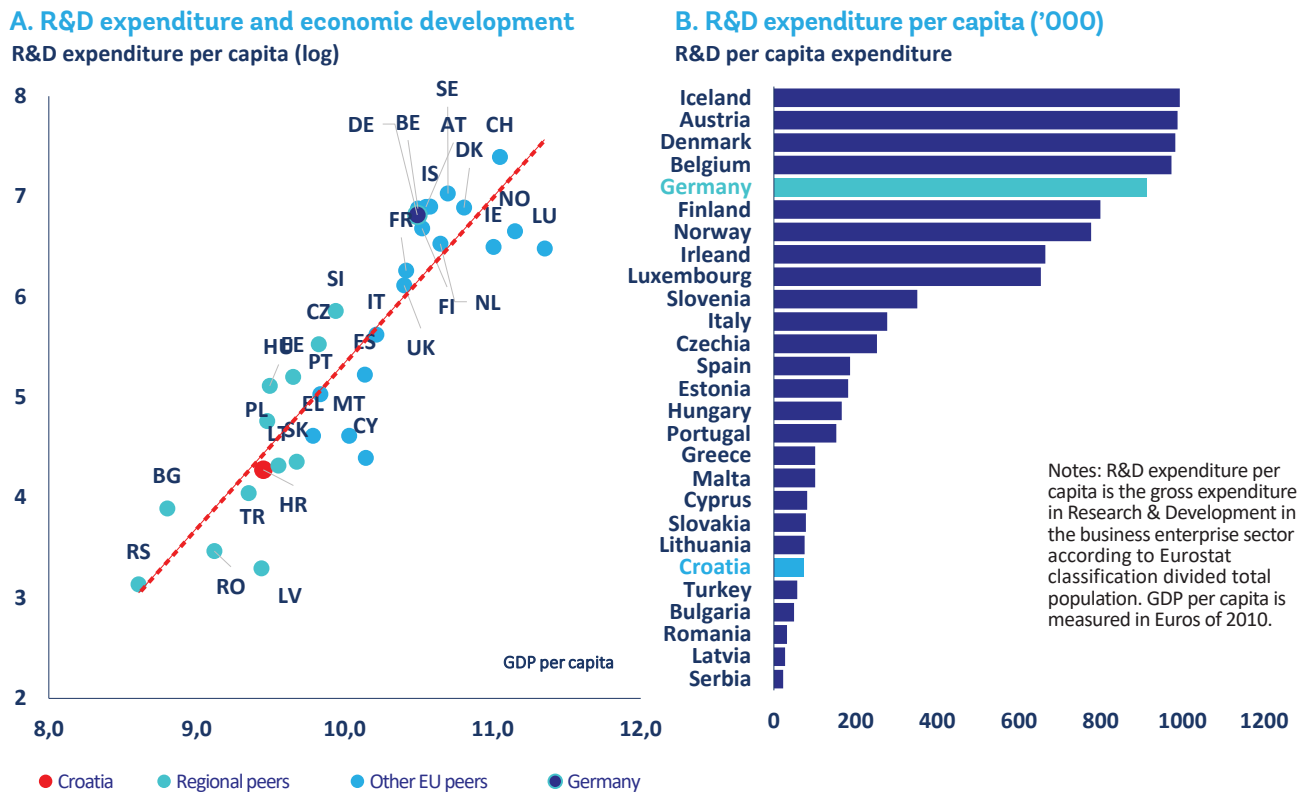


**Low firm productivity in Croatia reflects insufficient R&D investments and innovation and technology adoption, lagging managerial and organizational practices, as well as the constraints on competition**

**Ample opportunities remain to continue the increase in firm productivity that has been seen over the past decade.** Firms in Croatia have higher rates of advanced-technology adoption than their peers but lower compared to advanced EU countries. They also invest little in R&D, with a total of 72 euro per inhabitant—less than 10 percent of Germany (913 euro per inhabitant) and below the level in most EU peers (Figure 11). Finally, Croatian firms lag peers in the quality of managerial and organizational practices that they adopt. This points to

the possibility of lifting productivity growth by encouraging innovation and upgrading internal capabilities. Managerial practices are a particularly important area of improvement as it is unlikely that a poorly managed firm would be able to gain the full productivity benefits of adopting new advanced technologies.

**FIGURE 11. R&D expenditure per capita (€) and GDP per capita (€, 2010), 2019**



**The productive potential of Croatian firms can be further raised by addressing market frictions and inefficiencies, which feed into a misallocation of resources.** A decomposition of productivity growth using firm-level data shows a negative impact from the reallocation of resources between sectors, implying more productive firms are unsuccessful at capturing market share from less productive ones. This finding is consistent across several different aspects of firm and market characteristics. Business dynamism is low, with exit rates well below average and productivity higher in exiting firms compared to incumbents. Moreover, management of Croatian firms is far from the frontier, especially for performance management and data driven decision making and does not seem to improve with the age of the firm. Finally, competition appears to have deteriorated in Croatia, as evidenced by rising markups for firms.

**Market frictions and inefficiencies are also key issues for the services sector, which plays an important role in Croatia's economy.** While Croatia has a clear comparative advantage in some services industries, several constraints slow down the development of knowledge-intensive, high-productivity services. For instance, restrictive regulations remain in place in several professional services industries—such as estate agents, civil engineers, notaries, and lawyers—and regulatory barriers to services trade remain high. In turn, these constraints can affect broader productivity in the economy, as they reduce the availability of high-quality intermediate services for firms that use them in their production process.

### Ineffective institutions also impede productivity growth

**Institutional quality is strongly related to productivity growth, raising the potential for enhancing productivity and business dynamism through further strengthening national institutions.** Efficient institutions support structural changes that generate growth in quality jobs through economic diversification

and higher productivity. Historical experience suggests that a wide range of deep institutional reforms, such as strengthening checks and balances and building effective public integrity and anti-corruption institutions, can improve contract enforcement and create a level playing field among firms. Strengthening institutions thus facilitates the competition necessary to ensure that resources are allocated to their most productive use, thereby contributing to long-term productivity gains. Institutional quality is strongly related to TFP growth in a cross-country sample, and Croatia is among the countries with the slowest TFP growth and lowest rankings of institutional quality in the sample (Figure 12).

**A benchmarking exercise identified the most relevant institutional constraints experienced by firms and how they affect productivity growth, setting the stage for selecting and prioritizing institutional reforms.** A benchmarking exercise was conducted to highlight the institutional strengths and weaknesses of Croatia relative to its peers. Croatia's transition to a market economy included gradual institutional reforms, with significant improvements made during the EU and the euro area accessions. Despite these improvements, Croatia scores relatively poorly in institutional quality compared to its peers in CEE. Croatia's performance varies by institutional segment but, overall, institutional quality in Croatia lags frontier economies according to the 2019 Global Competitiveness Index. Croatia performs comparably well when it comes to the regulatory framework of labor market institutions and SOE corporate governance framework (even though there is scope for further improvement here as well). However, "weak" performance is found with respect to public sector and business and trade institutions, including areas such as government bureaucracy, policy instability, burden of government regulations, and anti-monopoly policy. Other institutional functions, including accountability, political, financial market, and justice institutions, are classified under the "emerging" institutions category, suggesting mixed performance.

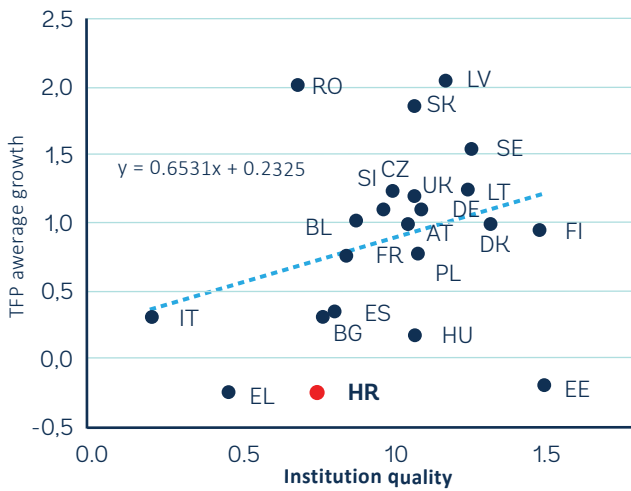
## A review of selected public sector institutions and business & trade institutions suggests room for improvement

**Underperforming public sector institutions are a constraint on business dynamism and market entry.** Inefficient government bureaucracy and policy instability are repeatedly raised by firms as the "most problematic factor for doing business" (World Economic Forum 2019), and it is estimated that time spent by management on processes related to government regulations in a typical week is associated with a reduction of 12.2 percent in firm TFP (World Bank 2020b). According to the World Bank (WB, 2018), after years of progressive steps towards public sector reform largely related to the EU accession process, progress has been limited since 2015 by the capacity and commitment of key actors to cooperate and coordinate their actions to achieve socially desirable goals. The slow legislative process from proposals to adoption and the lack of specialized capacity in the public administration also contribute to inefficiencies. European Commission, in its 2020 country report for Croatia (EC, 2020) also concluded that there has been a limited progress in the administrative capacity to design and implement public projects and policies.

**Inadequacies of the business environment and trade institutions have the largest scope for improvement and are a major constraint to firm growth and productivity.** Croatia scores worse than comparator countries in burden of government regulations, property rights, administrative burdens on start-ups, barriers to trade, anti-monopoly policy, and the extent of market dominance indicators. This is despite Croatia largely aligning national regulations, especially on trade, with those of other EU countries. Burdensome administrative procedures, taxation frameworks, and competition regulations were identified as key concerns for actors in Croatia's private sector (Figure 13). The World Economic Forum Survey highlighted inefficient bureaucracy, policy instability, and tax regulations as core impediments to doing business (World Economic Forum 2019).

**Improved public sector and business and trade institutions can support firm growth.** These institutions are critical for firms' growth and productivity, and include, among others, (i) competition and anti-monopoly policies; (ii) compliance with regulations; (iii) business permits; (iv) tax administration; (v) EU funds, and (vi) public procurement. The results of the institutional benchmarking were used to select the most relevant areas for the focus on firm growth and productivity, and for which novel insights from a survey with firms would contribute most significantly to expanding the existing knowledge space.

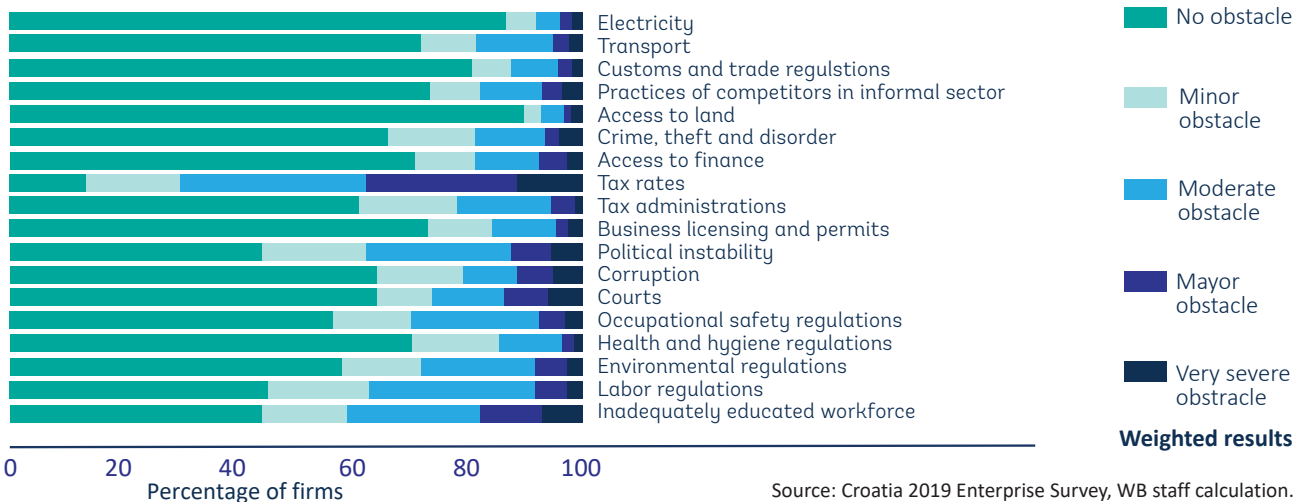
**FIGURE 12. Institutional quality and TFP growth**



Source: WB Worldwide Governance Indicator, Eurostat, WB staff calculation.

**Despite considerable progress made in judicial institutions, further improvements are necessary, especially in those related to the interaction between firms and the justice system.** The rate of resolving civil and commercial cases in Croatia remains one of the lowest in the EU, while the number of incoming civil and commercial cases is among the five highest. The disparity between disposition time and caseloads may further strain an already inefficient justice system. At the same time, Croatia lags its peer in judicial accountability and settling disputes. Justice officials and public stakeholders perceive frequent legislative changes, dilapidated court facilities, deficient use of technologies, and other organizational gaps as sources of weak institutional performance.

**FIGURE 13. Perceived obstacles to the operations of firms**



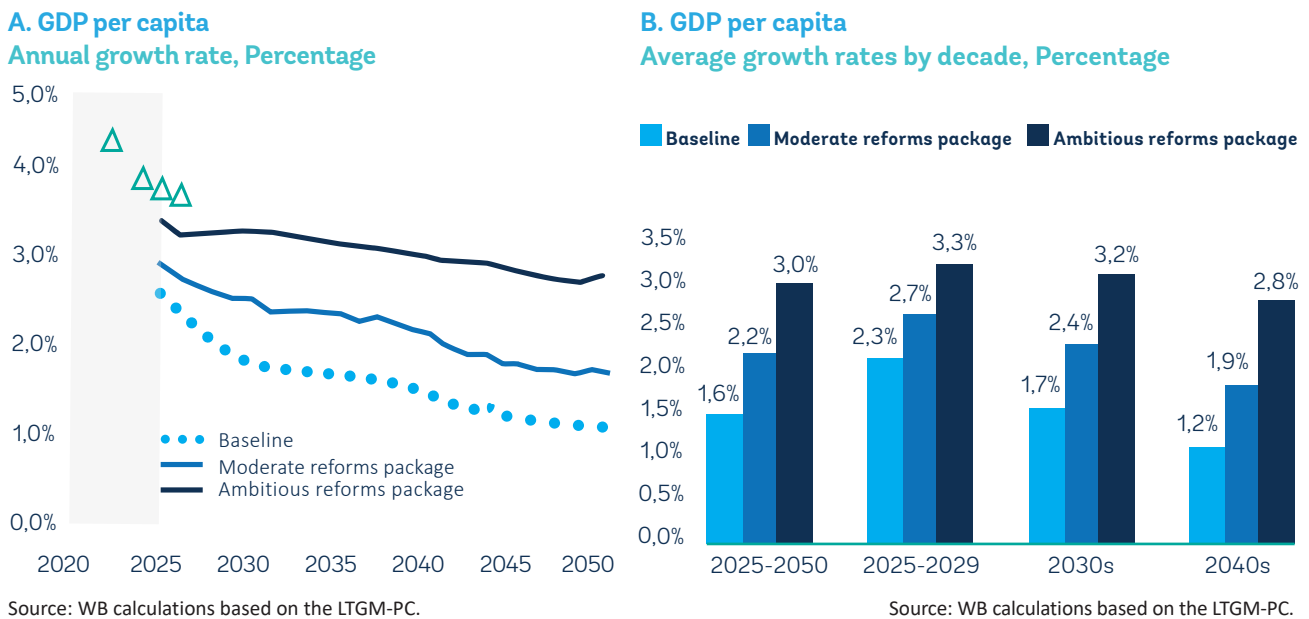
Source: Croatia 2019 Enterprise Survey, WB staff calculation.

## Comprehensive reforms, partly included in the NRRP, can boost productivity, and accelerate growth and income convergence with the EU27 average

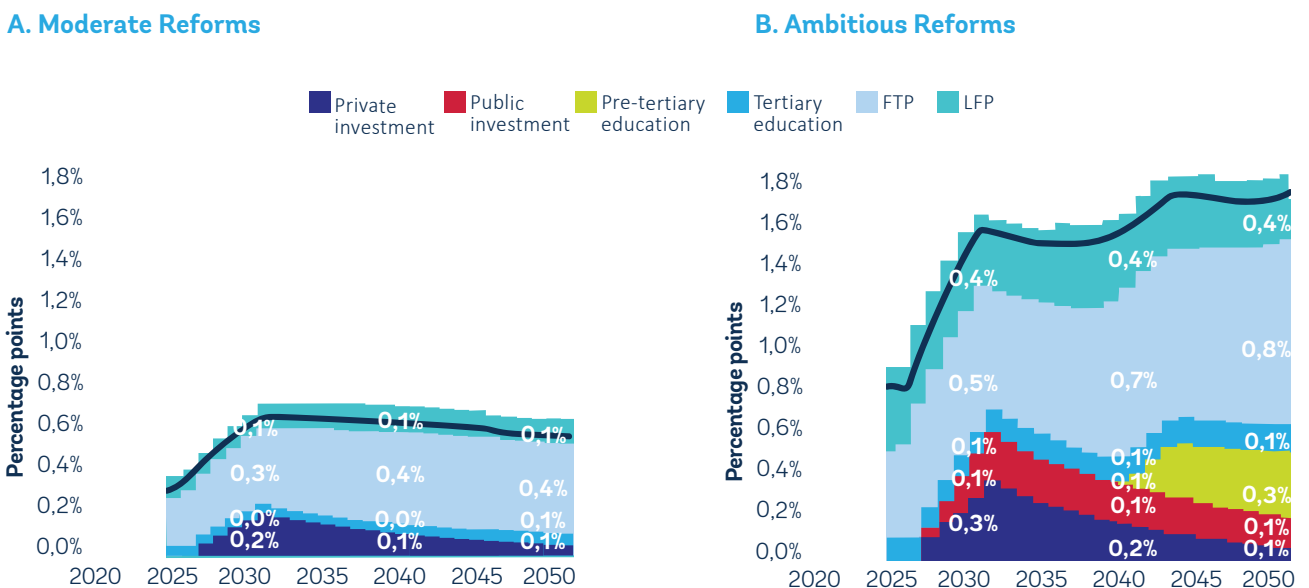
**A comprehensive reform package could yield a significant improvement in the country's growth rate and ability to converge with the EU.** In the absence of major reforms to the key drivers of growth, Croatia GDP growth will decelerate over time, falling to just 1.1 percent by 2050 and averaging 1.6 percent over 2025-50. The projected pace of growth will not be sufficient to sustain income convergence, causing Croatia's income per capita to plateau at 80 percent of the EU27 average. However, bold reform packages could yield significant growth dividends, as shown by scenario simulations using the LTGM. Two growth scenarios are developed based on improvements in the major drivers of GDP growth, including TFP, labor force participation, education, and the investment rate. The moderate reform scenario targets the 50-75th percentile of the distribution of the EU27 for each growth driver, while the ambitious reform scenario targets the achievements of top-performing economies, especially in CEE. Collectively, the reforms under the moderate scenario could boost Croatia's potential annual GDP per capita growth rate by 0.6 percentage points until 2050, while an ambitious reform package could increase the annual GDP per capita growth rate by 1.4 percentage points (Figure 14).

**Boosting productivity, partly through institutional reforms, would yield the highest growth dividend and generate positive spillovers for investment** (Figure 15). The positive impact from reforms that raise TFP would build over time as higher TFP encourages additional investment and more efficient/productive investment as the marginal product of capital rises. Additionally, improving the quality of the pre-tertiary education system and raising the labor force participation rate would have significant benefits for Croatia given demographic headwinds related to a shrinking working-age population. The ambitious package of reforms generates substantial complementarities because incremental growth under the ambitious reforms package is noticeably larger than the cumulated effect of individual reforms.

**FIGURE 14. Reforms Packages (LTGM-PC simulation)**



**FIGURE 15. Reform packages scenarios: decomposition of incremental GDP PC growth**  
Percentage points of incremental growth due to each reform



Note: Panel A shows fewer incremental growth determinants because some of the determinants are set at baseline levels in the moderate reform scenario. Source: WB calculations based on the LTGM-PC.

**Improving the drivers of long-term growth would markedly speed up economic convergence, allowing Croatia to close the gap with the EU27 average in the late 2030s.** With a moderate reform package, per capita income in Croatia would only converge to the EU27 average in the long run, reaching 97 percent of the EU27 average by 2050. In contrast, the ambitious reforms packages would enable Croatia to close the gap in the late 2030s and potentially exceed the EU27 average by 2050.

## **How can policymakers further advance Croatia's institutional environment for lasting economic impact?**

**Boosting productivity in the long-term calls for great ambition in strengthening institutions, reducing market inefficiencies and upgrading firms' capabilities.** Fostering competition and entrepreneurship is necessary through the removal of constraints that tend to stifle the dynamism of firms. Working to reduce entry costs and barriers, to remove existing privileges that protect firms from fair competition, and to improve the enforcement of antitrust regulations are essential steps to alleviate excessive burdens on firms and reduce the costs of doing business. Based on the analysis in the main report, specific reforms should include improvements to institutions, which would help unlock the positive effect of higher institutional quality on businesses and productivity, as well as measures to increase services sector growth. The list, however, is not exhaustive. Other reforms related to the education system, labor market, pension system, and tax policy could also generate significant returns in terms of growth and productivity but are not discussed in the report.<sup>4</sup> Some of the reforms that could contribute to productivity growth are included in Croatia's NRRP. According to EC estimates, Croatia's GDP could be 2.9 percent higher by 2026 than in the no-NRRP baseline scenario just through higher investments (implications of structural reforms are not considered), while after 20 years GDP could be 1.1 percent higher. Besides reforms to improve the business environment and provide financial support to the private sector, the NRRP also puts a large emphasis on strengthening human capital. The measures aim to improve education outcomes and reduce skills gaps and mismatches in the labor market with the view to increase employment and labor participation rates.

**There are eleven broad areas where policymakers should focus efforts on reforming institutions to spur productivity and enable income convergence with the EU.** Suggested reforms, in no specific order, aim to tackle the areas of concern highlighted by businesses in the survey conducted in the preparation of the report.

- **Advance accountability of the competition authority.** The competition authority should increase the accountability and transparency of its work. This includes strengthening the available tools and programs in order to exercise its enforcer role and introducing targeted training on competition law for judges.
- **Improve the legislative drafting process.** The government should adopt a uniform methodology and nontechnical rules for drafting legislation to be utilized at all levels of government. This could be complemented by strengthening regulatory transparency and clarity and upgrading the current regulatory impact assessment (RIA) framework.
- **Strengthen the business licensing process.** The government should improve transparency by setting up a comprehensive and user-friendly registry of information on licensing requirements, reviewing the minimum technical requirements and transition towards a goals-based approach, replacing ex-ante licensing and inspections with an online notification procedure, and developing and publishing user-friendly guidance for businesses on how to comply with regulations.

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<sup>4</sup> See recent World Bank analytical reports related to the Croatian labor market, education sector, and the pension system with proposed reform actions improving the quality and quantity of human capital in Croatia. For example, the report *Boosting Croatia's Economic Resilience (2020)* takes a deep dive into Croatia's labor market and suggested how the country's labor market regulation could be adjusted. The report also analyzed in detail the bankruptcy and liquidation procedures in Croatia and suggested changes to improve efficiency. The *Adequacy of Pensions report (2019)* discussed longer working lives as the main way to increase labor supply and improve adequacy of pensions in the long run. Finally, the project *Croatia: Towards Sustainable, Equitable and Efficient Education project (2021)* supports the introduction of the whole day school model in Croatia that should improve the learning outcomes in primary education.

- **Simplify tax administration.** The government should invest additional efforts in developing and maintaining a relationship of partnership with the taxpayers, improving the transparency and openness of tax administration. Key goals would be to prevent tax avoidance/evasion and to lower tax compliance costs, improve the transparency and openness of tax administration, and reform the system for the resolution of tax disputes to attain higher levels of efficiency in tax proceedings, as well as to secure predictability and legal certainty for taxpayers.
- **Improve absorption and impact of EU funds.** The government should strengthen the capacities of all stakeholders included in the EU funds governance framework, streamline the project generation and selection process, and further align national procedures to reduce delays and overregulation.
- **Reduce administrative burden in public procurement.** The government should decrease administrative barriers that affect the tendering and bidding process for public procurement, take steps to further increase trust in the public procurement process, and reduce challenges and procedural complexities during contract execution.
- **Reduce professional services restrictions.** Restrictive regulations in professional services such as estate agents, civil engineers, notaries, and lawyers may stifle competition in the sector and reduce its productivity and the quality of the service. Enabling an efficient allocation of resources and promoting quality upgrading in this sector is particularly important given the key role of these services as intermediate inputs in the downstream production of services and goods.
- **Invest in R&D and technology.** Investments in R&D and technology adoption among knowledge-intensive services, especially in the ICT industry, would contribute to aggregate productivity growth while generating high-wage jobs.
- **Remove barriers to trade.** Reducing regulatory barriers to services trade would facilitate scaling up of domestic services firms and the import of high-quality intermediate services inputs. Barriers to trade restrict competition faced by domestic services firms, reducing their incentives to upgrade and increase efficiency. Barriers to services trade also reduce the availability of high-quality intermediate services that can enable increases in productivity, quality upgrading, and growth of downstream industries.
- **Invest in a skilled workforce.** Efforts are needed to equip the Croatian workforce with the skills necessary to support the development of knowledge-intensive services industries. Ensuring that the Croatian workforce possesses the right set of technical and digital skills demanded by a knowledge-intensive services economy is a key enabler of robust services-led growth that could increase both productivity growth and high-wage job creation. Helping current and future Croatian workers to upskill will provide the right supply of human capital to enable the growth of high-productivity, knowledge-intensive sectors.

**Attaining higher living standard for its citizens and accelerating convergence with the average EU income levels is well within Croatia's reach with continued strengthening of its reform agenda.** Over the last twenty years Croatia has improved its policy and institutional framework, it has maintained macroeconomic and financial stability, and it now has access to abundant EU funds. This creates an environment where the returns on further reforms can be high. Many of the reforms critical for growth are already envisioned in the NRRP 2021-26, and once implemented, these reforms could provide a major boost to the country's growth potential. Nevertheless, for Croatia to accelerate its path to higher prosperity, a deepening of the reform program will be necessary. Key elements to accelerate sustainable growth will include increasing productivity, including through digitalization and R&D; improving human capital and its utilization in the labor market; and greening growth in line with national energy and climate ambitions and the broader ambitions of the European Green Deal. This overview and the detailed report have focused on constraints to productivity and on several key institutional reforms required to improve the overall productivity of the economy. Increasing productivity through such reforms will have a significant impact in accelerating Croatia's growth and convergence with average EU income levels.



## CHAPTER 1

# Introduction – prevailing macroeconomic trends over the last two decades

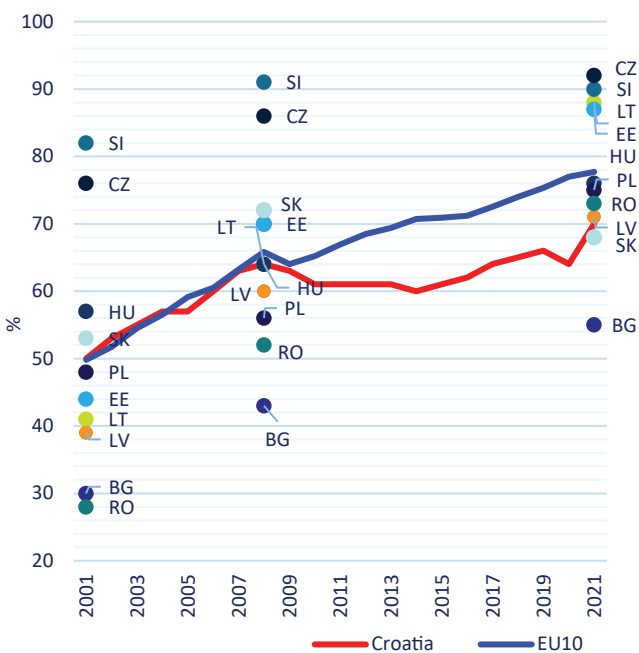
Croatia's growth performance over the last twenty years has been uneven and can be divided into three distinct periods. The first phase that lasted until the Global Financial Crisis (GFC) of 2008 was marked by strong economic growth of 4.5 percent, income convergence with the EU comparable to peer economies of Central and Eastern Europe but also a buildup of large macroeconomic imbalances – a result of procyclical fiscal policy and a rapidly expanding balance sheet of the banking sector. The onset of the GFC pushed the country into a recession that lasted until 2014. During this period, all convergence gains were lost, unemployment rates more than doubled and both external and public debt reached the highest levels relative to GDP in the country's history. Finally, during the 2015 – 2021 recovery period, Croatia restored economic growth, benefiting from EU accession and a more favorable external environment. The convergence process restarted, and Croatia reached 70 percent of average EU income levels in 2021. Positive developments continued after the 2020 recession caused by the COVID-19 pandemic but have been tempered by the Ukraine war. Over the medium-to long-term, key structural constraints include public sector governance, business environment, education outcomes, and unfavorable demographic trends, as well as insufficient share of knowledge-based sectors in the economy.



## 1.1. Income convergence at the cost of large macroeconomic imbalances: 2002 – 2008

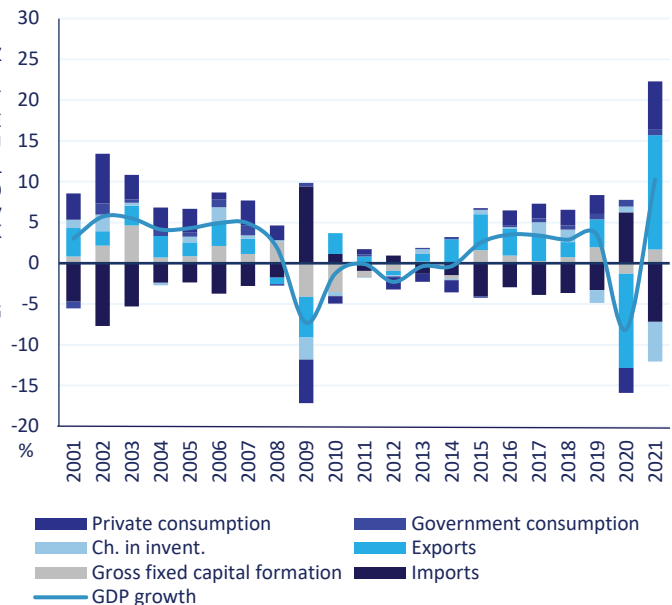
Until the GFC of 2008 Croatia enjoyed relatively strong economic growth which, however, proved to be unsustainable. During the 2002-2008 period, real GDP per capita almost doubled, reaching 63 percent of the EU27 average (at PPS).<sup>1</sup> During this time, Croatia's real convergence with EU27 income levels was similar to that of most countries in CEE (Figure 1).<sup>2</sup> Growth, however, rested on debt-financed domestic demand. The main drivers of the expansion were capital investment and private consumption, while the contribution of exports was much lower than for peers in the CEE region (Figure 2). Investment largely took place in the non-tradable sectors, such as construction, retail, and the financial sector, with limited spillovers to overall productivity growth. The rise in consumption and investment was largely debt-financed, implying a decline in the saving rate and leading to a significant increase in the financial liabilities of households and firms. The rapid growth of domestic demand triggered an import surge, while export performance remained modest.

**FIGURE 1.**  
GDP per capita, percent of EU27 GDP per capita, in PPS



Source: Eurostat, World Bank staff calculations.

**FIGURE 2.**  
GDP growth and contributions to growth, percentage points



Source: Eurostat, World Bank staff calculations.

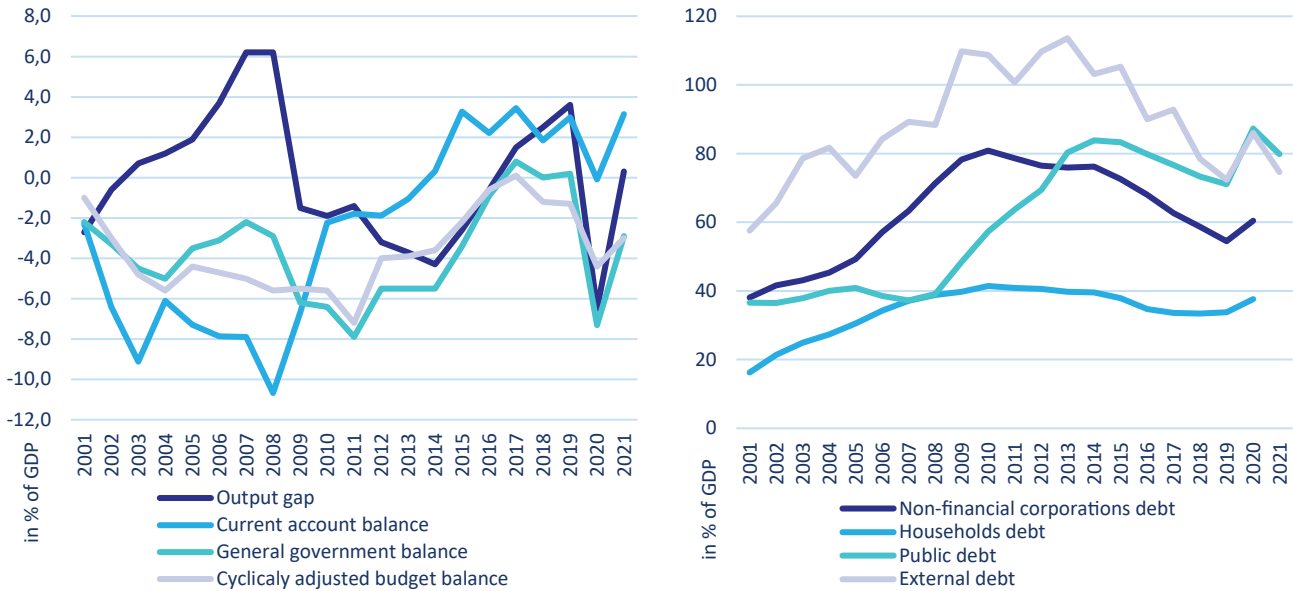
**Macroeconomic imbalances were on the rise and by 2008 the output gap exceeded 6 percent of potential GDP.** The current account deficit reached double digits by 2008, reflecting the deterioration in the goods account which was only partially mitigated by a surplus in the services account. Since the deficit was mainly financed by borrowing, it led to a strong increase in external and private sector debt (Figure 3). Government finances, at first glance, did not appear to be an issue (as the nominal deficit declined to below 3 percent of GDP and debt stabilized at below 40 percent of GDP), but the cyclically adjusted deficit was much higher reaching almost 6 percent of GDP by 2007.

<sup>1</sup> Refers to purchasing power standard, according to the Eurostat methodology.

<sup>2</sup> Throughout this report, we use CEE countries (Bulgaria, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia and Slovakia) as comparators to Croatia.

FIGURE 3.

## Macroeconomic imbalances – selected indicators



Note: Output gap is shown as a percentage of potential GDP.

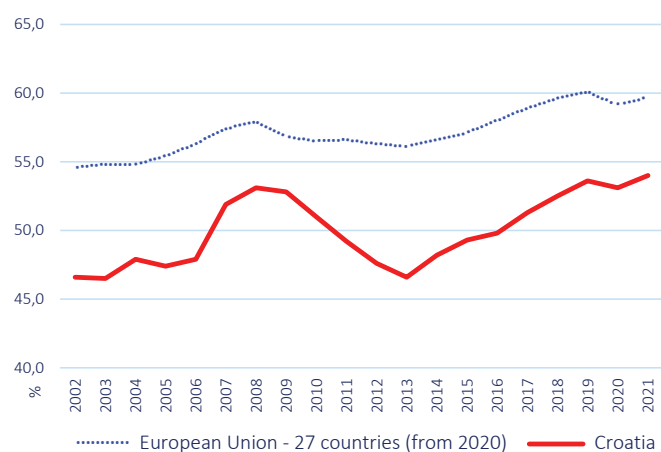
Source: EC, Eurostat, CNB, CBS.

## 1.2. A prolonged recession triggered by the GFC: 2009 – 2014

The GFC created a significant shock for the Croatian economy and triggered one of the longest recessions among all EU countries as macroeconomic imbalances unwound. Borrowing costs increased, capital inflows dried up, and the economy was pushed into a vicious circle of a sharp contraction in employment, private sector illiquidity, and eroding business and consumer confidence. This led to a sharp fall in investment and private consumption. While most CEE countries experienced a relatively rapid rebound in economic activity, Croatia underwent a deep and prolonged recession that lasted for 23 quarters, by far the longest among CEE countries and the second-longest in the EU after Greece. The six-year-long recession reduced Croatia's output by around 12 percent and investment by more than 30 percent. In contrast, the average loss in output in the overall CEE region, excluding the Baltic countries, was around 7 percent, with Poland not even experiencing a downturn. Although Estonia, Latvia, and Lithuania recorded much stronger downturns than Croatia, they returned much faster to their pre-crisis output levels. Overall, lackluster economic activity led to a reversal of the convergence process, and in 2014 Croatia's GDP per capita relative to the EU27 was still 4 percentage points below its peak in 2008. In contrast, all other countries in the CEE region (except Slovenia) continued to converge towards the average EU27 level of income (Figure 1).

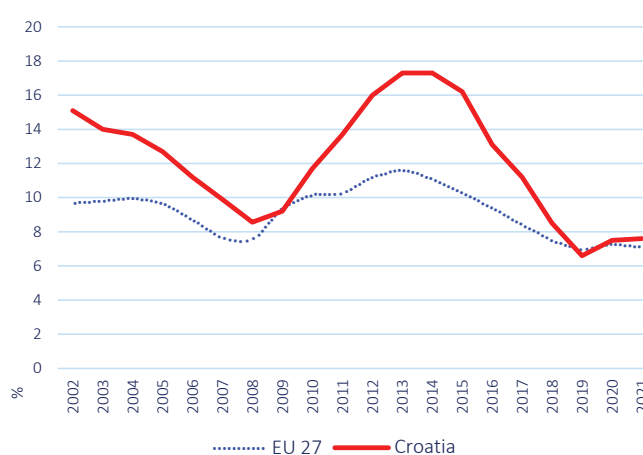
The labor market in Croatia was considerably affected by the GFC. Most employers reacted to unfavorable macroeconomic developments by reducing their workforce, rather than shortening working hours or adjusting wages. At the national level, wages continued to increase throughout the crisis, albeit at a much slower pace compared to the pre-crisis period. As a result, employment declined by almost 200,000 or 10 percent between 2009 and 2014, significantly more than in peer countries owing to the longer duration of the recession. This led to a surge in unemployment, which doubled to more than 17 percent by 2014, the third-highest rate in the EU after Greece and Spain (Figure 4 and Figure 5). The crisis also had a pronounced negative effect on the young, whose unemployment rate reached 50 percent, again one of the highest in the EU. The poverty rate, measured at US\$5.5/day at PPP 2011, increased from 4.7 percent in 2009 to 7.3 in 2013.

**FIGURE 4.**  
Total employment



Source: Eurostat.

**FIGURE 5.**  
Unemployment rate



Source: Eurostat.

### 1.3. Sustained and robust growth on a more solid footing only temporarily derailed by the COVID-19 pandemic: 2015 – 2021

**A more favorable external environment, along with the positive effects of EU accession in 2013, helped to reignite growth in the 2015-2019 period and reduce unemployment.** While average GDP growth was relatively modest, averaging slightly above 3 percent, the growth structure improved compared to the pre-GFC period, shifting from debt-financed domestic demand toward more export-led growth. Exports performed strongly, supported by record-high tourist seasons and a recovery of merchandise exports, as Croatian firms integrated into European value chains and increased their market shares after EU accession (Ranilovic 2017). At the same time, the rise in domestic demand was built on more solid foundations than before the crisis. Private consumption was underpinned by favorable labor market developments and income tax cuts, while at the same time, households deleveraged. Nevertheless, in 2018 and 2019, non-housing credit loans started to pick up again (Figure 6). Private investment also recorded solid growth during the recovery period, accompanied by significant corporate deleveraging. Government investment slowly recovered following the absorption of EU funds and fiscal consolidation (Figure 7). The economic recovery also led to favorable labor market developments. The employment rate jumped from 56 percent in 2013 to 66 percent<sup>3</sup> in 2019, driven by the recovery of manufacturing, tourism, and construction. Nevertheless, Croatia also experienced large migration outflows to more developed EU countries (see Box 1). These developments collectively led to a sharp drop in the unemployment rate, from 17.3 percent in 2014 to 6.6 percent in 2019.

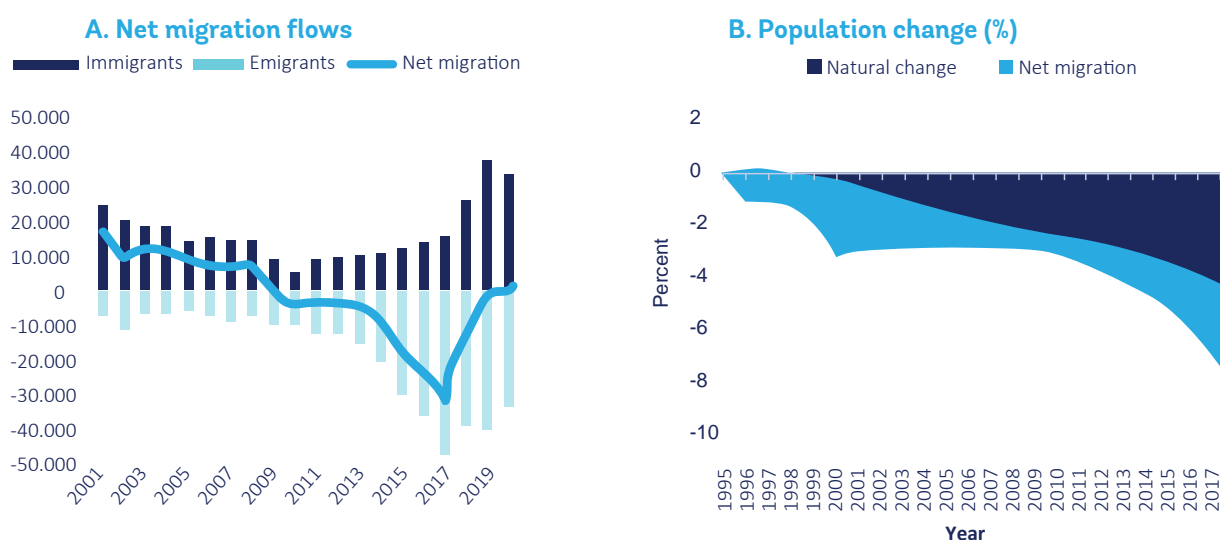
<sup>3</sup> For the age 15-74.

## BOX 1.

## An overview of Croatian emigration<sup>4</sup>

Croatia has seen an increase in emigration since EU accession in 2013. According to data from the Croatian Bureau of Statistics, around 70,000 individuals left the country in net terms between 2016 and 2020, which is equivalent to a city of the size of Zadar (Figure 1a), but true numbers seem to be much higher. Draženović, Kunovac, and Pripuzić (2018), using data from national statistical offices of EU destination countries to approximate the size of migration flows coming from Croatia, find that between 2013 and 2016 roughly 230,000 people left Croatia to core EU countries (a number 2.6 times higher than official Croatian statistics). Official estimates tend to underreport emigration because they are based on self-reporting by emigrants who have little incentive to do so as the process is bureaucratic and is associated with the loss of domestic social security benefits.

**BOX 1. / FIGURE 1.**  
**Net migration flows and population change**



Source: Croatian Bureau of Statistics and Eurostat.

The sociodemographic composition of Croatian emigrants has evolved in recent years. Up to 2010, men represented 46.7 percent of total emigrants, but, since EU accession, their share increased to 53 percent. Recent emigration flows present a high incidence of young and prime-age groups; emigrants between 15 and 44 years of age account for 56 percent of total migrants, compared to only 28 percent in 2010 (Figure 2b). Economic migrants tend to be younger than forcibly displaced populations (Cortes 2004), and much of the latter group stay abroad for a longer time or never return. Limited data availability makes it difficult to analyze the educational profile of emigrants, however, more recent emigrants after EU accession seem to have slightly lower education levels (Župarić-Iljić 2016). Still, the emigration of qualified professionals—particularly health workers—has been highlighted as a potential concern (Gruber et al. 2020). Between 2013 and 2018, a yearly average of 136 doctors and 289 nurses emigrated to other EU countries, a drain of 1 percent of the stock of doctors per year (Regulated Professions Database, European Commission, 2020). However, these outflows have been compensated by a more rapid increase in new cohorts of medical doctors, lifting the stock in the country from 299 per 100,000 inhabitants in 2012 to 344 in 2018.

<sup>4</sup> This Box largely draws from the report: Bossavie, Laurent; Garrote-Sánchez, Daniel; Makovec, Mattia; Özden, Çağlar (2022). Skilled Migration: A Sign of Europe's Divide or Integration? Washington, DC: World Bank.



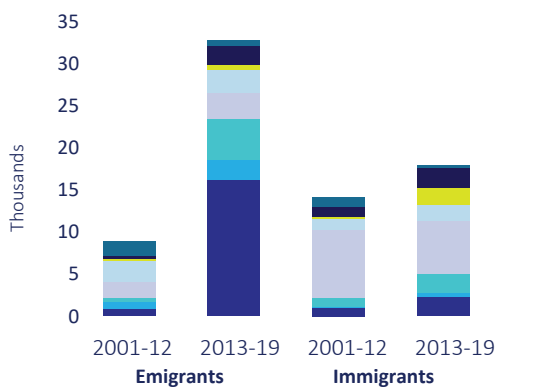
Different studies show that EU accession has been at the forefront of determinants of the acceleration in migration outflows (Draženović, Kunovac, and Pripužić 2018; Župarić-Ilijć 2016). Entry into the single market and the subsequent freedom of movement have allowed many Croatians to take advantage of the large income differentials with more advanced EU countries. Further economic factors such as the global financial crisis that severely hit the Croatian economy and high youth unemployment—which at 50 percent in 2013 was the third highest in the

EU—have also fueled emigration flows (Župarić-Ilijć 2016), particularly among the youth. In a survey of Croatians in Germany, Jurić (2017) finds that noneconomic factors have also had an important role in emigration decisions. Among them, demographics and the prevalence of corruption in the country are frequently cited (Draženović, Kunovac, and Pripužić 2018). To curb some of the outflows, the government has started to address some of the push factors, however, given the large income differentials in the EU, it is difficult to successfully attract emigrants back to the country.

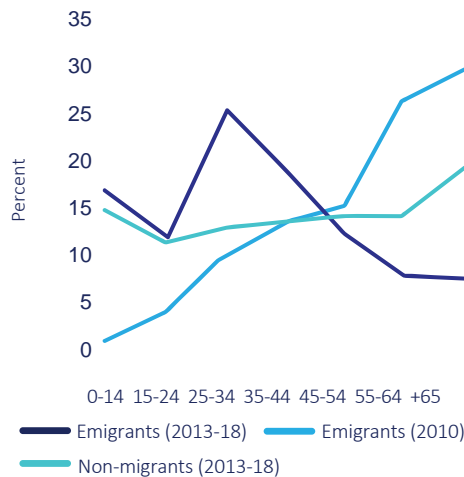
**BOX 1. / FIGURE 2.**

**Immigration and emigration trends in Croatia and age composition of emigrants**

**A. Annual immigration and emigration flows**



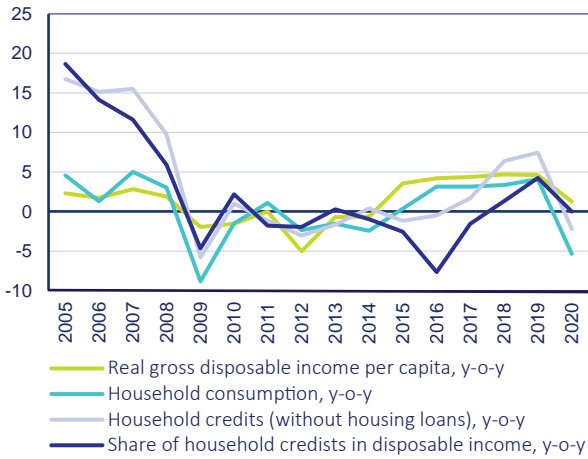
**B. Age structure of Croatian emigrants (%)**



Note: EU = European Union.

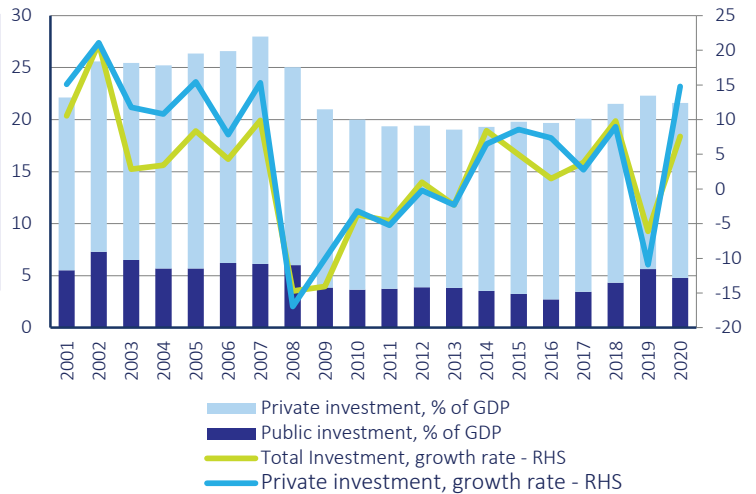
Source: Immigration and emigration flows: Immigrant and emigrant population to/from Croatia, Croatian Bureau of Statistics, [https://www.dzs.hr/default\\_e.htm](https://www.dzs.hr/default_e.htm). Demographic profile of emigrants (2013–18): Emigration (database), Eurostat, European Commission, reference years 2013/18, Emigration by age group, sex and country of birth [migr\_emi4ctb], [https://ec.europa.eu/eurostat/en/web/products-datasets/-/MIGR\\_EMI4CTB](https://ec.europa.eu/eurostat/en/web/products-datasets/-/MIGR_EMI4CTB). Demographic profile of emigrants in 2010: DIOC (Database on Immigrants in OECD and Non-OECD Countries), reference years 2010/11, Organisation for Economic Co-operation and Development, <https://www.oecd.org/els/mig/dioc.htm>. Demographic profile of nonmigrants: Population (database), Eurostat, European Commission, reference years 2013/18, Population on January 1, by age group and sex [demo\_pjangroup], <https://ec.europa.eu/eurostat/web/population/overview>.

**FIGURE 6.**  
Private consumption financing



Source: CNB, CBS, CPII, Eurostat, World bank staff calculation.

**FIGURE 7.**  
Investment developments



Note: Deflator for the public investment is estimated at the same value as for the total investment.

Source: CBS, Eurostat, WB staff calculation.

**While exports of goods and services became the single most important growth driver, their GDP share and technological complexity remain well below peers.** Croatia has the smallest goods export sector among all CEE countries. Despite favorable developments in the pre-pandemic period and during 2021, the average share of exports of goods remains almost half the size of the CEE average. Furthermore, while the share of high-technology manufacturers<sup>5</sup> in Croatia's export basket increased compared to the pre-GFC period, following the rise in export of pharmaceuticals, power generating machinery and turbines, the share of medium-technology manufactures declined, reflecting the collapse of Croatia's shipbuilding industry that used to be one of the strongest export sectors. Overall, the share of high- and medium-technology sectors combined remained broadly constant and Croatia (together with the Baltic countries) remained at the bottom in the CEE in terms of the share of high- and medium-technology exports.

**Growing exports helped the economy to narrow the gap with EU standards but convergence remains relatively slow.** At 70 percent of the EU27 GDP per capita in 2021 (in PPP), Croatia remains one of the least developed countries in the EU. The recovery from the GFC in Croatia started much later and was significantly weaker than in other CEE countries. As a result, the process of real convergence only resumed in 2015 and it took Croatia a full decade to reach the 2008 level of output. In comparison, Lithuania, which had a similar starting position as Croatia in 2008, had already surpassed its pre-GFC level of development in 2011, and by 2021 had reached 88 percent of the average EU27 level of income. More resilient and stronger economic growth was also recorded in most of the other countries in the region.

<sup>5</sup> *High-technology manufactures* include data processing and telecommunications equipment, television sets, transistors, turbines, power generating equipment, pharmaceuticals, aerospace, optical and instruments, cameras. *Medium-technology manufactures* include passenger vehicles and parts, commercial vehicles, motorcycles and parts, synthetic fibers, chemicals and paints, fertilizers, plastics, iron and steel, pipes and tubes, engines, motors, industrial machinery, pumps, ships, watches. *Low-technology manufactures* include textile fabrics, clothing, footwear, leather manufactures, travel goods pottery, simple metal structures, furniture, jewelry, toys, plastic products. *Natural resource-based manufactures* include prepared meats/fruits, beverages, wood products, vegetable oils, base metals (except steel), petroleum products, cement, gems, glass.

**The COVID-19 pandemic caused the deepest recession in the country's history, temporarily derailing Croatia's growth path.** In 2020 the country was hit hard by the pandemic and the imposition of social distancing restrictions, with real GDP contracting by 8.1 percent, which was one of the worst recessions in the EU. The relatively sharp decline can primarily be attributed to Croatia's large reliance on tourism, an industry that bore the brunt of the COVID induced recession. The country also suffered from two earthquakes in 2020 with significant damage to infrastructure.



**However, the economic rebound was quick and strong.** By the second half of 2021, Croatia reached its pre-pandemic levels of economic activity, supported by the reopening of the economy and fiscal and monetary support schemes. Furthermore, easing COVID-19 outbreaks during summer months, a good uptake of vaccines, and the country's proximity to its main tourist originating markets resulted in a significant increase in tourist arrivals. Croatia was also less affected by the global supply chain bottlenecks given its export structure which together with the strong global recovery led to a marked rise in its exports of goods.

**Like the rest of the world, Croatia too has been impacted by the spillovers from the war in Ukraine.** Although Croatia's dependence on Russian gas is less than in other CEE countries, it has been impacted by increasing commodity prices, disruptions to trade and financial flows, and higher uncertainty (see Box 2).



## BOX 2.

## The economic implications of the war in Ukraine and Croatia's medium-term growth prospects

The Russian invasion of Ukraine has created new challenges for Croatia, exacerbating existing fragilities following the COVID-19 pandemic. Consumer price inflation, which was gradually rising during 2021 due to higher energy and food prices, was further amplified by the Russian invasion, as the prices of natural gas, crude oil, and food strongly increased (World Bank 2022). As Croatia is a net commodity importer this led to an adverse terms of trade shock and had a negative impact on real incomes. Moreover, although the country's direct trade exposure to Russia and Ukraine is limited, the conflict brought a new set of bottlenecks for the EU and had a negative impact on consumer and business confidence, acting as a drag on economic activity. The COVID-19 pandemic also remains a significant driving force of economic disruption and inflation, as renewed restrictions in China exacerbated existing supply chain disruptions. On a positive note, the prospects for further recovery of tourism due to the reopening of the EU are expected to continue providing significant growth momentum for Croatia, especially for tourism-intensive service sectors. Croatia is also one of the largest beneficiaries of EU funds, which should strongly underpin growth over the medium term and fiscal policy still has space to provide economic support.

Against this backdrop, relatively robust GDP growth is still expected over the medium-term, but downside risks are predominant. Under the assumption that social distancing restrictions will not be required, and geopolitical tensions will ease, real GDP could on average increase by 3.5 percent over 2022-2024.

**Investment activity underpinned by the inflow of EU funds is set to pick up strongly in 2022 and moderate thereafter, however, this primarily depends upon the realization of government investment plans.**

Exports of goods and services are projected to continue providing a strong positive contribution to growth, but the pace of growth is expected to ease as tourism returns to pre-crisis levels and foreign demand moderates. Personal consumption growth might remain around 2.5 percent amid rising employment and wages. Furthermore, fiscal policy remained supportive as the government adopted a package of measures worth around 1 percent of GDP in response to higher inflation at the start of

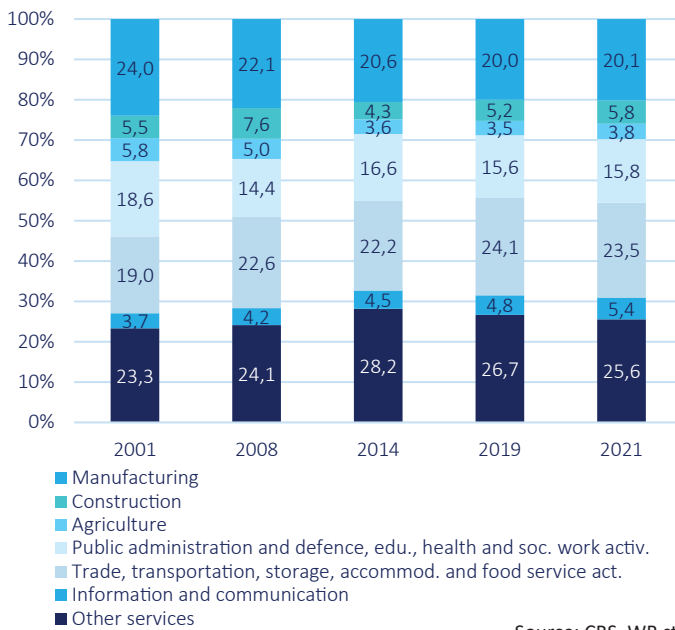
2022. However, the positive effects of an increase in labor income on personal consumption will be largely offset by higher inflation. The pick-up in inflation in 2022 is, however, expected to be transitory as global supply bottlenecks and commodity price increases are expected to ease in 2023 and financial conditions should gradually tighten, following global monetary policy normalization.



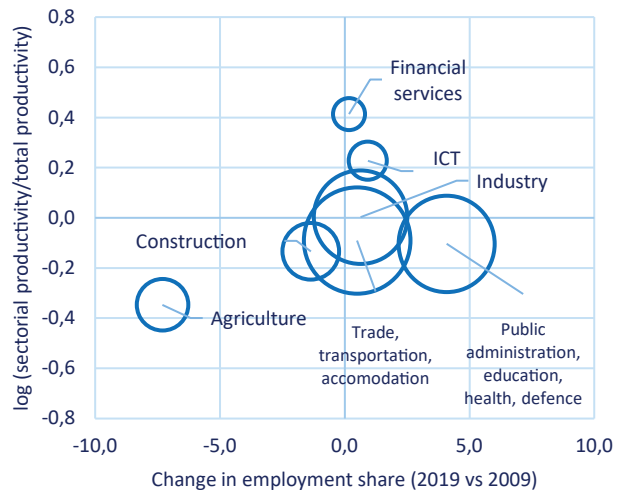
## 1.4. Modest structural transformation in two decades

**On the supply side, the economy has undergone only a modest structural transformation since 2002.** The share of services in total value added (VA) rose from 65 percent in 2002 to around 71 percent in 2019 (albeit with a decline in public sector services) while the share of industry and agriculture decreased. Agriculture, construction, and manufacturing declined from 6, 5.5, and 24 percent of VA, respectively, in 2001 to 3.5, 5.2, and 20 percent (Figure 8). Manufacturing, construction, and trade have been the key sectoral drivers of variations in VA, with large contributions to growth prior to the crisis and a sharp contraction during 2009-14. The recovery after 2015, in contrast, was broad-based across sectors, with a surge in export-oriented industries, and a recovery in trade and hotel and restaurant services, boosted by a robust tourism performance. The employment structure also changed and some adjustments to higher productivity sectors took place (Figure 9 and see chapter 3).

**FIGURE 8.**  
Gross value-added composition, percent



**FIGURE 9.**  
Sectoral productivity and change in employment structure



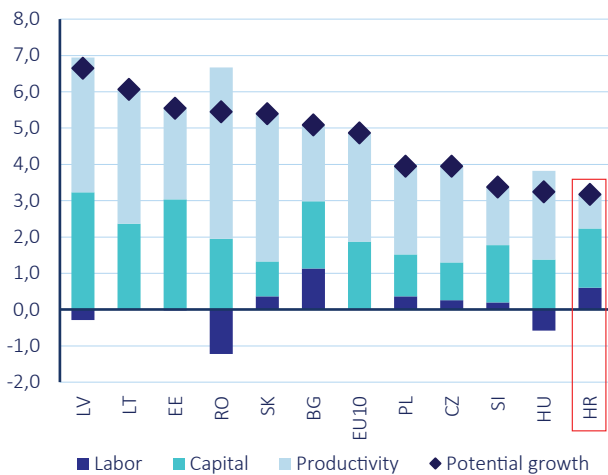
Source: CBS, WB staff calculations.

**This modest transformation has not led to rise in overall productivity, resulting in Croatia's potential growth being the second lowest among CEE peers and with the smallest contribution of productivity.<sup>6</sup>** Despite relatively high growth rates in the 2002-08 boom period, potential growth averaged 3.2 percent, compared to 4.9 percent in the CEE region, the lowest rate after Hungary (Figure 10). This largely stemmed from sluggish productivity growth, measured as TFP, which made the smallest contribution to potential growth in Croatia, at only 0.9 percentage points on average, compared to 3 percentage points in the CEE region.

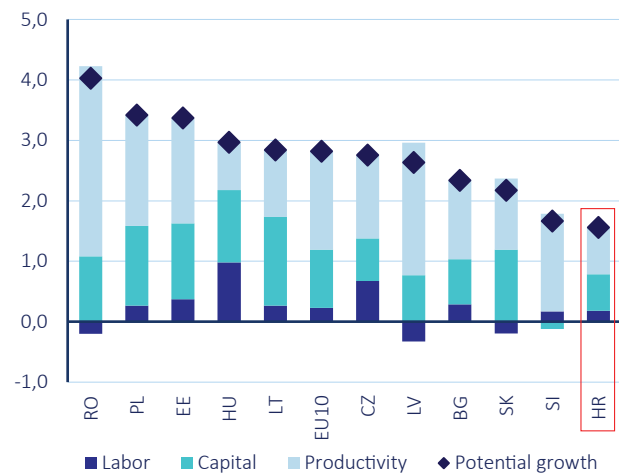
<sup>6</sup> Potential output measures the level of output that fully utilizes available factors of production and is consistent with stable inflation. The output gap is the difference between current and potential output levels and helps distinguish cyclical and trend components of GDP growth. In the note, potential output estimates use the European Commission's production function approach that factors in (i) the capital stock of the business sector; (ii) a measure of potential labor input based on the NAIRU estimate, the working age population and the trend labor force participation rate; and (iii) a measure of trend total factor productivity (TFP). For the methodology, see [http://ec.europa.eu/economy\\_finance/publications/economic\\_paper/2014/pdf/ecp535\\_en.pdf](http://ec.europa.eu/economy_finance/publications/economic_paper/2014/pdf/ecp535_en.pdf).

By contrast, the contribution of capital accumulation was broadly in line with other countries in the CEE region and the labor contribution was above the average of peer countries. Potential growth has remained low even in the recent recovery. In the period 2015-2019, according to EC estimates, the growth rate of potential output was only 1.6 percent per year on average, the lowest among regional peers and about half of the average growth rate for the CEE region (Figure 11). Although the TFP contribution improved compared to the pre-crisis period and became the leading contributor of growth, it is still among the lowest when compared to the regional peers, while labor is increasingly becoming a constraint for Croatia's growth potential (chapter 2).

**FIGURE 10.**  
Potential Growth (Contribution to potential growth, percentage points), 2002-2008 average



**FIGURE 11.**  
Potential Growth (Contribution to potential growth, percentage points), 2015-2019 average

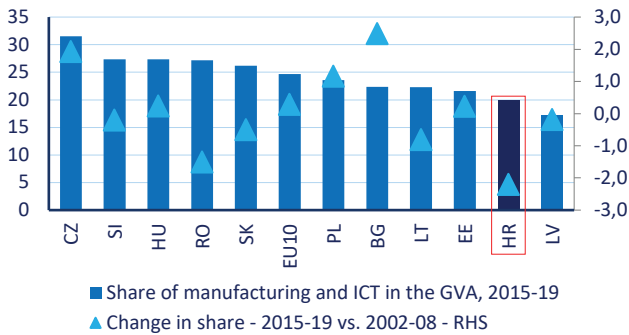


Source: EC, WB staff calculations.

**Relatively poor quality of institutions and inefficient business regulations also limit Croatia's productivity growth.** The 2019 Global Competitiveness Index highlights institutions as one of the main areas where Croatia considerably lags frontier economies. Reforms reducing institutional rigidities and improving the business environment can thus help free-up a large untapped growth potential, reducing barriers to entry and promoting dynamism. Also, empirical research suggests that countries with better institutions have relatively larger and more dynamic service sectors. And since services are important intermediate inputs into manufacturing, productivity in the latter depends on the performance of the services sector.

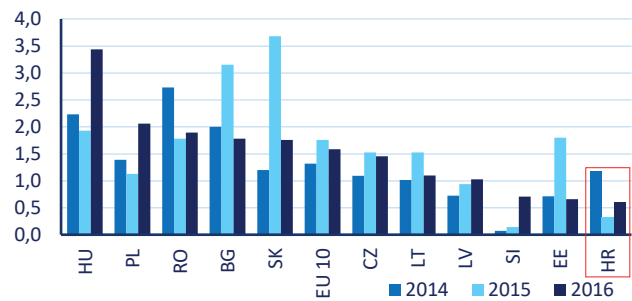
**The comparably low potential growth can be partly explained by the composition of the economy, while weak within-sector productivity is also a key factor.** The Croatian economy has a higher share of the services sector and of low technology services, like tourism, distribution industries, and construction, and a lower share of ICT and manufacturing compared to the CEE average (Figure 12). In addition, productivity within sectors in Croatia is much weaker than in Germany, which accounts for much of the weakness in overall productivity growth (see chapter 3). Furthermore, R&D spending remains low, and innovation capacity is weak. Croatia has made no progress towards reaching its R&D spending target for 2020, while most of its peers have not only progressed but have set more ambitious targets. Poland, Slovakia, Hungary, and Lithuania, which were trailing or on par with Croatia's level of R&D spending in 2008, have now surpassed Croatia. Indirect innovation outcome indicators, such as scientific production, new trademarks, industrial designs, and patents, remain lackluster. Despite the recent recovery, Croatia's weakness in attracting greenfield FDI to manufacturing has persisted, resulting in the lowest greenfield investment within the CEE region.

**FIGURE 12.**  
Share of manufacturing and ICT in GVA



Source: EC, WB staff calculations.

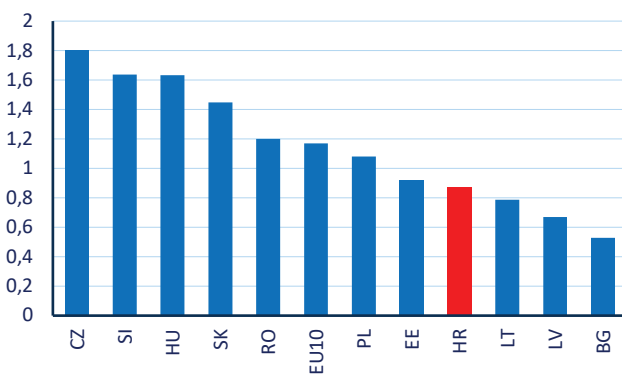
**FIGURE 13.**  
Investment capital pledged in greenfield projects by country, % of GDP



Source: FDI in Central, East and Southeast Europe: Recovery amid Stabilizing Economic Growth, WIIW, FDI markets, Eurostat, WB staff calculations.

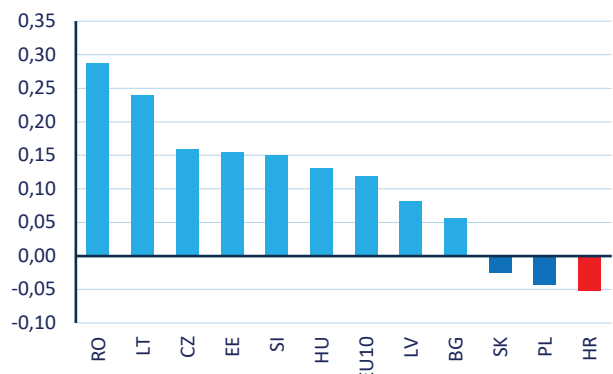
Furthermore, Croatia's economic complexity remains low compared to most CEE peers. The Economic Complexity Index (ECI) measures the knowledge intensity of a country's exports looking at export diversification and export products' ubiquity. For example, countries with high ECIs export many goods that are of low ubiquity and that are produced by highly diversified countries, indicating that these are diverse and sophisticated economies. In 2019, Croatia ranked 30th out of 133 countries included in the analysis and has lower economic complexity compared to the average of the CEE region (Figure 14). Also, Croatia recorded the largest decline in economic complexity in the period between 2008 and 2019 (Figure 15). Furthermore, while the share of high-technology manufactures<sup>7</sup> in Croatia's export basket has been rising for the last four years, mainly due to the strong rise in exports of pharmaceuticals, power generating machinery, and turbines, the share of medium-technology manufactures has fallen, reflecting the collapse of Croatia's shipbuilding industry that used to be one of the strongest export sectors. Overall, Croatia (together with the Baltic countries) is at the bottom of the CEE, in terms of the share of high- and medium-technology exports (Figure 16).

**FIGURE 14.**  
Economic complexity index rank, 2019



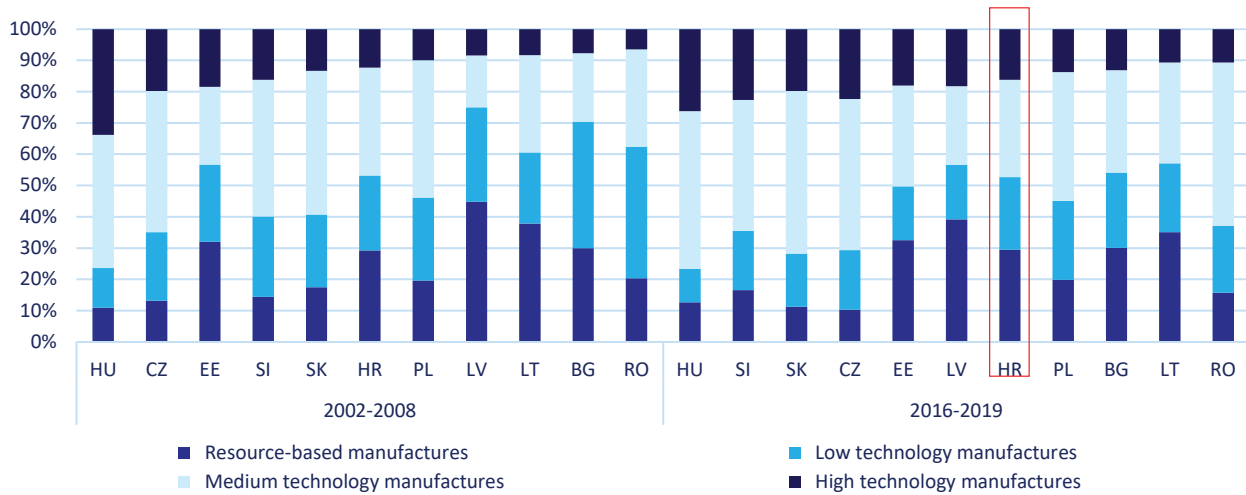
Source: UNCTAD, WB staff calculation.

**FIGURE 15.**  
Change in Economic Complexity Index, 2019 vs 2008



<sup>7</sup> *High-technology manufactures* include data processing and telecommunications equipment, television sets, transistors, turbines, power generating equipment, pharmaceuticals, aerospace, optical and instruments, cameras. *Medium-technology manufactures* include passenger vehicles and parts, commercial vehicles, motorcycles and parts, synthetic fibers, chemicals and paints, fertilizers, plastics, iron and steel, pipes and tubes, engines, motors, industrial machinery, pumps, ships, watches. *Low-technology manufactures* include textile fabrics, clothing, footwear, leather manufactures, travel goods pottery, simple metal structures, furniture, jewelry, toys, plastic products. *Natural resource-based manufactures* include prepared meats/fruits, beverages, wood products, vegetable oils, base metals (except steel), petroleum products, cement, gems, glass.

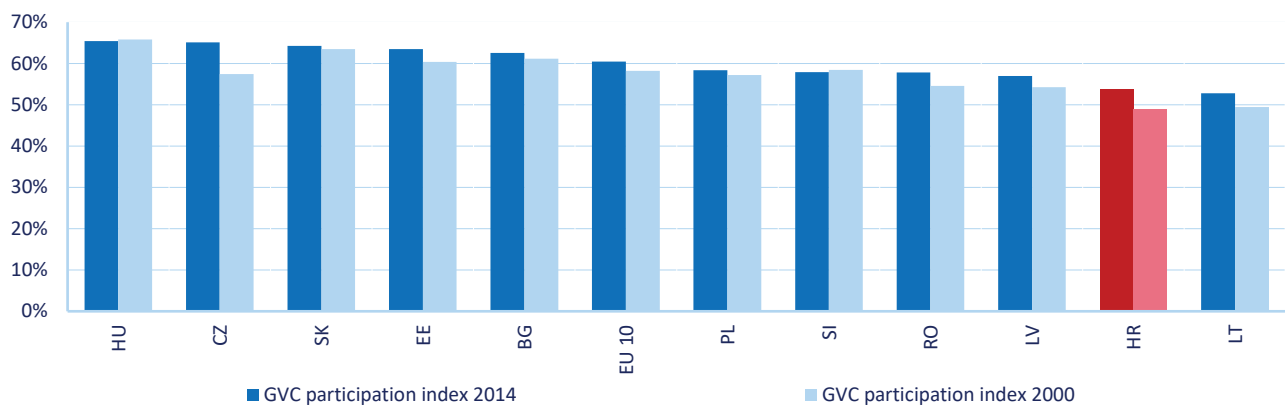
**FIGURE 16.**  
**Technological complexity of exports**



Source: UNCTAD, WB staff calculations.

**GVC participation is one of the lowest in the region.** While Croatia’s participation in GVCs has improved, it remains low compared to peers (Figure 17).<sup>8</sup> One reason for Croatia’s low level of GVC integration is the absence of an automotive sector. Croatia missed much of the foreign direct investment from Western Europe and Asia that entered the CEE region and spurred the development of the automobile manufacturing industry. Nonetheless, rising trade with CEE countries could point to increasing participation in GVC nodes in the periphery of the EU, while Croatia’s emerging success in several industrial machinery and electronic products, where sourcing products across borders (or longer distances) is common, reveals the potential for entering new GVCs. Shifts in global trade patterns as a result of COVID-19 and the war in Ukraine, with a potential increase in near-shoring, could provide an opportunity for Croatia to further participate in GVCs.

**FIGURE 17.**  
**GVC participation index, 2000 and 2014**



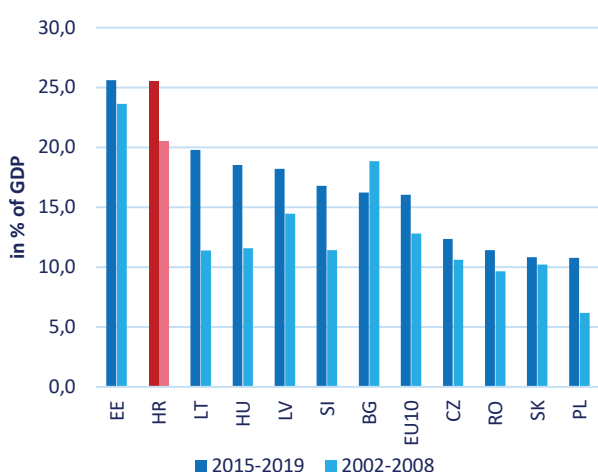
Source: Croatia in Global Value Chains, Perusko, Kovac, Josic, CNB (2018), WB staff calculations.

<sup>8</sup> Perusko, Kovac, Josic (2018)

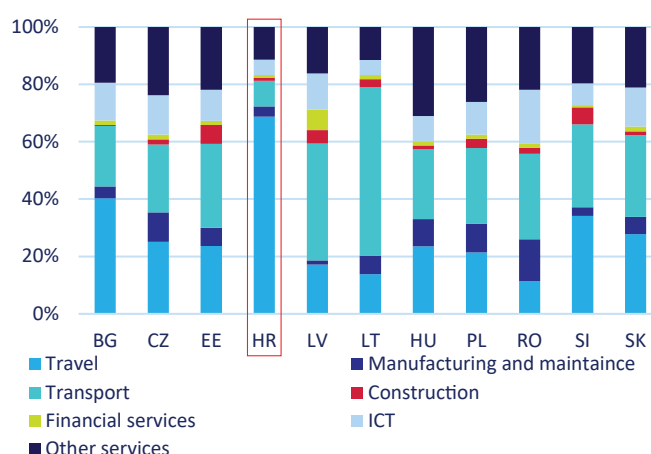


**The dominance of the tourism sector is also one of the reasons why the sophistication of Croatia’s services exports remains largely behind that of peers.** Croatia has a large services export sector, reflecting a strong tourism industry. The share of export of services in GDP in Croatia is the largest among CEE countries (Figure 18), and tourism accounts for around 70 percent of total exports of services. Exports of other services, including telecommunication and computer services, construction and financial services and insurance, have risen over recent years and have reached close to 20 percent, while the share of transport and manufacturing services dropped. The strong performance of the tourism sector is reflected in the marked increase in the revealed comparative advantage (RCA) index for personal and recreational services (which includes tourism), while the RCA indices for other services sectors generally associated with higher value added, such as financial, telecom, or other business services, have remained stagnant. While a few countries have similarly high total services exports as a share of GDP, in no other country in the CEE region are they less diversified than in Croatia. This weak diversification of Croatia’s services export is also reflected in the lowest share of ICT, transport and other business services in the CEE region (Figure 19).

**FIGURE 18.**  
Exports of services, percent of GDP



**FIGURE 19.**  
Exports of services, by service group, 2015-2019



Source: EC, Eurostat.

**Overall, growth in Croatia is primarily constrained by factors that limit productivity growth, compounded by a declining contribution of labor and weak institutions.** This CEM focuses on factors enhancing and impeding firm-level productivity growth in Croatia as well as the key institutional weaknesses in the country. Labor is not included in this analysis (as discussed below).



Source: Shutterstock/Photo by Rudy Balsino / 607609966 / Dubrovnik

## 1.5. Structure of the report

**The report is structured in the following manner.**

Chapter 2 uses the World Bank's Long-Term Growth Model (LTGM) to estimate the country's growth potential until 2050 and presents several scenarios for Croatia that can help policymakers to design reforms that can have the highest growth dividend.

Chapter 3 examines Croatia's recent productivity performance using both aggregate and firm-level data. It first considers aggregate productivity in Croatia compared to the frontier and Croatia's regional peers. It then investigates the evolution of the different channels of productivity growth in both manufacturing and services sectors to understand their performance and offers possible policy actions that could lead to reduction of the gap compared to the frontier.

Finally, chapter 4 provides novel insights on the selected institutions related to firms' growth and productivity and informs possible reforms. The selection of the institutions for detailed analysis has been based on the international benchmarking exercise as well as the outcome of the productivity analysis from chapter 3.

**The report is not exhaustive in terms of the reforms that were identified as having potentially large growth effects in the long run, like improving the quality of pre-tertiary education, increasing the labor-force participation rate or improving the efficiency of the justice sector.**

The World Bank has either finalized or is currently working on analytical reports related to the labor market, education sector, and the pension system with potential reform actions for policy makers that could impact the quality and quantity of human capital in Croatia. For example, the report Boosting Croatia's Economic Resilience (FY19) took a deep dive into Croatia's labor market and suggested how the country's labor market regulation could be adjusted. The report also analyzed in detail the bankruptcy and liquidation procedures in Croatia and suggested changes to improve efficiency.

Furthermore, the report on Skilled migration (FY21) showed that the benefits of emigration for origin countries depend critically on whether these regions manage to capitalize potential productivity-enhancing knowledge transfers through circular and return migration and discusses possible policy responses.

The Adequacy of Pensions report (FY20) produced as a support for drafting Croatia's National Development Strategy 2030 discussed longer working lives as the main way to increase labor supply and improve adequacy of pensions in the long run. Finally, the project Croatia: towards sustainable, equitable and efficient education project (FY21) supports the introduction of the whole day school model in Croatia that should significantly improve the learning outcomes in the pre-tertiary education system in Croatia.

The agenda related to the justice sector is very broad and such analysis would be beyond the scope of this report. However, a good overview of the main issues of the sector with recommendations for improvement is given in the justice sector policy note prepared as a support for drafting Croatia's National Development Strategy 2030 (FY20).



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## CHAPTER 2

# Revitalizing long-term growth

While Croatia has become more resilient, its fundamental drivers of growth are concerning. A key risk is that Croatia is unable to grow at sufficient rates to enable its income per capita to catch up with its EU peers. This chapter uses the World Bank's Long-Term Growth Model (LTGM) to examine how the key drivers of growth will evolve over the next 30 years. While growth over the next five years might remain relatively robust thanks to strong investment supported by EU funds, beyond this growth is expected to decrease substantially due to worsening demographics and a fall in investment. However, the chapter shows that a reform package has the potential to sharply lift growth, with reforms to boost productivity paying the highest dividend. This would help boost GDP growth and enable income levels to broadly converge to the EU27 average.



**This chapter analyzes a range of scenarios for Croatia’s potential economic growth over the next three decades using the LTGM.** The LTGM and its extensions are Excel-based tools designed to analyze future long-term growth scenarios (see Box 3).<sup>9</sup> The tools are intended to be simple, transparent, and have low data requirements. The LTGM is a tool that aggregates assumptions on growth fundamentals—the *drivers of growth*—such as investment, education, and productivity—to produce a trajectory for future growth.

**The chapter is divided into two sections.** Section 1 presents the “business-as-usual baseline” where the growth drivers are assumed to follow their historical or recent trends. This section also provides a decomposition of growth and a discussion of the contribution of each driver. Section 2 generates new growth projections assuming that macroeconomic reforms would boost each growth fundamental to levels observed in top-performing peer countries. It discusses the income convergence to Europe under seven different scenarios and finally concludes.

### BOX 3.

## The World Bank’s Long-term Growth Model (LTGM)

The LTGM is a simple and transparent Excel-based tool designed to analyze long-term growth scenarios, building on the celebrated Solow (1956) Swan (1956) growth model. The LTGM combines assumptions on growth fundamentals—the *drivers of growth*—such as investment, education, and productivity—to produce a trajectory for future growth. This box provides a brief overview of the LTGM Public Capital Extension (LTGM-PC), which allows for a decomposition of physical capital into public and private portions. More specifically, GDP is given by a simple Cobb-Douglas production function:

$$GDP_t = A_t(K_t^G)^\phi(K_t^P)^{1-\beta-\phi}(h_tL_t)^\beta \quad \text{Equation 1}$$

where  $A_t$  is the total factor productivity (TFP),  $K_t^G$  and  $K_t^P$  denote public and private capital stocks, and  $\phi$  is the usefulness of public capital for production.  $h_tL_t$  is effective labor used in production, which is decomposed into  $h_t$ , human capital per worker, and  $L_t$  the labor force. The labor force is further decomposed into  $L_t = \varrho_t\omega_tN_t$ , where  $\varrho_t$  is the participation rate,  $\omega_t$  is the working-age population to total population ratio, and  $N_t$  is total population. The parameter  $\beta$  is the labor share. The stock of public capital follows  $K_{t+1}^G = (1 - \delta_G)K_t^G + I_t^G$ , where  $I_t^G$  denotes public investment and  $\delta_G$  is the depreciation rate. An analogous expression determines the dynamics of private capital.

One can express GDP in per capita terms by dividing Equation 1 by  $N_t$ . After some algebraic manipulations, we can write GDP PC growth in terms of the *drivers of growth*:

$$g_{t+1}^{GDPPC} \approx g_{t+1}^A + \beta(g_{t+1}^h + g_{t+1}^\varrho + g_{t+1}^\omega) + (1 - \beta - \phi) \left[ \frac{I_t^P}{GDP_t} / \frac{K_t^P}{GDP_t} - \delta^G - g_{t+1}^N \right] + \phi \left[ \frac{I_t^G}{GDP_t} / \frac{K_t^G}{GDP_t} - \delta^P - g_{t+1}^N \right] \quad \text{Equation 2}$$

where  $g_{t+1}^X$  denotes the annual growth rate of variable X in period  $t + 1$ .

<sup>9</sup> For more information on the LTGM website. For a complete description of the LTGM-PC, see Pennings and Devadas (2018).

In the short and medium terms, TFP growth has the largest effect on growth: a 1 percentage point (ppt) increase in TFP growth ( $g_{t+1}^A$ ) leads to an exact 1ppt increase in GDP PC growth. A 1ppt increase in the growth of human capital, labor force participation, and working-age population ( $g_{t+1}^h, g_{t+1}^e, g_{t+1}^w$ ) increase GDP PC growth by  $\beta$  ppts. Population growth ( $g_{t+1}^N$ ) reduces GDP PC growth because it reduces capital per worker. Note that the effect of an increase in public (private) investment depends on the public (private) capital to GDP ratio. Hence, an investment-led growth strategy will become less effective over time, unless it is accompanied by reforms to other drivers that mitigate the increase of  $K_t^G / GDP_t$ .

In the long run, the effect of drivers of growth is amplified because they induce further capital accumulation. As a rule of thumb, a 1ppt increase in TFP growth would boost GDP per capita growth by  $1/\beta$  ppts, and there would be a one-to-one effect of  $g_{t+1}^h, g_{t+1}^e$  or  $g_{t+1}^w$ .

## 2.1. Business-as-usual scenario

**Under the business-as-usual scenario Croatia's GDP per capita growth will slowly fall from 2.6 to 1.1 percent by 2050.** The business-as-usual scenario in the LTGM measures the potential growth rate of the economy and assumes no major reforms or large economic shocks so that recent trends in the drivers of growth continue until 2050 (see Box 4). In the case of Croatia, this means that GDP per capita growth will reach 2.6 percent in 2025 but would then slowly decelerate over time, falling to just 1.1 percent in 2050 (Figure 20). The average per capita growth over the entire period is 1.6 percent which is below the typical long-term growth rates observed in countries with a similar level of development as Croatia is today (Figure 21).

**Income per capita in Croatia would reach around 80 percent of the EU27 average in 2025 and remain at that level until 2050.** In 2021, Croatia's per capita income stood at 70 percent of the average in the EU 27.<sup>10</sup> The baseline simulation projects that Croatia would catch up with the EU 27 relatively fast in the short term, reaching 80 percent by 2025. However, due to the economic slowdown after 2030, Croatia's relative income would stagnate at that level until 2050. The long-term growth slowdown arises from structural headwinds—such as an aging population and dwindling contributions from capital deepening—but also slower TFP and human capital growth.



<sup>10</sup> The average income in the EU27 is calculated as follows. For each country, we take the GDP per capita in PPS for 2019 from the Eurostat NUTS and update it to 2020 using the 2020 growth rate from the World Bank's WDI. We set the 2021-2050 values by applying the simulated growth rates from the UN's EU Ageing Report. As it reports only values for 2019, 2030, 2040 and 2050, it has been assumed that each year represents a 10-year moving average, i.e.: the 2030 value is the growth rate from 2025 to 2034, 2040 the value for 2035 to 2044, and so on.

## BOX 4.

## LTGM-PC: Summary of Assumptions for Croatia

This box provides a brief description of all parameters, initial conditions, and exogenous paths used to project the baseline growth path for Croatia with the LTGM-PC. Table 1 at the end of the box gives the numerical assumptions behind the scenario analysis presented in the chapter. Moderate reforms target the 50-75th percentile of the distribution of the EU27. If Croatia is already in this range, the variable remains on its baseline level. The ambitious reforms target other top-performing economies, especially in CEE.

**Parameters and initial conditions.** The labor share ( $\beta$ ) is set to 60 percent to match the average labor compensation in total income over the past 20 years from PWT. The parameter  $\phi$  is set  $\phi = 0.17$ , which is the default value for essential public infrastructure capital in the LTGM-PC. The initial public and private capital-to-GDP ratios are set to 0.9 and 2.1, respectively. These values are consistent at the aggregate level with PWT and AMECO, and with the IMF-FAD for the split between public and private. As public capital is mostly structures,  $\delta_G$  is set to 2 percent, the standard value for structure depreciation rate from PWT. The private capital depreciation rate is set to 7.8, residually defined to match the aggregate depreciation of 6 percent (PWT and AMECO).

**Drivers of growth under the baseline.** Baseline total factor productivity growth ( $g_{t+1}^A$ ) is projected to slow down from 0.6% in 2020 to 0.4% by 2050. The baseline TFP growth is set based on the LTGM TFP extension, which projects future TFP growth based on indicators of innovation, education, market efficiency, infrastructure, and institutions.<sup>11</sup> Human capital growth ( $g_{t+1}^h$ ) is set to decline from 0.3% in 2020 to 0.15% by 2050. This projection is based on the LTGM Human Capital extension that combines cohort-level data on the quantity and quality of education (including tertiary) to trace human capital over time, measured as units of productivity relative to a benchmark of full health and complete education (as in HCI).

Incorporating the UN's forecast of demographic trends for Croatia, the LTGM-PC sets baseline population growth ( $g_{t+1}^N$ ) to decelerate from -0.5 percent in 2020 to -0.8 percent by 2040; and the working-age population share ( $g_{t+1}^\omega$ ) to shrink from 64 percent in 2020 to 57 percent by 2050. The labor force participation rate ( $g_{t+1}^e$ ) is assumed to rise slowly from 67 in 2020 to 69 percent by 2050, as younger cohorts are expected to increase their participation relative to older cohorts affected by the socialist transition.

Finally, the baseline assumes that investment will converge to its historical average of 25 percent of GDP by 2030 and remain at that level until 2050. Based on IMF-FAD, the baseline assumes that public and private investment converge to 5 and 20 percent of GDP by 2030, respectively.

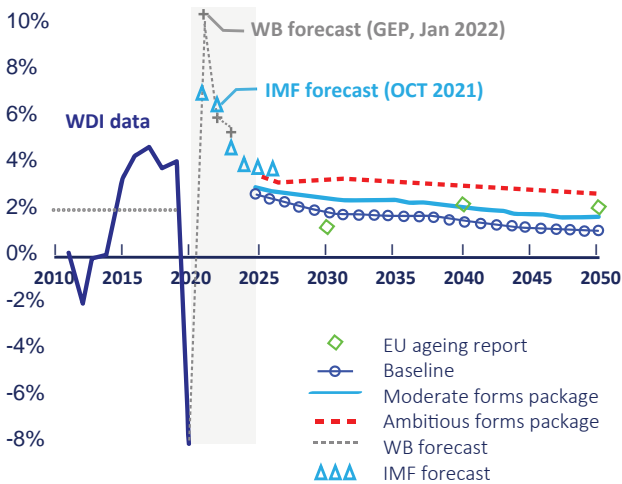
**TABLE 1: Overview of growth drivers under baseline and reform scenarios**

(1) Growth driver	(2) Baseline	(3) Moderate reforms	(3) Ambitious reforms
A. Private investment	20% of GDP	22% (75 <sup>th</sup> pct. of EU27)	24% (top CEECs)
B. Public investment	5% of GDP	=baseline	6% (top CEECs)
C. HC (pre-tertiary)	0.3→0.2%	=baseline	0.3→0.6%
Quality score	0.78	=baseline	0.87 (Top CEECs, Estonia)
Schooling rates	13.4 years	=baseline	13.9 yrs. (Top CEECs, Lithuania)
D. HC (tertiary)	0.3→0.2%	0.35→0.25%	0.45→0.3%
Attainment	37%	43% (50 <sup>th</sup> pct. of EU27)	50% (Advanced EU)
E. TFP growth	0.6→0.4%	0.8→0.7% (75 <sup>th</sup> pct EU27)*	1% (top HICs)
F. Labor force participation	70%	72% (50 <sup>th</sup> pct. of EU27)	80% (top CEECs)

\* Moderate reforms target the 75th pct. of EU 27 for growth of determinant index, while the ambitious reforms target the 75th of EU 27 for actual TFP growth.

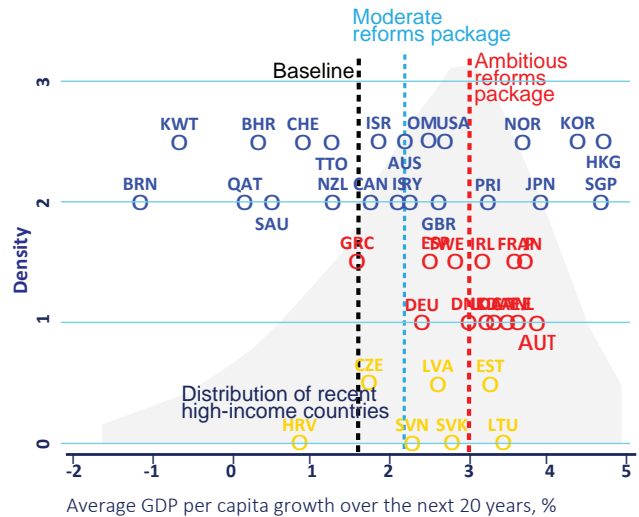
<sup>11</sup> For a complete description of the LTGM-TFP, see Kim and Loayza (2019) available at the LTGM website [www.worldbank.org/en/research/brief/LTGM](http://www.worldbank.org/en/research/brief/LTGM)

**FIGURE 20.**  
**Baseline GDP per capita**  
**Annual growth rate, Percentage**



Source: Author's calculation based on the LTGM-PC.

**FIGURE 21.**  
**Distribution of GDP PC growth over 20 years**  
**(starting when countries reach high-income status)**



Source: Author's calculation based on the World Development Indicators.

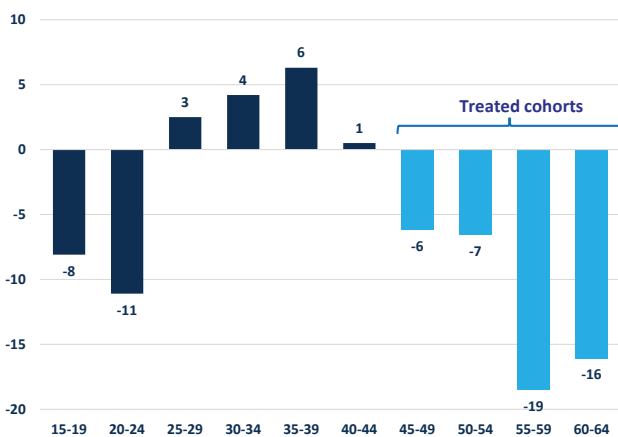
Note: Yellow circles for CEECs, red circles for EU27. Atlas method: A country become high-income when GNI per capita reaches \$12,700 in 2020 U.S. Dollars. Sample: We consider two groups of countries, countries that have become high income before the available time series for GNI and countries that became high income within the time series. The former group of countries are AUS (1960), AUT (1960), BEL (1960), DNK (1960), GBR (1960), NLD (1960), NOR (1960), SWE (1960), USA (1960), BHR (1980), BRN (1974), CAN (1997), CHE (1980), CZE (1990), DEU (1970), ISL (1995), NZL (1977), KWT (1995), QAT (2000), SAU (1968), SVN (1995) where the year in brackets indicates the beginning of the available time series. For these countries, we take the average GDP per capita growth over 1960-1979. The second group of countries is: BHR (1980), BRN (1974), CAN (1997), CHE (1980), CZE (1990), DEU (1970), ISL (1995), NZL (1977), KWT (1995), QAT (2000), SAU (1968), SVN (1995), CYP (1984), ESP (1971), EST (2002), FIN (1961), FRA (1962), GRC (1972), HKG (1978), HRV (2006), IRL (1972), ITA (1964), JPN (1968), KOR (1994), LTU (2007), LVA (2006), OMN (1983), PRI (1967), PRT (1987), SGP (1980), SVK (2006), SVN (1995), TTO (2003), URY (2008), where the year in brackets indicates when they became high income. For these countries, we take the 20-year average of GDP per capita growth starting when they become high income. To get the GNI per capita at 2020 prices we started with the 2020 value for GNI per capita, Atlas Method (NY.GNP.PCAP.CD) and used the real GNI per capita growth rates (NY.GNP.PCAP.KD.ZG) to get the previous numbers in 2020 prices and, if not possible or if that series stopped, we used or continued with the GDP per capita growth rate (NY.GDP.PCAP.KD.ZG) as they are similar to GNI per capita growth rates. For EST, NZL, JPN and KWT, we started with the 2019 value, as the 2020 value is not available yet.

**Demographics will continue to be a drag on the economy.** The population is declining and aging rapidly in Croatia. Croatia's birth rate has declined from 9.2 to 8.9 births per thousand people over 2001-19. At the same time, the share of people aged over 65 has increased from 16.1 to 20.8 percent during the same period. This has led to an increase in the old-age dependency ratio (over 65-year olds to 15-64 years olds) from 24.4 to 31.6 percent. Furthermore, estimates suggest that close to 270,000 mostly young people left in the first years after accession to the EU which is over 15 percent of the labor force (although official emigration data from the Croatian Bureau of Statistics (CBS) are lower due to methodological differences, see Box 1).<sup>12</sup> While roughly 115,000 people immigrated into Croatia during the same period, the negative net effect was still large.

**Croatia's labor force participation (LFP) is low compared to the EU average but is expected to increase slowly over time.** The LFP in Croatia is below the average in the EU 27, but this gap is highly heterogeneous across demographic groups. Figure 22 displays the LFP in Croatia by gender and age cohorts, expressed as deviation from the average in the EU 27. The gaps to the EU 27 are small for the young population, especially for males but large for older cohorts, especially for women. However, the baseline assumes a gradual normalization of the LFP as Croatia has introduced a gradual increase of the statutory retirement age for women, and some of the gap can also be explained by early retirement for older cohorts, including war veterans. As such, the LFP will provide a slight boost to growth.

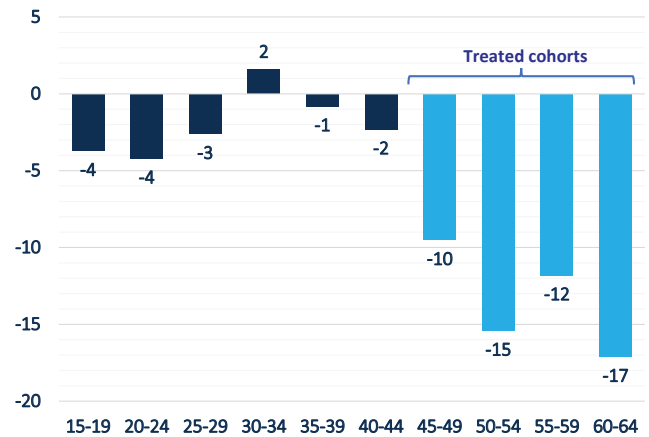
**FIGURE 22.**  
Labor force participation rate by population cohorts

**A. Female (Deviation from the EU 27 average)**  
Percentage points of the working-age population



Source: World Bank's staff estimates based on Eurostat Activity Rates.

**B. Male (Deviation from the EU 27 average)**  
Percentage points of the working-age population

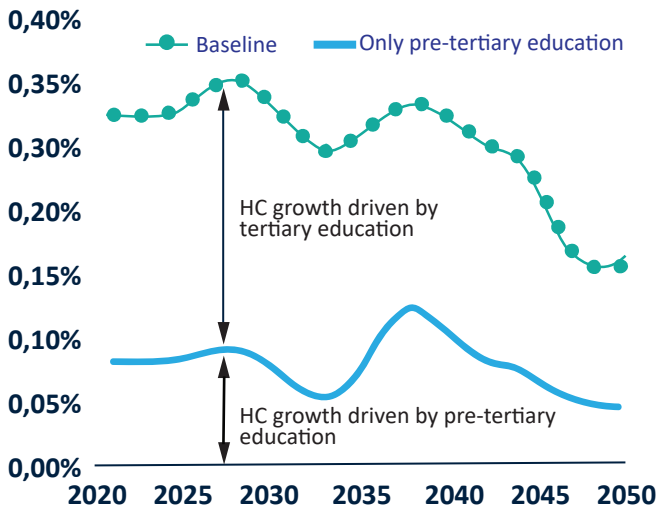


Source: World Bank's staff estimates based on Eurostat Activity Rates.

**Human capital growth is also projected to slow down.** The sluggish human capital growth in Croatia is caused by a weak improvement in pre-tertiary education. Panel B of Figure 23 shows there has been no improvement in the harmonized learning outcomes for Croatia over the past 20 years, contrasting with regional peers such as Poland which had an upward trend. This has primarily been because of an insufficient number of instructional hours, late introduction of curricula reform, and institutional constraints standing in the way of a more ambitious reform of the education sector (see Annex 2). Furthermore, attainment data point to a flat pre-tertiary schooling completion rate across age cohorts in Croatia (Panel C). This indicates that children today get a similar pre-tertiary education as older cohorts, so when they join the workforce there will be only very limited human capital growth. In contrast, there has been a substantial expansion of tertiary education in Croatia. Panel D of Figure 23 shows that tertiary attainment for younger cohorts is much higher than for older cohorts: 37 percent today versus 12 percent for 60-64 years old. In this case, the human capital of the workforce should grow as the younger cohorts with more tertiary education join the workforce, replacing older and less-educated workers. The largest gains are in the short- and medium-term as the oldest cohorts—which have the lowest tertiary attainment—are replaced first. By 2050, all of the low-tertiary workers have retired, and from then onwards human capital growth falls sharply, assuming a flat tertiary attainment rate.

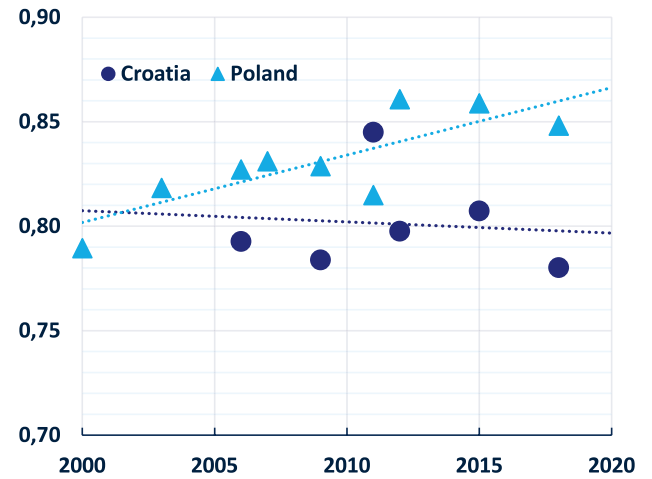
**FIGURE 23.**  
**Human Capital Growth**

**A. Human capital scenarios (LTGM-HC simulation)**  
Annual growth rate, Percentage



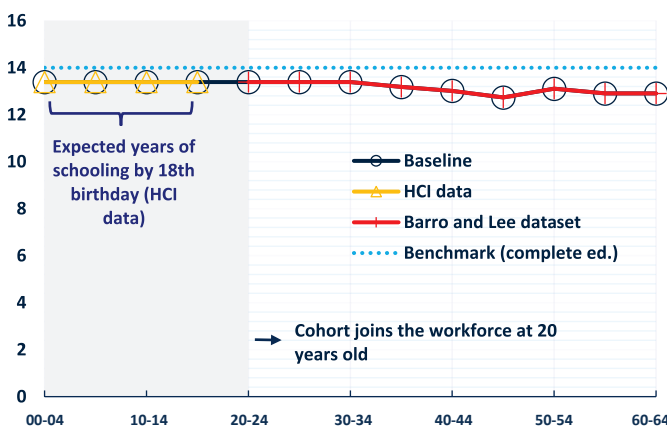
Source: Author's calculations based on the LTGM-HC.

**B. Pre-tertiary quality score**  
(Harmonized learning outcomes)/625 [0,1]<sup>12</sup>



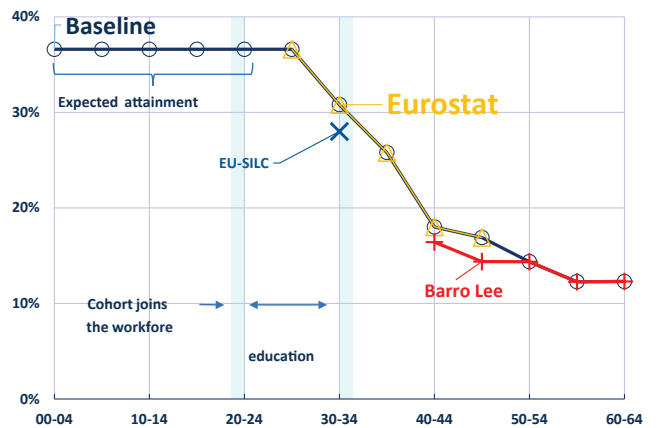
Source: Author's calculation based on HCI data.

**C. Years of pre-tertiary schooling rates by age cohorts**



Source: Barro-Lee Dataset and HCI.

**D. Tertiary attainment by age cohorts**  
Percent of pop. expected to hold a degree by 34 years old



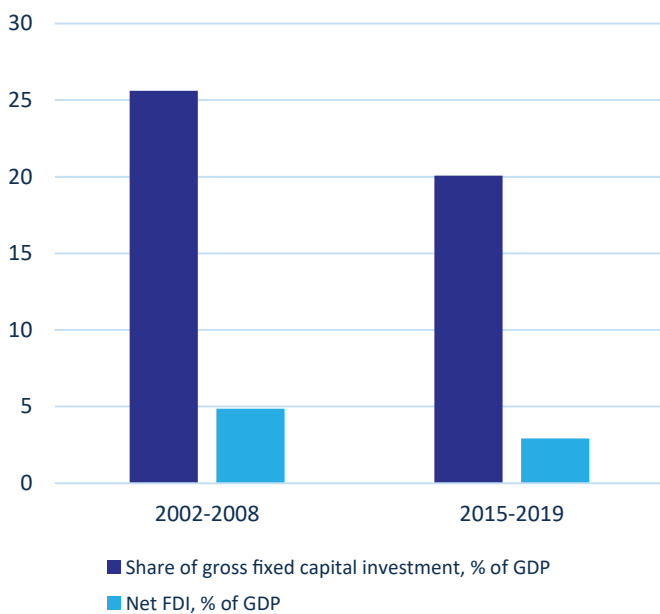
Source: Eurostat, EU-Survey of Income and Living Conditions and Barro and Lee Database (2013).

<sup>12</sup> The quality score is defined as  $Q = HLO/625$ , where HLO denotes harmonized learning outcomes from international student achievement tests, and 625 is the benchmark value of top performance (so that  $Q$  ranges from 0 and 1). HLO includes data from three major international testing programs: Trends in International Maths and Science Study (TIMSS), Progress in International Reading Literacy Study, and Programme for International Student Assessment (PISA). See Patrinos and Angrist (2018) for details.

**The contribution of capital accumulation to potential growth is estimated to rise in the near term.**

During 2002-08, investment was one of the main drivers of GDP growth, with an average share in GDP of 26 percent (government investment reached 6 percent of GDP) and an average annual growth above 10 percent. Rapid capital accumulation made the largest contribution to potential growth, which also reflected strong capital inflows from abroad. In the post-crisis period, while investment started to recover in 2015, the pace of capital accumulation has still been much lower compared to the pre-crisis period. The composition of investment has been improving, however. Compared to 2002-08 -- when investment in large infrastructure projects, housing, and retail dominated – the share of the tradable sectors has increased, which should help boost productivity growth (Figure 25). Going forward, the contribution of capital accumulation to potential growth is expected to rise by 2029, as public investment increases, supported by EU funds—Croatia will remain one of the largest beneficiaries in the EU (see Box 5). In the post-2030 period, capital accumulation will remain the main driver of growth, but its contribution will decline substantially (Figure 26.).

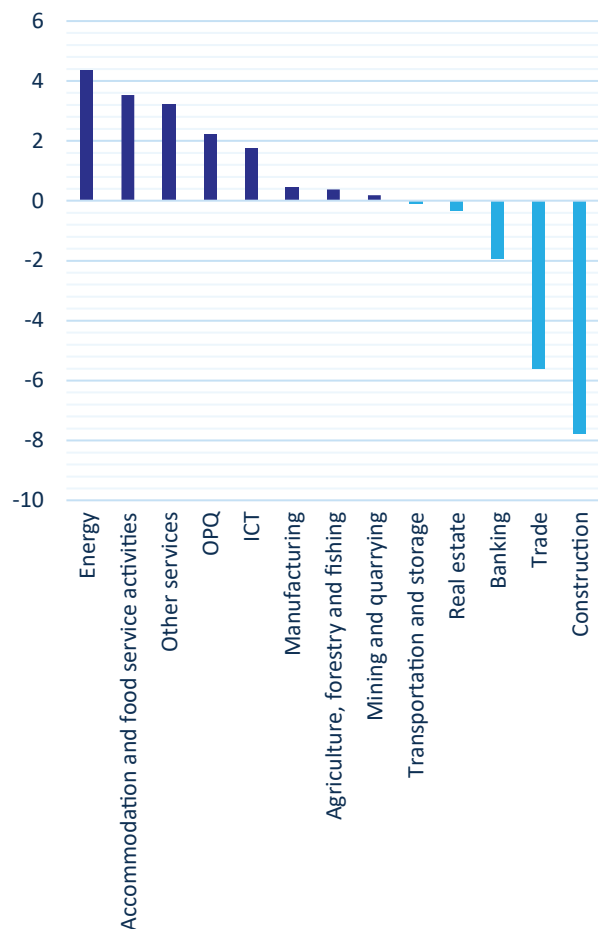
**FIGURE 24.**  
Investment share in the GDP and net FDI, percent of GDP



Source: CBS, CNB.

**Finally, total factor productivity (TFP) growth is projected to slow down.** The baseline TFP growth is based on five key determinants of economic productivity: innovation, education, market efficiency, infrastructure, and institutions. The estimated relationship is used to project TFP growth in Croatia under the assumption that the overall determinant index follows its current trend until 2050. This suggests that TFP growth could decline from 0.6 percent in 2020 to 0.4 percent by 2050.

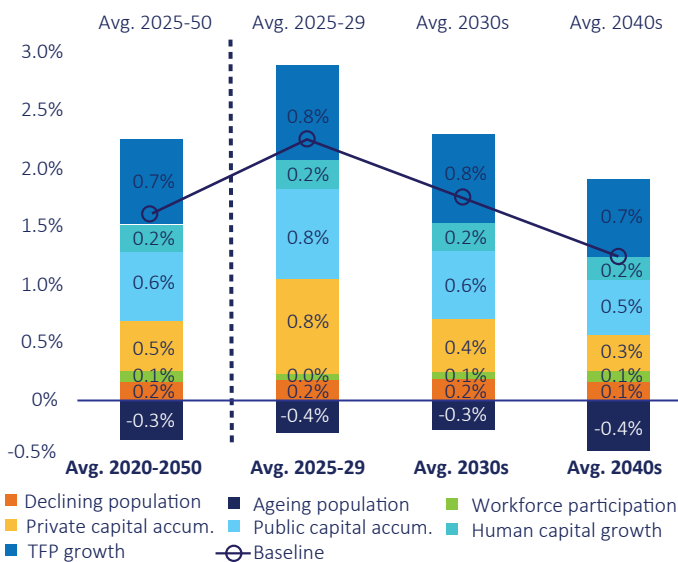
**FIGURE 25.**  
Change in investment composition, 2015-2019 compared to 2002-2008, percentage points



Source: CBS, WB staff calculations.

Overall, long term growth is expected to slow significantly and be mainly driven by capital deepening and TFP. Capital deepening and TFP contribute 1.1 and 0.7 percentage points, respectively, to average growth over 2025-2050 (Figure 26).<sup>13</sup> However, the slowdown of the growth trend is mostly explained by decline in capital accumulation, followed by ageing population and lower efficiency. More specifically, the contribution of investment to growth (via private and public capital accumulation) halves, from 1.6pppts in the 2020s (2nd half) to only 0.8pppts in the 2040s. The drag on growth from the aging population widens from -0.3pppts to -0.45pppts over the same period.

**FIGURE 26.**  
Contribution of each driver to GDP per capita growth, percentage points of growth due to each growth driver



Notes: the decomposition is an approximation which abstracts from the interaction between the growth drivers. In this case, the sum of contributions of each driver does not match exactly the actual baseline growth rates.  
Source: Author's calculations based on the LTGM-PC.



## 2.2. Potential benefits from improvements in growth drivers

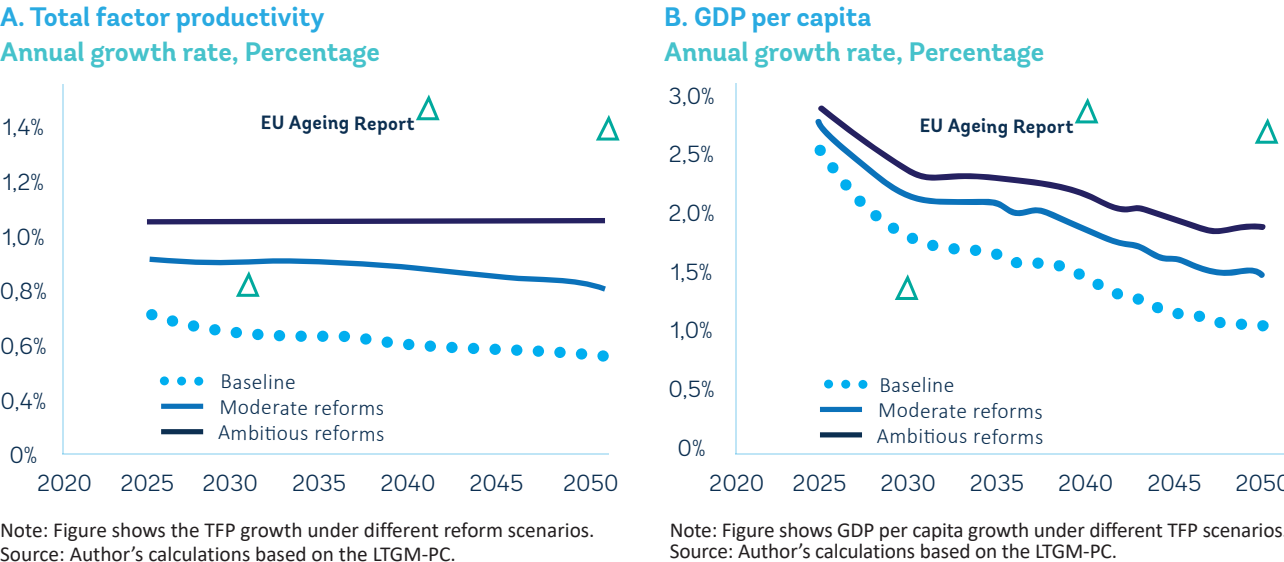
This section analyzes how Croatia could increase its growth potential with reforms to boost each driver of growth. The target for each growth driver is based on regional or income peers—typically the EU 27 or Central and Eastern Europe (CEE) countries. As such, the effect of each reform on growth depends on (i) how sensitive growth in Croatia is to the specific growth driver and (ii) how far Croatia lags behind peer countries. Moderate scenarios target the 50-75<sup>th</sup> percentile of the distribution of the EU 27 while ambitious reform scenarios target other top-performing economies, especially in CEE. This section considers individual reforms one by one and then aggregates them to see the overall effect of a holistic reform package.

<sup>13</sup> Human capital and the decline in population contribute to a much smaller share of growth.

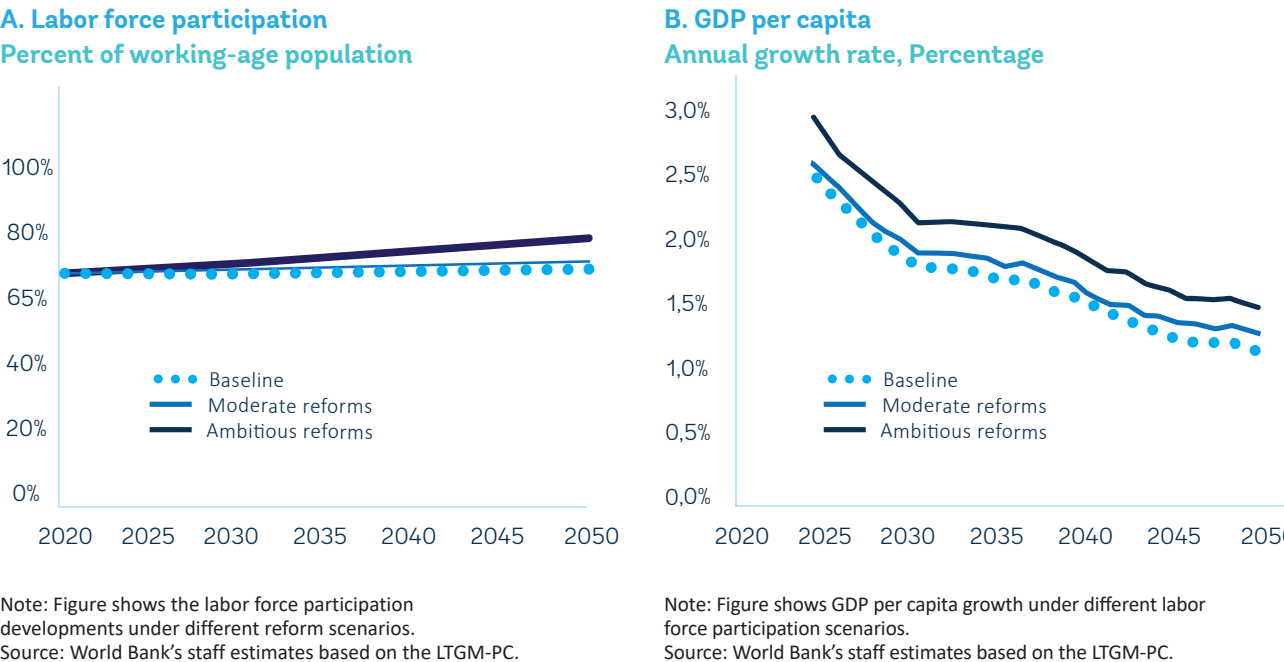


The effects of potential reforms on individual growth drivers range from small to moderate, with the largest gains coming from the improvement of TFP growth. Reforms to TFP have a moderate impact on growth in the medium term, but the effect is amplified over time via capital accumulation. In the 2030s, the moderate and ambitious reforms to productivity would boost GDP per capita growth by +0.4 and +0.6 percentage points, respectively. That represents mostly a direct effect of TFP on growth. However, over the longer run the effects pick up as the gap between baseline and scenario TFP growth rates widens and the indirect effects of TFP on growth phase in (i.e., higher TFP leads to (i) *more* investment, which is assumed to be a fixed share of income; and (ii) *more productive* investments, as TFP increases the marginal product of capital). As a result, in the 2040s, the incremental growth generated by the moderate and ambitious reform reaches +0.45 and +0.75 percentage points on average, respectively (see Panel B of Figure 27).

**FIGURE 27.**  
Reforms to Productivity (LTGM-PC simulation)



**FIGURE 28.**  
Reforms to Labor Force Participation (LTGM-PC simulation)





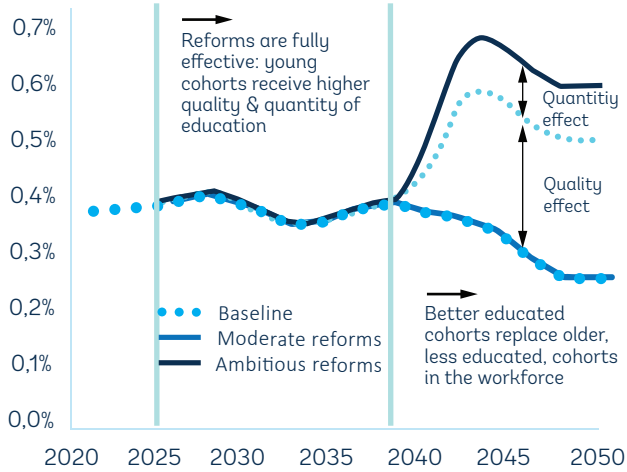
**Reforms to increase labor force participation (LFP) would also have a significant impact on growth.** The baseline assumes that Croatia’s older cohorts close half of the gap to the EU27 average LFP rates by 2050. The moderate scenario assumes that further reforms to labor markets could boost Croatia’s participation rates to fully close the gap by 2050. We also consider an ambitious reforms scenario that would bring the female and male participation rates to the top-performing countries in CEEs (Lithuania and the Czech Republic respectively, see Panels I and II of Annex 3 Figure 7). Under the moderate scenario, the boost to growth would be close to +0.1 percentage points on average over 2025-2050. However, the increase in LFP under the ambitious scenario would expand the workforce substantially, providing a strong boost to growth of +0.4 percentage points on average over 2025-2050 (Figure 28).

**Croatia can still substantially improve the quality of pre-tertiary education but the impact on growth is concentrated in the long term.** While Croatia’s pre-tertiary schooling rates are high, leaving limited scope for further expansion, the quality of pre-tertiary education has room for improvement. With a quality score of 0.78, Croatia is below the median of the distribution in the EU 27 and below several CEEs. However, these reforms would take time to have an impact. Even a very ambitious educational reform that would immediately raise the quality of education to that of the top-performing countries in CEE would only have an economic impact when the first better-educated cohort joins the workforce in the late 2030s. The economic effect of greater human capital would be +0.2 percentage points of GDP per capita growth in the 2040s.

**FIGURE 29.**  
**Reforms to Pre-tertiary Education (LTGM-PC simulation)**

**A. Human capital**

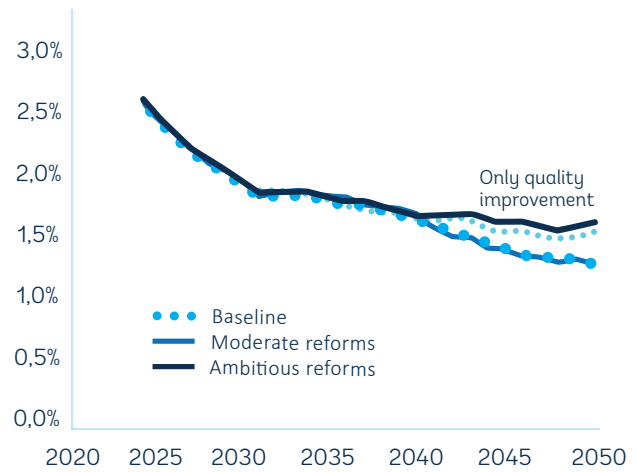
Annual growth rate, Percentage



Note: Figure shows the human capital developments under different pre-tertiary education reform scenarios.  
Source: Author's calculations based on the LTGM-PC.

**B. GDP per capita**

Annual growth rate, Percentage



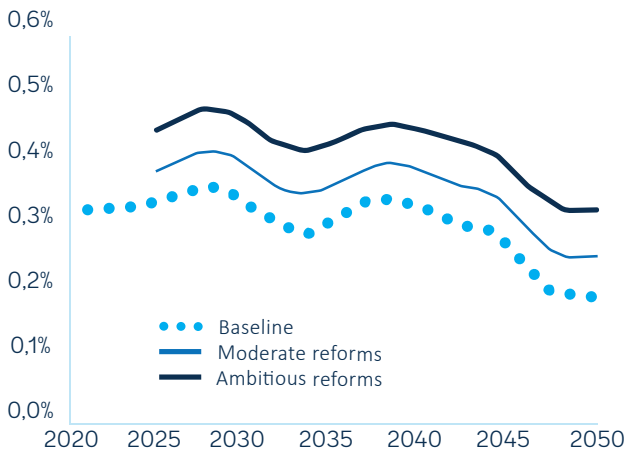
Note: Figure shows the GDP growth under different pre-tertiary education reform scenarios.  
Source: Author's calculations based on the LTGM-PC.

**There is also scope to expand tertiary education in Croatia.** The ambitious reforms would increase the average *quality-adjusted* years of tertiary education of the workforce by about a quarter of a year relative to baseline. Assuming a high productivity return to tertiary education of 15 percent the higher attainment would boost the human capital level by 3.5 percent by 2050, having a modest direct impact on the 2050 level of GDP per capita of 2 percent. But this effect is spread over 25 years, and so it adds less than 0.1 percentage point to average growth over 2025-2050 (Figure 30). The moderate reforms would have about half of the effects of the ambitious reforms.

**FIGURE 30.**  
**Reforms to Tertiary Education (LTGM-PC simulation)**

**A. Human capital**

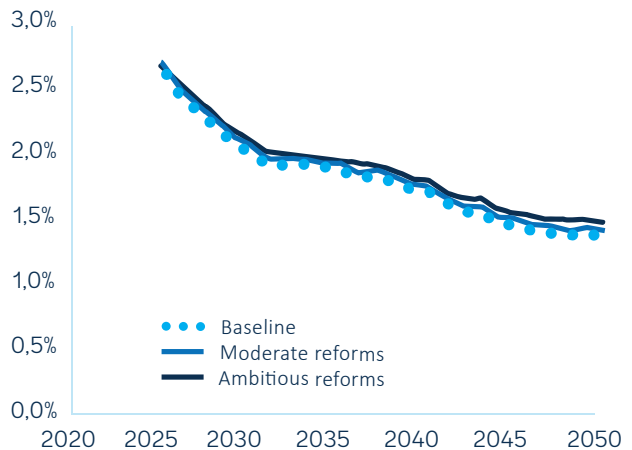
Annual growth rate, Percentage



Note: Figure shows the human capital developments under different tertiary education reform scenarios.  
Source: Author's calculations based on the LTGM-PC.

**B. GDP per capita**

Annual growth rate, Percentage

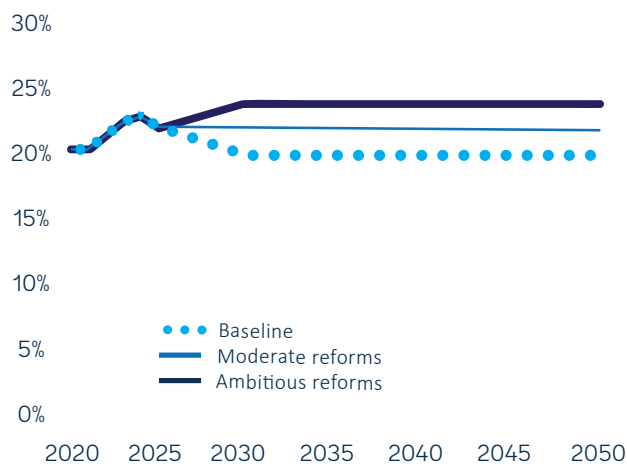


Note: Figure shows the GDP per capita growth under different tertiary education reform scenarios.  
Source: Author's calculations based on the LTGM-PC.

**Finally, moderate reforms focusing on the private sector could boost Croatia's investment rate from 20 to 22 percent of GDP, while more ambitious reforms could reach 24 percent of GDP.** A broad set of economic reforms are available to strengthen private investment in Croatia. The moderate scenario assumes that reforms could raise the private investment rate in Croatia from 20 to 22 percent of GDP, which is about the 75<sup>th</sup> percentile of the EU 27. The ambitious scenario assumes that far-reaching reforms would boost private investment to 24 percent of GDP, a level close to the economies with the highest private investment rates over the last two decades in CEEs, such as Estonia and Latvia (see Annex 3 Figure 2). Ambitious reforms to private investment could boost GDP per capita growth by about 0.2 percentage points on average until 2050. The simulated increase in private investment has a substantial impact on growth during the 2030s (+0.3 percentage points under ambitious reforms and +0.15 under moderate reforms), but the effect halves in the 2040s. In the absence of complementary reforms to enhance productivity, the effectiveness of investment falls sharply in the late years—driven by a declining marginal product of private capital.

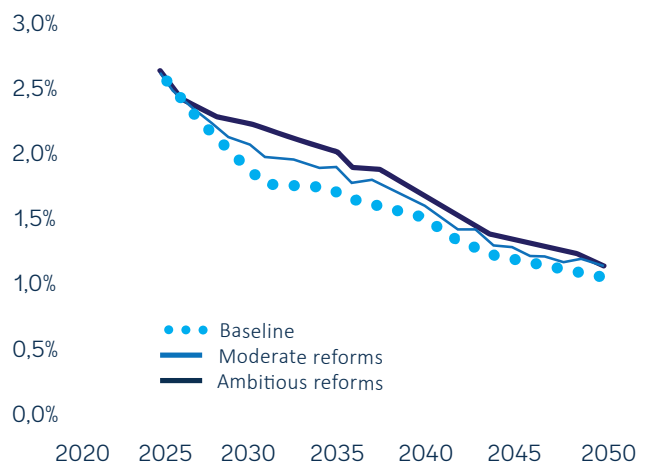
**FIGURE 31.**  
Reforms to Private Investment (LTGM-PC simulation)

**A. Private Investment**  
Percent of GDP



Note: Figure shows the private investments under different reform scenarios.  
Source: Author's calculations based on the LTGM-PC.

**B. GDP per capita**  
Annual growth rate, Percentage



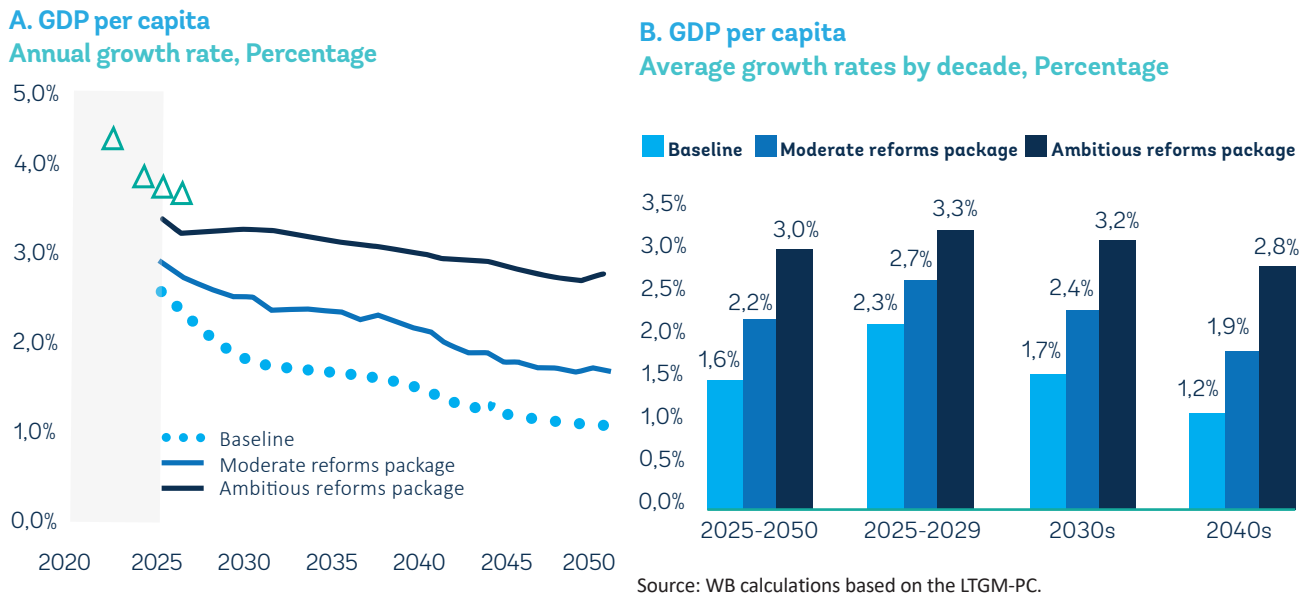
Note: Figure shows the GDP per capita growth under different private investment scenarios.  
Source: Author's calculations based on the LTGM-PC.

**A combination of reforms would benefit from complementarities resulting in the strongest growth trajectory.** A moderate package of reforms that would strengthen all individual growth drivers would boost GDP per capita growth by 0.6 percentage points on average until 2050, while an ambitious reform package would result in the strongest growth trajectory, boosting GDP per capita growth by 1.4 percentage points on average until 2050. Under this ambitious scenario, Croatia would strongly benefit from complementarities. When all reforms become fully effective in 2030, GDP per capita growth would reach 3.3 percent, an increment of 1.4 percentage points vis-à-vis baseline (Figure 32). This incremental growth would then accelerate to 1.5 percentage points on average in the 2030s and 1.6 percentage points in the 2040s. The ambitious reforms are strong enough to generate substantial complementarities (i.e., incremental growth under the ambitious reforms package is noticeably larger than the sum of individual reforms).

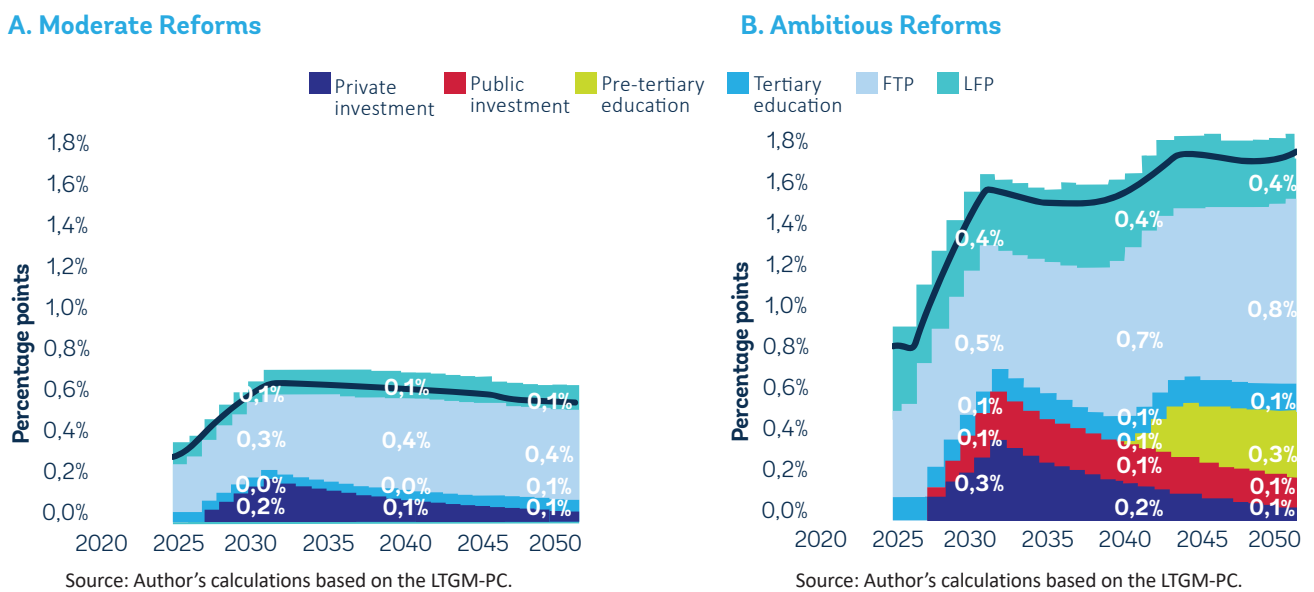
**Improving the growth drivers would significantly speed up economic convergence.** Under both reform package scenarios, per capita income in Croatia would converge to the EU27 average, but convergence would be much faster with ambitious reforms. With a moderate reform package, relative per capita income in Croatia would only converge to the EU27 average in the long run, reaching 97 percent by 2050. On the other

hand, the ambitious reforms packages would allow Croatia to close the gap in the late 2030s and reach 120 percent of the EU27 average income by 2050.<sup>14</sup> As a result, under the moderate and ambitious reforms package scenarios, GDP per capita would reach €42,000 and €52,000 by 2050. Highlighting the importance of a plural approach to long-term growth, individual reforms alone could not boost convergence substantially (see Annex 3 Table 2).

**FIGURE 32.**  
Reforms Packages (LTGM-PC simulation)



**FIGURE 33.**  
Reform packages scenarios: decomposition of incremental GDP PC growth  
Percentage points of incremental growth due to each reform



Note: Panel A shows fewer incremental growth determinants because some of the determinants are set at baseline levels in the moderate reform scenario (see Table 1).

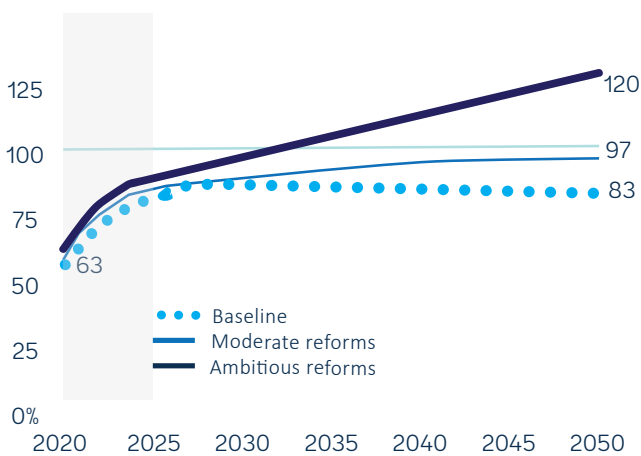
<sup>14</sup> The EU27 income remains the same as in the baseline. Therefore, the convergence path scenario has to be interpreted with caution.



Source: Shutterstock / Oyster farming rafts of Lim bay on Istria peninsula, 2/25/07/1995

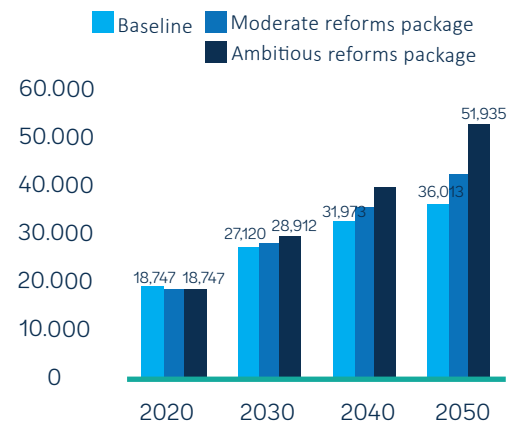
**FIGURE 34.**  
GDP per capita: baseline versus reform packages

**A. GDP per capita Index**  
(Index = 100 for EU27 average)



Source: World Bank's staff estimates based on the LTGM.

**B. GDP per capita, € PPS**



Source: World Bank's staff estimates based on the LTGM.

**To conclude, a comprehensive reform package in Croatia could yield a dramatic improvement in the country's economic growth rate and ability to converge with the EU.**

Even under a modest reform scenario, growth would reach a level consistent with convergence to the EU average income level by 2050. Of the individual reforms, the largest improvement comes from boosting productivity, which is explored in chapter 3 and chapter 4 that focus on institutions as a factor of firms' productivity growth. Reforms to investment can lead to substantial growth in the medium term—with especially high returns from extra public investment, coupled with improved productivity. Labor-market reforms to increase participation would also result in a noticeable and sustained boost to growth until 2050. Reforms to education, particularly at the pre-tertiary level, would also be beneficial, but the effects would be moderate and phase-in over the longer term. Some of these reforms have already been planned by the government in the National Recovery and Resilience Plan (NRRP) that will be implemented until 2026. If implemented as planned, reforms from the NRRP could have a major impact on country's growth potential (see Box 5).

## BOX 5.

## National Recovery and Resilience Plan – a reform agenda for higher growth

In July 2020 EU leaders reached a political agreement on a package to support medium term recovery and limit lasting scars of the pandemic on long-term growth. The package, worth €1 824.3 billion at the EU level, is aimed at mobilizing investment and frontloading financial support in the crucial first years of recovery. The package combines the new Multi-annual Financial Framework - MFF (€1 074.3 billion at constant 2018 prices) with the recovery instrument following the COVID-19 crisis, the Next Generation EU - NGEU (€750 billion at constant 2018 prices). The new emergency instrument, 'Next Generation EU', aims to tackle the most crucial recovery needs and enable MS to invest in a green, digital, and resilient future.

The most important instrument under the NGEU is the Recovery and Resilience Facility (RRF). As a precondition for disbursement of funds under the RRF, MS were required to prepare national recovery and resilience plans (NRRP) which include reform and investment projects. The Croatian NRRP aims to support Croatia's socio-economic recovery and long-term growth in the aftermath of the COVID-19 pandemic and two series of devastating earthquakes in March and December 2020. To finance its reforms and investments, from the grant part of the RRF Croatia was initially allocated EUR 6.3bn, or around 11.5 percent of Croatia's 2019 GDP. This was in 2022 reduced by 0.8 million so that the grant allocation among member states would reflect the most acute impacts of the COVID-19 crisis as Croatia's recovery in 2021 was much stronger than expected.<sup>15</sup> The disbursement of grants will take place only if the agreed milestones and targets set out in the recovery and resilience plans are fulfilled.

Full implementation of the NRRP would have significant positive effects for Croatia. The implementation of the investments and reforms in the NRRP is expected to help Croatia in addressing its key economic issues - low productivity and, more generally, low growth potential. These challenges are reflected in the structure of the plan, which is organized around five components - (i) Economy, (ii) Public administration, judiciary, and state assets, (iii) Education, science, and research, (iv) Labor market and social protection and (v) Health and (vi) one initiative linked to Renovation of buildings. In total, the plan contains 76 reforms and 146 investments. According to EC's estimates, Croatia's GDP might increase by up to 2.9% by 2026 just through higher investments (implications of structural reforms are not considered), while after 20 years GDP could be 1.1 percent higher compared to the no-NRRP baseline. Although results are not directly comparable with EC calculations, government estimates suggest even stronger potential gains, i.e., the results project GDP to be almost 4% higher in 2026<sup>16</sup> and 1.2 percent in the long run. In general, less developed EU member states, that are also the main beneficiaries of RRFs, are expected to benefit more from the NGEU (Figure 1).

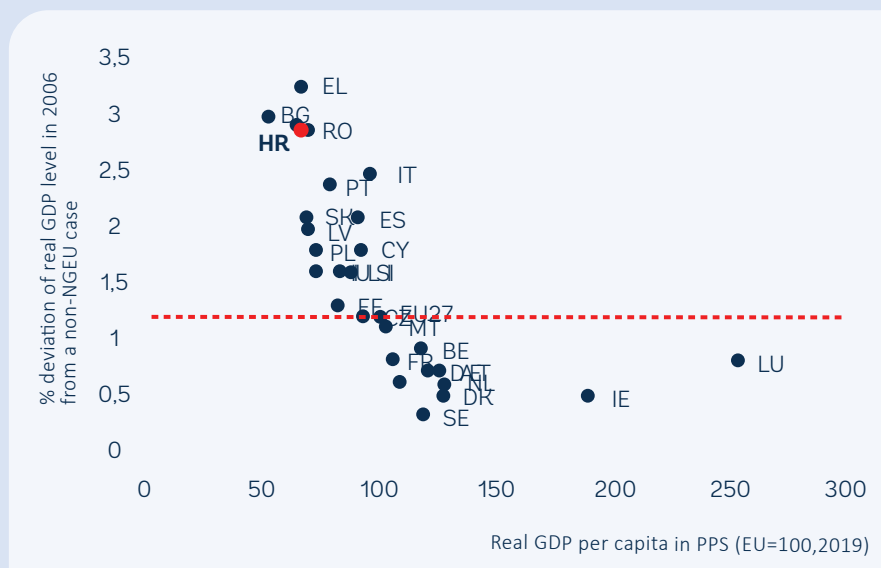
A large part of the investment is focused on supporting the green transition, in particular on environmental infrastructure, and digital objectives. Out of the total grant allocation, 40 percent is directed to green transition and climate objectives, while 20 percent is for support to digital transition (RRF minimum requirements were 37 percent and 20 percent of total allocation,

<sup>15</sup> Additional €3.61 billion was also available in loans but Croatia's government is not expecting to use the RRF loan facility.

<sup>16</sup> RRF grants and loans can be, in principle, used to finance new fiscal measures as well as existing or budgeted measures. It seems that in Croatia's case most NGEU funds are used for projects and measures previously not planned by the government and thus they provide additional fiscal stimulus to the economy.

respectively). Several components of the Croatian plan contribute to achieving green objectives by promoting investments in clean and efficient energy, circular economy, the improvement of water and waste management, an efficient and sustainable urban and rail transport system, and the decarbonization of buildings through energy renovation program. Furthermore, various measures aim to support the digital transformation of Croatia's economy and public sector. The government plans to increase the digitalization of public administration and the provision of digital public services. The aim is to, inter alia, support interoperability of the government's support systems, create a one-stop-shop for the public administration online services, and digitalize the justice system. The Plan also foresees significant investments in digital infrastructures in order to provide access to broadband networks in rural areas, which are lagging behind in terms of digital inclusion, digital equipment for higher education, and digital transition of businesses.

**FIGURE 1.**  
NGEU impact on GDP level by 2026 and 2019 GDP per capita



Source: EC (see: Pfeiffer, P., J. Varga, and J. in 't Veld, (2021), "Quantifying Spillovers of Next Generation EU Investment", European Commission, European Economy Discussion Papers, No 144).

**In addition to investments, the reforms set in the NRRP are expected to provide further support to growth by increasing the country's efficiency and mitigating labor supply issues.** The plan overall addresses many of the issues highlighted in this Report, like education, productivity and business environment challenges.

Several components of the Plan include measures to boost Croatia's *competitiveness and total factor productivity* through improvement of business environment, financial support to private sector and innovation and R&D. More specifically:

- The *Economy* component includes several regulatory and administrative changes which are expected to address excessive product and services market regulation and promote private investments. The package of reforms incorporates further liberalization of regulated professions and reduction of parafiscal charges. The component also aims to improve the allocative efficiency of the economy by freeing up resources of the private sector through increased access to credit for private firms, especially for MEs, and improving access to alternative or innovative ways of financing. It also foresees improvement in the efficiency of innovation support schemes, with a view to increase the innovation capacity of Croatian businesses and stimulate private R&D investment.



- The *Public administration, judiciary, and state assets* component includes various measures to increase institutional efficiency and resilience. Through this component, the government aims to improve the efficiency of public administration by investments in the digitalization of processes and strengthening mechanisms for the management of public policies in order to better design, implement and evaluate policies and projects, including those financed by EU funds. Also, the component envisages a new public sector wage setting framework and procedures in the civil service to recruit and retain civil servants with a view to improving the quality of public services. The *justice* sub-component includes measures such as amendments to the civil procedural code and improvements to business processes in courts that will contribute to reducing backlogs and shortening court proceedings, focusing on a transparent and efficient administration of the justice system. The government also plans to improve the system of preventing and combating corruption, strengthen the fiscal and anti-money laundering framework, increase the efficiency of public procurement and create the preconditions for optimizing the system of local and regional self-government units as the current system is relatively fragmented. Finally, the government plans to implement the OECD recommendations on the governance of state-owned enterprises, with a view to strengthening SOEs boards' independence and reducing state footprints by updating the list of SOEs that have a strategic interest for Croatia and privatizing the portfolio of state assets that are deemed as non-strategic.
- The sub-component on *Research and innovation* aims to contribute to increasing innovation, productivity, and competitiveness of Croatian businesses, through the modifications of the framework for funding research, and attracting and retaining talents. This component aims to improve the system of institutional funding for universities and scientific institutes through the introduction of performance-based funding, increase investment in research infrastructure and organizational capacities of universities and scientific institutes, introduce a new framework for the advancement and career development of researchers and introduce a more efficient institutional and programming framework for research and development funding programs.

The Plan also puts a large emphasis on the strengthening of *labor and human capital*. The measures aim to improve education outcomes and reduce skills gaps and mismatches in the labor market with the view to increasing employment and participation rates. The measures include:

- Within *Education*, the science and research component focus is on improving the quality of the education system and increasing the employability of youth and vulnerable groups. Croatia has comparably low instruction time and short compulsory education, leading to negative effects on education outcomes. Against this background, the Plan aims to improve pupils' basic skills by increasing participation in early childhood education and care and enabling full-day teaching models in primary schools through large investment in infrastructure, which should be accompanied by strengthening the labor market relevance of curricula. Moreover, reforms aim to increase the percentage of pupils in general secondary education, with the aim to improve tertiary education attainment which is relatively low, modernize higher education, and strengthen the link between vocational and adult education on the one hand and the labor market on the other.
- The component *Labor market and social protection* includes measures aimed at increasing adult employment and participation rates. The component envisages reform of the labor law with an objective to establish a modern legislative framework aimed at improving working conditions and better regulating novel forms of work, like work from home. The reform is also set to encourage the transitions from fixed to open-ended contracts since the share of fixed-term contracts in Croatia is relatively high. Moreover, the plan envisages the

adoption of active labor market policies to increase employment and self-employment which should be supported by funding vouchers for accredited adult education and training and upskilling programs to acquire the skills needed in the labor market.

- A positive effect on human capital in the long run is expected to also come from reforms in healthcare, which are supported by significant investments. The plan envisages the promotion of a more balanced geographical distribution of health workers and facilities, increasing the number of physicians, nurses, and other health professionals, and the introduction of a new care model for patients. The reform also attempts to achieve financial sustainability of the health care system, inter alia, through the functional integration of hospitals and the strengthening of day hospitals at the secondary and tertiary levels.



Source: Adobe Stock / Photo by: dudjazov / National and University Library in Zagreb / 41487307



## CHAPTER 3

# Drivers of Productivity in the Croatian Economy

Achieving sustained economic growth in Croatia can only be achieved by boosting productivity. Yet Croatia's recent performance has not been encouraging, and productivity remains far from the regional frontier. This chapter examines productivity in Croatia using both aggregate and firm-level data. It finds that the aggregate productivity shortfall in Croatia is chiefly accounted for by differences in productivity within sectors, rather than the sectoral composition of the Croatian economy. In turn, disappointing productivity can be attributed to market frictions and inefficiencies, which have resulted in a misallocation of resources. Policymakers should aim to increase the dynamism of the Croatian business environment, reduce market inefficiencies, and level the competitive field.

## 3.1. Aggregate Productivity and Sectoral Trends: Sluggish Growth, Limited Catch Up

**Boosting productivity is key to achieving sustained economic growth in Croatia.** The long-term growth model in Chapter 2 shows that boosting productivity growth is one of the most important factors in achieving higher long-term economic growth in Croatia. Ultimately productivity growth is highly correlated with economic growth and will define the standard of living in Croatia, enabling wage growth, poverty reduction, and higher fiscal revenue which can foster an inclusive growth process. Understanding the drivers of productivity is thus key to designing effective policies to promote Croatia's development. Box 6 describes the methodology used throughout this chapter.

### BOX 6.

#### Methodology and main definitions

Chapter 3 leverages firm-level longitudinal data from the Financial Agency (FINA) of Croatia for the period 2002 to 2020. Firms report data on employment, sales, intermediate inputs, capital stock (including fixed and intangible assets), wages, exports, and other attributes such as industry of operations (four-digit level of NACE Rev. 2), location, and type of ownership.

The unit of analysis is the active firm, defined as a firm reporting either positive employment or sales. Those units reporting both missing or zero employment and sales are discarded, following the main guidelines in the Eurostat-OECD Manual on Business Demography Statistics (2007). To ensure comparability of results, the chapter considers firms of the business economy only (sections B to N of NACE Rev. 2, excluding activities of holding companies K64.2) according to Eurostat's definitions. Hence, the analysis does not include businesses in agriculture, forestry and fishing (section A), and public sector and non-market activities (sections O to U). Nonetheless, as the chapter examines also the performance of the service sector it includes activities in sections O to S.

##### Variable deflation

*Deflators:* variables expressed in monetary units (sales, intermediate inputs, and capital stock) are deflated according to the availability of price indexes. We deflate sales using the two-digit producer price index (PP) or value-added price (VAP) index, and materials and capital stock using the material and capital price deflators, respectively. Capital and material price deflators are only available at the economy-wide level, so we are not able to use industry-specific deflators.

*Capital:* As the FINA data do not record information on investments, capital stock is based on the annual book value of assets – net of depreciation.

##### Treatment of outliers

We winsorize observations by excluding the top and bottom 0.5 percentile on deflated sales, intermediate inputs, and capital stock. Furthermore, since the data consists of a panel of firms, we also exclude observations at the top and bottom 0.1 percentiles in annual growth rates of sales, intermediate inputs, capital stock and employment, conditioning on year and size class. This second step in the data cleaning process is meant to reduce the impact of "large" jumps in the main variables of interest, and it is a typical procedure when working with firm-level data.

### Complementary data sources

Chapter 3 primarily relies on firm-level administrative panel data collected by the Financial Agency of Croatia. However, a central contribution of both chapters is the comparison of the performance of the Croatian business sector against EU and regional peers in terms of the sectoral composition of the economy, labor productivity, ICT adoption and R&D expenditure, and business demography indicators. To preserve comparability and benchmark our results, we use data from Eurostat, the statistical office of the European Union, which produces and publishes an ample set of business-related indicators. Additionally, the chapter also examines forward linkages between service sectors and manufacturing, and the participation of Croatian service production in global value chains, benchmarking results to EU peers. For the input-output analysis, we exploit sector-level data from the World Input-Output Database (WIOD).

### Business demography

*Incumbents, entry and exit:* due to the lack of access to official records on firm creation and closure, the analysis classifies firms into incumbents, entrants and exiters based on the availability of information on TFP/employment rather than on registration and closure dates.

*Exit:* A firm exits the market in the year of reference  $t$  if it is active in  $t$  and does not report employment and sales in  $t + 1$ ,  $t + 2$ , and  $t + 3$ .

*Entry:* A firm enters the market in the year of reference  $t$  if it is recorded for the first time after year 2004 or after previously having exited the market.

*Incumbents:* A firm is an incumbent if it is active both in  $t$  and  $t - 1$ .

### Estimation of the production functions and total factor productivity

The total factor productivity (TFP) is estimated at the firm level using a structural production function estimation approach grouping firms at the two-digit level of NACE in order to consider inherent differences in technological and productive processes between industries and, thus, allow for different factor elasticities across sectors. Production functions are estimated for each two-digit industry group following the approach in Akerberg et al. (2015). The estimation sample covers the period from 2008 to 2020. TFP is calculated after estimating a Cobb-Douglas production function detailed below:

$$y_{ijt} = \alpha_{ijt} + \beta_{m,j}m_{ijt} + \beta_{l,j}l_{ijt} + \beta_{k,j}k_{ijt} + e_{ijt} ,$$

where  $y_{ijt}$ ,  $m_{ijt}$ ,  $l_{ijt}$  and  $k_{ijt}$  represent the output, intermediate inputs, labor and fixed capital of firm  $i$ , in sector  $j$ , in time  $t$  respectively.  $\beta'_j$  is a vector of coefficients of interest, which may vary across sectors.  $\alpha_{ijt}$  is the vector of dummies, which includes the intercept and time dummies. Finally,  $e_{ist}$  is the error term.

### Channels of aggregate productivity growth

After estimating the production function and recovering a measure of TFP at the firm-level, the dynamics of aggregate productivity is assessed over time following the approach proposed in Melitz & Polanec (2015). The authors introduce a dynamic Olley-Pakes decomposition that breakdowns aggregate productivity growth into four different components.

The first, the “within” component, measures productivity changes in incumbent firms over time, which is mainly related to firm upgrading (e.g., adoption of innovations and technology, management practices, and other factors that may improve firm performance such as exporting (Atkin, Khandelwal & Osman, 2017; De Loecker, 2013).<sup>17</sup> The second, the “between” component (also known as “covariance term”), measures efficiency changes due to resource reallocation. A positive component indicates that output (or value-added) is being reallocated towards high-productivity incumbent firms, whereas a negative term signals that resources are being reallocated

<sup>17</sup> Incumbent firms are defined as firms that survive between two given periods of reference.

towards low-productivity firms. Factors that may affect the flow of resources such as policy distortions, inefficient financial markets, logistic failures, or inefficient infrastructure are included in the “between” component. Finally, the entry and exit components measure productivity gains due to firm entry and exit. If firms entering the market display higher productivity than incumbents, the entry component positively contributes to aggregate productivity growth. Similarly, if firms exiting the market display lower productivity than incumbents, then the exit component positively affects the aggregate productivity growth.

Melitz & Polanec (2015) propose a dynamic Olley-Pakes decomposition, distinguishing the four sources of productivity growth. In the equation below, the left-hand side reflects the change in the aggregate productivity  $\theta$  between year  $t$  and  $k$  ( $t > k$ ). The right-hand side of the equation separates productivity changes according to the source of change: within-firm productivity change, covariance change, entry and exit:

$$(1) \quad \theta_t - \theta_k = \Delta\theta_t = \underbrace{\Delta\bar{\theta}_{S,t}}_{\text{within}} + \underbrace{\Delta\text{cov}(\theta, s)_{S,it}}_{\text{between}} + \underbrace{s_{E,t}(\theta_{E,t} - \theta_{S,t})}_{\text{entry}} + \underbrace{s_{X,t-k}(\theta_{X,t-k} - \theta_{S,t-k})}_{\text{exit}},$$

where  $\theta_{it}$  is the productivity of firm  $i$  in time  $t$ ,  $s_{it}$  is the firm’s market share,  $n_t$  the number of firms, and subindexes  $S, E$ , and  $X$  denote the firm status in the market (survivors-incumbents, entrants, and exiters respectively). Where, with a slight abuse of notation, the covariance term is defined as:

$$\text{cov}(\theta, s)_{S,it} = \sum_i (\theta_{s,it} - \bar{\theta}_{s,t})(s_{s,it} - 1/n_{s,t}), \quad \theta_{s,t} = \sum_i (s_{s,it}\theta_{s,it}) \quad \text{and} \quad \bar{\theta}_t = \sum_i (\theta_{s,it}/n_{s,t}).$$

Due to the lack of access to official records on firm creation and closure, the analysis classifies firms into incumbents, entrants and exiters based on the availability of information on TFP rather than on registration and closure dates. Thus, if a firm does not report key inputs for estimating multifactor productivity, it is not considered for the decomposition analysis. Similarly, if a firm, for example, does not report TFP levels for a given year  $t$ , it is considered to have exited the market at  $t$ . A concern could be that temporary firm entry and exit (firms not reporting TFP rather than actual creation and closures) could bias the results of the aggregate productivity decomposition. However, limiting the analysis to permanent entry and exits does not change the previous results.

**Productivity in Croatia remains far from the regional frontier, and catch up has been slow over the past two decades.** In 2019, it took on average almost three Croatian workers to produce the same value-added generated by a single German worker (Figure 1). Labor productivity in Croatia also remains lower than that of its European Union (EU) peers. A worker in Slovenia, for example, is on average 60 percent more productive than her average Croatian peer. Furthermore, the country’s productivity catch-up has been disappointing over the past two decades. While Croatia’s productivity increased from 30 percent to 37 percent of the level of Germany between 2001 and 2019, it has been outperformed by its regional peers who saw faster catch-up with Germany. Croatia was, therefore, unable to reduce its productivity gap with countries like Slovenia that already had higher productivity in 2001.

**The great recession caused a large drop in productivity, and the recovery has been sluggish.** The shock caused by the financial crisis compounded the poor productivity performance of the Croatian economy. Productivity dropped substantially in 2009 and remained static for the next 5 years, with value added per worker in 2014 still 15 percent lower than its 2008 level (Figure 36). Labor productivity started to recover in 2015 but in 2019 was only 7 percent higher compared to its pre-recession level. Total factor productivity performed somewhat better but recovered its pre-crisis level only in 2016 after dropping nearly 8 percent between 2008 and 2014. Data from 2020 show that COVID-19 led to another large drop in all measures of productivity, partly offsetting the gains from the previous five years.

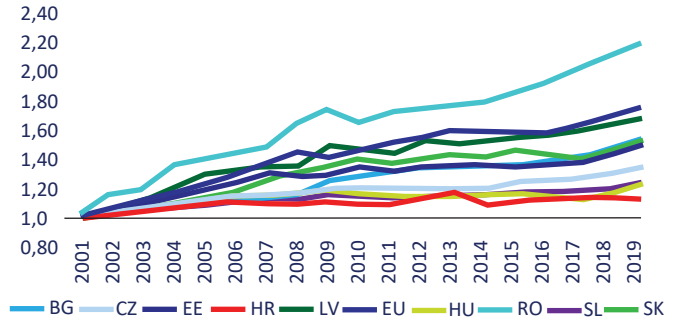
FIGURE 35.

Croatia's productivity growth lagged its peers over the last two decades

Labor productivity in 2019 (2015 EUR)



Labor productivity relative to Germany (2001=1)

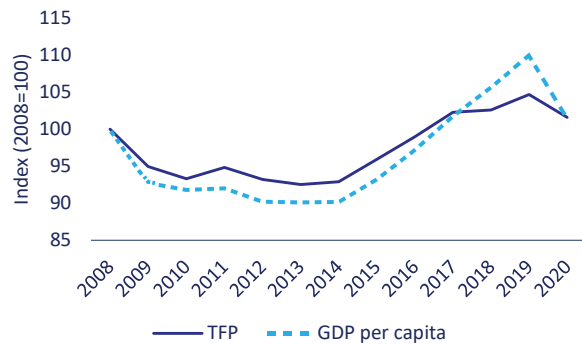


Source: World Bank and ILO.

Source: World Bank and ILO.

FIGURE 36.

Evolution of TFP and GDP per capita

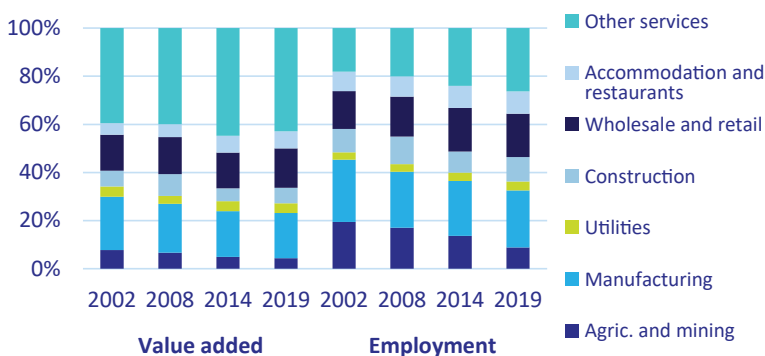


Over the last two decades, the economy shifted toward services and away from agriculture and manufacturing. Since 2002 the share of employment and value added in retail, accommodation and restaurants, and other services sectors rose, while that of agriculture and manufacturing shrank (Figure 37).<sup>18</sup> By 2019, about 70 percent of total value added and 57 percent of employment in Croatia was accounted for by services firms. In contrast, the manufacturing sector accounted for 19 percent of total value added and 24 percent of employment, while agriculture accounted for 4 percent and 9 percent, respectively.

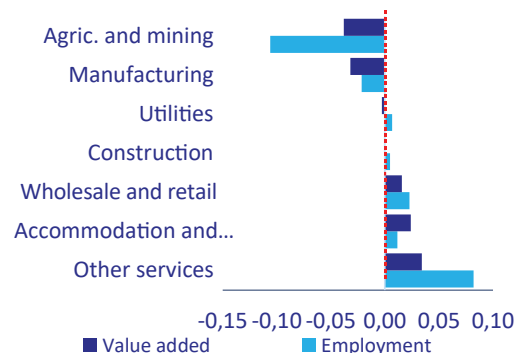
FIGURE 37.

The composition of the economy in Croatia 2002-2019, percentage of aggregate value added and employment

Distribution of value added and employment



Change in value added and employment shares in 2002-2019



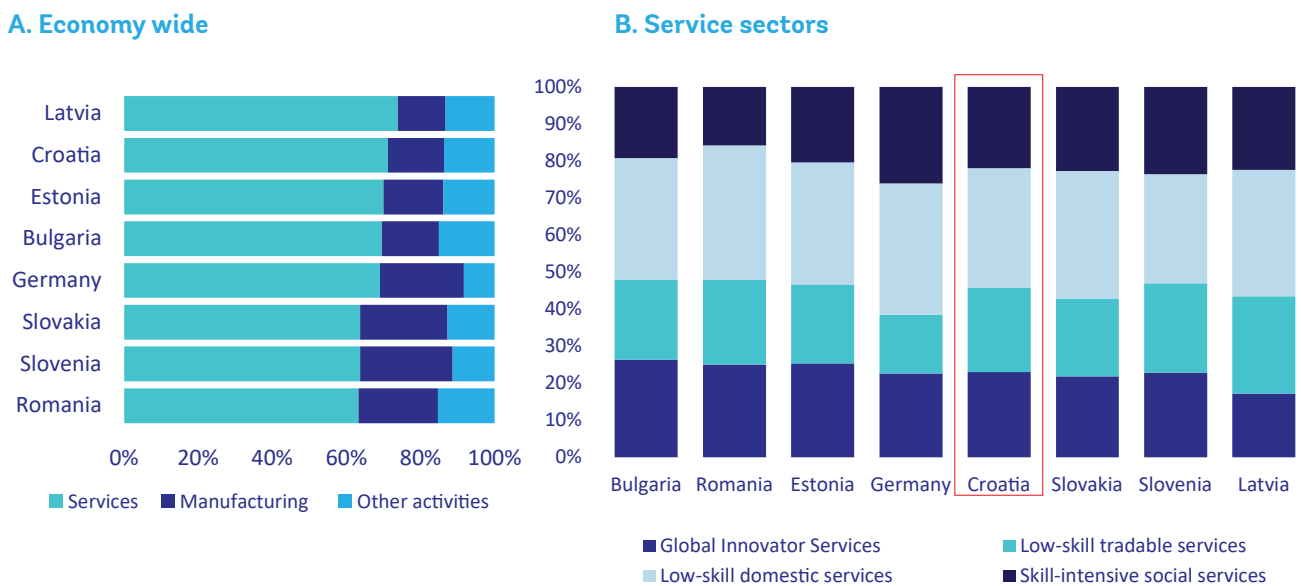
Notes: Figure 37. aggregates the business-economy value added (€ of 2015) and employment into macro-sectors based on industries at the one-digit level of NACE. Agriculture and mining: activities A and B; Manufacturing: C; Utilities: D and E; Construction: F; Wholesale and retail trade: G; Accommodation and restaurants: I; Other services: H, J, K, L, M, N; Activities O, P, Q, R, S, T are excluded.

Source: World Bank's elaboration based on Eurostat.

<sup>18</sup> The drop in employment was particularly strong in agriculture, which accounted for 19 percent of total employment in 2002, a share that dropped by 10 percentage points in 2019.

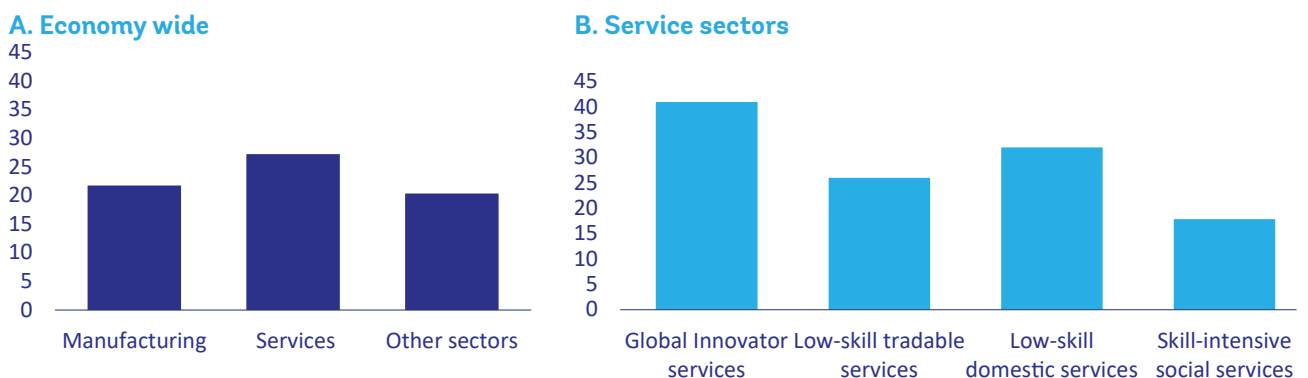
While services sector is primarily comprised of lower-skill activities, services in Croatia are on average more productive than manufacturing (Figure 39).<sup>19</sup> Low-skill domestic and tradable services account for 55 percent of total services activities, while global innovator services - a sector with high potential for productivity growth – account for 23 percent (Box 7).<sup>20</sup> Skill-intensive social services account for the remaining 22 percent. This pattern is in line with that of most of Croatia’s EU structural peers, but relative to Germany skill-intensive services in Croatia account for a smaller share of value added, which is largely explained by the comparatively smaller social services sector in the country. Within services, global innovator activities are the most productive subsector, followed by low-skill domestic services. Skill-intensive social services are the least productive sub-sector, with a labor productivity that is below that of the manufacturing sector (see Box 7).

**FIGURE 38.**  
Distribution of the value added across selected EU countries  
2019, percentage of aggregate value added



Notes: Figure (A) groups economic activities into 3 macro-sectors using aggregate value-added data at the one-digit level of NACE Rev 2 (Manufacturing – section “C”, Services -sections G, H, I, J, K, L, M, O, P, Q, R, S-, Other activities -sections A, B, D, E, F-).  
Source: World Bank’s elaboration based on Eurostat.

**FIGURE 39.**  
Value added per worker by sector 2019, (000 € of 2015)



Notes: Figure (A) groups economic activities into 3 macro-sectors using aggregate value-added data at the one-digit level of NACE Rev 2 (Manufacturing – section “C”, Services -sections G, H, I, J, K, L, M, O, P, Q, R, S-, Other activities -sections A, B, D, E, F-).  
Source: World Bank’s elaboration based on Eurostat.

<sup>19</sup> The manufacturing sector was more productive than services for most countries analyzed in Nayyar et al. (2020).  
<sup>20</sup> In this chapter, services activities are classified into four macro-areas (see Box 3.1) proposed in Nayyar et al. (2021).





## BOX 7

### Classifying Services Sectors

The services industries can be classified into four subsectors based on characteristics of the services provided in each industry. These are trade intensity, offshorability, capital intensity, linkages, and low-skill intensity. This classification provides a conceptual framework to analyze a country's services sector and design policies that can promote a services-led development process. The four subsectors are:

- **Global Innovator services.** These include professional, scientific, and technical services; ICT services; and financial and insurance services. These activities tend to be more technology and/or knowledge intensive and thus employ a large share of skilled workers. They are also highly tradable and, thanks to recent advances in digital technologies, they can be increasingly offshored, thus further increasing the scope for scale effects. Among services sectors these activities are also relatively R&D and capital intensive and are more often used as intermediate inputs in the production of other services or goods.
- **Low-skill tradable services.** These include activities that are more likely to be traded in foreign markets and whose employees are low-skilled workers, and include transportation and warehousing, accommodation and food services and wholesale trade. Some of these services export a large share of the value added, are relatively capital intensive, and develop strong links with other industries (and thus can be offshored). Moreover, services traded do not require capital and workers moving across national borders (e.g., accommodation and food services are exported in the form of local consumption of international tourists).
- **Low-skill domestic services.** These incorporate services that are less traded internationally, tend to employ a greater proportion of low-skilled workers and have weaker links with other sectors. They include retail trade, real estate activities, administrative support services, and arts, entertainment, and recreation.
- **Skill-intensive social services.** These refer to activities that tend to be traded domestically - although they can be exported - and that require a high share of semi- or high-skilled workers, such as education, health, social work activities, and the public provision of services.

The classification is based on a recent World Bank flagship report (Nayyar et al. (2021)). Appendix A of that report provides a list of industries in each subsector.

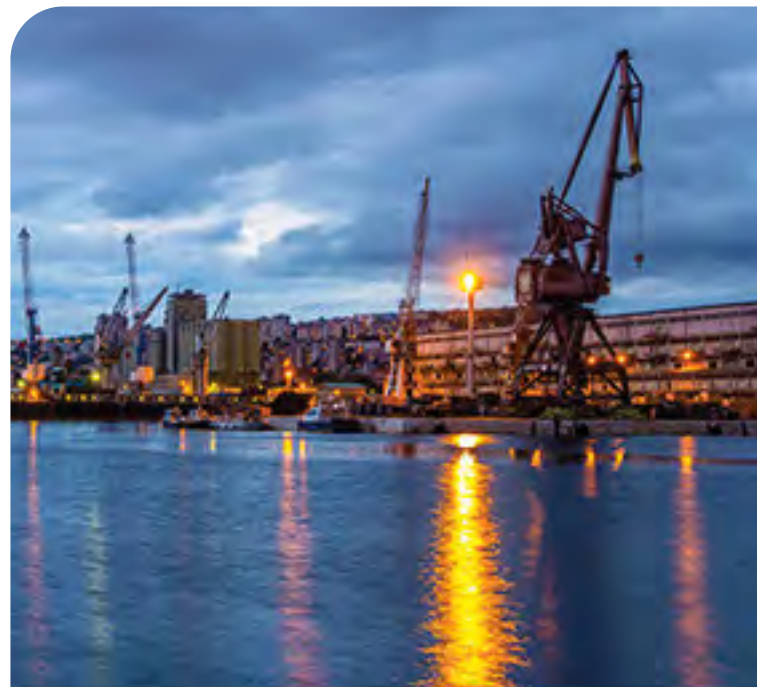
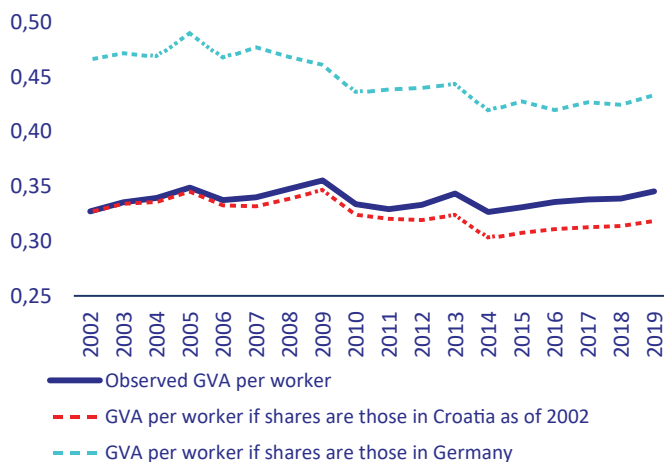
## 3.2. Inspecting the Productivity Gap with the Frontier: Positive Structural Change but Poor Within Sector Productivity Performance

**Structural change from agriculture to services has supported productivity growth in Croatia.** The gradual move from agriculture to services has supported aggregate productivity growth by reallocating resources toward higher productivity sectors. Figure 40 shows the role played by this structural change by showing the impact it has had in closing the productivity gap with Germany. If this structural transformation had not taken place (light grey dotted line), the productivity gap in 2019 would have been 3 percentage points higher compared to what we observed in the data (red line).

**The current structure of the Croatian economy only explains a small share of the gap with Germany.** One explanation for the low level of productivity in Croatia relative to Germany could be that a larger share of its economy is accounted for by low-productivity sectors related to tourism, while sectors with the potential for high productivity such as manufacturing account for a smaller share. This effect can be estimated by keeping the average productivity of each sector at the level observed in Croatia but moving to the sector composition of the economy observed in Germany. This exercise shows that if Croatia had the same economic structure as Germany the productivity gap would be 8 percentage points smaller (the blue dotted line in Figure 40). However, productivity would still be less than half that observed in Germany.

**The productivity gap with the regional frontier is primarily due to large and widening differences in sector-level productivities.** Figure 40 shows that even if Croatia had the same sector composition as Germany, it would still be 57 percent less productive. This highlights those differences in within-sector productivity

**FIGURE 40.**  
Structural transformation and the labor productivity gap 2002-2019, percentage of Germany aggregate labor productivity



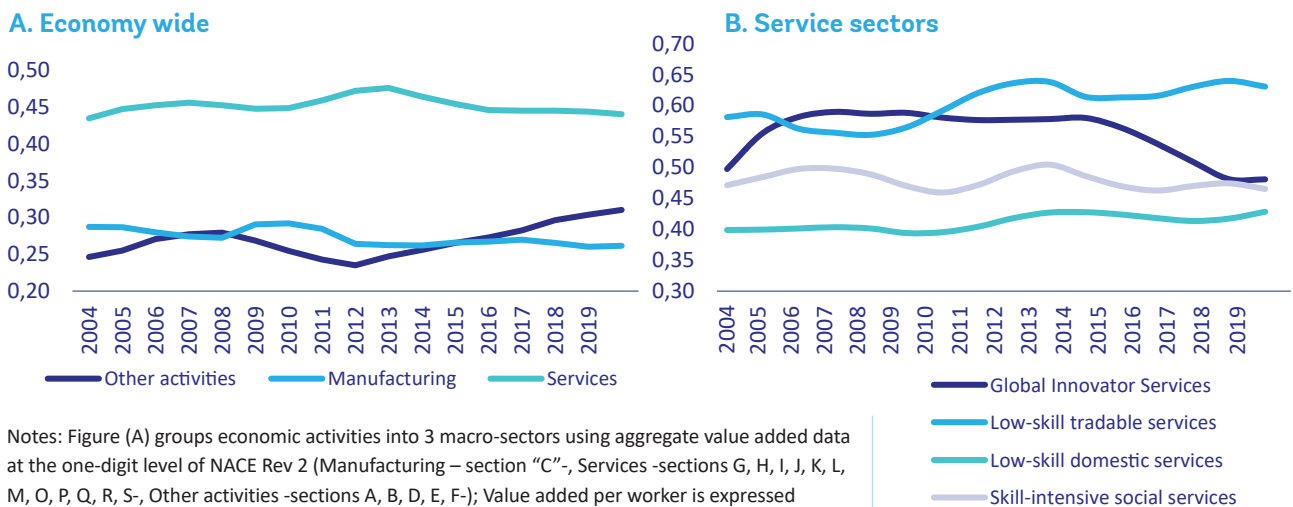
Notes: Figure computes the observed labor productivity gap (i.e., relative gross value added per worker between Croatia and Germany) and estimated productivity gap if employment shares in Croatia are those as of 2002 (i.e., no change in the employment distribution across sectors) and if Croatia has Germany's employment shares (i.e., the same employment distribution for each year).

Source: World Bank's calculations based on Eurostat.

between Germany and Croatia—for example, differences in productivity of the manufacturing sector in the two countries— are large and explain almost 90 percent of the productivity gap between the two countries. These gaps in within-sector productivities have also widened slightly over the past two decades. Keeping the sectoral composition in Croatia fixed to its 2002 level – and thus isolating the pure effect of changes in sectoral productivities – shows that the productivity gap with Germany would have increased modestly by 1 percentage point between 2002 and 2019.

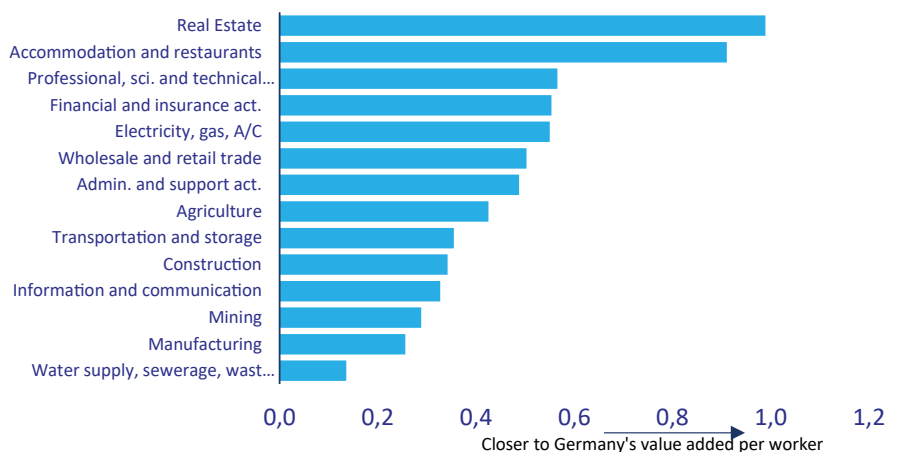
**Manufacturing and ICT are among the sectors with the highest productivity gap, while real estate and tourism perform comparatively well.** The comparison between the productivity of manufacturing in Croatia and Germany is particularly severe (Figure 41). A worker in the Croatian manufacturing sector produces roughly one-quarter of the value added produced by a German manufacturing worker. Croatia performs better in several services sub-sectors, however, particularly low-skill tradable services. Labor productivity in real estate and accommodation and restaurants – two sectors that benefited from the recent expansion in tourism – is less than 10 percent lower than that observed in Germany. The productivity gap in ICT – one of the global innovator services – has widened relative to Germany and is now similar to manufacturing. While productivity in the global innovator subsector increased over the period, Croatian firms were unable to keep up with the rate of productivity growth in the regional frontier.

**FIGURE 41.**  
**Labor productivity in Croatia relative to Germany, by sector**  
**2004-2019, 3-year moving average (Germany labor productivity = 1)**



Notes: Figure (A) groups economic activities into 3 macro-sectors using aggregate value added data at the one-digit level of NACE Rev 2 (Manufacturing – section “C”-, Services -sections G, H, I, J, K, L, M, O, P, Q, R, S-, Other activities -sections A, B, D, E, F-); Value added per worker is expressed relative to Germany’s (DE = 1). Source: World Bank’s elaboration based on Eurostat.

**FIGURE 42.**  
**Differences in labor productivity across sectors between Croatia and Germany 2019, value added per worker relative to Germany (DE = 1)**

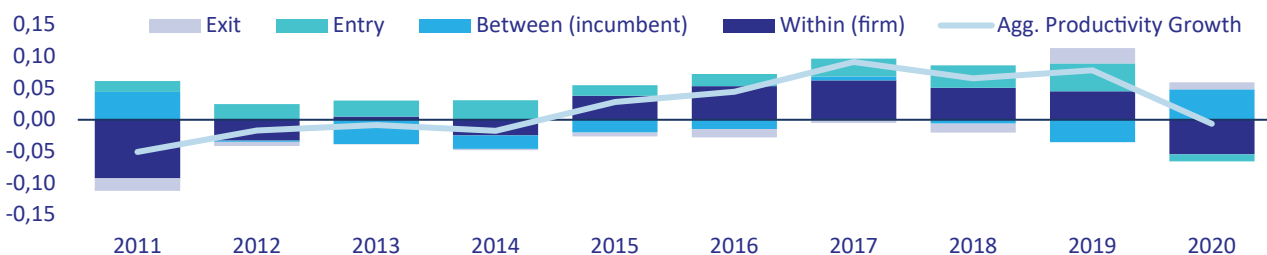


Notes: Labor productivity is calculated as the sum of the value added divided by the number of employed persons on each sector. Source: World Bank elaboration based on Eurostat.

### 3.3. Investigating the Channels of Productivity Growth

**Decomposing aggregate productivity growth helps in understanding its drivers.** Figure 43. decomposes changes in aggregate total factor productivity growth among firms into four components <sup>21</sup>: (i) changes in the average productivity of incumbent firms (*within* component); (ii) the reallocation of value added between firms with different levels of productivity which measures the efficiency of resource allocation (*between* component, or covariance); 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. These components can then be further decomposed to control for changes in the structural composition of the economy – the reallocation of activities across sectors – and isolate the role of the dynamics taking place within each sector. <sup>22</sup>

**FIGURE 43.**  
TFP growth dynamic decomposition 2008-2020, 3-year differencing



Notes: Figure 43. decomposes the aggregate TFP change into the within, between, entry and exit components. TFP changes are calculated between year  $t$  and  $t-3$  (3-year differencing). Source: World Bank's elaboration based on FINA.

**Productivity growth since 2014 has mainly come from improvements within existing firms, rather than a reallocation of resources.** The within component has driven most of the growth in productivity observed between 2015 and 2019—productivity growth has been driven by rising productivity of incumbent firms, for example, via capital deepening or by optimizing their cost structure. Aggregate productivity between 2015 and 2019 would have been negative if the average productivity of firms remained constant over the period. In contrast, the between component – the reallocation of resources – was negative during 2015-19. This implies that aggregate productivity growth was reduced by misallocation of resources to less productive firms in several years, which indicates major market inefficiencies.

**Both the within and between components saw the opposite trends during recession episodes of 2008-11 and 2020.** The within component acted as a drag on productivity and the between component boosted productivity during these periods. The former may be explained by the procyclicality of factor utilization. Available Eurostat data for the 2019-2021 period show that the rate of capacity utilization in the Croatian manufacturing sector dropped from 73.4 in the second quarter of 2019 to 57.8 in the second quarter of 2020. For the between component, the increase in productivity during recessions may reflect a cleansing effect as more productive firms gained market share from less productive firms during recessions. <sup>23</sup>

<sup>21</sup> Annex 4 provides a more detailed description of this decomposition.

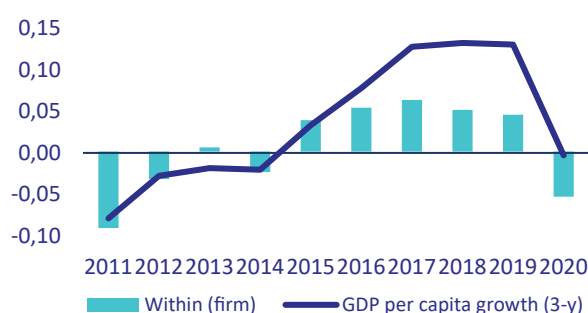
<sup>22</sup> While underlying factors can influence several of these components, this decomposition provides a useful conceptual framework to study the drivers of aggregate productivity growth. More competition in a market can for example improve the allocative efficiency of resources by rewarding more productive firms – “between” component -, while at the same time forcing existing firms to improve their managerial and organizational practices – “within” component. See Backus (2020) for evidence on the last channel.

<sup>23</sup> The “cleansing effect” argument is often mentioned in the macro literature and dates back to Schumpeter (1939), (1942). The argument suggests that if markets function properly, less productive firms should lose market shares and/or exit the market during a recession and their resources should be relocated towards more productive firms during the recovery. Frictions in markets slow down this relocation process, for example, by favoring existing non-productive firms with excess capacity. Note that the data point to a cleansing effect at the intensive margin (reduction in market shares of low productivity stayers) and not to a cleansing effect at the extensive margin (exit of low productivity firms) during the 2009-2012 crisis.

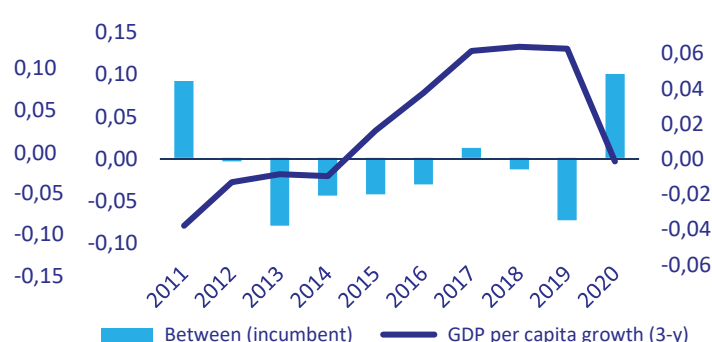
**Productivity gains from the cleansing effect resulting from the GFC recession were only temporary, however.** While lower productivity firms suffered the most during times of negative productivity growth, they were able to regain their lost market shares during the recovery period. This suggests that more productive firms – either incumbents or new entrants - were unable to fill the void left by unproductive firms and absorb their resources, a sign that markets were unable to reallocate resources.

**FIGURE 44.**  
GDP per capita, within-firm performance and reallocation of output  
2008-2020, 3-year differencing growth rates

**A. GDP per capita and within-firm productivity**



**B. GDP per capita and between component**



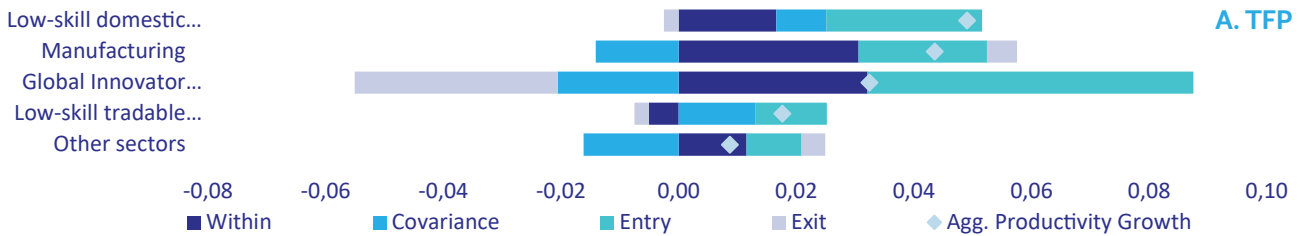
Notes: Figure 44 decomposes the aggregate TFP change into the within, between, entry and exit components. TFP changes are calculated between year  $t$  and  $t-3$  (3-year differencing). Source: World Bank's elaboration based on FINA.

**The entry of new productive firms has contributed positively to aggregate productivity growth, but competitive forces do not appear to have driven unproductive firms out of the market.** With the exception of 2020, new firms entering the market were more productive than incumbents, which boosted aggregate productivity. At the same, firms that exited the market over the period tended to be more productive than incumbents which had a net negative contribution to aggregate productivity growth in Croatia (although it turned positive from 2018).

**At the sectoral level, market frictions are more apparent in manufacturing and global innovator services.** While both sectors saw rising productivity from the “within” component, they had a negative contribution from the “between” component. The global innovator services sector also had a negative contribution from firms exiting. Box 8 provides additional evidence of constraints to productivity in the Croatian professional services sector, an important component of the global innovator subsector. In contrast, there are few signs of inefficiencies in the low-skill domestic service sectors. Low-skill tradeable services were the only sector to see a negative contribution from the within-firm component and had a very low level of TFP growth overall.



**FIGURE 45.**  
TFP growth dynamic decomposition by sector 2008-2020, 3-year differencing



Notes: the chart decomposes the aggregate value added per worker change into the within, between, entry and exit components. TFP changes are calculated between year t and t-3 (3-year differencing) and taking the averages across periods. Skill-intensive social services are not considered in the analysis due to the limited number of private firms in FINA data operating in these industries. Source: World Bank's elaboration based on FINA.

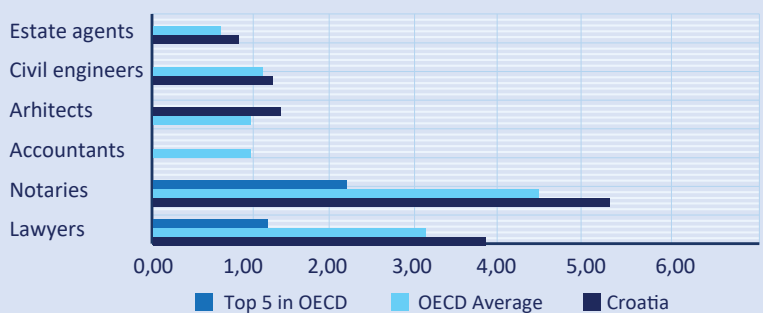
**BOX 8**

## Regulatory Barriers in Professional Services in Croatia

**Most professional services remain heavily regulated in Croatia.** Regulations in Croatia tended to be more stringent than the average among OECD countries in four out of the six professional services for which data are collected – estate agents, civil engineers, notaries, and lawyers (OECD 2019). Regulations were particularly strict for notaries and lawyers, while accountancy services in Croatia are among the least regulated even among OECD countries.

**Reducing regulations that limit competition in professional services markets and provide privileges to incumbent firms could boost productivity.** Besides its positive effect on the allocation of resources in these industries, stimulating competition in the markets for professional services can have positive spillovers on the entire business environment by lowering costs. This is particularly true for notaries and lawyers, two activities that provide important services to businesses. Increasing competition and reducing market power in these industries can have positive spillover effects on the dynamism of the entire economy, reducing the costs for setting up new businesses, and promoting firm entry.

**FIGURE 1.**  
Product market regulation index – Professional Services



Source: OECD Product Market Regulation Index.

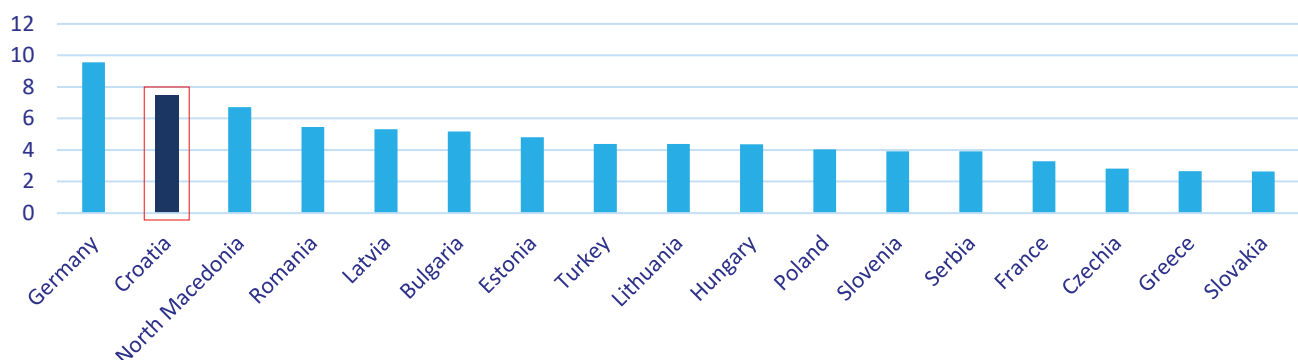
**Overall, there is evidence that markets are sustaining a misallocation of resources towards less productive firms, a sign of underlying market frictions.** Croatian firms are on average increasing their productivity but the markets in which they operate show signs of substantial inefficiencies. In a fluid, competitive market more productive - and thus more competitive – firms should beat their competitors and gradually gain market shares. This pattern is observed in Croatia only during recessions, when an economic contraction induces a temporary “cleansing” effect affecting low productivity firms but is absent during periods of economic expansion. The fact that productive firms exit the market suggests that frictions and inefficiencies might be impairing the ability of the market to select and reward productive firms.

### 3.4. Firm Characteristics and Dynamism

#### Size of firms

**The average Croatian firm is similar in size to the average German firm, but larger than average firms in their regional peers** (Figure 46). However, the fact that Croatian firms are much less productive than their German counterparts suggests that the drivers of these similar patterns might be very different in the two countries. The German private sector is dominated by export-oriented, medium-to-big firms – often focused on high-tech, high-quality products – with significant potential for economies of scale. This does not seem to be the case in Croatia, suggesting that other factors – such as market inefficiencies, and entry and exit barriers – might be at the root of the patterns observed in the data.

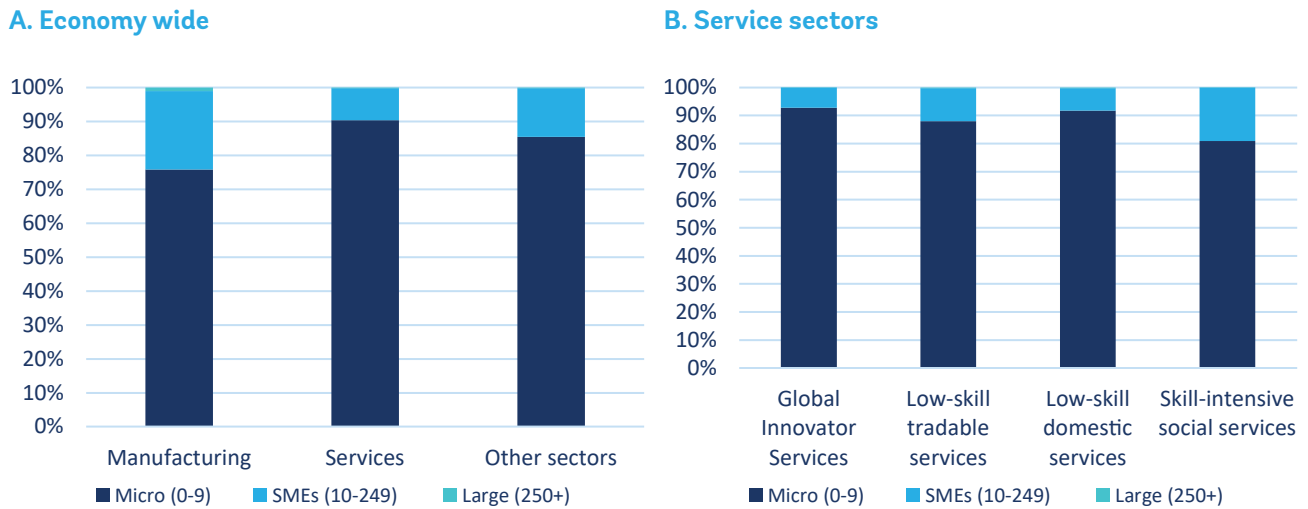
**FIGURE 46.**  
Average firm size, by country 2015-2019, number of employees



Notes: the chart decomposes the aggregate value added per worker change into the within, between, entry and exit components. IHP changes are calculated between year  $t$  and  $t-3$  (3-year differencing) and taking the averages across periods. Skill-intensive social services are not considered in the analysis due to the limited number of private firms in FINA data operating in these industries. Source: World Bank’s elaboration based on FINA.

**Firms in the Croatian service sector— especially those operating global innovator activities—tend to be smaller than manufacturing firms** (Figure 47 Panel A). This is a common feature of services firms in other countries (Nayyar et al. (2021)). To the extent that service activities are primarily targeted at local, geographically defined markets, the scope for businesses to scale up and grow is limited. As discussed in Box 9, new digital technologies and the increasing tradability of services are increasing the opportunities for services firms to grow by selling their products in non-proximity markets, both domestic and foreign. These opportunities are particularly relevant for global innovator services and low-skill tradable services, as these sectors can increasingly export their services.

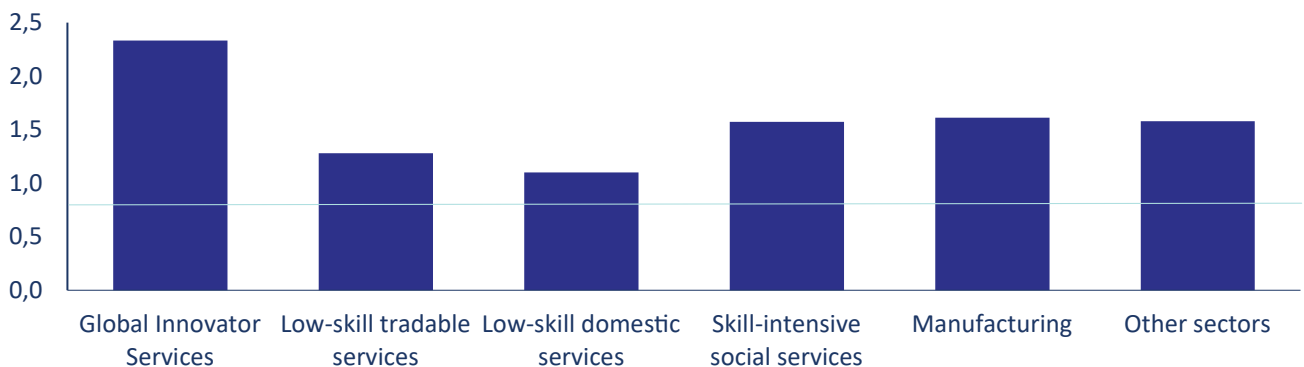
**FIGURE 47.**  
**Firm size in manufacturing and service sectors**  
**2015-2020, percentage of firms**



Notes: Figure (A) groups economic activities into 3 macro-sectors using aggregate value added data at the one-digit level of NACE Rev 2 (Manufacturing – section “C”, Services -sections G, H, I, J, K, L, M, O, P, Q, R, S-, Other activities -sections A, B, D, E, F-). Source: World Bank’s elaboration based on FINA.

**The link between firm size and productivity is smaller for services firms than for manufacturing firms, with the exception of global innovator firms.** In the manufacturing sector, on average, firms with more than 50 employees are 1.6 times as productive as firms with less than 50 employees, suggesting they are able to benefit from economies of scale. This compares with 1.5 in skill-intensive social services, 1.3 in low-skill tradable services, and 1.1 in low-skill domestic services. In contrast, the size-productivity relationship is much stronger in the global innovator services subsector, where firms with more than 50 employees are 2.4 times more productive than firms with less than 50 employees. While few global innovators firms become large, the data indicates that those that do are able to benefit from large economies of scale. This suggests that a niche of firms is already operating in services activities that can be scaled up and can generate large economies of scale.

**FIGURE 48.**  
**Labor productivity differences between small and large firms, by sectors**  
**2015-2019, ratio of the value added per worker**



Notes: small firms are defined as firms with less than 50 employees and large firms as firms with at least 50 employees. Source: World Bank’s elaboration based on FINA.



## BOX 9

## The Role of Exports and Technology for the Growth of Services Firms

**The size of the market for services has long been limited by the local nature of services delivery.** Consuming the services provided by a hairdresser, for example, requires a physical proximity to the service provider. This proximity constraint can represent an important obstacle to the growth of services firms, limiting their activities to small local markets and preventing them from achieving greater economies of scale. This in turn contributes to a small average size of services firms.

**Digital technologies and increased international mobility are weakening this proximity requirement and increasingly allow services firms to access non-proximity markets, both domestic and international.** The possibility of delivering services remotely via online delivery allows firms to serve distant markets without bearing the costs of a direct commercial presence in the serving location. Even if a commercial presence is required, digital technologies can reduce the costs and increase the efficiency of operating in more distant locations by decreasing communication frictions. Lastly, increased international mobility facilitates the movement of people across locations, further expanding the geographical definition of the market for many services firms. This expansion in the potential size of the services market in turn creates new opportunities for services firms to scale up their activities.

**Services firms can achieve greater economies of scale by exporting their services via four export modalities (Nayyar et al. (2020)):**

- 1) **cross-border supply abroad:** service delivery without movement of persons or commercial presence abroad.
- 2) **consumption abroad:** the customer's consumption takes place in the provider's country and thus the customer obtains the service after travelling to the provider's country.
- 3) **commercial presence:** services provided in the consumer's country through commercial presence.
- 4) **movement of natural persons:** travel of the service provider to the consumer's country.

Some of these trade modalities are less and less affected by geographical barriers as a result of improving digital technologies, however, the export of services is still subject to important non-geographical constraints. These include constraints posed by the quality of telecommunications infrastructure, regulatory barriers, and the quality of countries institutions and rule of law. Working to reduce these barriers is key to boost the export potential of services firms and enable them to achieve greater economies of scale.

## Special Feature: Services as Inputs

**Upstream services are an important input in the production of goods and services in downstream industries.** A large share of the output produced by Croatian services firms is used as an input in the production process of another business. Global innovator activities – in particular professional and technical services - have the highest forward linkages with downstream industries. 67 percent of the total output generated in the subsector is used as an input in other industries, and 42 percent of the total is used by other services firms. Low-skill tradable and low-skill domestic also show high forward linkages, with the former showing the highest linkages to the manufacturing sector, a result driven primarily by the wholesale industry. Importantly, except for social services, services industries show a higher level of forward linkages compared to the manufacturing sector, suggesting that growth in intermediate demand is a more important driver of services growth.

**The high level of forward linkages in the services sector is key to understanding the drivers and consequences of a services-led growth process.** First, unless barriers to services trade are low and domestic services firms can actively participate in global value chains (GVCs), the return to investing in the development of – possibly high value-added - upstream services sectors will be limited by the growth of their downstream industries. Favoring investments in upstream industries thus needs to go hand in hand with either – or both - an increase focus on services trade openness or the growth of downstream buyers – through an increase in the size of the market for their final goods/services. Second, investments in the quality and efficiency of upstream services industries can have positive spillover effects on the entire value chain. Third, linkages across services sectors can help reduce the risk of a dichotomy between productivity growth – driven primarily by high-skills sectors – and low-skill job creation – taking place primarily in industries with low productivity growth prospects – in a services-led growth process. On the one hand, productivity growth in high-skill activities can promote the competitiveness of downstream low-skill industries, with a positive effect on low-skill job creation. On the other hand, an expansion in low-skill-intensive industries can promote the growth of upstream skill-intensive activities, facilitating productivity growth through economies of scale.

**Table 2: Forward linkages between services sectors and industries**  
2014, share of service output (rows) used as input by type of industry (column)

Sectors	Input shares			Total
	Services	Manufacturing	Other sectors	
Global Innovator Services	0.42	0.10	0.15	0.67
Low-skill tradable services	0.24	0.26	0.08	0.58
Low-skill domestic services	0.33	0.07	0.11	0.52
Skill-intensive social services	0.08	0.01	0.01	0.10
Manufacturing	0.12	0.22	0.09	0.43

Note: Columns present the share of the output of each sector (rows) used as inputs by service, manufacturing, and the remaining economic sectors.  
Source: World Input-Output Database (2016); Timmer, Dietzenbacher, Los, Stehrer, & de Vries (2015).

## Are Services Inputs Productive Enough?

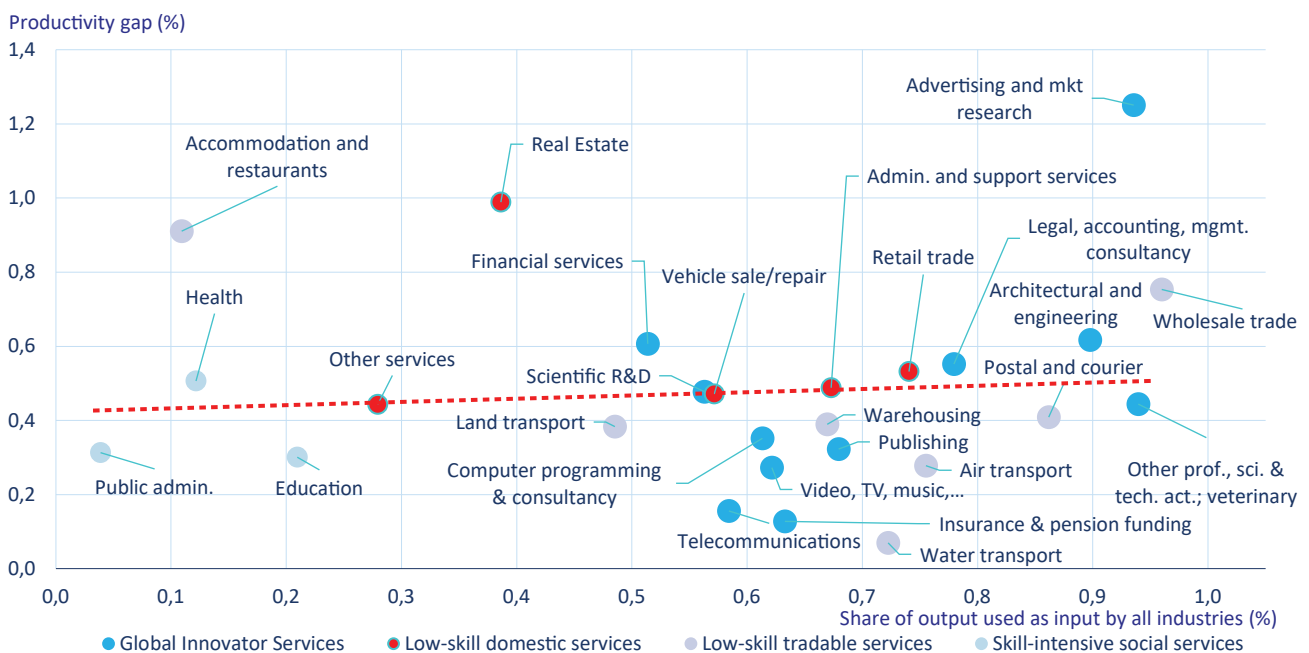
**The quality and productivity of upstream services matters for the competitiveness of downstream industries.** The availability of high-quality inputs at competitive prices is an important factor in the competitiveness of a business. Upstream high-skill services, such as professional and technical services or ICT consulting, for example, can facilitate the efficiency of the organizational and production processes of downstream businesses, ultimately affecting their productivity and competitiveness. The ability of an economy to guarantee the availability of these services is thus key to the productivity of the entire economy.

**While upstream services industries in Croatia tend to perform better than the average industry, productivity gaps with the frontier remain large, a fact that can have negative spillover on the competitiveness of the entire economy.** Data shows that in Croatia the productivity gap with Germany in services industries is lower the higher the share of output sold to other firms – stronger forward linkages –, albeit the difference is relatively small (Figure 49).<sup>24</sup> However, even in the most upstream sectors productivity differences with German firms remain high, with firms in industries selling 90 percent of their output to downstream firms being on average just about half as productive as their German peers. Promoting the quality and productivity of these upstream services – revising for example existing regulations in the professional services industry – can generate large productivity gains for the entire economy thanks to its potentially large spillovers to other sectors. This is even more important given the concerning productivity trends in the global innovator subsector presented in Figure 41(B) and calls for important measures in these areas.

**FIGURE 49.**

### Productivity of service sectors and their linkages with the rest of the economy

Labor productivity relative to Germany (y-axis) and the output share that is used as input by all economic activities (sections A to S of NACE Rev. 2; x-axis)



Notes: Y-axis is the aggregate labor productivity in Croatia relative to Germany (DE = 1) in 2019; X-axis denotes the share of output that becomes an input for all activities (sections A to S of NACE Rev. 2) in 2014 (last information available). Source: World Bank's elaboration based on Eurostat, World Input-Output Database (2016), and Timmer, Dietzenbacher, Los, Stehrer, & de Vries (2015).

<sup>24</sup> This is in line with the international evidence presented in Nayyar et al. (2021). In Croatia, going from a 10 percent share of output sold as an intermediate input to a 90 percent share is associated with a 10 percent decrease in the productivity gap with Germany.

**Promoting the efficiency and quality of upstream services industries and facilitating the import of high-quality services inputs is key to enable the development of high value-added downstream sectors in Croatia.** The competitiveness and growth of the Croatian downstream industries will depend on the capacity of the Croatian economic system to guarantee access for its firms to high-quality intermediate services at competitive prices. This can be achieved by 1) promoting the development and upgrading of upstream domestic services sectors and/or 2) favoring trade openness of services trade to facilitate import of high-quality intermediate services provided by foreign firms. Besides facilitating the use of foreign services, services trade openness can have an indirect effect on the quality and productivity of domestic upstream industries by increasing competition, thus incentivizing the upgrading of domestic firms. The availability of high-quality intermediate services is also important for the future of the small Croatian manufacturing sector. Its productivity growth prospect and its capacity to specialize in high-quality, high-productivity products will at least in part depend on its ability to use high-quality intermediate services that can, on the one hand, increase the sector's efficiency and, on the other, could be bundled with goods to increase their value to consumers (see Box 10).

## BOX 10

### The Importance of Services as Inputs for the Manufacturing Sector

**Services can contribute significantly to the performance of the manufacturing industry.** Services are crucial inputs for the production and sales of goods, embodied in manufactured products in the form of design, logistics, or commercialization platforms, or bundled as postproduction complements (warranties, customer support, and marketing services).

**High-quality intermediate services are key for boosting the productivity of manufacturers.** As Nayyar et al. (2021) highlight, a substantial share of the value of gross manufacturers' exports is attributable to the value added by embodied services. Moreover, a well-developed body of economic literature provides evidence of the positive impact that services can have on the productivity of manufacturing companies, both in high- middle- and low-income countries. In this regard, telecommunications, logistics, financial, and information services can help manufacturers create new products, expand markets, and serve foreign companies and customers (see Annex 5).

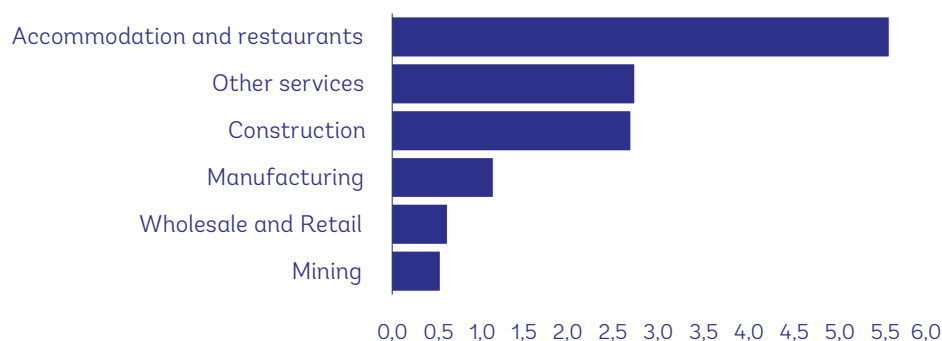
**Intermediate services can also play an important role by facilitating product diversification and enable quality upgrade of manufactured goods.** The bundling of goods and services allows manufacturing companies to meet consumer preferences and diversify their products from their competitors. Additionally, introducing design services into the production process can result in higher product attraction, sales and profitability. From the supply-side perspective, an increasing number of manufactured goods require the provision of complementary services to be fully used by the consumers. For example, electronic devices require telecommunication services in order to work properly and meet customers' expectations.

**The growing complementarity and linkages between services and manufacturing make the boundaries of the production process between these sectors appear blurred.** For example, several large manufacturing companies in the technology industry have restructured themselves and incorporated service complements to their traditional businesses in the form of equipment maintenance, financial services, cloud computing services and customer support.

## Firm dynamism

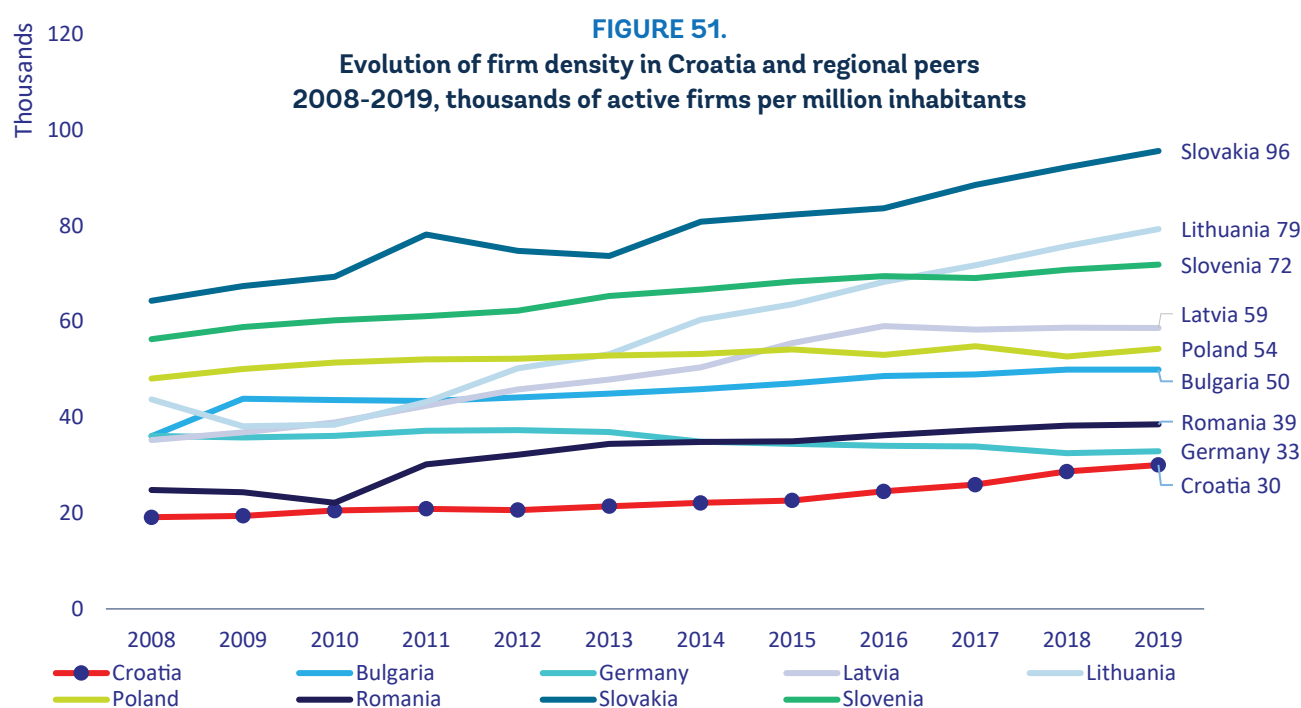
**Firm density increased rapidly over the last decade thanks to a consistently high net firm entry rate, although it remains low.** Between 2008 and 2019 the number of firms per million inhabitants grew by 50 percent from 20,000 to 30,000. The growth in the relative number of firms is the result of a consistently high net entry rate, which averaged 5.7 percent over the period and was the second highest among EU countries. This trend was particularly strong in the tourism sector, which expanded rapidly, especially between 2013 and the onset of the Covid-19 pandemic (Figure 50). Construction and other non-retail services also saw a strong net entry of firms over the period.

**FIGURE 50.**  
Growth in the number of businesses in 2002-2019, by sector 2002-2019, percentage



Source: World Bank's elaboration based on Eurostat.

**The density of firms in Croatia- the number of firms per million inhabitants – is among the lowest in the EU.** The number of firms per million inhabitants is 30,917, well below the level observed in many of the country's regional peers (Figure 51).<sup>25</sup> This low level of firm density is also below the norm for countries at the level of development of Croatia. Slovenia for example has more than twice as many firms per million inhabitants as Croatia does.

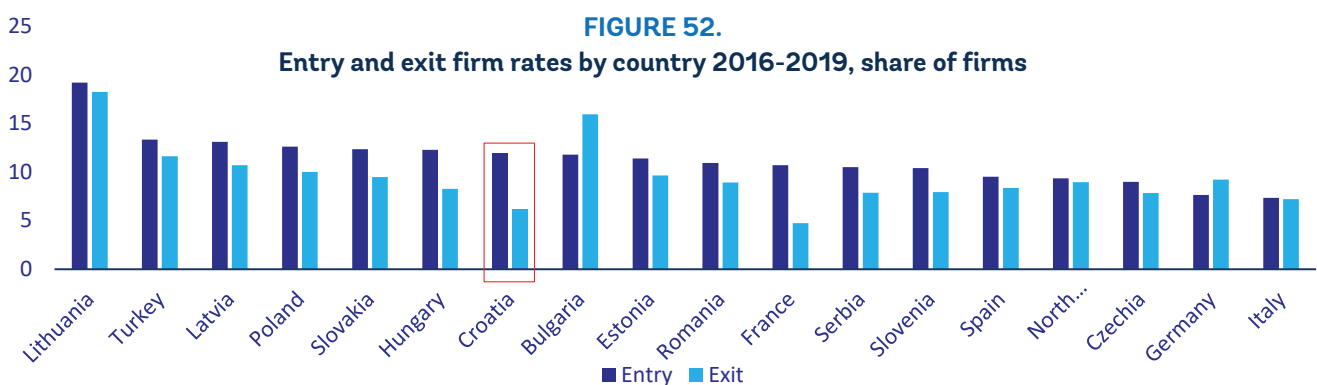


Notes: Figure plots the evolution of the number of active firms per million inhabitants for EU regional peers.

Source: World Bank's elaboration based on Eurostat.

<sup>25</sup> This number comes from the FINA administrative data and official population numbers. Using data from Eurostat gives a higher firm density – of 44,555 – but does not change the main conclusions in this chapter.

**Net entry is high primarily because of a lower-than-average exit rate, pointing to the presence of potential frictions and market inefficiencies.** The high net firm entry observed in Croatia is the result of a very low exit rate of about 6 percent, which is well below that observed in most other EU countries (Figure 52). On the other hand, the entry rate is close to the EU average. Given the relatively limited but expanding number of firms in Croatia, the about-average entry rate and below-average exit rate can be interpreted as a sign of possible underlying market inefficiencies stifling business dynamism. In a dynamic business environment with efficient and fluid markets and limited barriers to entry one would expect a high net entry rate to be driven by an above-average entry rate, rather than a below-average exit rate. In such a scenario a large number of new firms should enter the market, competing with each other and with incumbent firms, and leading to strong up-or-out dynamics – grow or exit - among young firms, high exit rates among new entrants, and increased competition for incumbents. The fact that we do not see this pattern – as shown here and in the rest of this chapter – points to the presence of underlying frictions and inefficiencies limiting both the entry of new firms and competition in the markets (see Box 11 and Box 12).



Notes: For comparison purposes, entry and exit rates are defined according to Eurostat-OECD Manual on Business Demography Statistics.

Source: World Bank's elaboration based on FINA and Eurostat.

## BOX 11

### Factors Affecting Firm Entry

**Promoting business creation is key to the development of a dynamic business environment.** The competitive threat posed by the entry of new businesses can promote the efficient allocation of resources across firms, for example, by driving unproductive incumbents out of the market, and can help limit the market power of incumbent businesses. It can also push unproductive incumbents to invest in their efficiency and improve the quality of management.

**Several factors can reduce the willingness of potential entrants to enter a market.** Direct barriers to entry – such as formal registration costs and time-consuming registration processes - represent a clear constraint to business formation. These barriers, which are often a direct consequence of explicit regulations and poor institutional capacity, increase the upfront cost of starting up a business, thus reducing the net present value of investing in a new firm.

**Frictions limiting business creation are however not limited to formal, direct barriers to entry.** Other factors that reduce the expected value of operating a business, increase uncertainty, or reduce the likelihood that a productive, “good” business will succeed in the market can negatively affect both the entry rates of new businesses and the average quality of startups. Examples of these include a lack of competition, privileges granted to a subset of incumbent firms, uneven enforcement of existing regulations, and high bankruptcy costs.

## BOX 12

## Corporate sector zombification

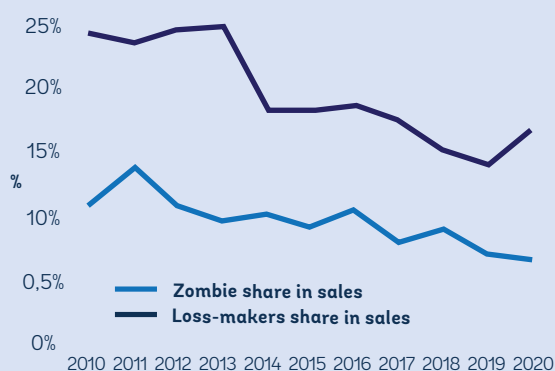
**The continuous entry and exit of firms is a crucial mechanism for markets.** The turnover of companies allows resources to flow from unproductive incumbents toward new, innovative firms. This can help boost productivity and facilitate long-term economic growth. When this mechanism doesn't work, inefficient firms that should have gone bankrupt and exited the market can remain in the market, with detrimental effects on productivity. These firms are known as zombie firms.

**Zombie companies under-utilize valuable resources and can drag on productivity and economic growth.** A zombie company is defined as a chronically weak company that fails to cover its interest expenses for three years in a row.<sup>26</sup> In general, the deterioration in performance (profitability, productivity, employment, and investment) is most emphasized in the two years before zombification. Zombie companies produce far less value-added per employee compared with healthy companies. They are larger, older, and less profitable. They hold a disproportionate share of labor and fixed assets and invest less compared to non-zombie companies. They impede competition and crowd out healthy companies from resources without contributing to productivity growth and adversely affect financial stability.

**Zombie companies in Croatia make up around 13 percent of companies and around 8 percent of total sales.** The number of zombie companies in Croatia has declined over the past decade, which likely reflects the improving performance of the economy (Figure 2). The share of zombie companies is [in line with] Croatia's peers. By sector, transport and tourism have the highest share of zombie firms (Figure 3).

**In some sectors zombie companies have a much higher share of employment than sales, indicating that they are less productive than "non-zombie" firms.** This difference is largest in the manufacturing sector, indicating that zombie firms in this sector have the largest productivity shortfall compared to non-zombie firms. Resolving the issue of zombie firms in the manufacturing sector could therefore have a particularly large benefit for the sector's productivity, which is one of the worst-performing sectors in Croatia's economy (Chapter 3).

**FIGURE 1. The share of zombie companies**



Source: FINA, staff calculation.

**FIGURE 2. Sectoral differences**



Source: FINA, staff calculation.

<sup>26</sup> The standard definition of a zombie firm in literature is based on interest coverage where a zombie firm is unable to cover interest cost with its' operating earnings.

**TABLE 1. Zombie companies characteristics, median per category**

Zombies	Interest coverage (%)	Return on assets (%)	Net investment (%)	Technical revenue efficiency (%)	Age (years)	Employees (number)	Size (log SA)	Equity ratio (E/A) (%)
<b>Interest coverage</b>								
0	2.1.	5.5	0.0	54.1	6.0	7.3	12.6	32.5
1	-0.8	-3.2	-4.5	50.0	11.0	7.4	13.3	-11.7
<b>Operating zombie</b>								
0	1.1.	3.1	0.0	54.0	9.0	18.7	14.0	30.3
1	0.5	1.3	-2.0	49.4	11.0	20.5	14.5	38.5

Source: FINA, staff calculation.

**Beyond their impact on productivity, zombie companies also pose risks for the banking sector.**

Zombie companies account for around 25 percent of the banking sector's credit exposures to the corporate sector. Weak performance combined with a dependency on bank financing creates further risks. Since they are more indebted, their potential to restructure is weak, especially since their assets might be to a large extent either used for collateral or already foreclosed. Being unable to perform a proper restructuring, zombie companies are more likely to continue with activities that banks might favor. Explanations of such "zombie lending" are underpinned by misaligned bank incentives. A typical mechanism envisioned behind zombie lending is that a bank wants to avoid recognizing the deteriorated condition of the borrower.

**Resolving the issue of zombie firms would boost productivity and reduce financial exposures but would require well-targeted policies.** Improvements to the insolvency system can help keep viable businesses operating but speed up the exit of companies that are insolvent. Prudential regulation should encourage banks to recognize losses where the credit condition of the borrower has deteriorated and prevent additional lending to zombie firms.

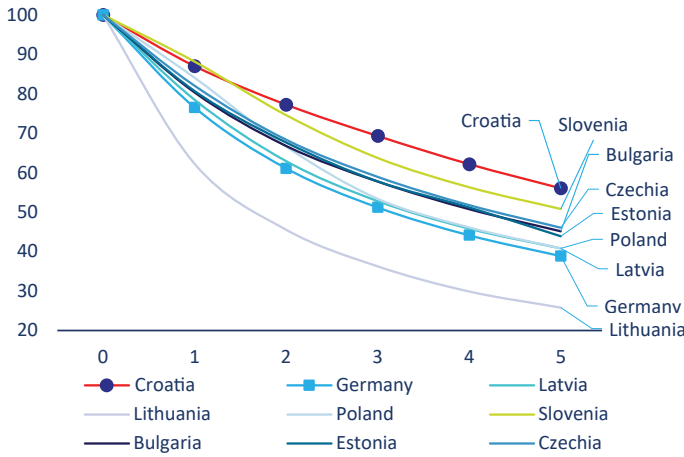




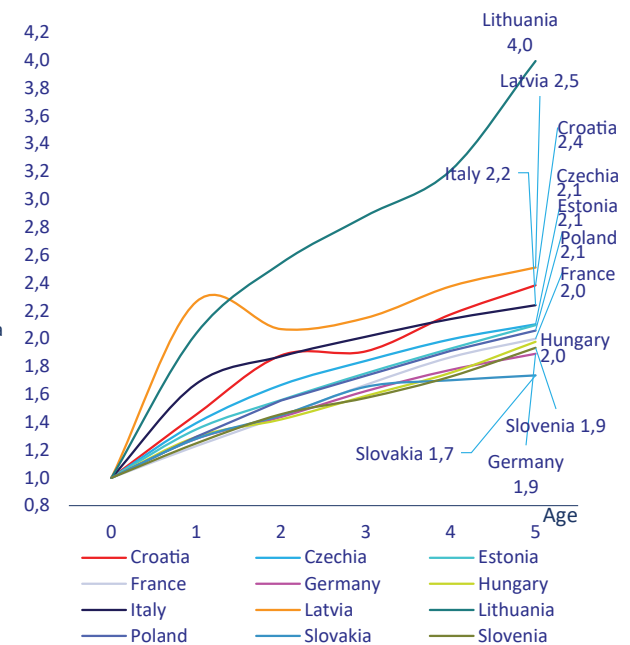
FIGURE 53.

Survival rates, by country and average firm size relative to entry, by age and country

A. 2010-2018, share of firms at a given age;



B. 2015-2019, number of employed persons (index, age 0 = 1)



Notes: The right panel uses cross-section data and does not control for the selection effect induced by firm exit.

Source: own elaboration based on Eurostat and FINA.

**Young businesses in Croatia grow quickly in their early years and their survival rates are the highest among the country's EU peers.** Of the firms that were created between 2010 and 2018, 87 percent, 69 percent, and 56 percent were still active after 1, 3, and 5 years, respectively (Figure 53). In comparison, in Germany, these survival rates were 76 percent, 51 percent, and 39 percent, respectively. Together with a slightly above-the-median entry rate, these high survival rates have increased the share of young firms in the country, which at 47 percent is among the highest in EU countries (Figure 54). Young firms in Croatia also grow rapidly. After 5 years of operations a Croatian firm is on average 1.6 and 2.4 times larger than its size at age 1 and 0 – a growth rate higher than those observed in most EU countries. This rate of growth is not explained by a size selection effect induced by the exit of small firms – i.e., smaller firms exit and bigger firms survive - and remains strong even among firms that stay over the entire period.<sup>27</sup>

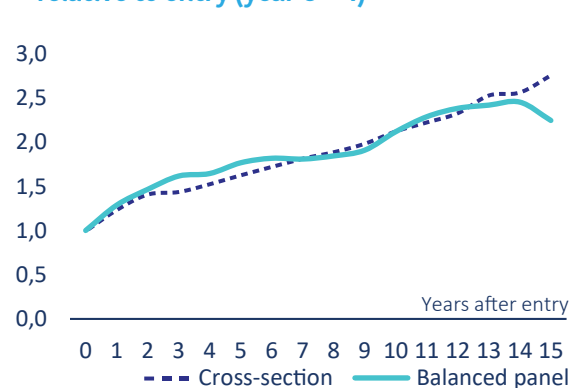
FIGURE 54.

Share and growth of young firms

A. 2015-2019, percentage of total active firms and employed persons;



B. 2005-2020, number of employed persons relative to entry (year 0 = 1)

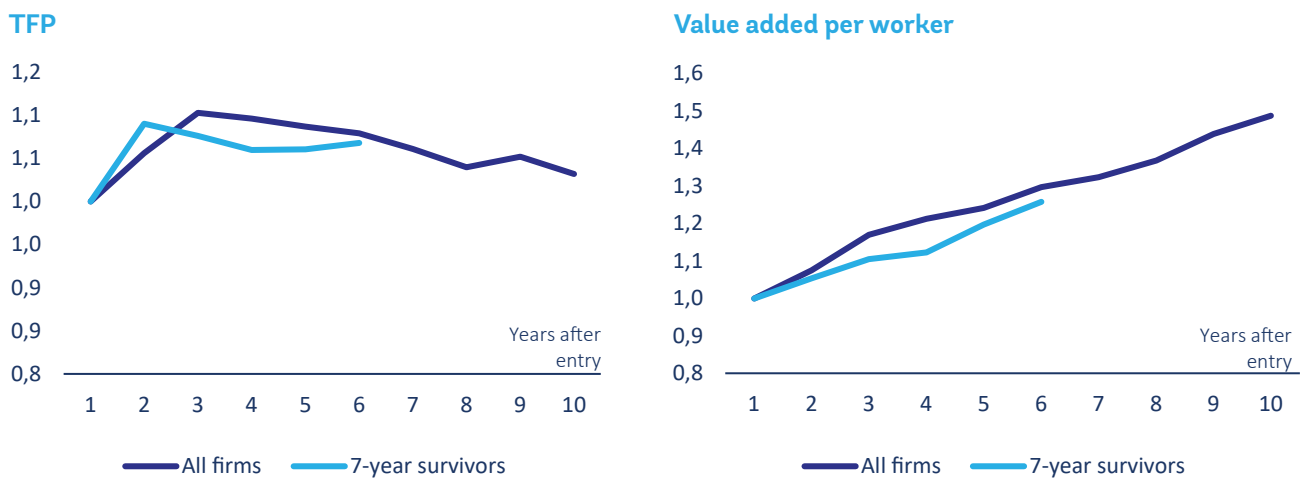


Notes: The left panel depicts the average share of young firms and employment in young firms between 2015 and 2019. Shares are calculated as the sum of the shares of firms and the employment of firms at each age (0 to 5). In the right panel, the balanced panel sample corresponds to stayers, defined as firms that stay 15 consecutive years in the market. Source: World Bank's elaboration based on Eurostat.

<sup>27</sup> The selection effect can of course still work through a selection based on the growth potential – rather than initial size – of firms. This is part of the up-or-out dynamic – grow or exit- that one should expect to see in a dynamic business environment.

**The rapid growth in size and high survival rate of young firms in Croatia is not reflected by a good productivity performance, a sign of inefficiencies in the competitive environment.** While in the first 10 years of operation value added per worker increases by 49 percent, on average, this is primarily explained by an increase in capital accumulation. Average TFP remains virtually unchanged for 1-year-old and 10-year-old firms. The fact that firms can grow without improving their productivity - and thus without gaining competitiveness - is a sign that the market might be unable to induce strong up-or-out dynamics. Young Croatian firms grow and survive at higher-than-average rates not because of their competitiveness or quality but rather because they face weak competition. This results in the growth of unchallenged – or only weakly challenged – unproductive businesses, sustains a misallocation of resources toward inefficient firms, and weighs on aggregate productivity growth.

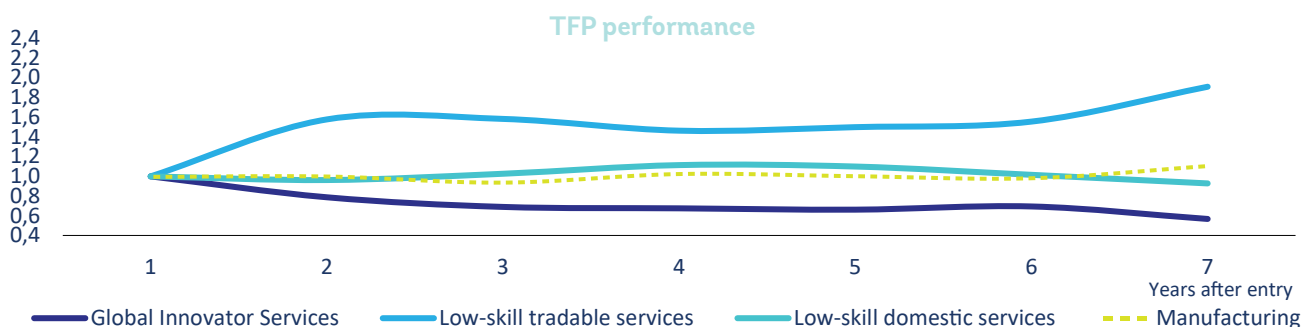
**FIGURE 55.**  
**Productivity performance after entry**  
**2008-2020, relative to productivity in year 1 (index, age 1 = 1)**



Notes: The figure depicts the average TFP and value added per worker by age. Firms surviving 7 consecutive years after entry are defined as 7-year survivors. Productivity measures are indexed to age 1. Source: World Bank's elaboration.

**Within the services sector, young firms also tend to grow in size but not in productivity.** Productivity actually declines in global innovator activities, suggesting that markets for these services are unable to reward productive firms. Box suggests that, at least for the professional services industry, this inefficiency might be the result of overly strict regulations protecting incumbent firms and raising entry costs. In contrast, TFP increased over time in low-skill tradable services, which may reflect the sector's greater exposure to international competition.

**FIGURE 56.**  
**TFP growth after entry across sectors**  
**2005-2020, firms surviving 7 years relative to entry (age 1 = 1)**

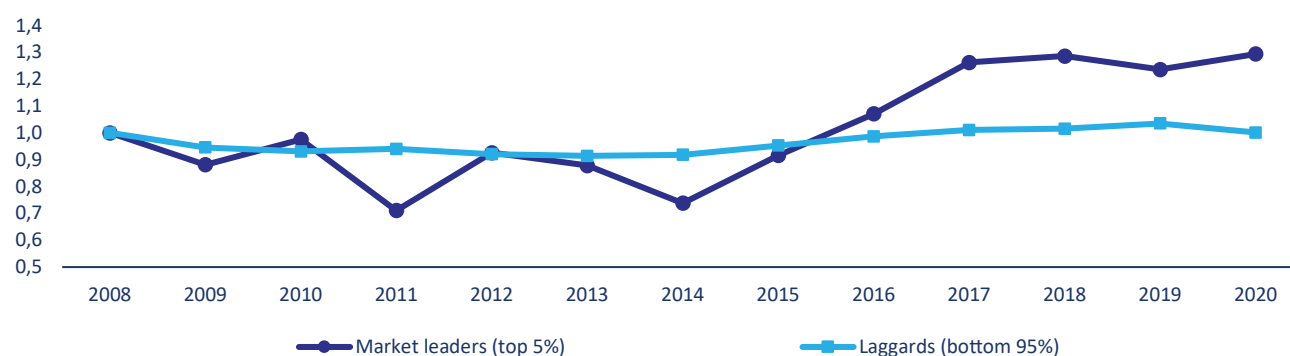


Source: World Bank's elaboration based on FINA.

## Additional Evidence on Firms' Growth Dynamics

**The productivity gap between productivity leaders and laggards has widened since 2015, suggesting the recovery primarily benefited a small fraction of highly productive firms.** Over the last decade, Croatian productivity leaders - firms in the top 5 percent of the TFP distribution - have increased their productivity compared to other local firms (Figure 57). This pattern is entirely explained by the performance of productivity leaders in the post-2014 recovery period, suggesting that a small number of highly productive firms benefited more from the recovery. While this result points to the importance of firms' productivity in determining their success, it may indicate that these firms are enjoying excessive market power as their competitors are increasingly unable to challenge their position. This highlights the risk of a productivity growth process led by a limited number of high-performing firms, which might end up being unthreatened by their competitors and charging overly high prices for their products and services.

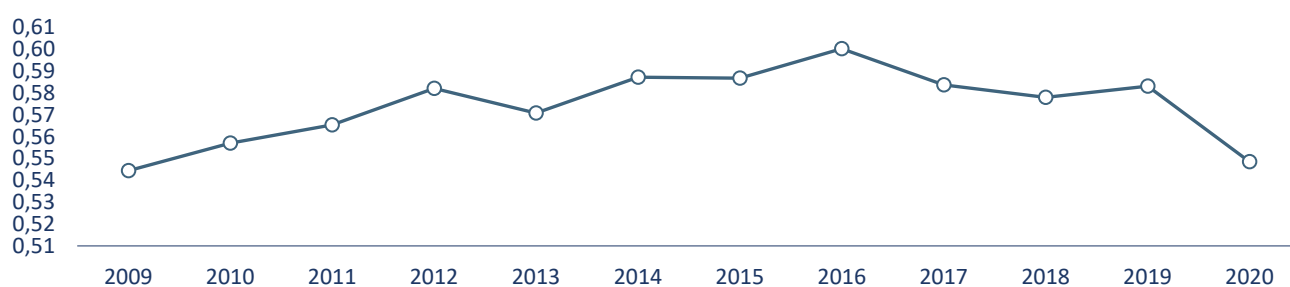
**FIGURE 57.**  
TFP performance of productivity leaders and laggards 2008-2020, index (2008 = 1)



Notes: Market leaders and laggards are defined as firms at the top 5 and bottom 95 percent of the TFP distribution of each two-digit level industry of NACE. Aggregate TFP (using sales weights) is indexed to 2008. Source: World Bank's elaboration based on FINA.

**Over the decade prior to the Covid-19 pandemic, the status of productivity leaders was less and less challenged by laggard firms.** In line with the widening productivity gap between productivity leaders and productivity laggards – firms in the bottom 95 percent of the productivity distribution – the status of productivity leaders has become less contested (Figure 58). Most of this trend seems to be explained by a decrease in the dispersion of TFP growth. This decreasing dynamism in TFP growth signals a decline in the probability that a firm with initially lower TFP can eventually outperform its higher productivity competitors, consistent with the decreasing threat faced by productivity leaders.

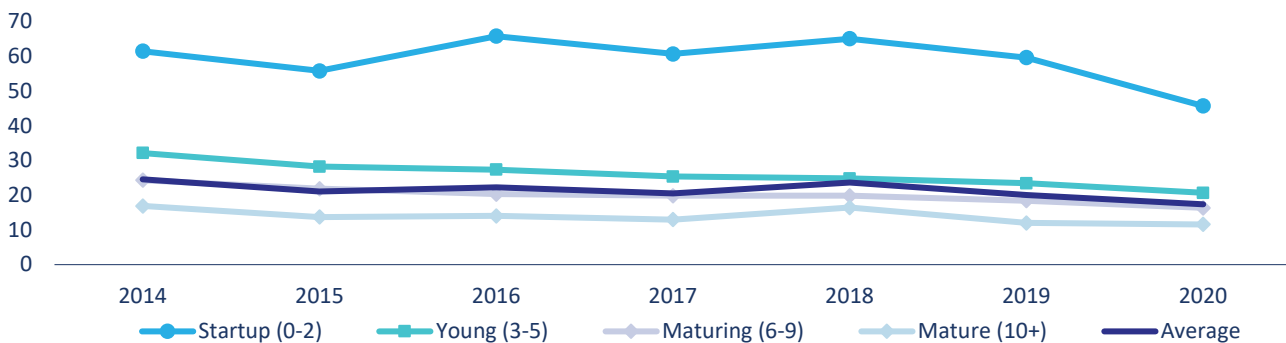
**FIGURE 58.**  
Fraction of market leaders in previous year that remained market leaders one year after 2009-2020, percentage of market leaders in the previous year



Notes: Market leaders and laggards are defined as firms at the top-5% and bottom-95% of the TFP distribution of each two-digit level industry of NACE. Aggregate TFP (using sales weights) is indexed to 2008. Source: World Bank's elaboration based on FINA.

**Incumbent firms experienced declining dynamism, providing further evidence of weakening market mechanisms.** The dispersion in the growth of TFP declined over the period, indicating that changes in TFP across firms became more homogenous, with large positive and negative changes becoming more infrequent. This was accompanied by a decrease in the dispersion of firms' growth rates – measured by total yearly sales. In addition, the job rate relocation rate – defined as the sum of absolute net firm-level employment changes – declined between 2014 and 2019.<sup>28</sup> Overall, the evidence points to a business environment that became more static over time, with firms that are less frequently challenging each other's position. This trend goes against what should be expected in a dynamic, competitive market, where firms should constantly be challenged by their competitors.

**FIGURE 59.**  
Job reallocation rate, by age class  
2014-2020, percentage of aggregate employment



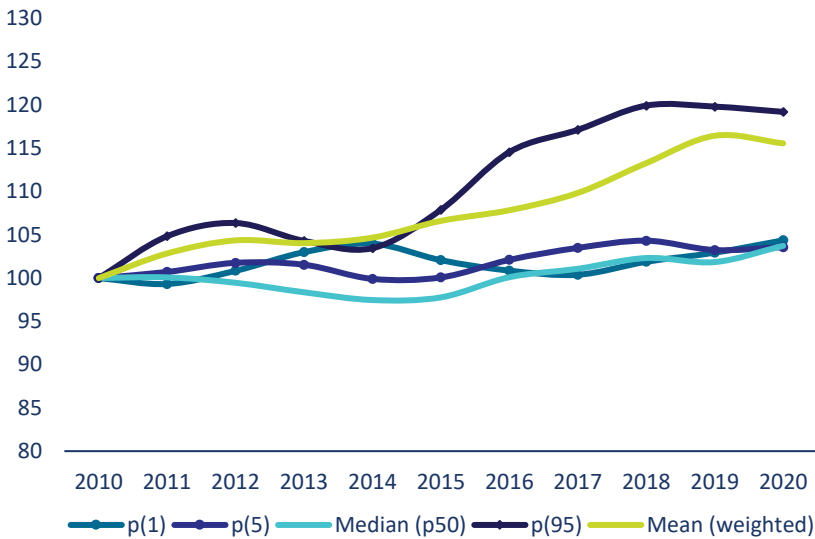
Notes: The job reallocation rate is calculated as the sum of the absolute value of changes in employment of all firms divided by aggregate employment.  
Source: World Bank's elaboration based on FINA.

### 3.5. Market Power of Firms

**Markups** – a measure of market power – **increased over the last decade, driven primarily by high markup firms and suggesting that market mechanisms have become weaker over time.**<sup>29</sup> Average markups in Croatia have risen over the last decade, indicating that Croatian firms are increasingly able to charge prices that are above their marginal costs (Figure 60). This is a sign of a deteriorating competitive environment in the country's markets, with firms having more room to raise prices without losing market share to their competitors. This upward trend accelerated during the post-2014 recovery and was driven primarily by firms that already had high markups. Lower markup firms on the other hand did not seem to enjoy higher market power, as shown by the relatively flat median markups. The fact that firms with already high markups drove the trend suggests that market power is becoming increasingly concentrated among a small set of firms, which enjoy a favorable market position and are able to insulate themselves from their competitors. This could be due to existing privileges and market inefficiencies that stifle business dynamism and limit competition.

<sup>29</sup> Markups are estimated using the methodology presented in De Loecker, Warzinsky (2012).

**FIGURE 60.**  
**Evolution of firm markups 2008-2020, average and selected percentiles of the markup distribution (2010 = 100)**

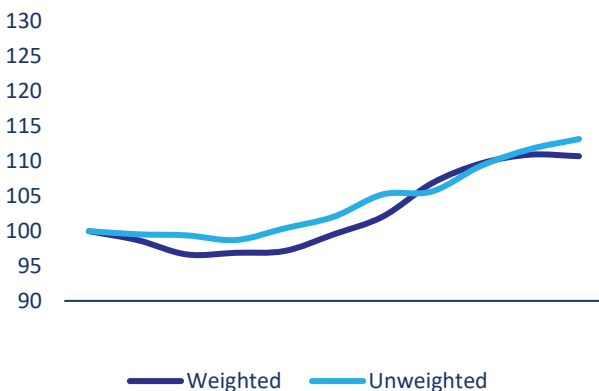


**Markups are both higher and have increased faster in the services sector.** The high estimated markups charged by services firms suggest that firms in this sector manage to insulate themselves from competition and charge prices that are higher than their marginal costs. While markups are also increasing in the manufacturing sector they remain at a much lower level, a sign that the competitive pressures faced by manufacturing firms are higher (Figure 61). This may be due to the higher exposure to international competition in manufacturing, thanks to the more tradable nature of manufacturing goods.

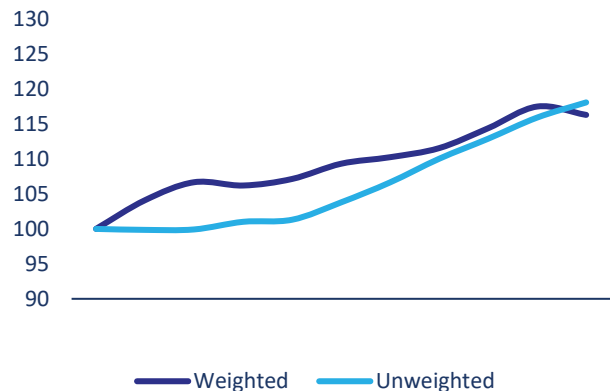
Notes: Firm-level markups are weighted using deflated sales weights; Evolution of markup is calculated based on the 3-year moving average. Source: World Bank's elaboration based on FINA.

**FIGURE 61.**  
**Evolution of markups in manufacturing and service industries 2010-2020, 3-year moving average index (2010 = 100)**

**A. Manufacturing**



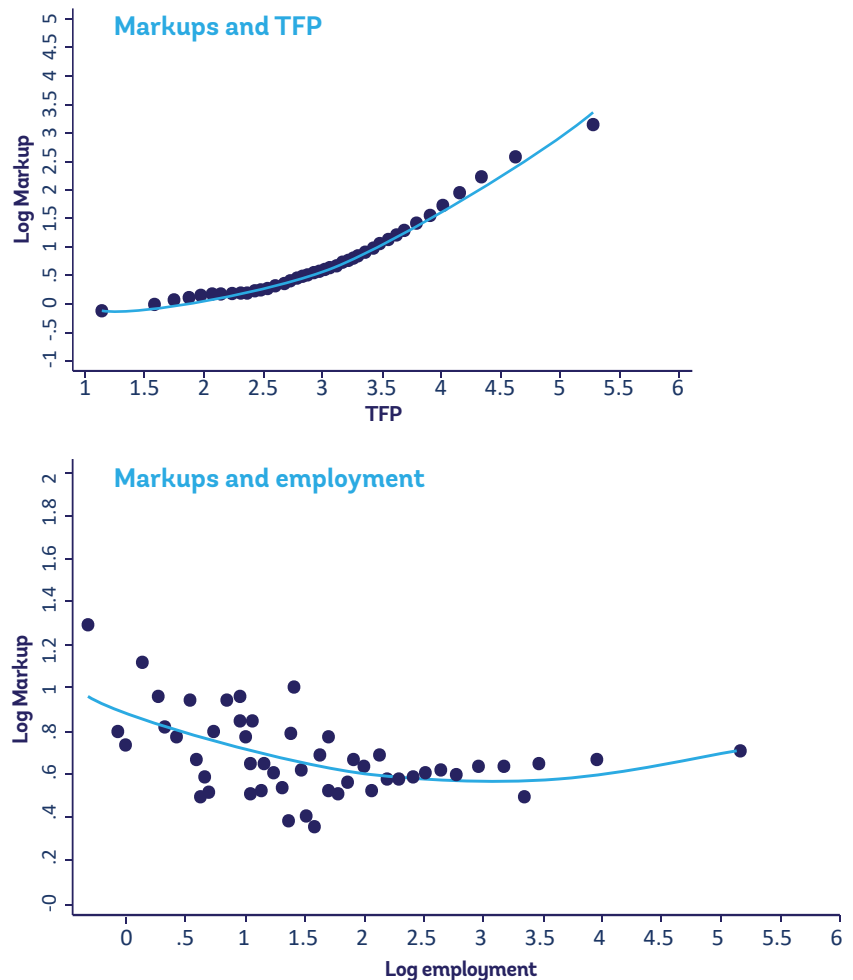
**B. Services**



Notes: Figure depicts the evolution of the 3-year moving average weighted and unweighted markups in the manufacturing and service industry. Markups are indexed to 2010. Source: World Bank's elaboration based on FINA data. Source: World Bank's elaboration based on FINA.

**FIGURE 62.**  
**Markups, productivity, firm size and market power 2008-2020**

**Markups are higher among more productive and smaller firms, a sign that big firms might operate in more competitive markets.** In Croatia, more productive firms enjoy higher market power. While this may simply reflect the fact that more competitive firms are performing better than less competitive ones, it could also signal that these firms have achieved a competitive advantage and can insulate themselves from the threat posed by their competitors. Markups are also higher in smaller firms, suggesting that big firms tend to operate in more competitive environments. This could be – at least in part - explained by the higher exposure of these firms to international competition, and by the higher scrutiny that bigger firms are usually subjected to by the authorities. Indirectly this evidence also suggests that most small- and medium-sized firms in Croatia operate in markets that are far from perfectly competitive.



### 3.6. Firm Capabilities and Upgrading

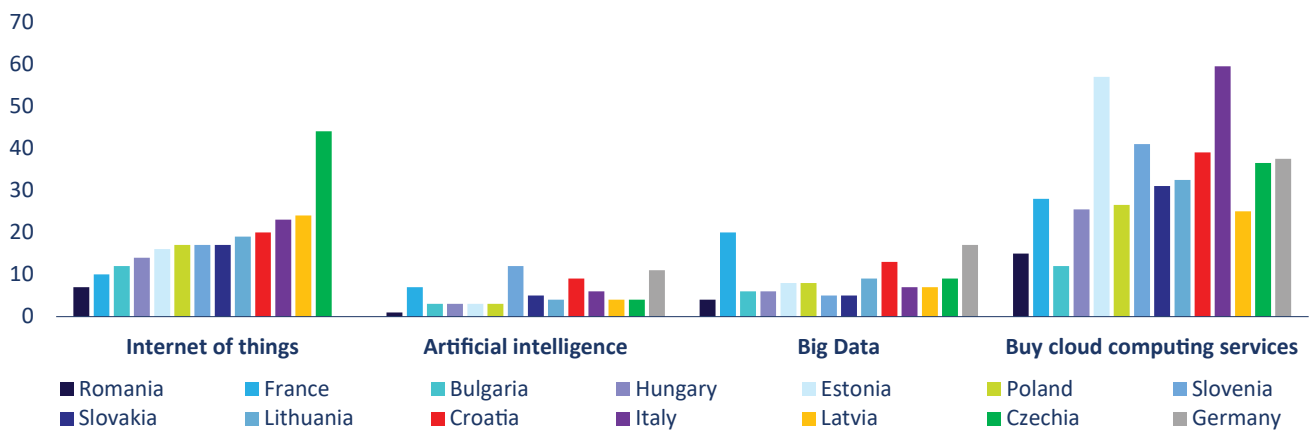
**While firms have seen rising productivity over the past decade, there are still ample opportunities to raise productivity by boosting innovation and improving managerial and organizational practices.** Firms in Croatia have higher rates of advanced technology adoption than their peers, but these remain low compared to the advanced countries. They also invest little in innovation and lag their peers in the quality of the managerial and organizational practices they adopt. Overall, this evidence suggests that productivity growth can be boosted by encouraging innovation and the upgrading of internal capabilities. Managerial practices are a particularly important area of improvement as it is unlikely that a poorly managed firm would be able to gain the full productivity benefits of adopting new advanced technologies.

## Innovation and Technology Adoption

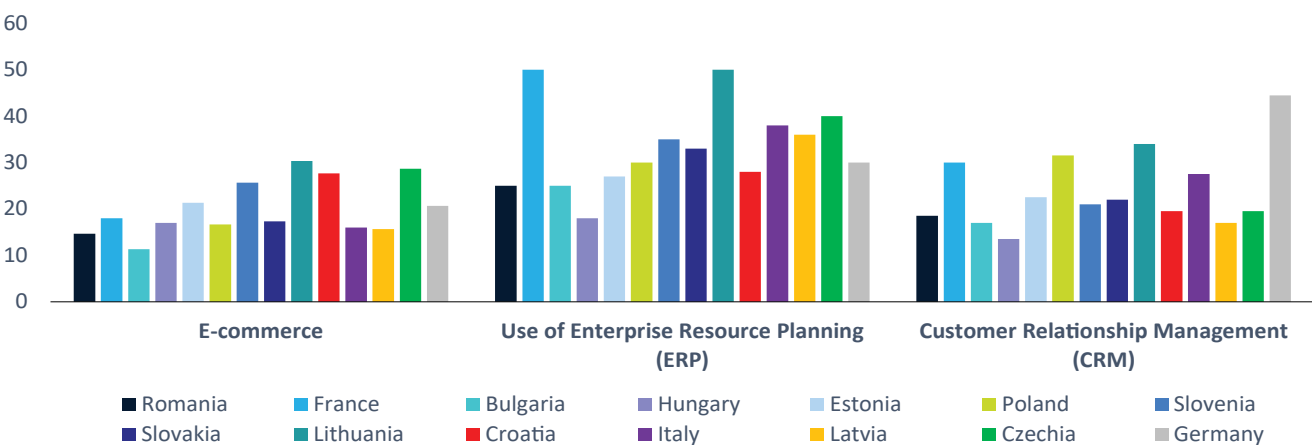
**The adoption of advanced technologies among Croatian firms – ICT and Industry 4.0 - is higher than in some regional peers but remains low in absolute terms.** Available data from the Eurostat survey on ICT usage by enterprises show that Croatian firms perform better than most of their regional peers when it comes to the adoption of advanced technologies. The share of Croatian firms that regularly use technologies related to the Internet of Things, Artificial Intelligence, Big Data Analytics, Cloud Computing is above the average of Croatia's peers (Figure 63). Croatia is also above average for the share of firms using E-commerce platforms and using Enterprise Resources Planning software. These data indicate that the adoption of technologies– at least when it comes to advanced technologies – does not explain the relative weakness of the productivity of Croatian businesses relative to peers, although there is still significant room for increased adoption.

**FIGURE 63.**  
**ICT adoption across EU peers**  
**2019-2021, share of firms with at least 10 employees in market economy**

### A. Internet of Things, AI, Big Data and Cloud services



### B. E-commerce, ERP and CRM

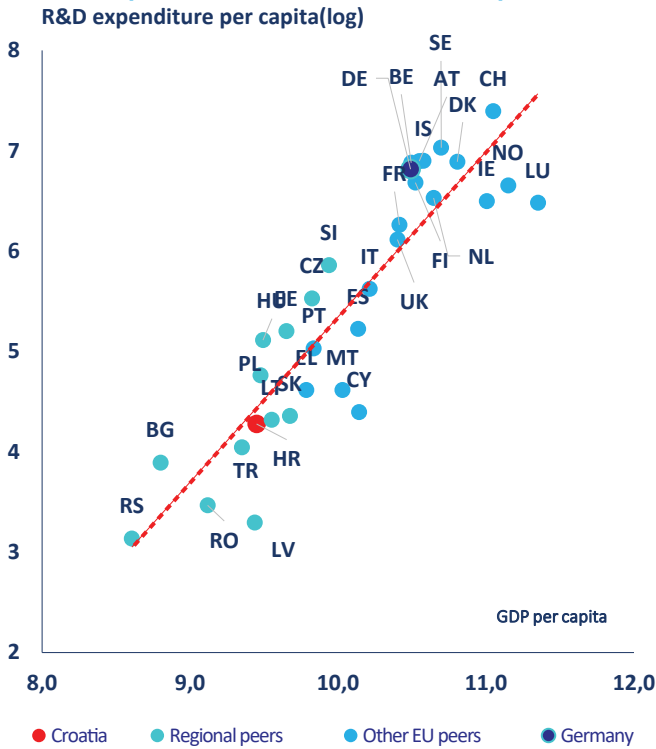


Source: World Bank's elaboration based on Eurostat.

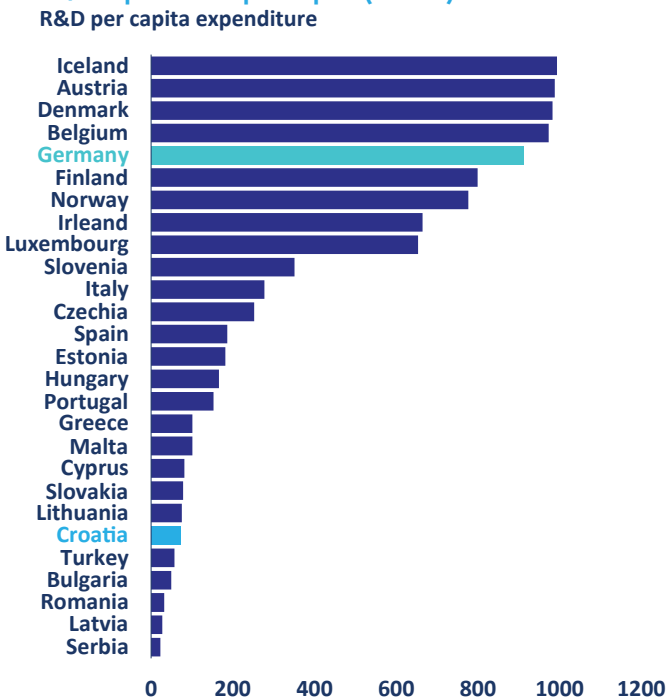
**FIGURE 64.**

R & D expenditure in the business sector and level of development 2019, R&D expenditure per capita (€) and GDP per capita (€, 2010)

**A. R&D expenditure and economic development**



**B. R&D expenditure per capita (€ 000)**

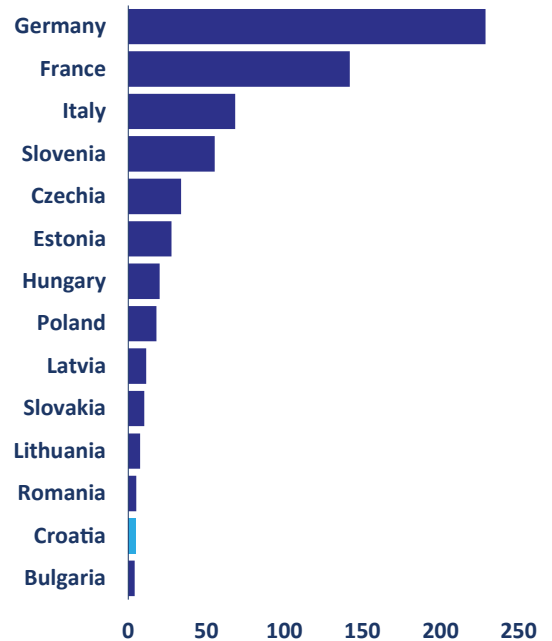


Notes: R&D expenditure per capita is the gross expenditure in Research & Development in the business enterprise sector according to Eurostat classification divided total population. GDP per capita is measured in Euros of 2010.  
Source: World Bank's elaboration based on Eurostat.

Private sector investment in research and development (R&D) in Croatia is low compared to most EU countries, suggesting that innovation is not a primary source of growth for Croatian firms. While they tend to have an above average adoption rate of advanced technologies relative to their peers, Croatian firms invest little in innovation. Firms in Croatia invest a total of 72 euro per inhabitant, less than 10 percent that of Germany (913 euro per inhabitant) and below the level in most of the country's EU peers, although it is more in line with the average among countries with similar levels of GDP per capita (Figure 64). These below average investments in R&D translate into a limited number of patented innovations per inhabitant - a proxy of innovation outputs (Figure 65).

**FIGURE 65.**

Patent applications across EU countries 2017, number of patent applications to the EPO per million inhabitants



Notes: Figure depicts the number of total applications to the European Patent Office (EPO) per million inhabitants by priority year at the national level.  
Source: World Bank's elaboration based on Eurostat.

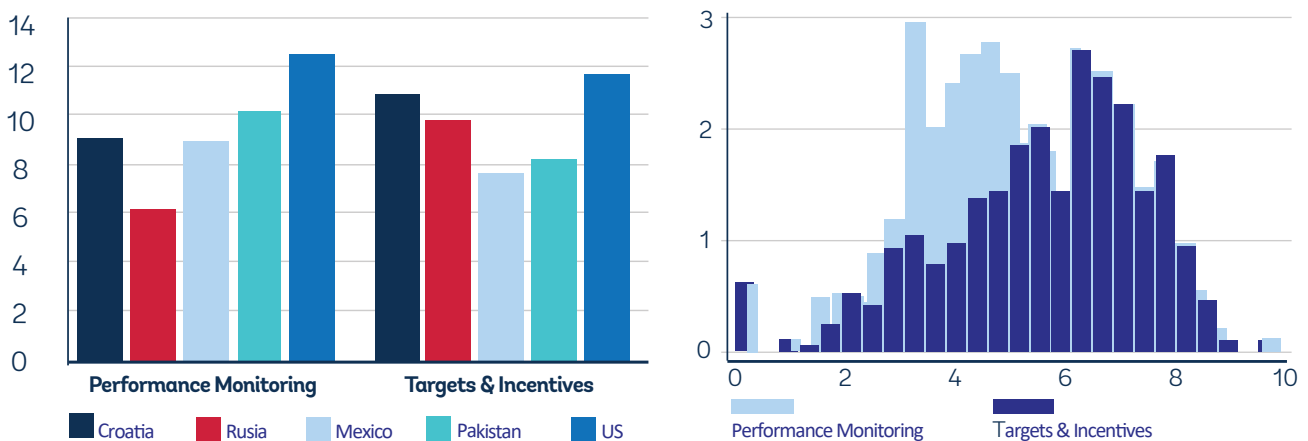


## Adoption of Managerial and Organizational Practices: Room for Improvements

The quality of managerial practices at Croatian firms is far from the frontier, especially for performance management and data driven decision making. This could go some way toward explaining the within sector gap in productivity between Croatia firms and their peers. Firms in Croatia well below the frontier in the adoption of managerial best practices<sup>30</sup> (Figure 66).<sup>31</sup> On average interviewed firms in Croatia adopted only 53 percent of the 15 best practices considered in the survey, which is below the 62 percent found among US manufacturing firms (Bloom et al., 2019).<sup>32</sup> Relative to the US, the quality of management practices is also skewed toward a low adoption of best practices, with a large share of poorly managed firms and a small number of high performers. The gap between Croatian and US firms is driven primarily by a low adoption of best practices in performance management and data-driven decision making. In contrast, Croatian firms perform comparatively well at target setting and to the use of formal incentives to incentivize managers and workers.

FIGURE 66.

An average firm in Croatia is weaker at practices relating to monitoring performance indicators



Source: Grover et al. (2019).

<sup>30</sup> Scale, competition, and education are key drivers of management quality. Bigger firms tend to be better managed than smaller firms, a scale effect that could be explained by the fixed costs associated with setting up and using managerial best practices. Firms that are exporters also tend to be better managed, partially because of the high correlation with both size and managers' education and partially because of the effect that the higher competition faced by these firms can have on their managers' incentives to better manage their organization and increase its efficiency (Backus, 2020). Finally, firms with better educated managers also tend to be better managed, highlighting the importance of education and in particular, business education, as a driver of better managerial quality.

<sup>31</sup> These data are from a survey of enterprises run by the World Bank and published in Grover et al. (2019).

<sup>32</sup> These 15 questions are taken from the United States Census Bureau Management and Organizational Practices (MOPS) survey main module.

### BOX 13

## Why Management Matters for Productivity

Within-firm productivity growth typically explains a significant share of total productivity growth, especially in developing countries or countries far from the productivity frontier. (Cusolito & Maloney, 2019; Cirera & Maloney, 2017). Given the importance of the within-firm term on productivity growth and in the light of recent research discussing that the effect of resource reallocation could be smaller than within-firm improvements in explaining aggregate TFP growth (Collard-Wexler & De Loecker, 2015; Restuccia, 2016; Sivadasan, 2009), upgrading within-firm capacities could play a major role for fostering aggregate productivity.

**Management practices are one of the key drivers** (or “levers” as explained by Syverson, 2011) **for upgrading firms’ internal capabilities to operate efficiently and improving productivity.** Bloom et al. (2013) explain that management practices can be regarded as technology, in which management is seen as intangible capital that is positively correlated with output. In this regard, management practices can help explain productivity differences across regions and firms. For example, Bloom et al. (2016) estimates that management practices account for nearly one-third of cross-country TFP differences and around 20 percent of within-country differences in firm performance. Similarly, Bloom & Van Reenen (2010) show that management practices can explain a substantial share of productivity differences across firms in developing and developed countries.

**Management practices include a broad number of practices in various relevant areas of the firm.** Responses to production problems, data-driven monitoring of performance, production targets, working conditions enhancement, and designing incentives to boost workers’ performance (e.g., rewards bouses and promotion) are only a subset of a larger number of management-related practices that help boost the internal capabilities of the company.

**The importance of quality managerial practices is relevant for explaining productivity and income per capita worldwide, and Croatia is no exception.** Grover, Iacovone & Chakraborty (2019) find that structured managerial practices are positively and strongly correlated with better firm performance. To assess the potential impact that management practices could have on boosting performance, the authors show that increasing the management score from the 10<sup>th</sup> to the 90<sup>th</sup> percentile could increase sales per worker by 36 percent and the profit margin by 32 percent, on average. Additionally, higher quality management is associated with a higher probability of adopting sophisticated technology, meaning that besides its direct effect on productivity, management practices can increase innovation and technology adoption, two factors that can further enhance a firm’s productivity growth.

### **Older firms tend to be more poorly managed, another sign of potential market inefficiencies.**

Management of Croatian firms does not seem to improve as they grew older, in contrast with firms in the US (Bloom et al. (2019)). In a dynamic business environment where competition rewards more productive and better managed firms one should expect a clear up-or-out dynamic. Young firms that are poorly managed should either improve their managerial quality – and thus their productivity – or be pushed out of the market by more productive competitors. In such an environment, as surviving firms improve their practices (learning or upgrading effect) and persistently poorly managed firms exit (selection effect) we should expect the average managerial quality of surviving firms to grow with age and the dispersion of managerial quality to decrease as only well managed firms survive. The fact that this is observed in the US but not observed in Croatia is a sign that the competitive environment in Croatian markets might be too slack to generate these positive up-or-out dynamics, posing limited threats to poorly managed firms, thus reducing their incentives to upgrade and improve their practices.

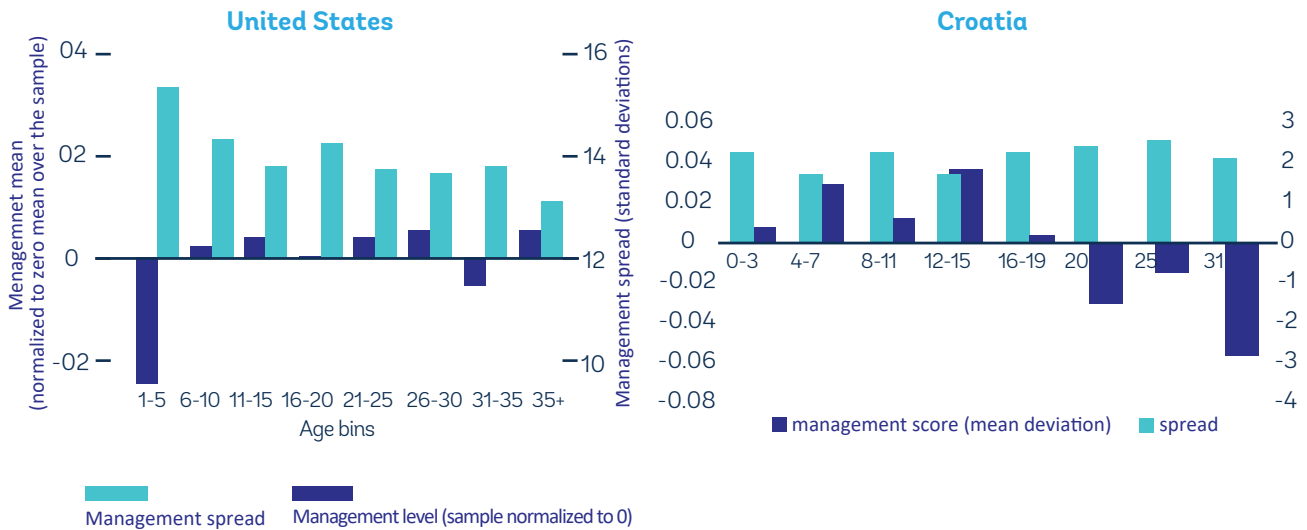
### **Firms that are more poorly managed tend to be more overconfident, which can explain part of their unwillingness to adopt better practices.**

When asked to assess their own managerial performance managers responding to the survey tend, on average, to overestimate their managerial quality, in line with evidence from other countries. Managers in firms that are more poorly managed also tend to be more overconfident about their managerial practices. As overconfidence provides an incorrect assessment of the potential for improvement, it can prevent managers from adopting more efficient managerial and organizational practices.

**The gap in the adoption of managerial best practices can explain at least part of the productivity gap between Croatian and frontier firms and calls for policies to promote an upgrade of firms’ managerial quality.** Overall, the evidence points to sizeable gaps in the adoption of managerial and organizational best practices in the country’s firms. These gaps represent a large cost for the economy, leaving ample opportunities to stimulate productivity growth by addressing the constraints preventing firms from upgrading their management quality.

**FIGURE 67.**

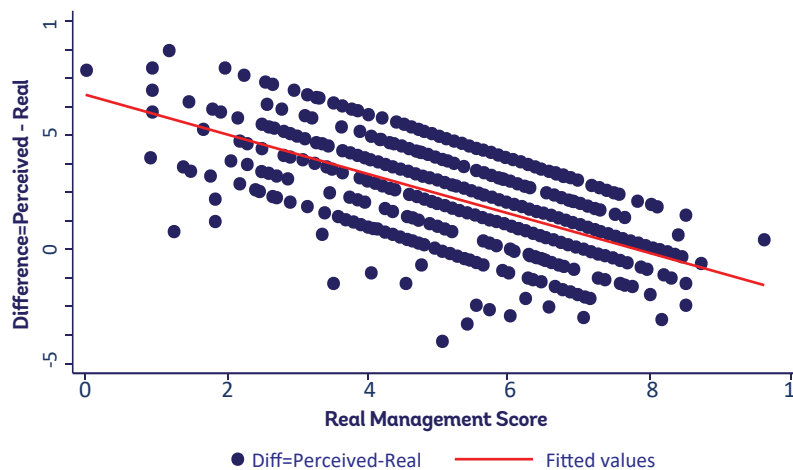
**In the US, firms' management score rises with age and spread falls, while the reverse is true for Croatia**



Note: The left panel plots the dispersion and the level (normalized to 0 at the mean) of the management score for firms in the United States. Source: Bloom et al. (2019) and Grover et al. (2019).

**FIGURE 68.**

**Firms perceive their management to be better than it is**  
Croatian Firms (Manufacturing and Services)



Source: Grover et al. (2019).

### 3.7. Policies to Promote Productivity Growth

**Productivity is key for Croatia's long-term growth.** However, Croatia's productivity performance over the last two decades has been disappointing. While the country has seen a slight reduction in its productivity gap with Germany, it still takes roughly three Croatian workers to produce the same as one German worker. In addition, Croatia's regional peers have experienced faster productivity growth, widening their gap relative to Croatia. The productivity gap with Germany is mainly a result of poor productivity within sectors.

**The weakness in productivity is chiefly due to market frictions and inefficiencies, which slow down the entry of new businesses and result in a slack competitive environment.** This finding is evident across several characteristics of the Croatian economy and firm behavior. These include business dynamism, the speed of business growth, firm markups, and the quality of management.

**Boosting productivity growth should be a priority for the Croatian government and calls for significant actions to reduce market inefficiencies, upgrade firms' capabilities, and ultimately promote productivity growth in the country.** Policymakers should take the necessary actions to foster competition and entrepreneurship. Policies should aim at removing those constraints that can stifle the dynamism of firms. Working to reduce entry costs and barriers, remove existing privileges that protect firms from fair competition, and improve the enforcement of antitrust regulations are all steps that would go in this direction.

**Policymakers should also set up the right enabling environment for Croatia to fully benefit from the increasing importance of services in the global economy.** While Croatia has a clear comparative advantage in some services industries, several constraints remain that slow down the development of knowledge-intensive, high-productivity services. This can undermine the potential for the ongoing structural shift towards services to achieve the twin goals of productivity growth and job creation. A better quality of professional services could also help downstream industries. Policies that would go toward rectifying these issues include:



- **Reducing restrictive regulations in professional services that could stifle competition in the sector and reduce its productivity and the quality of its services.** Enabling an efficient allocation of resources and promoting quality upgrading in these industries is particularly important given the key role of these services as intermediate inputs in the downstream production of services and goods.



- **Promoting investment in R&D and technology adoption among knowledge-intensive services, especially in the ICT industry.** Investment in innovation and technology adoption is key to developing the competitiveness of technology and knowledge-intensive services that can provide an important contribution to aggregate productivity growth while at the same time generating high-wage jobs. This seems particularly important in the ICT industry in Croatia, which is far from the regional frontier, undermining its capacity to compete in international markets.



- **Reducing regulatory barriers to services trade, thus facilitating scaling up of domestic services firms and import of high-quality intermediate services inputs.** Services trade costs in Croatia remain among the highest in the EU, constraining the de facto tradability of Croatian tradable services. This reduces the size of markets available to Croatian firms, limiting their ability to achieve better economies of scale and reducing the scope for specialization of the Croatian economy. It also reduces the level of competition faced by domestic services firms, reducing their incentives to upgrade and increase efficiency. Barriers to services trade also reduce the availability of high-quality intermediate services that can enable the productivity, quality upgrading, and growth of downstream industries.



- **Working to equip the Croatian workforce with the skills necessary to support the development of knowledge-intensive services industries.** Investing in the skills of the Croatian workforce to guarantee that it possesses the right set of technical and digital skills demanded by a knowledge-intensive services economy is a key enabler of a robust services-led growth process that could bring both productivity growth and high-wage job creation to the country. Helping current and future Croatian workers to upskill will provide the right supply of human capital to enable the growth of high-productivity, knowledge-intensive sectors.



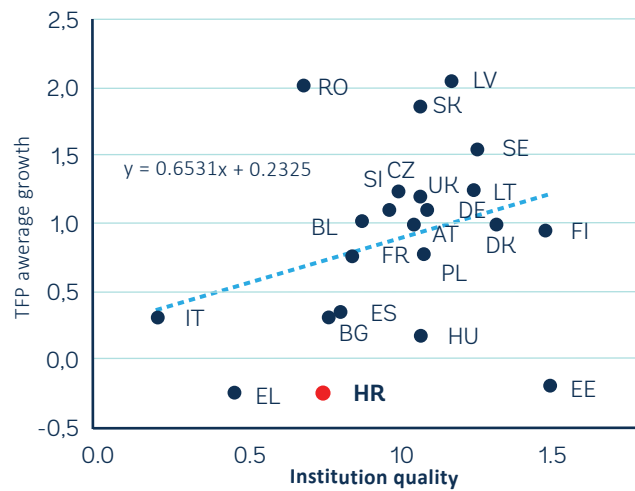
## CHAPTER 4

# Institutions and productivity

Achieving economic diversification and boosting productivity requires strong national institutions. However, weak institutions are one of the factors that limit productivity growth in Croatia. Croatia has among the lowest institutional quality scores relative to its regional peers, and firms perceive certain institutions to be a significant obstacle to their operation. This chapter provides novel insights on the institutions affecting firms' growth and productivity. Specifically, it uses the analytical framework of the Country Level Institutional Assessment and Review (CLIAR) which is a structured, rigorous, and flexible diagnostic tool. The chapter finds that public sector institutions and business & trade institutions are the areas in Croatia with the largest governance and institutional gaps. The chapter recommends a series of reforms which could help address these shortfalls, helping to boost firm growth and productivity.

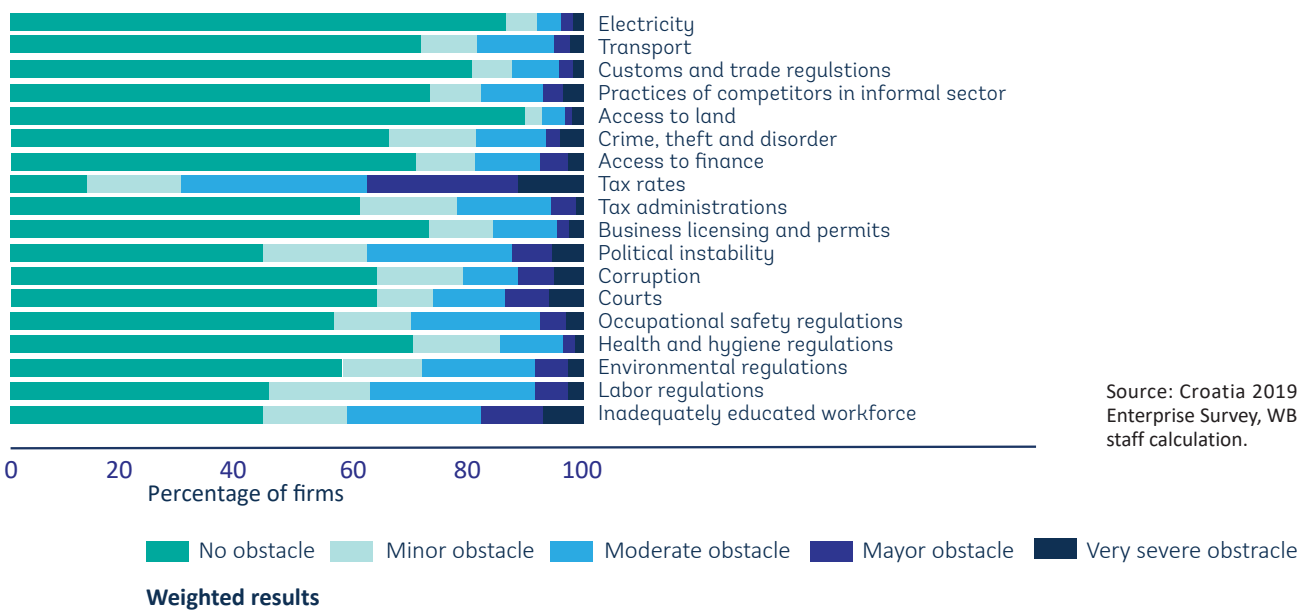
**Building on the results of the productivity analysis, this chapter provides novel insights on the institutions affecting firms' growth and productivity and suggests possible reforms.** Chapter 3 has indicated what could be some of the most binding institutional constraints for dynamism of firms on the market in Croatia. Entry costs and barriers, existing privileges that protect firms from fair competition, and enforcement of antitrust regulations emerged as good candidates for further analysis. This chapters takes this into consideration but makes a step back to allow for a broad analytical approach to the quality of institutions. More specifically, the chapter uses the analytical framework of the Country Level Institutional Assessment and Review (CLIAR)<sup>33</sup> which is a structured, rigorous, and flexible diagnostic tool. The next section undertakes a benchmarking exercise to empirically map the main institutional strengths and weaknesses of Croatia relative to its peers, and it selects key topics related to firms' productivity and growth. The following section then presents six deep-dives in these selected topics, providing evidence from desk research and a survey of firms on the most relevant institutional constraints experienced by firms and how affect productivity growth. The final section concludes along with policy recommendations.

**FIGURE 69.**  
Institutional quality and TFP growth



Source: WB Governance indicator, Eurostat, WB staff calculation.

**FIGURE 70.**  
Perceived obstacles to the operations of firms



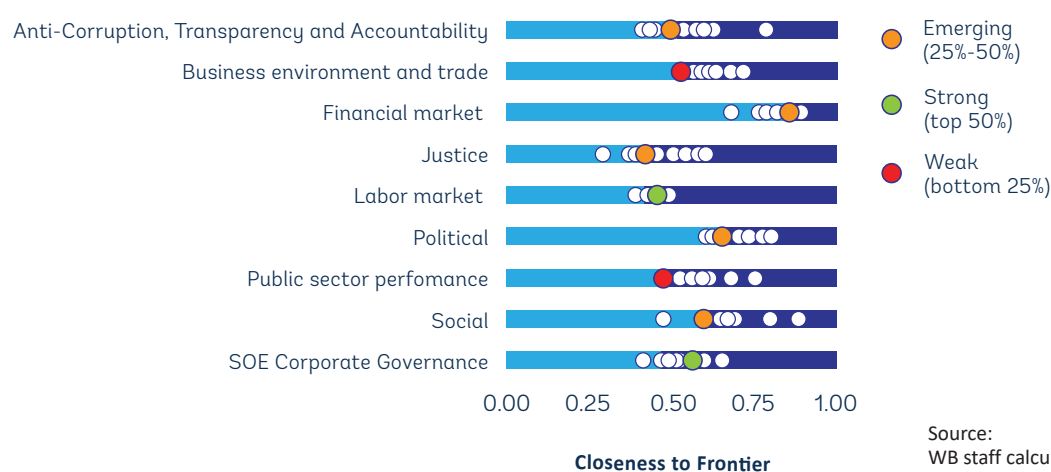
Source: Croatia 2019 Enterprise Survey, WB staff calculation.

<sup>33</sup> The methodology is described in Annex 6.

## 4.1. Institutional Benchmarking

**Croatia scores relatively poorly in institutional quality compared to its peers in Central and Eastern Europe.**<sup>34,35</sup> Figure 71 shows Croatia's overall performance relative to the set of comparator countries. Croatia has performed comparably well when it comes to the regulatory framework in labor market institutions and SOEs corporate governance (even though there is scope for further improvement here as well). However, a “weak” performance is found with respect to public sector institutions, social institutions and business & trade institutions. In these categories, Croatia performs in the bottom 25th percentile relative to the comparator countries. Other institutional functions, including accountability, political, financial market, and justice institutions, are classified under the “emerging” institutions category, as the results suggest a mixed performance.

**FIGURE 71.**  
Overview of Croatia Institutional Assessment benchmarking by institutional family



### Advanced institutions: Labor market institutions; SOEs corporate governance

**Labor market institutions have demonstrated their strength via continued market liberalization but can improve further to provide greater flexibility for firms.** As the country has continued its 30-year transition toward a liberal market economy, it has gradually and carefully balanced between workers' protections and firm flexibility. In coordination with social and industry partners, the government has sought to loosen the system of employment protection, while continuing to improve collective bargaining coverage. Although reforms are ambitious, their implementation is often fraught with renegotiations, amendments, and subordinate decrees that, while seeking to clarify a complex and opaque legal framework, contribute to rendering the framework “complex and abstruse” (Potočnjak 2019).

<sup>34</sup> The benchmarking exercise has several limitations that make it—at best—an “exercise of approximation.” It is not intended as an exhaustive and comprehensive analysis of the specific institutional constraints of each country and may not authoritatively identify all key institutional shortcomings. The tool should therefore be used only as an initial effort to bring well-structured evidence into the discussion of institutional challenges, as a basis for customizing it to the best extent possible to the country context.

<sup>35</sup> The CLIAR rankings are ‘advanced’ (in the top 50%), ‘emerging’ (25%-50%), and ‘weak’ (in the bottom 25%), as compared to the selected comparator countries.

**Evidence on SOE's corporate governance suggest that Croatia has a relatively well-regulated SOEs sector.** Croatian SOEs play a more significant role in the national economy compared to other European comparators, and the country also owns a minority stake in several companies operating outside the scope of SOE governing regulations. Croatia performs well on indicators related to SOE governance: *scope of state-owned enterprises, direct control over business enterprises, price controls, regulatory governance, and government involvement in network sectors*. However, some challenges remain, as the governance (ownership and oversight functions) of the SOE portfolio remains decentralized and fragmented (OECD, 2021; World Bank, 2021). In addition, robust governance of SOEs may not translate into strong economic performance—SOEs have lower productivity relative to private firms. This is of concern given the significant role that SOEs can play in economic development, public service provision, and strategic policy implementation, and suggests corporate governance alone is insufficient to enable productive and efficient SOEs.

**Emerging institutions: Financial market institutions; Accountability, transparency, and open government institutions; Justice institutions; Political institutions**

**Performance in financial market institutions is particularly important as Croatia proceeds with the adoption of the euro as a national currency.** Croatia performs well on *capital controls* ('emerging') and *central bank independence* ('strong'), and is ahead of regional comparators such as Hungary, Slovenia, and Romania. Still, *credit market regulations* and *foreign investment restrictions* are weaker relative to peers, and access to finance remains a constraint for approximately one-third of firms (World Bank 2019). These dimensions are particularly relevant for Croatia, as the country is entering its second year in the exchange rate mechanism II and seeks to adopt the euro by 2023.

**Croatia has made significant progress in transparency and accountability, but these have yet to translate into more positive perceptions by citizens and firms on corruption.** Croatia is approaching *aspirational comparators* with respect to mechanisms that increase accountability and reduce corruption risks, such as *right to information legislation, open government, complaint mechanisms* and digital adoption and transparency in the public administration (as measured by the *GovTech Maturity Index*).<sup>36</sup> Anti-corruption strategies, access to information, and external oversight have generally strengthened over the past few years.<sup>37</sup> However, the results and efficacy of new policies remain limited and often constrained by insufficient adherence and/or funding. Furthermore, indicators on perceptions of *absence of corruption, payments and bribes, and transparency of government policymaking* remain comparatively low. The country's Corruption Perception Index has stagnated since 2015, remaining only ahead of Bulgaria, Hungary, and Romania in the EU (Transparency International 2021).

**Croatia has made considerable progress in justice institutions, but further improvement is necessary, especially the interactions between firms and the justice system.** There are positive perceptions of the *integrity of the legal system, 'emerging' civil justice institutions, and criminal justice institutions*, and relatively few firms consider *courts as a major constraint* to economic activity. Despite the upswing in perceptions, the efficacy of justice has room to improve. The rate of resolving civil and commercial cases remains one of the lowest in the EU, while the number of incoming civil and commercial cases is among the five highest (European Commission 2021). The disparity between disposition time and caseloads may further strain an already inefficient justice system. At the same time, Croatia has weak performance on *judicial accountability, settling disputes and challenging regulation*. Justice officials and public stakeholders view

<sup>36</sup> The GTMI measures the key aspects of four GovTech focus areas—supporting core government systems, enhancing service delivery, mainstreaming citizen engagement, and fostering GovTech enablers.

<sup>37</sup> For example, a new Anti-Corruption Strategy (2021-2030) was adopted by the Parliament at the end of 2021, as well as a new Law on Preventing of the Conflict of Interest.



frequent legislative changes, dilapidated court facilities, deficient use of technologies and other organizational gaps as causes of weak institutional performance (World Bank 2020b).

**The performance of *political institutions* is mixed.** Most dimensions in this area are ‘emerging’, such as *political rights, constraints on government powers, fundamental rights, and lower chamber female legislators*. Croatia has a well-balanced system of checks and balances and established democratic rules for representation. The polity IV score measures degrees of backsliding between democratic and authoritarian political systems and has remained steady in Croatia since 2000, placing the country on par with comparators like Slovenia and Czechia (World Bank 2022b). Nonetheless, inequities persist; ‘weak’ performances are noted in *civil liberties*, as well as dimensions related to inequality in the distribution of political power in society such as *power by gender, power by social group, and power by socioeconomic position*. In addition, while the system of checks and balances is well balanced at central level, at the local government level there are no (effective) checks and balances and local executives (mayors) dominate over local councils and administrative apparatus.

### **Weak institutions: Social institutions; Public sector institutions; Business environment institutions**

**Croatia’s *social institutions* lag compared to comparator countries.** Croatia’s performance is behind most comparators and ahead of only Latvia, Poland, and Romania on aggregate. Croatia has been traditionally characterized by a very low level of institutional trust among citizens, especially for the judicial system, public administration, and local and regional authorities. Croatia was ranked 25<sup>th</sup> among the EU27 in terms of the World Bank’s *Sustainable Governance Indicators* for ‘trust in government’, and it is likely that these negative perceptions may have spillover effects for the general business environment. The level of active citizenship is rather low when compared to the EU average, and the level of social capital also lags behind (Bertelmann Stiftung, 2022). These observations are in line with the results from the institutional benchmarking, which show that Croatia is in the 25%-50% group of comparator countries with respect to *civil society participation, core civil society index, and freedom of opinion and expression* indicators, indicating a lack of societal buy-in for key policy and political processes.

**‘Weak’ and stagnating *public sector institutions* may also be a constraint on business dynamism and market entry.** Inefficient government bureaucracy and policy instability are repeatedly raised by firms as the ‘most problematic factor for doing business’ (World Economic Forum 2019), and it is estimated that time spent by management with government regulations in a typical week is associated with a reduction of 12.2 percent in firm TFP (World Bank 2020b). According to the Systematic Country Diagnostic (SCD) of the World Bank (2018), after years of progressive steps towards public sector reform, progress has been limited since 2015 by the capacity and commitment of key actors to cooperate and coordinate their actions to achieve socially desirable goals. The slow legislative process from proposals to adoption and the lack of specialized capacity in the public administration also contribute to inefficiencies. The e-Citizens system, a one-stop-shop for government’s digital administrative services, is a step towards easing the interactions between citizens and public institutions, but local government units (municipalities and counties) significantly lag behind central government in digitalization of its services. Comprehensive reforms are required to reinvigorate the public sector and orient it towards efficiency for citizens and corporations alike. Ambitious plans to restructure and retrain the public sector, under the National Plan for Recovery and Resilience, may be the first step along this path.

**Business environment and trade institutions are a major constraint to firm growth and productivity and have the largest room for improvement.** Croatia shows lower scores relative to comparator countries in *burden of government regulations, property rights, administrative burdens on start-ups, barriers to trade, anti-monopoly policy, and the extent of market dominance* indicators. This is despite

the fact that Croatia largely aligns national regulations, especially on trade, with those of other EU countries. Burdensome administrative procedures, taxation frameworks, and competition regulations were identified as key concerns for actors in Croatia's private sector (according to the World Bank's 2019 Enterprise Survey). The World Economic Forum Survey highlighted inefficient bureaucracy, policy instability, and tax regulations as core impediments to doing business (World Economic Forum 2019). Active and systemic measures for the reduction of regulatory and administrative burdens have been designed and implemented through successive annual plans from 2017 through 2020. The dedication of the Croatian government to radically improve the business and trade environment and institutions is symbolically reflected in the 2030 National Development Strategy, which lists 'Competitive and innovative economy' as the first among a total of 13 strategic goals.

## 4.2. Deep dives in selected institutional areas

**The results of the institutional benchmarking were used to select the most relevant areas for the focus on firm growth and productivity, and for which novel insights from a survey with firms would contribute most significantly to expanding the existing knowledge space.** *Public sector institutions and business & trade institutions* are the areas in Croatia with the largest governance and institutional gaps. These are critical dimensions related to firm growth and productivity and are therefore explored in greater detail through the survey of firms. The six areas of the survey include: (1) competition and anti-monopoly policies; (2) compliance with regulations; (3) business permits; (4) tax administration; (5) EU funds (given their strategic importance for Croatia's economy and innovations); and (6) public procurement. The subsections below first provide background on each issue, and then present the results from the survey.

### 4.2.1. Competition and anti-monopoly policies

**Competition policy is based on the principle that the process of competition in a market is the best mechanism for efficient allocation of resources** (Bellamy & Child 2018). Customers benefit from being able to choose between different providers, and so does the economy as a whole; competition between firms leads to increased productivity and economic growth, and there is also evidence that intervening to promote competition will increase innovation (OECD 2014). A central concern of competition law and policy is that a firm or a cartel can harm competition when they possess some degree of market power, leading to higher prices and ultimately adversely affecting customers (Whish & Bailey 2018). Findings from Chapter 3 indicate that there have been signs of a deteriorating competitive environment in Croatia's markets, with firms having more and more room to raise prices without losing market share to their competitors.

**The current Croatian Competition Act<sup>38</sup> provides for substantive rules on restrictive agreements, the abuse of dominance and merger control, as well as procedural rules, including those related to the powers of the Competition Agency to find and sanction infringements of competition rules.** The Competition Agency has a dual mandate: enforcing competition rules under the Competition Act, and, since late 2017, implementing the rules against unfair trading practices.<sup>39</sup> The fines for anticompetitive conduct (restrictive agreements and/or abuse of dominance) may amount to up to 10% of the firm's turnover in the worldwide market. Only firms may be sanctioned for breaching competition rules; there are no sanctions against individuals. Commercial courts are in charge of actions for antitrust damages which are regulated by the Antitrust Damages Act, adopted in 2017,<sup>40</sup> transposing the EU Damages Directive.<sup>41</sup>

<sup>38</sup> Official Gazette 79/09, 80/13, 41/21

<sup>39</sup> Act against Unfair Trading Practices, Official Gazette 117/17, 52/21.

<sup>40</sup> *Zakon o postupcima naknade štete zbog povreda prava tržišnog natjecanja*, Official Gazette 69/2017.

<sup>41</sup> Directive 2014/104/EU of the European Parliament and of the Council of 26 November 2014 on certain rules governing actions for damages under national law for infringements of the competition law provisions of the Member States and of the European Union Text with EEA relevance, OJ L 349, 5.12.2014, p. 1–19



**The Competition Agency has a wide array of inspection powers, and it reports to the Croatian Parliament.** The Competition Agency has the power to perform dawn raids and to summon individuals for an interview. Most cases related to restrictive agreements and the abuse of dominance are initiated by a complaint. However, the Competition Agency is not obliged to open a case if a complaint is submitted, including when it finds that the initiative is not consistent with its own priorities or is related to conduct that has only a minor effect on the relevant market. All the decisions of the Competition Agency, including the decisions rejecting a complaint, and the judgments of the High Administrative Court (appeals instance), are published.<sup>42</sup> However, transparency and accountability of the work by the Competition Agency could be further improved. For example, information on the number of complaints submitted to the Competition Agency is not publicly available, only information on decisions, and therefore it is not possible to assess the share of complaints for which the Competition Agency does not open a case.

**The enforcement of competition laws nonetheless has room for improvement in Croatia.** Potentially limiting factors include: (I) judicial backlogs and lengthy trials; (II) commercial court judges are only marginally acquainted with competition law issues; (III) an unfinished and long overdue comprehensive judicial digitalization process; (IV) a stagnating and limited Competition Agency's enforcement track record in the post-accession period; and (V) a still underdeveloped competition culture and a substantial planned economy legacy.<sup>43</sup> The objective of the survey with firms was to investigate these factors from the perspective of firms.

**Evidence from the survey indicates firms think there is a high level of competition in Croatia, but non-competitive behaviors are prevalent within industries.** Pecotic Kaufman & Simic Banovic (2021) argue that there is limited awareness, especially among SMEs, on which practices and firms' behaviors (e.g., price-fixing) can be classified as non-competitive and illegal, and this lack of competition culture might explain why only 9% of firms disagree that there is high competition in Croatia.

**With respect to rules and institutional actors, the biggest obstacles to competition are related to lack of trust towards the authorities enforcing competition rules (e.g. Competition Agency, courts) and complicated competition rules.** The majority of firms report "lack of trust towards the authorities enforcing competition rules", "competition rules difficult to understand or comply with", and "low ability of the Competition Agency to effectively sanction dominant companies from abusing their position" as obstacles to competition (Figure 73). The main reasons for a lack of trust toward the authorities enforcing competition rules<sup>44</sup> are "unequal treatment of firms", "lack of transparency on the enforcement priorities by the Competition Agency", and "courts being unable to provide a competent check of the decisions adopted by the Competition Agency".

<sup>42</sup> Decisions of the Competition Agency and the High Administrative Court are also published in the Official Gazette. However, the Agency does not publish the rulings of the Constitutional Court when related to its decisions. Instead, those rulings are published on the website of the Constitutional Court.

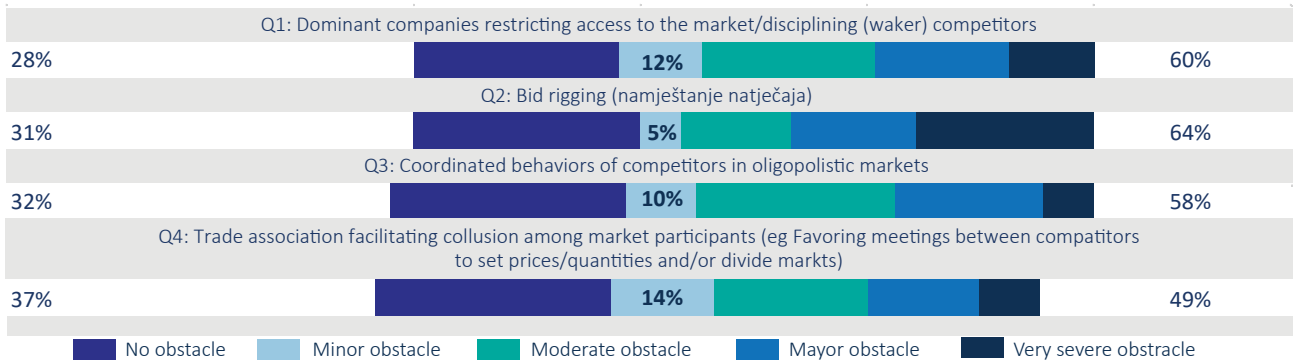
<sup>43</sup> Jasminka Pecotic Kaufman, The Damages Directive in Croatia, in: *After the Damages Directive: Policy and Practice in the EU Member States and the United Kingdom*, Andrea Biondi, Gabriella Muscolo, Renato Nazzini (eds.), Kluwer Law International, 2022 (footnotes omitted).

<sup>44</sup> This question was asked only to firms that indicated "lack of trust towards the authorities enforcing competition rules" as a minor – very severe obstacle to competition.

**FIGURE 72.**

**Behavior of economic operators: Perceived obstacles to competition**

Thinking about the behavior of economic operators, to what extent are each of the following an obstacle to competition in Croatia in the market(s) where this firm operates?



Note: N=Q1:538 (22 missings) Q2:465 (95 missings) Q3:489 (71 missings) Q4:472 (88 missings)

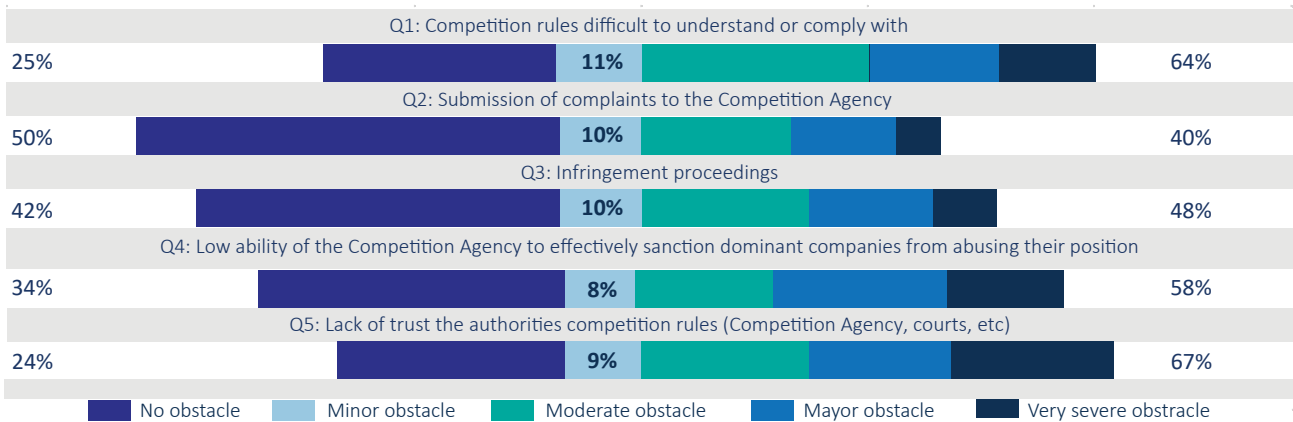
Statistics are computed using sample weights. Don't know, "Prefer not to answer", "Not applicable" are coded as missing values.

Source: Firms Survey, 2022.

**FIGURE 73.**

**Rules and institutional actors: Perceived obstacles to competition**

Thinking about rules and institutional actors, to what extent are each of the following an obstacle to competition in Croatia in the market(s) where this firm operates?



Note: N=Q1:525 (35 missings) Q2:448 (112 missings) Q3:446 (114 missings) Q4:451 (109 missings)

Statistics are computed using sample weights. Don't know, "Prefer not to answer", "Not applicable" are coded as missing values.

Source: Firms Survey, 2022.

**Larger firms seem to have a larger capacity and knowledge of competition and anti-monopoly policies and how to deal with regulations and procedures.** Anecdotal evidence indicates that larger firms, in particular subsidiaries of multinational companies, are more likely to have competition compliance programs in place, and the survey results seem to support this observation. Relative to SMEs, large firms (51+ employees) are less likely to report that competition rules are difficult to understand or comply with, less likely to indicate a lack of clarity of regulations and procedures or difficulty in preparing the necessary documentation as a main obstacle to submitting a complaint to the Competition Agency, and are less likely to report lack of clarity of regulations and procedures for infringement proceedings. This is in line with the findings from Chapter 3 which show that markups are higher among smaller firms, suggesting that big firms tend to operate in more competitive environments. This also indirectly suggests that SMEs in Croatia operate in markets that are far from perfectly competitive.

## 4.2.2. Compliance with regulations

**Croatia lags behind in the implementation of transparent and business driven regulations.** Croatia was ranked as 139 out of 141 countries for the burden of government regulation in the 2019 WEF's Global Competitiveness Report (World Economic Forum, 2019).<sup>45</sup> The 2021 International Institute for Management Development (IMD) Competitiveness Report ranked Croatia 61<sup>st</sup> out of 64 countries in the efficiency of business legislation, recommending the need to “develop and implement a broad digitalization program to assist in the implementation of reforms and to enable leap-frog development in selected sectors of the economy (IMD, 2021).

**Croatia has made intermittent progress in trying to lower the high administrative and regulatory burden on businesses.** Between 2017 and 2020, four action plans for administrative relief of the economy were adopted and 394 measures were implemented, including the 2017 Act on Regulatory Impact Assessment (RIA Act) and the Action Plan for Administrative Burden Reduction. Together, these are estimated to have accomplished administrative burden relief in the amount of 2.3 billion kuna for the economy (Government of Croatia, 2022). The government continues the implementation of burden relief measures, which are expected to be completed in the 4<sup>th</sup> quarter of 2022. Croatia's Recovery and Resilience Plan outlined activities to implement ex-post evaluations of regulations as well as to enable the so called “SME test”, a tool to enhance predictability of the legal framework for firms.

**Croatia has room to exploit the potential of IT and data solutions to simplify regulations.** The introduction of new IT tools would benefit both legislators and regulators, such as the ability to dynamically change attributes of parts of regulations that may be turned “on” or “off” during an emergency response (McLaughlin, P. A., & Stover, W., 2021). The application of AI tools can support the government in proactively addressing issues and identifying priorities. AI and Machine learning allow regulators to process large datasets in a short period of time and therefore can be helpful to regulators when data-based evidence is needed to inform policy making, such as predicting the impact of regulations on economic and social outcomes using data backed models and supporting efficient and risk-based drafting of regulations. The use of natural language processing can contribute to standardizing the drafting of regulations (for example using standardized and controlled keywords and phrases), therefore improving the consistency and coherence of the legal framework.

**The survey evidence confirms that changing regulations and implementation and compliance with regulations pose a significant administrative burden on firms.** During 2021, SMEs and large firms have been visited or inspected by auditors or inspectors to verify compliance with regulations, respectively, 1 time and 3 times on average. Most firms report that during 2021 there has been some (major or minor) change in regulations related to their business, such as labor regulations, environmental regulations, health and hygiene regulations, and occupational safety regulations.

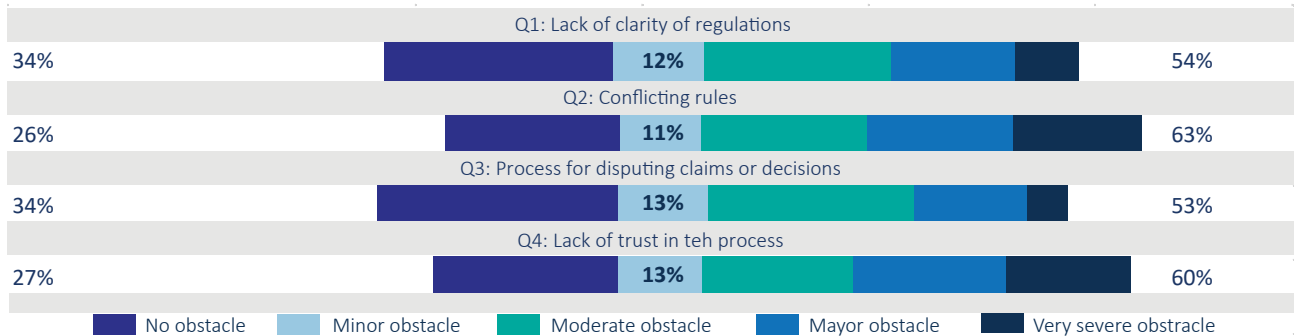
**The biggest obstacles to compliance with regulations are related to conflicting rules and lack of trust** (Figure 74). “Lack of trust in the process” is perceived as an obstacle especially by SMEs. The main reasons for lack of trust in the process<sup>46</sup> are “unequal treatment of firms”, especially among SMEs, and “the lack of transparency of the process and in the application of rules”, especially for larger firms.<sup>47</sup>

<sup>45</sup> The 2019 report is the latest available, as the report, due to the COVID-19 pandemic, was discontinued until 2022.

FIGURE 74.

## Perceived obstacles to complying with regulations

To what extent are each of the following an obstacle to complying with regulations (eg. Health and hygiene regulations, environmental regulations, labor regulations, occupational safety regulations) for this firm?



Note: N=Q1:533 (27 missings) Q2:513 (47 missings) Q3:494 (66 missings) Q4:509 (51 missings)  
 Statistics are computed using sample weights. Don't know, "Prefer not to answer", "Not applicable" are coded as missing values.

Source: Firms Survey, 2022.

### 4.2.3. Business permits

**In Croatia, businesses are subject to complex mandatory ex-ante approvals, from cross-cutting licensing procedures and legal requirements that apply to all businesses to sector-specific ones.** <sup>48</sup>

High compliance costs to start and operate a business in Croatia remain a challenge that is further exacerbated by the COVID-19 pandemic and the slow pace of digitalization. Government to business (G2B) service delivery is largely paper-based and the level of information exchange between public sector stakeholders is limited. Croatia slightly lags its Europe and Central Asia (ECA) peers in the number of days to obtain an operative license (Croatia 35.6 days vs 34.4 days for ECA; World Bank, 2019c). The current licensing regime is not in line with EU good practice, which applies licensing as an exception to those activities that can pose a risk to health, safety, and the environment (European Commission, 2015). There is also some lack of internal consistency and transparency, which foster a culture of avoidance rather than compliance. Aforementioned issues could in part explain the findings from Chapter 3 that high net entry rate in Croatia is primarily driven by below-average exit rate, rather than an above-average entry rate, suggesting the presence of underlying frictions and inefficiencies which limit the entry of new firms.

**Reducing the high compliance costs to start and operate a business in Croatia is a priority for the authorities but progress has been slow.** Although the ICT solutions that have been currently deployed such as the introduction of START platform are a step in the right direction (see Box 14), interoperability and integration of data in the private sector remain weak and further advancements are necessary to strengthen G2B service delivery. Up-to-date and accurate information on the business environment (e.g., on the regulations, procedures, and fees that apply to administrative procedures) is not readily available and easily accessible by the private sector. There are multiple channels providing information on the business environment, but there is no consolidated official source of information that the private sector can rely on. Since the information on the business environment is fragmented across different institutions, firms have difficulty navigating and finding the applicable regulations (e.g., licenses, permits, minimum technical requirements, fees, investment incentives etc.). Even when information is available, it is often opaque and, in some cases, online resources have outdated information on the regulatory framework.

<sup>48</sup> Data in this chapter were informed by findings of the Business Environment Reform II (BER 2) project implemented by the World Bank in cooperation with the Ministry of Economy and Sustainable Development and support of the European Commission's DG REFORM.

## BOX 14.

## The START platform

Since its launch in November 2019, the START platform has enabled digital registration for the most common business entities, Limited Liability Companies (LLCs), Simple Limited Liability Companies (SLLCs) and Crafts, by virtually integrating and connecting the key stakeholder agencies for business registration (e.g. the court registry, statistics, and tax administration).

At the same time, the uptake of the START platform's service has been limited. The START platform has an onerous security protocol, which restricts accessibility to those users who own a digital signature. In the first year of implementation only 9 percent of LLCs and 6 percent of the SLLCs newly registered in Croatia were registered through START. Also, the START platform does not include processes beyond business registration, such as checking availability of and reserving a business name, filing annual financial statements, submitting key changes about the company, or voluntarily winding up a company. These processes remain paper based and fragmented and the current system does not enable implementation of the EU's "once only" principle.

At the policy level, policies continue to be fragmented, and there is lack of ownership of the START platform. Instead of working together in integrating procedures, the Ministry of Economy and Sustainable Development (MOESD) and the Ministry of Justice and Public Administration (MoJPA) each works on its own agenda. MOESD is working on developing new functionalities to expand the START platform. Meanwhile MOJPA is upgrading the Court enabling registration of all types of companies online, a de facto parallel solution to the START platform. The Croatian government should seek solutions for better coordination between the main stakeholders in the implementation of START, to enable integration of online service delivery between key stakeholder agencies and for the establishment of a single digital window for business registration in Croatia.

Despite these challenges, START is a step in the right direction and has been recognized as such by the 2021 Digital Economy and Society Index (DESI) report. START is the only example of integration in this area and has the potential to evolve into a single digital window for business registration, and additional government to business services. START needs to be redesigned and strengthened to expand the services offered, and to enable the integration of data on businesses in the backend.

**The lack of a comprehensive official source of information on licensing requirements is a key challenge for the private sector across all business activities.** Private sector representatives confirm that finding information on administrative formalities requires multiple interactions with several authorities, and there is a high degree of discretion by public authorities in the implementation process. The lack of online availability of information on all valid regulations, fees, procedures, minimum technical requirements, and documentary requirements in a transparent, user-friendly, and consolidated format contributes to regulatory uncertainty for the private sector. A European Commission study that ranked countries in Europe based on their licensing complexity on a scale of 1 for the lowest level of complexity to 26 for the highest level, found that Croatia has one of the most complex licensing regimes, with a rank of 21.8 (European Commission, 2015).<sup>49</sup>

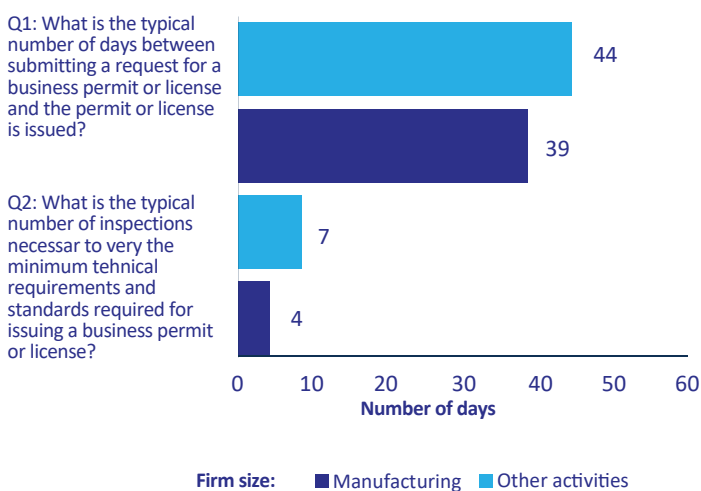
<sup>49</sup> Only three other countries had a lower ranking: Bulgaria, Greece, and Spain.

**There is a lack of standardization of government to business procedures.** For example, for a procedure mandated by a national regulation, the application forms and documentation requirements often differ at the sub-national level, across regions and cities. Government to business service delivery is not client centric. For example, there is no functional single online point of contact for government to business procedures and the “once only” principle is not applied by government authorities. For most business activities, entrepreneurs need to interact and physically visit multiple authorities to obtain the required approvals. One of the most challenging areas where Croatia needs improvements is in digital public services, on which Croatia ranks 24th out of the 27 EU countries.

**The minimum technical requirements (MTRs) for performing business activities are overly prescriptive and reflect an outdated approach to business regulation.** For most business activities, entrepreneurs have to comply with a multitude of detailed technical specifications that add limited or no value to safeguarding against risks to public goods (e.g., public health, environmental protection, occupational safety, food safety). Overall, risk-based approaches to the regulation of ex-ante administrative requirements (hereinafter licensing) are underdeveloped. As a result, the requirements that apply to businesses before they enter the market are not always proportional to the risks they pose to public goods (e.g., food safety, consumer protection) and low-risk businesses are sometimes subject to rigid licensing procedures.

**Interviews with firms confirm that obtaining or renewing business permits pose a significant administrative burden on firms.** Over the last three years, 20 percent of firms had to submit requests for obtaining or renewing a business permit and, among those, only 23 percent completed these procedures online for all or most of these requests. On average, 44 days are necessary between submitting a request for a business permit or license and when it is issued, and 7 inspections are necessary to verify the minimum technical requirements and standards required for issuing a business permit or license. These processing times are slightly longer for SMEs than for larger firms, indicating that these administrative requirements do not affect all firms equally (Figure 75).

**FIGURE 75.**  
**Timing experienced by firms in processes related to business permits or licenses**



Note: N=Q1:89 (471 missings) Q2:68 (492 missings). Statistics are computed using sample weights. Don't know, "Prefer not to answer", "Not applicable" are coded as missing values.

Source: Firms Survey, 2022.

**The biggest obstacles to obtaining business permits and licenses are related to the administrative burden of complying with requirements and lack of trust.** The majority of firms report “duration and frequency of the processes for obtaining business permits and licenses”, “lack of trust in the process”, “inspections and implementation of rules”, and “preparation and submission of the request” as obstacles to compliance with regulations (Figure 76). All these factors, except “duration and frequency of the processes for obtaining business permits and licenses”, are perceived as an obstacle, especially by SMEs.<sup>50</sup>

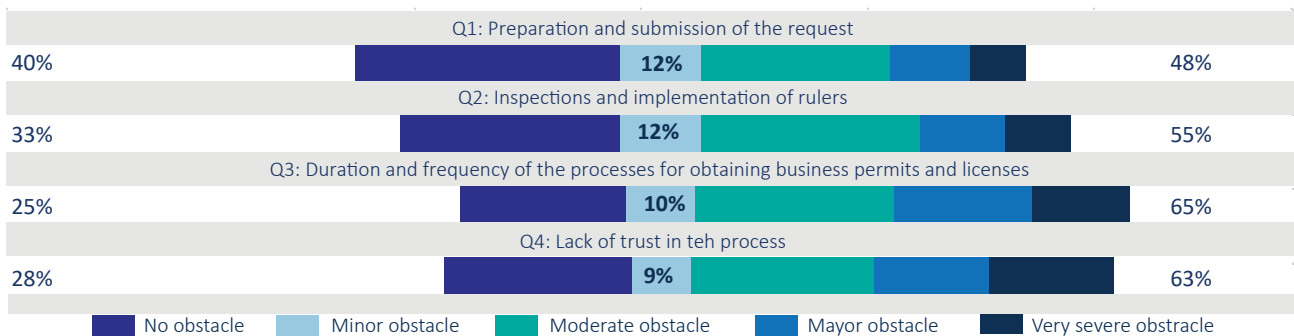
<sup>50</sup> Larger firms are significantly less likely to perceive “preparation and submission of the request” and “inspections and implementation of rules” as a (minor-severe) obstacles to obtaining business permits and licenses (Figure G 2, Annex G).





FIGURE 76.

**Perceived obstacles to obtaining business permits and licenses**  
**To what extent are each of the following an obstacle to obtaining business permits and licenses?**



Note: N=Q1:495 (65 missings) Q2:490 (70 missings) Q3:491 (69 missings) Q4:496 (64 missings)  
 Statistics are computed using sample weights. Don't know, "Prefer not to answer", "Not applicable" are coded as missing values.

Source: Firms Survey, 2022.

**The main obstacles are related to overly prescribing minimum technical requirements (MTRs), lack of consistency and transparency in the implementation of rules, and length of procedures.** The main obstacles to the preparation and submission of requests<sup>51</sup> is that there are "too many details in the definition of minimum technical requirements and standards."<sup>52</sup> The main obstacles related to inspections and implementation of rules<sup>53</sup> are the "lack of consistency between inspectors on rules implementation" and the "limited feedback provided in case the permit or licenses request is rejected".<sup>54</sup> The main obstacle related to the duration and frequency of the processes<sup>55</sup> is the "length of procedures for obtaining business permits and licenses".<sup>56</sup> The main reasons for lack of trust in the process<sup>57</sup> are the "unequal treatment of firms" and that "public officials and inspectors not professional and knowledgeable".<sup>58</sup>

<sup>51</sup> This question was asked only to firms that indicated "preparation and submission of the request" as a minor – very severe obstacle to obtaining business permits and licenses.

<sup>52</sup> "Lack of clarity of regulations and procedures", "Difficult to produce the necessary documentation", and "Duplication of procedures" are indicated as the main obstacles to the preparation and submission of requests by fewer firms, respectively, 21%, 19%, and 10%.

<sup>53</sup> This question was asked only to firms that indicated "inspections and implementation of rules" as a minor – very severe obstacle to obtaining business permits and licenses.

<sup>54</sup> "Poor communications with the state inspectorate" and "Number of inspections for the verification of standards and minimum technical requirements" are indicated as the main obstacles related to inspections and implementation of rules by fewer firms, respectively, 22% and 14%.

<sup>55</sup> This question was asked only to firms that indicated "duration and frequency of the processes" as a minor – very severe obstacle to obtaining business permits and licenses.

<sup>56</sup> "Short validity of business permits and licenses" is indicated as the main obstacles related to the duration and frequency of the processes for obtaining business permits and licenses by 14% of firms.

<sup>57</sup> This question was asked only to firms that indicated "lack of trust in the process" as a minor – very severe obstacle to obtaining business permits and licenses.

<sup>58</sup> "The process and the application of rules is not transparent", "Firms are not able to voice complaints" and "Requests of informal payments or gifts" are indicated as the main reasons for lack of trust in the process by fewer firms, respectively, 17%, 4% and 2%.

## 4.2.4. Tax administration

**An efficient, reliable, and predictable tax administration has an undisputable positive impact on the productivity and competitiveness of individual firms and on the economy.** This comes in two main ways: cutting administrative costs of tax collection and securing greater tax compliance. High tax compliance costs can seriously hamper a firm's productivity and resource allocation. They can be particularly onerous for small and medium-sized firms, because of the fixed costs they incur (Dabla-Norris et al., 2017). Even the best business-friendly tax policies cannot achieve their expected impacts on competitiveness and productivity without an efficient tax administration (Jenkins, 1994). The overarching paradigm of modern tax administration systems is the transformation of traditional top-down and mostly repression-based relational patterns between tax authorities and taxpayers into cooperative relations founded on a 'voluntary compliance' approach.

**A relatively high tax burden and the dominance of indirect taxation have been persistent characteristics of the Croatian tax system, making it even more important to establish an efficient tax administration system.** In 2020, tax revenues amounted to 55 percent of all national budget revenue and almost 65 percent was generated by the value-added tax (VAT). Croatia collects the highest share of VAT revenue in proportion to GDP of all EU member states, and its standard VAT rate of 25 percent is the second-highest in the EU.<sup>59</sup> Since the end of 2016, a series of consecutive and gradual changes in tax legislation have reduced the overall tax burden.<sup>60</sup> Despite this, in 2019 almost 40 percent of the firms in Croatia identified tax rates as the major constraint in their business environment (World Bank, 2019c), a significantly higher share than in ECA countries. Almost half of firms identified tax rates as the single biggest obstacle in their business environment.

**The central eTaxes platform, a single point of contact for all taxpayers,<sup>61</sup> was established in 2012, and the digitalization of tax services has been steadily improving since then.** The number of available electronic services has been steadily increasing and, as of now, all taxpayers can fulfill their obligations and needs through electronic communication and filing. Digitalization has reduced the frequency of direct contact between taxpayers and the tax administration, with 90 percent of the communications between the CTA and taxpayers now carried out via the eTaxes platform. At the beginning of 2022, there were 1,227,837 registered users, both natural and legal persons. Because of the legal requirement for legal entities to use e-filing services, almost all tax returns in corporate income tax and value-added tax are filed digitally (OECD (2021b)). Electronic filing of personal income tax returns is lagging behind but increasing.

**The fluidity and simplicity of digital tax services are hampered by the complexity of the tax forms that need to be submitted for full compliance.** As a result, the large majority of small businesses in Croatia still outsource their tax filing to tax accountants (World Bank, 2020d). The progress that has been made in the digitalization of tax services is considerable, but it has not yet put Croatia on a par with the most developed countries. According to the 2020 Doing Business Report, it takes 206 hours for the full tax compliance for firms in Croatia, which is significantly higher than the OECD or EU average (159 and 161 hours respectively). As a result, the World Bank 2019 Enterprise Survey data for Croatia indicate that more than one-fifth of firms consider tax administration as a moderate to severe obstacle to their operation.

<sup>59</sup> Specific VAT rates of 5 and 13% apply to a number of goods and services, whose array has been broadened during the COVID-19 pandemic, complicating VAT accounting and collection.

<sup>60</sup> Successive cuts in personal income tax (PIT) resulted in more than half employees not being liable for any personal income tax at all. In 2019, a lower rate of PIT was applied to salaries up to HRK 30,000 (previously 17,500). In 2020, untaxable part of the personal income was increased from HRK 3,800 to HRK 4,000. Additionally, young employees under the age of 25 have been completely exempted from paying PIT, while those in 26-30 age bracket were exempted by 50%. From the beginning of 2021, both main PIT rates are lowered – the upper one from 36% to 30%, and the lower one from 24% to 20%. From 2020, a lower rate of corporate income tax is applied to much more businesses since the bracket for its application was raised up to HRK 7.5 million (Ministry of Finance, 2022).

<sup>61</sup> eTaxes platform: <https://e-porezna.porezna-uprava.hr>. Guidelines for the usage of digital tax services, as well as all other necessary information are easily accessible on the CTA web page: [www.porezna-uprava.hr](http://www.porezna-uprava.hr).

**Although Croatian tax authorities are perceived as less prone to corruption risks than other public institutions, they are still at high risk of corruption in comparison to other EU member states.**<sup>62</sup> In recent years, Croatia had established a comprehensive strategic, legislative, and institutional anti-corruption infrastructure. In 2009, the Ministry of Finance adopted the Code of professional ethics of CTA civil servants, implemented and supervised by the internal Ethics Commission. Between 2012 and 2016, anti-corruption policies and measures were framed by the ‘Tax Administration anti-corruption strategy’ that proclaimed a zero-tolerance policy on combatting corruption and heavily emphasized prevention measures aimed at the internalization of ethical principles by civil servants. Between 2017 and 2019, all CTA employees went through workshops and online training courses on anti-corruption and ethics. In the newly adopted National Anti-Corruption Strategy (2021-2030), reduction of corruption risks in tax administration is primarily sought through further education, digitalization of internal procedures and tax audits and greater transparency.

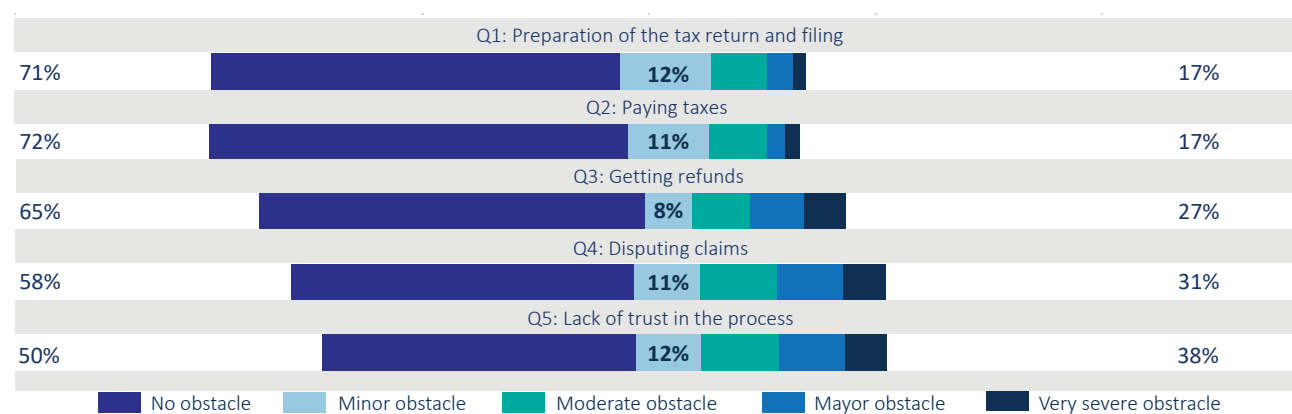
**The survey data confirm that the widespread use of the eTaxes platform is not sufficient to solve the complexities of the procedures and requirements for paying taxes and obtaining tax refunds.** In 2021, almost all firms completed the process of paying taxes entirely or partially online on the eTaxes platform. Nonetheless, the process remains cumbersome and complicated. In 2021, a large majority of firms submitted payments or filings for paying taxes monthly, and often firms have to hire an external consultant or company for performing tax compliance activities, especially SMEs.

**The biggest obstacles to paying taxes and/or obtaining tax refunds are related to the time-consuming procedures and lack of trust.** The majority of firms report “lack of trust in the process” as obstacles to paying taxes and/or obtaining tax refunds (Figure 77). Other factors are perceived as obstacles by a minority of firms include: “disputing claims”, “getting refunds”, and “preparation of the tax return and filing”. All these factors are perceived as obstacles by a bigger share of SMEs than larger firms.<sup>63</sup>

**FIGURE 77.**

**Perceived obstacles to paying taxes and/or obtaining tax refunds**

**To what extent are each of the following an obstacle to paying taxes and/or obtaining tax refunds for this firm?**



Note: N=Q1:529 (31 missings) Q2:539 (21 missings) Q3:503 (57 missings) Q4:478 (82 missings) Q5:520 (40 missings)  
Statistics are computed using sample weights. Don't know, "Prefer not to answer", "Not applicable" are coded as missing values.

Source: Firms Survey, 2022.

<sup>62</sup> According to the Special Eurobarometer 502 (European Commission 2020b), 39% of the respondents think that giving and taking of bribes and the abuse of power for personal gain are widespread among tax authorities, which is a better score than for police and customs officers (48%), officials issuing business (44%) or building permits (45%), officials awarding public tenders (53%) etc., but significantly worse than the average perception of tax authorities in EU member states (20%).

<sup>63</sup> Larger firms are significantly less likely to perceive "Preparation of the tax return and filing" as a (minor-severe) obstacles to paying taxes and/or obtaining tax refunds (Figure G 3, Annex G).

## 4.2.5. EU funds

**The availability of EU funds has been rapidly growing in Croatia since the EU accession in July 2013, requiring a continuous development and upgrades of the capacity for the governance of EU funds.**

The funding of EUR 10.8 billion allocated from the 2014-20 Multiannual Financial Framework (MFF) through the European Structural and Investment Funds (ESIF) represented a 7-fold increase compared to pre-accession funding. Furthermore, under the multiannual financial framework (MFF) and the NextGenerationEU (NGEU) recovery package, between 2021-27 Croatia will be able to access about EUR 24.5 billion of EU funds (European Commission, 2021b). EU funds are contributing to the reform agenda in Croatia, supporting recovery, growth, and inclusion and providing an unprecedented opportunity for catching up on the economic growth (European Commission, 2019). However, such substantial funding also represents a challenge to the administration of these funds. The regulatory and practical requirements of the funds require very high standards in strategic and operational planning, implementation, management, monitoring, evaluation, and coordination of the funded programs and projects. Overcoming these obstacles and strengthening EU funds absorption capacities would contribute to fostering country's lagging productivity.

**EU funds are regulated by an overall framework and by funds-specific regulations.** The programming of EU Funds is regulated by the EU budget's Multiannual Financial Framework (MFF) cycles, and each 7-years cycle has an own dedicated legislation for the Funds. The five European Structural and Investment Funds included in the 2014-20 MFF are: (1) the European Fund for Regional Development<sup>64</sup> (ERDF); (2) the European Social Fund (ESF);<sup>65</sup> (3) the Cohesion Fund;<sup>66</sup> (4) the European Agricultural Fund for Rural Development<sup>67</sup> (EAFRD); and (5) the European Maritime and Fisheries Fund<sup>68</sup> (EMFF) (see Box 11 for further details). The Common Provisions Regulation 1303/2013<sup>69</sup> provides a general framework for the governance of these funds, and it is accompanied by fund-specific regulations and numerous pieces of secondary legislation as well as guidance documents.

**The Funds are implemented through a model of shared management between a Member State (MS) and the European Commission.** Once the programs are approved, MSs (or regions, for regional programs) are responsible for implementing and managing the programs, such as by selecting operations or performing public procurement, verifying the expenditures incurred by project beneficiaries, monitoring progress, making payments, and organizing external evaluations and audits. National authorities are responsible for the sound financial management of EU funds and take financial responsibility for any misuse of funds, irregularities, or fraud. The European Commission is involved in program monitoring throughout the entire period, as it conducts audits, verifies the control and management system, and makes payments from the EU budget to the MS. "Enabling conditions" are necessary preconditions for the efficient and effective delivery of the European Union's support through the funds.<sup>70</sup>

<sup>64</sup> Regulation (EU) No 1301/2013 of the European Parliament and of the Council of 17 December 2013 on the European Regional Development Fund and on specific provisions concerning the Investment for growth and jobs goal and repealing Regulation (EC) No 1080/2006 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013R1301>

<sup>65</sup> Regulation (EU) No 1304/2013 of the European Parliament and of the Council of 17 December 2013 on the European Social Fund and repealing Council Regulation (EC) No 1081/2006 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013R1304>

<sup>66</sup> Regulation (EU) No 1300/2013 of the European Parliament and of the Council of 17 December 2013 on the Cohesion Fund and repealing Council Regulation (EC) No 1084/2006 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013R1300>

<sup>67</sup> Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013R1305>

<sup>68</sup> Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund and repealing Council Regulations (EC) No 2328/2003, (EC) No 861/2006, (EC) No 1198/2006 and (EC) No 791/2007 and Regulation (EU) No 1255/2011 of the European Parliament and of the Council <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014R0508>

<sup>69</sup> Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013 laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013R1303>

<sup>70</sup> Croatia does not yet fulfill all horizontal enabling conditions related to the Charter on fundamental rights and the implementation and application of the United Nations Convention on the rights of persons with disabilities (UNCRPD). With respect to thematic enabling conditions, the conditions for large infrastructure investments in the area of broadband network, waste management, and transport are met, but not all conditions in the healthcare system, energy sector, smart specialization, disaster management, water management, nature preservation, education system, social inclusion, and poverty reduction.

**Despite the opportunities created by EU funds, Croatia has one of the lowest absorption rates in Europe, at 53 percent (relative to total payments) versus the EU average of 66 percent.**<sup>71</sup> EU funds in Croatia are omnipresent across sectors and levels of government, making absorption capacity sensitive to the overall investment climate. Absorption rates are uneven across thematic areas (see Box 15 for further details). Some of these differences are due to market characteristics: certain investments and projects areas are more mature than others, some investment and projects are easier to implement as they do not require special permits, technical documentation or external studies. However, absorption rates are also constrained by various administrative and institutional challenges, such as administrative capacity, rigid and overly prescriptive regulations by the national rules, even beyond EU requirements,<sup>72</sup> and weak inter-ministerial coordination (World Bank, 2019d). An additional recent challenge is the parallel implementation of an additional urgent and prioritized program, the National Recovery and Resilience Plan (NRRP), which is affecting the preparation of the ESIF programs.<sup>73</sup>



<sup>72</sup> The EU Common National Rules define the implementation processes and rules between the bodies within the system, eligibility of expenditures, financial corrections, and other implementation arrangements, and these rules spill over to project beneficiaries. Common National Rules are available at: <https://strukturnifondovi.hr/eu-fondovi/esi-fondovi-2014-2020/op-konkurentnost-i-kohezija/> (under Zajednička nacionalna pravila).

<sup>73</sup> For the NRRP, the implementation of investment projects relies on the same rules and capacities used for ESIF, which may result in bottlenecks.

## BOX 15.

## Absorption of EU funds<sup>74</sup>

The overall absorption of EU funds in Croatia is 53 percent (total payments), while the EU average is 66 percent.<sup>75</sup> Absorption is uneven across the funds, but in general the performance is below the EU average. The ERDF is the fund with the largest allocation, amounting to EUR 4.7 billion, and it reached an absorption rate of 62 percent, slightly below the EU average of 67 percent. The second largest fund, EAFRD (EUR 2.6 billion of which 0.6 billion is a top-up) currently has a comparable absorption rate of 60 percent, while the EU average is 65 percent.

Progress is particularly advanced for programs on the competitiveness of SMEs (spent 98 percent of the planned amount), low-carbon economy (spent 88 percent), and social inclusion (76 percent).<sup>76</sup> In contrast, the lowest implementation has been recorded for programs on ICT, especially on broadband access (spent 13 percent) and efficient public administration (33 percent).

The gap in the absorption of the Cohesion fund in Croatia (EUR 2.1 billion) compared to the EU average is substantial and it cannot be attributed to the topping up of funds. For this fund, the total payments in Croatia amount to 40 percent, as opposed to 72 percent at the EU level.

The European Social Fund, which has an allocation of EUR 1.9 billion programmed through the OPEHR, is also a weak performer (of this amount, as much as 0.5 billion was added in 2021). The absorption rate for the ESF is 36 percent in Croatia, far from the EU average of 65 percent. However, data indicates that 51 percent of funds are spent, only not yet declared to the European Commission.

Another fund contributing to OPEHR is the Youth Employment Initiative (YEI), whose absorption at 89 percent is above the EU average of 73 percent. However, this positive performance does not affect the overall absorption rate that much given the modest amount of the fund allocation (EUR 0.2 billion). The total EU payments at 52 percent of EMFF (allocation amounts to EUR 0.2 billion) are below the EU average of 66 percent.

The proportion of “decided” amounts in all programs is an indication that implementation is underway and that expenditures are being created by selected projects which need to be finalized before the end of the implementation period in 2023. The decided amount for OPCC is at 155 percent, and at 94 percent for OPEHR. RDP has 93 percent of the decided amount, but the implementation period is extended until 2025. According to national data<sup>77</sup>, 99 percent of the amount of OPMFF is decided at this stage.

<sup>74</sup> The absorption rates provided in this note are different from the official figures by the Ministry of Regional Development and EU Funds. The ministry is calculating absorption rates with respect to the original program allocations that end with year 2020, disregarding the top-up funds. In Croatia, the ESF fund and the EAFRD fund note the highest increase in available allocations, therefore affecting the calculation of the absorption rates the most. In this note, absorption rates are calculated considering the recent top-up funds. Therefore, the absorption rates reported in this note are lower than those communicated by the ministry. However, the absorption rates provided by the by the Ministry of Regional Development and EU Funds are not comparable with the absorption rates provided at EU level. Absorption rates across MSs are benchmarked using the Open Data Portal for the ESIF, available at: <https://cohesiondata.ec.europa.eu/>.

<sup>75</sup> Data from: <https://cohesiondata.ec.europa.eu/countries/hr>

<sup>76</sup> Table: ESIF 2014-2020: Implementation by theme for Croatia – total cost of selection and spending as % of planned (scatter plot) from <https://cohesiondata.ec.europa.eu/countries/HR>

### The administrative capacity of national authorities in charge of EU funds management needs further strengthening in order to achieve higher absorption results and the programs' objectives.

Program and project implementation is often delayed. The reasons include delays in launching call for proposals due to insufficient capacities of the organizations, especially for the preparation of tenders and especially for large infrastructure projects; long application times in calls for selection of projects; and long duration of the selection phase because of the many steps in the procedure and the difficulties in mobilizing external assessors to proposals. With the objective of addressing these factors, as recommended for Croatia by the European Commission (European Commission, 2019), the Ministry of Regional Development and EU Funds has undertaken the preparation of an institutional capacity building plan for the use of EU funds. The 2030 National Development Strategy (NDS) was adopted in Croatia to strengthen and streamline the country's planning processes and steer the use of EU funds. The Act on Strategic Development Planning and Management System (OG 123/2017) established a structured system of strategic planning which regulates the preparation of documents at national and regional level, as well as documents in relation to EU economic governance and the use of EU funds.

### Overall, the finalization of ESIF 2014-20, roll-out of ESIF 2021-27 and a parallel implementation of NRRP 2021-26 are likely to put a major pressure on the public administration system.

Outstanding capacities and skills in bodies responsible for EU funds management will be required to overcome this overload without having to make trade-offs between programs and investments, particularly in several national bodies where bottlenecks are created due to overlapping duties in multiple programs, such as the Central Finance and Contracting Agency which acts as intermediate body in multiple ESIF investment priorities and as the body in charge of implementation of several NRRP sub-components, which should require additional staffing.

### Interviews with firms confirm that there are barriers to accessing EU funds for most firms.

85 percent of firms state that they are aware that firms in Croatia can submit project proposals for EU grants to increase their competitiveness and growth, but, over the last three years, only 16% of firms participated in a Call for proposals for EU grants or signed an EU grant contract. The share of firms that participated in a Call for proposals for EU grants or signed an EU grant contract is much larger among larger firms, at 48 percent.

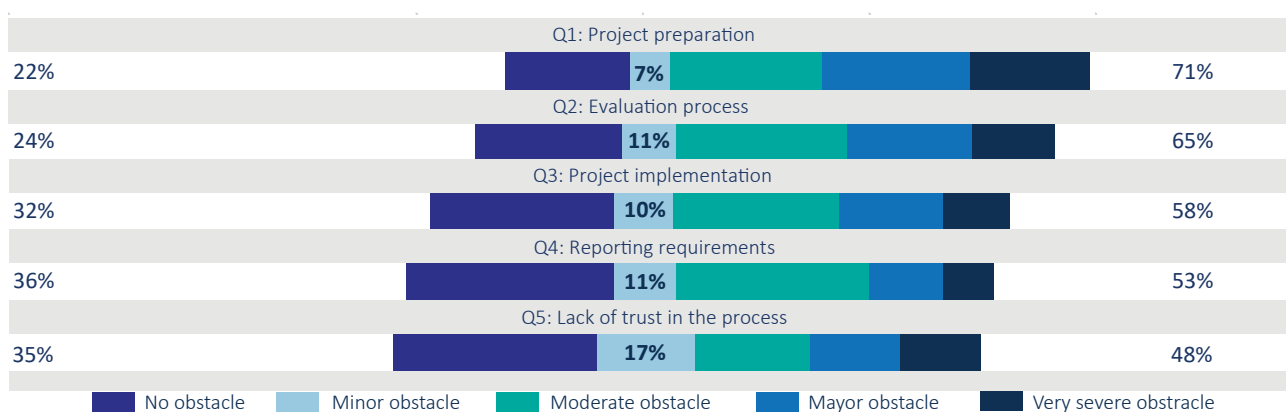
### The biggest obstacles to attempting to secure an EU grant contract are related to lack of knowledge over the necessary processes and lack of trust.

The majority of firms report "project preparation", "evaluation process", "project implementation", "reporting requirements", and "lack of trust in the process" as obstacles to attempting to secure an EU grant contract (Figure 78). All these factors are more strongly perceived as an obstacle by SMEs, especially project preparation and lack of trust in the process.

FIGURE 78.

#### Perceived obstacles to attempting to secure an EU grant contract

To what extent are each of the following an obstacle to attempting to secure an EU grant contact?



Note: N=Q1:419 (141 missings) Q2:387 (173 missings) Q3:38 (179 missings) Q4:384 (176 missings) Q5:406 (154 missings)  
Statistics are computed using sample weights. Don't know, "Prefer not to answer", "Not applicable" are coded as missing values.

Source: Firms Survey, 2022.

**The main obstacles are related to complicated and lengthy procedures.** The main obstacles during project preparation<sup>78</sup> are that there are "unclear guidelines on how to participate" and "not enough information on the exact time of a Call announcement".<sup>79</sup> The main obstacles during the evaluation process<sup>80</sup> are that there is "lack of transparency", "the evaluation of the applications lasts too long", and "there is no relevant feedback on the project application in case of rejection".<sup>81</sup> The main obstacles during project implementation<sup>82</sup> are the "procurement rules that firms need to follow when subcontracting" and difficulties in "securing co-financing and bridge financing due to changes in the project".<sup>83</sup> The main obstacles related to reporting requirements<sup>84</sup> are that "reporting requirements are too demanding" and that "approving reports takes too long which causes delays in payments".<sup>85</sup> The main obstacles for lack of trust in the process<sup>86</sup> are that "grant contracts typically awarded to politically connected firms" (68%).<sup>87</sup>

#### 4.2.6. Public procurement<sup>88</sup>

**Public procurement is a sizeable economic activity and has the potential to strategically contribute to equitable and sustainable economic growth.** Globally, it is estimated that countries spend around 13% of GDP on public procurement (Bosio et al., 2022), suggesting that improving the efficiency, effectiveness, and integrity of public procurement can generate sizeable savings and create additional fiscal space. By nature, public procurement is at the intersection between the public and the private sector, and therefore it can be a strategic tool to sustain firms' growth. Given these potential benefits of public procurement on firm growth and market diversification, a critical question is whether access to public procurement is equitably distributed in the economy and what are the barriers and challenges that prevent firms from participating in public procurement.

**Recent research provides some answers on how public procurement can best represent an economic opportunity for firms.** Barrot and Nanda (2020) show that accelerated payments have a positive impact on the employment growth of suppliers, especially for financially constrained firms. Conti et al. (2021) show that stricter regulations addressing payment backlogs reduce firms' exit rates, especially in sectors with a large share of small firms. Participation rates of firms are positively associated with the transparency of the procurement systems (Knack et al., 2019) and the adoption of e-procurement (World Bank, 2020c). Hjort et al. (2020) show that informational barriers may distort market access and programs on public procurement opportunities can increase participation rates, winning rates of bidders, firm' survival, and growth.

<sup>78</sup> This question was asked only to firms that indicated "project preparation" as a minor – very severe obstacle to attempting to secure an EU grant contract.

<sup>79</sup> "Changes of the rules during the Call", and "eFondovi system for submission of applications not working properly" are indicated as the main obstacles during project preparation by fewer firms, respectively, 24% and 12%.

<sup>80</sup> This question was asked only to firms that indicated "evaluation process" as a minor – very severe obstacle to attempting to secure an EU grant contract.

<sup>81</sup> The "appeal process" is indicated as the main obstacles during the evaluation process by fewer firms, 4%.

<sup>82</sup> This question was asked only to firms that indicated "project implementation" as a minor – very severe obstacle to attempting to secure an EU grant contract.

<sup>83</sup> "Reporting requirements during the project implementation", "Approval of request for payments", and "Financial corrections by the Implementing Bodies" are indicated as the main obstacles during project implementation by fewer firms, respectively 14%, 12 and 11%.

<sup>84</sup> This question was asked only to firms that indicated "reporting requirements" as a minor – very severe obstacle to attempting to secure an EU grant contract.

<sup>85</sup> "Implementing Bodies asking for multiple rounds of changes in reports" is indicated as the main challenge related to the reporting requirement by fewer firms, 12%.

<sup>86</sup> This question was asked only to firms that indicated "lack of trust in the process" as a minor – very severe obstacle to attempting to secure an EU grant contract.

<sup>87</sup> "Requests of informal payments or gifts to secure the grant" is indicated as the main reason for lack of trust in the process by fewer firms, 8%.

<sup>88</sup> This section builds on the recent World Bank report "Measuring Performance of Public Procurement in Croatia" (P173682).



**Public procurement represents a substantial part of the Croatian economy, and it is demonstrably open.** The total value of contracts and framework agreements published in 2019 was more than HRK 43 billion excluding VAT or more than 13 percent of Croatian GDP. Between 2015 and May 2021, only 0.5 percent of procurement processes followed a closed procedure. The public procurement regulation and institutional setting in Croatia is also robust and has been modeled on EU regulations. The procurement legislation includes provisions that protect the rights of private sector firms and regulate the relations between contracting entities and the private sector.

**Despite these features, there are low levels of competition for many categories of goods, services and works, and relatively low levels of SME participation in public procurement overall.** The average number of bidders across all procurement processes in the data is low, with a median of only 2 bidders (for contracts from 2018 onwards).<sup>89</sup> The number of bidders is larger for open procedures, such as competitive dialogue and negotiated procedure with prior publication. In total, there are around 14,000 firms supplying goods and services through public procurement in Croatia, but there is a significant dependence on a relatively small number of suppliers. Indeed, between 2015 and May 2021, the top 10 suppliers in the Croatian public procurement market supplied 27.6 percent of the total value of procurement. Between 2015 and 2021 SMEs were the main contractor for only around 13 percent of total public procurement in Croatia, compared to about 45 percent in the EU.<sup>90</sup> For firms that do participate, however, the “winning rate” is similar between SMEs and non-SMEs.

**Results from the survey show 17 percent of firms secured or attempted to secure a government contract between 2019 and 2021.** Participation in public procurement was higher among large firms (41 percent) than among medium (22 percent) and small firms (12 percent; Figure 79).<sup>91</sup> This is not driven by other firm characteristics, such as firm age or location, nor by sector. Public procurement is mostly relevant for certain sectors, but these differences between large, medium, and small firms are confirmed even when restricting the analysis to only firms for which public procurement is a relevant market segment (Figure 80).

**The biggest obstacles to participation in public procurement are related to administrative barriers and complicated procedures.** Considering only the sample of “well informed” firms – those that secured or attempted to secure a government contract in the three years before the survey, or for which public procurement is a relevant market segment – the majority reported “administrative procedures before contract signature”, “expected challenges during contract execution” and “lack of trust in the process” as obstacles to participation in public procurement (Figure 81). Geographical barriers are perceived as an obstacle only by a minority of these firms. The main administrative obstacle before contract signature<sup>92</sup> is “too much effort for bid preparation”, and the biggest challenges expected when working under a government contract are “too many administrative processes during contract execution” and “complicated regulations on subcontracting”.<sup>93</sup> There is not one main reason for lack of trust in the process as a main obstacle to participation,<sup>94</sup> but a non-negligible share of firms reported “requests of informal payments or gifts to secure a government contract”, “government contracts typically awarded to politically connected firms”, and other forms of unfair competition” as obstacles.

<sup>89</sup> Three bidders in a procurement process is widely used as a benchmark to indicate a reasonable minimum level of competition.

<sup>90</sup> The data for the EU refer to 2017 only.

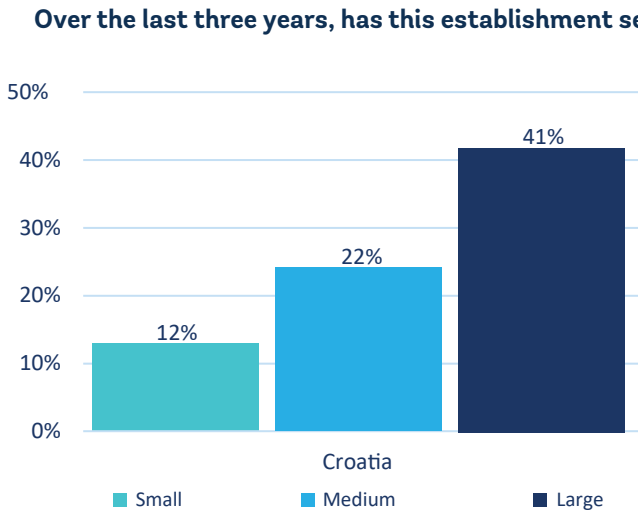
<sup>91</sup> Focus group discussions led as part of the recent World Bank project “Measuring Performance of Public Procurement in Croatia” (P173682) revealed various reasons for the low participation rate, including time consuming process for bid preparation and submission, uncertainties on the contracting time and start of contract execution, discouragement of firms after unsuccessful attempts in the past, and limited capacity for many firms to execute multiple contracts at the same time.

<sup>92</sup> This question was asked only to firms that indicated “administrative obstacles before contract signature” as a minor – very severe obstacle to participation in public procurement.

<sup>93</sup> “Unclear guidelines on how to participate”, “Risk of appeals by other firms”, “Length of the process after bid submission”, “Risks of renegotiations or changing orders” and “Delays in payments” are perceived as obstacles only by a minority of firms.

<sup>94</sup> This question was asked only to firms that indicated “lack of trust in the process” as a minor – very severe obstacle to participation in public procurement.

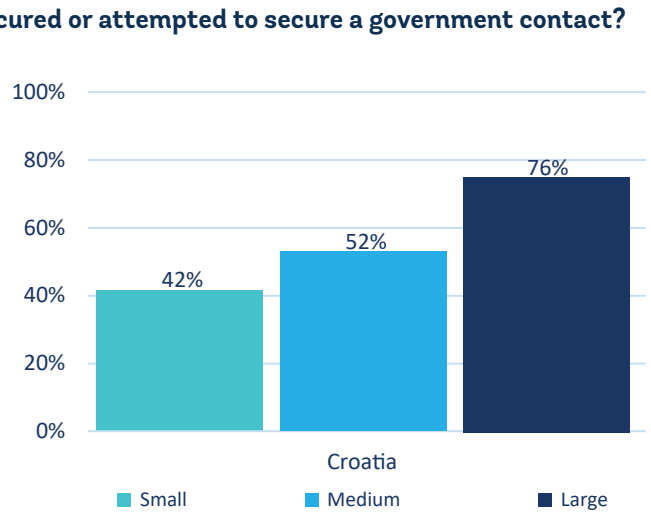
**FIGURE 79.**  
Overall participation rate by firm size



Note: N = 324 Statistics are computed using follow-up sample weights ("wmedian\_COVID").

Source: Firms Survey, 2021.

**FIGURE 80.**  
Participation rate for firms for which public procurement is relevant market segment by firm size

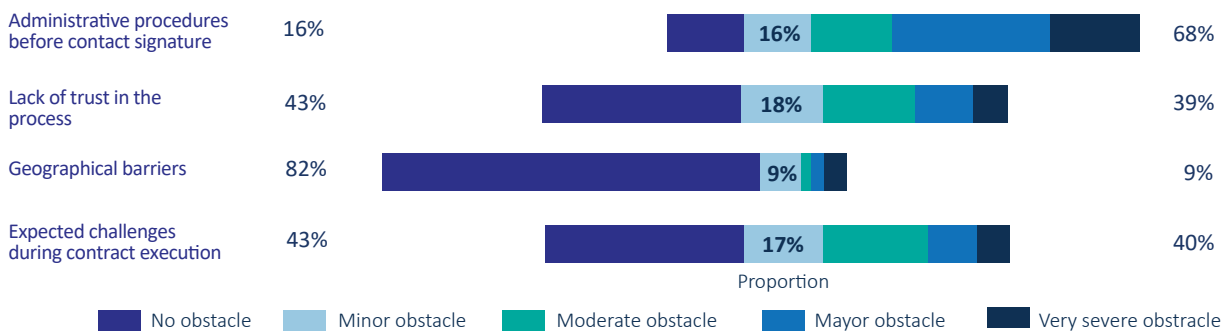


Note: N = 100 Only firms that say that public procurement is relevant for their sector. Statistics are computed using follow-up sample weights ("wmedian\_COVID").

Source: Firms Survey, 2021.

**FIGURE 81.**  
Perceived obstacles to participating in public procurement

To what degree are each of the following an obstacle to attempting to secure a government contract?  
(Croatia)



Note: weighted results N= 324 0 missing values. Only firms that 1) participated in public procurement in the last three years or that 2) indicated that public procurement is relevant for their sector. Statistics are computed using follow-up sample weights ("wmedian\_COVID").

Source: Croatia Enterprise Survey, 2021.

### 4.3. Conclusion and policy recommendations

**Croatia's transition to a market economy was marked by gradual institutional reforms, building on momentum after the EU accession in 2013.** Croatia has been converging towards other EU countries and adopting the EU acquis as required by the EU accession process. Relative to EU comparator countries, Croatia has a strong regulatory framework in labor market institutions and SOEs corporate governance. Its institutions are moderate for accountability, political, financial market, and justice institutions. However, on public sector institutions, social institutions, and business and trade institutions, Croatia is in the bottom 25<sup>th</sup> percentile.

**Based on the institutional benchmarking exercise, this chapter took a deep dive on six institutional areas that are pertinent for firm productivity.** Public sector institutions and Business & trade institutions are the areas in Croatia with the largest governance and institutional gaps. They are also critical for firm growth and productivity. The analysis on these six areas were supplemented with a firm level survey and a literature review.



**Recommendations in the six areas of deep dive based on this analysis are summarized below:**

**(1) To improve competition and anti-monopoly policies Croatia should increase accountability and transparency on the work by the Competition Agency, strengthen tools and programs available to the Competition Agency in order to exercise its enforcer role, and introduce targeted training on competition law for judges.** The results from the survey with firms indicate that “a lack of trust towards the authorities enforcing competition rules” is the main institutional obstacle to competition in Croatia. The annual reports of the Competition Agency need to be more methodologically rigorous and provide more meaningful information, such as the number of substantive decisions and the number of complaints submitted/rejected. The database on the website of the Competition Agency could be more intuitive, easier to use, and allow for more complex searches. Furthermore, it is recommended that the Competition Agency articulates its enforcement priorities and exercises strategic case prioritization, such as targeted enforcement in the area of bid rigging. Existing leniency programs could be further promoted, as wider use of this investigative tool is expected to support the Competition Agency in Croatia in detecting cartel activity. Programs for increasing the capacity of firms in dealing with competition and anti-monopoly policies, as well as simplification of regulations and procedures, would contribute to reducing the existing knowledge gaps among firms, especially among SMEs. Finally, in order to deal with a lack of judicial specialization, especially a lack of knowledge of EU competition law, more targeted training on competition law for judges needs to be provided.

**(2) To improve compliance with regulations Croatia should adopt a uniform methodology and nontechnical rules for legal drafting to be utilized at all levels of government, strengthen the regulatory transparency and clarity and upgrade the current regulatory impact assessment (RIA) framework.** The country should invest in digitalization to transform the rulemaking procedure by developing digital infrastructure (introducing software solutions for legal drafting), building digital skills of all actors involved in regulatory rulemaking. These techniques should aim to implement machine-readable regulations, agility for innovations and smart industry on the design side, and efficiency for navigating regulations by businesses and compliance management on the regulatory implementation side. This is expected to improve the quality and coherence of regulations, simplify and streamline the implementation of the RIA horizontally and inform the government with compelling data for adopting new policies. In addition, so-called “sunset clauses” could be introduced to clear out outdated norms and regulations and ensure that the consolidated text of regulations is updated after any amendment and publicly available on the government website.

**(3) To increase the efficiency of the business licensing process, Croatia should improve transparency by implementing a comprehensive official source of information on licensing requirements, review the minimum technical requirements and transition towards a goals-based approach, replace ex-ante licensing and inspections with an online notification procedure, and develop and publish user-friendly guidance for businesses on how to comply with regulations.** Transparency in business licensing is of high importance, both to enhance legal certainty and to prevent corruption. This will require a consultative process with subject matter experts depending on the domain under review, in order to strike the right balance between the science and affordability/feasibility in terms of attaining the mandated goals. Low-risk businesses should not be subject to ex-ante inspections, onerous documentation requirements, or lengthy review procedures and should be able to start operating through simplified entry procedures. This can be implemented by introducing an online platform to allow low-risk businesses to start their activities simply by completing a short and simple form where they will submit some information about their business and self-certify compliance with the applicable regulatory requirements.

<sup>95</sup> Similar solutions have been established in the EU context (Lithuania, Germany, Denmark) and recognized as an important development in the Digital Economy and Society Index (DESI).

**(4) To improve the efficiency of its tax administration, Croatia should invest additional efforts in developing and maintaining partner relations with taxpayers in order to prevent tax avoidance/evasion and lower tax compliance costs, improve the transparency and openness of its tax administration, and reform the system for the resolution of tax disputes to attain higher levels of efficiency in tax proceedings, as well as to secure predictability and legal certainty for taxpayers.**

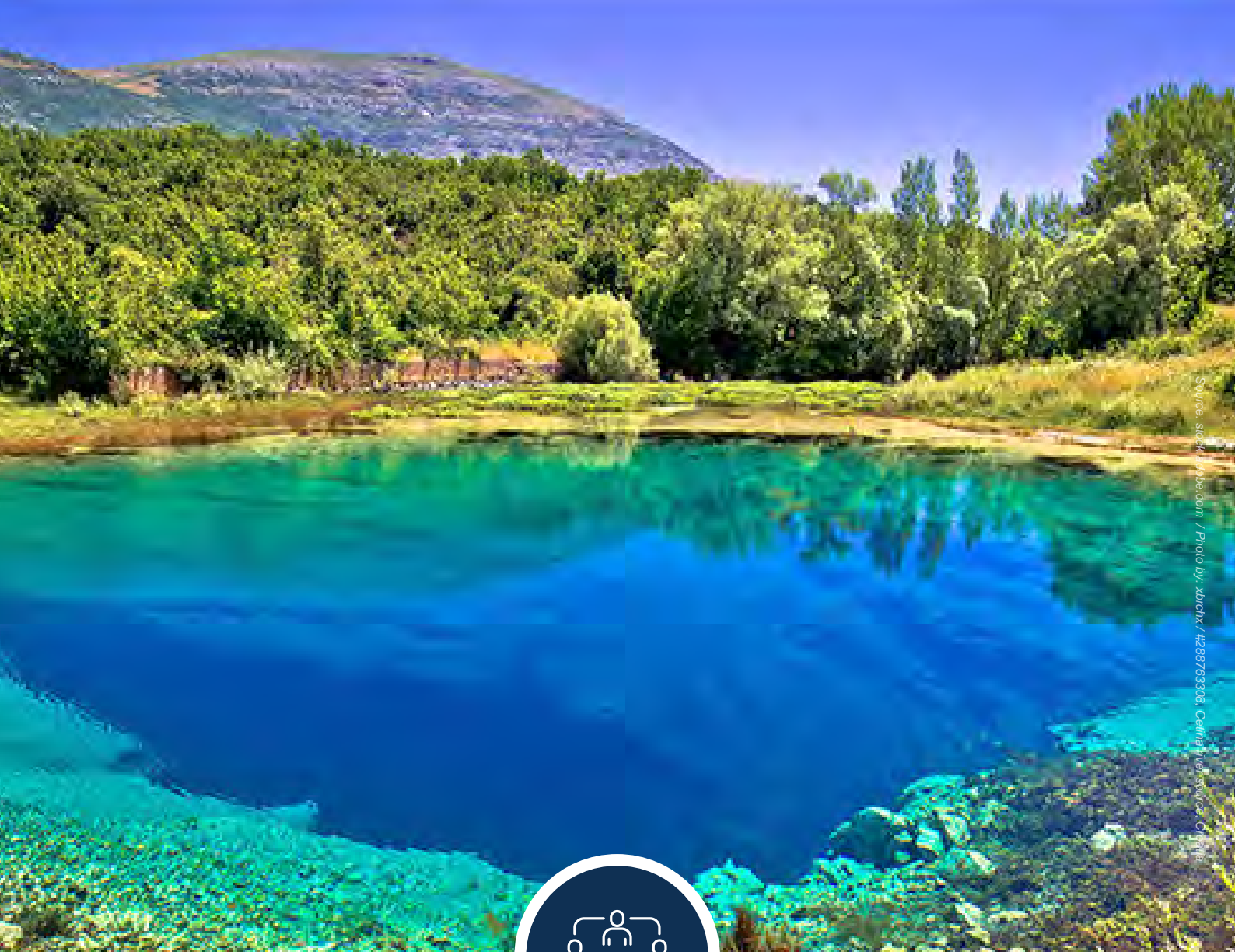
Partner relations with taxpayers imply strengthening the educational component of tax audits, at the expense of its repressive dimension. Furthermore, the perceived unequal treatment of taxpayers should be addressed by giving more attention to small and medium-sized firms, perhaps by establishing a central unit for advisory services to these taxpayers. Further, the frequency of tax payments, as one of the biggest burdens for small and medium-sized taxpayers, could be reduced and made semi-annual or quarterly. Furthermore, taxpayers would benefit from the publication of a systematized (annual) report on tax audits that would present and explain the most common errors and offenses. Finally, as the performance of the Independent Sector for Second-Instance Administrative procedures is the biggest obstacle to the achievement of these goals (by both the length of procedures and the ratio of the confirmed first-instance decisions), a comprehensive reform of this area should consider the abolishment of internal review procedure by a higher administrative authority and open the path for external judicial review in tax disputes immediately after the first-instance decision on tax obligation is issued.

**(5) To improve the EU funds management, absorption and impact, Croatia should strengthen the capacities of all stakeholders included in the EU funds governance framework, streamline project generation and selection process, and further align national procedures to reduce delays and overregulation.**

A key priority is to further develop the capacities of national authorities responsible for the implementation of EU funds, building on the existing strong base of institutions and public servants. Investment in hiring, motivating, and retaining the staff is crucial for accelerating the program implementation and addressing bottlenecks. Furthermore, more attention should be given to public investment management, especially at the local level. The focus should be on criteria for maximizing the socio-economic impact of new infrastructures at the stage when project ideas are being conceptualized. More cooperation at the local, regional, and cross-sectorial levels on joint project development initiatives should be encouraged, for example by setting selection criteria for awarding technical assistance for the preparation of project documentation in a way to incentivize the development of joint projects by more counties and to prioritize projects with the highest socio-economic impact. Finally, continuous efforts should be made to simplify Common national rules. Lengthy procedures of project selection should be reduced to accelerate the contracting, maintain the relevance of the project proposals and facilitate implementation.

**(6) To improve its public procurement system, Croatia should reduce administrative barriers during the tendering and bidding process, take steps to further increase trust in the public procurement process, and reduce challenges and procedural complexities during contract execution.**

Administrative deregulation can be achieved through various strategies. For example, the submission of bids through the eProcurement portal could be further simplified. The publication of procurement plans in advance would facilitate planning for firms. Training for firms would reduce the submission of bids that are inadequate and do not meet the minimum criteria indicated in the tender. The government could also consider various strategies for increasing transparency and accountability toward public procurement. The requirements of the PP Act for the publication of data by contracting authorities already provide for a significant level of transparency, but there is scope for improvement by making it easier to access that information. Finally, in developing its new eProcurement system, the Procurement Policy Directorate could continue to work toward an integrated system supporting every aspect of the procurement cycle from procurement plans through to contract supervision and completion, for example including e-invoices and e-payments functionalities and simplifying steps for subcontracting. The State Office for Central Public Procurement could expand the current approach to centralized procurement, such as through the use of e-catalogues. Centralized procurement can increase efficiency for contracting entities, reduce uncertainties for firms, and streamline processes for contract implementation and purchase orders.



Source: [shutterstock.com](https://www.shutterstock.com) / Photo by: [shutterstock.com](https://www.shutterstock.com) / #288763308, Central water services, China



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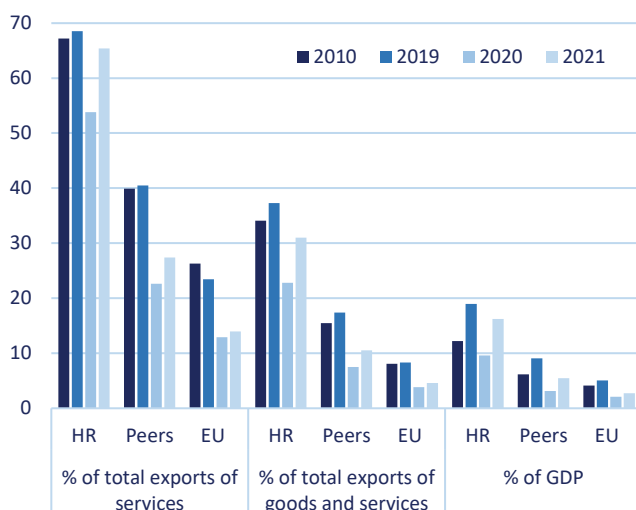
# ANNEXES

## Annex 1

# Tourism in Croatia: recent developments, structural issues and prospects

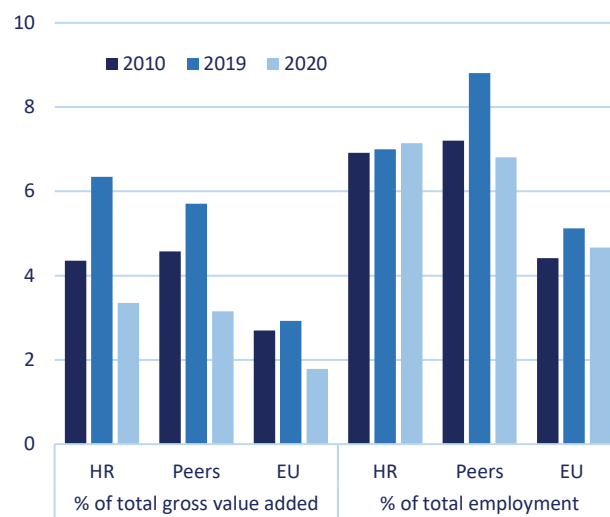
The tourism sector plays one of key roles in the Croatian economy, as confirmed by different indicators. Travel services exports (Figure 1) accounted for more than two-thirds of total services exports, more than one-third of total goods and services exports, and slightly below one-fifth of GDP in Croatia in 2019. These indicators were relatively high already a decade ago, but they increased even further, making the domestic economy more dependent on tourism developments. Croatia also stands out among EU countries and also its peer countries in the Mediterranean with respect to relevance of tourism<sup>96</sup>. Travel services exports in the Mediterranean countries are above the EU average, with Croatia in the first place among them. Furthermore, international comparison places Croatia among EU countries with the highest contribution of the tourism sector to gross value added and employment, but below some other Mediterranean countries<sup>97</sup>.

**FIGURE 1.**  
Exports of travel services



Source: Eurostat.

**FIGURE 2.**  
Accommodation and food service activities



Source: Eurostat.

**Croatian tourism is characterized by a typical "sun and sea" model with strong seasonality.** Like in other Mediterranean countries, the tourism season in Croatia is highly concentrated during the summer months, reflecting the primary motivation of guests arriving to enjoy the sun and sea. However, the seasonal pattern in Croatia is substantially more pronounced compared to other Mediterranean countries, with July and August accounting for nearly 60% of total nights spent by foreign guests<sup>98</sup> in 2019, while if June and September are added this share increase to 85% (Figure 3<sup>99</sup>). Peer countries have a much lower concentration of tourism season during these four months. In addition, over the past ten years Croatia has not been able to reduce the seasonality pattern of its tourism, unlike most of its peers.

<sup>96</sup> In this annex Mediterranean countries include: Croatia (HR), Cyprus (CY), France (FR), Greece (EL), Italy (IT), Malta (MT), Portugal (PT) and Spain (ES).

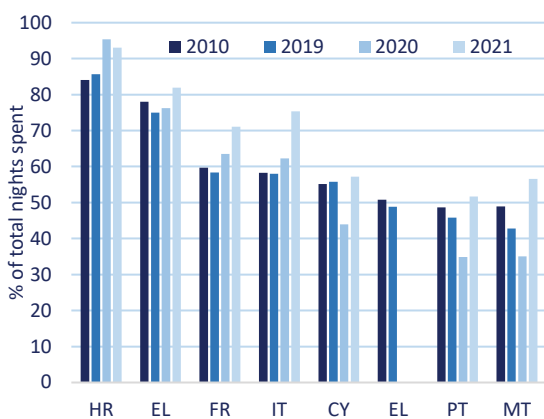
<sup>97</sup> A more accurate measure of the importance of tourism to the domestic economy is tourism satellite accounts that compile information on both the supply and demand side of tourism. However, these data are produced with insufficiently harmonized national methodologies and are available for a smaller set of countries and different survey years. Nevertheless, they confirm that Croatia stands out among EU countries with the highest contribution of tourism to the national economy (Eurostat, 2019).

<sup>98</sup> Tourism activity in Croatia is dominated by foreign guests. They accounted for more than 90% of total nights spent in commercial accommodation in 2019, slightly more than in 2010. Among Mediterranean countries higher share of foreign guests is recorded only in Malta and Cyprus.

<sup>99</sup> On Figures 3, 5 and 11 indicators for Greece in 2020 and 2021 are not presented because of missing data in some months.

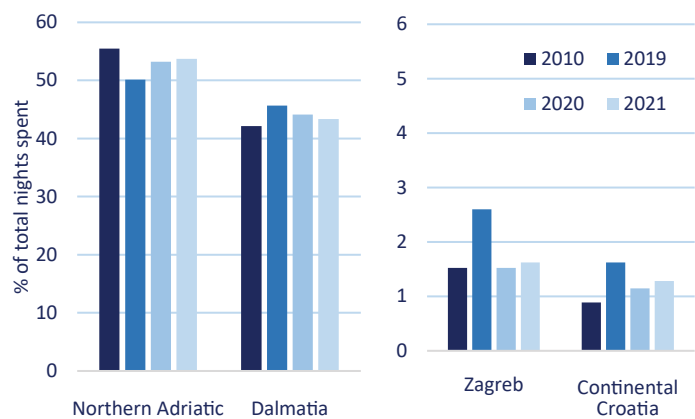
**Tourist arrivals are highly concentrated in the coastal areas and dominated by foreign guests arriving from relatively well-diversified markets.** Around 95% of total nights spent by foreign guests in commercial accommodation in 2019 is realized in counties on the Adriatic coast (Figure 4). On the other hand, Croatia has a relatively well-diversified geographical structure of travel services exports, reducing the risks from idiosyncratic shocks in the main source markets. Travel services exports to the top three markets accounted for around 45% of total travel services exports in 2019, placing Croatia in the middle of Mediterranean countries (Figure 6). The concentration of travel services exports was much higher in Cyprus, Spain, and Malta, with the top three markets contributing 60-70% to total travel services exports.

**FIGURE 3.**  
Nights spent in July-September



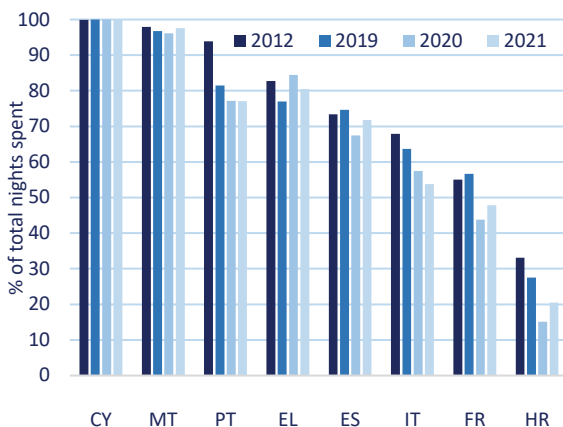
Source: Eurostat.

**FIGURE 4.**  
Nights spent in Croatia by counties



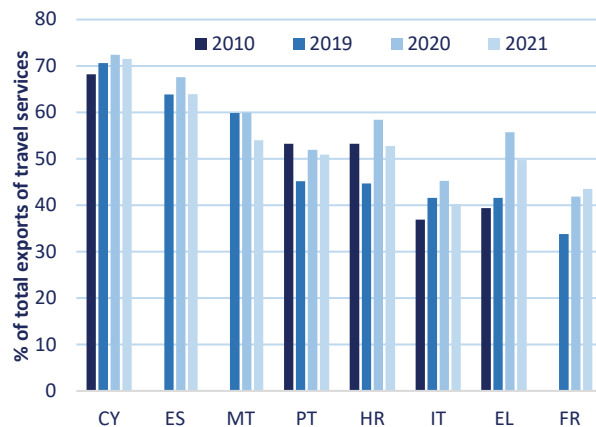
Source: Central Bureau of Statistics (CBS).

**FIGURE 5.**  
Nights spent in hotels



Source: Eurostat.

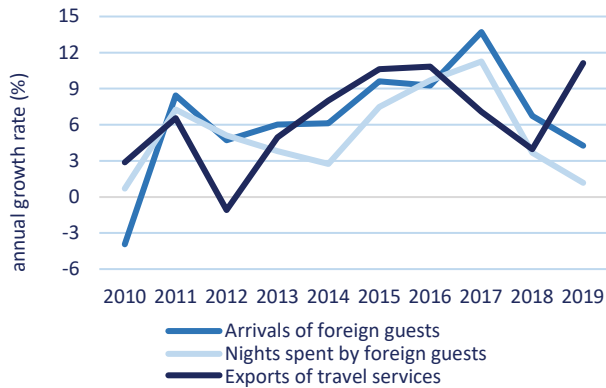
**FIGURE 6.**  
Exports of travel services to the top three markets



Source: Eurostat.

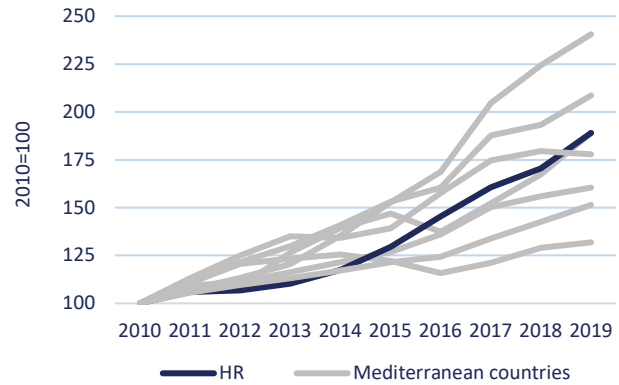
**The years before the Covid-19 pandemic were marked by very positive developments in Croatian tourism (Figure 7).** Travel services exports increased by an average of nearly 9% annually in the 2014-2019 period, while arrivals and nights spent by foreign guests increased somewhat slower (around 8% and 6%, respectively). At the same time, gross value added in accommodation and food service activities increased by an average of 6% in nominal and 3% in real terms, while employment increased by an average of 2.5% annually. Hence, 2019 was a record year for Croatian tourism, with 17.4 million foreign guests spending 84.1 million nights in Croatia and generating travel revenue of 10.5 billion EUR.

**FIGURE 7.**  
Tourism developments in Croatia before the pandemic



Source: CBS, CNB.

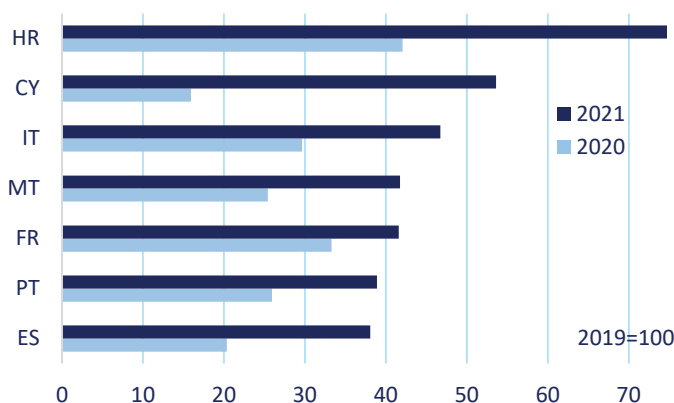
**FIGURE 8.**  
Exports of travel services in the Mediterranean countries before the pandemic



Source: Eurostat.

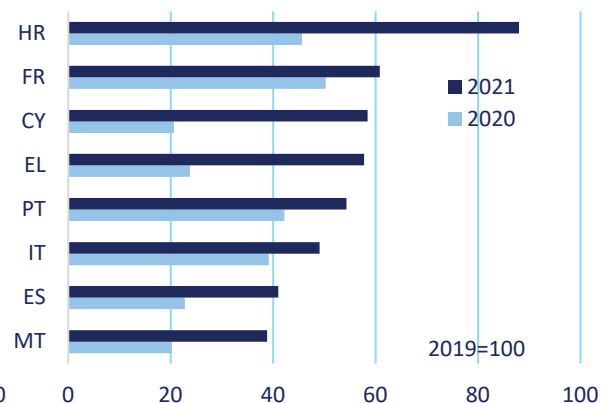
**The Covid-19 pandemic affected tourism severely.** Lockdowns, restrictive containment measures, fear of infections, and accompanying changes in the behavior of consumers led to an unprecedented shock, particularly in contact-sensitive industries, with tourism as one of the hardest-hit economic sectors. Croatian tourism was expected to fall particularly sharply due to its strong dependence on foreign guests faced with travel restrictions and a declining income. However, the timely opening of borders and lifting of travel restrictions, along with the relatively favorable epidemiological situation during the summer months, reliance on traditional guests arriving by car, and orientation on private accommodation led to tourism results exceeding expectations. Croatian tourism outpaced peer countries in 2020 in terms of a less pronounced fall in both physical (arrivals and nights spent by foreign guests) and financial (revenues from tourism consumption of foreign guests) indicators (Figures 9 and 10). Positive developments continued in 2021 as well. After two pandemic years, Croatia's loss in tourism is much smaller than in other Mediterranean countries. In 2021 nights spent by foreign guests recovered to 75% of the 2019 level in Croatia, compared to 54% in the second-best performing Cyprus, while travel services exports recovered to nearly 90% of the 2019 level in Croatia, compared to 61% in the second-best performing France.

**FIGURE 9.**  
Nights spent in hotels



Source: Eurostat.

**FIGURE 10.**  
Exports of travel services to the top three markets



Source: Eurostat.

**Looking ahead, there is a large scope for the future development of tourism.** Improving the quality of accommodation establishments and greater orientation towards more expensive facilities (hotels), accompanied by introducing new services and developing specific forms of tourism (like health tourism, cultural tourism, or sports tourism), would be beneficial. Attracting guests with higher income, promoting tourism in the non-coastal areas and extending the season beyond the peak months would also foster tourism. Higher average consumption by tourists would lead to better tourism results in financial terms without exaggerating problems related to mass tourism. Reducing the high import content of tourism would increase its positive impact on the overall economy. Strengthening linkages between tourism and other domestic sectors (for example, agriculture) would increase domestic value added.

**Addressing these issues is challenging and requires a comprehensive strategy, especially while facing new challenges.** The Russian invasion of Ukraine has brought new risks to tourism recovery. While direct exposure of Croatian tourism to guests from Russia and Ukraine is relatively modest, the negative impact on the disposable income of guests from the main source countries, along with the reluctance of guests from distant markets to travel to the region they consider less safe, could slow down the recovery of tourism revenues. Furthermore, risks stemming from climate change should not be underestimated, and ecological concerns neglected. In that respect, further diversification of tourism flows along with the strengthening of other export sectors (both in goods and services trade) should be encouraged. Diversification of domestic production and exports would reduce the vulnerability to shocks and increase the domestic economy's resilience to future crises.

## Annex 2

### Quality of pre-tertiary education in Croatia

#### Significant challenges in the education sector persist

**Having skilled and educated workers is critical to Croatia's future growth and development.** With population numbers that continue to plummet, high youth unemployment rates, and an outflow of talent, the urgency for Croatia to deliver graduates with stronger skills has never been greater. The country's future growth will depend on workers having the right skills to take on more productive, higher-paying jobs. For this to happen, Croatia must ensure that every young person receives a first-class education, keeping up with the pace of technological change and the changing nature of work.

**Although access to education beyond compulsory education is among the highest in Europe, quality of schooling faces important challenges, which are manifested mostly at the upper secondary level and in scientific domains.** Basic education completion is universal, dropping out is non-existent and repetition rates are very low in the Croatian education system. An impressive 97.3 percent of Croatia's 20-24-year-olds reported having completed at least upper secondary education in 2019, compared to an average of 78.4 percent across the EU<sup>100</sup>: Croatia has Europe's lowest rate of "early school leavers". Regarding learning, Croatian fourth graders read among the best in the world (only after Russia, Finland, or Singapore), according to results from PIRLS (2011), and 11 percent of its fourth graders read at the highest achievement level, with only 10 percent at or below the lowest achievement level. However, 33 percent of Croatia's fourth-grade students are at or below the lowest math achievement level (meaning that they struggle to apply basic mathematical knowledge in simple situations) in the TIMSS 4th grade study. When these students

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<sup>100</sup> Source Eurostat, indicator: TPS00186.



progress to secondary education, these results hold and become even more apparent. At age of 15 (just after students enroll in upper secondary school), PISA scores in reading are higher than in math and science and stand on par with OECD average countries. Worryingly, math scores are lower compared to EU and OECD average countries, and science scores have fallen significantly in the last 15 years, with declines in performance being particularly pronounced among the country's lowest-achieving students.

## Four key institutional constraints standing in the way of reforming the education sector

**1. Lack of key information on what students know and what they can do.** Policymakers in Croatia have too little information on students' learning outcomes to effectively manage the basic education sector. In particular, they lack key information about what students know and what they can do at key stages of the basic education years. Annually, Croatia conducts one standardized student assessment but not at the end of basic education. Without consistent data on student and system performance across time, policymakers and teachers are denied the opportunity to identify problem areas and take action in a timely manner. One positive sign is that, in recent years, Croatia has substantially improved its Education Management Information System, including making key data (on inputs) publicly available, laying the foundations for more evidence-based decision-making.

**2. Key actors in the sector facing poor or no incentives to focus on the quality of education provided, the inequities in the system, and the inefficiencies.** The education system is still highly centralized, with the MSE heavily involved in the day-to-day operations of basic education provided across more than 2,000 locations. Schools, towns, and municipalities must follow central norms. This centralized management and planning approach excessively relies on legislation as the solution to most problems. Management could instead use a broader range of management tools, for example using the "power of the purse" to incentivize actors to focus on the challenges in the sector. There should be greater recognition of "softer" policy instruments, such as financial incentives, nudging actors, or using evidence to build broader stakeholder support.

**3. Insufficient capacity of key actors in planning and management.** There is evidence of insufficient capacity in several layers of the system in relation to planning, execution, and management. First, the central authorities (MSE and Ministry of Finance) have very little experience in planning and executing complex reform initiatives. Second, as a result of being disempowered through current legislation, school founders and principals have very little experience or training in managing their schools.

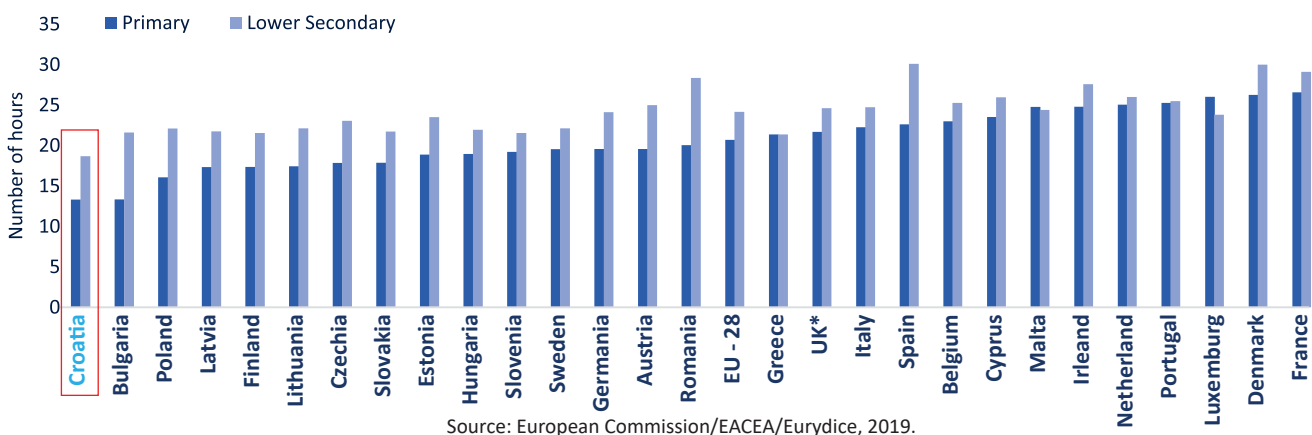
**4. Insufficient accountability tied to what students know and what they can do.** When it comes to students' poor performance, there is lack of clarity on the accountability front: at what level of government should action be taken when students are falling behind? Towns and counties own and operate the schools, but it is the MSE that is in charge of the curriculum and of training teachers, and it is the MSE that mobilizes the majority of the resources used to operate the schools. There are also very limited attempts to enlist parents and communities to hold schools accountable for poor learning outcomes. Finally, because of the lack of information from standardized assessments, no information is publicly available on how schools perform relative to other schools.

**While class size and student teacher ratios have fallen, the number of instructional hours in Croatia remains the lowest in Europe, suggesting another lost opportunity for making improvements through higher system efficiency.** This low number of hours implies that teachers and students will struggle to take full advantage of the new curriculum's focus on problem-solving skills. With only 13.3 mandatory hours of instruction per week in grades 1-4 and 18.7 hours per week in grades 5-8, Croatia has the lowest number of instructional hours in Europe (see Figure 1). In the areas of reading, writing and literature, Croatia's 8-year basic education system prescribes a total of only 525 instruction hours, which is the smallest number of hours in all observed countries and substantially below the European average of 949 hours. Similarly, in mathematics, the number of instruction hours in Croatia amounts to only 420, much lower than the European average of 628 hours (Eurydice, 2019: 22-24).

**FIGURE 1.**

**Croatian students spend the fewest hours in school in the EU**

**Average number of hours per week in primary and lower secondary education (2018/19)**



## Government policies for a brighter future

In the recent years, the Ministry of Science of Education has embarked on a major reform agenda, consisting of various layers of education policy, that are likely to have a positive impact on efficiency, quality and equity of the system.

### Curriculum reform

**The Government launched an ambitious curriculum reform to achieve a more relevant and skill-oriented education system.** In basic and upper secondary education, a new curriculum involving increased focus on modern teaching practices and building problem-solving skills in students was rolled out nationally in 2019/20, after a year of piloting. The new curriculum represents the most ambitious reform of the Croatian school system in the past decades. It aims to: i) develop basic competencies for lifelong learning; ii) define learning outcomes which, besides knowledge, include the development of skills, attitudes, innovation, creativity, critical thinking, entrepreneurship, problem-solving skills, etc.; iii) stimulate and allow autonomy in educational workers; and iv) define criteria for the development and achievement of educational outcomes. Focus is also placed on increasing student satisfaction and teacher motivation.

**The government has also made significant investments in schools' teaching and learning, with particular focus on digitalization.** These investments have mainly been financed with EU funds. For instance, the e-Schools project involved the investment of EUR 41.4 million in 151 pilot schools in its first phase. The investments focused on the school network infrastructure, equipping classrooms and teachers, and developing applications for teaching and administration as well as training of teachers and developing digital

learning materials. During the second phase of the project (September 2018 – December 2022), the project will be rolled out to all Croatian schools. This will involve investing an additional EUR 177 million into the comprehensive digitalization of the basic and upper secondary education system in Croatia.



### The “Whole Day School” model

**At the center of the Ministry’s second wave of reforms is the idea of introducing a “Whole Day School” (WDS) model with the support of the World Bank.** Students in Croatia are simply not exposed to curricular and extra-curricular quality time that may boost learning and socio-emotional development over the long term. A key reform - starting as a pilot supported by the World Bank in 2023 and planned for the national roll-out in 2028 - will introduce a Whole Day School model for all children in grades 1-8. The reform will provide significantly more time-on-task, allowing teachers to implement new teaching methods with the goal of helping students develop critical skills emphasized in the new curriculum; it will give students longer school days, reducing the gap with their European peers; it will provide an opportunity to increase equity in the system (evidence shows that the benefits of increasing instructional time are often greater for students from disadvantaged backgrounds); and it will provide an opportunity to build capacity to address some of the institutional weaknesses that have prevented these reforms from happening in the past. The World Bank project that supports WDS will also help MSE leverage an additional EUR600 million in EU resources for transforming school infrastructure nationwide and enabling the transition from two-shift to one-shift schooling in Croatian basic education. This large infrastructure investment represents a crucial condition for the implementation of WDS. Approximately EUR303 million for the implementation of the reform has been negotiated under the Recovery and Resilience Facility and is scheduled to be spent by August 2026. The remaining costs are expected to be part of the European Regional Development Fund (ERDF) (in the funding period 2021–27).

**If well implemented, the WDS could provide the tipping point to move the system toward equal and improved opportunities for all students within a school network with more efficient use of resources.** Implementing this reform well would involve: (i) introducing better incentives to support the optimization of the school network; (ii) producing more and better data on what students know and can do at key stages of the basic education cycle, and using such data to shed more light on the strengths and weaknesses of the system; (iii) strengthening accountability to improve equity and reduce inefficiencies; (iv) refurbishing schools to provide more supportive learning environments; and (v) providing more support for teachers.

## Annex 3

### The Long-term Growth Model (LTGM) and summary of tables and figures from different reform scenarios

The LTGM is based on a standard neoclassical model where GDP is given by a simple Cobb-Douglas production function:<sup>101</sup>

$$GDP_t = Y_t = A_t K_t^{1-\beta} (h_t L_t)^\beta \quad \text{Equation 1}$$

where  $A_t$  is the total factor productivity (TFP),  $K_t$  is the physical capital stock, and  $h_t L_t$  is effective labor used in production, which can be further decomposed as  $h_t$  human capital per worker (discussed in more details below), and  $L_t$  is the number of workers. The parameter  $\beta$  is the labor share. The labor force is decomposed into  $L_t = \varrho_t \omega_t N_t$  where  $\varrho_t$  is the participation rate (ratio of labor force to total working-age population),  $\omega_t$  is the working-age population to total population ratio, and  $N_t$  is total population.

The stock of physical capital follows the usual law of motion:  $K_{t+1} = (1 - \delta)K_t + I_t$ , where  $I_t$  is investment and  $\delta$  the depreciation rate. To express GDP in per capita terms, divide equation 1 by  $N_t$ :

$$y_t = GDP_t/N_t = A_t (K_t/N_t)^{1-\beta} (h_t \varrho_t \omega_t)^\beta \quad \text{Equation 2}$$

After some manipulation of the above expression, we can express GDP per capita growth in terms of the *drivers of growth* (TFP, human capital, participation rate, working-age population, population growth, and investment):<sup>102</sup>

$$g_{t+1}^{GDP/PC} \approx g_{t+1}^A + \beta(g_{t+1}^h + g_{t+1}^\varrho + g_{t+1}^\omega) + (1 - \beta) \left[ \frac{I_t}{Y_t} \frac{K_t}{Y_t} - \delta - g_{t+1}^N \right]$$

where  $g_{t+1}^X$  denotes the annual growth rate of variable X in period  $t + 1$ .

**Direct effect of drivers of growth in the short term.** TFP growth has the largest direct effect on growth: a 1 percentage point (ppt) increase in TFP growth ( $g_{t+1}^A$ ) leads to exact 1ppt increase in GDP per capita growth in the short term. A 1ppt increase in human capital growth ( $g_{t+1}^h$ ), labor force participation rate growth ( $g_{t+1}^\varrho$ ), or working-age population share growth ( $g_{t+1}^\omega$ ) increase GDP per capita growth by  $\beta$  ppts. Population growth and depreciation reduce GDP per capita growth by  $1 - \beta$ , because they reduce capital per worker by either reducing the amount of capital ( $\delta$ ) or increasing the number of workers ( $g_{t+1}^N$ ).

The effect of an increase in the investment rate ( $I_t/Y_t$ ) depends on both the capital share ( $1 - \beta$ ), as well as the existing capital-to-output ratio ( $K_t/Y_t$ ). For Croatia,  $1 - \beta = 0.4$ , so a large 10ppt of GDP increase in the investment rate raises short-run growth by 2ppts per year if  $K_t/Y_t = 2$ , but only 1ppt if  $K_t/Y_t = 4$ . This means that an investment-led growth strategy which causes capital to accumulate faster than GDP will quickly become less effective, unless it is accompanied by other reforms to boost productivity, human capital or participation to mitigate the increase in  $K/Y$ .

**Long-run effects of drivers of growth.** In the long run, the direct effect of drivers of growth is amplified if it induces further capital accumulation. One can see this by rewriting the GDP per capita (Equation 2) with a fixed “steady-state” capital-to-output ratio  $y_t = A_t^{1/\beta} (K_{ss}/Y_{ss})^{(1-\beta)/\beta} h_t \varrho_t \omega_t$ . In this case, a 1ppt increase

<sup>101</sup> For more information, visit the LTGM website (link)

<sup>102</sup> For details, check the model documentation here: <https://thedocs.worldbank.org/en/doc/133191589476085869-0050022020/original/ModelOutlineV43.pdf>

in TFP growth would boost GDP per capita growth by  $1/\beta$  ppts, and there would be a one-to-one effect of  $g_{t+1}^h$ ,  $g_{t+1}^e$  or  $g_{t+1}^\omega$ . Note however, that capital adjustment is very slow, and GDP takes several decades to converge. However, the long-run effects are a useful upper bound, and the effects of drivers of growth throughout our three-decade simulation period (2021-2050) will fall in between the “direct short-run” and “long-run effect”

**The LTGM Public Capital extension (LTGM-PC).** To analyze the effects of public and private investment on growth, the LTGM-PC augments the “main” LTGM by separating the total capital stock into public and private portions.<sup>103</sup> The production function is  $Y_t = A_t (K_t^G)^\phi (K_t^P)^{1-\beta-\phi} (h_t L_t)^\beta$ , where  $K_t^G$  and  $K_t^P$  denote public and private capital stocks, and  $\phi$  is the usefulness of public capital for production (or the elasticity of output to public capital).<sup>104</sup> The impact of growth fundamentals is analogous to the main LTGM except for investment, which is now decomposed into public and private components:

$$g_{t+1}^{GDPPC} \approx g_{t+1}^A + \beta(g_{t+1}^h + g_{t+1}^e + g_{t+1}^\omega) + (1 - \beta - \phi) \left[ \frac{I_t^P}{Y_t} / \frac{K_t^P}{Y_t} - \delta^G - g_{t+1}^N \right] + \phi \left[ \frac{I_t^G}{Y_t} / \frac{K_t^G}{Y_t} - \delta^P - g_{t+1}^N \right] \quad \text{Equation 3}$$

where the public and private capital stocks depreciate at specific rates  $\delta^G$  and  $\delta^P$ , respectively. The impact of an increase in public or private investment rates now depends on the *sector-specific* capital-to-output ratio and capital share.

An alternative interpretation of the production function is that it is the ratio of public capital to private capital that provides public services (Barro and Sala-i-Martin 1992). When there is a large amount of private capital relative to public capital, the public capital becomes “congested” and its benefits diminish. The intuition for this is a road network: when there are too many cars on the road, it becomes jammed, reducing its capacity to add to output. This is captured in the third term of Equation 3, which subtracts  $\phi$  from the standard capital share  $1 - \beta$  to adjust for congestion of private capital.

**TABLE 1. Summary of simulated GDP growth rates (LTGM)**

1/2

	Average growth rate, Percentage			
I. GDP per capita	2025-2050	2025-2029	2030s	2040s
Baseline	1.6	2.3	1.7	1.2
Moderate reforms (one-by-one):				
A. Private investment	1.7	2.3	1.8	1.3
B. Public investment	1.6	2.3	1.7	1.2
C. Pre-tertiary education	1.6	2.3	1.7	1.2
D. Tertiary education	1.7	2.3	1.7	1.3
E. TFP growth	2.0	2.5	2.1	1.7
F. Labor force participation	1.7	2.4	1.8	1.4
Reforms package (A-E)	2.2	2.7	2.4	1.9
Ambitious reforms (one-by-one):				
A. Private investment	1.8	2.4	2.0	1.4
B. Public investment	1.7	2.3	1.8	1.3
C. Pre-tertiary education	1.7	2.3	1.7	1.5
D. Tertiary education	1.7	2.3	1.8	1.3
E. TFP growth	2.2	2.7	2.3	2.0
F. Labor force participation	2.0	2.7	2.1	1.6
Reforms package (A-E)	3.0	3.3	3.2	2.8

<sup>103</sup> For a complete description of the LTGM-PC, see Devadas and Pennings (2018) available for download on the LTGM website here

<sup>104</sup> The production function presented here is a special case of the function proposed by Devadas and Pennings (2018). In particular, we abstract from the efficiency of public capital, as this features would not be relevant for the analysis carried out in this chapter.

**TABLE 1. Summary of simulated GDP growth rates (LTGM)**

2/2

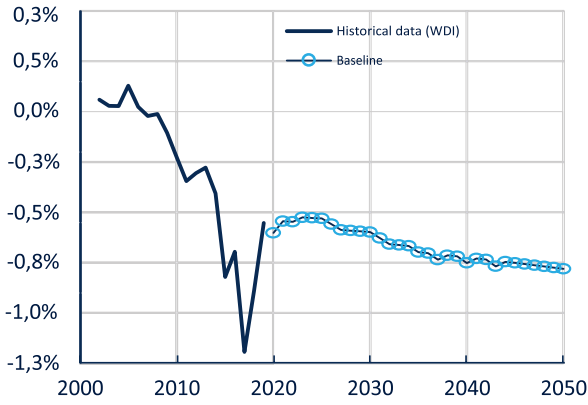
II. Headline GDP	Average growth rate, Percentage			
	2025-2050	2025-2029	2030s	2040s
Baseline	0.9	1.7	1.0	0.5
Moderate reforms (one-by-one):				
A. Private investment	1.0	1.7	1.2	0.6
B. Public investment	0.9	1.7	1.0	0.5
C. Pre-tertiary education	0.9	1.7	1.0	0.5
D. Tertiary education	0.9	1.7	1.1	0.5
E. TFP growth	1.3	2.0	1.4	0.9
E. TFP growth	1.0	1.8	1.1	0.6
Reforms package (A-E)	1.5	2.1	1.7	1.1
Ambitious reforms (one-by-one):				
A. Private investment	1.1	1.8	1.3	0.6
B. Public investment	1.0	1.7	1.1	0.6
C. Pre-tertiary education	1.0	1.7	1.0	0.7
D. Tertiary education	1.0	1.8	1.1	0.6
E. TFP growth	1.5	2.1	1.6	1.2
F. Labor force participation	1.3	2.1	1.4	0.8
Reforms package (A-E)	2.3	2.7	2.5	2.1

**TABLE 2. Summary of simulated level of GDP per capita**

	€ PPS			Index (100 = EU27 avg.)			Index (100=Eurozone avg.)		
	2020	2030	2050	2020	2030	2050	2020	2030	2050
	Baseline	18,747	27,125	36,052	63	82	83	54	68
Moderate reforms:									
A. Private investment		27,238	36,955		82	86		68	69
B. Public investment		27,069	35,978		82	83		68	67
C. Pre-tertiary education		27,120	36,013		82	83		68	68
D. Tertiary education		27,185	36,439		82	84		68	68
E. TFP growth		27,594	39,759		84	92		69	75
F. Labor force participation		27,286	37,095		83	86		68	70
Reforms package (A-E)		27,876	41,958		84	97		70	79
Ambitious reforms:									
A. Private investment		27,343	37,775		83	87		69	71
B. Public investment		27,162	36,898		82	85		68	69
C. Pre-tertiary education		27,120	36,943		82	86		68	69
D. Tertiary education		27,257	36,916		83	85		68	69
E. TFP growth		27,890	42,424		84	98		70	80
F. Labor force participation		27,782	39,790		84	92		70	75
Reforms package (A-E)		28,912	51,935		88	120		73	97

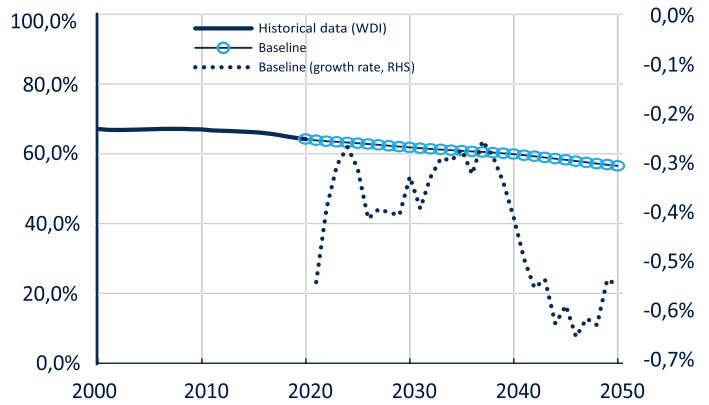
**FIGURE 1. Baseline Assumptions**

**A. Total population**  
Annual growth rate, Percentage



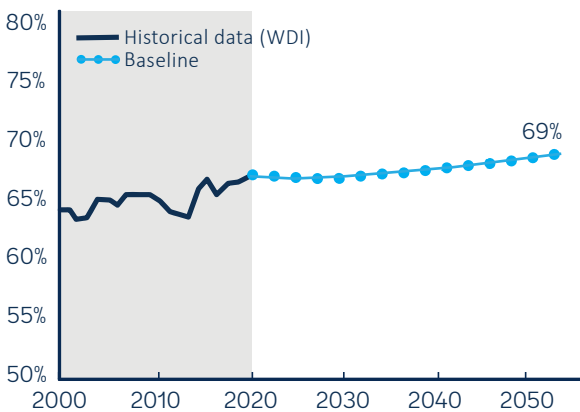
Source: UN's International Labor Organization (ILO).

**B. Working-age population**  
Percent of total population



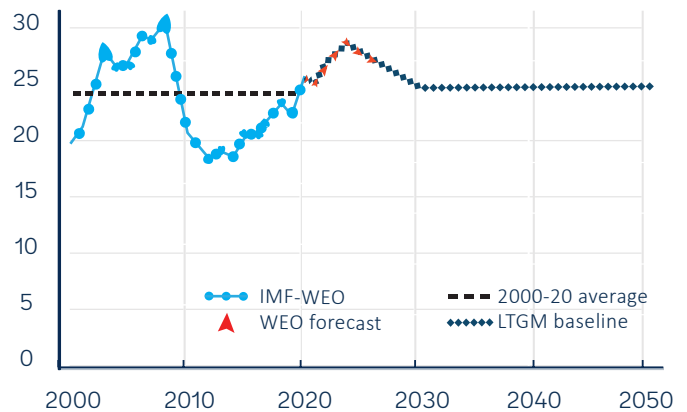
Source: UN's International Labor Organization (ILO).

**C. Participation rate**  
Percent of working-age population



Source: World Bank's staff estimates.

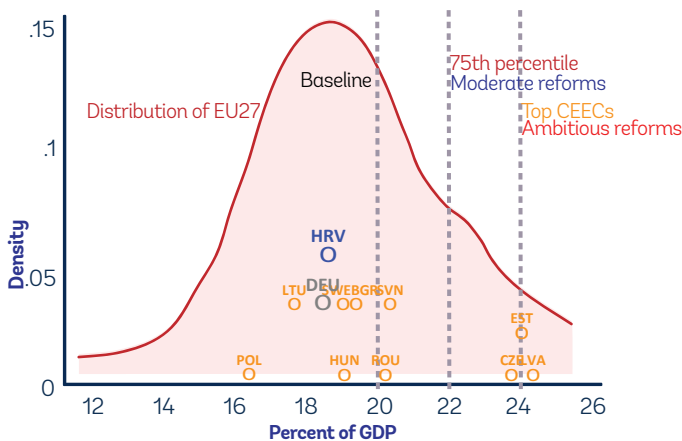
**D. Investment rate**  
Percent of GDP



Source: Author's calculations based on the IMF's World Economic Outlook 2021.

**FIGURE 2.**  
**Baseline Assumptions**

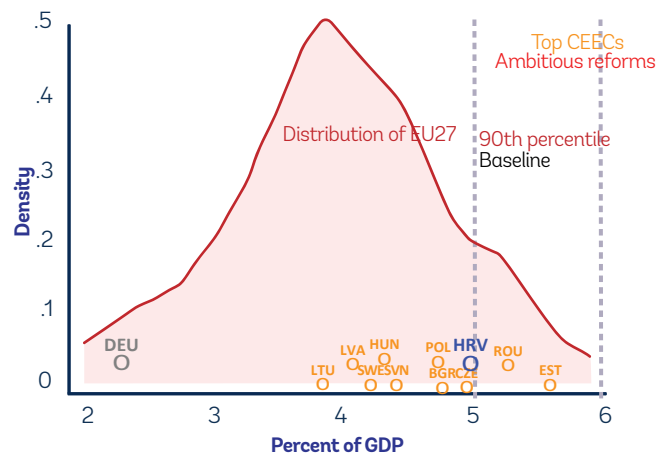
**I. Distribution of private investment across EU27**  
Average private investment over 2000-2017



Source: IMF's Investment and Capital Stock Database.

**FIGURE 3.**  
**Reforms to Public Investment**

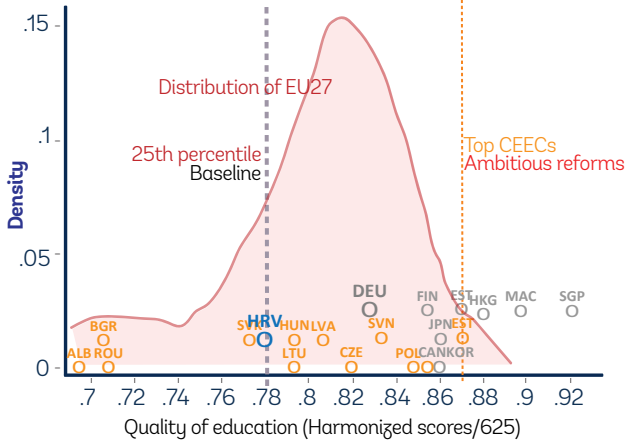
**II. Distribution of public investment across EU27**  
Average private investment over 2000-2017



Source: IMF's Investment and Capital Stock Database.

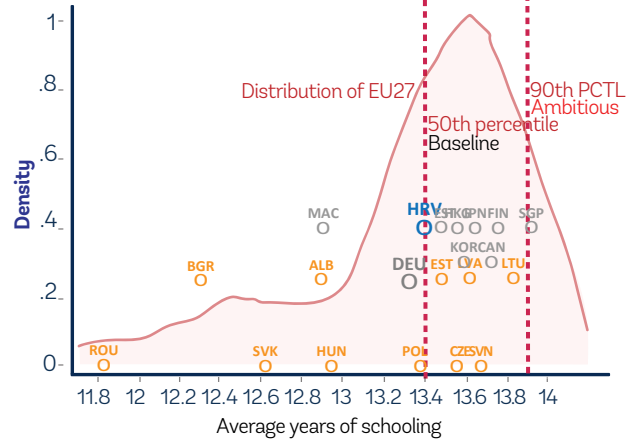
**FIGURE 4. Reforms to Pre-tertiary Education**

**I. Distribution of quality of education across EU27 (Harmonized learning outcomes/625) in 2019**



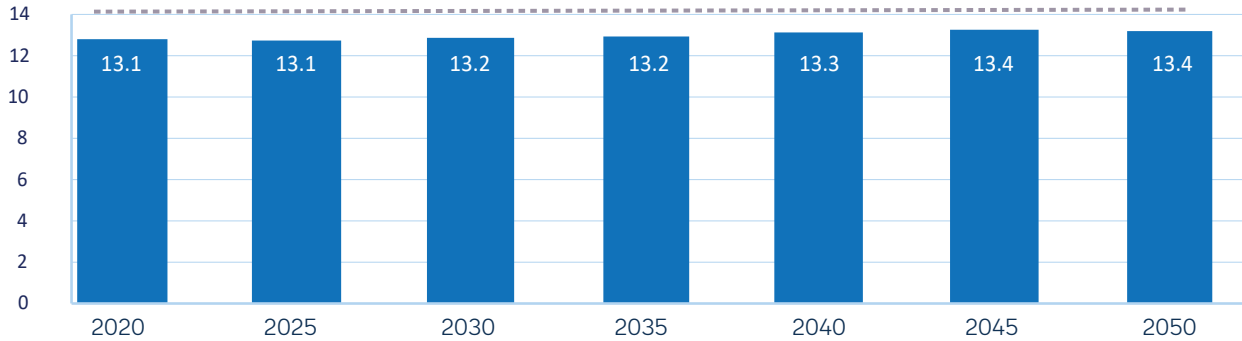
Source: Author's computations based on HCI data.

**II. Distribution of quantity of educ. across EU27 Expected years of schooling**



Source: Author's computations based on Barro and Lee Dataset.

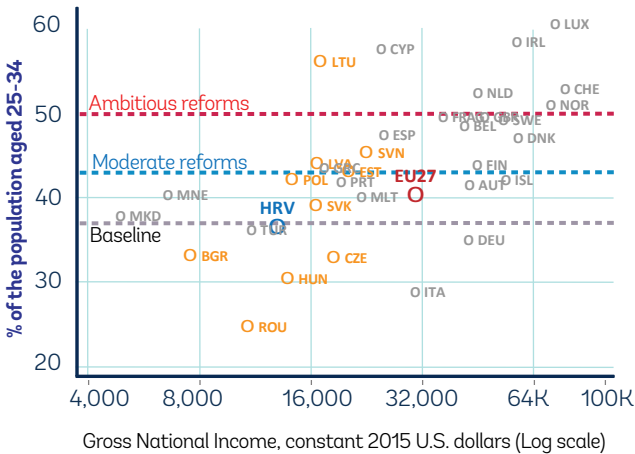
**III. Average years of schooling of the workforce, LTGM-HC simulation**



Source: Author's computations using the LTGM-HC.

**FIGURE 5. Reforms to Tertiary Education**

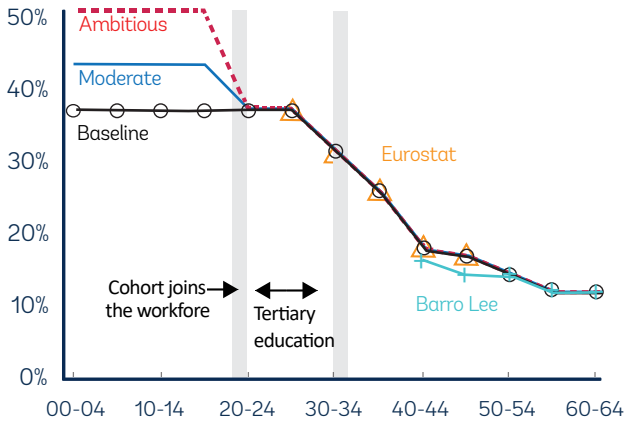
**I. Cross-country tertiary attainment % of population aged 25-24 who holds a degree**



Notes: The indicator measures the share of the population aged 25-34 who have successfully completed tertiary studies (e.g. university, higher technical institution, etc.). The indicator is taken from the Eurostat portal and is based on the EU Labor Force Survey (EU-LFS).

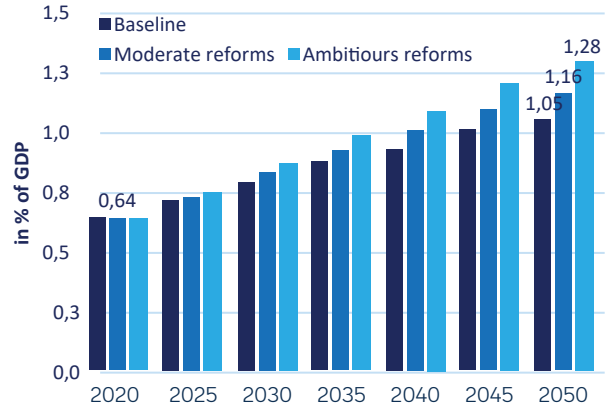


### II. Tertiary attainment by cohort Percent expected to hold a degree by 34 years old



Source: Eurostat, EU-Survey of Income and Living Conditions and Barro and Lee Database (2013).

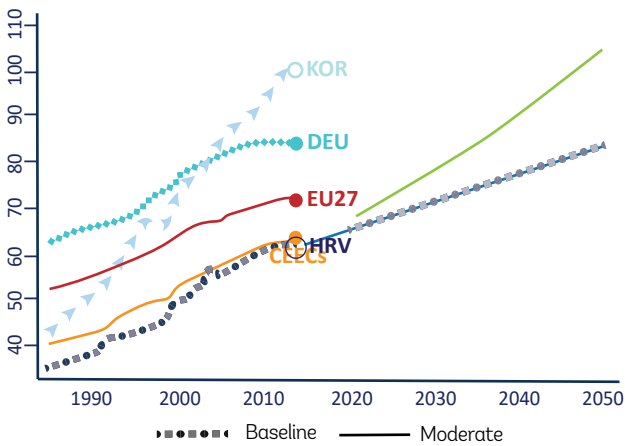
### III. Quality-adjusted years of tertiary education Average of the workforce



Source: Author's computations using the LTGM-HC.

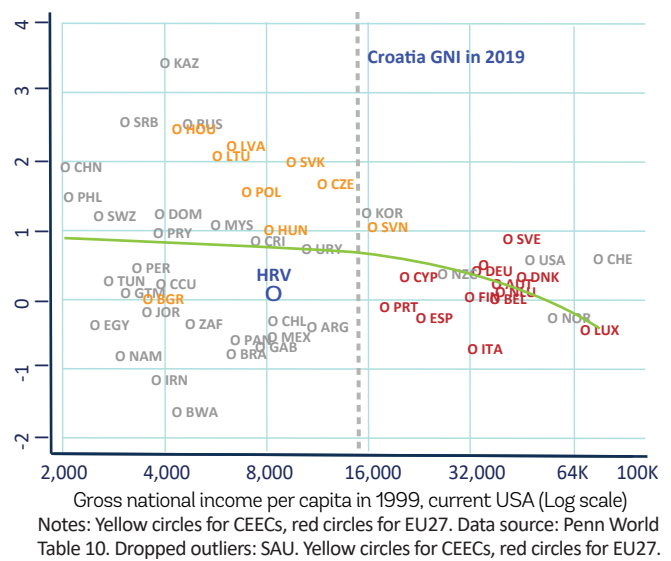
FIGURE 6. Reforms to Total Factor Productivity

### I. The Overall determinant index (LTGM-TFP) Index from 1 (worst in the panel) to 100 (best)



Notes: Baseline overall determinant index grows over 2020-2050 at its historical average of 1.15%. Under moderate and ambitious reform scenarios, the overall determinant index grows at 1.5% (75% of EU27) and 1.8% (90th of EU27, respectively).

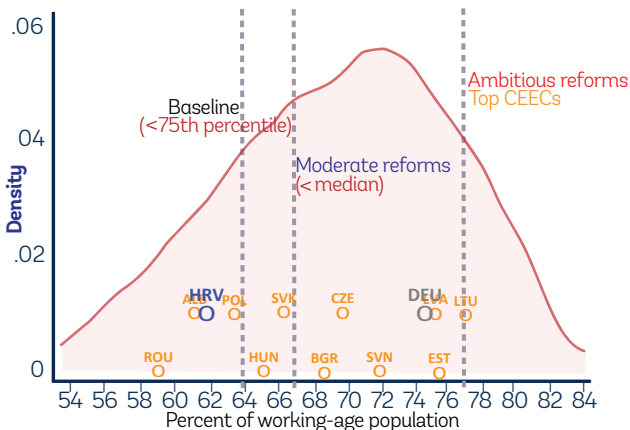
### II. Per capita income in 1999 versus average TFP growth over 2000-2019, %



Notes: Yellow circles for CEECs, red circles for EU27. Data source: Penn World Table 10. Dropped outliers: SAU. Yellow circles for CEECs, red circles for EU27.

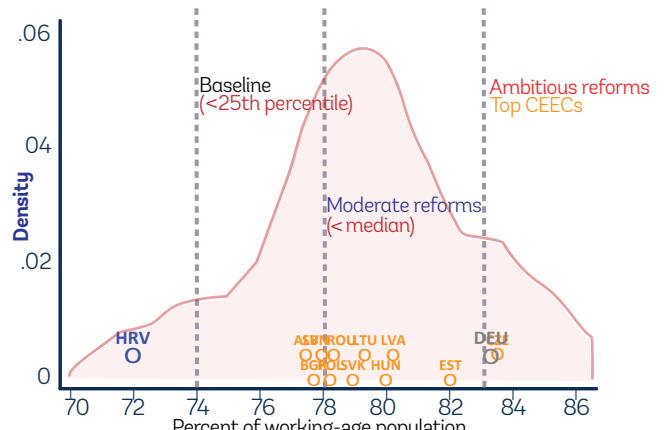
FIGURE 7. Reforms to Labor Force Participation

### I. Female labor force participation Percent of working-age population



Source: The author's computations using based on the WDI.

### II. Male labor force participation Percent of working-age population



Source: The author's computations using based on the WDI.

## Annex 4

### Channels of aggregate productivity growth

**Aggregate productivity growth is typically driven by three main channels.** The first channel, the “within” component, measures productivity changes in incumbent firms<sup>105</sup> over time, which is mainly related to firm upgrading (e.g., adoption of innovations and technology, management practices, and other factors that may improve firm performance such as exporting-- Atkin, Khandelwal & Osman, 2017; De Loecker, 2013). The “between” component (also known as “covariance term”) measures efficiency changes due to resource reallocation. A positive covariance term indicates that output (or value added) is flowing from low to high-productivity incumbent firms, whereas a negative term reflects resources flowing in the opposite direction. Factors that may affect the flow of resources such as policy distortions, inefficient financial markets, logistic failures or inefficient infrastructure are included in the “between” component. Finally, the entry and exit components (or the “selection” component) measures productivity gains due to firm entry and exit. If firms entering the market display a higher productivity than incumbents, the entry component positively contributes to aggregate productivity growth. Similarly, if firms exiting the market display a lower productivity than incumbents, then the exit component positively affects the aggregate productivity growth.

It is possible, therefore, to decompose aggregate productivity changes into the extensive (contribution of entrants and exiters) and intensive margins (contribution of incumbents) following Melitz and Polanec (2015). The authors propose a dynamic Olley-Pakes decomposition, distinguishing the four sources of productivity growth. In the equation below, the left-hand side reflects the change in the aggregate productivity  $\theta$  between year  $t$  and  $k$  ( $t > k$ ). The right-hand side of the equation separates productivity changes according to the source of change: within-firm productivity change, covariance change, entry and exit:

$$(1) \quad \theta_t - \theta_k = \Delta\theta_t = \underbrace{\Delta\bar{\theta}_{St}}_{\text{within}} + \underbrace{\Delta\text{cov}(\theta, s)_{S,it}}_{\text{covariance}} + \underbrace{s_{E,t}(\theta_{E,t} - \theta_{S,t})}_{\text{entry}} + \underbrace{s_{X,t-k}(\theta_{X,t-k} - \theta_{S,t-k})}_{\text{exit}},$$

where  $\theta_{it}$  is the productivity of firm  $i$  in time  $t$ ,  $s_{it}$  is the firm’s market share,  $n_t$  the number of firms, and subindexes  $S, E$ , and  $X$  denote the firm status in the market (survivors -or incumbents-, entrants and exiters respectively). For further reference, in the covariance term  $\text{cov}(\theta, s)_{S,it} = \sum_i (\theta_{S,it} - \bar{\theta}_{S,t})(s_{S,it} - 1/n_{S,t})$ ,  $\theta_{S,t} = \sum_i (s_{S,it}\theta_{S,it})$  and  $\bar{\theta}_t = \sum_i (\theta_{S,it}/n_{S,t})$ .

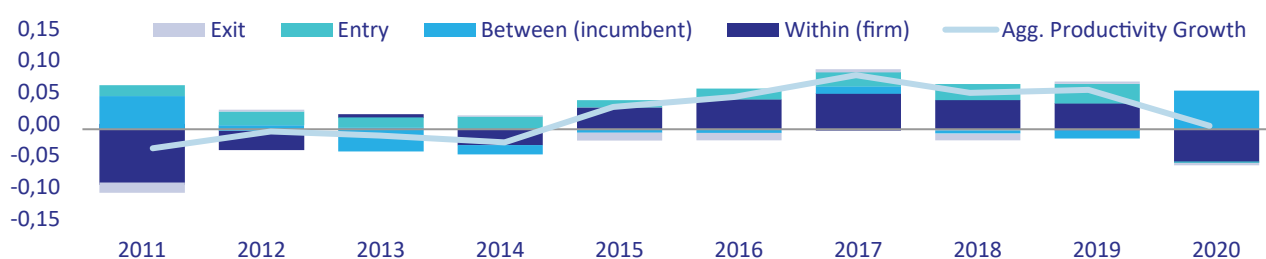
Estimating the contribution of firm entry and exit accurately relies heavily on data quality, particularly on the structure of the panel. Meliz-Polanec decomposition classifies firms into incumbents, entry and exit based both on the presence and absence of firms with estimated TFP rather than on registration and closure dates. If firms do not report key inputs for estimating multifactor productivity, they are not considered for the decomposition analysis, irrespective of their market status, while if they are active throughout the period but TFP can be only estimated for specific years, they are classified as entrants or exiters. In consequence, business demographic events (i.e., entry and exit) could be overestimated and, therefore, the entry and exit components could include the effects of misreporting in addition to actual firm entry and exit.

<sup>105</sup> Firms that survive between two given periods of reference.

## Melitz-Polanec Decomposition Controlling for Sector Relocation

The decomposition of aggregate productivity growth remains unchanged after controlling for sectoral differences in productivity, suggesting that structural change is not fully explaining the within, between, entry-exit components isolated in Figure 1.

**FIGURE 1.**  
TFP growth dynamic decomposition and value-added reallocation across sectors  
2008-2020, 3-year differencing



Notes: Figure 17 decomposes the aggregate TFP change into the within, between, entry and exit components after controlling for sector value added reallocation. The calculation demeans firm estimated TFP using two-digit level aggregate TFP in 2008. TFP changes are calculated between year t and t-3 (3-year differencing).

Source: World Bank's elaboration based on FINA.

## Annex 5

### A Framework to Design Better Policies for Services-Led Growth in Croatia

The World Bank flagship report on services-led development (Nayyar et al. 2021) identifies four main policies areas that can enable a robust process of services-led growth. Policies that address constraints in these four areas (4Ts) can expand the ability of the services sector to achieve greater scale economies, raise labor productivity through innovation, and leverage spillovers across industries to maximize the benefits of services-led growth.

- **Technology.** Beside allowing services firms to access new and larger markets, technology is key to enable productivity growth in the services sector. Enabling the adoption of technology requires to develop the right technological infrastructure to support firms' technology adoption and investment in innovation. It also requires ensuring that the regulatory framework remains up to date with newest features of innovative data and digital business models.

- **Training.** Ensuring that the workforce is equipped with the right set of skills to support the development of high-productivity services activities is a key enabler of a robust services-led growth process. Besides guaranteeing that knowledge intensive services have access to the skills needed to innovate and grow, upskilling the labor force enables more workers to move towards skill-intensive, high-wages jobs and reduces the potential skill mismatch that could result from a transformation of the economy towards high-skill services.
- **Targeting linkages.** Policies should recognize the importance of linkages between upstream services and downstream industries. Policies targeting these enabling upstream services industries can have large positive spillovers over the entire economy and widen the productivity and jobs benefits of increasing the quality and productivity of upstream services.
- **Trade.** Promoting services trade both domestically and internationally allows services firms to grow and achieve greater economies of scale. Digital technologies play a key role in enabling the tradability of services, lowering the proximity requirement for services delivery, and opening larger markets to services firms. Digital technologies are also important to facilitate the export of services beyond the domestic market, but regulatory barriers can reduce de facto tradability of tradable services and reduce the growth potential of services firms.

**Croatia performs well in terms of basic technology enablers, but there is scope to expand infrastructure – such as ultrafast broadband – that can support the growth of high-tech services.**

Key indicators of access to basic technologies shows that Croatian firms have widespread access to internet connections and a large share of the population regularly use the internet. The basic ingredients needed to promote firms' scale up via remote delivery of online and digital services are therefore in place in Croatia. Nonetheless, supporting the growth of technology and knowledge-intensive services will require further upgrading of the technological infrastructure in the country. While the Croatian government – with the help of the EU – is currently expanding this infrastructure, further investments in this area will be needed.<sup>106</sup>

**The Croatian workforce lacks the right set of skills to support a strong services-led growth process and reap its full benefits.**

Relative to other EU countries the Croatian workforce performs poorly in terms of digital skills such as software programming, coding, and complementary engineering skills that can support the development of digital and other technology-intensive services industries. The country also lags most of its EU peers when it comes to enrollment in tertiary education. This points to the importance of investing in training and education to prepare for and facilitate the future transformation of the economy. It also signals the need to promote the development of lower-skill services that could absorb workers with skills in declining demand and that will be unable to reskill. Finally, maximizing the returns of a structural shift towards services activities with high productivity and jobs potential requires the adoption of organizational and managerial best practices in firms. Management quality will become increasingly important in services firms as their activities become more internationally traded and more knowledge-intensive.

**The intensity of forward linkages in Croatian services upstream industries place the country in a good position to maximize the benefits of investing in upgrading the quality of these activities.**

Both global innovators services and low-skill tradable services in Croatia show comparatively high forward linkages with downstream sectors, in line with Croatia's EU peers. These linkages show the importance of the potential spillover effects from investing in the upgrading of these upstream services sectors. Increasing the productivity and quality of these services, while reducing prices can have large positive effects on the productivity of and quality of downstream firms, both in the downstream services industries and in the manufacturing sector.

<sup>106</sup> [https://ec.europa.eu/regional\\_policy/en/projects/Croatia/croatia-gets-next-generation-broadband-with-major-infrastructure-scheme](https://ec.europa.eu/regional_policy/en/projects/Croatia/croatia-gets-next-generation-broadband-with-major-infrastructure-scheme)

**Croatia has room to improve its services trade openness by reducing indirect barriers to services trade and promoting foreign competition in services industries.** According to data from the WTO Trade Cost Index (WTO 2021), Croatia has the highest level of trade costs for services in the EU. Regulatory barriers in the services sector continue to represent an important constraint to competition in the market for services – especially in professional services (see Box 8) – and often limit the access of foreign firms in local markets. Promoting trade openness is a key enabler of a robust services-led growth process. Access to foreign markets – especially when coupled with technological readiness allows for the scaling up services activities beyond the local market, opening trade opportunities along the four modalities of services export discussed in Box 9 and favoring productivity growth by allowing services firms to benefit from economies of scale. Promoting trade openness in services also opens domestic services markets to foreign competition, stimulating productivity growth both via firms upgrading and the improved allocation of productive resources.<sup>107</sup>

## Annex 6

### Institutional benchmarking – a methodological approach

**The benchmarking exercise clusters an array of well-established institutional indicators into nine institutional categories.** There is no agreed theoretical framework that could guide the categorization process. The categorization process faces a trade-off between aggregation and narrowness, where the categories have to be broad enough to comprehensively capture the main indicators and policy spaces but also focused enough to guide an in-depth qualitative analysis as well as a productive dialogue in the country. The proposed categories are based on an effort to balance this trade-off and capture key functions that different institutions perform (Figure 1): *Anticorruption, transparency, and accountability; Business environment and trade; Financial market; Labor market; Justice; Political; Public sector; Social; and SOEs corporate governance.* The institutional benchmarking uses numerous indicators collected from a variety of data sources in order to provide a snapshot of governance and institutions according to the latest available international indicators, as of 2020.<sup>108</sup>



**FIGURE 1. Institutional clusters**

Note: SOE = state-owned enterprise.  
Source: WB staff elaboration.

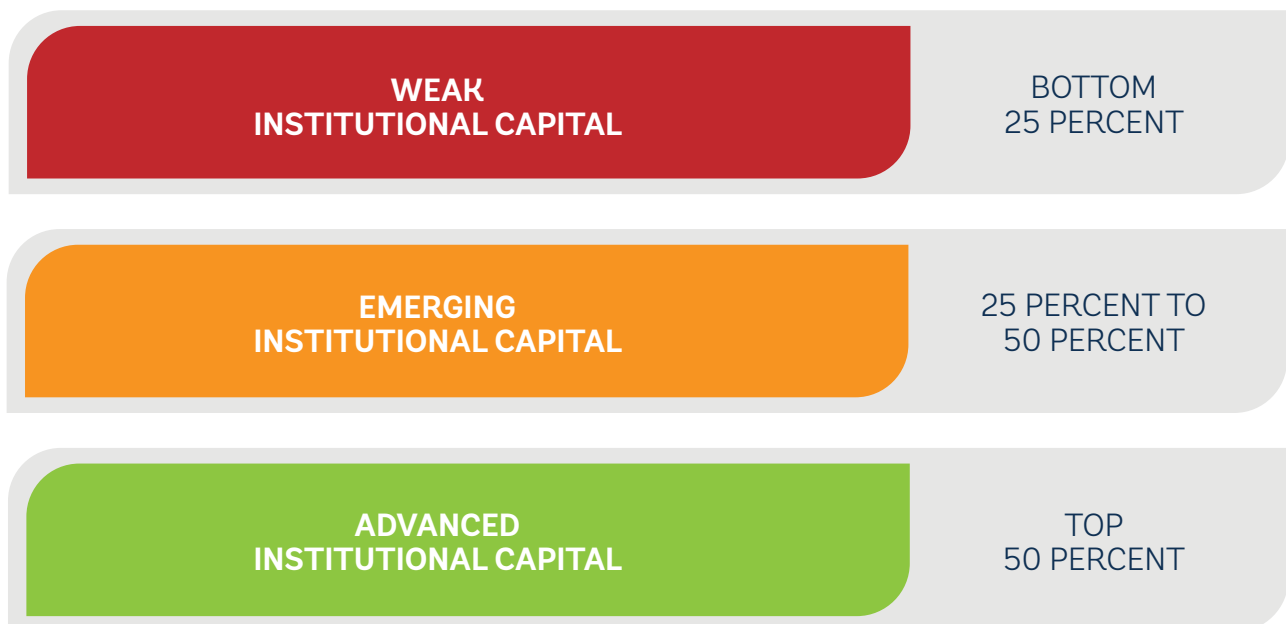
<sup>107</sup> See Backus (2020) for evidence on the first channel.

<sup>108</sup> The institutional benchmarking may not evince specific institutional bottlenecks nor account for recent political or economic developments in Croatia. The results from the survey of firms will provide more specific insights on certain topics selected for the deep dive analysis, using very recent data collected in March-May 2022.

**The benchmarking exercise employs the “closeness to frontier” (CTF) methodology to standardize and compare a wide range of institutional indicators.** The CTF methodology facilitates the assessment of a country’s performance across institutional indicators by comparing it with the “global frontier,” which corresponds to the world’s best performer. For each indicator, a country’s performance is rescaled on a 0–1 scale using a linear transformation  $(worst-y)/(worst-frontier)$ , where 1 represents the best performer and 0 the worst performer. The higher the score, the closer a country is to the best performer and the lower the score, the closer a country is to the worst performer, and more distant to the frontier. The best and worst performers are identified using available data from the global sample (i.e., considering all countries for which data are available) across the last five years. In the case of Croatia, we use indicators for 2014–20 (or a shorter period if data are not available). Next, for each institutional category, the CTF scores obtained for each indicator are aggregated through simple averaging into one aggregated CTF score. This captures the overall performance for a category relative to the “global frontier.” Performance across the indicators will help identify priority areas for institutional strengthening.

**Relative institutional weaknesses and strengths are defined based on the percentile in which the specific indicator belongs, relative to the set of comparator countries.** Traffic light coloring indicates where the largest institutional gaps exist relative to the comparator countries, based on the following categories (Figure 2): “weak institution” (bottom 25 percent—red), “emerging institution” (25–50 percent—yellow), and “advanced institution” (top 50 percent—green). For Croatia, the chosen set of comparator countries includes: Slovenia, Estonia, Czech Republic, Lithuania, Slovakia, Latvia, Hungary, Poland, Romania, and Bulgaria. The comparators were chosen based on their geographic, historic, developmental, and economic similarities with Croatia.

**FIGURE 2.** Traffic light coloring, as used in the institutional benchmarking exercise



Source: WB staff elaboration.

## Annex 7

### EU Funds and Programs in Croatia

The five European Structural and Investment Funds in the MFF 2014-20 are: (1) the European Fund for Regional Development <sup>109</sup> (ERDF), which aims to reinforce economic, social and territorial cohesion by redressing the main regional imbalances; (2) the European Social Fund <sup>110</sup> (ESF), which serves to promote high levels of employment, improve access to the labor market, support workers' mobility, encourage education, combat poverty, enhance social inclusion, and promote gender equality, non-discrimination and equal opportunities; (3) the Cohesion Fund <sup>111</sup>, which enables environmental infrastructure investments, including areas related to sustainable development and energy, and investments in transport network TEN-T; (4) the European Agricultural Fund for Rural Development <sup>112</sup> (EAFRD), which contributes to the development of agricultural sector (including forestry) that is more climate-friendly, resilient, competitive and innovative as well as contribute to the development of rural territories; and (5) the European Maritime and Fisheries Fund <sup>113</sup> (EMFF), aimed at the implementation of Union maritime and fisheries policies, and the sustainable development of fisheries and aquaculture areas and inland fishing.

In the Partnership Agreement between the Republic of Croatia and the European Commission for the 2014-20 period, the parties agreed on the thematic objectives, financial distribution and results to be achieved. The following operational Programs (OP) <sup>114</sup> were developed and agreed upon: Competitiveness and Cohesion OP (OPCC, EUR 6.8 billion from ERDF and Cohesion Fund) covering the priorities related to research policy, ICT, entrepreneurship, energy, climate change, environment, transport, social policy, and education; Efficient Human Resources OP <sup>115</sup> (OPEHR, EUR 2.15 billion from ESF and Youth Employment Initiative) for addressing employment policy, youth employment, social inclusion, education, and good governance; Rural Development Program <sup>116</sup> (RDP, EUR 2.8 billion from EAFRD) for agricultural policy, forestry, rural development; and Maritime and Fisheries OP (OPMF <sup>117</sup>, EUR 0.25 billion from EMFF) for maritime, fisheries and aquaculture.

EU Funds contribute to growth, development and inclusiveness. In the OPCC, as much as 61% of ERDF funds are earmarked for investing in research and development, SME competitiveness, digital agenda, and low-carbon economy. The Efficient Human Resources OP set aside close to 22% for promoting social inclusion, combating poverty, access to health and social services, and social entrepreneurship. OPCC invests EUR 1.1 billion in generic productive investments in SMEs, most of which is already implemented.

At sub-national level, integrated territorial investments from OPCC and OPEHR are financing two types of interventions amounting to EUR 0.5 billion: 1) to invest in eight largest urban agglomerations according to Development Strategies of urban agglomerations and 2) to implement a pilot project for physical, social and economic regeneration of five small, deprived towns on the basis of their Intervention Plans.

<sup>109</sup> Regulation (EU) No 1301/2013 of the European Parliament and of the Council of 17 December 2013 on the European Regional Development Fund and on specific provisions concerning the Investment for growth and jobs goal and repealing Regulation (EC) No 1080/2006 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013R1301>

<sup>110</sup> Regulation (EU) No 1304/2013 of the European Parliament and of the Council of 17 December 2013 on the European Social Fund and repealing Council Regulation (EC) No 1081/2006 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013R1304>

<sup>111</sup> Regulation (EU) No 1300/2013 of the European Parliament and of the Council of 17 December 2013 on the Cohesion Fund and repealing Council Regulation (EC) No 1084/2006 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013R1300>

<sup>112</sup> Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013R1305>

<sup>113</sup> Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund and repealing Council Regulations (EC) No 2328/2003, (EC) No 861/2006, (EC) No 1198/2006 and (EC) No 791/2007 and Regulation (EU) No 1255/2011 of the European Parliament and of the Council <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014R0508>

<sup>114</sup> OPCC version 10.0, June 2021 [https://struktturnifondovi.hr/wp-content/uploads/2021/12/lzmjene\\_OPKK\\_lipanj-2021.pdf](https://struktturnifondovi.hr/wp-content/uploads/2021/12/lzmjene_OPKK_lipanj-2021.pdf)

<sup>115</sup> OPEHR version 8, July 2021 [http://www.esf.hr/wordpress/wp-content/uploads/2022/05/OP\\_hrv-v8\\_final.pdf](http://www.esf.hr/wordpress/wp-content/uploads/2022/05/OP_hrv-v8_final.pdf)

<sup>116</sup> RDP version 10.5, Aug 2021 [https://ruralnirazvoj.hr/files/Programme\\_2014HR06RDNP001\\_10\\_5\\_en.pdf](https://ruralnirazvoj.hr/files/Programme_2014HR06RDNP001_10_5_en.pdf)

<sup>117</sup> OPMFF, Nov 2020 <https://euribarstvo.hr/files/Operativni-program-za-pomorstvo-i-ribarstvo-RH-za-2014.-2020.-verzija-2020.-godina.pdf>

For the new MFF 2021-2027, territorial approaches will be strengthened by the introduction of a dedicated Integrated Territorial Program for the value of EUR 1.8 billion. The Program will aim to ensure balanced availability of EU funds in every region<sup>118</sup> in order to address their development needs. The territories targeted by the program are the 4 regions, 22 cities, the islands, and two counties (Istra County and Sisak-Moslavina County) particularly affected by the transition towards climate neutrality and selected for financing by the new instrument Just Transition Fund<sup>119</sup>.

The preparation of the new MFF 2021-27 programs is suffering delays, reducing the remaining time for program implementation until 2029. Intensive preparations for the new funding period 2021-27 are currently in final stages, building on the gained experience so far. Partnership Agreement and operational programs are prepared and undergoing lengthy negotiations with the European Commission. According to published drafts, the following programs are planned, continuing on the current programs: Program for Competitiveness and Cohesion (EUR 5.3 billion from ERDF and Cohesion fund) and Efficient Human Resources Program (EUR 1.9 billion from ESF+).

With respect to the National Recovery and Resilience Plan (NRRP), Croatia has one of the largest NRRP allocation to GDP ratio in the EU, reaching 12%<sup>120</sup>, and amounting to EUR 6.3 billion. The NRRP is placed highly on the national political agenda. It was introduced in the EU within the initiative NextGenerationEU as a direct response to the Covid pandemic, to support and accelerate socio-economic recovery and strengthen the resilience of the EU economy.<sup>121</sup> The NRRP contains 146 investments and 76 reforms under 5 Components, and one initiative for building renovation. The planned reforms include reform of the system of incentives for R&D, improvement of efficiency and effectiveness of the support to private sector innovation, as well as reform of regulated professions, on which World Bank provided assistance to Croatia.



Source: shutterstock.com / Photo by: Alexandros Michailidis / 2177606107  
A banner welcoming Croatia to the euro seen in front of EU headquarters in Brussels

<sup>118</sup> According to National Classification of Statistical Regions (NN 125/2019, 20.12.2019.), there are four NUTS2 level regions in Croatia: Adriatic, Northern, Pannonian Croatia and the City of Zagreb.

<sup>119</sup> Regulation (EU) 2021/1056 of the European Parliament and of the Council of 24 June 2021 establishing the Just Transition Fund <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R1056>

<sup>120</sup> [https://ec.europa.eu/economy\\_finance/recovery-and-resilience-scoreboard/index.html](https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/index.html)

<sup>121</sup> Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021 establishing the Recovery and Resilience Facility <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0241>



# Croatia Country Economic Memorandum

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