Croatia Public Finance Review 2021

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Note

Acronyms

CEE	– Central and Eastern Europe
CIT	– Corporate Income Tax
CNB	– Croatian National Bank
COP	– Central Salary System
DEA	– Data Envelopment Analysis
EATR	– Effective Average Tax Rate
EC	– European Commission
ECB	– European Central Bank
EDP	– Excessive Deficit Procedure
EM	– Expensive medicines
ERM	– Exchange Rate Mechanism
ESIF	– European Structural and Investment Funds
EU	– European Union
FRA	– Fiscal Responsibility Act
FPC	– Fiscal Policy Commission
GDP	– Gross Domestic Product
GFC	– Global Financial Crisis
GMB	– Guaranteed Minimum Benefit
HALMED	– Agencija za lijekove i medicinske proizvode
HAMAG-BICRO	– Hrvatska agencija za malo gospodarstvo
HBOR	– Hrvatska banka za obnovu i razvoj
HM	– Hospital Medicines
HRM	– Human Resources Management
HZZO	– Hrvatski zavod za zdravstveno osiguranje
INN	– International Non-proprietary Name

JOPPD	– Izvješće o primicima, porezu na dohodak i prirezu te doprinosima za obvezna osiguranja
LFS	– Labor Force Survey
MEA	– Managed Entry Agreements
MFF	– Multi-annual Financial Framework
MOF	– Ministry of Finance
MOH	– Ministry of Health
MTFF	– Medium-Term Fiscal Framework
MTO	– Medium Term Objective
NACE	– National Classification of Activities
NGEU	– Next Generation EU
OECD	– Organization for Economic Co-operation and Development
OTC	– Over The Counter
PFR	– Public Finance Review
PIT	– Personal Income Tax
PM	– Prescription Medicines
PSE	– Public Sector Efficiency
PSP	– Public Sector Performance
RRF	– Recovery and Resilience Facility
TSCG	– Treaty on Stability, Coordination and Governance in the Economic and Monetary Union
VAT	– Value Added Tax
WGI	– Worldwide Governance Indicators

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Executive summary

The Croatian Public Finance Review 2021 (PFR) considers two broad fiscal challenges faced by the policymakers. First, it analyses how to achieve fast and strong recovery from the COVID-19 crisis while correcting at the same time fiscal imbalances that arose during the crisis. Second, it raises the issue of efficiency and performance of public spending and dives deep into two specific areas. Namely, while addressing such broad challenges would require a holistic approach to public finance reforms, the Report focuses on two specific problems as requested by Croatian authorities. Both of these topics have been of special interest for policy makers in Croatia for decades. The first one is related to central government's wage setting framework that necessitates a thorough revision of the compensation structure to improve transparency, fairness and incentives within the public sector, leading to improved public sector performance. The second one pertains to spending on pharmaceuticals in the health sector which has surged in recent years, putting large pressure on public finances and being a significant driver of hospital arrears. The focus on these two areas, however, does not imply that reforms in other areas are not necessary. Therefore, further work in areas such as tax policy, social spending and subsidies is warranted. The relatively narrow focus of this Report stands in a sharp contrast to the Public Finance Review 2014, which covered a broad range of fiscal topics and gave numerous recommendations (the fulfillment of the recommendations is evaluated in Annex 1 to Chapter 1).

The PFR is divided into three chapters. The first considers the government's expenditure and revenue policies since the Global Financial Crisis 2008 (GFC) and analyzes the consolidation strategy in the period 2009-2017, and the performance of the public spending. It then studies the impact of the COVID-19 pandemic on fiscal developments and discusses the macroeconomic challenges in the recovery phase. The second compares compensation levels in the public and private sectors and describes the complex and nontransparent legal a nd regulatory structure governing public sector pay, as a first step towards consideration of pay reform. The third chapter provides an analysis of the strengths and weaknesses of the current spending framework for pharmaceuticals.

Fiscal policy developments and challenges

The COVID-19 pandemic drove a sharp drop in GDP and a deterioration of the government's fiscal position in 2020. However, restrictive fiscal policies in the aftermath of the GFC meant that the government was in a position to react differently and strongly to support domestic demand during the recent crisis. The critical issues now are to manage the recovery without endangering fiscal sustainability and to improve public sector performance and efficiency.

Recent economic developments

The COVID-19 pandemic of 2020 interrupted the modest recovery from the GFC that had started in 2015. The recovery from the six-year recession following the GFC began in 2015, but growth remained limited to around 3 percent a year through 2019. Major impediments to stronger growth include constraints on the mobility of labor and capital, low quality of labor and capital inputs, weak market institutions and regulatory policies, and the concentration on low technology—and low productivity—services. The impact of the pandemic and of two devastating earthquakes in 2020 led to an 8.1 percent fall in GDP in 2020 (Table ES1), one of the largest contractions in the EU.

Table ES1. Recent macroeconomic indicators, percent

	2018	2019	2020
GDP growth	2.9	3.5	-8.1
Public debt/GDP	73.3	71.1	87.3
Fiscal balance/GDP	0.2	0.3	-7.4
Unemployment rate	8.4	6.6	7.5
Current account balance/GDP	1.9	3.0	-0.1

Source: CBS, CNB, Eurostat

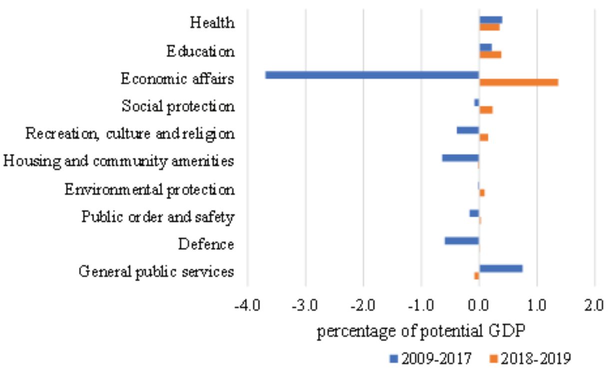
The government reacted quickly to support demand. Official support to the economy, including wage subsidies, operational costs subsidies, write-offs or deferral of tax payments, a moratorium on loan repayments to the development bank, credit lines and guarantee schemes, and measures targeted at supporting investment, tourism and agriculture, is estimated at around 15 percent of GDP with a direct fiscal cost of around 3.7 percent of GDP in 2020. The central bank provided liquidity to the financial sector while preserving exchange rate stability. Increased expenditures and the decline in tax revenues with the downturn boosted the fiscal deficit to 7.4 percent of GDP in 2020, while public debt rose to 87.3 percent of GDP, after a 4 years-long reduction that had brought it to below 72 percent of GDP. The short-term deterioration in the deficit and debt level did not greatly increase interest rates on Croatia's debt or reduce its credit rating, owing to prudent fiscal policies before the crisis and lower foreign exchange risk due to ERM II accession. This stands in sharp contrast to the large fiscal deficit and rising debt levels before the GFC, which, coupled with tight financing conditions on global markets, meant that contractionary policies contributed to a longer and deeper recession than in most other EU countries.

Fiscal policies in the decade before COVID-19 crisis

In the decade before COVID-19 pandemic the fiscal stance in Croatia was restrictive and procyclical for several years. Unlike in most EU countries, the consolidation process started immediately in 2009 and lasted much longer, contributing to a prolonged recession. Due to market conditions and weak credibility, Croatia had to tighten its fiscal stance immediately in 2009 when the impact of GFC was the strongest on the economic activity. Also, the restrictive fiscal stance lasted for eight years, by far the longest among all EU member states. Only in 2018 did fiscal policy turned expansionary, but the nominal balance remained in a small surplus and public debt continued to be firmly on a downward path. Such restrictive fiscal stance during the 2009-2014 recession and in the first years of the recovery (2015-2017) resulted in a relatively sound fiscal position, allowing Croatia to introduce a large fiscal stimulus during the COVID-19 pandemic of 2020.

The long-term growth impact of the adjustment in expenditures during 2009-17 was mixed. The bulk of discretionary government efforts (excluding interest) was devoted to expenditure saving rather than boosting revenues. The reduction in spending (as a share of potential GDP) was largely focused on infrastructure investment (Figure ES2), where the impact on growth is usually considered to be large. On the other hand, health and education spending, which also is important for growth, increased and less growth-friendly expenditures, such as on recreation, culture and religion, defense and housing and community services, declined (Figure ES1). However, despite these changes, non-productive expenditures in 2019 still turned out to be almost 6 percentage points of GDP higher than in the EU10 countries.

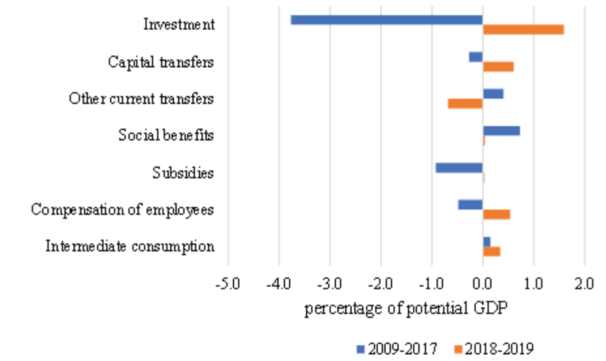
Figure ES1 Cumulative change in the functional composition of the cyclically adjusted primary expenditures



Source: Eurostat, World Bank staff estimates

Note: Changes in consolidation period are approximations given statistical reclassifications

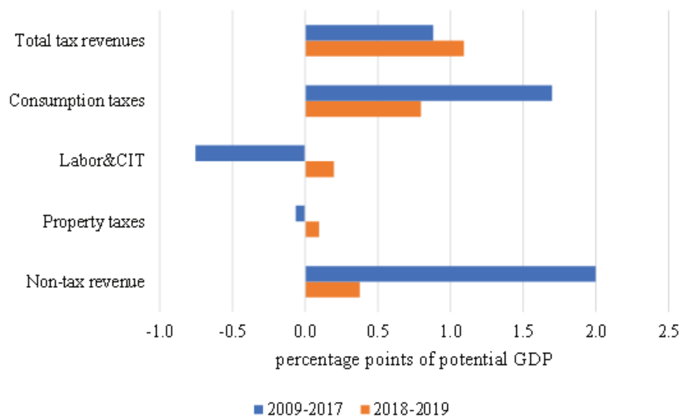
Figure ES2 Cumulative change in the economic composition of the cyclically adjusted primary expenditures



Source: Eurostat, World Bank staff estimates

The tax burden rose after the global financial crisis. The increase in tax rates and broadening of the tax base from 2009 to 2017 was driven by the need for fiscal adjustment and ensuring alignment with EU legislation. The rise in the tax burden featured declines in direct taxes on labor and corporate incomes, which tend to have a significant impact on growth, and increases in consumption taxes (increases in the VAT rate and a broadening of the base), which tend to have less of an impact on growth (Figure ES3). The negative distributional implications of higher consumption taxes were offset by personal income tax cuts for low-income earners and increases in social benefits. However, reductions of the VAT (for some items) and income taxes from 2017 to 2019 are estimated to have had a negative impact on government revenues of 1.6 percent of 2019 GDP. Despite these reductions, the tax burden in 2019 remained the highest among EU10 countries[1], although the relatively low tax rates on labor and corporate income and high consumption taxes reflect a more growth-friendly composition than in many EU countries. On the other hand, the tax rates on income earned from labor and capital are significantly higher than on income from immovable property, fostering rental activities and providing disincentives to work.

Figure ES3
Change in cyclically adjusted revenue ratios



Note:
Change in consumption taxes is proxied by change in indirect taxes. Labor includes revenues from personal income tax and social security contributions.

Source: EC, World Bank staff estimates

[1] EU10 countries include Bulgaria, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia and Slovakia.

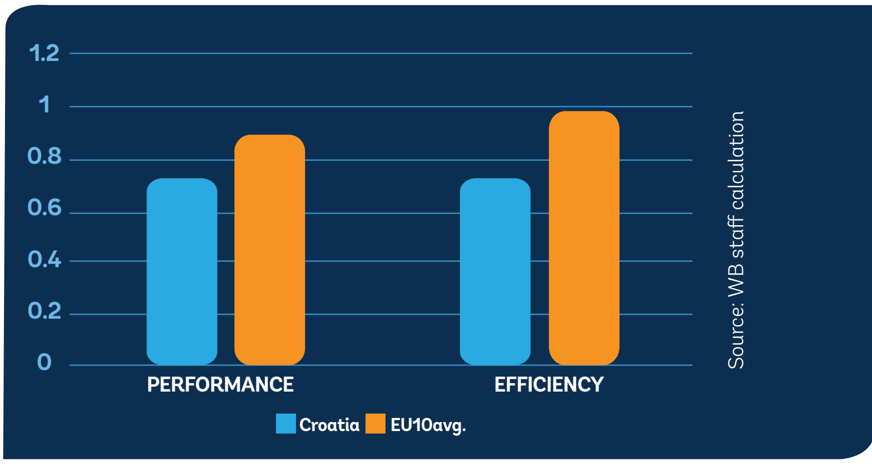
Public sector performance and efficiency

Croatia's public sector performs worse and is less efficient compared to peer countries. Croatia's overall public sector performance is the worst among CEE peers, and well below the CEE average (Figure ES4). The decline (relative to the other countries) in Croatia's score on the performance indicator from 2007 to 2017 was one of the largest among CEE countries. Croatia also scores the lowest among CEE countries in a measure of government efficiency; the efficiency gap between Croatia and the EU10 average is even greater than the performance gap (Figure ES4). Similar results are obtained using data envelopment analysis, which use total spending to GDP scores as an input and the overall performance score as an output, and these findings are corroborated by sensitivity analysis and other sources (see Cepparaulo and Mourre 2020). Hence, there is a clear need for reform in provision of core public sector services.

Prospects and risks

The prospects for recovery are solid. The government's macroeconomic projections envision a broad-based recovery of GDP growth and an improvement in the fiscal deficit over the next three years. Control of the pandemic could enable further increase in tourism arrivals, and growth of external demand, a gradual recovery of employment and consumer confidence would bolster household consumption, and investment will be supported by EU initiatives and earthquake reconstruction activities. After a strong surge in 2020 the debt to GDP ratio is expected to decline by around 12 percentage points from 2021 to 2024, reflecting a favorable interest-growth rate differential or the so-called snowball effect. On the other hand, the primary deficit is expected to add more than 5 percentage points to the ratio of public debt.

Figure ES4
Public sector performance and efficiency, Croatia vs. EU10



A re-intensification of the pandemic, however, could have extremely adverse consequences. There are major uncertainties surrounding vaccine effectiveness on new variants, take-up rates and the speed of inoculation. A further spread of the virus could severely constrain both domestic and external demand, disrupt supply chains and boost balance sheet vulnerabilities, with negative implications for credit supply and business investment. In a moderately adverse scenario, in which economic activity stagnates in 2022 and slowly picks up in 2023, the public debt to GDP ratio would exceed 86 percent in 2022 and then start to decline. In a severely adverse scenario, in which recovery is delayed until 2023, the debt ratio would reach 90 percent in 2022 and decline significantly only in 2023. Currency depreciation, which would increase the local currency value of the 71 percent of government debt that is denominated in euros, is a low risk due to the CNB's commitment to a stable euro rate, the prospects for entering the euro zone in the near future, and the high level of international reserves. An increase in interest rates would have limited negative impact on the level of government debt over the medium-term, as in 2020 more than half of the long-term debt had an original maturity above 10 years and the share of short-term debt is around 6 percent.

All of this suggests the need to carefully balance between macroeconomic stabilization and fiscal sustainability objectives if negative growth risks materialize. The fiscal support required to close the output gap by half amounts to around 3 percent of GDP in the moderately adverse scenario and more than 5 percent of GDP in the severely adverse scenario, while the fiscal effort needed to stabilize public debt in 2022 amounts to almost 3 percent of GDP in the moderately adverse scenario and above 7 percent of GDP in the severely adverse scenario. While recently-launched EU programs could alleviate the need for national fiscal support, and thus provide some upside risk to the forecast, effectively using these funds will require a strengthening of the government's administrative capacities (Croatia had one of the lowest rates of utilization of EU funds under the 2014-2020 programming period) and an acceleration of the key reforms implementation.

Policy options

Macroeconomic policies will require a careful balancing of objectives. Financing the necessary support for the households and companies most affected by COVID-19 will likely require the postponement of certain expenditures. As activity picks up, exceptional support should be replaced by programs that would facilitate job search and support labor reallocation to more productive sectors. Investment spending for a more resilient, inclusive but also greener economy that facilitates sustainable growth should be one of the priorities. Croatia might eventually need to implement certain consolidation measures in order to address fiscal sustainability concerns and comply with EU fiscal rules. Additional adverse shocks would also warrant fiscal adjustment to avoid a further increase in public debt.

Given the already high overall tax burden, fiscal adjustment efforts should be focused on adjusting the expenditure side of the budget. The high level of expenditures and low level of spending efficiency indicates room for savings. However, as the generosity of most important social assistance programs is comparably low, the government should consider increasing the per capita level of assistance and improve targeting to achieve better poverty reduction outcomes. While there is limited scope for improving the composition of taxes, given that taxes on consumption are high and strong increases would be regressive, the government should consider implementing a more balanced approach of taxation on different sources of income and consider to raise tax rates on income from rental activities. Also, while the estimates of the European Commission suggest Croatia has one of the lowest VAT gap in the EU, this should be studied in detail especially due to economy's high reliance on export of services.

The greatest challenge for the government will be to increase the efficiency of resource use. Policy reform has been limited by the capacity and commitment of key actors to cooperate and coordinate their actions, while the politicization of administrative processes and the large footprint of the state in the real sector exacerbate the negative impact of frequent changes in policy. Also, the fragmentation of local government units, in a context of low capacity, poses challenges in terms of the cost, quality, effectiveness and sustainability of services delivery. Strengthening public administration capacities also will be crucial for efficient use of EU funds. For the purpose of increasing the efficiency of spending, the government should develop a framework and regularly conduct spending reviews in line with best global practices. A Spending Review is a systematic and in-depth analysis of existing expenses aimed at generating proposals to reduce the aggregate public expenditure, improve effectiveness or efficiency of governmental programs and activities, and align spending with policy priorities. Croatia could pilot spending reviews in selected areas before introducing it as a regular part of the budget cycle.

Public sector wage bill analysis

This section draws three main conclusions concerning public sector wages in Croatia. First, the public sector wage bill as a share of GDP is higher than in most EU countries, reflecting both higher levels of public sector employment and high wages. Second, the public sector pays, on average, significantly higher wages than similar workers would earn in the private sector, except for at the highest earnings levels. And third, a complex, nontransparent and in some respects contradictory system for determining wages impairs public sector efficiency and fairness.

The public sector wage bill

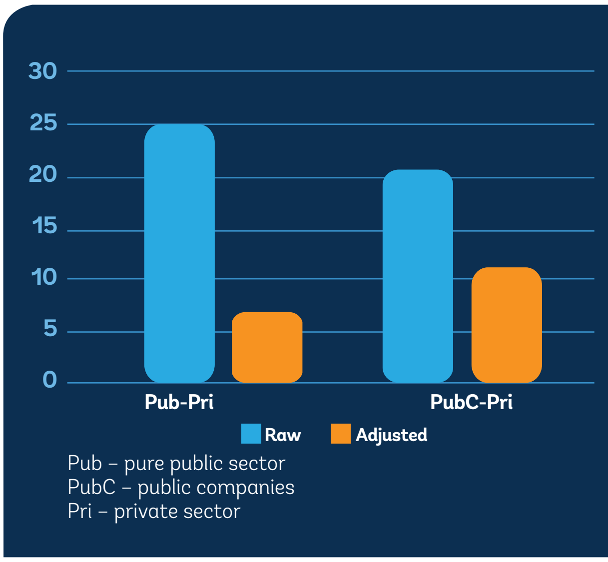
Croatia spends larger amounts on compensation of public sector employees, relative to GDP, than most EU countries. In 2019, 11.6 percent of GDP was paid for compensation of general government employees, the highest level among EU member states from Central and Eastern Europe (CEE) and one of the highest in Europe. Since higher-income countries are likely to provide more, and higher-quality, government services, Croatia stands out even more than the ratios to GDP show. The high public sector wage bill reflects both high levels of public sector employment and high wages. Croatia employs more workers in the provision of core public services (public administration, education, health and social care) than expected, given the size of its labor market and its level of income. And Croatia has one of the highest average labor costs in the public sector relative to GDP, among its peers in the CEE.

The public sector wage bill increased from 2015 to 2019. The government did have some success controlling the public sector wage bill during the 2009-14 recession following the global financial crisis. However, the wage bill increased notably with the recovery that followed, both in nominal terms and as a percentage of GDP. The average wage increased faster in the private sector than in the public sector until 2018, but also in 2019 if non-taxable allowances are included.[2] On the other hand, public sector employment continuously increased in the decade following the GFC, while private sector employment fell.

The average monthly net wage is substantially higher in the public sector than in the private sector. Average public sector compensation significantly exceeds average private sector compensation, according to both the LFS and data from the JOPPD form. In 2018, private companies accounted for 64.1 percent of employment, but more than four-fifths of the bottom 40 percent of wage earners. The majority of high-wage workers (defined as the 40 percent best-paid employees in the country) comes from the public sector (either the core public sector or public companies), although the public sector employs only slightly more than one third of employees.

Wage differences are narrowed, but remain significant, if workers' characteristics are taken into account. These data on average wage levels in part reflect the fact that public sector employees tend to be older, more experienced and better educated than private sector employees. The average hourly wage based on the LFS was about 25 percent higher in the core public sector (Pub) than in the private sector (Pri) in 2018, using the raw data. However, once differences in education, experience, gender and region are taken into account, the average wage in the core public sector was 6 percent higher than in the private sector (Figure ES5). The difference in the raw wage data between the core public and private sectors declined from 2008 to 2018, by about one percentage point per year. However, in 2020 and 2021 public sector wages increased more strongly than in the private sector, suggesting a rise in public sector wage premium.

Figure ES5
Mean public-private wage gaps, raw and adjusted, 2018



Source: Staff estimates based on the Croatian LFS.

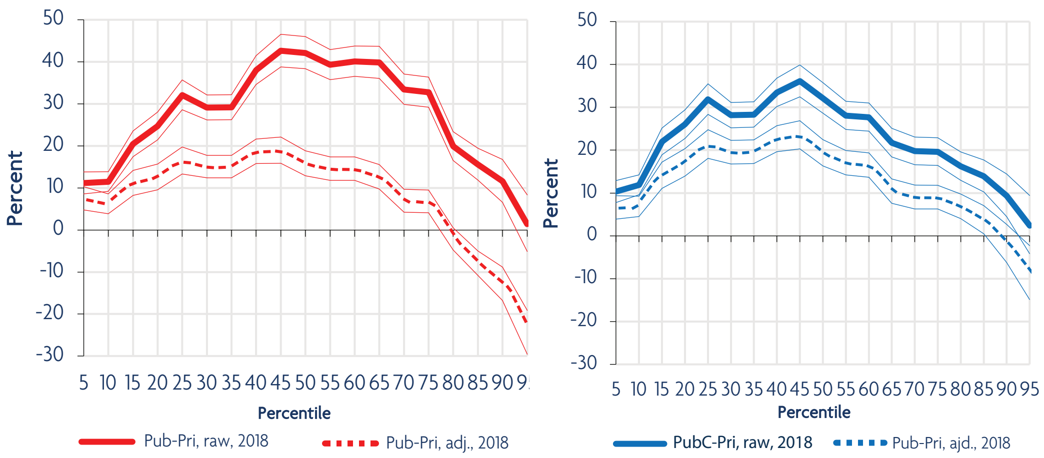
On the other hand, the private sector pays more than the public sector, adjusted for workers' characteristics, at the highest earnings levels. The adjusted gaps become negative at the highest incomes, indicating a public- sector penalty, rather than a premium. This is notably more pronounced in the case of the Pub-Pri gap, which reaches more

[2] A change in the tax code in 2019 increased the amount of nontaxable work-related allowances that businesses could pay their employees, perhaps encouraging some shifting of compensation towards these allowances in the private, but not the public, sector.

than -20 percent at the very top, while the adjusted PubC-Pri gap does not go lower than -10 percent (Figure ES6). Loosely speaking, the public sector employees with the highest wages would earn more if they worked in the private sector instead, while the remaining 85-90 percent of the public sector employees would earn less on average if they worked in the private rather than the public sector.

Figure ES6
Quantile public-private wage gaps, raw and adjusted

a) Raw and adjusted Pub-Pri gaps   b) Raw and adjusted PubC-Pri gaps



Notes:
Pub – pure public sector;
PubC – public companies;
Pri – private sector.

The thin dotted lines above and below each line depicting a gap are the intervals of a 95-percent confidence interval.

Source: Staff estimates based on the Croatian LFS.

The legal and regulatory framework for public wage setting

Public sector wages and salaries are subject to complex and often conflicting rules, which lack transparency and can be difficult to apply in practice. This system does not provide for a functional wage setting mechanism and greatly impedes efforts to ensure equal compensation for equivalent jobs, thus impairing the efficiency of the allocation of skills across the public sector. It also promotes rent seeking, erodes enthusiasm and commitment to the extent that workers perceive they are not compensated fairly.

This system for determining wage levels is subject to a myriad of laws and regulation. Wages and salaries in the central government sector are regulated by separate laws that cover the civil service, public services, and state and judiciary officials. The issues not addressed in these laws are determined according to general rules of the Labor Act. The State Audit Office reports that wages of employees in the

Wages of employees in the government bodies and other public services, are determined on the basis of around

300
laws other legislation and internal acts

567
various wage supplements and additions

government bodies and other public services, as recorded in the Central Salary System (COP), are determined on the basis of around 300 laws, other legislation and internal acts, and that there are 567 various wage supplements and additions (Državni ured za reviziju, 2019).

Wages are determined by the basic wage, the job position, seniority and supplements and allowances. The civil service and the public services use the same process for wage determination: a base wage (set by Decree in 2009 and thereafter determined through collective agreements, and increased by 0.5 percent for each year of service) is multiplied by a complexity coefficient tied to that job position. In addition, each employee is entitled to supplements or allowances on top of the basic salary. While the base salary and procedures for calculating the salary are the same in the civil service and the public services, there are many more job levels in the public services than in the civil service, and supplements (including for above-average performance, for working overtime or on days off, for working in harsh operating conditions, and for specialized job positions) account for a very large, and for the public servants the dominant, share of total compensation.

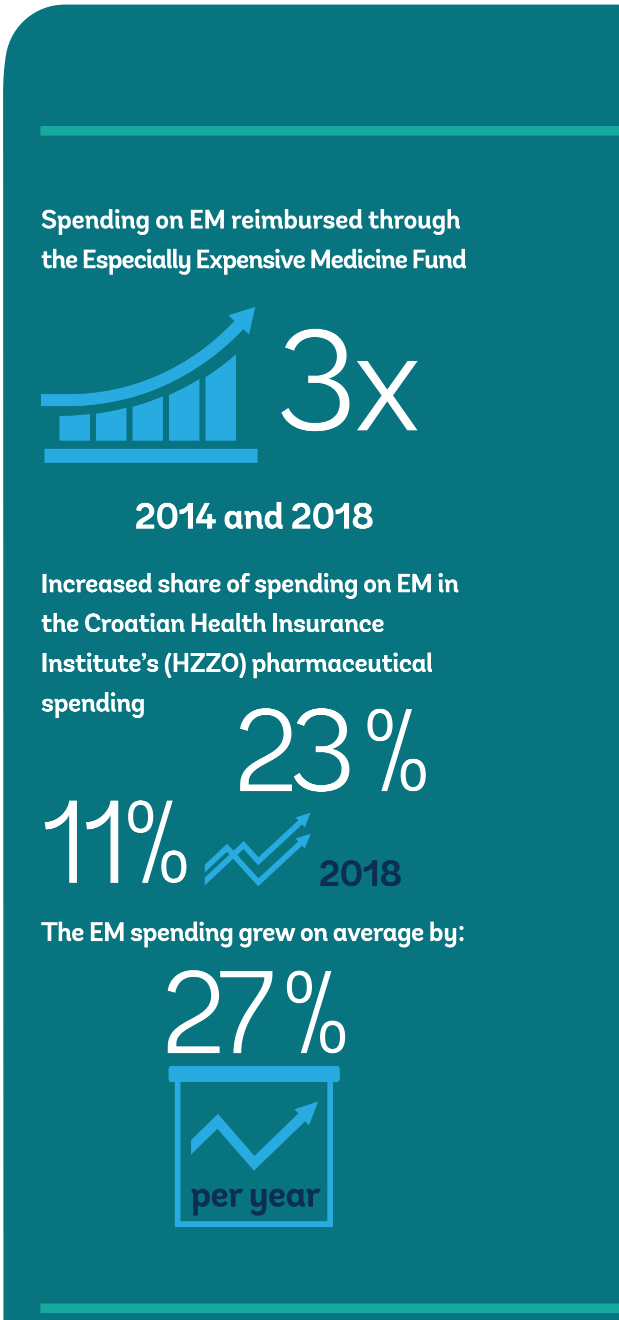
The basic wage, the level of supplements and the complexity coefficient to apply to each job position are subject to collective bargaining with trade unions representing public employees. Two main agreements cover public sector employees: one for government servants and supporting staff and the other for public servants and supporting staff. For public services, the levels of supplements are defined through a collective agreement covering the entirety of public services, as well as branch collective agreements for particular public services. Relatively weak tradition of collective bargaining in Croatia (practical experience is heavily influenced by the different purpose of collective agreements under the socialist era), low levels of trust between the trade unions and the government, as well as a lack of clarity in the rules governing collective bargaining, have resulted in numerous disputes related to the conclusion and application of collective agreements, further complicating the system for setting wages and salaries. Examples of the lack of clarity in the rules governing collective bargaining include: (i) uncertainty over the applicability of provisions of expired collective bargaining agreements (which remain in effect if a new agreement is not reached); (ii) disputes over which non-trade union members are covered by wage agreements; (iii) the status of the most representative trade union for collective bargaining purposes (this may differ across different levels of organization in the public sector); (iv) the potential for political interference in some wage negotiations due to the participation by Ministers; and (v) definition of the most favorable workers' right, which the Labor Act requires should be the applicable provision of law in issues not explicitly regulated.

Croatia is not alone in adopting a coefficient-based pay system, but it is mostly found in the developing countries of Europe and Asia. This kind of system is often introduced as a first step towards pay formalization in developing countries. Coefficient-based systems, as well as hybrid systems that use coefficients with an underlying pay grade system, are used in several transition countries in Europe and Asia. Although no coefficient-based system is exactly alike, they typically are characterized by opaque systems of pay. For both the government and their employees they are difficult to navigate, manage, and reform. This, in turn, leads to an explosion of different laws, by-laws and allowances, forming a patchwork of rules of remuneration. Coefficient-based systems also make it difficult to use advanced strategic human resource management (HRM) techniques. For modernized skills- and competency-based recruitment, horizontal movement of employees, and performance-based pay, one needs a transparent system that lays out clearly which positions come with what salary range, what skills and competencies their occupants are expected to have, etc. The more complex the system is, the more difficult it is for HR departments to implement such strategies or for government to have a singular HRM strategy for the public sector as a whole. Moreover, a coefficient-based system leads to too much diversity and lack of clarity to efficiently structure a reward system that is a reflection of the organization's values.

Policy options

Transforming the public sector pay system into one based on pay grades is a demanding challenge but could generate significant benefits. It could help to increase transparency, predictability, and manageability of the wage bill and pay system; reduce the numerous court cases related to misinterpretations and nonperformance of the provisions of labor legislation and collective agreements; and reduce the politicization of the system, thus promoting greater professionalism and improved efficiency in public sector administration.

A comprehensive review of the appropriate compensation for job positions in the system should be undertaken. This could eliminate the lack of transparency now inherent in the maze of complexity coefficients and supplements. This could be used to design a single, unified wage/salary system for civil servants and employees, public servants and employees, and state and judiciary officials. There were several attempts by the government to reform the wage-setting mechanism in the public sector over the last 15 years, but all have failed due to the strong opposition of the trade unions and lack of political commitment. However, more recently the government has introduced this reform in the National Recovery and Resilience Plan with a clear agenda, timeframe and the budget. The implementation will be monitored by the European Commission and any delays or backtrack on the planned reforms will have financial repercussions for the country.



Health spending on pharmaceuticals[3]

Analysis of the performance and efficiency of the public health sector points to deficiencies. Croatia is close to the bottom of the EU countries when it comes to the performance and efficiency of the health sector, albeit with relatively high sensitivity of these results with respect to the choice of indicators used. While the issues of the public health sector warrant a deep analysis of both the revenue and expenditure side of its budget (e.g. hospital network, joint procurement, the price of medical procedures, etc.) this report focus only on pharmaceutical spending, which has been growing rapidly over the recent period.

Expensive medicines (EMs) may be driving the high rate of spending growth, whereas outpatient medicine plays a modest role in spending growth. Spending on EM reimbursed through the Especially Expensive Medicine Fund almost tripled between 2014 and 2018, leading to an increased share of spending on EM in the Croatian Health Insurance Institute's (HZZO) pharmaceutical spending from 11 to 23 percent in 2018. The EM spending grew on average by 27 percent per year, the highest average growth rate among the spending categories. Estimates shows that HZZO expenditure amounted to HRK 1,590bn for EMs in 2019 and is expected to jump to HRK 2,480bn over the next three years. This is not necessarily surprising: new therapies typically come with a very high price tag. All countries - including in the Organization for Economic Co-operation and Development (OECD) - struggle to strike a balance between these costs and the legitimate expectations of their populations to access the most advanced treatments. The important question is how to ensure value for money in public spending given the increasing availability of new, expensive therapies.

Hospital medicine (HM) spending has been relatively stable over the years and has not been a major cost driver, while overall hospital expenditure (reimbursed through DRGs) is one of the fastest growing components of health care expenditure, rising by 45 percent over past 5 years, and hospital arrears have long been plaguing the system. These issues, although not the focus of this study, constitute the backdrop of the country's health system and may affect formulation and implementation of pharmaceutical policies.

The mechanisms in place to control the prices of prescription medicines (PM) seem to be effective overall. However, the growth in PM volume emphasizes the need to further promote rational use. The fact that the number of prescriptions per capita is rising is not necessarily surprising given an aging population. However, polypharmacy (or the use of multiple medicines by a single patient) increases the risk of medication errors, especially for elderly people. Greater efforts might be needed to ensure that medicines are prescribed appropriately, and reconciled to avoid omissions, duplications and detrimental interactions.

At a more fundamental level, Croatia's "right-to-health" legislation sets the scene for

[3] The analysis of pharmaceutical spending has been finalized in June 2020 and not updated since.

growing pharmaceutical spending. The legislation specifies explicitly that every patient has the right to receive the medicine that the treating physician sees as necessary for managing the patient's condition, even if this medicine is not on the Basic or Supplementary List.

The expenditure for EMs (including high-cost medicines not listed on the Basic Medicines List) is much higher than what the hospital gets as its allocation from HZZO for this purpose. Costs for such medicines become the main driver for hospital arrears and require periodic injections of additional funds into the health system. The practice of bailing out hospitals that go into arrears may cause complacency, as nobody seems to have a real incentive to improve the system.

Policy options

Decision-making on coverage of EMs could be upgraded through benchmarking against other EU countries. The goal would be a more explicitly defined process, transparent and supported by a small team of professionals at HZZO, who work closely with peers in other EU countries in reviewing policies and preparing dossiers for the decision-making committee. The central committee should handle decisions on individual cases, which are currently made by Hospital Medicines Councils. However, this change will require a modification of the law or by-law and may therefore not be achievable in the short-term. Members of the HZZO Committee for Medicines could be selected in a more formal and public process, ensuring their technical competence, diverse backgrounds and independence. Given the fact that they provide the service in their spare time, a small professional team of experts could be employed to preview and annotate the dossiers submitted by manufacturers and verify critical data. HZZO and HALMED could set up a working group with the leading tertiary hospitals to explore how existing data collection tools can be used to follow patients treated with EMs and establish an outcome database.

Pooling medicines procurement for hospitals is an initiative that has proven to deliver value in other countries. MoH should be encouraged to continue with this work and expand the basket that is centrally procured until maximum savings can be realized (which typically takes 2-3 years).

HZZO could use its data systems to generate specific data on the rational use of medicines in outpatient care. Typical metrics are, for example, antibiotics use in common cold or flu, use of first line versus second- or third-line treatments in hypertension or other chronic diseases, and polypharmacy in geriatric patients. Furthermore, HZZO could assess whether there is an impact of hospital outpatient recommendations on primary care prescription and rational use. It may be the case that recommendations from hospital specialists influence primary care physicians in their prescribing behavior in ways that are leading to non-rational use of medicines. A quick review, based on HZZO's database, could be undertaken to either confirm this suspicion or prove it wrong. HZZO could also do a quick "back-of-the envelope" calculation on whether there is savings potential if Croatia moves from the current pricing model for generic on the Basic List to a model of competitive tendering for high-volume generics. Such a calculation would involve comparison with price data from a few EU countries that are using tendering for the top 5 or 10 medicines in terms of value from the Basic List.

Chapter 1.

Overview of main fiscal policy developments and challenges

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Overview of main fiscal policy developments and challenges

1.1. Macroeconomic context

Prior to the COVID-19 pandemic, Croatia had been experiencing steady but relatively slow economic growth. Since 2015, and after being mired in a six-year long recession, Croatia's economy had been growing at an average rate of around 3 percent. While the pace of growth was modest compared to CEE peers, drivers of growth improved, shifting from debt-financed domestic demand towards more export-led growth. The accession to the EU in mid-2013 opened a vast market for Croatian firms, which have used the opportunity to integrate better into European and global value chains, leading to a large growth in exports of goods. During this period, the composition of Croatian exports improved both in terms of market diversification and technological complexity, and the country's global market share increased by more than 20 percent. Furthermore, tourism - the country's single most important sector, contributing close to 20 percent of GDP - recorded several record-high seasons. Personal consumption steadily increased, benefiting from favorable labor market developments and rising consumer optimism. Investments, following an average contribution of one percentage point to growth in 2015-2017 period, further intensified in 2018 and 2019. General government investments, while still significantly lower compared to the period before the global financial crisis (GFC), have been supported by stronger uptake of EU funds, while favorable financing conditions, an increase in profits and, at that time, relatively bright economic prospects, supported private sector investments (Figure 1).

However, GDP growth was constrained by structural rigidities and still strong reliance on less innovative activities, with lower value added and limited backward and forward linkages. Croatia's total productivity growth remains among the lowest in the CEE region. In part, this can be connected to constraints related to mobility of production factors, quality of labor and capital inputs in the production process, as well as market institutions and regulation. In addition, the structure of Croatia's economy is also largely skewed towards low technology—and low-productivity—services like tourism, which accounts for around 20 percent of GDP, while the share of ICT and manufacturing is significantly lower than the CEE average. As a result, it took Croatia a full decade before its economy in 2019 reached the pre-GFC level of output, while GDP per capita (PPS) is one of the lowest in EU (Figure 2).

Figure 1. Contributions to GDP growth and real GDP

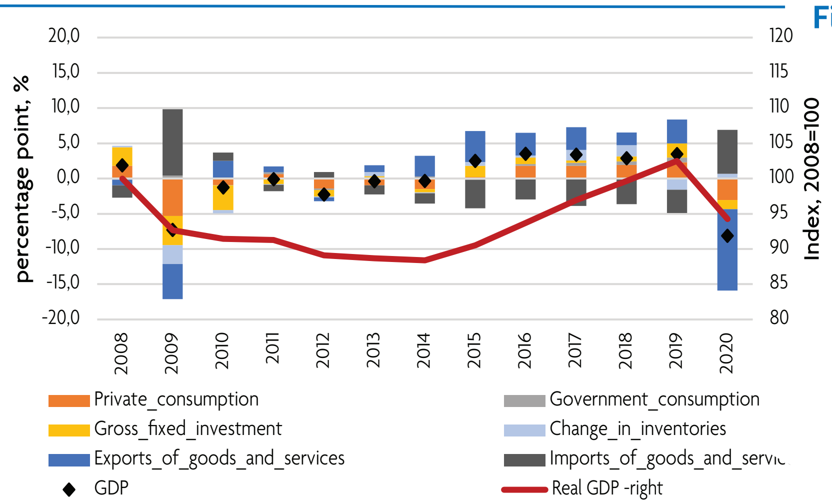
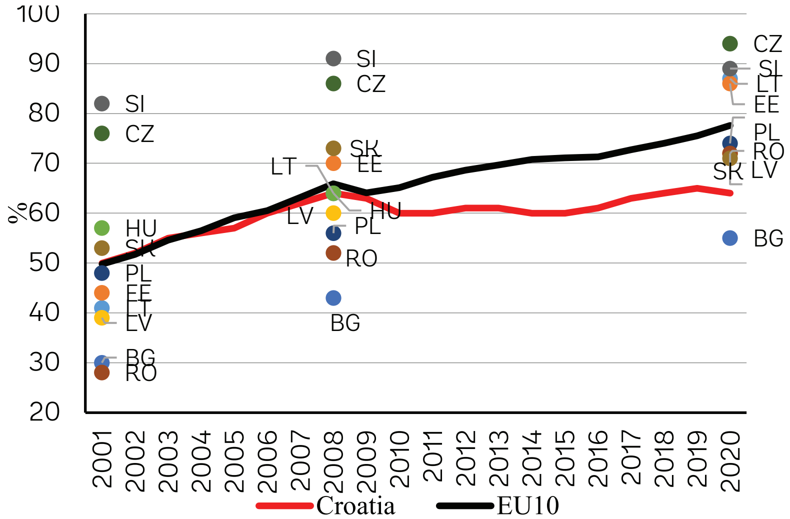


Figure 2. GDP per capita, EU27=100, in PPS



Source: Eurostat

The COVID-19 outbreak had a dramatic effect on economic activity, given the country's strong reliance on tourism. Croatia's real GDP contraction in 2020, at 8.1 percent, was one of the largest in the EU. The country also suffered from two devastating earthquakes, in March and December 2020, which caused significant damage to the housing stock and the buildings of several public institutions. Tourism bore the brunt of the COVID-19 impact, which was reflected in a sharp drop in services exports. On the other hand, the decline in exports of goods was relatively low, following the recovery of external demand in the second half of the year. Domestic demand also contracted, with government consumption being the only component to grow. Although fiscal support measures significantly mitigated the decline in real disposable incomes, the reduction in private consumption was still significant due to a drop in consumer confidence (Figure 1). On the supply side, the effects of the pandemic were relatively uneven across sectors. Hospitality services strongly contracted, as social distancing measures and travel restrictions led to a decline in tourist arrivals. The decline in manufacturing was relatively modest, while agriculture and construction activity continued to increase on an annual level.

Due to the drop in exports, the current account balance turned slightly negative while the declining trend in the external debt-to-GDP ratio was reversed. Croatia ran a sustained current account surplus from 2014-19, fluctuating around 2.4 percent of GDP, which supported a significant reduction of external indebtedness. Such developments stand in sharp contrast to the period prior to the GFC, when Croatia's current account balance was in deep deficit. However, in 2020, the deterioration of the trade deficit resulted in a current account deficit, while the drop in nominal GDP strongly increased the external debt-to-GDP ratio (Figures 3 and 4).

Figure 3. Current account balance

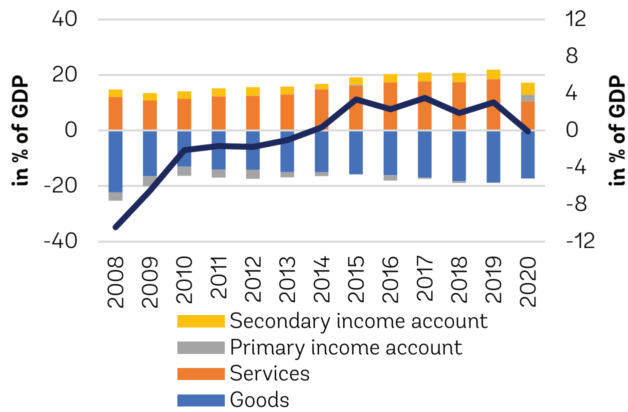
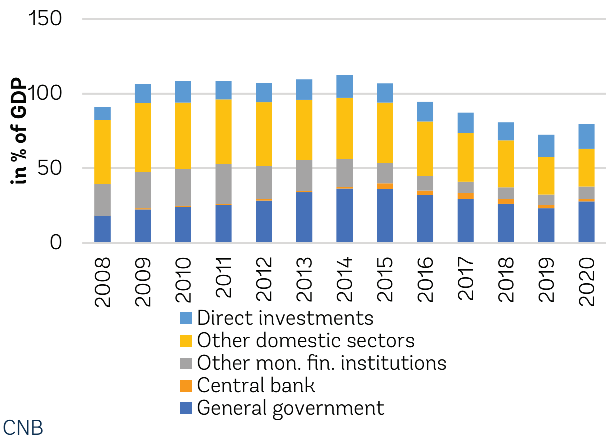


Figure 4. Gross external debt



Source: CNB

- In the period before the COVID-19 pandemic, Croatia had been experiencing steady but relatively slow economic growth and experienced a rising employment rate.
  Unemployment strongly declined, in part due to migration outflows.
- The COVID-19 outbreak had a dramatic effect on economic activity, given the country's strong reliance on tourism.
- Croatia's total productivity growth is among the lowest in the CEE region.

Fiscal support measures have significantly mitigated the repercussions of the COVID-19 pandemic on the labor market. In the period before the pandemic, Croatia experienced rising employment rate (Figure 5) and unemployment strongly declined, in part due to migration outflows. Real disposable incomes were also supported by a broad-based increase in wages. In 2020, despite a sharp economic downturn, the decline in employment was modest due to government job retention schemes that covered almost half of all private sector employees and more than a third of all employees. Therefore, the unemployment rate in 2020 was only around 1.0 percentage point higher than in 2019, averaging 7.5 percent (Figure 6). Average wages continued to increase, although largely driven by dynamics in the public sector, while accommodation and food service activities experienced substantial declines.

Figure 5. Employment rate (15-74)

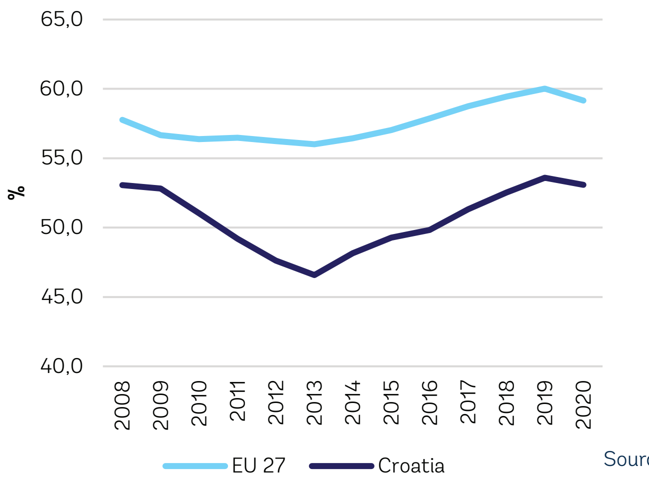
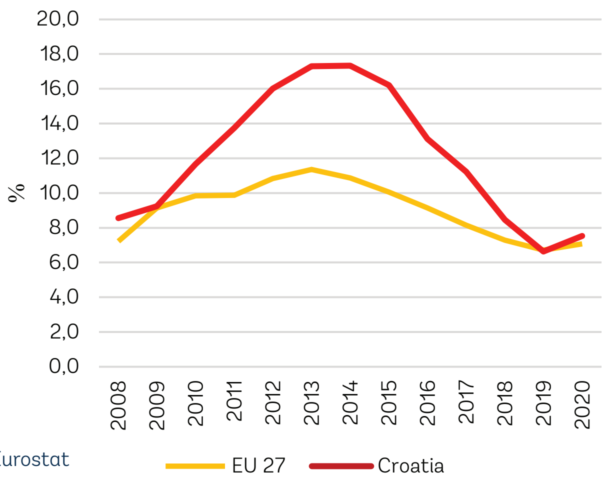


Figure 6. Unemployment rate (15-74)

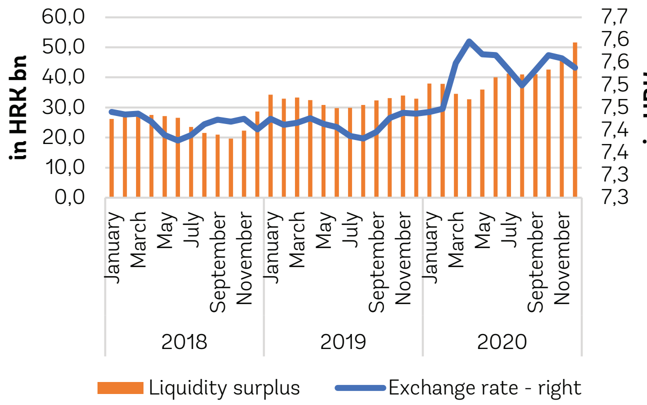


Source: Eurostat

In addition to the government stimulus package, the central bank also helped to cushion the initial shock by providing necessary liquidity to the financial sector while at the same time preserving exchange rate stability. Following the pandemic, the Croatian National Bank (CNB) added substantial liquidity in order to ease domestic financing conditions and stabilize the market for domestic government securities. The interventions, inter alia, included a reduction of the reserve requirement rate, and, for the first time, purchases of government bonds on the secondary market. CNB has also successfully stabilized the exchange rate, using its high level of international reserves to intervene on the exchange rate market (Figures 7 and 8). To further strengthen exchange rate stability, the CNB established a precautionary currency swap line with the European Central Bank (ECB) in the amount of EUR 2bn. The swap line was initially set to expire by the end of 2020, but the date was prolonged twice, first to the end of June 2021, and then until the end of March 2022.

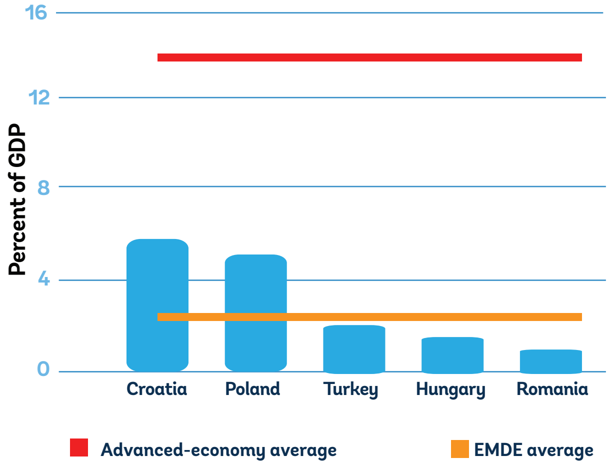
Following the pandemic, the Croatian National Bank (CNB) added substantial liquidity in order to ease domestic financing conditions and stabilize the market for domestic government securities.

Figure 7. Liquidity surplus and exchange rate



Note:
Liquidity surplus is proxied by the difference between the amount of funds that private banks hold at their settlement account with the CNB and the amount they need to maintain in these accounts according to CNB regulations.
Source: CNB

Figure 8. Asset purchases in advanced and emerging and developing economies in 2020



Source: World Bank

Table 1. Main macroeconomic indicators

	2015	2016	2017	2018	2019	2020
Real GDP growth, at constant market prices (%)	2,5	3,5	3,4	2,9	3,5	-8,1
Private Consumption	0,4	3,1	3,1	3,3	4,1	-5,3
Government Consumption	-0,9	1,0	2,2	2,4	3,3	4,1
Gross Fixed Capital Investment	8,4	5,0	1,5	3,8	9,8	-6,1
Exports, Goods and Services	10,3	7,0	6,9	3,7	6,8	-22,7
Imports, Goods and Services	9,4	6,5	8,4	7,5	6,5	-12,3
Real GDP growth, at constant factor prices	2,6	3,7	2,9	2,7	3,6	-6,3
Agriculture	2,4	6,4	-2,3	6,2	1,8	3,6
Industry	2,5	5,7	2,2	1,7	4,8	-1,6
Services	2,6	2,8	3,4	2,8	3,3	-8,4
Unemployment rate (ILO, %)	16,2	13,1	11,2	8,4	6,6	7,5
Inflation (Consumer Price Index, %)	-0,5	-1,1	1,1	1,5	0,8	0,1
Current Account Balance (% of GDP)	3,4	2,3	3,5	1,9	3,0	-0,1
Net Foreign Direct Investment (% of GDP)	0,4	4,2	2,2	1,6	6,1	1,3
External debt (% of GDP)	106,9	94,5	87,2	80,8	72,4	79,8

Note:
Industry category includes manufacturing and construction activities.

Source: World Bank

1.2. Overall fiscal trends

The government responded swiftly to cushion the impact of the COVID-19 pandemic. Croatia has implemented a package of fiscal measures equaling around 3.7 percent of GDP, while the overall support to the economy, including a moratorium on loan repayments, credit lines and guarantee schemes through the development bank and government agencies, is estimated at around 15 percent of GDP. In March and the beginning of April 2020 a first set of temporary measures was implemented to support most affected firms and households with a view to preserve employment and the economy's productive capacity. The package included, inter alia, wage subsidies for employers, write-offs or deferral of tax payments, and a moratorium on payment of loans to the development bank. As lockdown restrictions were gradually lifted by the summer months, initial measures were supplemented with new ones, including the introduction of subsidies for a shortened work week in specific sectors. However, yearend brought a surge in new infections, and some restrictions were reimposed, so the government decided to provide additional support to the private sector in the form of subsidies for a part of operational costs (for details see Box 1).

Box 1: Economic measures to mitigate negative effects of COVID-19

The Croatian Government proposed a number of support measures for the economy during the COVID-19 pandemic.

Main measures adopted in March and April 2020 included:

- Tax forgiveness and tax deferrals of personal and corporate income tax, and social contributions,
- Postponement of VAT payments, which are not due until payment is received from customers,
- Wage subsidies for employers, including support for self-employed and seasonal workers (including social contributions for the pension insurance),
- Measures for financial liquidity, including a moratorium on liabilities to the Croatian Bank for Reconstruction and Development, approval of liquidity loans for payment of salaries and suppliers, and rescheduling of other liabilities,
- Measures for utilization of EU funds, which included increased allocation for the financial instrument 'ESIF Micro Loans' for working capital of micro and small enterprises, and new COVID-19 loans for working capital (for SMEs and micro loans for rural development, both implemented through HAMAG-BICRO),
- Measures for investment promotion pertaining to amendments to the Investment Promotion Act,

- Measures targeted to tourism, including the postponement of payment of tourist membership fees for businesses and private renters as well as payment of a tourist levy for private renters,
- Measures for agriculture, which, among other things, included financing of packaging for fishery products with the prior approval of the European Commission, and purchases of unsold stocks of finished goods in the agriculture and food processing industry.

Due to the severity of the economic situation related to the COVID-19 pandemic, at the end of 2020, the wage subsidy entitlement was broadened also to firms with a decline in turnover of 40 percent or more, from the previous threshold of 60 percent. The amount of support was provided in accordance with the rate of decline in turnover – HRK 2,000 per worker for a 40 percent drop in turnover, with a gradual increase to HRK 4,000 per worker for a drop in turnover of 60 percent or more. Entrepreneurs and businesses that were closed by decisions of local or national civil protection headquarters also received HRK 4,000 per worker.

In addition to providing wage subsidies for employers, the government also subsidized shortened working hours. The amount of subsidy depended on the number of shortened working hours per employee and was initially capped at a maximum of HRK 2,000, which was increased to 2,800 kuna per worker in the last quarter of 2020 and further to HRK 3,600 in 2021. Employers can shorten working hours for some or all of their employees by up to 90 percent. For comparison, the average monthly net wage in 2020 in Croatia amounted to 6,763, while the minimum net wage set by the government at the beginning of the year equaled 3,250 kuna (raised to 3,400 for 2021).

Given reintroduction of social distancing restrictions, existing COVID support measures were at the end of 2020 extended to 2021. The government also reimbursed certain fixed costs for entrepreneurs who were banned from working and whose income fell by at least 60 percent. The estimated fiscal impact of main COVID-19 support measures for 2020 and 2021 is presented in the table below.

Box 1 Table 1.
Fiscal effects of COVID-19 support measures

	2020	
	in bn HRK	in % of GDP
Postponement of taxes and contribution payments	2,2	0,6
Write-off of taxes and contributions	3,1	0,8
Subsidies for agriculture, transport, culture, sport and tourism sectors	0,3	0,1
Job retention schemes	7,7	2,0
Capital injection to Croatia Airlines	0,6	0,2
Total	**13,9**	**3,7**
	2021	
	in bn HRK	in % of GDP
Write-off of direct taxes and contributions	1,4	0,3
Subsidies for agriculture sector	0,2	0,0
Job retention schemes	4,5	1,1
COVID-19 supplement for pensioners	0,6	0,1
Total	**6,7**	**1,6**

Source: MOF

Plummeting economic activity and the sizable fiscal package to contain the impact of COVID-19 have derailed public debt adjustment plans. The measures, coupled with a steep decline in tax revenues due to the economic downturn, resulted in a fiscal deficit of 7.4 percent of GDP in 2020.[4] Total revenues declined by around 6.6 percent compared to 2019, while expenditures increased by 8.7 percent, largely due to the wage subsidy for employers, support for the shortened work week implemented in the second half of 2020 and government efforts to strengthen the capacity of its healthcare system to cope with COVID-19 infections. This pushed public debt to 87 percent of GDP, while including debt amortization, total financing needs rose to above 21 percent of GDP in 2020 (from around 15.7 percent in 2019).

Croatia's relatively prudent fiscal position and reduction of macroeconomic vulnerabilities in the years before the crisis, along with the country's favorable situation on financial markets, allowed for strong anticyclical expansionary fiscal policy. Despite the deterioration of the fiscal deficit and surge in public debt in 2020, the increase in interest rates on Croatia's debt was contained, while the country's credit rating has remained stable reflecting the views that the health crisis would be relatively short lived and the economic and fiscal situation, supported by different EU initiatives, would improve once the pandemic abates[5]. Prior to the pandemic, Croatia had been running a small fiscal surplus over three consecutive years, and public debt was firmly on a declining path. Also, ERM II accession was seen as a major step towards reducing Croatia's exposure to foreign exchange risks. Finally, it was recognized that while the fiscal cost of the measures introduced was relatively high, in their absence, the economy's contraction would have been much greater.

This stands in sharp contrast to the reaction of fiscal policy in the aftermath of the global financial crisis of 2008, when the fiscal stance was strongly pro-cyclical for several years. The period 2009-2019 can be divided into two distinct subperiods, the period of fiscal adjustment during the prolonged recession from 2009-14 and the economic recovery period from 2015-19. During the first period economic activity was weakening and operating below its potential, meaning that fiscal consolidation was aggravating the downturn (Figure 9)[6]. In part, this can be related to the situation on financial markets at that time, when the cost of borrowing was much higher and funds were less available, including due to the Eurozone sovereign debt crisis that followed. However, inability to run expansionary fiscal policy following the GFC also reflected the fact that Croatia had accumulated significant macroeconomic imbalances which were mirrored in a large current account deficit and high and rising external debt, whose unwinding led to a prolonged recession. At the same time, the government had failed to build sufficient fiscal buffers and faced the GFC with a structural deficit of above 5 percent of GDP.

Unlike in most EU countries, the consolidation process started immediately in 2009 and lasted much longer, contributing to a prolonged recession. Croatia was one of nine EU countries that tightened their fiscal stance immediately in 2009 when the impact of GFC had the strongest effect on economic activity (Table 2). Also, a restrictive fiscal stance lasted for eight

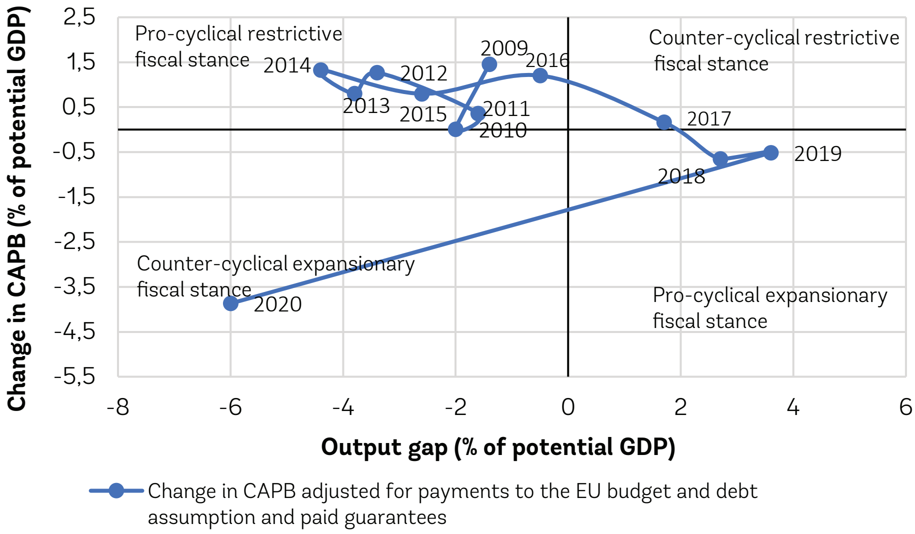
[4] Tax cuts adopted in 2019 and becoming effective at the beginning of 2020, worth around 0.4 percent of GDP, further suppressed tax revenues. The main ones included reduction of VAT rate for food and drink services in restaurants to 13%, broadening of the tax base to which the reduced CIT rate is applied and an increase in PIT's basic personal allowance.

[5] During the downturn Croatia managed retain its investment grade status with Standard and Poor's and Fitch, while Moody's upgraded the country to one notch below investment grade in November 2020.

[6] Fiscal deficit series have been corrected for expenditures that do not have a direct impact on domestic demand, like contributions to the EU budget, debt assumptions and payment of called guarantees to properly assess the fiscal stance.

years, by far the longest among all EU member states. Furthermore, since Croatia joined the EU only in mid-2013, it could not rely on the facilities that were developed in the EU after the GFC nor support the recovery through the European Structural and Investment Funds (ESIF).

Figure 9. Fiscal policy stance vs. output gap level



Note: CAPB refers to change in cyclicaly adjusted primary balance

Source: EC, World Banks staff estimates

However, the government continued with restrictive fiscal policy also during the first years of economic recovery, resulting in a strong fiscal adjustment due to which it faced the COVID-19 crisis with a relatively prudent level of budget balance. The general government budget balance improved from a deficit of over 5 percent of GDP in 2014, to an average surplus of 0.5 percent of GDP in 2017-2019. Croatia's strong consolidation efforts in the recovery phase were also facilitated by the fact that in 2014 the country entered the EU's Excessive Deficit Procedure (EDP), under which consolidation measures both on the revenue and expenditure side of the budget were implemented. Economic recovery and declining interest rates on government debt further supported fiscal adjustment, and in 2017 Croatia exited the EDP, in line with the deadline. Most recent estimates of the output gap suggest that fiscal policy became counter-cyclical only in 2017, as the output gap turned positive and the structural primary balance continued to improve .[4] In 2018-2019, expenditure restraint weakened, and some tax cuts were introduced, turning the fiscal stance again pro-cyclical as economic activity continued to expand and output was deemed to be well above potential (Figure 9). However, the nominal balance remained in a small surplus, benefiting from strong revenue growth and declining debt financing costs, while at the same time the structural balance remained close to its medium-term objective (MTO) target set by EU fiscal rules (for details on EU fiscal framework see Box 2). Budget surpluses, falling borrowing costs and favorable economic developments also led to a decline in public debt, which however remained elevated. After reaching a peak of almost 84.0 percent of GDP in 2014, general government debt at the end of 2019 stood at 71.1 percent of GDP (Figures 10 and 11).

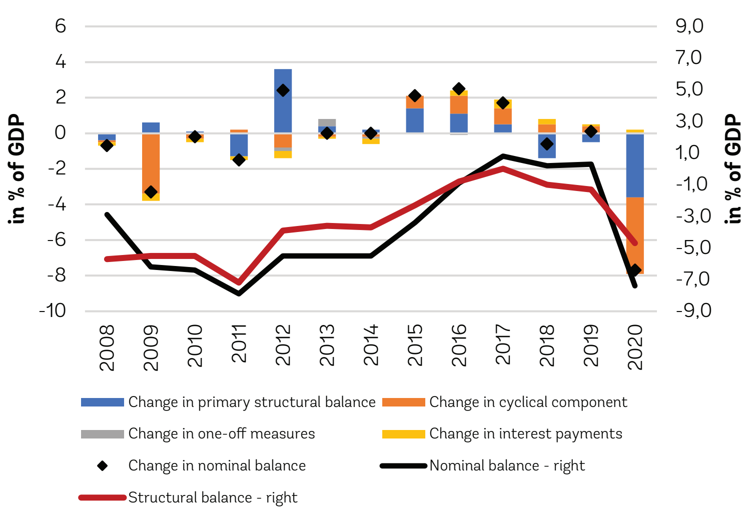
[7] Restrictive fiscal policy could also be in 2015 and 2016 described as countercyclical, given robust pace of recovery and relatively strong narrowing of negative output gap.

Table 2. Fiscal stance and cyclicality of fiscal policy in the EU

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
EU	AE	AE	PR	PR	PR	AC	AE	AC	PE	AC	PE	AE
EA	AE	AE	PR	PR	PR	AC	AE	AE	PE	AC	PE	AE
BE	AE	AC	AE	PR	PR	AE	PE	AC	AR	PE	PE	AE
BG	AE	PR	AR	AR	PR	AE	PR	PR	AR	PE	PE	AE
CZ	AE	PR	PR	AE	PR	AE	PR	PR	PE	PE	PE	AE
DK	AE	AE	PR	AE	PR	PR	AE	PR	PR	AE	PR	AE
DE	PR	AE	AR	AR	AC	AC	PR	PE	PE	AR	PE	AE
EE	PR	PR	AE	AE	PR	AC	AE	AE	PE	AC	AR	AE
IE	AE	AE	PR	PR	PR	PE	PE	AR	AR	AR	PR	AE
EL	AE	PR	PR	PR	AE	PR	AE	PR	AE	AE	AE	AE
ES	AE	PR	PR	PR	PR	PR	AE	AE	AC	PE	PE	AE
FR	AE	AE	PR	PR	PR	AC	AC	AE	AC	AC	PE	AE
HR	PR	AC	PR	PR	PR	PR	PR	PR	AR	PE	PE	AE
IT	AE	AE	PR	PR	PR	AE	AE	AE	AE	PE	AC	AE
CY	PE	AR	AE	PR	PR	AE	PR	AE	AC	PE	AR	AE
LV	PR	PR	PR	PR	AE	AE	PE	AR	PE	PE	AR	AE
LT	PR	PR	AE	PR	AE	AR	AR	AC	PE	PE	AC	AE
LU	AE	AE	PR	AC	AC	PR	AC	PE	AC	PR	AE	AE
HU	PR	AE	AE	PR	AE	AE	PE	PE	PE	PE	PE	AE
MT	PR	AE	PR	AE	PR	PE	PE	AR	PE	PE	PE	AE
NE	AE	AE	PR	PR	PR	PR	AE	PR	AR	PE	AC	AE
AU	AE	AC	AR	AC	PR	AE	PR	AE	AC	AC	AC	AE
PL	PE	PE	AR	PR	PR	AC	PR	AC	AC	AR	PE	AE
PT	AE	AC	PR	PR	PR	AE	PR	PR	PE	AR	PE	AE
RO	AC	PR	PR	PR	PR	PR	PR	AE	PE	PE	PE	AE
SI	PR	PR	AE	PR	AE	PR	PR	AE	PE	PE	PE	AE
SK	AE	AC	PR	PR	PR	AE	AE	AC	AR	PE	PE	AE
FI	AE	AE	AC	AE	AC	AE	PR	AE	PE	AC	AC	AE
SE	PR	AE	AC	AC	AE	AE	AC	AR	AR	PE	PE	AE

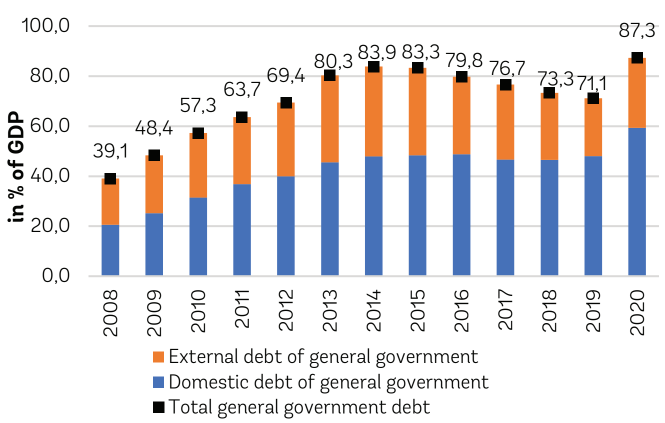
Notes: In Table 2, cyclicality of fiscal policy is assessed by comparing fiscal stance
(change in cyclically adjusted primary balance - CAPB) against the level of output gap. Acyclical fiscal policy refers to small changes in CAPB (between -0.1 and 0.1 percentage points)
Abbreviations denote the following: PR – procyclical restrictive; PE – procyclical expansionary; AR – anticyclical restrictive; AE – anticyclical expansionary; AC – acyclical fiscal policy
Source: Ameco, World Bank staff calculations

Figure 10. Factors causing changes in nominal general government budget balance



Source: Eurostat, EC, World bank staff calculations

Figure 11. General government debt



Source: CNB

Box 2: European fiscal framework and medium-term budgetary objectives (MTO)

The European fiscal framework is mostly determined by the provisions of the *Stability and Growth Pact* (SGP), a set of rules designed to ensure that EU Member States pursue sound public finances and coordinate their fiscal policies. The SGP aims to prevent (preventive arm), and where necessary correct (corrective arm), excessive deficits so as to keep public debt at sustainable levels.

The *preventive arm* of the SGP aims to prevent the occurrence of excessive deficits to ensure that member states build fiscal buffers during economic expansion so that they have sufficient fiscal space for economic stabilization during downturns. It requires Member States to reach a country-specific medium-term budgetary objective (MTO), which is defined in structural terms, i.e. adjusted for the economic cycle and one-offs. The MTOs should be set so as to:

(i) Provide a safety margin with respect to the 3% of GDP deficit limit. For each Member State, this safety margin is estimated in the form of the minimum benchmark, which takes into account past output volatility and budgetary sensitivity to output fluctuations.

(ii) Ensure sustainability or rapid progress towards sustainability. This is assessed against the need to ensure the convergence of debt ratios towards prudent levels, with due consideration to the economic and budgetary impact of ageing populations.

(iii) In compliance with (i) and (ii), allow room for budgetary maneuver, in particular taking into account the needs for public investment.

For euro-area and ERM II member states, the MTO cannot be lower than a structural deficit of 1% of GDP. Member States that have not reached their MTO are required to adjust towards that objective (by 0.5% of GDP per year as a benchmark). However, contracting Parties of the Treaty

In contrast to what aggregate data for revenues and expenditures suggests, the fiscal consolidation during the adjustment period of 2009-2017 was more expenditure-than revenue-based. The aggregate revenue and expenditure developments over the 2009-2017 adjustment period (Figure 12) for Croatia mask the true government efforts in terms of the composition of consolidation. Namely, during this period the revenue ratio recorded a substantial rise while the fall in expenditures was less pronounced. Nonetheless, more detailed data indicate that discretionary government effort was largely based on expenditure savings (see Box 3). Primary cyclically adjusted expenditures declined by around four percentage points of GDP over 2009-2017, and when EU-related spending is excluded the decline is even stronger (Figure 12).

on Stability, Coordination and Governance in the Economic and Monetary Union (TSCG), have further committed themselves to MTOs of at least -0.5% of GDP, unless their debt ratio is significantly below 60% of GDP and the risks in terms of the long-term sustainability of their public finances are low. Croatia has signed TSCG, but it will be fully bound by its fiscal provisions only when it enters the eurozone.

The *corrective* arm of the SGP aims to correct excessive deficits when they occur. Deficit and debt thresholds are defined as a deficit below 3% of GDP and a debt-to-GDP ratio of below 60% of GDP, unless the ratio is sufficiently diminishing towards that level at a satisfactory pace. Breaches of those thresholds are referred to as 'gross policy errors' and trigger an excessive deficit procedure (EDP). Member states in an EDP are required to correct their excessive deficit situation by a deadline set by the Council. If a Member State has failed to take effective actions by the given deadline, this can result in sanctions in the form of suspension of part or all of the commitments under the European Structural and Investment Funds for non-euro area Member States, or for countries in the euro area an obligation to lodge a non-interest bearing deposit which could also turn into a fine.

The Regulations, however, provide the possibility for Member States to depart from required adjustments in case of unusual events. Due to adverse effects of the COVID-19 pandemic on economic activity in the EU, the ECOFIN Council on 23 March activated the Stability and Growth Pact's general escape clause, which suspended fiscal rules that would usually apply under normal times. The general escape clause was introduced in 2011 as part of the six-pack reform of the Stability and Growth Pact. It allows for additional and temporary flexibility with the normal requirements of the preventive and corrective arm of the Pact in the event of a severe economic downturn for the euro area or the EU as a whole. According to latest EC guidelines, the general escape clause should be applied in 2021 and 2022 and deactivated in 2023.

Although Croatia's membership in the EU also resulted in certain expenditure reductions, particularly related to subsidies in agriculture which were largely replaced by direct payments from EU funds, contributions to the EU budget and government expenditures refunded by the EU were much higher and averaged close to 2 percent of GDP. A detailed list of consolidation measures, presented in Croatia's convergence program for the period when Croatia was in the EDP, also support this conclusion. Namely, during the period 2014 – 2016, the total fiscal effort stood at 2.5% of GDP in 2014, 1.6% of GDP in 2015 and 1.1% of GDP in 2016, and around two thirds of the adjustment was carried out through the rationalization of expenditures (Figure 13).

Box 3. Estimating the size of fiscal effort

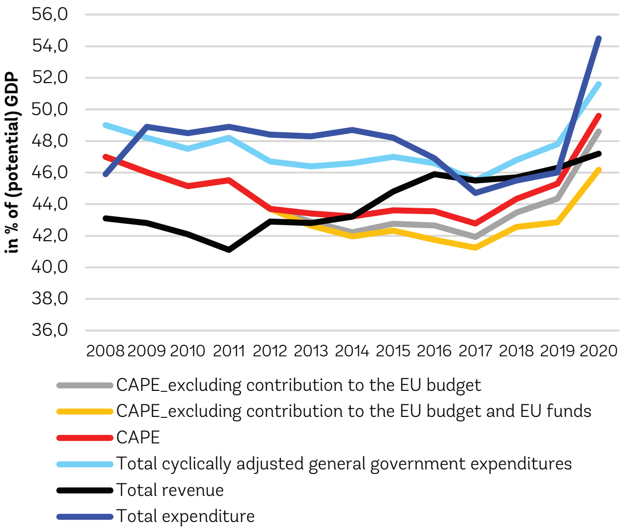
The fiscal effort is intended to measure the effect of government policy on the budget balance and thereby to serve as an indicator for which the government can be held accountable. Estimating the size of discretionary fiscal consolidation based on changes in the ratios of structural revenue and expenditure to GDP, i.e., nominal ratios adjusted for cyclical effects, is not a straightforward exercise and serves only as an approximation of actual fiscal effort. Namely, estimation of structural revenue and expenditure categories is based on different assumptions which in turn affect approximation of the size of discretionary fiscal efforts.

Cyclically adjusted revenues are, apart from the output gap which can be difficult to estimate, also influenced by the choice of tax bases used for cyclical adjustment, and estimated elasticities that, contrary to assumptions used, are not constant. For instance, profit-related taxes can be very volatile which is only partly reflected in macroeconomic bases as corporate tax systems are very complex given various exemptions, making estimation of true tax elasticity very difficult. Actual base-to-output gap elasticities can also depart from implied ones, usually based on econometric estimation, meaning that the estimated change in the structural balance would not fully reflect actual discretionary measures stemming from tax legislation changes.

On the expenditure side, cyclical adjustment usually pertains only to unemployment benefits which are corrected for their cyclical component. However, changes in structural expenditures reflect not only policy choices but also mandatory adjustments. For example, increases in some expenditure categories, like pension and healthcare, may reflect pension indexation, population aging and rising health care costs. Furthermore, interest expenses are usually excluded from the analysis of discretionary fiscal adjustment, as they are viewed as being non-discretionary. Government fiscal effort is also masked by EU-related spending, which increases both the revenue and expenditure sides of the budget.

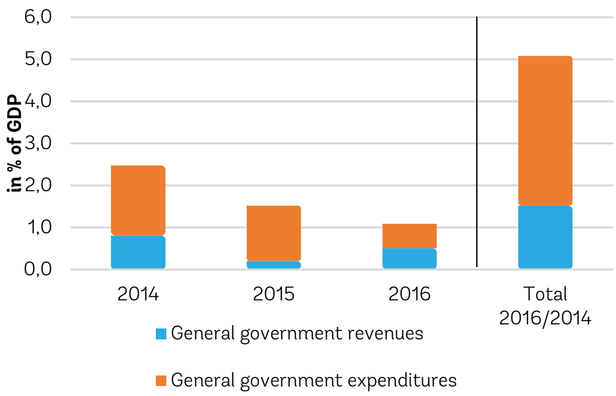
To overcome some of these difficulties, particularly since the EU fiscal framework has made fiscal effort a policy variable, the EU uses the so called bottom-up approach, which is intended to arrive at a more direct quantification of fiscal effort in terms of the impact of individual measures. Furthermore, consolidation efforts on the expenditure side of the budget are also assessed by analyzing differences between the projected and realized expenditure growth.

Figure 12. Total and cyclically adjusted primary expenditures



Note: CAPE refers to cyclically adjusted primary expenditures
Source: EC, World Bank staff estimates

Figure 13. Composition of fiscal effort based on the bottom-up approach during EDP process

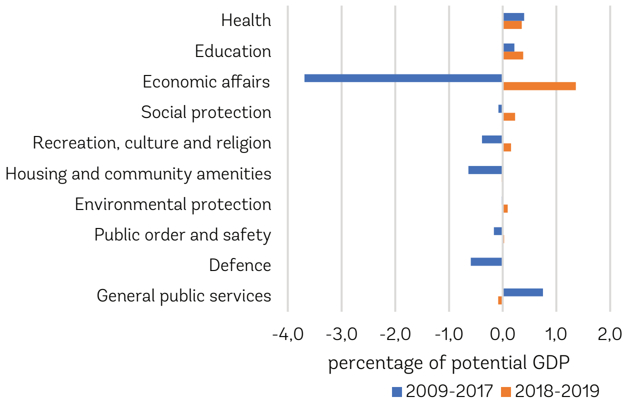


Note:
Since details are not provided, it is assumed that consolidation measures of extrabudgetary funds and local government were mostly expenditure based, given their limited scope for raising additional revenues. Consolidation effort of local government and extrabudgetary funds is estimated at 0.4 and 0.9 percentage points in the 2014-2016 period, respectively.
Source: MOF

1.2.1. Government expenditures

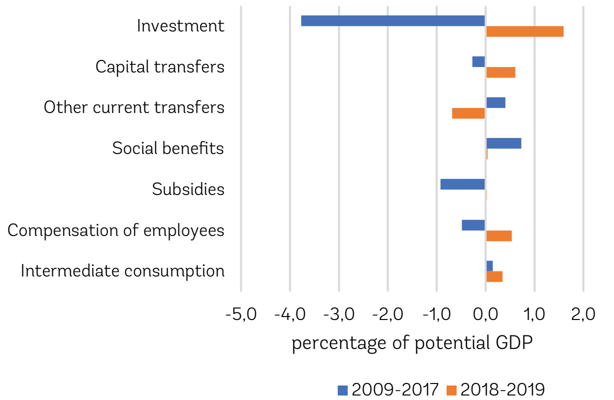
Fiscal adjustment relied heavily on investment cuts, which are considered more harmful for growth than reductions in other expenditures. Empirical literature suggests that different expenditure items have a different effect on economic growth, especially in the longer run. Productive expenditures, or those that raise the level of human or physical capital in the economy, bring the highest return in terms of long-term growth. They include spending on education and health, as well as public investment. The return, however, depends on the cyclical position of the economy, starting level of spending, time horizon, etc. (Box 4). As shown in Figure 15, the public investment ratio in the adjustment period declined by almost four percentage points. This was, in part, related to the fact that in the pre-crisis period Croatia had one of the highest levels of public investment in the EU, reflecting the strong investment cycle in road infrastructure which was almost completed by 2009. In general, countries with large public investments in the pre-GFC period were also more likely to cut investments in the consolidation period that followed (Figure 16). However, public investments in Croatia fell well below that of the EU10 countries' average, and investment growth accelerated only in 2018 and 2019, supported by EU funds (Figure 17). The decline in investment is also reflected in the functional classification of expenditures; economic affairs,[8] which includes capital-intensive spending on transport, agriculture and energy, suffered the largest reduction during the consolidation period (2009-2017), which was only recently partly reversed (Figure 14). On the other hand, health and education spending increased compared to 2008, both in the adjustment (2009-2017) and post adjustment (2018-2019) periods.

Figure 14. Cumulative change in the functional composition of the cyclically adjusted primary expenditures



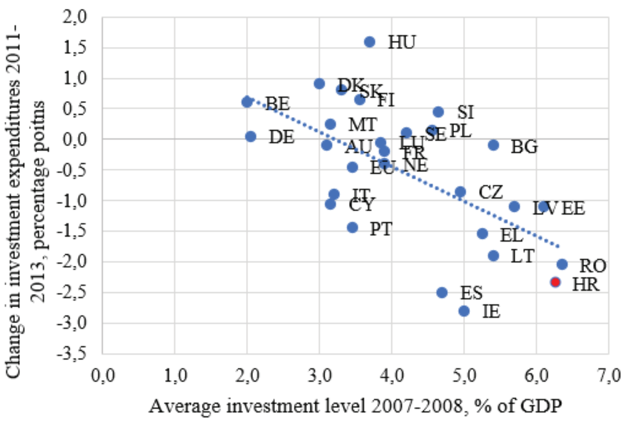
Note:
Changes in consolidation period are approximations given statistical reclassifications
Source: Eurostat, World Bank staff estimates

Figure 15. Cumulative change in the economic composition of the cyclically adjusted primary expenditures



Source: Eurostat, World Bank staff estimates

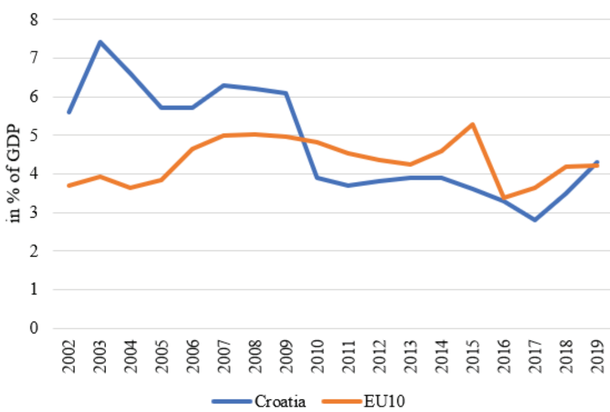
Figure 16. Pre-GFC level of public investments vs. change during consolidation period



Note:
Figure shows the change in investment ratio between years 2011 and 2013, when most EU countries consolidated their public finances. For Croatia, the decline in investment would be around one percentage point higher if the whole consolidation period (2009-2017) were considered.

Source: Eurostat, World Bank staff estimates

Figure 17. Average level of public investment in EU10 and Croatia



Source: Eurostat, World Bank staff estimates

8 Trends of some spending categories are difficult to precisely determine due to certain statistical reclassifications in Croatia's fiscal data. For instance, the category economic affairs markedly increased in 2018 in part due to surge in compensation of employees by almost 85%. This cannot be explained by an increase in number of government employees or their wage growth. Therefore, it is likely that this is mainly related with some statistical reclassifications between different categories.

Box 4: Growth friendly composition of fiscal adjustment

The optimal design of fiscal strategies includes accounting for different macroeconomic and microeconomic aspects, distributional effects, the fiscal position before the crisis, and societal preferences. The literature on fiscal multipliers offers some general principles regarding optimal design of fiscal adjustment over the short and long term and during different phases of the business cycle, although findings are not always conclusive.

Expenditures with an important impact on long-term growth are considered to be those that contribute to the accumulation of physical and human capital, and do not distort market incentives. These are so-called productive expenditures, which include items like public investments, education and healthcare. Literature often finds robust evidence of their positive impact on long-term growth (Cournede et al. 2014, Johansson, A. 2016, Gemmell, N. 2016). However, the beneficial growth effects of expenditures on unproductive investment projects are likely to be low. On the other hand, some studies find a negative relationship between social expenditures and long-term economic growth, which may be related to incentive effects on labor supply (Afonso and Jalles, 2013, Cournede et al. 2014). The magnitude of these effects greatly depends on the design of the social programs, like unemployment benefits, and the distortive effects from higher tax rates needed to finance social expenditures. Furthermore, public consumption can also have negative effects on economic growth (Afonso and Furceri, 2010; Afonso and Jalles, 2013). The largest two items of public consumption are compensation of employees and intermediate consumption. Although these categories also include provision of health and education services, two areas that are considered to be growth inducing, a sustained increase in overall public wages can lead to wage increases in the private sector, thereby reducing competitiveness, while increases in public sector employment can lead to tighter labor market conditions and increased wage pressures. Additionally, large public-private differentials due to high wages in the public sector may disincentivize reallocation of labor to more productive activities. Finally, government subsidies, if they are not directed to the correction of market failures, can have a negative impact on economic growth by distorting resource reallocation and restricting competition (Afonso and Furceri, 2010; Afonso and Jalles, 2013, Cournede et al. 2014).

On the revenue side, while all taxes generally weigh on growth, labor taxes and corporate income taxes are considered to be particularly detrimental for long-term economic development (Gemmel et al., Arnold aet al., 2011, Cournede et al. 2014, ECB, 2017). Labor taxes can distort individuals' labor supply decisions and firms' incentives to hire workers, while corporate income taxes tend to reduce incentives to invest and can induce capital outflows. By contrast, consumption taxes are considered to be relatively less distortionary as they do not affect intertemporal consumption decisions, since consumption now and consumption in the future are taxed equally. Also, an increase in the consumption tax reduces the real value of households' wealth, which can induce households to supply more labor in order to limit the impact of the negative wealth effects on consumption. Capital taxes on immobile capital, such as property taxes, are also assumed to have low distortionary effects as they do not directly distort the provision of the inputs to production and the consumption decisions of households. Moreover, by making investment in productive capital relatively more attractive than investment in housing, property taxes lead to a greater stock of productive capital and more production (ECB, 2017). Finally, environmental taxes are also deemed to be less detrimental to growth compared to direct taxes, as they discourage excessive use of environmental resources that are needed for future production and improve welfare (Cournede at al. 2013). Consequently, a revenue-neutral shift from direct taxes to indirect property taxes and environmental taxes would imply a positive effect on long-term growth. Beyond these considerations, replacing labor and capital taxes with VAT and property taxes might also help countries that face constraints to increasing external competitiveness through nominal exchange rate devaluation. Namely, shifting taxation from inputs to consumption (which are zero rated) and property taxes would mimic nominal exchange rate devaluation by changing the relative price of domestic and foreign goods. This so-called fiscal devaluation process would, however, need to be large to yield significant effects on trade (Franco F., 2010), and competitiveness gains might be offset by higher inflation expectations.

However, it is also important that fiscal strategy accounts for different phases of the macroeconomic cycle. For instance, while in good times increased support to low income households might impede necessary labor supply, during severe downturns these effects are less relevant given increases in unemployment. Moreover, targeted payments to the most vulnerable groups during downturns might yield higher growth dividends than across the board tax cuts or public sector wage increases, as their marginal propensity to consume is on average higher. However, as growth strengthens, social support should be replaced with active labor market policies, so that it does not have negative effects on labor supply.

Furthermore, expenditure-based fiscal consolidation tends to have more benign macroeconomic implications than revenue-based consolidation (Alesina et al., 2015a and 2015b, 2017). One of the main arguments is that a reduction of expenditures sends a stronger signal to the private sector that the government plans to improve public finances, as expenditure cuts are usually more politically costly. This has beneficial effects on private confidence, leading to stronger investment activity. Expenditure cuts are particularly advisable in countries with a relatively large government as, according to empirical literature findings, large governments can weigh on growth (Bergh and Henrekson, 2011). However, the European Commission 2012 report on the quality of public expenditure shows that spending cuts are often done on growth-friendly items, as they are politically less costly.

These findings, however, should be seen only as broad guidelines. The design of a fiscal strategy needs to be country specific, taking into account the initial composition of the budget and individual revenue and expenditure categories, as well as the macroeconomic and social characteristics of each country. For example, fiscal multipliers tend to be larger in countries with fixed exchange-rate regimes, limited trade openness, and low levels of debt (Ilzetski, Mendoza and Vegh 2013, Huidrom, Lim, Kose, and Ohnsorge 2019). Furthermore, some fiscal instruments can reduce or increase income and wealth inequality. Transfers play a strong role in redistribution of income, with cuts in benefits being especially regressive. Also, increases in some taxes that are designed to be progressive or focused on capital gains lead to a reduction in income inequality, while some taxes like VAT or environmental taxes fall more heavily on lower income households (Rawdanowicz et al., 2012, Cournede at al. 2013). The short- and long-term implications of different budget instrument can also differ. For instance, cuts in social assistance programs, while regressive in the short term, can over the long run foster stronger labor force participation, which will reduce the regressive impact of cuts since labor income tends to be greater than benefit payments (Cournede at al., 2013). Finally, it is important to highlight that the quality of public finances in general can also be enhanced by promoting efficiency gains in government spending and tax collection.

The government also reduced some less growth-friendly expenditure categories during the adjustment period. Expenditures on recreation, culture and religion, defense and housing and community services were cut. Some savings during the consolidation period were achieved on subsidies (according to the economic classification of expenditures—Figure 15), in part because national payments to agriculture were partly replaced by direct payment from EU funds. The only categories that increased throughout 2009-2019 were general public services and social protection. The increase in general public services was largely related to non-discretionary spending linked to contributions to the EU budget and temporary spending in 2018 and 2019 on called guarantees, while social spending partly reflects higher pension outlays, including due to the rise in the share of elderly in the population. Certain measures to curb pension payments were implemented during the adjustment period, including stricter eligibility criteria for disability pensions, an increase in the statutory retirement age for women, and a decrease in pensions acquired under special regulations. However, more recently the government backtracked on the earlier reform to increase the length of working lives. Given that unfavorable demographic trends are expected to continue, pressures from population aging will continue to limit fiscal space in the coming years (Box 5).

Box 5. Demographic challenges and the pension system

Croatia is facing very unfavorable demographic trends. The two main factors are increasing life expectancy and low fertility rates. Strong migration outflows of predominantly working-age people to EU countries, following Croatia's accession to the EU in 2013, further aggravated these developments. According to Eurostat projections, by 2070 Croatia's population is expected to decline by more than 1.0 million people, with a significant change in the age structure. The working-age population is projected to drop by more than 35 percent, while the old-age dependency ratio (population aged 65+ as a % of the population aged 20-64) could increase from close to 35 percent in 2019 to 61.5 percent in 2060. Although the expected rise in the participation rate from its currently low level would to some extent mitigate negative effects of declining population on labor supply, demographic trends will act as a drag on growth and put significant pressure on public finances, especially on pension and health care expenditures.

Box 5 Table 1: Demographic projections

Demographic projections - EUROPOP2019 (EUROSTAT)	2019	2030	2040	2050	2060	2070
Population (million)	4,1	3,8	3,6	3,4	3,2	3,0
Old-age dependency ratio (65+ as % of working age population)	34,8	44,5	50,4	57,2	61,5	64,6
Young population (0-19) as % of total population	19,3	18,0	17,1	16,9	16,7	16,7
Prime-age population (25-54) as % of total population	39,4	38,0	36,1	34,9	33,8	33,1
Working-age population (20-64) as % of total population	59,8	56,7	55,2	52,9	51,6	50,6
Elderly population (65 and over) as % of total population	20,8	25,3	27,8	30,3	31,7	32,7
Very elderly population (80 and over) as % of total population	5,4	6,5	9,2	10,7	12,0	13,5
Very elderly population (80 and over) as % of elderly population	26,0	25,7	33,1	35,4	37,9	41,4
Very elderly population (80 and over) as % of working age population	9,0	11,4	16,7	20,2	23,3	26,7

Source: EC

The pension system reform from 2018, among other objectives, aimed at further increasing the length of working lives but under the pressure of the trade unions the government withdrew the main elements of the reform. The comprehensive pension package, which should have become effective in 2019, inter alia, included an accelerated increase in the statutory retirement age to 67, bringing it forward by five years to 2033, accelerated equalization of the retirement age for men and women, from 2030 to 2027, and higher penalties for early retirement. After the trade unions collected enough signatures to call for a referendum on contested issues, the government decided to abolish these changes. Moreover, the statutory age for retirement was scaled back to 65, which reversed the decision of the 2014 reform when it was first decided to increase the retirement age to 67 as of 2038.

Despite the reversals, the current pension system appears financially stable in the long run, but risks to social sustainability are high, and addressing them could in turn put significant pressure on public finances. According to European Commission Aging Report 2021,[9] the public pension expenditure-to-GDP ratio is expected to slightly decline over the next five decades, from 10.2 percent of GDP in 2019 to 9.5 percent of GDP in 2070. The projected reduction is in part linked to gradual phasing out of pensions which were determined by special regulations, like war veteran pensions, due to natural demographic developments as no policy change is planned at the moment. In addition, the existing three-pillar pension system will also to a certain extent mitigate the future pressure of an aging population on the government budget. The 2002 reform of the Croatian pension system introduced three pillars based on: (i) an intergenerational solidarity, or pay-as-you-go scheme, (ii) a mandatory, fully-funded defined contribution scheme, and (iii) a voluntary supplement scheme. Funds in the second and third pillars are individual savings collected by private pension funds. As a result, an increasing share of beneficiaries will in the future receive part of their pensions from individual private accounts, leading to lower public expenses from the first pillar. Beneficiaries can also choose to return to the public scheme upon retirement, but in this case, they will need to transfer the funds from the second pillar to the budget. However, the anticipated reduction in pension expenditures also reflects a strong decline in replacement rates (calculated as the very first pension payment as a share of the last wage before retirement), even when accounting for private schemes. As the average replacement rate is already very low, this implies that the current system will eventually require

[9] For more details on the pension system in Croatia and its shortcomings also see World Bank: Policy Note: Adequacy of Pensions in Croatia

further adjustments to increase the adequacy of pensions. Reforms envisaged in the National Recovery and Resilience Plan that pertain to survivors' pensions, minimum pension and retirement age through the Labor Law are steps in the right direction, but will need to be complemented by further adjustment of the pension system.

Box 5 Table 2: Pension expenditure projections

as % of GDP unless otherwise indicated	Ch 19-70	2019	2030	2040	2050	2060	2070
Public pensions, gross	-0,7	10,2	11,0	10,4	9,9	9,7	9,5
Of which : Old-age and early pensions	0,7	6,7	7,9	7,7	7,5	7,5	7,4
Disability pensions	-1,2	1,8	1,4	1,1	0,8	0,7	0,7
Survivors' pensions	-0,3	1,7	1,7	1,6	1,5	1,5	1,4
Other	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Replacement rate - gross replacement rate at retirement % (old-age earnings-related)							
Public pensions	-9,7	32,5	29,2	27,1	25,4	23,9	22,8
Public and private pensions	-8,6	30,8	-	-	-	-	22,2

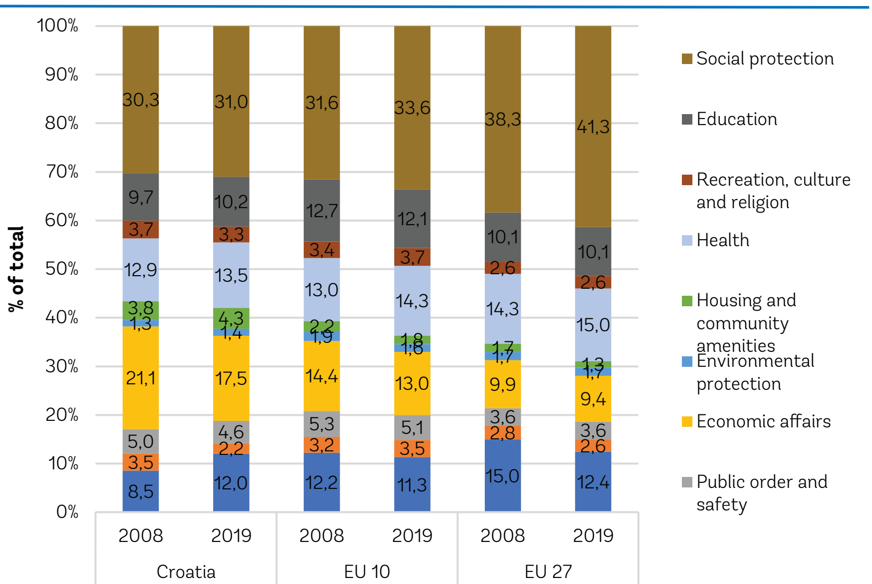
Source: The 2021 Aging Report (EC)

The aforementioned trends resulted in important changes in the structure of expenditures. In terms of functional classification, the share of expenditures on social protection, which was already the largest budgetary component, further increased, while expenditures on economic affairs saw the sharpest reduction due to the decline in investments. Breaking down spending by economic classification, the share of capital expenditures contracted most sharply, while the share of the two largest categories, social benefits and compensation of employees, increased. The share of interest expenditures also rose sharply, due to the strong increase in public debt (Figures 18 and 19).

These developments also indicate that budget rigidity has increased. Fiscal rigidity can be defined as "the institutional constraints that limit the ability to change the level or structure of public budgets in a specified period of time" (Cetrangolo et al., 2010). The components of the budget that are considered as most rigid are compensation of employees, social benefits and interest payments, as they are usually not subject to immediate discretion of the authorities during the current year and are politically sensitive to change. In 2019 these expenditures accounted for almost two thirds of overall expenditures, increasing by around four percentage points of GDP compared to 2008. Similar trends and a large share of relatively rigid expenses are also observed in other EU countries, especially in more developed economies where social benefits account for close to half of total expenditures.[10] However, Croatia stands out with respect to the large share of interest expenditures, which is due to both sizable debt and a higher average implicit interest rate on government debt.

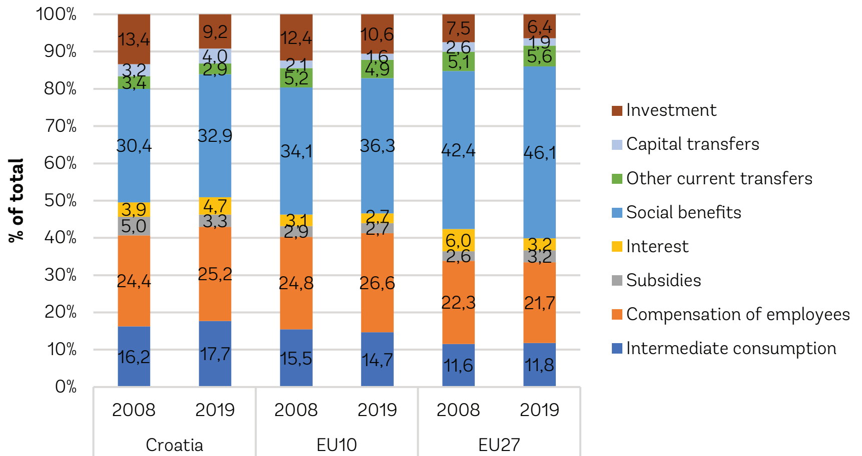
[10] Differences in the organization of public health services provision lead to different statistical recording of these expenditures so data on social benefits need to be in interpreted with caution.

Figure 18. The functional composition of the general government expenditures



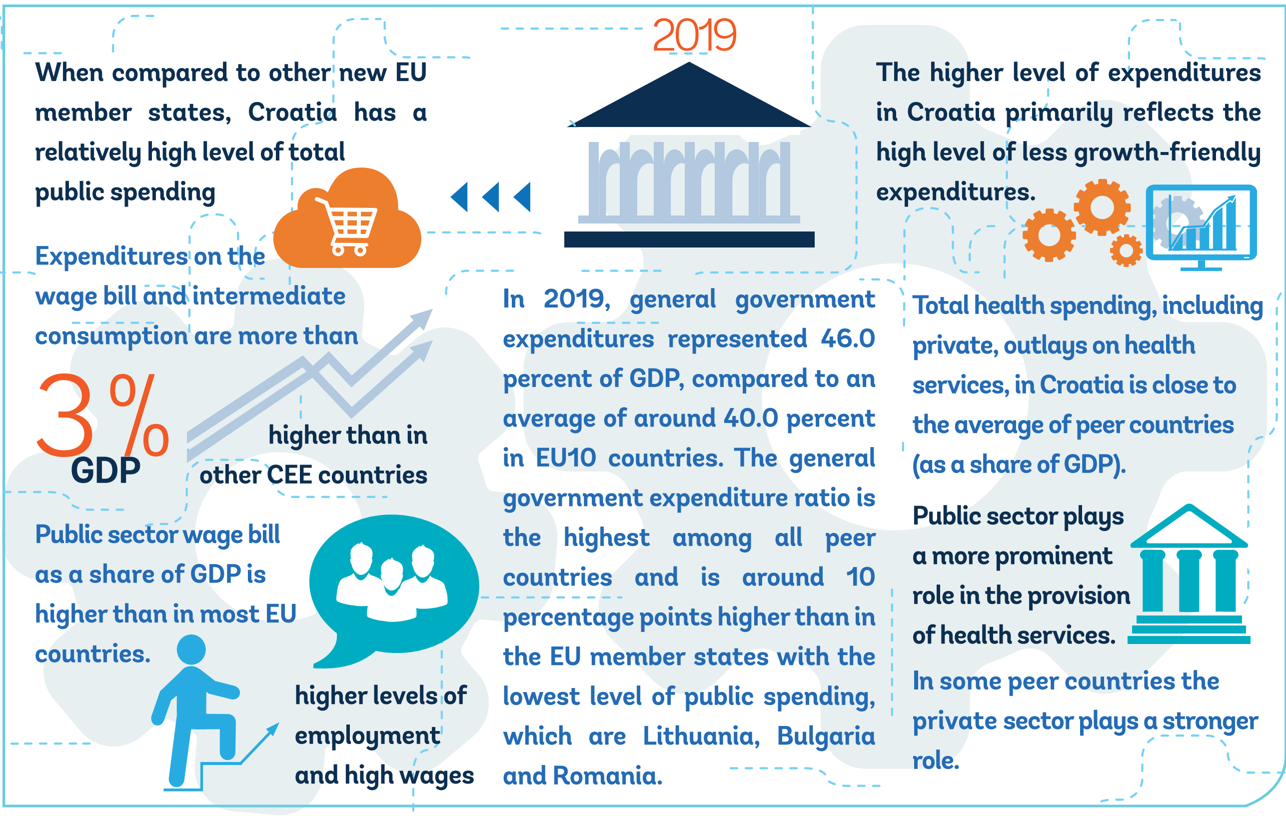
Source: Eurostat, World bank staff estimates

Figure 19. The economic composition of general government expenditures



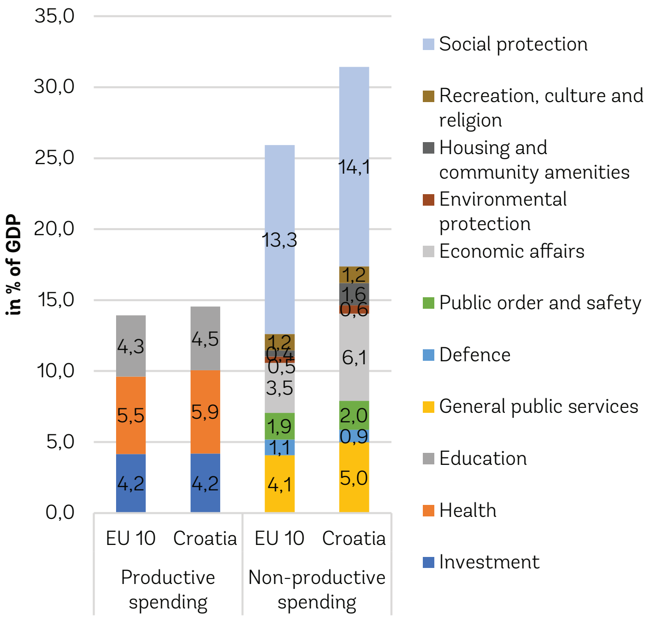
When compared to other new EU member states, Croatia has a relatively high level of total public spending. In 2019, general government expenditures represented 46.0 percent of GDP, compared to an average of around 40.0 percent in EU10 countries. The general government expenditure ratio is the highest among all peer countries and is around 10 percentage points higher than in the EU member states with the lowest level of public spending, which are Lithuania, Bulgaria and Romania. An important reason is that together expenditures on the wage bill and intermediate consumption are more than 3.0 percent of GDP higher than in other CEE countries (Figure 21). As discussed in Chapter 2, Croatia's public sector wage bill as a share of GDP is higher than in most EU countries, reflecting both higher levels of employment and high wages. In addition, Croatia also spends more on most other categories according to the economic classification (Figure 21). The relatively large spending on the economic affairs category is in part due to higher spending on subsidies, although they have been significantly reduced over the recent years, and capital transfers which partly reflects temporary expenditures related to payment of called guarantees issued to shipyards[11] Much higher capital transfers are also present within housing and community services, in the water supply services sector. Finally, higher spending on general public services of around one percentage point of GDP reflects much larger interest payments on government debt.

In terms of the allocation of expenditures across activities, the higher level of expenditures in Croatia primarily reflects the high level of less growth-friendly expenditures. Productive expenditures in Croatia were close to one percentage point of GDP higher than in peer countries, due to higher expenditures on health and education. An important reason for higher health care spending in Croatia is that the public sector plays a more prominent role in the provision of health services, while in some peer countries the private sector plays a stronger role. Total health spending, including private outlays on health services, in Croatia is close to the average of peer countries (as a share of GDP). Investment spending in 2019, at 4.3 percent of GDP, was at a similar level as in EU10 countries. By contrast, non-productive expenditures were about 5.5 percentage points of GDP higher than in EU10 countries. The differences were largely related to economic affairs (investment excluded), housing and community services and social protection (Figure 20). Zooming in on these three categories shows that within economic affairs, Croatia devotes a relatively large amount of expenditures to "general economic, commercial and labor affairs", within housing, to "water supply services" and "community development", while the high level of social protection expenditures results largely from spending on survivors pensions, which can be related to war veterans' pensions, a type of spending that is not present in the other EU10 countries (Figure 22).



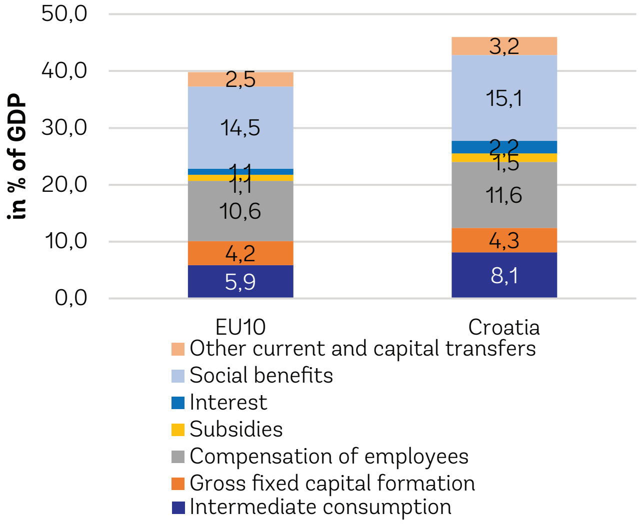
[11] Due to financial problems in the Uljanik and 3. Maj shipyards in 2018 and 2019 the government had to pay more than one percent of GDP of called guarantees.

Figure 20. Productive and non-productive spending, Croatia vs. EU10, 2019



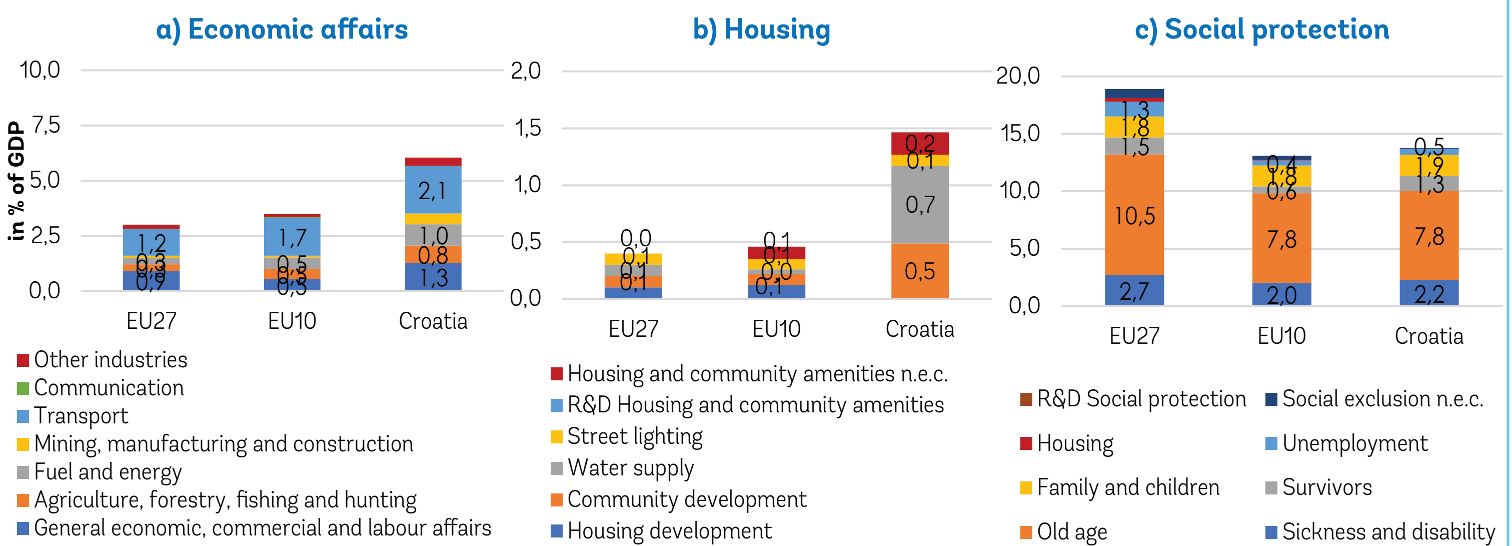
Note:
Expenditure categories according to functional classification exclude investment spending
Source: Eurostat, World bank staff estimates

Figure 21. Public spending according to economic classification, Croatia vs EU10, 2019



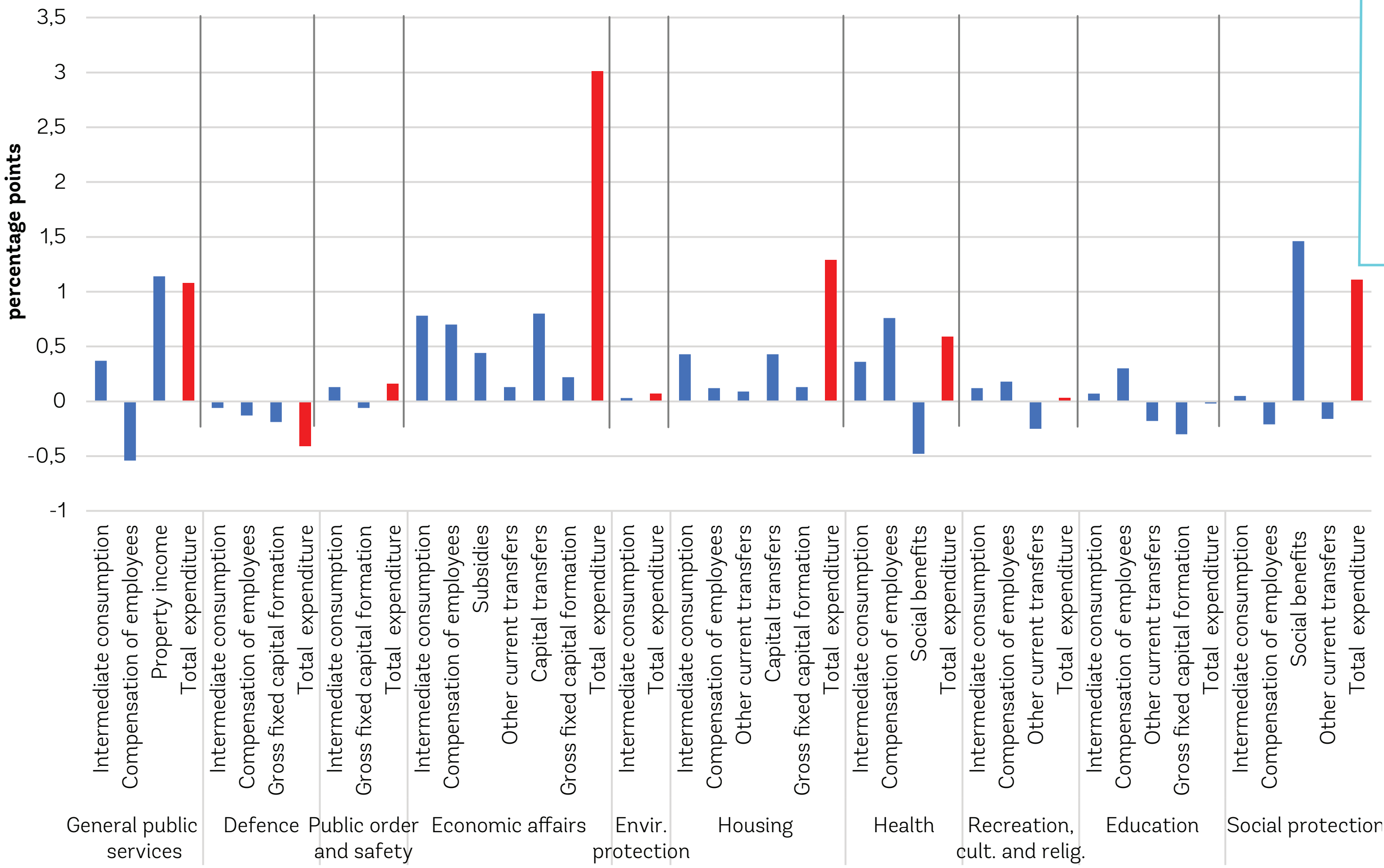
Source: Eurostat, World bank staff estimates

Figure 22. Composition of selected expenditure categories, 2019



Source: Eurostat

Figure 23. Main differences in expenditure ratios across spending categories, Croatia vs EU10 countries, 2019



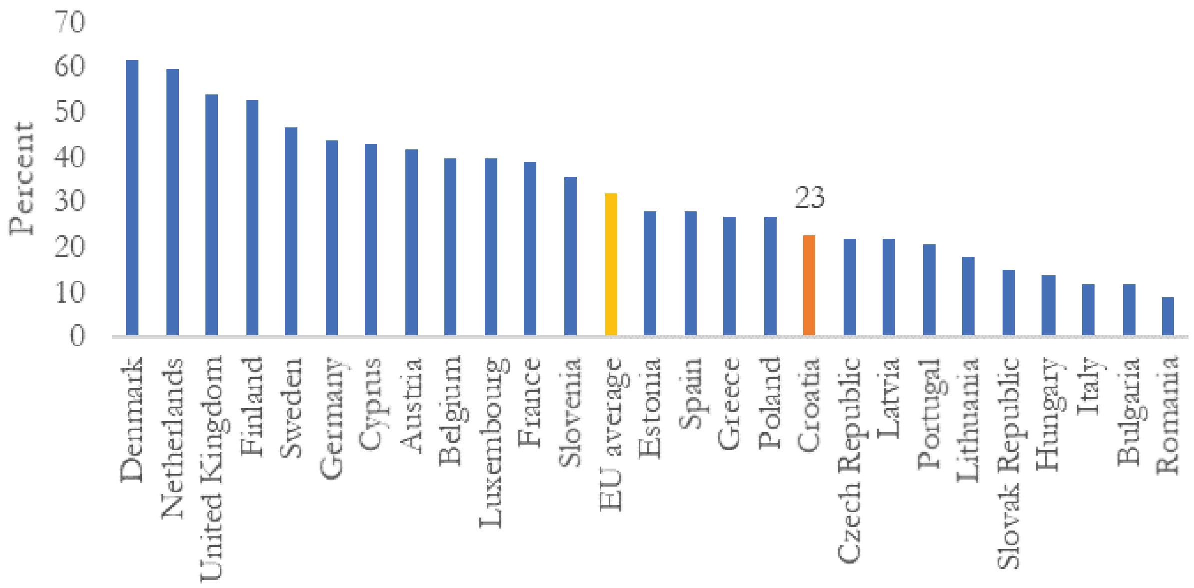
Note: Red bars indicate subtotals.

Source: Eurostat

While overall social expenditures are large compared to peer countries, the generosity of certain social assistance programs is low. The last-resort social assistance scheme includes a subsistence benefit which became a guaranteed minimum benefit (GMB) in 2014. It is a means-tested benefit intended for households whose income is below a basic needs threshold and depends on the characteristics and composition of the household. Relative to comparator countries, benefit adequacy of the guaranteed minimum benefit in Croatia – relative to the median disposable income- is well below average compared to other countries in the EU (Figure 24). The base has also been constant in nominal terms since 2014, which means it has decreased in real value, even during periods of economic growth. In addition, Croatia's unemployment benefits system is less generous than in other EU countries, and therefore the unemployment benefit expenditure plays a smaller stabilization role over the economic cycle. Although relative benefits in Croatia are above the EU average for the first month, they decline sharply thereafter and are among the lowest in the EU after 12 months (Figure 25).

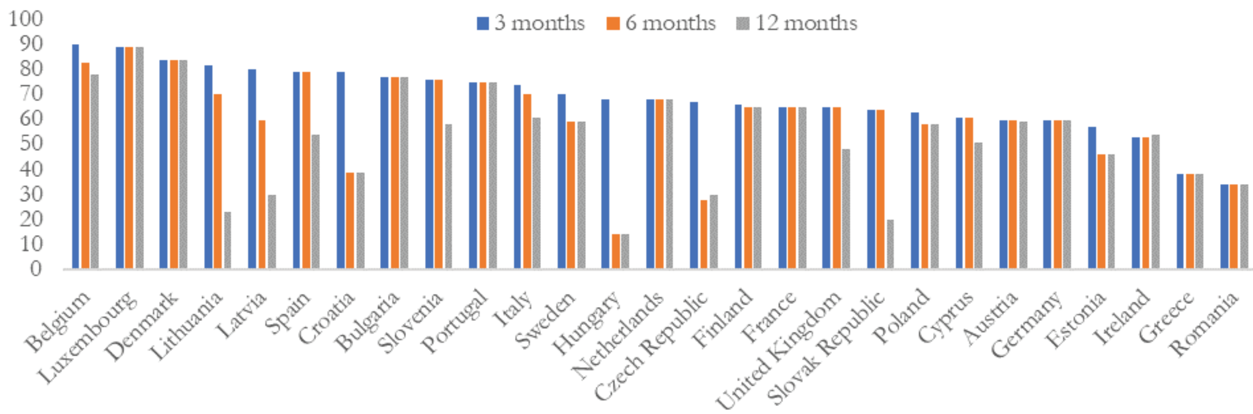
In fact, after 3 months, the unemployed are entitled only to 30 percent of the Unemployment Benefit Base, and also the minimum and maximum amounts are reduced accordingly. Moreover, the maximum duration of unemployment benefits for a one-year work record in Croatia is among the shortest in the EU. These features of the system affect the long-term unemployed whose share in total unemployment usually increases during long-lasting recessions, significantly reducing the anticyclical role of unemployment benefits. However, there might be some trade-offs between growth and economic resilience, as higher unemployment benefits might disincentivize labor supply, warranting careful reform implementation.

Figure 24. Adequacy of GMI benefits, (% of median disposable income, 2019)



Source: OECD Tax/benefit calculator (http://www.oecd.org/els/soc/benefits-and-wages/data/)

Figure 25. Net replacement rates for unemployment benefits in EU countries, 2019



Source: OECD Tax/benefit calculator (http://www.oecd.org/els/soc/benefits-and-wages/data/)

1.2.2. Public spending performance and efficiency

While Croatia spends more than its peers, public sector performance (PSP) is below average, implying that public spending is also inefficient. Boosting public sector efficiency could generate savings, potentially leading to a lower tax burden and also an improved business environment. This section analyzes public sector performance and efficiency in Croatia, based on an approach proposed by Alfonso et al. (2005) (Box 6).

Box 6: Assessing public sector performance and efficiency

An analysis of public sector performance and efficiency in Croatia is estimated by following the approach proposed by Afonso et al. (2005).

Public sector performance is assessed by constructing composite indicators based on socio-economic indicators that are assumed to be the output of public policies. Indicators are divided into two groups. The first group includes outcomes of public policies aimed at providing various and accessible public services for individuals. Afonso et al. describe these as opportunity indicators, referring to the role of the government as a promoter of equal opportunities in the marketplace. Opportunity indicators are divided into four sub-groups that reflect government performance in administration, education, health and infrastructure. The second group includes indicators linked to the standard Musgravian functions of the government - allocation, distribution and economic stabilization. In this report, the focus is however put on opportunity indicators and redistribution outcomes as these are more closely related to government functions and are less under influence of other factors like the structure of the economy.

Public sector efficiency is assessed by relating government expenditures with public sector performance and using data envelopment analysis (DEA). As noted by Afonso et. al (2006) the DEA methodology assumes the existence of a convex production frontier, which is constructed by using linear programming methods. The term "envelopment" stems from the fact that the production frontier envelops the set of observations. DEA can be conducted for both input- and output-oriented analysis. An input-oriented specification shows how much input quantities can be proportionally reduced without changing the output quantities. Conversely, an output-oriented specification shows how much output can be proportionally increased without changing the input quantities used. The two measures provide the same results under constant returns to scale but give different values under variable returns to scale. For more details see Annex 2 to Chapter 1.

While useful, this approach has limitations. The analysis does not separate the effects of public sector spending from other potential influences, and there are issues of data comparability, and whether costs and benefits of governmental activities are being properly measured. For details on the approach and its limitations see Afonso et al. (2006).

Results indicate that Croatia ranks low on various dimensions of performance, compared to EU25 and CEE peers.[12] While the results need to be interpreted with caution due to the limitations of the approach used, they are nonetheless suggestive.

- **Overall, Croatia is among the worst performers among CEE peers.** All CEE countries except Estonia, Slovenia, and Czechia score below the EU25 average, with Croatia being at the bottom end of the list.
- **Looking at sub-indicators, Croatia is the worst performer in administration among all countries included in the sample.** This reflects high levels of perceived corruption and red tape, weak performance of the judiciary system and the large shadow economy.
- **Croatia also scores below the EU25 and CEE average in most other indicators, including education and health which are considered to be among the most important factors for long-term growth.** This is in part counterbalanced by above- CEE average performance in quality of public infrastructure and distribution.

Table 3. Public Sector Performance – 2019

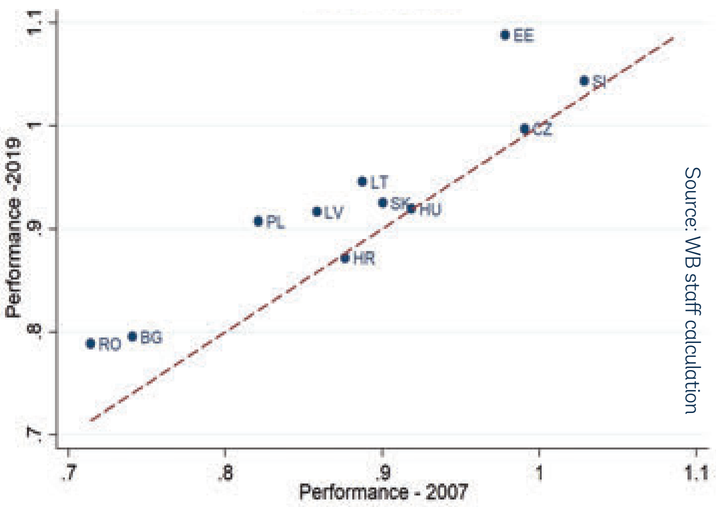
Country	Administrative	Education	Health	Public infrastructure	Distribution	Overall Performance
Bulgaria	0,76	0,87	0,73	0,78	0,84	0,80
Czechia	0,93	0,96	1,08	0,92	1,08	1,00
Estonia	1,05	1,06	1,27	1,08	0,99	1,09
Hungary	0,75	0,95	0,97	0,91	1,02	0,92
Latvia	0,88	0,98	0,95	0,86	0,92	0,92
Lithuania	0,88	0,97	0,97	0,99	0,92	0,95
Poland	0,77	1,02	0,87	0,85	1,02	0,91
Romania	0,79	0,83	0,73	0,66	0,93	0,79
Slovakia	0,99	0,89	0,80	0,85	1,10	0,92
Slovenia	0,82	1,02	1,38	0,92	1,08	1,04
Croatia	0,63	0,93	0,85	0,94	1,01	0,87
EU-10	0,86	0,96	0,97	0,88	0,99	0,93
EU-25	1,00	1,00	1,00	1,00	1,00	1,00

Source: World Bank staff estimates

Over time, Croatia's performance has remained broadly unchanged in relative terms, while performance of most other EU10 countries improved. As shown by Figure 26, Croatia's performance on the PSP indicator did not change significantly between 2007 and 2019 relative to other countries. At the same time, all other CEE countries except Czechia and Hungary improved their relative position. However, it is important to emphasize that change over time is measured relative to other countries, which means that a given country could achieve a higher score because of the improvement in certain areas or because other countries in the sample achieve weaker results.

[12] Cyprus and Ireland are not included. In the case of Cyprus this is due to data limitations while Ireland is considered to be an outlier given its very small government size measured by general government expenditure-to-GDP ratio.

Figure 26. PSP indicators for 2007 and 2019



Relating general government expenditures to the public sector performance indicators shown above gives an indication of public sector efficiency. In this analysis, selected government spending indicators are considered as an input for the relevant PSP indicators.[13] The results largely mirror those of the PSP assessment (shown in Table 3), both in overall performance and across sub-indicators, though the gap between Croatia and the EU10 average is generally larger (Table 4).

Table 4. Public Sector Efficiency Indicators, 2019

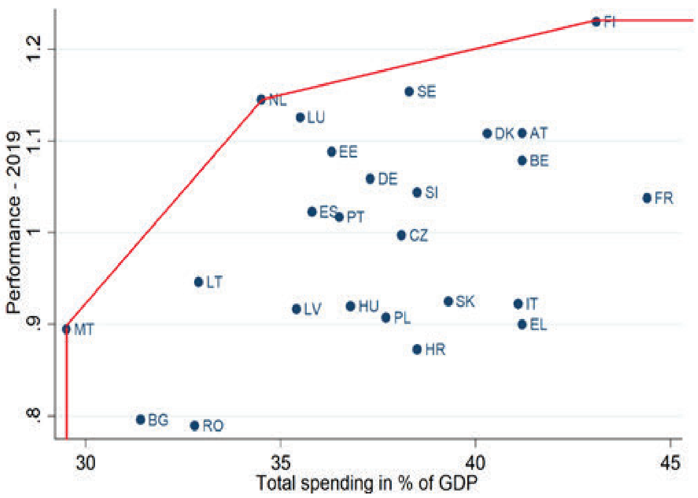
Country	Administrative	Education	Health	Public infrastructure	Distribution	Overall Performance
Bulgaria	0,78	1,21	0,96	0,74	1,09	0,95
Czechia	0,87	1,09	0,91	0,82	1,24	0,99
Estonia	1,02	0,90	1,57	0,76	1,30	1,11
Hungary	0,62	0,96	1,26	0,72	1,14	0,94
Latvia	0,76	0,86	1,55	0,66	1,27	1,02
Lithuania	1,00	0,97	1,03	0,99	1,16	1,03
Poland	0,78	0,99	1,17	0,68	1,03	0,93
Portugal	0,96	1,01	0,95	1,70	0,83	1,09
Romania	0,81	1,31	1,09	0,58	1,24	1,01
Slovakia	0,84	1,09	0,70	0,81	1,18	0,92
Slovenia	0,88	0,87	1,30	0,83	0,95	0,97
Croatia	0,53	0,98	0,87	0,95	1,08	0,88
EU-10	0,84	1,02	1,15	0,76	1,16	0,99
EU-26	1,03	1,02	1,03	1,06	1,04	1,04

Source: World Bank staff estimates

To complement the efficiency analysis, we also apply data envelopment analysis (DEA), using total spending-to-GDP ratios as an input and the overall PSP score as an output. DEA can be conducted for both input- and output-oriented analyses. Figure 27 shows the theoretical production possibility frontier, which illustrates how far the distance is between the most efficient countries in the sample and countries that are below the efficiency frontier. It can be seen that Croatia is among the group of countries that are the farthest from the best performers.

[13] Administrative performance is weighted by government collective consumption; education and health performance are by spending in education and health, respectively; quality of infrastructure is weighted by general government investment expenditures, and distribution performance is weighted by spending on social transfers other than social transfers in kind.

Figure 27. Production Possibility Frontier



Note:
Total general government spending equals sum of (i) education expenditures (COFOG classification), health expenditures (COFOG classification), collective government consumption (national accounts), social transfers other than social transfers in kind (economic classification) and government investment expenditures (economic classification).
Source: World Bank

Overall, results of the DEA analysis support the findings based on PSE scores (Table 5). Croatia has one of the lowest efficiency scores for both the input- and output-oriented DEA analysis. In input-oriented analysis, Croatia's score of 0.77 is below the EU10 average and far away from the most efficient countries in the sample. This implies that Croatia could significantly reduce its expenditures and at the same time keep the same level of output. Output-oriented analysis indicates that Croatia is the least efficient country (rank 25). Its score of 0.74 implies that Croatia could significantly increase the level of outputs without the need for increasing expenditures.

These findings are corroborated by other indicators and analyses. The sensitivity of the results was tested by replacing existing with alternative output indicators as shown in Annex 2 to Chapter 1. The overall results for Croatia do not change significantly, suggesting that Croatia's public sector performance and efficiency is relatively poor. Finally, ana lysis by Cepparaulo and Mourre (2020) for EU Countries, based on a somewhat different approa ch and indicators, also implies weak public sector performance in Croatia relative to other EU countries. These shortcomings weigh on firms' innovation capabilities and productivity, inhibit private sector investment in physical capital and R&D, and distort overall resource allocation.

Table 5. Results of Data Envelopment Analysis (variable returns to scale approach)

	Input oriented		Output oriented	
	Rank	VRS TE	Rank	VRS TE
Bulgaria	5	0,94	17	0,80
Czechia	16	0,83	15	0,84
Estonia	8	0,92	6	0,94
Hungary	18	0,82	19	0,79
Latvia	13	0,85	18	0,79
Lithuania	6	0,93	11	0,89
Poland	20	0,79	21	0,77
Romania	9	0,90	23	0,74
Slovakia	21	0,77	20	0,78
Slovenia	14	0,84	13	0,88
Croatia	22	0,77	25	0,74
EU-10		0,86		0,82
EU-25		0,86		0,87

Note:
VRS TE – variable returns to scale technical efficiency. Ranking includes all EU countries except Cyprus and Ireland
Source: World Bank staff estimates

Croatia's relatively weak public sector efficiency is in part linked to an inadequate institutional framework for systematic review of public spending and evaluation of public programs. Croatia conducted its first spending review exercise from December 2014 to February 2015. It was triggered by the need to identify sustainable fiscal savings under the EDP. The exercise was considered a pilot to improve spending efficiency and identify potential savings. The impact of the spending review was limited from the beginning and political engagement was relatively weak (Madzarevic-Sujster, Petrovic and Thomas, 2015). The Ministry of Finance provided very limited information on the implemented measures based on the conclusions of this exercise, besides rationalization in the healthcare system. Given the continuous rise of intermediate consumption through the whole consolidation period, it seems that the spending review did not fulfill its purpose. While some countries have been implementing spending reviews for decades, their popularity significantly increased after the GFC when many countries faced significant fiscal imbalances and were trying to achieve budget savings also through efficiency gains. International experiences with spending reviews are presented in Box 7.

Box 7: Institutional arrangements to enhance the quality of public expenditures – Lessons for Croatia

A variety of instruments and processes have been used to strengthen the efficiency and effectiveness of public expenditure and evaluate public programs. Key improvements that the government might consider include developing a formal policy for evaluation, introducing performance-based budgeting, instituting spending reviews, and improving strategic planning. Over time, countries have gradually institutionalized these tools, adapted them, and to some extent mainstreamed them into the budget cycle. Substantial resources have been dedicated to developing guidelines and regulations, training public officials, partnering with external evaluation experts, strengthening data generation systems, and developing transparency platforms.

Strong public administrations in OECD countries have invested heavily in developing ***evaluation policies*** for public programs. For example, evaluations of most of the federal government spending programs in Australia have been carried out periodically since the budget management reforms of the 1980s, routine evaluations of US federal programs are carried by the Government Accountability Office, most European Union programs have been evaluated routinely since the mid-90s, and most European countries have experimented with strengthening the role of evaluation in public administration. Although evaluation as a profession is well developed in some countries, the broader institutionalization is still weak and fragmented, and less connected to policy making and decision makers.[14]

The institutional arrangements and types of evaluations vary substantially across countries, but the broad principles tend to coincide. Selected public programs are evaluated on a periodic

[14] Stockmann, R., Meyer, W., Taube, L.; *"The Institutionalisation of Evaluation in Europe"*; (2020).

basis, often by an independent entity or department, using information from stakeholder surveys and field research. The findings are public and disseminated for learning and accountability purposes, but also used to inform program design and funding decisions. There is typically a policy document that regulates evaluation activities, clarifies concepts, specifies types of evaluations and sets standards.[15] The institutionalization of the evaluation function is usually found at the center (e.g. Prime Minister, Finance), but also at the sector agency level. In some cases, countries have created independent evaluation agencies. In others, Supreme Audit Institutions have ventured into evaluation beyond their traditional fiduciary and audit reviews.

Performance-based budgeting has been introduced in many countries to link budget inputs to results. In 2018, 30 out of 33 OECD countries reported having some sort of performance-based budgeting in place.[16] This approach focuses on meeting public program objectives, improving alignment with policies, the use of performance targets, and the production and use of performance information throughout the budget system. In sum, it consists of the development of new managerial culture that often includes more autonomy in the use of resources, development of incentives and stronger accountability for the achievement of outputs/outcomes (rather than inputs).[17] This would entail consolidating instruments such as the programmatic budget classification and the results focus of the medium term expenditure framework. It also would require strengthening the systems that generate performance data, revising the current expenditure controls and moving the managerial focus towards accountability of results from programs.

The type of performance budgeting can vary based on its scope, and most importantly, on its use: while some countries present results separately from the budget (presentational) others embed performance information in the budget (performance informed) and even link it to broader organizational changes (managerial performance). The early experience with performance budgeting shows that the impact has been larger on enhancing transparency, accountability, and possibly on trust, than on enhancing allocative efficiency.

The use of ***spending reviews*** has proliferated in recent years; 27 out of 33 OECD countries report having adopted them, 17 as an annual exercise.[18] However, comprehensive spending reviews, covering all expenses, tend to be carried out only every couple of years. A spending review is an institutionalized process for the review of government expenditure with the primary aim of identifying options for alternative levels of funding, for example by identifying budgetary savings that can be realized either by improving efficiency or by reducing ineffective or low-priority expenditures. Unlike regular program or agency-led evaluations, which are typically more focused on internal processes and program elements, spending reviews proceed from the perspective of the annual budget or medium-term fiscal framework (MTFF). A spending review is not usually concerned with the budgetary assessment of ***new***

[15] Examples include the UK Magenta Book (The Magenta Book: Central Government Guidance on Evaluation; HM Treasury (2020) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/879438/HMT_Magenta_Book.pdf); decisions by ***Mexico's Consejo National de Evaluacion de la Política de Desarrollo Social*** https://www.coneval.org.mx/Evaluacion/ECNCH/Paginas/Evaluaciones-y-resultados-de-programas.aspx); and Canada's Policy on Results https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=31300).

[16] OECD (2019), Budgeting and Public Expenditures in OECD Countries 2019, OECD Publishing, Paris. https://doi.org/10.1787/9789264307957-en

[17] Arizti, P; Brumby, J; Manning, N; Senderowitsch, R; Thomas, T. 2010; ***Results, Performance Budgeting and Trust in Government***; World Bank; https://openknowledge.worldbank.org/handle/10986/27895 License: CC BY 3.0 IGO

spending proposals, which may be appraised through separate and more specific processes.[19] A spending review also goes deeper than the regular review of spending that is part of the annual budget cycle, where many existing programs are not routinely (or in much depth) challenged for their ongoing efficiency and effectiveness.

Although its practice is still evolving, spending reviews are perceived as an effective tool. OECD countries have reported that the objectives of the spending reviews are generally met. These objectives can range from program improvement, general spending cuts, reallocation of resources and even program elimination. One of the major implementation hurdles reported by countries remains the availability and quality of program performance information, followed by lack of follow up for implementing recommendations and findings.

The spending review process is usually led by the central spending authority, but in partnership with other agencies. The spending review's completion is often timed to coincide with budget preparation and resource allocation decisions. Since reforms can take time to implement, spending reviews should be linked to the MTFF, and they can be used to strengthen the link between the MTFF and the budget process. While a spending review may also have broader performance improvement objectives, a review process that aims solely at performance improvements—without the explicit aim of reallocating funding between existing programs—does not constitute a spending review.

Building on pilot spending review experience in 2014,[20] the government, and more specifically, the Ministry of Finance, could revise the methodology used, and based on international experience, adopt a formal spending review methodology that could be applied selectively to some budget programs regularly. The guidance could be rolled into a broader evaluation and results policy. Select pilots could be developed over the next months in time to feed into the next budget preparation process.

Strategic planning is a key public sector function to guide the government's strategic policy priorities. It is generally undertaken by central government institutions, mostly the Ministry of Finance and the Cabinet Offices. Across OECD countries, the general practice is characterized by having a strategic framework in place that incorporates strategic planning and some sort of performance based budgeting that allows policy makers and the general public to understand the progress towards development and policy targets and objectives through the yearly and medium term resource allocation process and execution of the budget.

Structures in and approaches to strategic planning across countries have evolved differently, but stress a renewed relevance of strategic planning. Strategic planning improves the identification of government priorities at different levels and is critical to enhancing overall performance. Most

[18] Different countries use different names, such as "strategic policy reviews" (Australia), "strategic program reviews" (Canada), "interdepartmental policy reviews" (the Netherlands), and "the program assessment rating tool" (United States). See OECD (2013), ***Spending Reviews***, Marc Robinson, Working Party of Senior Budget Officials; https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=GOV/PGC/SBO(2013)6&doclanguage=en

[19] See for example the Australian ***Budget Process Operation Rules*** that detail the process for reviewing new policy proposals by the high level ***Expenditure Review Committee:*** http://www.finance.gov.au/

[20] https://mfin.gov.hr/proracun-2020/analize-rashoda/dubinska-analiza-rashoda/639

developed countries no longer formulate national development plans since this function has evolved and been transformed to emphasize other dimensions of government management. Some countries have maintained centrally driven plans and structures but also strengthened them, particularly at the subnational levels.[21]

The evolution of planning systems and tools among countries show several common characteristics. Even with different institutional backgrounds and implementation approaches, the function objectives, types of information produced, incentives, methodologies, procedures, and tools used to improve the function have to a large extent followed somewhat similar standards. In most cases, improvements have been built on, or have been implemented alongside, other public sector objectives, particularly budget and performance management reforms. The main common features that characterized strategic planning include:

- *Strengthening the outcome focus of strategic planning* as part of a larger effort to mainstream results-based initiatives across the public sector;
- *Embedding strategic planning at the program and project level* as part of a larger effort to mainstream performance budgeting;
- *Promoting the generation and use of performance information* for strategic planning purposes;
- Using strategic planning to *underpin fiscal objectives,* namely, fiscal discipline as well as allocative and technical efficiency;
- Using strategic planning for *territorial and land-use policy making* and implementation;
- *Strengthening institutional and managerial capacities* across the public sector;
- Using strategic planning to *enhance coordination across all levels of government,* both horizontally and vertically;
- Leveraging strategic planning to *enhance participation, accountability, and transparency* in government.

A key lesson of international experience is that expenditure reforms take time. Even among the most innovative countries, reforms to enhance the quality of public expenditures have been introduced gradually and fine-tuned over the years. These reforms require commitment at the highest level and consistent allocation of resources to enhance capacities and systems. Practitioners stress the important of the promotion of a new culture, characterized by stronger focus on outputs and outcomes (rather than inputs), higher levels of managerial autonomy and trust (with an easing of controls), and a determined shift to stronger transparency and accountability.

1.2.3. Government revenues

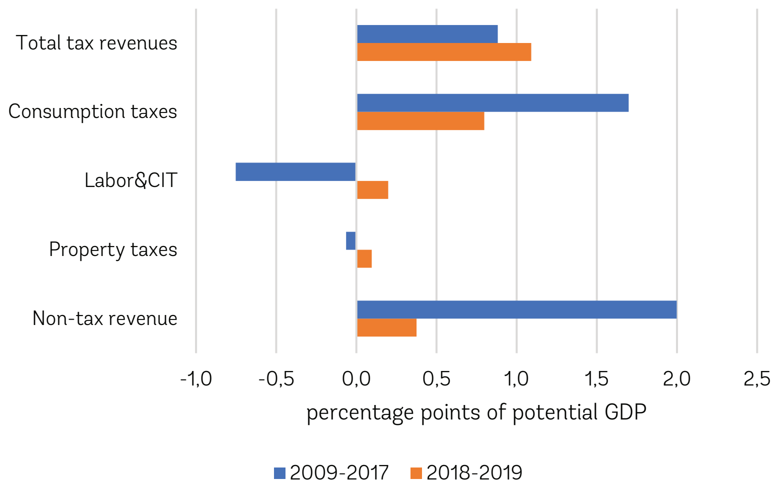
The significant increase in tax revenues following the GFC was achieved through greater reliance on less distortionary taxes. The cyclically adjusted ratio of consumption taxes (proxied by the change in the overall share of indirect taxes) increased by more than two percentage points in the period 2008-2019, while property taxes remained broadly stable (Figure 28). At the same time,

[21] World Bank (2021); forthcoming; *"The Evolving Role of the Planning Function: International Experience and Reform Options for India".*

the increase in consumption taxes was partially offset by reductions in direct taxes on firms and labor. Consumption taxes and property taxes are considered to be less distortive for growth compared to taxes on labor and capital, so that the necessary rise in tax revenues following the crisis was accompanied by some improvement in the impact of the composition of taxes on growth.

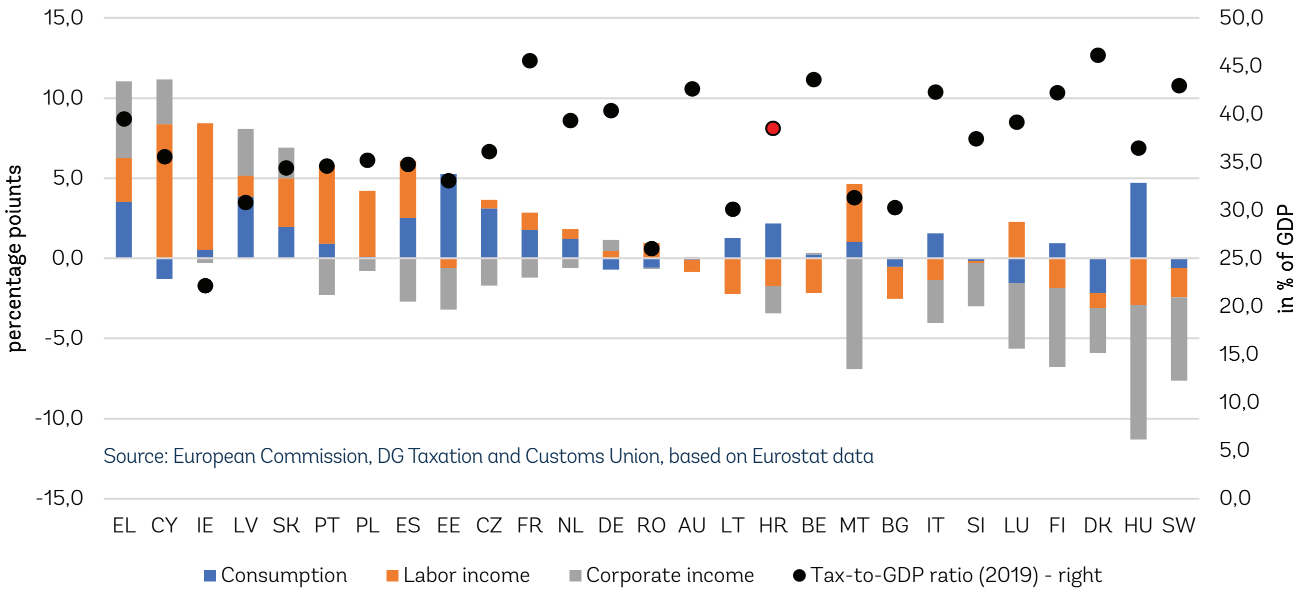
Taxes rose for several years following the global financial crisis. The increase in tax rates and broadening of the tax base from 2009 to 2016 was driven by the need for fiscal adjustment and ensuring alignment with EU legislation. Taxes on consumption rose through increases in the VAT rate and a broadening of the tax base, including through better revenue collection (Table 6). Mixed changes in income taxes resulted in a net reduction in the tax burden on labor income, particularly for low-income earners (Figure 30). Several EU countries also boosted the tax burden, particularly on labor and consumption, following the GFC, although most countries reduced or avoided increasing the tax burden on corporate income, probably in order to increase their attractiveness for investors. Effective rates for all three types of taxes declined in the period 2008-2019 in only three countries: Denmark, Sweden and Slovenia (Figure 29).

Figure 28. Cyclically adjusted revenue ratios



Note: Change in consumption taxes is proxied by change in indirect taxes. Labor includes revenues from personal income tax and social security contributions.
Source: EC, World Bank staff estimates

Figure 29. Changes in effective tax rates (2019 vs. 2008) and tax burden in the EU



Source: European Commission, DG Taxation and Customs Union, based on Eurostat data

Table 6. Major tax changes, 2009-16

Consumption taxes

VAT rate increases

2009 – one percentage point in statutory rate, to 23 percent
2012 – two percentage points in statutory rate, to 25 percent (one of highest in EU)
2014 – three percentage points in reduced VAT rate, to 13 percent

Excises on some products, particularly tobacco, rose, in part to align with EU legislation

Broadening of VAT tax base

Zero rate replaced by reduced rate of 5 percent in 2013
Some hospitality services shifted to reduced rate in 2013 to support tourism
VAT collection improved through introduction of electronic fiscal cash registers

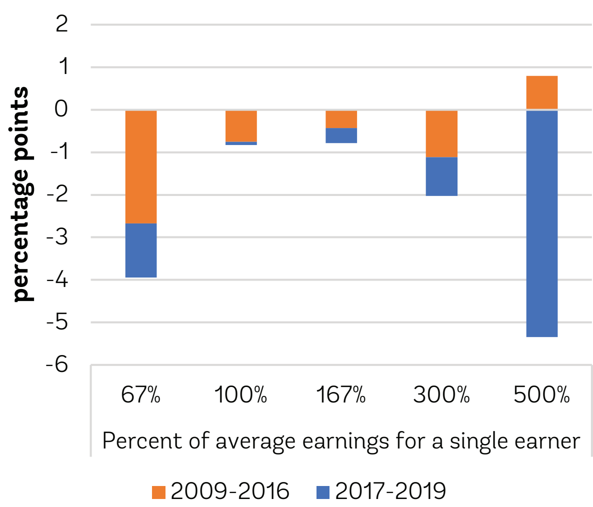
Labor and capital taxes

2009 – Introduction of solidarity tax, which boosted tax wedge for average and high-income earners (terminated in 2010)
2012 – Health contribution rate lowered from 15 to 13 percent, reversed in 2014 due to consolidation requirements under EDP
2012 – Reintroduction of tax on dividends and profits shares
2013 – Tax break on reinvested profits narrowed tax base
2015 – Introduction of tax incentive to hire young workers (exempted employers offering a permanent contract to staff under 30 from paying social security contributions for up to five years)
2016 – Implementation of capital gains tax

The comprehensive tax reform program beginning in 2017 represented a shift in policy to reduce the tax burden. Three rounds of tax changes were implemented in 2017-19. The reforms included modifications to all major tax categories, with a negative overall impact on the government budget estimated at HRK 6.6 billion, or 1.6 percent of 2019 GDP. Several reductions in the VAT system were designed to support lower-income households. While the standard VAT rate remained unchanged, the government broadened the list of goods and services to which the reduced VAT rate was applied. The cuts covered inputs applied in agriculture in order to support small farmers, electricity and utility services, and several foodstuffs. On the other hand, in 2017 a standard VAT rate was imposed on food and drink services in restaurants, which was reversed in 2020.The number of personal income tax rates was reduced from three to two (with a reduction in the top statutory rate), the personal allowance was increased significantly, and non-taxable allowances were broadened. Labor taxes were, however, mainly reduced for higher income earners, given that lower income households in most cases already paid no personal income tax (Figure 30). Other changes in the PIT included a more progressive scale for expanding the personal allowance for dependent children, while the eligibility criteria for other supported family members was narrowed. The social contribution rate was also slightly reduced, by 0.7 percentage points, reflecting termination of the contribution for employment and compensation for injury at work, which was partially offset by an increase in the health care contribution rate from 15 to 16.5 percent. The statutory CIT rate was reduced from 20 percent to 18 percent and a reduced rate of 12 percent was introduced for SMEs (with revenues up to HRK 3mn). These cuts were partially offset by the termination of a tax break on the amount of reinvested profits. Despite these substantial tax cuts, the tax to potential GDP ratio continued to increase, largely reflecting buoyant growth of wages and tourism receipts.

The tax burden in Croatia displays large differences with other EU countries. First, despite the tax cuts over 2017-19, the tax burden in Croatia in 2019 remained relatively high. Croatia's overall tax-to-GDP ratio, at around 38 percent of GDP, was the highest among EU10 countries and somewhat below the EU27 average. Second, the importance of consumption taxes versus income taxes was markedly different from that in the EU. In Croatia, the rise in consumption taxes described above meant that in 2019, they accounted for almost 20 percent of GDP and 50 percent of overall revenues, slightly higher than taxes on labor (social contributions and personal income tax) and capital (Figure 31) together. Revenues from property taxes were on the other hand only 3.0 percent of overall revenues. By contrast, in the EU the share of consumption taxes on average accounted for less than 30 percent of overall revenues, while the share of direct taxes was much higher - around two-thirds of overall revenues. Property taxes in the EU were on average also relatively small, but around one percentage point of GDP higher than in Croatia. A similar tax composition was also seen in EU10 countries, although Croatia's property tax ratio was higher than in its EU peers.

Figure 30. Changes in the average tax wedge on labor



Source: World Bank staff calculation

This points to a relatively growth-friendly overall structure of Croatia's tax system, although low taxes on property and income from rental activities encourage investment in immovable property. In line with the low proportion of labor and capital taxes and high share of consumption taxes, effective tax rates on labor and corporate income are relatively low while the implicit tax rate on consumption is one of the highest in EU (Figure 32).[22]

Tax rates on income earned from labor and capital are much higher than income from immovable property, fostering rental activities and providing disincentives to work. The tax rate on rental income is 12 percent, or 8 percentage points lower than the lowest tax rate on PIT. In addition, for taxpayers that register less than 20 beds, short-term accommodation rentals are only subject to a lump-sum tax per bed which is not added to the base for PIT and contributions, resulting in relatively low effective tax rate for these activities.

Figure 31. Revenue composition - Croatia vs. EU member states, 2019

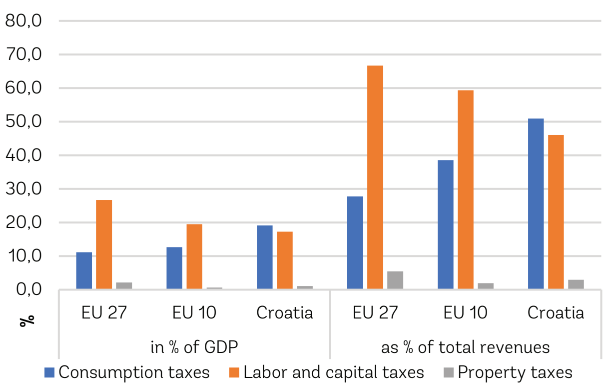
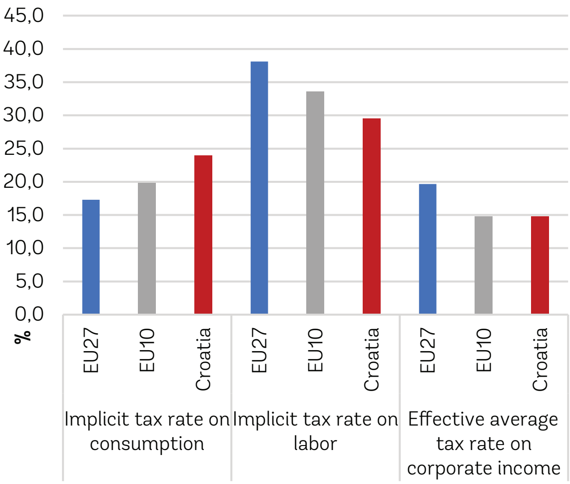


Figure 32. Implicit (effective) tax rates, 2019



Source: EC

Furthermore, changes in the tax system might also be required to achieve carbon emission targets set under the European Green Deal and agreed by the leaders of EU member states. The European Green Deal outlines the policy elements and directions[23] that should ensure achieving carbon neutrality by 2050 and reduction of greenhouse gas emissions by 55 percent by 2030[24]. Green fiscal reforms will play a critical role in enabling the green transition. One of the key mitigation policies to address climate change and transition is carbon pricing through taxes. Carbon taxes support a green transition through changes in relative prices. They help raise the price of fossil fuels, electricity and goods and services that are produced using carbon intensive products compared with those which have a lower carbon content. This change in relative prices enables a shift to cleaner technologies and incentivizes energy conservation. Croatia does not have significant levies on CO2 emissions, although overall environmental taxes, including taxes on energy use, are comparably high (Figure 33). Increased government revenues through raising carbon taxes could be recycled to offset the negative impacts of higher taxes on growth, income, and employment. One option is to reduce labor taxes, which tend to have a higher fiscal multiplier than environmental taxes. Higher carbon taxes also entail

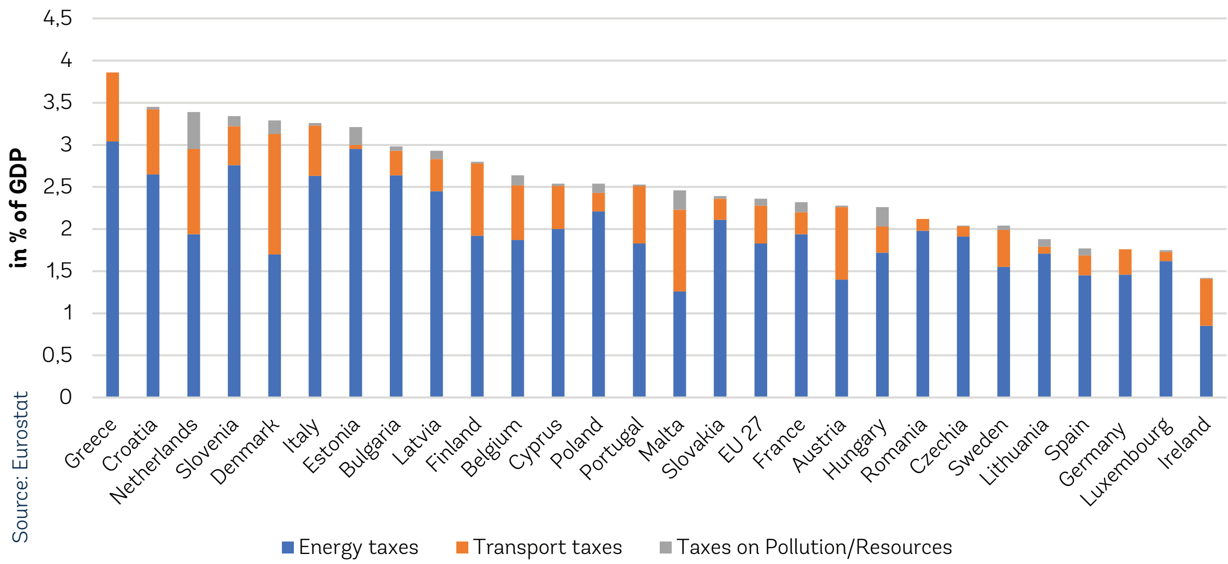
[22] The implicit tax rates measure the actual or effective average tax burden levied on different types of economic income or activities. Implicit tax rates on consumption and labor are computed as the ratio of total tax revenues of the category (consumption, labor) to a proxy of the potential tax base defined using the production and income accounts of the national accounts. Effective average tax rate (EATR) on corporate income is based on calculations by the Centre for European Economic Research; ZEW, 2019, and shows the effective average tax burden for large corporations in the non-financial sector, computed at the corporate level, for average asset composition and funding sources.

[23] A series of measures announced includes, among others, the review of the Energy Taxation Directive, the review of the Emissions Trading System Directive; Effort Sharing Regulation; Land use, land use change and forestry Regulation; Energy Efficiency Directive; Renewable Energy Directive; CO2 emissions performance standards for cars and vans; Alternative Fuels Infrastructure Directive.

[24] Poland received exemption from the EU's commitment to carbon neutrality but is member of the Paris Agreement which equally commits countries to achieving full long-term decarbonization by 2050.

co-benefits like better health outcomes on account of lower air pollution as well as reduced traffic congestion (for more details see the special section of the World Bank's Regular Economic Report (forthcoming) which focuses on fiscal instruments that can support the green transition in the European Union).

Figure 33. Environmental taxes in the EU, 2019



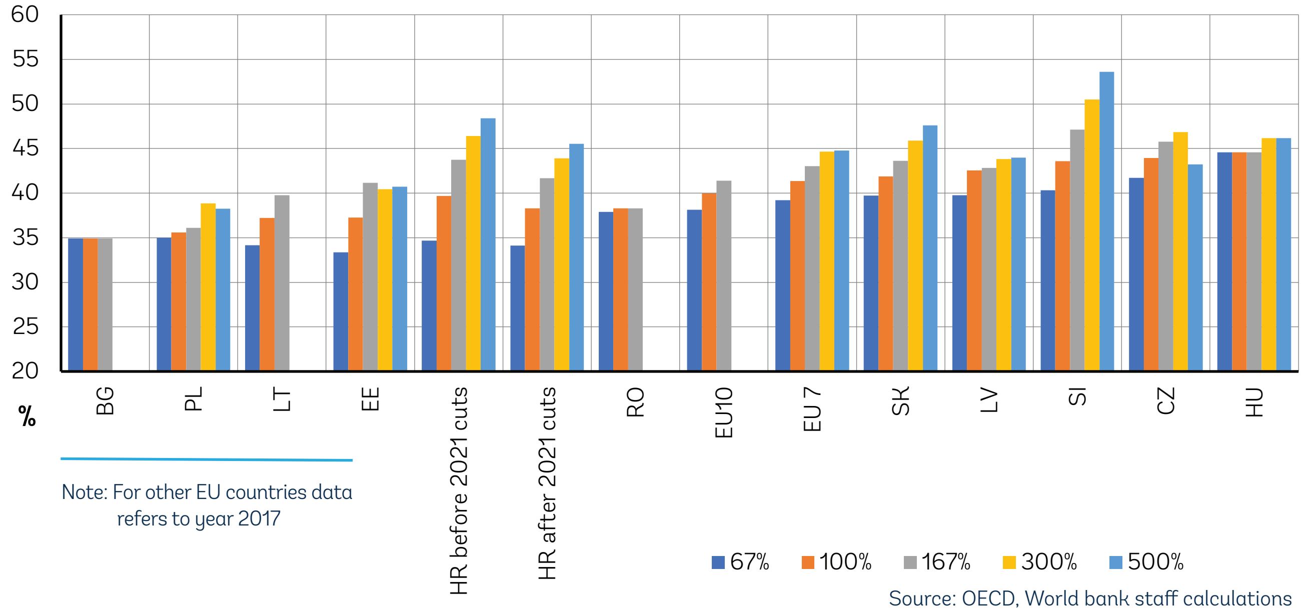
Source: Eurostat

1.3. Fiscal policy in the medium run

Due to a strong rebound in economic activity, budget balance in 2021 is estimated to have strongly improved, while fiscal policy at the same time remained supportive for growth. According to Budgetary Plan for 2022 and medium-term projections, deficit is set to further significantly decline in 2022, followed by a more gradual adjustment in 2023-2024 period. Croatia's economy markedly recovered in 2021, reflecting a good tourist season, strong growth in exports of goods and robust domestic demand. According to MoF's latest macroeconomic projections, economic growth in 2021 could stand at 9%, supporting revenue growth and leading to a decline in fiscal deficit by around 3 percentage points of GDP compared to 2020. Over the medium term, government's fiscal projections rest on the assumption of a continued, albeit declining economic growth. Economic activity is expected to be strongly supported by EU funds and external demand. Favorable cyclical conditions together with unwinding of COVID-19 support measures could lead to decline in fiscal deficit which is expected to fall below 2% in 2024. The fiscal effects of the COVID-19 stimulus in 2021 are estimated at 1.6 percent of GDP (3.7 percent in 2020) and are largely related to continued support for job retention schemes. It seems that no additional COVID-related fiscal support is foreseen by the government after 2021, as the pandemic is expected to abate. Fiscal improvement and gradual economic recovery would bring the public debt-to-GDP ratio again on a declining path, albeit from a much higher level.

Favorable cyclical developments led to recovery of tax revenues, in particular revenues from VAT, but were partly offset by certain tax cuts. For 2021, the government has adopted additional tax cuts worth around HRK 1.9bn or 0.5 percent of GDP, with PIT tax changes ha ving the largest budgetary impact. The tax wedge on labor was further reduced, but mostly for higher income earners. This might have been in part motivated by the fact that Croatia still had one of the highest tax wedges on high income compared to other EU countries (Figure 34). In addition, the abolition of tax liability for young persons up to the 25th year of a ge, and by 50 percent for young persons from 26 to 30 years of age for up to certain level of annual salary, became effective in 2020. This change will be reflected in the deficit in 2021 in the form of higher PIT annual tax returns to persons under 30 years of age. These changes a re expected to have beneficial effects on poverty reduction but might slightly increase inequa lity (Box 8).

Figure 34. Tax wedge on labor, Croatia vs EU 10, percent of average gross wage



Note: For other EU countries data refers to year 2017

Source: OECD, World bank staff calculations

Expenditures are projected to remain above pre-pandemic levels, largely due to the expected utilization of EU funds, but an already large wage bill relative to GDP could also further increase. The expenditure-to-GDP ratio is expected to gradually decline from its peak in 2020, predominantly due to a rebound in nominal GDP and the discontinuation of COVID support measures. However, the level of total expenditures is set to remain relatively high, at around 50 percent of GDP in 2024 which is more than 3 percentage points higher than in 2019 (Table 7). To a large extent this is related to the expected utilization of EU funds, which should especially prompt an increase in government investments. However, after a relatively strong increase in 2020 and a further rise in 2021, growth in the compensation of employees is expected to continue and in 2024 their share in GDP is projected to be above 2019 levels. On the other hand, the share of social benefits in GDP is set to decline below pre-pandemic levels. The Government also expects a further decline in the interest-to-GDP ratio.

Box 8: Impact of fiscal system on poverty and inequality in Croatia

According to World Bank estimates (forthcoming), in 2018 the fiscal system as such helped to significantly reduce inequality in Croatia. Before any fiscal interventions, the Gini coefficient stands at 0.474 if old-age contributor pensions are treated as government transfers, and 0.360 if pensions are considered deferred income; that suggests that pensions have substantial equalizing effects. Once direct taxes, social security contributions, and direct transfers are taken into account, inequality goes down to 0.297. However, the non-equalizing effects of indirect taxes (VAT and excises) drive the Gini index up to 0.326. The largest decline in inequality comes from social spending on health and education, which pushes the Gini coefficient down to 0.238 for household final income. The total reduction in inequality from household market income plus pensions (MIPP) to final income was as low as 0.122 Gini points when old-age contributory pensions are treated as deferred income and as high as 0.236 when pensions are treated as government transfers.

On the other hand, in a completely different storyline from that for inequality, the Croatian fiscal system increases poverty. Two findings emerge from the analysis: (1) Together, direct taxes, social insurance contributions, and direct transfers help reduce poverty proxied by the national at-risk-of-poverty threshold (60 percent of median equivalized disposable income). Starting at 19.3 percent of households considered poor, the combined effects of the three interventions bring poverty down to 15.8 percent. (2) Indirect taxes however increase poverty. When they are accounted for, national at-risk-of poverty jumps to 30.6 percent. In other words, the reduction achieved with direct taxes, social insurance contributions, and direct transfers is overtaken by the increase caused by indirect taxes. But the poverty impact of the fiscal system across Croatian households varies. The poverty-reducing impacts of direct taxes, social contributions, and direct transfers are highest for families with three or more children and for retired people. For families with several children, the benefits received, mostly child benefits, outweigh the payment of direct taxes and social contributions: national at-risk of poverty among those families declines from 34.3 to 21.3 percent. The trend is similar for retired people: they receive more from contributory old-age pensions than they pay in taxes and social contributions. However, indirect taxes increase poverty across the board.

To understand how tax reforms between 2018 and 2021 affected poverty and inequality in Croatia, it was first examined how the reforms change the net cash position – i.e. net payment of direct and indirect taxes and cash benefits as a share of market income plus pension – for households along the income distribution. In other words, they assess whether households receive more or less cash after each reform.

A reduction in PIT rates, an increase in the lower limit of the second PIT bracket, and tax relief for young workers lead to a net gain in cash for most households except those in the bottom decile of the income distribution. This is because, for some of the poorest households, an increase in disposable income disqualifies them from several social assistance benefits resulting to a net loss to the households of 0.15 percent of their household income. Meanwhile, the richer the households, the more they benefit from these PIT-related reforms due to a larger cut in PIT rates for the top PIT brackets in addition to a reduction in the tax on rental and capital income.

Households across the income distribution receive more cash from the SIC reforms. On average, Croatians would receive cash equivalent to about 0.25 percent of their household income. The distribution is quite even across all households because of two reasons. First, the SIC reforms introduce the same change in contribution rates to all workers. Second, the reforms do not affect the contribution base, which is household gross income.

A reduction in the VAT rate for fresh meat, fresh fish and seafood, fresh vegetables, fresh and dried fruits, and eggs also improves the net cash position for households across the income distribution. However, these VAT reforms benefit households in the bottom of the income distribution more as food constitutes a larger budget share for the poor than for the rich. For example, the poorest households would gain cash equivalent to 2.6 percent of their income compared to 0.34 percent for top-income earners.

In addition, the reforms in social benefit spending have also been analyzed. Namely, the government introduced a national allowance for the elderly of 800 per month in 2021 to everyone older than 65 who does not receive any pension, passes an income test (household net income must be below HRK 800 per household member), does not receive the guaranteed minimum benefit, and satisfies certain other minor conditions. Also, child and parental leave benefits have been increased. The top threshold amount of household net income per capita, determining whether children receive the child benefit or not was raised from HRK 1,663 to 2,328.20, while the maximum amount of the parental leave benefit was raised from HRK 3,991.20 to 5,654.20 per month (i.e., from 120% to 170% of the so-called "budgetary base"). The higher income threshold for child benefits makes more people in the lower deciles eligible. A larger parental leave benefit for working parents results in more cash gains for those in the middle of the income distribution due to their employment status. While people in the top income deciles also enjoy parental leave benefits, the amount is small relative to their income. Finally, given the eligibility criteria, the national allowance for the elderly can be expected to improve the net cash position for households in the poorest decile.

Overall, the combined effect of all reforms considered between 2018 and 2021 (including taxes, social insurance contributions and social benefit) led to an increase in inequality. The widening income gap between the rich and the poor was driven by the regressivity of the PIT reforms that exceeded the redistributive impacts of most other reforms (VAT reform, parental leave and child benefit reform and national benefit for the elderly). The SIC reforms have no impact on inequality because the change in SIC rates applies uniformly to all workers. In absolute terms poverty declines, but the income gap between the rich and the poor and the share of people falling below the relative poverty line increase. This happens for two reasons. One, the rich gain more from a deeper cut in PIT rates as well as a reduction to tax on rental and capital income, which raises the median disposable income and poverty threshold, and more people now fall below it. Second, the poor are worse off because their income losses from being ineligible for some social programs outweigh their income gain from PIT reduction. The VAT reforms reduce poverty because poor people with a relatively larger food budget share benefit more from a reduction of VAT on food items. These findings highlight that distributional analysis can be an important tool for government when considering a fiscal reform. It sheds light on the impact of fiscal policy on people's wellbeing and enhances the equity lens of policy intervention. The analysis adds a relevant perspective to fiscal reforms and complements other considerations, such as budgetary impacts and efficiency of revenue collection and spending.

Box 8 Table 1. Impact of reforms on inequality (Gini coefficient)

		Change in Gini coefficient from baseline (Gini points)					
	Baseline Gini coefficient	PIT reform	SIC reform	VAT reform	Parental leave and child benefits reforms	National allowance for the elderly	All reforms aggregated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Disposable income	0.297	0.007	0.000	0.000	-0.003	-0.001	0.004
Consumable income	0.326	0.009	0.000	-0.002	-0.003	0.000	0.003

Source: Own estimates.

Box 8 Table 2. Impact of reforms on poverty headcount

		Change in poverty headcount from baseline (percentage points)					
	Baseline poverty headcount (%)	PIT reform	SIC reform	VAT reform	Parental leave and child benefits reform	National allowance for the elderly	All reforms aggregated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Poverty line: 60% of median equivalized disposable income (relative line)						
Disposable income	15.8	0.3	0	0	0.6	0.0	1.3
Consumable income	30.6	0.0	-0.1	-0.7	-0.1	-0.1	-0.5
	Poverty line: 60% of median equivalized disposable income (anchored to the baseline threshold)						
Disposable income	15.8	0	-0.1	0	0	0	-0.1
Consumable income	30.6	-0.4	-0.2	-0.7	-0.8	-0.1	-1.9
	Poverty line: $10 PPP a day per person (absolute line))						
Disposable income	10.1	0	-0.1	0	0	0	-0.1
Consumable income	21.2	0	0.2	-0.5	-0.7	0	-1.1

The macroeconomic and fiscal projections seem achievable, but risks are substantial, as expected outcomes heavily rely on favorable pandemic developments and an efficient utilization of EU funds. In addition, some expenditures might be underestimated, and their planned realization will depend on government's ability to constrain expenditure growth. Fiscal developments heavily rely on the assumption of the effectiveness of vaccines against potential new strains of virus and increase in vaccine take-up rates so that the spread of the virus will be put under control. But reimposition of strict social distancing restrictions cannot be excluded. The effects of a potential prolongation and intensification of the global pandemic could be exacerbated further by the decline in external demand, potential disruptions to supply chains and an increase in balance sheet vulnerabilities leading to tighter financing conditions which may affect credit supply and reduce business investment. At the same time, global trade tensions remain elevated. Realization of these risks would have sizable negative implications on economic activity and public finances. Furthermore, according to Croatia's Fiscal Policy Commission assessment of the Budget for 2022 and projections for 2023 and 2024,[25] there are risks that some expenditures are underestimated, especially compensation of employees and health expenditures, potentially requiring budget revision in 2022.

Table 7. Fiscal outlook

in % of GDP	2019	2020	2021f	2022f	2023f	2024f
Total revenues	**46,3**	**47,2**	**48,4**	**49,0**	**48,7**	**47,1**
Indirect taxes	19,7	18,7	19,1	19,4	19,5	19,5
Direct taxes	6,5	6,5	5,6	5,5	5,6	5,5
Social contributions	11,5	11,9	11,8	11,5	11,4	11,3
Other revenues	8,6	10,1	12,0	12,5	12,3	10,9
Total expenditures	**46,0**	**54,5**	**52,9**	**51,6**	**51,1**	**49,1**
Compensation of employees	11,6	13,3	13,0	12,4	12,2	11,8
Intermediate consumption	8,1	8,4	8,7	8,2	8,1	8,2
Social benefits	15,1	17,1	16,3	15,6	15,2	14,9
Interest	2,2	2,0	1,8	1,7	1,4	1,2
Subsidies	1,5	3,8	2,8	1,8	1,6	1,5
Investment	4,3	5,6	5,9	7,1	7,1	6,7
Capital transfers	1,9	2,0	2,2	2,4	3,1	2,5
Other	1,3	2,3	2,2	2,4	2,3	2,3
General government balance	**0,3**	**-7,4**	**-4,5**	**-2,6**	**-2,4**	**-1,9**
General government debt	**71,1**	**87,3**	**83,1**	**80,7**	**78,0**	**75,3**

Note:
Given government's latest fiscal projections for the revenue and spending categories on the general government level and according to ESA 2010 methodology are not available, numbers in the table represent World Bank staff estimates based on the available data from the Croatia's Convergence Programme 2022- 2024 and the Budget for 2022.

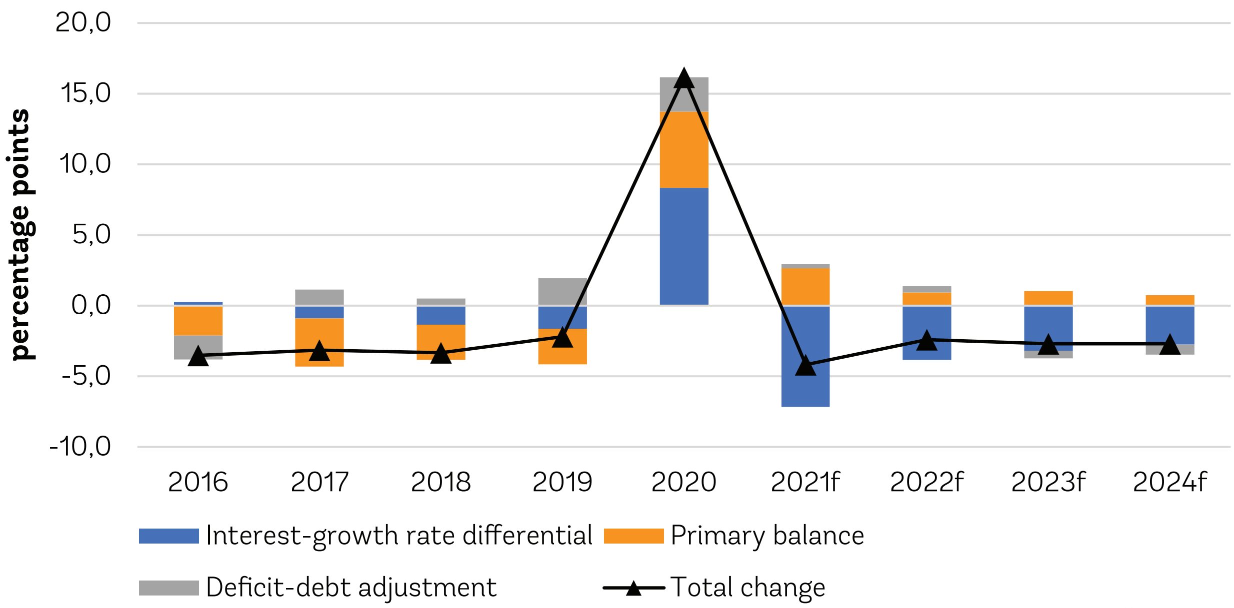
Source: MOF.

[25] https://www.sabor.hr/hr/pregled-stajalista-povjerenstva-za-fiskalnu-politiku

1.4. Fiscal risk analysis

Ideally, the government should be able to provide fiscal support if economic activity continues to deteriorate and in the recovery phase. However, additional fiscal expansion would add to the already high debt level, further draining fiscal space and raising sustainability concerns. High public debt is perceived as economically destructive for two main reasons. First, high public debt results in high distortionary taxes in the future to cover the cost of servicing the debt. Second, debt tends to crowd out capital from savers' portfolios, leading to lower capital accumulation and thus lower future output and consumption. The very low level of interest rates and abundant liquidity mean that the fiscal and welfare costs of high debt levels are currently low. This implies that if interest rates remain subdued, and with growing output, the debt-to-GDP ratio will continue to decline. As shown by Figure 35, in the baseline scenario over the 2021-2024 period a favorable interest-growth rate differential is expected to reduce the ratio of debt to GDP by around 17 percentage points, while the primary deficit is expected to add 5.4 percentage points to the ratio of debt to GDP. In general, the difference between the average interest rate that governments pay on their debt and the growth rate of the economy, the so-called "snowball effect", can be viewed as a key variable for debt dynamics and debt sustainability analysis. However, relying on a favorable interest-growth rate differential can prove imprudent, especially in times of elevated uncertainties. Economic growth might turn out to be lower than expected, which together with a further increase in an already sizable public debt may increase sovereign risk premia.

Figure 35. Determinants of changes in public debt to GDP ratio



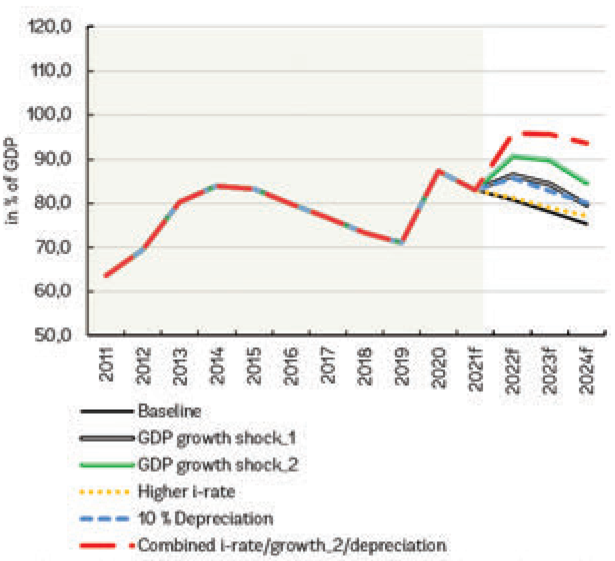
Source: World Bank staff estimates

As uncertainty about economic prospects remains exceptionally high, different fiscal scenarios are warranted to assess the risks to public finances. While a wide range of outcomes is possible, the analysis first focuses on two adverse growth scenarios on top of the baseline scenario in order to give a sense of the potential problems the government might face: (i) a moderately adverse scenario in which economic activity stagnates in 2022, and slowly picks up in 2023, and (ii) a severely adverse scenario in which recession reemerges in 2022 as the pandemic intensifies, further suppressing tourist arrivals and external and domestic demand. In 2023, economic activity growth remains subdued and the rebound starts only in 2024. In both scenarios no additional fiscal stimulus measures are assumed, but automatic stabilizers freely operate.

These adverse growth scenarios would imply strong pressure on government finances:

- In a moderately adverse scenario, the public debt to GDP ratio could increase to 86.5 percent in 2022 and start to decline thereafter. The deficit would remain around 5 percent as in 2021 and then gradually close.
- A severely adverse scenario could see the debt ratio climb to over 90 percent in 2022, remain close to that level in 2022 and decline afterwards. The deficit would remain elevated by 2022 and then gradually close.

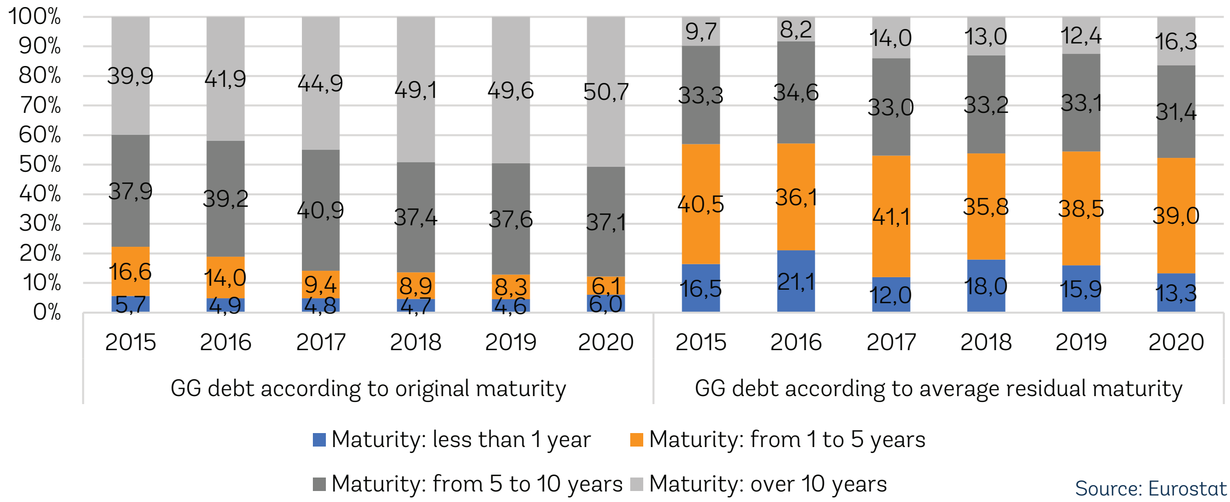
Figure 36. Debt sustainability analysis



Source: WB staff estimates

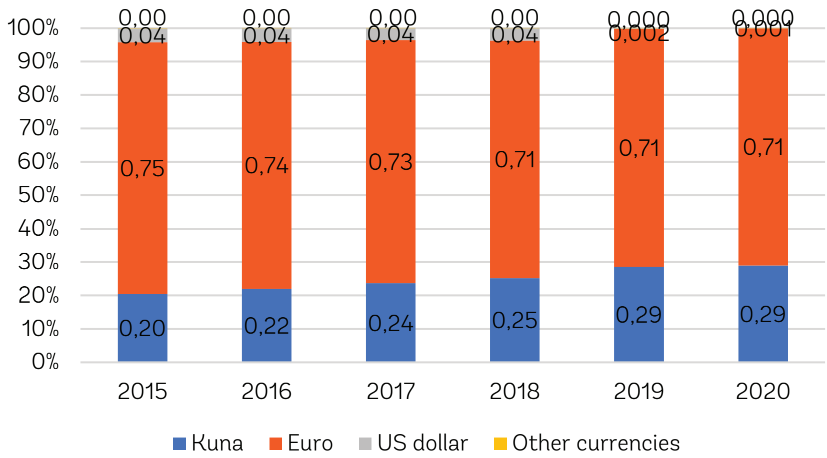
Croatia's debt position is also vulnerable to a depreciation of the exchange rate, given the high share of foreign currency denominated debt, but this risk is mitigated by the high level of foreign currency reserves and Croatia's prospective entry into the Eurozone in the medium run. In 2020, 71 percent of public debt was denominated in foreign currency (Figure 38). This indicates that a 10 percent depreciation would increase public debt by more than 5 percent of GDP. Exchange rate risk is, however, mitigated by the CNB's exchange rate regime focused on stability of the EUR/HRK exchange rate, and the relatively high level of international reserves, which by September last year 2020 recovered to pre-COVID level safter being extensively used during the lockdown period, following strong depreciation pressures. As noted earlier, the CNB has also secured additional sources for intervention through a precautionary currency swap line with the European Central Bank (ECB). In addition, Croatia's entry into the eurozone would almost fully eliminate the exchange rate risk, as most of the foreign currency denominated debt is linked to the euro.

Figure 37. **General government debt by maturity structure**



Source: Eurostat

Figure 38. **General government debt by currency structure**

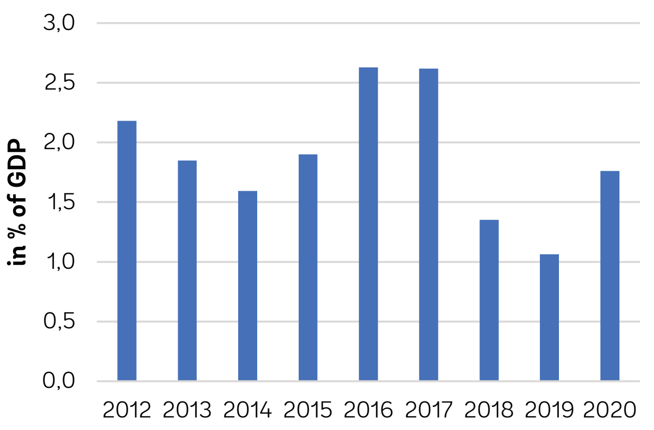


Source: Eurostat

An increase in interest rates would have limited negative impact on the level of government debt over the medium term, given its relatively favorable maturity composition. The government has taken advantage of a decline in interest rates to extend the maturity of issued bonds. In recent years, the share of long-term debt with original maturity above 10 years has been gradually increasing and exceeded 50 percent of total debt in 2020, while the share of debt with initial maturity below one year remained relatively low (6.0 percent). Based on data for 2020, the average residual maturity of general government debt is around 5 years (Figure 37), which also makes Croatia less vulnerable to interest rate shocks. However, it is important to note that details about the share of debt with a variable interest rate are not available.

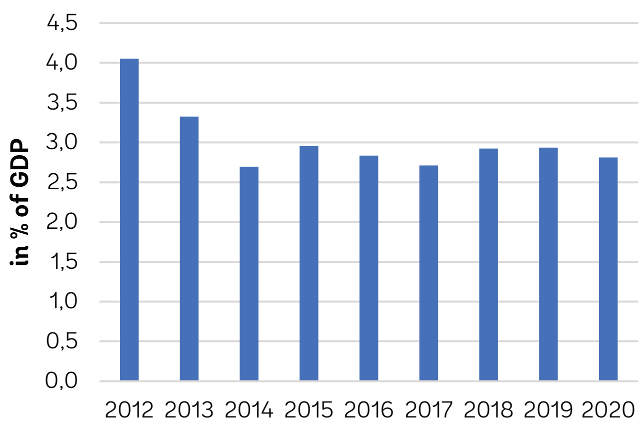
There is also a risk that some contingent liabilities might materialize. Issued government guarantees at the end of 2020 stood at 1.8 percent of GDP, having increased by 0.7 percent of GDP compared to the end of 2019 (Figure 39). This is likely connected to government approval of significant support to the economy through the development bank (HBOR) and the government agency for small entrepreneurs (HAMAG-BICRO). The quantification of this risk is however challenging, and hinges upon economic recovery which affects the likelihood of borrower default. Furthermore, the level of general government trade credits is high, at close to 3 percent of GDP in 2019 (Figure 40), of which a significant amount is linked to arrears in the health sector. The large level of arrears in the health sector in Croatia is a long-standing issue and despite numerous rehabilitations (the last one in 2021) and increases in the health sector financial envelope, the sector continues to accumulate debt. Caution also is also warranted with respect to performance of some SOEs, especially those most affected by the pandemic, which could require government interventions from the budget. For instance, Croatia Airlines, which already before the coronavirus crisis faced difficulties, required a financial injection in 2020 of 600 mil. HRK given the downturn in air transport activity, thereby further stretching public finances. The performance of road companies was also strongly affected by the decline in tourist arrivals.

Figure 39. Issued guarantees



Source: CNB

Figure 40. Trade credits and advances

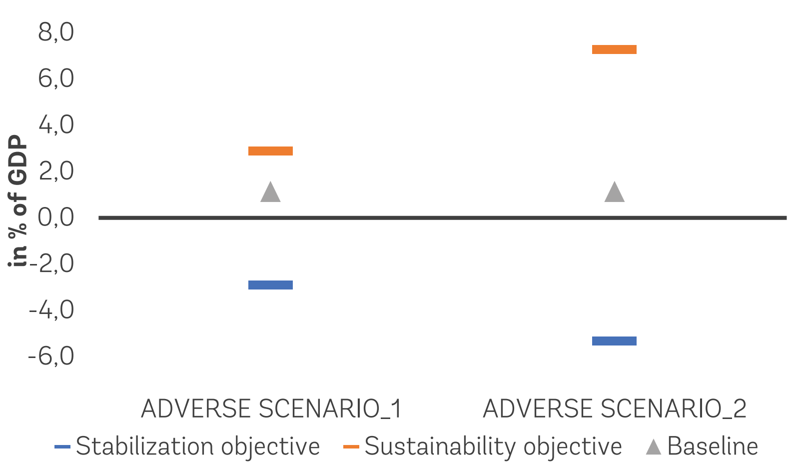


Source: CBS

This suggests that the government will need to carefully balance between macroeconomic stabilization and fiscal sustainability objectives if negative growth risks materialize. Potential extension of fiscal support will have to be assessed against rising risks for the sustainability of public finances (Box 9). For instance, necessary fiscal support to close the output gap by half amounts to around 3 percent of GDP in the moderately adverse scenario and more than 5 percent of GDP in the severely adverse scenario (Figure 41). On the other hand, stabilizing the debt-to-GDP ratio, instead of providing fiscal stimulus, would require a significant reduction in expenditures or increase in revenues. In a moderately adverse scenario, the fiscal effort needed to stabilize public debt in 2022 amounts to almost 3 percent of GDP. In the severely adverse scenario, the fiscal effort required to stabilize the debt to GDP ratio is above 7 percent of GDP.

Figure 41. Expected fiscal stance to achieve stabilization and sustainability goals in adverse scenarios for 2022

Note:
-Stabilization refers to the fiscal stance consistent with halving the output gap
-Sustainability refers to fiscal stance consistent with debt ratio stabilization compared to 2020
For calculation of the fiscal stance consistent with a reduction of the output gap by 50 percent compared to its 2021 level, a fiscal multiplier of 0.6 was used.
Source: World Bank staff estimates

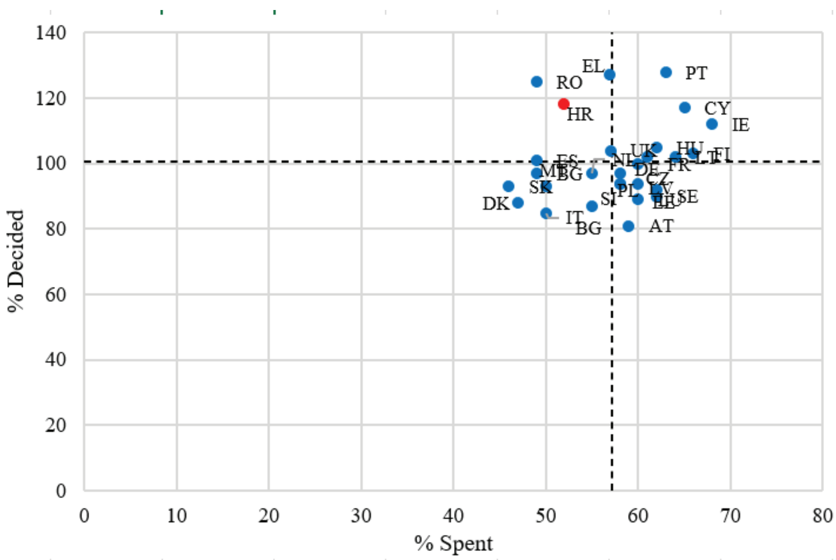


Box 9: Balancing between macroeconomic stabilization and fiscal sustainability

Fiscal policy makers need to simultaneously balance between the two objectives of short-term macroeconomic stabilization and long-term fiscal sustainability. In general, during downturns fiscal policy should be countercyclical to mitigate the negative effects of the recession and create conditions for a faster rebound; the absence of such fiscal stimulus measures may result in a loss of productive capacity and a decline in potential GDP. On the other hand, expansionary fiscal policies result in an increase of public debt, as they are usually financed by borrowing and may negatively affect fiscal sustainability. As noted by Bankowski and Ferdinandusse (2017), a discretionary fiscal stimulus is warranted if the costs associated with not using discretionary fiscal policies to temporarily stimulate growth outweigh those associated with debt sustainability risks. However, during normal downturns mitigating shocks through automatic stabilizers is usually perceived as a more effective way to stabilize output compared to discretionary policy actions. This is largely because in the presence of a shock timely reaction is of utmost importance, while discretionary fiscal policy is usually subject to different lags (design lag, decision lag, implementation lag), meaning that fiscal measures could come too late. Also, fiscal policy makers might react in an asymmetric manner during upturns and downturns, so that fiscal policy during good times might not tighten sufficiently to avoid a permanent increase in public debt. While in 2020 Croatia provided necessary and timely fiscal stimulus that went beyond operation of automatic stabilizers, the resulting debt level of close to 90 percent implies that government faces a significant challenge in fostering growth without compromising fiscal sustainability.

Furthermore, the recent programs launched at the EU level might significantly alleviate the need for national fiscal support but, to fully reap the benefits of EU funds, administration capacities will need to be strengthened. The government will face a significant challenge in effectively using the large amount of funds under Next Generation EU and under the new MFF 2021-2027 programming period (Box 10). This will place considerable pressure on public administration, which has been relatively slow in utilizing available funds under the current 2014-2020 financial perspective. By end of June 2021, around 50 percent of allocated funds had been spent, which is relatively low compared to most other countries in the EU (Figure 42).

Figure 42. ESIF funds (2014-2021 programming period) – total commitment and spending as % of planned (most data available for the end of June 2021)



Note: Dotted lines indicate EU average.

Source: EC

Box 10. EU COVID-19 support initiatives and new multiannual financial framework (2021-2027)

The initiatives launched at the EU level will significantly help Croatia in mitigating the economic and social impact of the pandemic. The European Commission responded promptly to the COVID-19 outbreak, and introduced a number of support packages for Member States. Early support ensured fast liquidity to MS, allowing countries to more easily finance rising health care costs and economic support measures. As of 2021, a large amount of financial assistance, which comes on top of available funds under the new EU 2021-2027 multiannual financial framework, will also be available for supporting EU Member States' medium-term recovery. The support is set to significantly strengthen the public sector's investment activity, but with limited or no impact on the general government deficit as it comes mostly in the form of grants.

Initial support concentrated on the immediate mobilization of the ESIF, to allow for a prompt response to the crisis in key priorities: spending on healthcare, support to short time work schemes, and support to SMEs' working capital. The first two packages – Coronavirus Response Investment Initiative (CRII)[26] and Coronavirus Response Investment Initiative Plus

[26] Launched in March 2020

(CRII+)[27] - combined the mobilization of immediate financial support from the European Structural and Investment Funds (ESIF)[28] to address the most pressing needs with the maximum possible flexibility in the use of the funds. Under the new rules, procedures have been simplified, Member States co-financing rates for cohesion programs decreased, payment applications could be extended, advance payments for direct and rural development payments increased, flexibility to state-aid rules were introduced and the eligibility under the EU Solidarity Fund[29] was extended to the activities supporting the Member States affected by public health crises. Under the first package Croatia has reallocated around €420 million within the existing national envelope to tackle the current crisis and its effects. Croatia has also received a large amount of funds from the EU Solidarity Fund to address the pandemic outbreak (€33.8 million), and to help the rebuilding efforts after the March 2020 earthquake in Zagreb and its surroundings (€683.7 million).

Furthermore, to help protect jobs and workers affected by the COVID-19 pandemic, the EC launched in May 2020 a new instrument for temporary Support to mitigate Unemployment Risks in an Emergency (SURE)[30]. Intended to act as a second line of defense, SURE supported short-time work schemes and similar measures to help Member States protect employees and self-employed against the risk of unemployment and loss of income. SURE provided financial assistance to Member States in the form of loans that are partially backed by guarantees voluntarily committed by MS to the EU budget to leverage the financial power of SURE. Croatia has so far received a half of its total approved amount of €1.02 billion.

In July 2020 EU leaders reached 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 first part of the deal, MFF 2021-2027, is based on a revised version of the MFF for 2021-2027 presented by the EC in 2018. It is structured into seven policy areas ('headings'), cohesion and values and natural resources and environment being the largest ones (representing 66.5% of the total 7-year MFF). The second part is a one-off new emergency instrument 'Next Generation EU', which aims to tackle the most crucial recovery needs and enable MS to invest in a green, digital and resilient future. The July negotiations of EU leaders concentrated in particular on the balance between loans and grants for the provision of funding under the NGEU, with a final division of €360 and €390 billion respectively.

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 will be required to prepare national

27 Launched in April 2020

28 European Regional Development Fund, European Social Fund, Cohesion Fund, European Agricultural Fund for Rural Development and European Maritime and Fisheries Fund

29 The European Union Solidarity Fund was already helping Member States recover from floods and other natural disasters and can now also be used for health crises such as the coronavirus pandemic. EUR 800 million is available under the EUSF in 2020.

30 https://ec.europa.eu/info/sites/info/files/economy-finance/sure_regulation.pdf

recovery and resilience plans for 2021-23, in line with the European Semester and taking into account the EC's country-specific recommendations. The assessment of these plans will be subject to the Council's decision on a proposal by the EC. The disbursement of grants will take place only if the agreed milestones and targets set out in the recovery and resilience plans are fulfilled. It is envisaged that 70% of the grants of the RFF will be committed in 2021 and 2022, according to the EC's allocation criteria taking into account MS' respective living standards, size and unemployment levels. The remaining 30% will be committed in 2023. This additional funding will be channeled through the EU budget to support investments and reform priorities and will be managed directly by the EC. It would have to be paid by increased national contributions, reduced policy support and/or new own EU resources. As regards the protection of the EU's financial interests and respect for the rule of law, the introduction of a regime of conditionality was announced but it will need further clarifications and guidance for MS. To finance its reforms and investments, from the grant part of the RRF Croatia will get €5.95 billion (in 2018 prices) and an additional €3.61 billion is available in loans.

Other substantial funding under the NGEU will be channeled through the ReactEU initiative, a top-up of cohesion support. The main aim of this instrument is to support health services and SMEs, the preservation of jobs and job creation, particularly for people in vulnerable situations, youth employment, and access to social services. Croatia has been allocated €541 million (in 2018 prices) for 2021-[31]. MS will be able to invest more in culture and tourism, which have been severely hit by the pandemic but also social inclusion and social innovation.

Box 10 Table 1.

Overview of the EU funds allocated to Croatia in current prices

EU initiative	Amount in EUR bn	Period
EU Solidarity fund*	0,7	18 months
ReactEU**	0,8	2021-2022
Agricultural Fund for Rural Development	0,2	2021-2022
Just Transition Fund	0,2	2021-2027
SURE initiative***	1,0	18 months
Recovery and Resilience Facility 2021-2026 - grants	6,3	2021-2026
Recovery and Resilience Facility 2021-2026 - loans	3,6	2021-2026
Cohesion Policy 2021-2027	9,1	2021-2027
Common Agricultural Policy 2021-2027	4,8	2021-2027
European Maritime and Fisheries Fund	0,3	2021-2027
Asylium and Migration Fund	0,3	2021-2027
Total	27,2	
in % of 2019 GDP	49,7	

**estimated for 2022

Source: EC

* Refers to the possible aid for tackling the COVID-19 pandemic in the amount of EUR 38 mil, and. EUR 683.7 mil. is allocation for helping Croatia in the rebuilding efforts after the March earthquake in Zagreb.

** Estimated for 2022. Approx. EUR 200 mil. is expected.

*** The availability period for financial assistance granted is 18 months starting from the first day after the Council Implementing Decision (EU) 2020/1348 of 25 September 2020 granting temporary support under Regulation (EU) 2020/672 to the Republic of Croatia to mitigate unemployment risks in the emergency following the COVID-19 outbreak Decision has taken effect.

[31] Approximately €200 million is expected for 2022.

Fiscal adjustment, however, might be required once the pandemic abates and the economy is back to its potential level, to correct the remaining structural deficit. As noted by the Commission, when economic conditions allow, countries are recommended to pursue fiscal policies aimed at achieving prudent medium-term fiscal positions and ensuring debt sustainability, while enhancing investment. When the severe economic downturn dissipates and before doubts about medium-term debt sustainability arise, use of the Pact's general escape clause will need to be discontinued. Fiscal policies will then need to resume the adjustments provided for in the Pact. Based on the latest Commission guidance, fiscal rules might be restored only in 2023. National fiscal rules, which were recently strengthened, have also been temporarily suspended by the fiscal council (Box 11). For Croatia and following recent entry into ERM II, fiscal adjustment will also be important in the context of its aspiration to adopt the euro as soon as possible.

Box 11 . The Fiscal Responsibility Act

In 2011, Croatia introduced its first Fiscal Responsibility Act (FRA). The 2011 FRA prescribed the reduction of expenditures of the general budget as a share of GDP by at least one percentage point per year until the primary budget becomes balanced or positive. However, the rule lacked the necessary flexibility, and unfavorable economic developments made it difficult for the government to implement the rule. In 2014, amendments to the FRA came into effect, which introduced a structural balance rule, but the formulation was rather ambiguous with a weak link to the level of debt. It envisaged that the structural balance should reach its medium-term budgetary goal in line with the government adjustment plan, which was, however, not clearly defined, and the rule was set to become effective only after the adjustment plan was determined. Until then, a temporary rule was in place, stating that the annual growth of expenditures should not exceed nominal GDP growth. Together with changes to the 2011 FRA, the government also established the Fiscal Policy Commission (FPC), a monitoring body including six members, mainly consisting of external fiscal experts coming from national institutes, universities and the central bank. However, the FPC had limited resources with no supporting staff, and was not fully independent from budgetary authorities as it was presided over by a representative of the Parliament.

The new 2018 FRA addressed some of these shortcomings. At the end of 2018, Croatia adopted the new Fiscal Responsibility Act (FRA), which increased national ownership of EU fiscal rules and strengthened the independence of the national Fiscal Policy Commission. The new FRA prescribes numerical fiscal rules in line with the main provisions of the Stability and Growth Pact, including the obligation to achieve a structural balance target in line with Croatia's medium-term objective (MTO), and expenditure and public debt rule. In addition, the Fiscal

Policy Commission (FPC) was set as an independent body, separate from the Parliament, and representatives of the Parliament are no longer part of the FPC. Despite allocation of additional funds to the FPC to hire support staff, only at the end of 2021 the head of FPC has been appointed as several public calls for the head of FPC were unsuccessful.

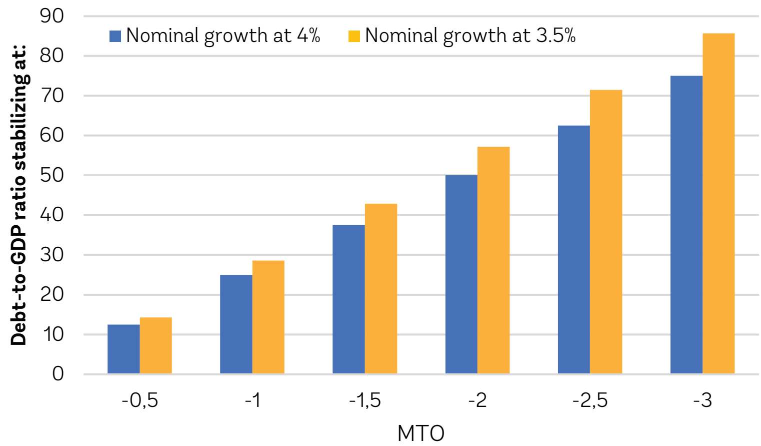
Although the independence of the FPC has been improved, its room for maneuver and leverage on government actions are limited. The fiscal council is not involved in the preparation of macroeconomic and fiscal projections. Its mandate is confined to monitoring government's adherence with fiscal rules and the implementation of EU Council recommendations under the excessive deficit procedure, scrutinizing government macroeconomic and fiscal projections by comparing them with EC forecasts and assessing the need for activation of adequate correction mechanisms by the government.[32] Furthermore, the government is not obliged to implement the policy recommendations of the fiscal council and no corrective action is foreseen in case of non-compliance. A relatively soft tool for peer pressure is in place in the form of the "comply and explain principle", meaning that the government must either comply with the fiscal council's recommendations or explain the reasons for deviation. The fiscal council can exert peer pressure on the government through their influence on public opinion, but how effective the FPC will be in fostering budgetary discipline in Croatia remains to be seen.

Also, while transposition of key EU fiscal rules in national legislation is a step in the right direction, even in case of full compliance with fiscal rules there might be some underestimation of underlying fiscal risks. Namely, the central element of the SGP framework, the so-called medium-term objective (MTO), defined in cyclically adjusted terms (net of temporary and one-off measures), is an unobservable variable and as such is subject to measurement issues. For instance, the semi-elasticity of the budget balance to the output-gap which is usually assumed to be constant over the cycle, can fluctuate and there could be significant windfall revenues in booms and shortfalls in downturns, masking the true structural fiscal position. Moreover, potential GDP and the output gap are unobservable variables, and their estimates can change, especially after strong downturns leading to their ex-post revisions which tend to be procyclical (Kamps and illinger 2019).

Against this background, it would be prudent for the government to pursue stricter fiscal targets when circumstances allow. Croatia committed itself to a medium-term objective of a budget balance equal to -1.0 percent of GDP, a somewhat more demanding goal than the formal MTO requirements (-1.25 percent). Given difficulties in calculation of both the structural balance and potential GDP and taking into account global uncertainties, it would be prudent to aim at achieving a balanced structural budget. The government could commit to a less demanding MTO once public debt falls well below 60 percent of GDP, however even with a balanced structural budget it might take Croatia a full decade to lower debt below the 60 percent threshold.

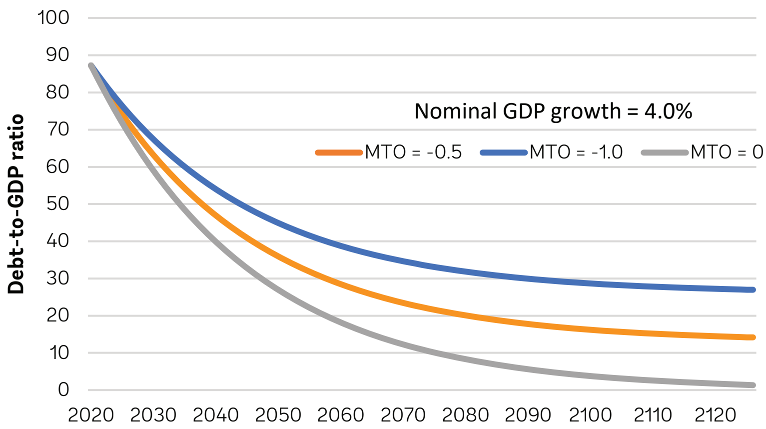
[32] FPC's task is also to give the government an opinion on the temporary delay of the implementation of fiscal rules in case of extraordinary circumstances.

Box 11 Figure 1.
Debt-to-GDP ratio stabilization under alternative MTO and growth assumptions



Source: WB staff calculations

Box 11 Figure 2.
Debt dynamics under alternative MTO ratios



Source: WB staff calculations

In other words, once recovery gains momentum Croatia will need to reach its MTO and ensure that the debt-to-GDP ratio is sufficiently diminishing towards the 60 percent level.[33] Croatia's MTO is currently set at -1.0 percent of GDP, but once the country enters the eurozone it will be lowered to -0.5 percent, in line with the fiscal provisions of TSCG. According to the government forecast, economic recovery should lead to a decline in the fiscal deficit to 2.4 percent of GDP in 2023, when fiscal rules are expected to be restored. In cyclically adjusted terms, this nominal deficit translates into a structural deficit of around 3 percent of GDP. In this case, the excessive deficit procedure would not be initiated against Croatia, as the nominal deficit is projected to be slightly below the 3 percent threshold and the public debt to GDP ratio continues to decline at a sufficient pace. However, the country will still have to comply with the preventive arm of the pact, which requires a decline in the structural deficit of at least 0.5 percent of GDP per year towards its MTO objective. Against this backdrop, Croatia will have to find consolidation measures in cumulative terms of more than two percent of GDP over the 2023-2027 period in order to fulfill minimum SGP requirements and reach the MTO target. Required effort could be even stronger taking into account pressures from an aging population and rising health care costs.

[33] While the Stability and Growth Pact is temporarily suspended, there are ongoing discussions on its reform that could lead to modifications in the EU fiscal rules.

Chapter 2.

Public sector wage bill analysis

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Public sector wage bill analysis

This chapter draws three main conclusions concerning public sector wages in Croatia. First, the public sector wage bill as a share of GDP is higher than in most EU countries, reflecting both higher levels of employment and high wages. Second, the public sector pays, on average, significantly higher wages than similar workers would earn in the private sector, except for at the highest earnings levels. And third, a complex, nontransparent and in some respects contradictory system for determining wages impairs public sector efficiency and fairness. To cope with data inconsistencies, we rely on multiple statistical sources, particularly in measuring the wage differential between the public and the private sector (data issues for this last topic are discussed in Annex 2 to Chapter 2).

The chapter begins with a discussion of the recent increase in the public sector wage bill, along with a comparison with the private sector. We then analyze the size of the public sector wage bill in Croatia compared to other EU countries which is followed by comparison of the average level of wages in the public and private sectors, across both sectors and the earnings distribution, using raw data and estimations that take into account differences in workers' characteristics. The final section discusses the shortcomings of the legal and regulatory framework governing public sector wage determination in Croatia.

2.1. Public sector wage bill developments

Croatia managed to contain the public sector wage bill in the aftermath of GFC, but this has proved to be only temporary; since 2015 general government expenditures on wages have been increasing both in absolute and relative terms. During the recession period (2009-2014) the government introduced a number of measures which reduced the government wage bill-to-(potential) GDP ratio, from around 12 percent in 2008 to almost 11 percent (Figure 43). The consolidation efforts were primarily aimed at curbing wage growth, while, at the same time, and based on available data, the number of public sector employees continued to increase. Table 8 lists the key measures undertaken regarding compensation of employees paid by the central government.[34] Measures covering the entire public sector were mostly directed towards the reduction of certain supplements and additions to wages and salaries. However, the most influential measure during that time was the reduction in the job complexity coefficients by 3 percent in 2013. At the same time, the government took steps to avoid a decline in the wages of teachers and medical personnel. However, the wage bill cost containment proved to be only temporary.

[34] It should be noted that measures covered do not refer to employees of either local government units or state-owned companies.

Since 2015, the public sector wage bill has been on the rise again, which can be linked to a strong rise of wages in the public sector and further increase in the number of public sector employees. As a result, in 2018 the general government compensation of employees relative to potential GDP surpassed the pre-GFC level, while the share of employee compensation in total government expenditure rose from 23.5 percent in 2014 to above 25.0 percent in 2019. The pro-cyclical nature of public sector wages can also be observed in other countries, but by 2019, the EU-27 countries had a lower share of the public sector wage bill in GDP than in pre-recessionary 2008. Furthermore, the wage bill has also continued to strongly increase in 2020 and 2021 despite the large decrease in fiscal space in the wake of the COVID-19 pandemic.

Since 2015 general government expenditures on wages have been increasing both in absolute and relative terms.

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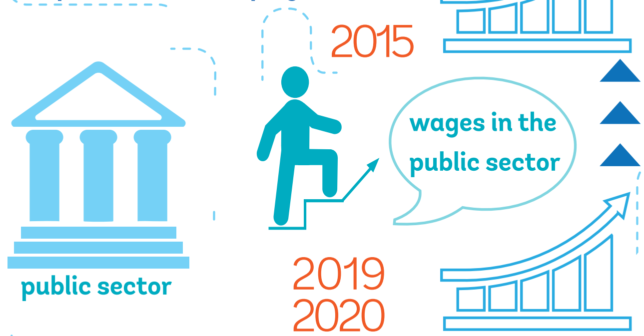
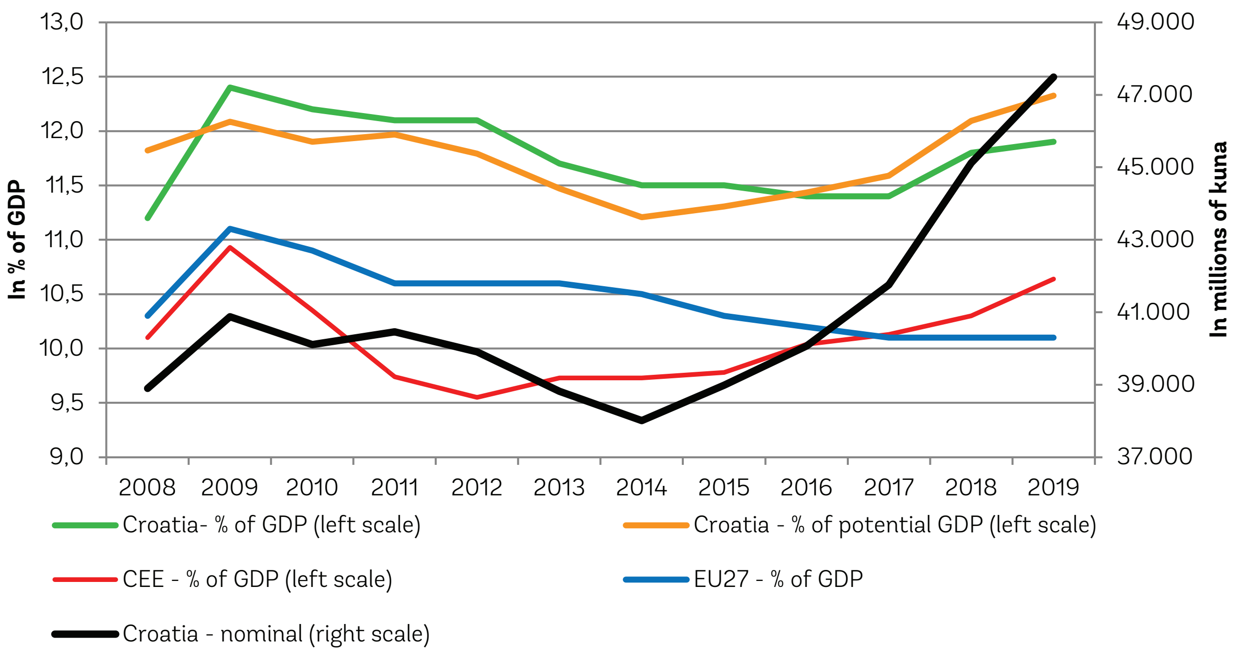


The wage bill has also continued to strongly increase in 2020 and 2021 despite the large decrease in fiscal space in the wake of the COVID-19 pandemic.

Figure 43. Compensation of employees paid by general government: Croatia and EU



Source: Eurostat

Table 8. Public sector wage policy 2009-2020 (central government level)

Year	Key changes in wages of central government and public servants	Special arrangements for education and health sectors
2009	Increase of the wage base by 6% (from HRK 5,108.84 to HRK 5.415.37 per month) for government and public servants (January). Return of the wage base to the previous value (April)	*Education and science*: Increase in the basic wage by 2.2% due to "increased volume and complexity of work" according to the 2006 Wage Supplements Agreement in Education and Science stipulating wage increases (supplements) in July each year in the period of 2007-2012
2010 2012	Abolition of the Christmas bonus (in place again by 2015) and the Holiday bonus (depending on year). Reduction of jubilee award, per diems, and distant workplace allowance.	*Education and science*: Increase of the basic wage by 2.2% in July 2010, then 2.2% in July 2011, and 2.3% in July 2012. Cumulative wage increase 2007-2012 of 13.725% (Wage Agreement Supplement) which has been kept in place in later sectoral collective agreements. *Primary and secondary schools*: Wage supplement of 3-5-7-9% (teachers' supplement) depending on work experience for teachers is abolished in August 2012.
2013	Job Complexity Coefficients reduced by 3% for all government and public servants (March).	*Primary and secondary schools*: Job complexity coefficients increased for teachers by approximately 3% in order to counteract the general reduction of coefficients in the public sector and as an informal compensation for abolition of the 3-5-7-9% supplement (March) *Health sector:* New collective agreement brought increase in the supplement for special working conditions for a number of occupations and changes in payment schemes for on-call and standby duty (December)
2014 2016	Abolition of wage increases on the basis of 20, 30 and 35 years of work experience by 4-8-10% (April 1, 2014). Reinstatement of the work experience supplement of 4-8-10% in state administration sector (January 2016), but not in other public services.	*Primary and secondary schools*: Job complexity coefficients increased by 3.5% for teachers, 6% for teacher-mentors, and 8% for teacher-advisors in April 2014 as a compensation for abolition of wage increases of 4-8-10% (Loyalty Supplement) *Health sector:* Introduction of the supplement of 4% of the basic wage for those engaged in diagnosing and healing due to "exceptional responsibility for the life and health of people"; the same supplement already existed for medical doctors and dental medicine doctors, and for them it increased from 10% to 12%. Supplement for special working condition increased for several occupations. All of this was compensation for abolition of wage increases of 4-8-10% (August 2015).
2017	Increase of the wage base by 6% in three steps (in January, August, and November) to HRK 5,415.37, as implementation of the increase planned for 2009.	
2019	Increase of the wage base by 3% in January and 2% in September.	*Health sector:* Increase in the supplement for special working conditions (by 3 percentage points) and the positional supplement (by 1-2 percentage points) for the number of occupations, as well as in the supplement for exceptional responsibility for the life and health of people (from 12% to 16% for doctors and from 4% to 8% for others participating in diagnosing and healing) in September.

Table 8. Public sector wage policy 2009-2020 (central government level): 1/2

Table 8. Public sector wage policy 2009-2020 (central government level): 2/2

2020	Increase of the wage base by 2% in January. Increase of the Christmas and holiday bonuses, Christmas child gifts, jubilee awards, per diems, and severance payments. Increase of the wage base by 2% planned in June and 2% in October 2020 are postponed by January 2021 due to COVID-19 pandemic.	***Primary and secondary schools***: Increases of the job complexity coefficients for teachers of 6.11% in three steps (in December 2019, June 2020, and January 2021), increase of the coefficients for several non-teaching occupations, introduction of the new highest teachers' degree "teacher-outstanding advisor", increase of the basic wage for non-teaching staff (including support staff in the higher education and science sector) by supplements of 3%, 1% and 2% (in December 2019, June 2020, and January 2021, respectively) ***Health sector***: Following legal disputes, payment scheme for overtime work is clarified in the way more beneficial for medical personnel (May 2020)

Wages and salaries in distinct parts of public sectors are regulated by specific legislation and/or branch collective agreements. Separate legislation is in place for:

a) senior state officials (državni dužnosnici) experienced a decline in the wage base of 23.9% cumulative over the period 2009-2015;
b) judges and other judicial officials had a decline in the wage base of 13% cumulative in the period 2009-2014, followed by an increase in the wage base of 6% and increase in the job complexity coefficients for judges and state attorneys, both in March 2019;
c) active military personnel have the same wage base as central government servants and experienced a decline in the military rank coefficients of 3% in March 2013;
d) local government servants, where specific developments in various local/regional administrative units were seen during the period.

The wage increase in the public sector was slower than in the private sector over the last decade. It appears that the cyclical behavior of wages in the public sector[35] is marked by a lag of one or two years behind real sector developments due to delayed reactions of policy makers. In 2009, when the recession hit the strongest, public sector wages increased by almost 3 percent (Figure 43); a similar phenomenon appears to have happened during the pandemic crisis in 2020. However, the public sector then adjusted, as the average wage declined in 2010, 2013 and 2014. Since 2015, the pace of wage hikes in the public sector has gradually intensified. By contrast, and unlike employment, the average wage in the private sector did not fall in the Great Recession in any single year. In 2010, it remained the same as in 2009; later in the recession it grew mildly, up to 2 percent per year, and then accelerated with the subsequent recovery. Between 2018 and 2019, if we include non-taxable allowances, total compensation in the private sector increased by 6.6 percent in 2018 and 5.8 percent in 2019, much higher than the wage increase in the public sector where there was almost no change in average amount of non-taxable allowances paid. However, in 2020 and 2021, public sector wages continued to strongly increase, despite cuts in non-taxable allowances, while in the private sector there were significant adjustments, especially in activities related to tourism.[36]

[35] The assessment of public and public sector wage bill developments is based on the official statistical classification of activities and available official statistical sources – see Box 12.

[36] It is worth noting that changes in data collection over time significantly complicate analysis of wage bill developments – see Box 13).

Box 12: Statistical coverage of the public sector

Analysis of public sector employment and wages is most often based on official statistical classification of activities, due to availability of these data. In Croatia, the official classification is named the National Classification of Activities. It is the local version of the official EU classification NACE (Nomenclature statistique des activités économiques dans la Communauté européenne / Statistical classification of economic activities in the European Community).

Two main criteria were used for defining the public and the private sector: type of employer's owner and sector of activity. The ownership status of the employer is either state-owned or private, as reported by respondents in the LFS.

Using these two criteria, we define the following three sectors:

i. (core) public sector (budgetary public sector, the pure public sector), in this report, unless otherwise stated, includes those employed by the state as an employer in sectors/activities of public administration, education, health and social care (NACE codes: O, P, Q), but also in science, arts, and culture (NACE codes: M 72, R 90 and 91). The aim was to cover activities in which most of wages and salaries are financed from the government budget. Also, we want to have the public sector defined similar to that covered by collective agreements signed by the Croatian government. Unfortunately, due to data unavailability or data limitation issues, it was not possible to use this definition in all parts of the study. Whatever definition used, it is always clearly noted to limit possible confusion.

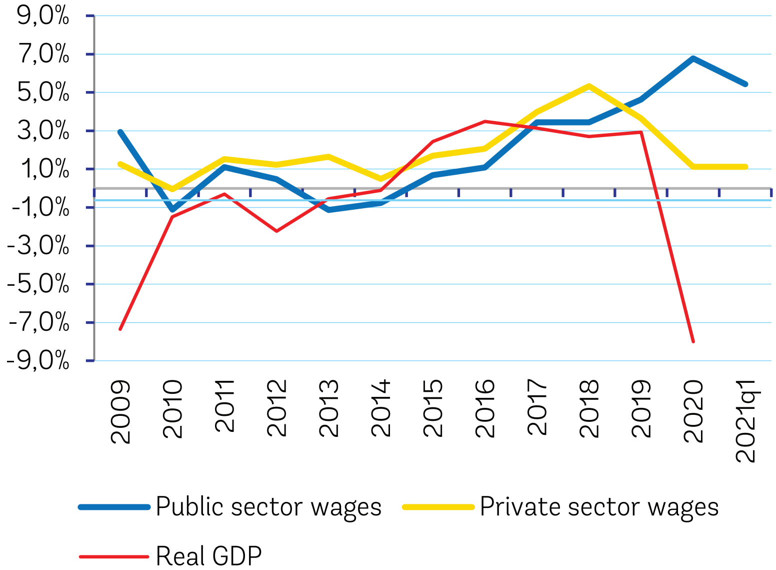
ii. state-owned enterprises (public companies), which includes employees in companies, institutions and organizations with major state ownership in sectors/activities other than those included in the pure public sector.

iii. private sector, which includes all employees employed by private entities i.e. those who are not defined by the previous two categories.[37]

However, (core) public sector definition based on statistical classification of activities neglects that not all employers performing activities of public interest (NACE codes: O, P, Q, M 72, R 90 and R 91) are state-owned entities; nonetheless, this issue should not impede the key findings due to minor presence of private employers in these activities. The Yearly Enterprise Survey on Employment and Wages (RAD1-G) conducted by the CBS regularly reports on employment and wages disaggregated by two criteria: i) sector of activity and ii) ownership status of employer. Data for 2018 (Statistical Report No. 1648) shows that large majority of employees in these public activities are actually employed in state-owned institutions: 99.1% in public administration, 90.6% in education, 80.6% in health and social care, 66.5% in science, 85.7% in arts and 91.2% in culture. It appears that focus on statistical activities will give us pretty good sense of public sector developments.

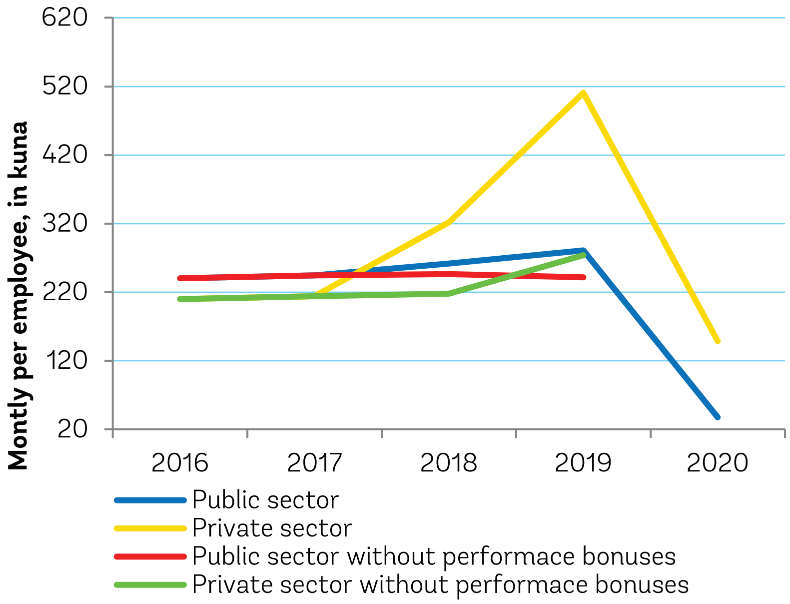
[37] The same data source and similar classification of sectors was used by Nestić, Rubil, and Tomić (2015) in the paper "Analiza razlika u plaćama između javnog sektora, poduzeća u državnom vlasništvu i privatnog sektora u Hrvatskoj 2000.-2012", Privredna kretanja i ekonomska politika, 24(1), 7-51. However, there are certain discrepancies that may explain differences in descriptive statistics and the results for years up to 2012 between this report and the paper. For example, unlike previously, sub-sectors of science, arts, and culture have now included in the core public sector. Also, those regularly employed by the self-employed (employees of the crafts and trades sector) are now included in the private sector, while Nestić, Rubil and Tomić (2015) excluded the entire crafts and trades (owners and employees) from the analysis. A part of differences comes from the use of updated population weights provided by the CBS and applied in the present analysis. Methodology of public-private sector wage gap estimation is revised in the present study and presented in the next section.

Figure 44. Real GDP and nominal average gross wage growth by sector



Note:
Public sector wages refer to public administration, education, health, social care, science, arts and culture; i.e. sectors O, P, Q, M 72, R 90 and R 91according to NACE classification. Public and private sector average wages are calculated as employment-weighted averages of individual sectors with publicly available data. For the first quarter of 2021 figures refer to the year-on-year growth rate, i.e. the first quarter of 2021 vs. the first quarter of 2020. Official average wage data for 2020 refers to full time employees; in 2015-2019 to employees working more than 80 hours per month, before that to all employees. Data excludes nontaxable allowances.
Source: Staff estimates on the basis of Croatian Bureau of Statistics data.

Figure 45. Non-taxable allowances to employees



Note:
Allowances covered include Christmas and other seasonal bonuses, child gift allowance, child-care allowance, meals allowance, jubilee award, accommodation and food allowance for seasonal workers, family separation allowance and performance bonus, but exclude severance payments and conveyance allowances. Public sector refers to public administration, education, health, social care (O, P, and Q of NACE classification), and the private sector comprises all other activities. The average allowance in the public/private sector is calculated as employment-weighted averages of individual sectors using publicly available data.
Source: Staff estimates on the basis of Croatian Bureau of Statistics data.

Box 13: Methodological changes in calculation of the average wage by the CBS

Croatian Bureau of Statistics (CBS) has undertaken several changes in wage data collection and average wage calculation methods in recent years, with notable impact on estimations of the average wage level. The change in the source of data on employment and wages was particularly important. In 2016 regular monthly establishment surveys were fully replaced by the JOPPD tax forms, because establishment surveys give misleading information on employment and wages. The change in data source had a varying impact on wage levels by sectors and activities. For example, in 2015 in education (NACE code P), the establishment surveys showed an average gross wage of HRK 7,732, and the JOPPD form reported HRK 8,281, a difference of more than 7 percent. One of the reasons for this difference is an altered treatment of those working for several employers, which is common among teachers. Previously, in the calculation of the average wage the number of hours worked for each employer was not taken into account, which led to underreporting of the average monthly wage. In the new calculation method applied to data taken from the JOPPD form and started in 2016 (with data available also for 2015), the CBS consolidates all the wages the person receives from various employers in the first stage and then calculates the average monthly wage over all employees working 80 hours or more per month. This method was applied for average wage figures published in 2016-2019.

In the beginning of 2020, the CBS decided to switch its official wage statistics to a full time equivalent (FTE) basis. Although official data for 2019 are based on the previous reporting practice, the CBS has also published the average monthly wages in full time equivalents, which enables correct year-on-year comparisons. On average for 2019, the new system increased the estimate of the average monthly gross wage by 2.6 percent. However, the rise due to this methodological change was somewhat higher in the public sector (NACE: O, P, Q, M 72, R 90 and R 91) (2.8 percent), than in the private sector (2.4 percent). The upward correction of the average wage level in the education sector (NACE code P) was 3.6 percent.

On the other hand, public sector employment increased in the decade following the Great Recession, while private sector employment fell. Such developments are confirmed by various data sources. The number of contributors to the mandatory public pension insurance (a proxy for employment) in the public sector (NACE codes: O, P, and Q) increased by 8.7 percent between 2008 and 2019 (Figure 46). The number of contributors in the private sector declined by almost 17 percent between 2008 and 2014, and recovered somewhat thereafter, but in 2019 it remained 6.8 percent below the 2008 level. According to CBS data based on the yearly establishment survey (RAD1-G), the number of workers in public sector NACE codes O, P, Q, M 72, R 90 and 91 rose by 4.6 percent from 2009 to 2019.[38] Trends in the number of employees differed significantly within the public sector. The increase was mostly driven by increases in education (sector P) and human health and social work activities (sector Q), while in public administration and defense (sector O) the number of employees broadly stagnated compared to 2008 (Figure 47).

[38] Calculated on the basis of CBS data published in Statistical Report No. 1419 and Statistical Reports No. 1648.

Figure 46. Employment (contributors to the mandatory pension insurance) by sector

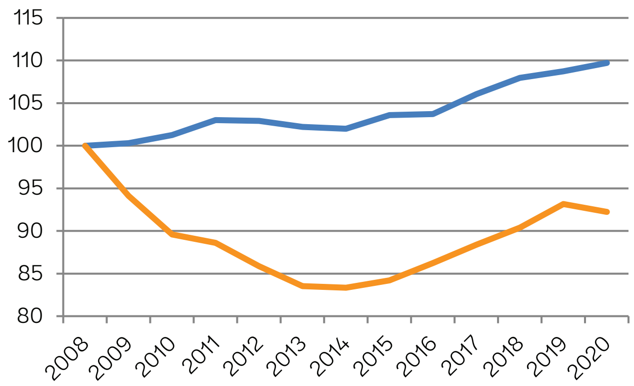
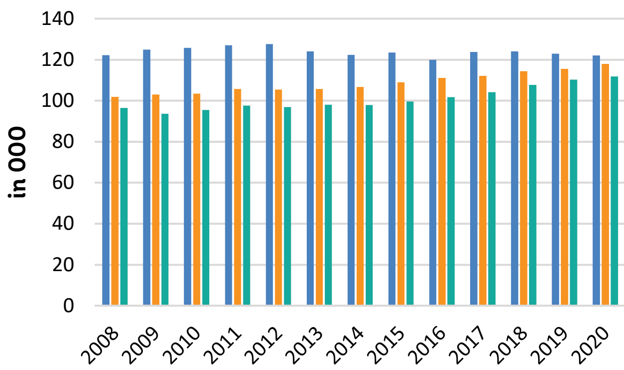


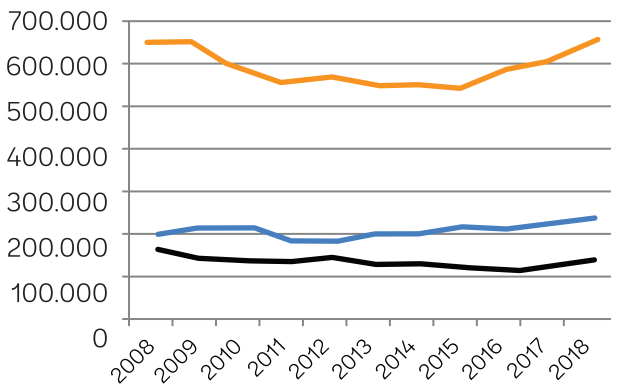
Figure 47. Public sector by activities



Source: CBS

The Croatian LFS confirms findings from other data sources. The number of employees in the private sector fell during the crisis and had not returned to its pre-crisis-level by 2018, despite the economic recovery since 2015 (Figure 48). Similarly, employment in public companies fell even in the recovery phase (2015-2016), which comes mainly from privatization, and possibly also as a result of the closure of unsuccessful state-owned companies in activities open to competition. On the other hand, in the core public sector the number of employees was higher than in 2008.

Figure 48. Number of employees by sector



Note: Absolute numbers are obtained from the LFS using the population weights.
Source: Staff estimates based on the Croatian LFS.

2.2. International comparison of public sector wage bill in Croatia

Croatia spends more on compensation of public sector employees, relative to GDP, than most EU countries.[39] In 2019, 11.6 percent of GDP was paid for compensation of general government employees, the highest level among EU member states from Central and Eastern Europe (CEE) and one of the highest in Europe (Figure 49). Only Nordic countries, Belgium, France and Cyprus have higher shares. However, per capita gross national income levels in these countries (except Cyprus) are from three to five times that of Croatia. Since higher-income countries are likely to provide more, and higher-quality, government services, Croatia is even more of an outlier than the ratios to GDP show. Of the countries listed in Figure 49, Croatia's per capita income is closest to Hungary, Poland and Romania, which have significantly lower shares of government compensation of employees to GDP than in Croatia.

Croatia seems to spend more on the wage bill than would be expected considering its total expenditure level. The size of expenditure for the compensation of employees is often related to the level of total government expenditure. However, after accounting for a simple correlation between these two items, as shown in Figure 50, Croatia seems to spend more on the wage bill than would be expected considering its total expenditure level.

Croatia's high public sector wage bill in part reflects high levels of public s ector employment. It appears that Croatia employs more people in the provision of core public services (public administration, education, health and social care) than the size of its labor market and its development level would justify (Figure 51). In 2019, public sector employment constituted around 22 percent of total employment, which is a higher share than in other CEE countries, except Lithuania, and similar to Estonia. These two countries, however, have significantly higher GDP per capita than Croatia does.[40]

The other reason for the high public sector wage bill is the high levels of compensation. Croatia has one of the highest average labor costs in the provision of public services among its peers in the CEE (Figure 52). The average monthly labor cost in public services in 2016 was almost 1,500 euros, close to the levels in Estonia and Czechia, lower than Slovenia which had more than 2,300 euros per employee,

Figure 49. General government compensation of employees in Europe, 2019

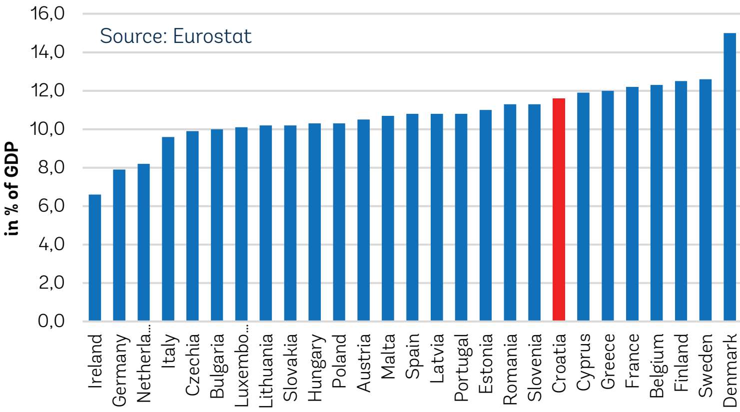
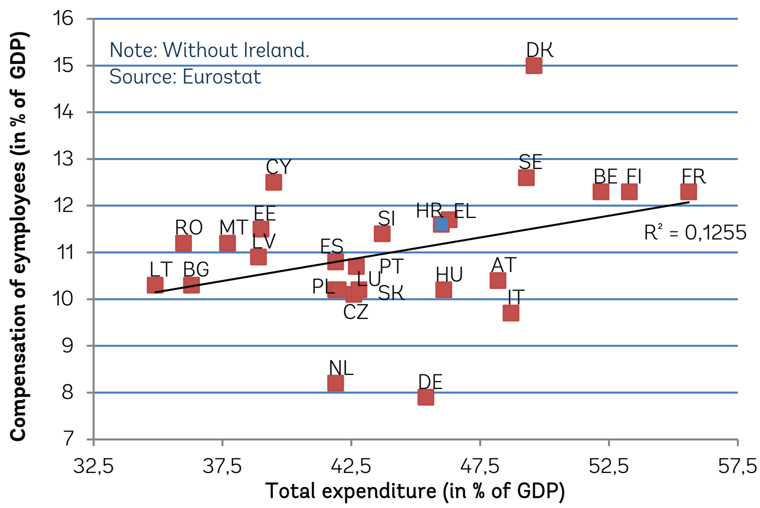


Figure 50. Total expenditures and compensation of employees by general government, 2019



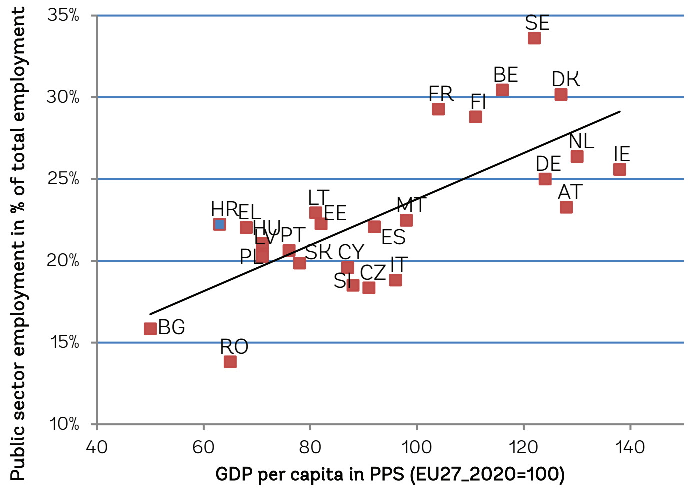
[39] Inconsistencies in data plague international comparisons of wage expenditures and employee levels. One highly relevant example is that Eurostat's data on the general government includes state-owned enterprises (SOE), while in Croatia, employment and detailed wage figures are often not available for SOEs and social security funds

[40] However, not all employees in the core public services are paid by the government, and government-paid employees (particularly SOE employees) can be found in other sectors. Employment in core public services is used here as an approximation to analyze the reasons for the high public sector wage bill in Croatia.

but higher than in other CEE countries. Labor cost per employee in the public service sector (public admin- istration and defense; compulsory social security; education; human health and social work activities; arts, entert- ainment and recreation; other service activities) is 2 percent higher than in the private sector (all other activities except agriculture, forestry and fishing), the highest difference in the CEE and one of the highest in the EU (Figure 53). In the EU as a whole, labor costs in the public sector are 4 percent lower than in the private sector. It should be noted that the definition of the public sector in Eurostat data is much wider than usual, and it includes other service activities that are usually provided by private entities.[41]

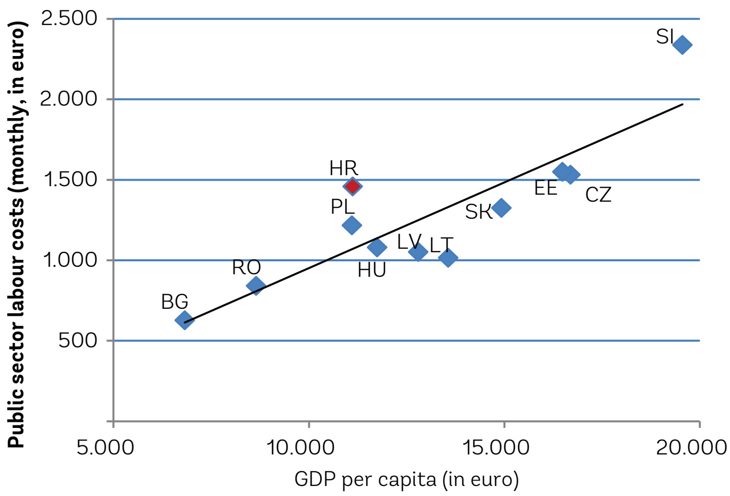
The public and private labor costs in Croatia and other CEE countries differ by economic activity. While wages and salaries in public administration in comparison with the private sector wages in Croatia are low compared to its peers in Central and Eastern Europe, they are relatively high in the education and health sectors (Figure 54). The comparison between public and private sector labor costs here does not take into account differences in the skills composition, or other characteristics, of the labor forces in the two sectors. An extensive discussion of differences in wage levels between the private and public sectors in Croatia based on LFS data is given below.

Figure 51. GDP per capita in PPS and public sector employment as % of total employment



Note:
Public sector employment refers to public administration, defense, education, human health and social work activities (national accounts concept of employment presented in table namq_10_a10_e). GDP figures refer to 2018, employment figures to 2019.
Source: Eurostat

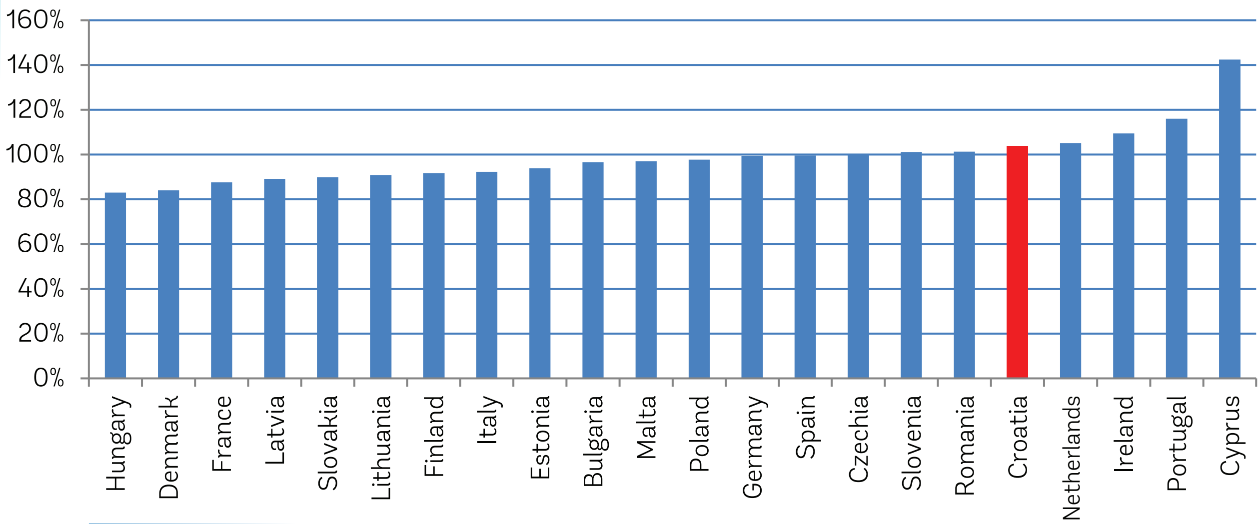
Figure 52. Public sector labor costs and GDP per capita in CEE, 2016



Note:
Labor cost refers to monthly total cost per employee in full-time equivalents in euros, in entities with 10 employees or more. Public sectors include public administration and defense; compulsory social security; education; human health and social work activities; arts, entertainment and recreation; and other service activities (O-S industries in NACE classification). GDP per capita refers to yearly nominal expenditure per inhabitant at current market prices, in euros.
Source: Eurostat (online data tables [lc_ncost_r2] and [prc_ppp_ind]).

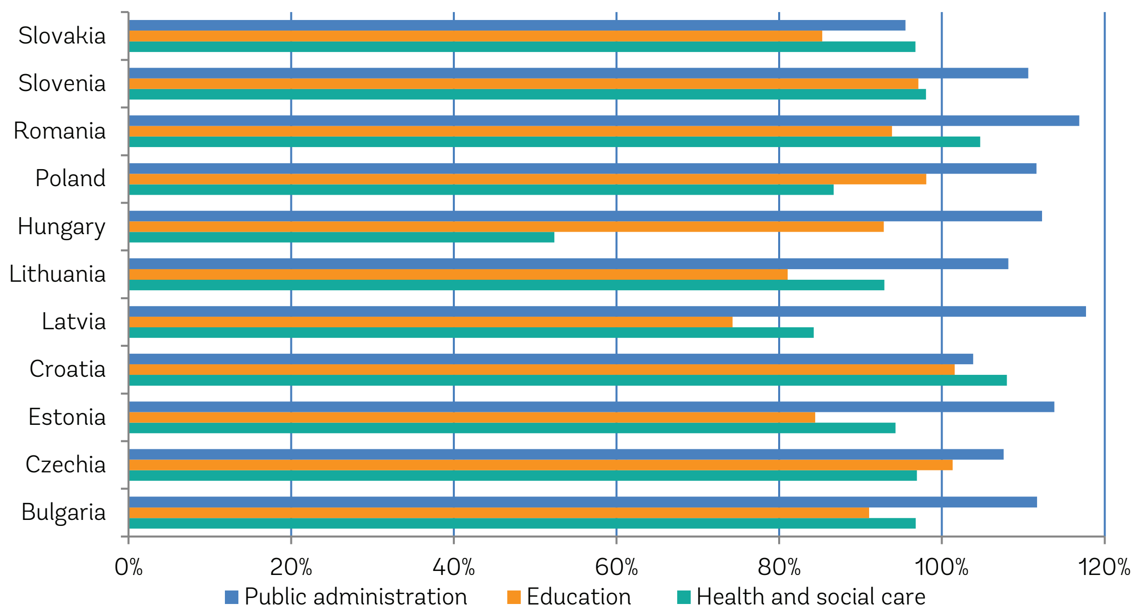
[41] It is important to note that statistical challenges in determining the average level of public sector wages and the comparison with other European countries, are formidable. International comparisons can be inaccurate due to differences in the extent of public sector responsibilities. If we focus on the ownership of public sector providers (e.g., in education), then differences in organization across countries (e.g., schooling may be provided exclusively by the public sector in one country but by a mix of public and private institutions in another) may lead to large discrepancies in estimates of employment, and probably wages, between countries even in cases where the service for the households are highly similar. Alternatively, if we focus on service type and activity alone, then we might lose information on the fiscal impact of public-private wage differentials. In addition, the relationships between state-owned enterprises and the government budget are multifaceted, and the coverage of the public sector depends substantially on an assessment of these linkages by fiscal and statistical authorities. For example, by ESA2010 rules applied by Eurostat for Croatia, state-owned enterprises such as HŽ Infrastruktura, HRT, HAC, and ARZ are treated as a part of general government, while national accounting rules are less comprehensive, and these companies are outside the government sector. And neither Eurostat nor national data on employment and wages follow fiscal accounts conventions.

Figure 53. Public-to-private sector labor costs, 2016



Note:
Labor cost refers to monthly total cost per employee in full-time equivalents in euros, in entities with 10 employees or more. Public sectors are sectors O-S, and private sectors are sectors B-N in NACE classification. Data are not available for EU countries without labor costs data in sector O (public administration).
Source: Eurostat (Labor Cost Survey 2016, online data code [lc_ncost_r2]).

Figure 54. Public sector labor costs in % of the labor costs in the private sector, 2016



Note:
Labor cost refers to monthly cost per employee in full-time equivalents in euros, in entities with 10 employees or more. Private sectors are sectors B-N in NACE classification.
Source: Eurostat (Labor Cost Survey 2016, online data code [lc_ncost_r2]).

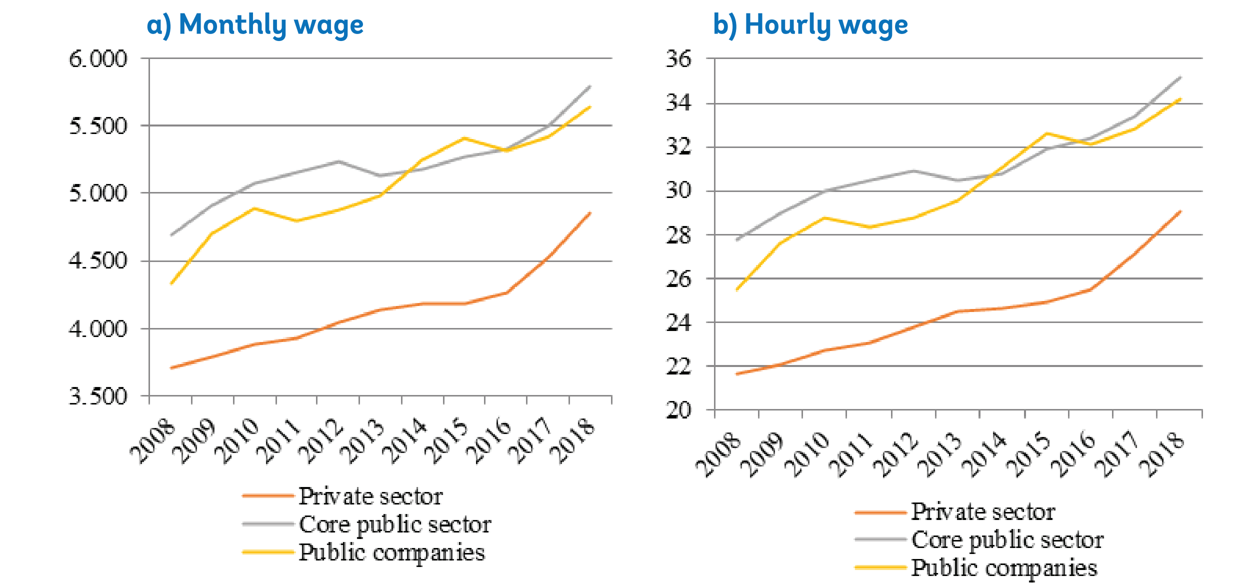
2.3. The public-private sector wage gap in Croatia

In the following section we analyze wage differences between the public and private sectors in order to get a better sense of the potential existence of a public sector wage premium. Findings suggest that the public sector pays, on average, significantly higher wages than workers with similar characteristics would earn in the private sector, except for at the highest earnings levels.

The average monthly net wage is substantially higher in the public sector than in the private sector, although this difference has narrowed over time. The average monthly net wage, according to the LFS, in 2018 stood at HRK 5,788 in the core public sector, HRK 5,635 in public companies, and HRK 4,851 in the private sector (Figure 55). While data based on the JOPPD form shows different estimates, public sector compensation remains significantly above private sector compensation (Figure 56).[42]

Within the public sector, there are notable differences in the average wage by sub-sectors. Figure 56 shows that in the first quarter of 2020 the lowest average monthly gross wage was paid in the sector of other education (NACE code 85.5), around HRK 7,200, while the highest average wage was paid in science and higher education sectors (NACE codes M 72 and P 85.4, respectively), slightly over HRK 14,300. At the same time, the average gross wage in the private sector was about HRK 8,600.

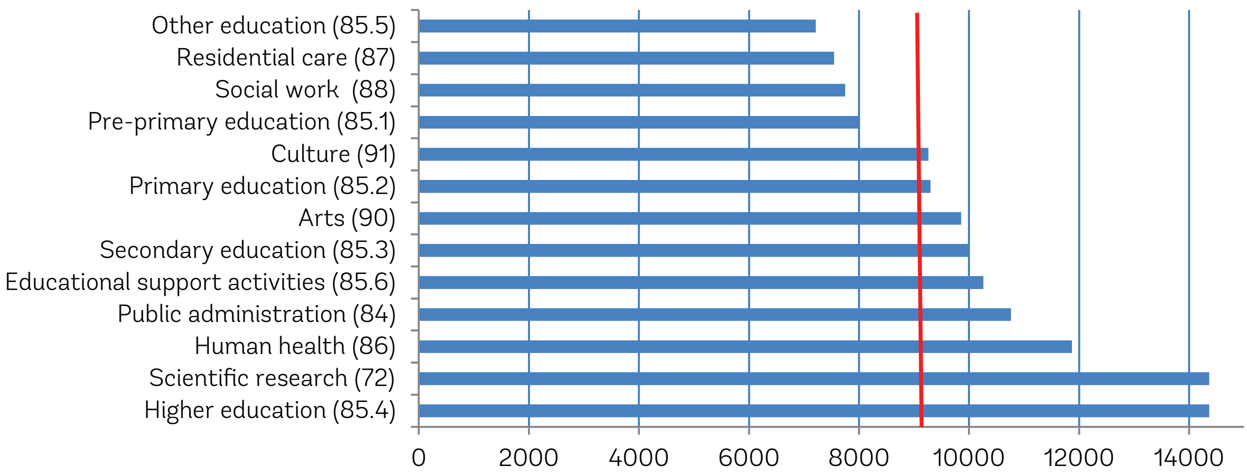
Figure 55. Monthly and hourly net wages (HRK) by sector



Source: Staff estimates based on the Croatian LFS.

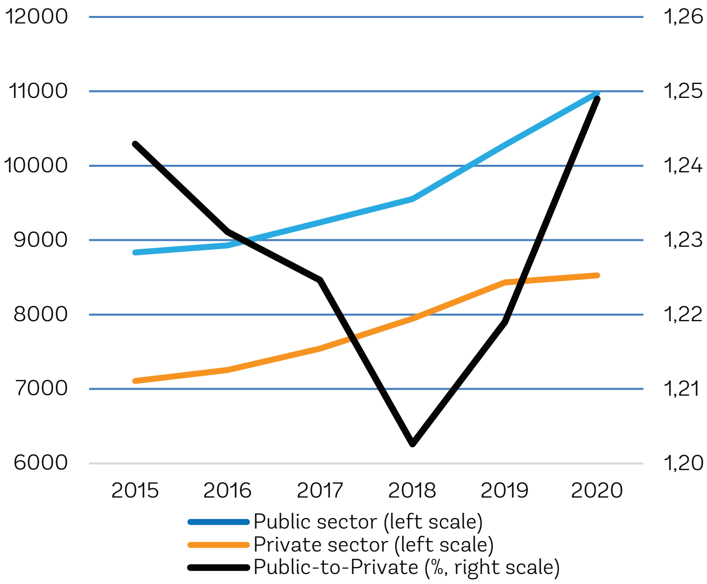
[42] The differences between public sector and private sector compensation in both data sets are substantially larger than one in recent study prepared by Matković (2019). For 2017, Matković (2019; p. 64-65) finds that public sector monthly wages in 2017 (the last year covered) were on average 14.1% higher than those in the private sector, while Figure 23 shows 22.5 percent. This is likely because Matković's study is based on the RAD1-G establishment survey, which unlike the JOPPD data does not properly take into account variations in the hours of work in the calculation of monthly wages. Matković (2019) also applied a slightly different definition of the public sector than we do (without other education, arts, and culture, i.e. without NACE codes 85.5, 90, and 91) and took into account only state-owned employers. However, these differences should not cause substantial deviations in sectoral average wages compared to the results presented here because Matković's definition reduced the number of public sector employees only mildly and those that are excluded are not expected to have considerably different wage profiles than the rest of the public sector.

Figure 56. Average monthly gross wage in the public sector in the first quarter of 2020



Note:
NACE classification codes are in brackets. Average wages are for full-time equivalent employee. The red vertical line refers to the average wage in the private sector.
Source: Croatian Bureau of Statistics (monthly reports based on the JOPPD form) and staff estimates of the private sector average.

Figure 57. Developments of the average wage by sector - JOPPD form



Note:
Public sector wages refer to public administration, education, health, social care, science, arts and culture; i.e. sectors O, P, Q, M 72, R 90 and R 91 according to NACE classification. All other sectors are included in the private sector (or rest of the economy). Public and private sector average wages are calculated as employment-weighted averages of individual sectors with publicly available data. Average wages in 2019 refer to full time equivalent employees, and in 2015-2018 to employees working at least 80 hours per month.
Source: Staff estimates on the basis of Croatian Bureau of Statistics (monthly reports based on the JOPPD form).

There is substantially higher risk of having a low wage in the private sector than in the core public sector or public companies. In 2018, private companies accounted for 64.1 percent of employment, but more than four-fifths of the bottom 40 percent of wage earners (Table 9). Conversely, the core public sector had 22.8 percent of employment but 11.3 percent of the poorest-paid workers. Thus, the risk of having a low wage in the core public sector is around a half of the average economy-wide risk of having a low wage. Although it is lower than the average, this low wage risk in the core public sector increased from 2008 to 2018. The majority of high-wage workers (defined as the 40 percent best-paid employees in the country) comes from the core public sector and public companies, although this broadly defined public sector employs only slightly more than one third of employees.

Table 9. Distribution of hourly net wage by sector

	2008				2013				2018		
	Private sector	Core public sector	Public comp.		Private sector	Core public sector	Public comp.		Private sector	Core public sector	Public comp.
Bottom 40%	82.9%	8.0%	9.1%		82.8%	10.6%	6.6%		81.2%	11.3%	7.5%
Top 40%	44.2%	34.9%	20.9%		42.6%	37.3%	20.2%		47.4%	35.3%	17.3%
Total	63.2%	20.3%	16.5%		62.5%	22.8%	14.6%		64.1%	22.8%	13.1%
Gini coeff.	0.236	0.172	0.183		0.239	0.193	0.179		0.233	0.184	0.194
Gini coeff.	0.225				0.231				0.225		

Source: Staff estimates based on the Croatian LFS.

Wage inequality in the private sector is considerably higher than in the core public sector. The Gini coefficient of net hourly wages in the private sector was rather stable, at around 0.24 in the last decade (Table 9). With some minor fluctuation over time, wages in the core public sector and public companies have a Gini coefficient of around 0.18.

However, the raw data on average wage levels in part reflect differences in the composition of the workforce in the public versus private sectors. That average wages are higher in the public sector than in the private sector does not necessarily mean that wages for similar kinds of work or for similar workers are higher. The higher average wages in the public sector in part reflect differences in the skills and abilities of public sector versus private sector workers. For instance, educational levels and experience tend to be higher in the public than in the private sector (see Annex 4 to Chapter 2), so average wages in the public sector would tend to be higher, even if the salaries for workers with the same education and experience were equal a cross the two sectors.

The public sector wage premium, which measures whether similar workers are paid more in the public sector, is estimated using statistical techniques that control for workers' characteristics that are important for compensation levels and that can be observed in th e data.[43] Some characteristics, such as personality traits, are clearly not observable. Thus, it should be kept in mind that calculations of the public sector wage premium may be in part due to the inability to control for unobserved characteristics that the public sector tends to pay more for than the private sector.

Findings show that the difference in the average hourly wage in the public and private se ctor is reduced if these differences in the composition of employment are taken into account. The average hourly wage based on the LFS was about 25 percent higher in the core public sector (Pub) than in the private sector (Pri) in 2018, using the raw data (Table 10)[44]. However, once differences in education, experience, gender and region are taken into account,

[44] All the raw gaps are positive and statistically significant at the 5-percent level. Whenever we speak of statistical significance, we refer to the 95 percent level.

the average wage in the core public sector is 6 percent higher than in the private sector.[45] Similarly, the raw gaps in administration and social security (ADMSS) and in education and science (EDUSCI) are around 26 percent, while the gaps adjusted for workers' characteristics are 4.8 percent and 1.6 percent (the latter is not significantly different from zero), respectively. The adjustment is particularly large in EDUSCI and in the art and culture subsector (ARTCULT), where a large share of employees have a university degree. In the health and social work subsector (HSOCW), the adjusted gap is only moderately smaller than the raw one, as the education profile of public workers is more similar to that of the private sector than in the EDUSCI and ARTCULT subsectors.

Table 10. Mean public-private wage gaps, 2018

	Raw gap, %			Adjusted gap, %		
	Estimate	Lower bound of 95% CI	Upper bound of 95% CI	Estimate	Lower bound of 95% CI	Upper bound of 95% CI
Pub-Pri	24.9	22.5	27.4	6.2	4.4	8.1
ADMSS-Pri	25.6	21.8	29.5	4.8	2.1	7.4
EDUSCI-Pri	26.6	23.0	30.3	1.6	-0.9	4.2
HSOCW-Pri	20.6	16.3	25.1	15.5	12.1	18.9
ARTCULT-Pri	30.0	18.3	43.0	4.3	-3.3	12.4
PubC-Pri	20.7	17.7	23.7	11.1	8.9	13.4

Notes:
Pub – pure public sector; ADMSS – administration and social security; EDUSCI – education and science; HSOCW – health and social work; ARTCULT – art and culture; PubC – public companies. ADMSS, EDUSCI, HSOCW, and ARTCULT are subsectors of Pub.
Source: Staff estimates based on the Croatian LFS.

Differences in education of the workforce between sectors are important in explaining the observed difference in the average wage. For instance, there are more employees in the public sector with higher education, so we would expect a higher average wage in that sector. Therefore, Table 11 compares the average hourly wages by levels of education for each sector.

On average, the core public sector pays higher wages than the private sector to its employees with secondary education, but the private sector pays more employees with tertiary education (Table 11). It should be noted that such comparison takes into account differences in broad education levels while differences in many other job aspects such are type of work, job security, or job intensity remain unobserved although they would probably help in better understanding of sectoral wage differences by education. One possible explanation for higher wages for employees with tertiary education in the private sector is that this sector has to compete with the public sector for the best employees in the situation where most of employees with tertiary education (56% of them) are already

[45] More precisely, in the regression analysis we use the following controls: education (dummies for primary education or less, general secondary, college, and university); work experience (in years) and its square; gender (a dummy for female); and region where the place of work is located (dummies for the regions Central, Eastern, Adriatic North, and Adriatic South)

employed with the core public sector or public companies. The private sector also pays more than the core public sector for employees with primary education or less in each of observed years (2008, 2013, and 2018). However, public companies are the best employer in terms of wages for each level of education. Such situation is persistent over years, as suggested by figures presented in Table 11. The only exception is in the case of graduate tertiary education in 2008 when the private sector had paid slightly higher wage than public companies.

Table 11. Hourly net wage by education and sector

	2008			2013			2018		
	Private sector	Core public sector	Public comp.	Private sector	Core public sector	Public comp.	Private sector	Core public sector	Public comp.
Primary or less	16.7	16.6	19.1	19.5	19.1	23.4	23.2	20.5	26.4
General secondary	19.4	22.6	23.3	21.0	24.0	25.2	25.1	25.6	28.7
Vocational secondary	21.5	25.0	26.1	23.4	26.9	28.8	27.6	30.0	33.5
Undergraduate tertiary	30.2	30.7	30.9	32.0	30.4	37.9	36.3	34.7	40.8
Graduate tertiary	39.1	34.5	38.8	41.6	37.7	43.4	44.1	42.8	45.6
TOTAL	21.6	27.7	25.5	24.5	30.5	29.5	29.0	35.2	34.2

Source: Staff estimates based on the Croatian LFS.

Table 12. Hourly net wage by occupation and sector, 2018

	Private sector		Core public sector		Public companies	
	Hourly net wage (in kuna)	Empl. compositi on	Hourly net wage (in kuna)	Empl. compositi on	Hourly net wage (in kuna)	Empl. compositi on
Senior officials & managers	50.8	2%	55.5	1%	47.3	3%
Professionals	46.5	10%	41.2	48%	47.8	12%
Technicians & ass. professionals	34.9	14%	32.6	17%	38.5	17%
Clerks	27.5	10%	27.4	9%	31.6	22%
Service & sales workers	23.1	24%	30.0	15%	28.5	10%
Agricultural & fishery workers	21.3	1%	-	0%	28.5	1%
Craft & trades workers	29.3	16%	29.0	1%	33.7	13%
Plant/machine operators	24.4	16%	30.3	2%	30.6	10%
Elementary occupations	21.9	8%	19.5	7%	24.3	12%
TOTAL	29.0	100%	35.2	100%	34.2	100%

Source: Staff estimates based on the Croatian LFS.

The core public sector offers higher hourly wages than the private sector to service and sales workers, as well as to plant and machine operators and assemblers, but lower to professionals, technicians, and associate professionals (Table 12). Senior officials and managers are usually paid less on average in the core public sector, as revealed by figures for the period 2008-2017, but not for 2018. It may be that the atypical finding for 2018 is driven by small number of observations for that group of occupations; senior officials and managers comprise for around 1% of wage earners in the core public sector. Core public sector pays less than the private sector for elementary occupations. General pattern seems to be that the core public sector pays less than the private sector for the most and the least sophisticated occupations but more for middle-skilled occupations. Public companies pay more than private sector for practically all groups of occupations except manages and possibly professionals. Professionals are paid slightly more in public companies than in the private sector in 2018, as shown in Table 12, but in previous years they are paid somewhat less. So, public companies also seem to undervalue the highest-skilled occupations compared to the private sector.

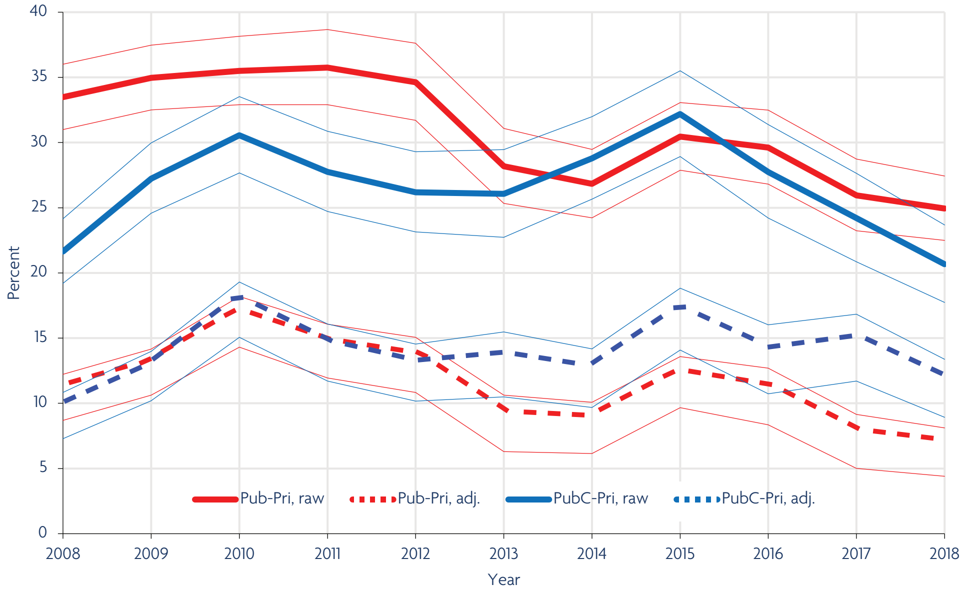
There was an overall downward trend in the evolution of the Pub-Pri raw gap in the pre-COVID period, although there were increases, as well as stagnations, over some sub-periods (Figure 58). The gap was practically stable in the period 2008-2012, at around 35 percent. This was because the wages in both sectors were roughly stagnating in this period, covering the years of the strongest economic downturn[46]. The gap fell from 2013 on, except from 2014 to 2015, ending up at 25 percent in 2018. The downward trend is estimated at a one percentage point decline in the gap per year (statistically significant at the 1 percent level). Most of the post-2012 overall decline in the gap took place from 2012 to 2014, when public sector wages fell with the fiscal consolidation and private sector wages rose. The 2014-2015 increase in the gap is difficult to explain; it might be due to some peculiarity of the LFS data. By contrast, the difference between the average wages in public companies and the private sector showed considerable variability over the period, but no significant trend. By 2018, this gap returned to virtually the same level as in 2008. The difference in the raw data on average wage levels in the public companies (PubC) and private companies exhibits similar dynamics as the Pub-Pri gap does: with a few exceptions only, when one rises or declines, the other does too. While detailed data for 2020 and 2021 period is not available, the strong increase in the public sector gross wages and subdued rise in private sector wages suggest that the Pub-Pri gap has significantly widened during the COVID-19 pandemic.

The adjusted Pub-Pri and PubC-Pri gaps move very much in tandem, and their dynamics are largely aligned with those of the corresponding raw gaps. The two adjusted gaps were both around 10 percent in 2008, rose to about 17 percent by 2010, and then fell to about 12 percent by 2012. As of 2013, the Pub-Pri gap started to trend downward, while the evolution of the PubC-Pri gap did not follow a recognizable trend. We confirm that by regressing the two adjusted gaps on a dummy variable representing the year. For the Pub-Pri gap, the trend coefficient indicates a statistically significant ($p = 0.023$) downward trend of 0.63 percentage points per year (a flatter trend than in the case of raw Pub-Pri gap). By contrast, for the adjusted PubC-Pri gap, the trend is

[46] This result is in line with earlier studies of Nestić, Rubil and Tomić (2015) and Nikolić, Rubil and Tomić (2017), and a recent study of Matković (2020), despite certain differences in these studies with the present one

positive, but small (0.11) and statistically insignificant (0.637). In almost all years from 2013 to 2018, the difference between the two was statistically significant, notably so in the last two years.

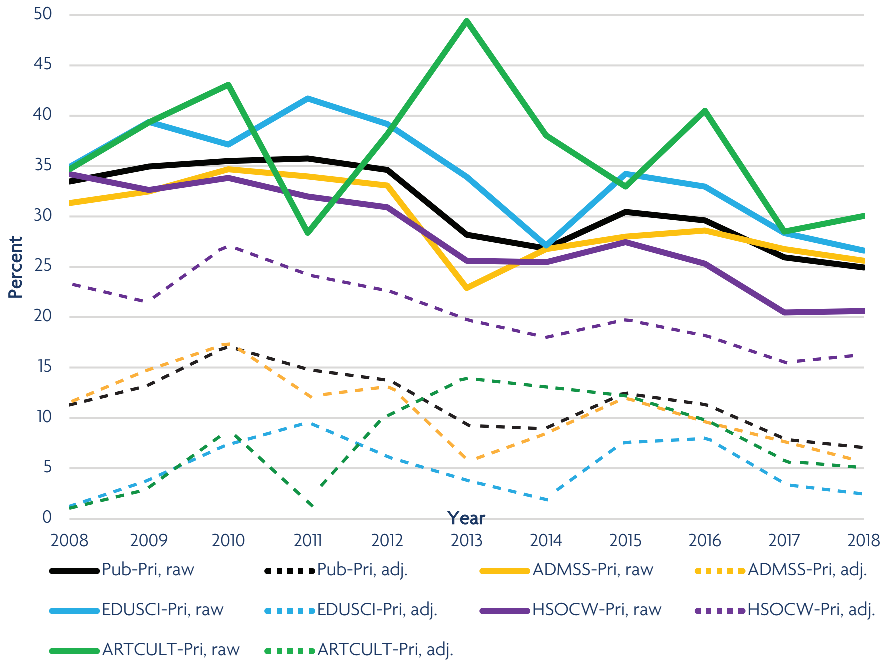
Figure 58.
Mean public-private wage gaps, raw and adjusted



Note:
Pub – pure public sector; PubC – public companies. The thin dotted lines above and below each line depicting the gaps are the bounds of the associated 95-percent confidence interval.
Source: Staff estimates based on the Croatian LFS.

The dynamics of the Pub-Pri gap are similar across subsectors, except for art and culture (Figure 59). This holds especially for administration and social security, as well as health and social work.[47] Linear trend regressions confirm that the downward trend for all subsectors is statistically significant, except for art and culture. For the adjusted gaps, the time trends for art and culture, and for education and science, are not significant.

Figure 59.
Mean public-private wage gaps for subsectors of the pure public sector

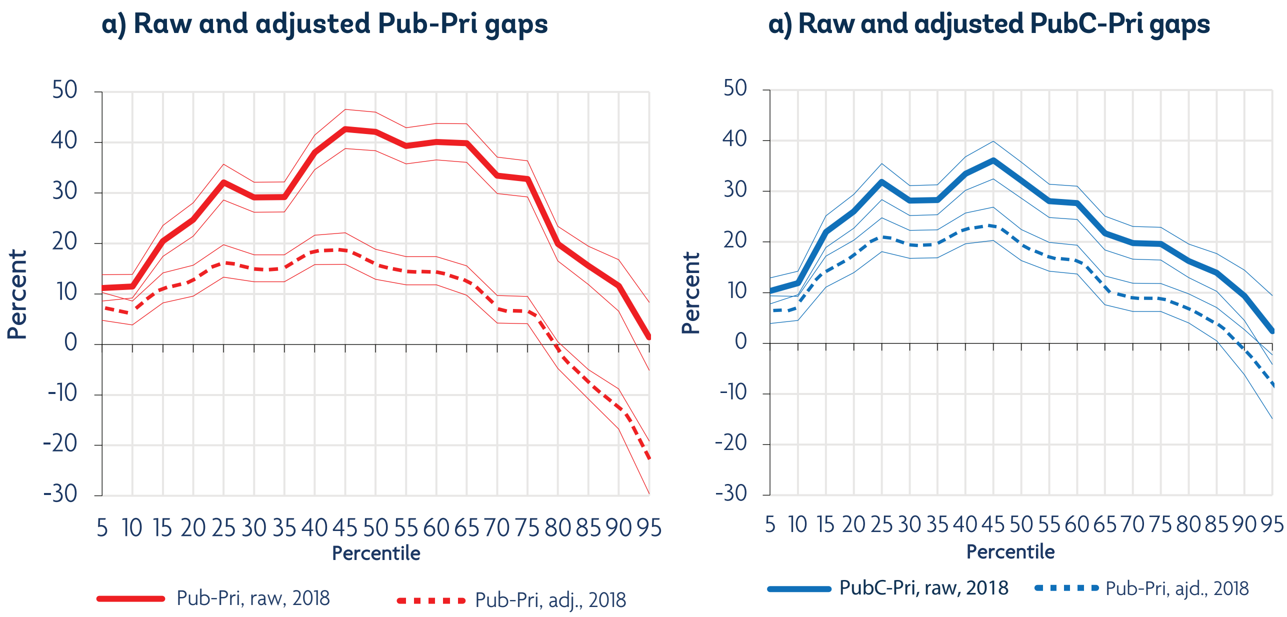


Note:
Pub – pure public sector; ADMSS – administration and social security; EDUSCI – education and science; HSOCW – health and social work; ARTCULT – art and culture.
Source: Staff estimates based on the Croatian LFS.

[47] The confidence intervals are not shown for clarity of the depiction.

The size of the average wage gap between the public and private sectors differs depending on earnings; the public sector pays significantly less than the private sector for employees at the top of the earnings distribution, but more at the rest of the distribution. The estimated Pub-Pri and PubC-Pri gaps by income for 2018, both raw and adjusted, are displayed in Figure 60. There is an inverted-U pattern along the distribution in all gaps, with the highest gaps around the middle of the distribution. The raw gaps are positive along the entire distribution. The Pub-Pri raw gap is about 10 percent at the bottom, rising to above 40 percent in the middle part of the distribution, and then falling to a little above zero at the top. The raw PubC-Pri gap is practically equal to the raw Pub-Pri gap at the bottom 1/3 of the distribution and at the very top. Around the middle, the PubC-Pri gap is lower than the Pub-Pri gap. The adjusted gaps are significantly below the corresponding raw gaps, at each level of earnings. The adjusted gaps become negative at the highest incomes, indicating a public-sector penalty, rather than a premium. This is notably more pronounced in the case of the Pub-Pri gap, whose adjusted version turns negative at around the 85th percentile and reaches more than -20 percent at the very top. The adjusted PubC-Pri gap turns negative above the 90th percentile and does not go lower than -10 percent.

Figure 60. Quantile public-private wage gaps, raw and adjusted



Note:
Pub – pure public sector; PubC – public companies. The thin dotted lines above and below each line depicting a gap are the intervals of a 95-percent confidence interval.
Source: Staff estimates based on the Croatian LFS.

The public-private wage gap is larger among females than among males, especially concerning public companies. For example, the raw Pub-Pri gap is 31.3 percent among females, compared to 27.2 percent among males (Table 13), while for the adjusted Pub-Pri gap, the difference is smaller. The larger gaps among women reflect the gap between relatively high wages of women in parts of the core public sector such as health care and education, and relatively low wages earned by women in female-dominated parts of the private sector such as retail trade. Among males, wage differences between sectors are smaller, primarily because of a smaller public-sector premium among males with low wages than among females with low wages. The difference in gap between men and women is even bigger in the case of PubC-Pri gap, with the raw gap among females exceeding by about 16 percentage points the raw gap among males. Turning to the adjusted gaps, the gender differences persist, but here they are smaller. Considering the 2008–2018 period (Figure 61), the findings for 2018 hold for most other years. The gaps for men and women evolved largely in tandem with the overall gap.

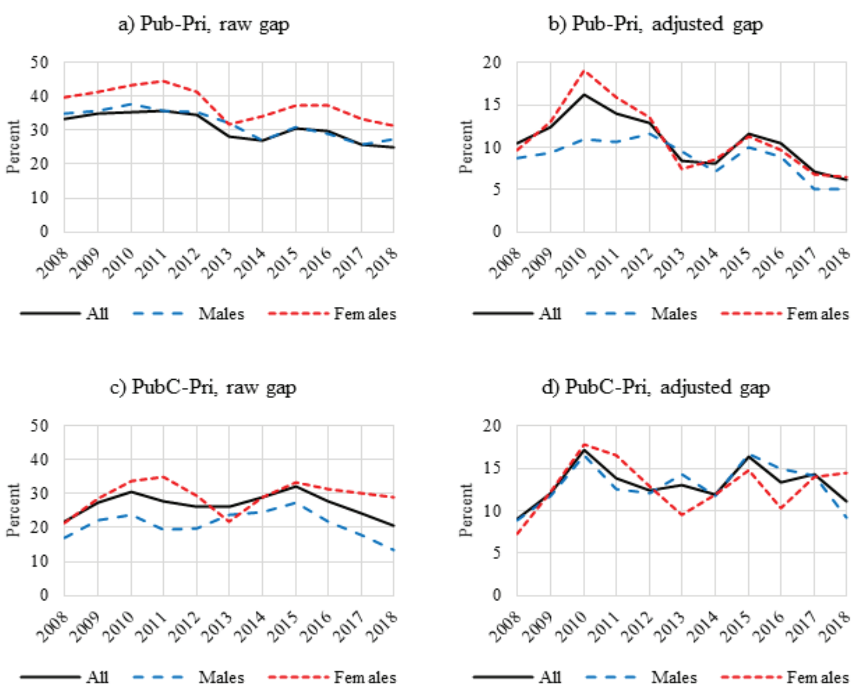
Loosely speaking, the public sector employees with the highest wages would earn more if they worked in the private sector instead, while the remaining 85–90 percent of the public sector employees would earn less on average if they worked in the private rather than the public sector. This holds most for those closer to the middle of the wage distribution, that is, for those whose wage is closer to the median wage. For them the public sector is a much better choice in terms of wages than the private sector.

Table 13. Mean public-private wage gap by gender, 2018

	Raw gap, %			Adjusted gap, %		
	All	Males	Females	All	Males	Females
Pub-Pri	24.9	27.2	31.3	6.2	5.0	6.5
PubC-Pri	20.7	13.3	29.0	11.1	9.3	14.4

Note:
Pub – pure public sector; PubC – public companies; Pri – private sector.
Source: Staff estimates based on the Croatian LFS

Figure 61. Mean public-private wage gap by gender, 2008–2018

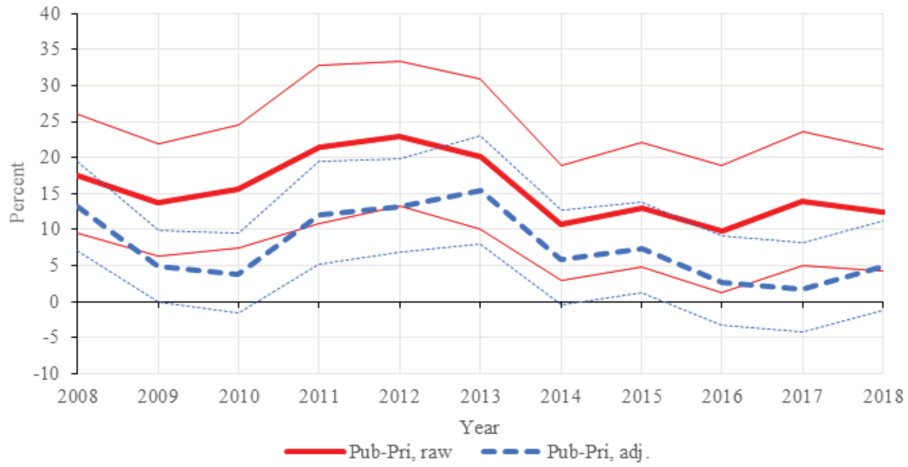


Note:
Pub – Pure public sector; PubC – Public companies; Pri – Private sector.
Source: Staff estimates based on the Croatian LFS

Box 14: Public-private sector wage gap within the health and social work sector

Wage comparison strictly within the health and social work sector reveals the shrinking public-private sector wage gap, where it might be closed in the most recent year. All sectoral comparisons of the public-private sector wage gap presented so far in this note are estimated in comparison with wages in the private sector taken as a whole. Another possible gap estimation approach would be to focus on a particular sector and compare wages paid by public and private employers. Main subsectors within the public sector are severely dominated by state owned employers and large majority of employees work for them. Within-sector comparison of wages paid by public and private employers based on survey data (the LFS) is faced by small-sample problem. However, there is one sector where such comparison may be informative, although not particularly precise. Health and social work sector is dominated by the state owned employers taking around 80% of sector employment in late 2010s, and somewhat less in earlier years. The estimated raw and adjusted public-private sector wage gaps are shown to be shrinking, especially if compared peak years of 2012-2013 with the recent years (2014-2018) as illustrated in Figure 1. The mean raw gap within health and social work sector is evolving between 10 and 15 percent in the last five years, while the mean adjusted gap has drop to below 5 percent in 2016-2018. It is worth noting that the lower bound of the 95% confidence interval in that later period is below zero meaning that we cannot reject the hypothesis that public and private employers pay the same wages. Private sector is growing in the health and social work sector and in that situation, it has to offer wages that are attractive enough to take over some high-quality workers from the public sector. In reality, however, the things are a bit more complicated, at least for medical doctors, because for them it is possible, and often it is the case, to combine public sector employment with additional work in the private sector in which case there is no genuine wage competition between the public and the private sector.

Box 14 Figure 1.
Public-private sector wage gap within the health and social work sector



Note:
Pub – pure public sector. The thin lines above and below bold line depicting the mean gap are the bounds of the associated 95-percent confidence interval.
Source: Staff estimates based on the Croatian LFS.

2.4. The legal and regulatory framework governing public sector wage setting in Croatia

Public sector wages and salaries are subject to complex and often conflicting rules, which lack transparency and can be difficult to apply in practice. This system does not provide for a functional wage setting mechanism and greatly impedes efforts to ensure equal compensation for equivalent jobs, thus impairing the efficiency of the allocation of skills across the public sector. It also promotes rent seeking, as compensation is tied to the ability to take advantage of the system, erodes enthusiasm and commitment to the extent that workers perceive they are not compensated fairly, and absorbs considerable time and effort in manipulating the rules rather than performing work.

This system for determining wage levels is subject to a myriad of laws and regulation. Wages and salaries in the central government sector are regulated by separate laws[48] that cover civil servants and employees working in civil service, public servants and employees working in public services, and state and judiciary officials.[49] The issues not addressed there are determined according to general rules of the Labour Act. The State Audit Office reports that wages of employees in the government bodies and other public services, as recorded in the Central Salary System (for details see Annex 3 to Chapter 2), are determined on the basis of around 300 laws, other legislation and internal acts, and that there are 567 various wage supplements and additions (Državni ured za reviziju, 2019).[50] In addition, there are 576 local and regional government units, which are rather autonomous in wage setting bounded only by loose guidance from the Law on Wages in Local and Regional Self-Government from 2010. Horizontal and vertical fairness of wages in this situation is close to impossible to reach and control.

The basic wage salary for each civil servant and public servant is based on the job position and seniority. Each job position is assigned a complexity coefficient, which is set by decree, one for government servants and the other for public servants, in the public services after review by the Ministry of Finances, the ministry with competence over the specific public service, and trade unions.[51] In addition, there are several other acts regulating complexity coefficients for tax officers, custom officers, police officers, foreign affairs officers, state security officers and active military personnel. All these decrees have been amended quite often.[52] There are four levels of job positions defined by the level of education required to do the job (from elementary school to masters), along with three levels of administrative positions. The complexity coefficient is multiplied times a base

[48] These include the Act on Wages/Salaries in Public Services, the Civil Servants Act, and the Act on Wages/Salaries of Judges and Other Judiciary Officials.

[49] State owned enterprises, which are subject to general labor legislation rather than the specialized laws governing public sector compensation, are not considered here. Also, the legal relationship between the state and civil employees, who perform simpler, professionally less challenging tasks (than civil servants), that are auxiliary, technical or other tasks necessary for government, is left almost entirely to the Labour Act.

[50] Državni ured za reviziju (2019) „Izvješće o obavljenoj reviziji učinkovitosti uspostave i korištenja Informacijskog sustava centraliziranog obračuna plaća i upravljanja ljudskim resursima u tijelima državne uprave i drugim korisnicima proračuna" (available at http://www.revizija.hr/datastore/filestore/203/INFORMACIJSKI-SUSTAV-CENTRALIZIRANOG-OBRACUNA-PLACA.pdf, accessed April 5, 2020).

[51] For determination of job position complexity coefficients within Croatian Pension Insurance Institute, Croatian Employment Service and Croatian Health Insurance Institute the regulation of the issues for civil servant are applied.

[52] State Audit Office reports that the Decree on Job Titles and Job Complexity Coefficients in the Government Service was changed 42 times up to April 2019 (Državni ured za reviziju (2019; 30)).

level that was set by decree in 2009[53] and thereafter determined through collective agreements, increased by 0.5 percent for each year of service.[54] The Act on Wages/Salaries in Public Services defines the range of job position complexity coefficients at each level. Nevertheless, the selection of complexity coefficient for each job position is subject to considerable discretion. While the base salary and procedures for calculating the salary are the same in the civil service and the public services, there are many more job levels in the public service than in the civil service, and the supplements determined during collective bargaining have more influence on the final salary in public services than in the civil service.

Croatia is not alone in adopting a coefficient-based pay system. This kind of system is often introduced as a first step towards pay formalization in developing countries and is used in several transition countries in Europe and Asia, including Serbia, the Kyrgyz Republic and Tajikistan. Other countries, like Lithuania, Slovenia and Poland have coefficient-based systems, with an underlying pay grade system, constituting a kind of hybrid version. Although no coefficient-based system is exactly alike, all these examples are characterized by opaque, impenetrable systems of pay. For both the government and their employees they are difficult to navigate, manage, and reform. This, in turn, leads to an explosion of different laws, by-laws and allowances, forming a patchwork of rules of remuneration. In Serbia, for example, the system has led to "more than 2,200 job titles, 71 elements of remuneration, 5 different base salaries, 900 different job coefficients, 19 laws, and a plethora of by-laws that regulate salaries in 11,000 budget institutions."[55]

Moreover, advanced strategic human resource management (HRM) techniques are more difficult to combine with coefficient-based systems than pay grade systems (Box 15 provides a typology of pay grade systems used in the public sector). Think of modernized skills- and competency-based recruitment, horizontal movement of employees, and performance-based pay. For these types of HRM strategies, a transparent system of jobs or functions is needed which lays out clearly which positions come with what salary range, what skills and competencies their occupants are expected to have, etc. The more complex the system is, the more difficult it is for HR departments to implement such strategies. At the same time, it becomes impossible for the government to have a singular HRM strategy for the public sector as a whole, since the different organizations are so diverse in their job profiles. Finally, an organization's reward structure is a reflection of that organization's culture and values. If the organization values performance, competencies, and diverse experience (such as the modern HRM strategies mentioned above imply), these values should be incorporated within its reward structure. A coefficient system leads to too much diversity and unclarity to do this efficiently.[56]

53 Decree on Amount of Basis for Callculation of Wage/Salary for Civil Servants and Employees (Official Gazette of Republic of Croatia 40/09).

54 From June 1st, 2020 till December 31th, 2020 the basis for calculation of wage/salary of civil servants and employees was equal to HRK 5.809,79 gross a month, and as of January 1st, 2021 to HRK 6.044,51 gross a month

55 World Bank, 2015. Republic of Serbia: Public Finance Review. Available through https://www.worldbank.org/en/country/serbia/publication/serbia-public-finance-review-2015

56 Armstrong M, and Murlis H, (2005) Reward Management – A Handbook of Remuneration Strategy and Practice, 5th Edition, Kogan Page: London.

Box 15: Pay grade systems commonly used in public sector compensation

Pay grades can be defined as "a sequence or hierarchy of grades, bands or levels, into which groups of jobs that are broadly comparable in size are placed."[57] We refer to 'grades' as buckets of pay ranges for a position, job or group of jobs, and levels as the different salary steps within a grade. These grades and levels form the framework for pay, in which each and every job or position will have to be placed following a thorough job evaluation effort. The basic principle is to create clear job profiles and link them with clear salary ranges and intermediate salary steps. We will discuss five different forms of pay grade systems, including coefficient-based systems with underlying pay grades, broad band systems, narrow bank systems, single spines and job family systems.

Coefficient-based systems with underlying pay grades.
In essence this system places each job according to a salary grid. Each of these grades is assigned a coefficient. For example, in Lithuania, the coefficient depends on the grade of the position, the position, the qualification class, seniority and the institution group. Although coefficients still determine the salary base (for a large part), the system is a lot clearer than a pure coefficient-based system. An important drawback of this system, however, is that increases in pay are still largely dependent on two factors: seniority and promotion. Since the different grades are not divided in different levels (as in the next examples), there is not a lot of room for salary increases based on performance without promotions.

Broad band systems.
In broad band systems, there are only a small number (four or five) of grades, and thus a small number of positions to fit within the system. For example, the European Commission has two pay tables for different functional groups, and these tables encompass all possible pay levels and positions. As a result, the organization a lot more 'flat', with a lower dependence on hierarchy. There is a lot of room for pay increases to reward high-performing staff without promotion. It also greatly increases possibilities for flexible, horizontal career moves, since the same titles and positions are used in most organizations, for most jobs. On the negative side, this flexibility can lead to diminished control of careers, especially when autonomy is delegated to line managers. Consistency (between managers and units) can thus become a problem, including possible pay discrimination. Such a free-flowing system is difficult to manage, and demands a lot from HRM departments.

Narrow band systems.
This is the most common pay system in OECD countries, and is a more elaborate version of the broad band system. It consists "of a sequence of job grades, at minimum probably around eight, into which jobs of broadly equivalent value are placed."[58] Employees can be granted a significant

[57] O'Riordan, 2008. A Review of the Civil Service Grading and Pay System, p. 2. Available at: https://uclgafrica-alga.org/wp-content/uploads/2019/06/CPMR_DP_38_Review_ofthe_Civil_Service_Grading_Pay_System.pdf

[58] O'Riordan, 2008. A Review of the Civil Service Grading and Pay System, p. 20.

increase in pay within each grade, without the need to be promoted. The system is more structured than a broad band system, leading to more conformity, equity and predictability, but also more rigidity. One downside, which has been observed in many narrow band systems, is that some individuals reach the highest salary of their grade, so they cannot be given a pay increase without being promoted to the next grade, but there is no need for more people within the higher grade. One popular, but ultimately misguided, solution has been to promote the person to the next grade, but to keep the job content the same. This leads to a situation where many people provide work that does not reflect the grade they are in (referred to as 'grade drifting')..

Single spine systems.
Single pay spine systems are a variation on narrow band systems, where instead of each grade having its own small pay spine (a list of incremental pay increases a staff member can receive), there is one pay spine which applies to all public sector jobs. Increments between levels usually represent a few percentage points (4 percent in Slovenia). Some spines maintain the same increments throughout the entire spine (Slovenia), whereas in others the increments grow or decrease as the spine progresses (in Portugal, the increments diminish between levels as the spine progresses). In Slovenia, for example, every political, governmental, judicial and local position is placed into one of 65 salary brackets, and job classifications are agreed upon through collective bargaining and finalized as a government decree.

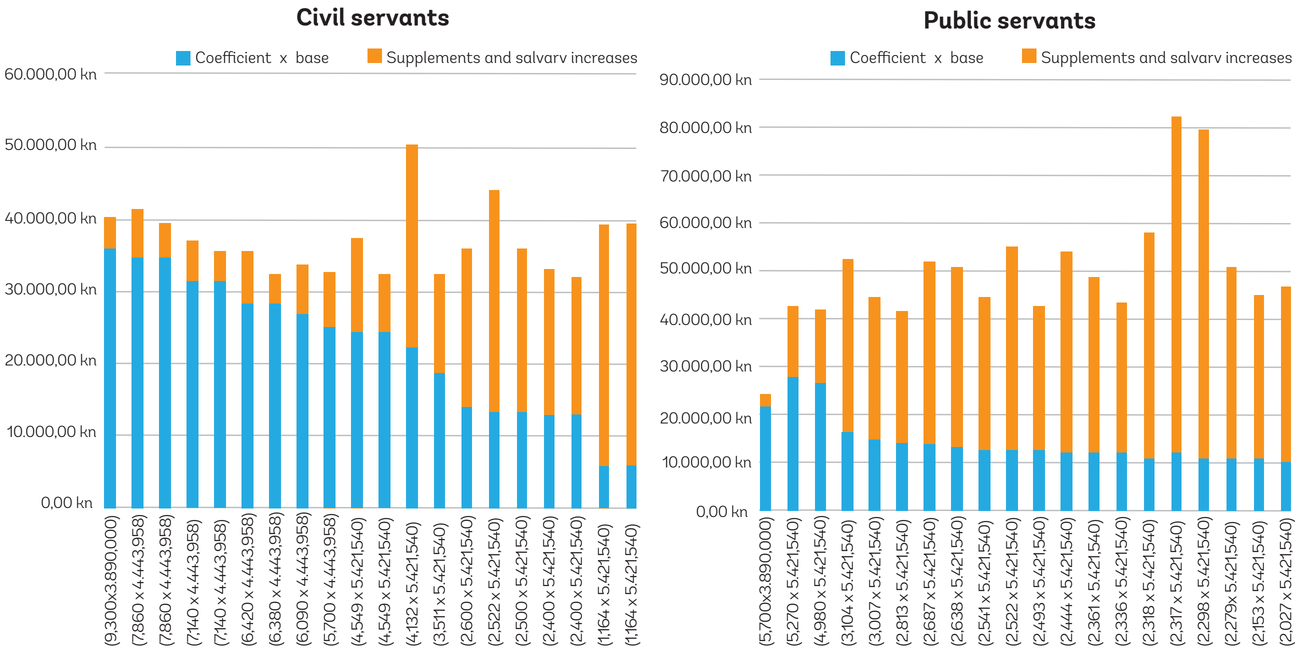
This system is more straightforward than a narrow band system, so that staff can easily determine what their progression will look like, and managers can easily figure out what options they have for their staff. Budget and HR officers find this system easy to work with in calculating budget envelopes or determining the wage for a position that has to be filled. Much like the narrow band system, the main drawback is that staff tend to find themselves at the top of their scale relatively quickly, which reduces motivation.[59]

Job family systems.
This approach groups jobs that are related to each other, for example all advisory positions, IT functions or jobs focused on project management. This system leads to a structure where an eye for details can be applied, without ending up with hundreds, or even thousands of different job profiles. Each job, within each job family, has a salary range attached to it. To keep this system from sprawling, and to maintain the clarity it has at implementation, a rigorous HR function is necessary. This system is in a constant balance between specificity on the one hand, and equity between different but similar functions across job families on the other. These systems vary in terms of the number of grades. For example, in Romania, each job type has only one or two grades, so that pay increases are mostly based on seniority, or on promotions. By contrast, the Dutch system has a much larger number of grades per job type, which provides for more non-seniority based salary increases, without having to be promoted to a higher position.

[59] O'Riordan, 2008. A Review of the Civil Service Grading and Pay System; Armstrong M, and Stephens T, 2005. A Handbook of Employee Reward Management and Practice, Kogan Page: London.

In addition to this basic calculation, there is a set of supplements that further complicate wage/salary determination, including: (i) supplements for above-average performance, up to three times the wage or salary, although the government has not set criteria for defining above-average performance or the amount paid; (ii) supplements for working overtime and on days off, as determined by the employment contract, employment bylaw and collective agreements; (iii) supplements for work in particularly harsh operating conditions (e. g. work in high temperatures, work at great height, work with toxic chemicals, etc.);[60] and (iv) supplements for specialized job positions. Salaries of state and judiciary officials are determined similarly, except there is a 20 percent cap on the increase for seniority. Additional compensation is provided for certain costs, for example travel, food and maintaining a home separate from their families. Supplements account for a very large, and for the public servants the dominant, share of total compensation (Figure 61). Similarly, in the Kyrgyz Republic allowances and bonus have come to account for the lion's share of compensation in several departments, for example over 70 percent in the Supreme Audit Institution and the Financial Intelligence Service. By contrast, in the public pay systems of most of the advanced European countries and the United States, allowances and bonuses account for a minimal share of total compensation (Figure 62).

Figure 62. Ratio of basic salary and salary with supplements for civil and public service jobs in Croatia[61]

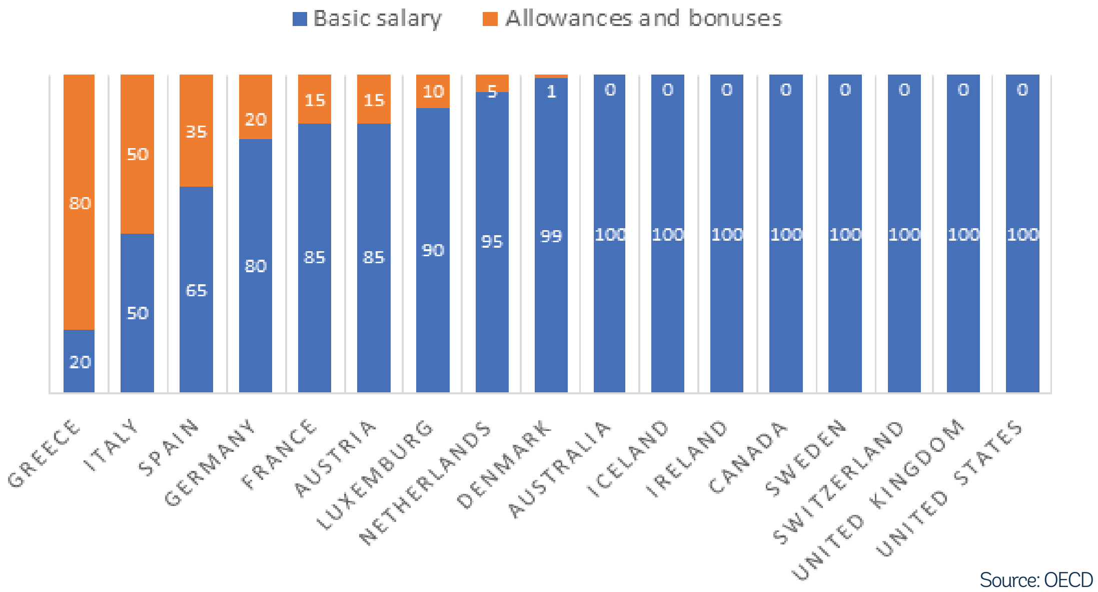


Note: Taken from the State Audit Office Report on the Audit of the Efficiency of Establishment and Uses of the Information System of the Centralized Salary Accounting
Source: State Audit Office

60 It is unclear whether these conditions should be taken into account when determining the job position complexity coefficient or as a supplement. One approach is that arduous working conditions that exist throughout the whole working time should be reflected in the complexity coefficient, and thus the basic wage/salary, while if these conditions are present only part of the time then they should be paid out only for the work performed in these conditions.

61 Basic salary excludes past work for 20 jobs in state bodies and 20 jobs in public services, for October 2018

Figure 63. Ratio between basic and total salary in civil services in OECD countries



Source: OECD

The wage base and the level of supplements are determined by collective bargaining with trade unions representing public employees. Two main agreements cover public sector employees: one for government servants and supporting staff and the other for public servants and supporting staff. For public services, the levels of supplements are defined through a collective agreement covering the entirety of public services, as well as branch collective agreements for particular public services (12 such agreements were in place at the central government level at the end of 2018) and other acts. It can be concluded that the complexity of wage determination system in the budgetary public sector in Croatia is enormous. The weak tradition of collective bargaining in Croatia (practical experience is heavily influenced by the different purpose of collective agreements under the socialist era), as well as a lack of clarity in the rules governing collective bargaining, have resulted in numerous disputes related to the conclusion and application of collective agreements, further complicating the system for setting wages and salaries.

Elements of the collective bargaining system that particularly affect public sector wage/salary setting include the following major issues:

Duration and legal implications of the after-effect of collective agreement legal rules. The Labour Act provides that the provisions of a collective bargaining agreement remain in effect if a new agreement is not reached before expiration of the previous agreement.[62] This may last at least for three months, unless there is provision in the collective agreement for a longer period. There is some uncertainty regarding whether the continued effectiveness of the collective agreement is limited to workers' rights that are regulated in the Labour Act (although recent court practice appears to indicate that all workers' rights are included), and can be applied to employment contracts concluded after expiration of the agreement. These issues need to be addressed by either legislation or further court decisions.

[62] Similarly, the previous agreement remains after it was terminated with notice after the notice period has passed, or in the transfer to a new employer. This leaves open the question of the applicability of a collective agreement if it was terminated in some other way, for example in the case of court resolution.

Legal implications of the extension of the collective agreement.
The Labour Act provides that workers who are not members of the union negotiating a collective agreement should be subject to its provisions, so long as the agreement is concluded by the union representing the most workers and the minister with competence over labor questions establishes the existence of a public interest for this extension. However, there is some potential for dispute over which workers are covered by this provision, which should be clarified in the ministerial decision. Moreover, while court decisions have found that collective agreements are applied on all employees regardless of their membership or non-membership in the trade union, proposals have been made in various contexts that the application of rights arising from collective agreements should be restricted only to trade union members, or that non-members should be obliged to pay the contributions for the rights they enjoy because of the activities of trade unions. It therefore would be desirable to consider the possibility of explicitly legally regulating the extension of collective agreements to non-members.

The status of the most representative trade union for collective bargaining purposes.
The trade unions recognized for collective bargaining purposes are required, under the Labour Act, to be the most representative (as defined by the Act). This has had a positive effect on collective bargaining through encouraging concentration, integration and mutual cooperation across trade unions. However, this also has resulted in the domination of collective bargaining by the most numerous branch of the civil service, namely the police, leaving other professions and branches not represented. And in public services, the criteria for representation for trade unions differ on the level of entire public services and those on the level of a single public service. Thus, it is possible that the trade union representing a particular group of workers may not be the most representative for that group.

Status of the state as party to collective agreements.
The state is often a party to collective agreements in Croatia, and this holds for public services (education, health, cultural institutions, etc.). The participation of ministers politicizes collective bargaining and allocates to ministers the responsibilities that should be undertaken by the institutions providing the service. It would be useful to explore relying on associations of public service institutions as an alternative to government participation in collective bargaining. In addition, the government has on several occasions undertaken obligations that it lacked the resources to fulfill, while the government often lacks adequate expertise to participate in collective bargaining. The establishment of a specialized state services providing support for a government role in collective bargaining might be considered.

Legal limits on the application of the most favorable workers' right.
The Labour Act provides that in issues that are not explicitly regulated, the provision of law most favorable to the worker should be applied. The question remains whether to apply the source of law most favorable for the worker as a whole, or to choose from among the concrete individual rules regarding some particular right. The doctrine and courts have upheld the position that it is the individual rule regarding some right most favorable for the worker that should be applied. This approach results in complexities and particularization of the employment relationship regulation in Republic of Croatia. The trade unions try to regulate the employment relationship with as many sources as possible, so that in each one of them some right is regulated in the most favorable way for the worker. A further level of uncertainty occurs when there are several collective agreements at different levels, which is common in the public services, as to whether employers are obligated by the most favorable rules in each. A further complication is whether, in the case of conflicting rules, a collective agreement that has expired but is still in effect (see above) should be applied if it is the most favorable to the worker. Some argue that the expired collective agreement is one source of labor law that should be considered, while others claim that the expired agreement is not equivalent to the collective agreement when it was in force. These issues should be resolved either by legislation or a clear ruling by the courts.

Improvements in this complex, nontransparent, and at times contradictory system for determining public sector wages could be achieved in two ways. The first would involve technical improvements to, or more precise wording of, the current law and regulations governing wage and salary setting, coupled with a better-defined system of supplements to the basic wage/salary system. The second, and more demanding, approach would involve building a single, unified wage/salary system for civil servants and employees, public servants and employees, and state and judiciary officials. This necessarily implies passing legislation, statutory and sub-statutory, compiling and reforming the systems.

A comprehensive review of the appropriate compensation for job positions in the system should be undertaken to eliminate the lack of transparency now inherent in the maze of complexity coefficients and supplements. Reforming the public sector pay system into one based on pay grades, instead of solely relying on coefficients, could help in bringing Croatia's situation in line with those of more advanced economies within the EU. It would increase transparency, predictability, and manageability of the wage bill and pay system. A more consistent, unified system for determining wages and salaries in the public sector also would help to reduce the numerous court cases related to misinterpretations and nonperformance of the provisions of labor legislation and collective agreements. It could reduce the politicization of the system, thus promoting greater professionalism and improved efficiency in public sector administration. The key elements of public sector pay reform are described in Box 16.

Box 16: Principles of public sector pay reform

There are four general principles that should be followed in reforming or replacing a public sector pay system, which can be a difficult and complex project. First, adequate consultation with management, employees, unions, HR departments and any other units or agencies involved in the reform is critical. Although a quick implementation might seem appealing after the preferred pay structure has been identified, an overly rapid process without enough consultation at the start can lead to problems later on in the process.[63]

Second, the lessons for the public sector from private sector experience with pay reform are limited. The overriding goal of private sector pay system changes is to increase profits. By contrast, in the public sector the goals could include improving equity, accountability, and transparency, to name a few. Different stakeholders will hold different values in public sector reform processes. At the start of each reform process, an agreement on the problem and the goals of the reform among stakeholders is thus of the upmost importance.[64]

Third, several questions should be answered before one can choose a preferred pay structure. Among these, O'Riordan sums up the following[65]:

- How do we define 'internal equity'?
- How do we evaluate jobs?
- Is this compatible with the way we organize and manage work?
- Do we have a reason to preserve the existing hierarchy?
- What do we pay for - individual performance, team performance, tenure?
- Can we afford to ignore performance?
- What is the relative importance of the labor market and prevailing pay levels?
- In what way do we align salaries with those in the private sector?

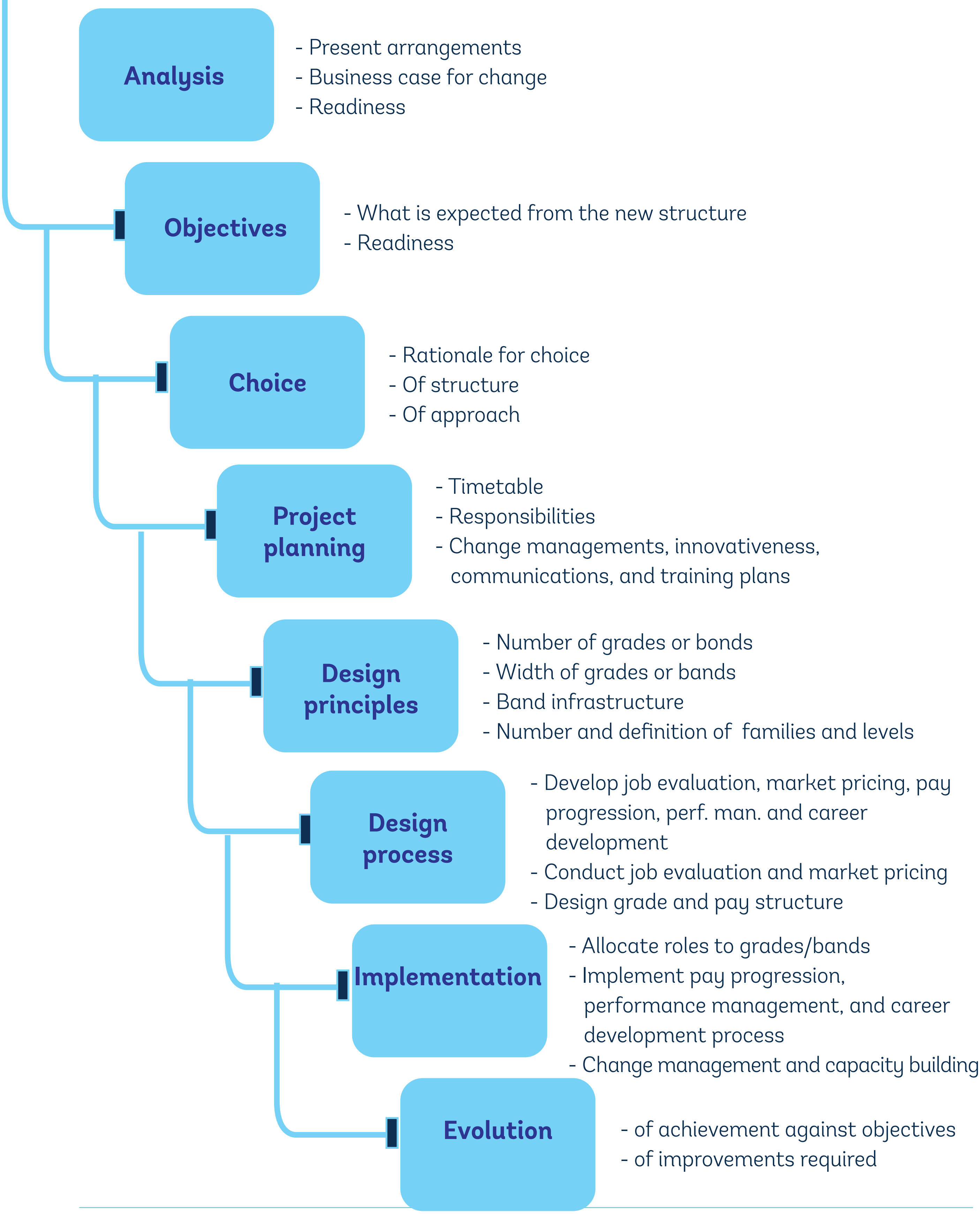
Finally, continuous evaluation and adjustments of the pay structure will be required after the new structure is in place. Every year, right before the end of collective bargaining agreements, the organization should consider how relevant the existing grading system is to the latest and updated organization needs, and whether it has fostered the values and achieved the objectives aspired to at the start of the reform effort. Establishing this practice of continuous evaluation should be a key action already during the implementation effort itself. The Box Figure provides an example of a reform process. Since every status quo is different for each country and organization, every reform process will look a tad different, so this should be interpreted as inspiration, rather than a blueprint.

[63] Armstrong M, and Brown D, 2001. New Dimensions in Pay Management, CIPD: London.

[64] Risher, H., 1994. The Emerging Model for Salary Management in the Private Sector: Is it Relevant to Government? *Public Personnel Management, 23(4).*

[65] O'Riordan, 2008. A Review of the Civil Service Grading and Pay System, p. 30.

Box 16 Figure 1. Example of reform process[66]



[66] Armstrong M, and Murlis H, 2005. Reward Management Handbook of Remuneration Strategy and Practice, 5th Edition,Kogan Page: London, p. 212

Chapter 3.

Health spending on pharmaceuticals

Croatia has a health system that offers near universal coverage for the population, with data on access and financial protection that are near the top among the new EU member states (EU 13). Per-capita health expenditure in 2017 was 6.8% of GDP , in line with the EU 13 countries and below the EU average of 9.8%. In absolute terms, per-capita health expenditure is the third lowest in the EU (US$1.272 in 2016, purchasing power parity adjusted), which is about 52% of the EU average and 85% of the EU 13 average . Compared to other EU countries, Croatia dedicates a larger share of its spending to hospital care and a lower share to primary care. Comparable data for total spending on pharmaceuticals across countries is not readily available , but expenditure for outpatient medicines and consumables in Croatia represents 21.6% of total health expenditures, higher than the EU average of 18.1%, but lower than EU 13 countries on average (23.8%)[70].

A closer look at the health financing situation reveals some trends that could be a cause for concern if not addressed in due time. For example, while significant funds flow into curative care, not much information is available on quality of care and "value for money" spent on different interventions. As in many other countries, new expensive medicines (EMs) and health technologies are a major cost driver for the health insurance fund, HZZO, and a driver for hospital arrears, which amount to 10-20% of total HZZO spending in recent years. This situation led the Ministry of Finance to request an analysis of pharmaceutical policies, with the objective of identifying options for improving value for money and predictability of spending.

The following chapter is based on documents from previous World Bank engagements, data obtained from HZZO, and information from stakeholder interviews. Taking into consideration the time and resource constraints, the note focuses on the "big picture" and tries to identify a limited number of policy options that (a) address key issues; and (b) appear realistic in terms of time and capacity needed to make measurable progress. In addition, it points out some areas that would require further in-depth analysis, in order to identify potential efficiency gains that are not obvious at first sight.

3.1. Characteristics of the pharmaceutical sector in Croatia

Against the backdrop of comprehensive health insurance coverage, most of the use of prescription medicines happens within the publicly financed health system. A single-payer system[71] gives the public sector strong leverage over market participants. Croatia has been diligent in availing itself of most pharmaceutical policy tools that are also used in other EU countries, for example reference pricing, generic prescribing, reimbursement ceilings, referencing across therapeutic groups, and managed entry agreements (MEAs) for patented (especially expensive) medicines.

[70] Eurostat, Jan 2020

[71] Complementary, voluntary insurance exists and has some role in covering co-payments in HZZO's Supplementary medicines list

Croatia has a strong domestic tradition in manufacturing pharmaceuticals. The leading Croatian generic manufacturer, Pliva[72], is part of the Teva Group, one of the largest international pharmaceutical companies[73]. Pliva produces generic drugs for the local market and acts as a manufacturing hub for Eastern Europe and Russia. It also makes medicines for export to the United States. Overall, pharmaceuticals account for about 7% of Croatia's exports.[74]

The domestic market is largely generic. Local manufacturers commanded a share of about 35% by value and 50% by volume in 2017[75]. However, recent trends point towards an increasing market share of patented, EMs; this may reduce the domestic share in the prescription medicine market over time. Over-the-counter medicines (OTC) are not subject to price controls and therefore create attractive commercial opportunities for manufacturers and retail pharmacies. A potential downside could be the increase in out-of-pocket expenditure for medicines that are not covered by insurance.

The distribution of medicines is by full-service wholesalers, who offer imported and domestically produced medicines. The wholesale margin for medicines paid by HZZO is capped at 8.5%. Pharmacy chains dominate the retail market. Several pharmacies are still publicly owned but operate under the same commercial rules as the privately-owned ones.

3.2. Pharmaceutical spending analysis

HZZO spending is a good proxy for public spending for pharmaceuticals (Box 17). In 2018, total pharmaceutical spending in Croatia is estimated at 7.6 billion HRK (US$1.18 billion) or 1,434 HRK per capita (US$289), which is around 2 percent of GDP. The same year, HZZO's pharmaceutical spending amounted to 5.86 billion HRK (US$902 million) or 1,434 HRK (US$220) per capita. This represented around 1.5 percent of the GDP (Figure 65, and Table 1.1 in Chapter 3 Annex 1). The above numbers show that around three quarters of pharmaceutical spending is publicly paid, a share that has been stable in recent years. Based on a combination of linear trends and HZZO's forecasts, HZZO's pharmaceutical spending will reach 1.8 percent of GDP in 2022 (7.9 billion HRK) while the total pharmaceutical spending could reach 2.38 percent of GDP (10.2 billion HRK).

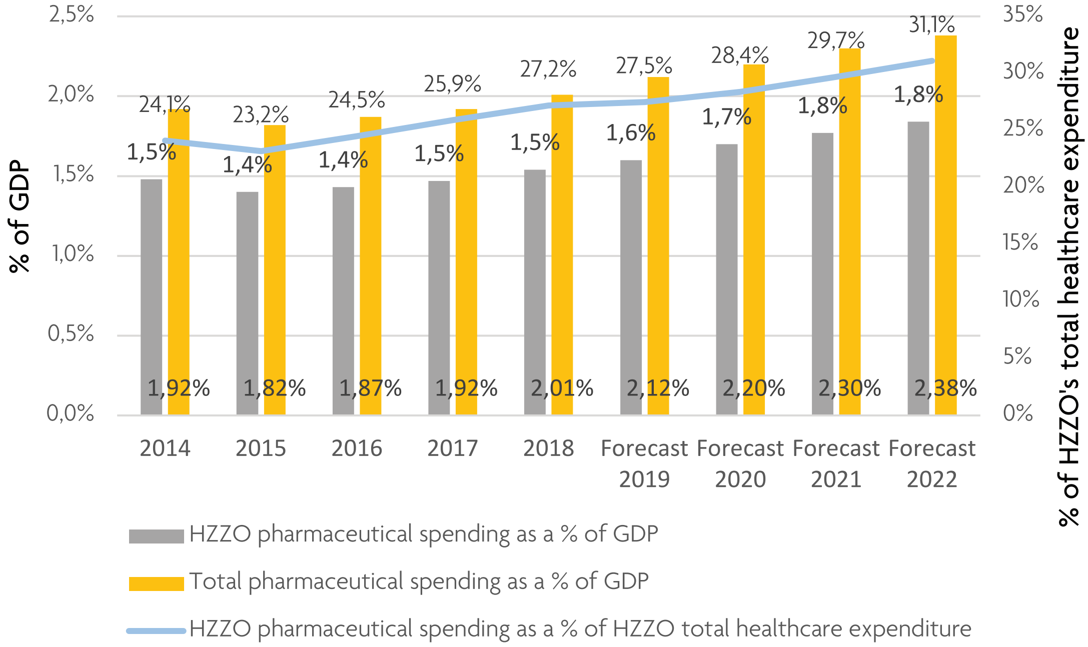
[72] http://www.pliva.com/

[73] Other major domestic generic producers include Belupo, JGL, PharmaS, etc.

[74] Ministry of Economy: http://investcroatia.gov.hr/en/sectors/pharmaceutical-industry/

[75] US Government: https://2016.export.gov/industry/health/healthcareresourceguide/eg_main_108576.asp

Figure 65. Share of total pharmaceutical spending and HZZO's pharmaceutical spending as a share of GDP



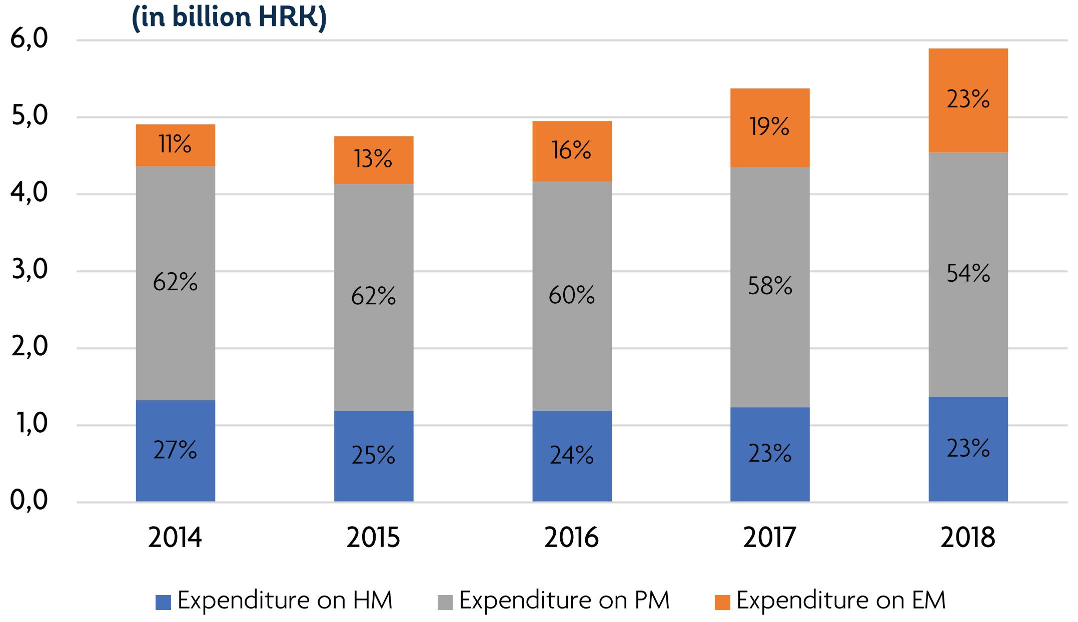
Note:
The forecasts for 2019-2020 are based on HZZO's forecasts (of total healthcare expenditure, PM and EM) as well as on the linear trend for HM and GDP.
Source: HZZO

EMs, dispensed in hospitals, have been driving increases in pharmaceutical spending in recent years. As described in Box 17, HZZO's pharmaceutical spending occurs through three distinct channels: (a) inpatient medicine paid as part of hospital budgets (hospital medicines or HM); (b) inpatient medicine paid from the Especially Expensive Medicine Fund (EMs); and (c) outpatient prescription medicines reimbursed to pharmacies (PM)[76]. In 2018, PM represented 54 percent of HZZO pharmaceutical spending (3.1 billion HRK), HM stood at 23 percent (1.3 billion HRK), and EM at 23 percent (1.3 billion HRK). Spending on EM has been increasing rapidly in recent years (see Figure 65). As a result, its share in HZZO's spending has been increasing to the detriment of other categories (see Figure 66). The information provided in Figure 66 confirms that the increase in HZZO's pharmaceutical spending is driven mainly by the category of EMs, both in absolute and relative terms (i.e., when accounting for the overall increase in HZZO's pharmaceutical spending). HZZO's total pharmaceutical spending, which in 2018 represented 27 percent of total HZZO's healthcare expenditure, has grown on average 5 percent a year between 2014 and 2018[77] (see Figure 67). The growth of other categories of HZZO health spending has been much slower, resulting in an overall average spending growth rate in HZZO health expenditure of 1.6 percent per annum, lower than the GDP growth rate (3.7 percent). The average annual growth rates of the main pharmaceutical spending categories (2014-2018) are provided in Figure 67.

[76] PM and EM are budgeted separately by HZZO.

[77] The average yearly growth rates are calculated based on a small number of observations (i.e., data available for 2014-2018) and hence need to be interpreted with caution due to the impact of particular annual growth rates on the average growth rate. Moreover, the negative growth rates between 2014 and 2015 in some spending categories reduce the average growth rates calculated for the same period which increases the gap between in the past and the future growth rates.

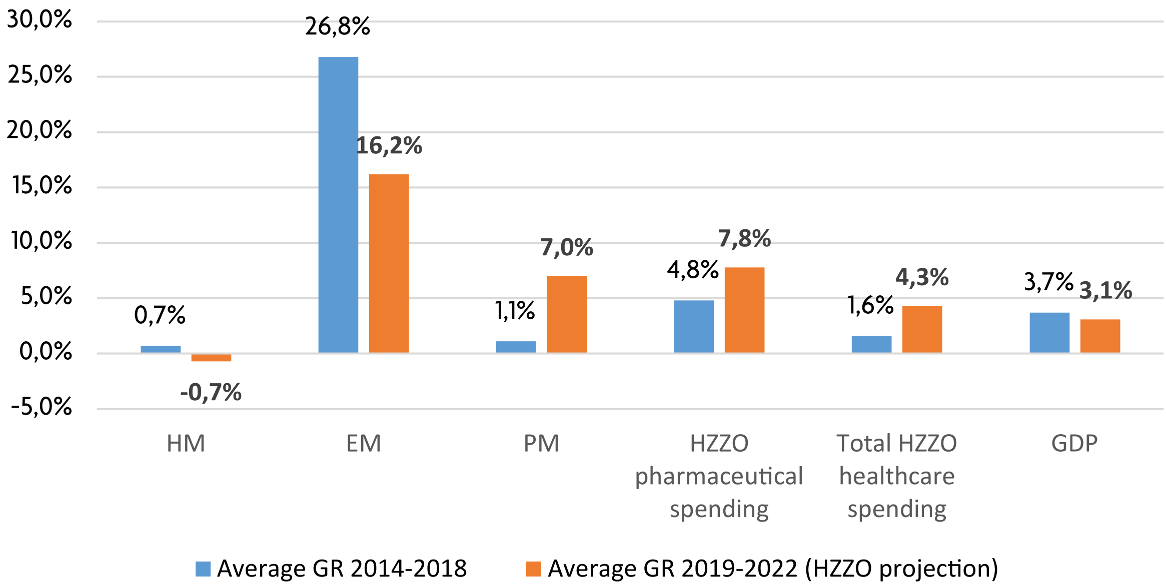
Figure 66. Hospital medicines (HM), expensive medicines (EM) and outpatient prescription medicines (PM) spending and their respective shares in HZZO pharmaceutical spending (in billion HRK)



Note:
the % represents the proportion of the total spending.

Source: HZZO

Figure 67. Average yearly growth rates of the main pharmaceutical spending categories, total HZZO healthcare spending, HZZO pharmaceutical spending and GDP (2014-2018 and 2019-2022 forecasts)



Note:
PM, EM and total HZZO spending are based on HZZO projections, otherwise based on linear trends.

Source: HZZO

In recent years, increases in spending on outpatient prescription medicines have been relatively slow and driven by volume. As Figure 67 shows, PM spending[78] has grown on average by 1.1 percent per annum in 2014-2018 period. However, data in Table 14 highlights that, on a per capita basis, PM spending has been growing nearly double that (2.1 percent per annum). This growth is primarily driven by an increase in consumption rather than prices. Indeed, the number of prescriptions per capita has been rising rapidly (4 percent per annum). Prices per package, on the other hand, have been decreasing by more than 2 percent a year, on average.

Table 14: HZZO spending for PM per capita and per package

Year	Per capita HZZO spending for PM*	Average HZZO spending per package*	Number of packages per capita
2014	712.1	37.4	13.3
2015	688.7	34.6	13.9
2016	714.4	34.4	14.4
2017	749.2	34.5	15.0
2018	771.2	34.0	15.6
Average yearly growth rate 2014-2018 (%)	2.1%	-2.3%	4%

*Excludes dispensing fees and co-payments

Source: HZZO

In contrast to relatively stable outpatient prescription medicine spending, the spending on EM reimbursed through the Especially Expensive Medicine Fund almost tripled between 2014 and 2018 (527 mil HRK in 2014 to 1.36 billion HRK in 2018), leading to an increased share in HZZO's pharmaceutical spending from 11 to 23 percent in 2018 (see Figure 66). The EM spending grew on average by 27 percent a year (see Figure 67), the highest average growth rate among the spending categories. This is not necessarily surprising: new therapies typically come with a very high price tag. All countries - including in the Organization for Economic Co-operation and Development (OECD) - struggle to strike a balance between the legitimateexpectations of their populations to access the most advanced treatments. The important question is how to ensure value for money in public spending given the increasing availability of new, expensive therapies.

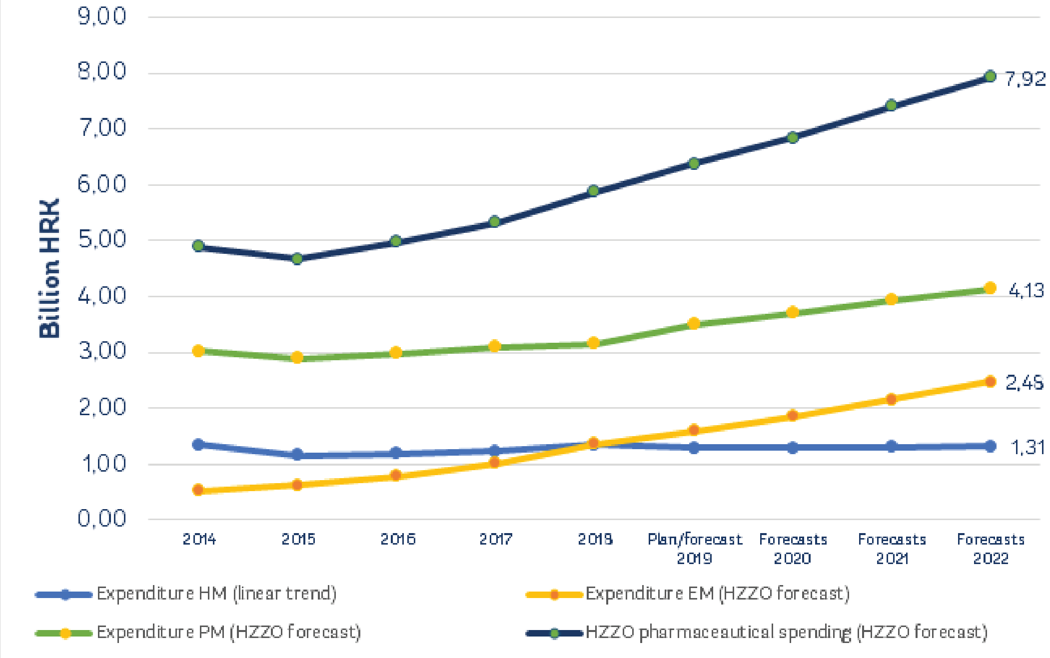
Over the next few years, HZZO anticipates a further acceleration of pharmaceutical spending growth. As also shown in Figure 68, HZZO anticipates that spending on PM will increase by an average of 7 percent per annum (a more rapid average yearly growth than in the previous years) while the average yearly growth in EM spending is expected to slow in the future (2019-2022) from 27 percent to about 16 percent per annum, on average. In general, HZZO expects their spending on pharmaceuticals during the next years will grow even faster than it did in the past five years. Figure 68 shows HZZO's pharmaceutical spending (broken down by

[78] Data analysis excludes spending on dispensing fees and co-payments

reimbursement category) over time, based on HZZO projections (PM, EM) and linear trend projections (HM, calculated by the team).

Figure 68. HZZO's pharmaceutical spending per category)

Source: HZZO



Note:
HM component in HZZO pharmaceutical spending is based on a linear trend because HZZO does not forecast the HM spending due to the DRG-based system of hospital payments.

The nature of spending on pharmaceuticals is broadly driven by the burden of diseases. The biggest share of HZZO's budget for prescription medicines is spent on medicines treating chronic diseases (such as cardiovascular diseases, diabetes), both in terms of value and volume (see Table 15 and Table 16). The value and volume of the most prescribed International Non-proprietary Name for medicine active ingredients (INNs) listed in Tables 15 and 16 has seen little change in their relative ordering between 2014 and 2018. Among EMs, the highest expenditure is for biological therapies used to treat cancer and chronic diseases such as rheumatoid arthritis (see Table 17).

Table 15: Top 10 outpatient prescription medicines by value (total for 2014-2018)

Rank	INN	Share in HZZO PM spending	Share in HZZO pharmaceutical spending	Main condition/indication
1	Enteral nutrition products	3.93%	2.44%	Prevention of malnutrition in different conditions
2	Atorvastatin	2.05%	1.27%	Cholesterol lowering drug to decrease the risk for heart attack and stroke
3	Inzulin-aspart	1.99%	1.23%	Type-I and type-II diabetes
4	Paliperidon	1.91%	1.18%	Second-generation antipsychotic for treatment of schizophrenia and schizoaffective disorder.
5	Pantoprazol	1.87%	1.16%	Reduction of stomach acid
6	Salmeterol + flutikazon	1.60%	0.99%	Asthma
7	Bisoprolol	1.47%	0.91%	Hypertension
8	Amoksicilin + clavulanic acid	1.43%	0.88%	Antibiotic
9	Ramipril	1.34%	0.83%	Cardiovascular conditions, e.g., hypertension, congestive heart failure, nephropathy
10	Ibuprofen	1.25%	0.77%	Treatment of pain, inflammation and fever

Source: HZZO

Table 16: Top 10 outpatient prescription medicines by volume (total for 2014-2018)

Rank	INN	Share in the total number of prescriptions	DDD/1000/day (rank in 2018)	Main condition
1	Bisoprolol	3.78%	21.3 (12th)	Hypertension
2	Diazepam	3.69%	37.25 (4th)	Benzodiazepine used for sedation, in treatment of anxiety disorders, alcohol withdrawal, muscle spasms
3	Ibuprofen	3.14%	22.10 (11th)	Treatment of pain, inflammation and fever
4	Pantoprazol	2.86%	37.11 (8th)	Reduction of stomach acid
5	Alprazolam	2.47%	26.03 (5th)	Benzodiazepine used for sedation, in treatment of anxiety disorders, panic attacks, anxiety caused by depression
6	Ramipril	2.45%	56.96 (1st)	Cardiovascular conditions, e.g., hypertension, congestive heart failure, nephropathy.
7	Atorvastatin	2.24%	42.24 (2nd)	Cholesterol lowering drug to decrease the risk for heart attack and stroke
8	Amlodipin	2.16%	43.37 (3rd)	Hypertension, chest pain (angina) and other conditions caused by coronary artery disease.
9	Tramadol+ paracetamol	2.01%	N/A	Treatment of moderate to severe pain
10	Amoksicilin + clavulanic acid	1.78%	7.43 (36th)	Antibiotic

Note:
Data provided by HZZO. Refers only to prescriptions by primary care physicians. DDD rank signifies the ordering of INNs according to the daily quantity consumed (expressed in DDD/1000 inhabitants/day) published by HALMED, the drug regulatory agency of Croatia.
Source: HZZO

Table 17: Top 10 outpatient expensive medicines by value (total for 2014-2018)

Rank	Top 10 INN by value	Share in HZZO EM spending	Share in HZZO pharmaceutical spending	Main condition
1	Trastuzumab	12.18%	1.94%	Cancer
2	Rituksimab	5.59%	0.89%	Cancer, rheumatoid arthritis
3	Adalimumab	4.72%	0.75%	Cancer
4	Nilotinib	4.62%	0.74%	Cancer
5	Interferon beta- 1a	3.37%	0.54%	Multiple sclerosis
6	Imigluceraza	3.03%	0.48%	Gaucher disease
7	Sunitinib	2.78%	0.44%	Cancer
8	Infliksimab	2.71%	0.43%	Crohn’s disease, rheumatoid arthritis
9	Pembrolizumab	2.68%	0.43%	Cancer
10	Pertuzumab	2.27%	0.36%	Cancer

Source: HZZO

Box 17. Data on Pharmaceuticals

The analysis of pharmaceutical spending in this report is, for the most part, based on data provided by HZZO, which is the main and most reliable data source. This box clarifies the limitations of HZZO data and explains how it was used in this report and how it relates to overall spending on pharmaceuticals.

Due to the set-up of the reimbursement system, HZZO is able to report data on three categories of drugs: (i) (regular) inpatient "hospital medicines" (HM) which are funded from hospitals' regular budgets, (ii) EMs, also dispensed in hospitals but paid separately through an Especially Expensive Medicine Fund, and (iii) outpatient or prescription medicine (PM) dispensed in pharmacies. HZZO provided data for these three categories for the years 2014-2018, with preliminary figures for 2019 and projections for the following few years. There are, however, a few noteworthy issues and limitations in relation to each category of spending reported by HZZO.

First, given the payment system in place, hospitals have no incentive to accurately report expenditure on HM paid out of their budgets. Indeed, hospitals are funded through capped budgets allocated by HZZO. These budgets are (retrospectively) linked to the hospital's activity using a system of DRGs, which are supposed to reflect the relative complexity (and cost) of delivering particular treatments. So, while hospitals are responsible for managing their own overall budgets, they can do so without the benefit of the elaborate analytical accounting system that would be required to accurately track pharmaceutical spending. The figure that hospitals report for spending on HM is considered by HZZO to be underestimated by about 20 percent (around 5 percent of HZZO pharmaceutical spending). However, as this assumption cannot be verified, the report uses the HM data as obtained from HZZO.

Second, for spending on EM, the data reported by HZZO is slightly overestimated. Indeed, as discussed in the report, if HZZO's spending on a specific drug on the EM list exceeds a pre-agreed amount, the manufacturer refunds all or a part of the excess spending to HZZO, ex post. As a result, actual spending on EMs can only be known retrospectively by deducting the cumulated refunds received for those EMs in the year. Data provided by HZZO suggests, however, that the refunded amounts are relatively modest and hence are disregarded in this analysis.

Third, part of the spending on PM reported by HZZO is not paid from public funds. Spending on outpatient medicine reported by HZZO data is broken down in (i) amounts paid to pharmacies for these prescription medicines; (ii) dispensing fees; and (iii) patients' co-payments for a supplementary list of medicines. Typically, dispensing fees and co-payments are paid either out-of-pocket by patients or through voluntary health insurance and can be considered private spending. Spending on PM by HZZO discussed in the report refers only to the first category.

Based on this understanding, the report uses *"HZZO pharmaceutical spending"* as a proxy for public spending on medicines. *HZZO pharmaceutical spending includes* PM, EM and HM but excludes co-payments and dispensing fees on PM as well as OTC. Refunds for EM are not deducted, nor do the figures account for the possible 20 percent underestimation of HM. Under these assumptions, HZZO pharmaceutical spending amounted to 5.86 billion HRK (US$902 million) or 1434 HRK (US$220) per capita in 2018.

In conclusion, spending reported to or by HZZO does not represent the total pharmaceutical spending in Croatia. The main gap is OTC medicines (which patients procure privately). Data from the National Health Accounts suggest that the value of these OTC medicines is around a quarter of total spending on PM. Our estimate of private spending on medicines includes dispensing fees and co-payments on PMs as well as OTC spending assumed to represent 25 percent of PM spending.

Based on these assumptions and the data provided by HZZO, the best estimate for total pharmaceutical spending in Croatia in 2018 would be at least 7.6 billion HRK (US$1.18 billion) or 1434 HRK per capita (US$289). This estimate includes both private and public spending - PM, EM and HM, as well as private spending on dispensing fees, co-payments and OTC (but excluding refunds from the industry to HZZO and not accounting for the 20 percent underestimation of HM).

No data is publicly available which would allow direct international comparison of total spending on pharmaceutical across countries. Eurostat/OECD provides data on outpatient medicines that in Croatia represents a bit more than half of the total but may represent a different proportion in other countries.

3.3. Pharmaceutical policies and institutional arrangements

Medicines pricing

Responsibility for the pricing of medicines has recently moved from HZZO to the regulatory agency (HALMED). HALMED sets maximum wholesale prices for medicines as part of the marketing authorization. It uses an external reference-pricing model with Slovenia, Czech Republic and Italy as main comparator countries. Spain and France are used as back-up countries if the medicine under review is not on the market in one or more of the three main countries. Prices are set at the INN level based on the average price of all the reference countries (the price for each country is calculated as the average price for all brands of one INN). The wholesale price includes an 8.5 percent wholesale margin. There is no retail margin for medicines covered by HZZO[79].

In addition to the external reference pricing by HALMED, **the HZZO annually engages in therapeutic reference pricing,** a process of price recalculations where the prices for INNs with comparable therapeutic effect and side effects are set based on the price of the product with the lowest price in the group ("Jumbo Groups") having at least 5 percent of the market share over a 6-month period. As an example, all proton-pump inhibitors are priced based on the brand with the lowest price among different INNs (omeprazole, esomeprazole, pantoprazole, etc.). All previously higher priced products must then either lower their price or are moved to the Supplementary List[80]. This mechanism ensures that reimbursement rates for medicines go down with increasing competition in the market, creating fiscal space for the introduction of newer, EMs.

The HZZO reimbursement list is used as a secondary price control instrument for the part of the market covered in full (Basic List) or partially (Supplementary List) by health insurance. Once the patent for a medicine has expired and generics enter the market, the first generic can be priced at a maximum of 70 percent of the originator price. Every subsequent generic introduction comes with a price of 95 percent of the previous one or below. A similar mechanism is in place for "me-too" introductions under the so-called "Jumbo Groups": each newly introduced product is priced at a maximum of 95 percent of the price of comparable products of the same group.

Medicines reimbursement

For innovative medicines, once a product is recommended by the European Medicines Agency and receives marketing authorization by the European Commission,[81] it is automatically licensed for use in Croatia under EU legislation. The market authorization holder (MAH) then applies to HZZO for reimbursement. Depending on pricing negotiations, the medicine can ultimately (a) be listed on the Basic Medicines List (no-copayments, the case for all EMs financed from the Expensive Medicines Fund); (b) reimbursed from the Supplementary List (with co-payments); or (c) rejected. Some of the details of the review process are laid out in

[81] Further information: https://www.ema.europa.eu/en/about-us/what-we-do/authorisation-medicines

Box 18 below. One of the outcomes of this process over the past years has been such that spending for EMs tripled over five years, as shown in the spending analysis section.

Box 18. Inclusion of innovative medicines in the reimbursement list

HZZO's Committee for Medicines is responsible for assessment of dossiers submitted when the MAH applies for reimbursement of innovative medicines (new international non- proprietary name, INN) as well as forming reimbursement recommendations. The HZZO's Management Board makes the final reimbursement decision. HZZO's Committee for Medicines has nine members (clinical experts and HZZO staff, politically appointed by HZZO's management Board) as well as 40 associated members.

HZZO's submission and appraisal guidelines, which regulate the process and the content of reimbursement requests as well as appraisal criteria, were strengthened over time[82]. The regulation introduced in 2009 (Official Gazette 155/09) improved the quality of submitted dossiers by requesting more robust evidence on the relative advantages of the medicine under consideration over comparator treatments and the comparison of the reimbursement status and financing of the medicine in all EU Member States. In 2013, the new Ordinance (Official Gazette no 73/13 and 33/19) further defined other details relevant for a more through appraisal of clinical benefits.

Despite these advancements, the submitted dossiers vary in quality although the quality of the submitted dossiers does not necessarily affect the appraisal recommendations or reimbursement decisions. No formal mechanism to deal with inconsistencies or variabilities in decision-making exists. The reimbursement process has not been periodically analyzed and improved, so the lessons from the past are not integrated in the process.

Value-for-money analysis of medicines proposed for reimbursement, such as cost-effectiveness analysis, is not requested as part of the submission dossier nor is it conducted by HZZO. The health economic assessment is limited to budget impact analysis focusing exclusively on HZZO's costs. Value-for-money analysis would imply a head-to-head comparison of the (incremental) costs relative to (incremental) benefits of the appraised medicines and the judgement on whether the proposed medicine produces additional health benefits at a socially acceptable cost. HZZO has no guidelines on value-for-money analysis (e.g., methodology for cost-effectiveness analysis which would ensure high-quality submissions) so even when cost-effectiveness studies are submitted as a part of the reimbursement dossier, their quality cannot be appropriately assessed.

HZZO's formal in-house expertise in the domain of health economics required for conducting or evaluating the quality of value-for-money analysis submitted within reimbursement requests is, at best, limited. The National Health Technology Assessment department is rarely consulted, although its expertise in value-for-money analysis is also, at best, limited. HZZO's employees have no formal

[82] Starting already in 2009, especially improving with the Ordinance on Criteria for Inclusion of Medicinal Products in Basic and Supplementary Reimbursement Lists from 2013 and 2019 (Official Gazette no 76/13; 33/19)

[83] Available at: http://www.euro.who.int/__data/assets/pdf_file/0009/373581/Can-people-afford-to-payCroatia-WHO-FP-007-2.pdf?ua=1

health economics training. Moreover, two main bodies in charge of the reimbursement process - HZZO's Committee for Medicines and the Management Board - are not appointed through an open, transparent process. The time and attention available to committee members for evaluating company submissions is limited, since members have other full-time employment.

Value-for-money analysis requires detailed high-quality, reliable and available local epidemiological, outcomes and costing data – all currently unavailable in Croatia. There are basic epidemiological data available, while treatment outcomes data are generally unavailable (e.g., no patient registries or real-world outcomes data). Few randomized clinical trials are conducted in Croatia to facilitate the provision of local outcome data.

The appraisal process is not guided by formal multi-criteria decision analysis. Attempts were made in the past to introduce a formal checklist, which would guide the appraisal process and award scores against some formal, systemized and transparent criteria, but were abandoned. The appraisals of the Committee of Medicines are not publicly available in any form.

Although HZZO manages a limited budget, there is no process of prioritization in place when appraisal recommendations or reimbursement decisions are formed. These decisions also rely on a broader set of healthcare funding priorities. Priorities with respect to medicines funding is internalized in the reimbursement decisions with no formal criteria.

All EMs require a MEA to be reimbursed. This is the main tool for HZZO to manage budget impact.

The process is less demanding for generics, biosimilars and "me-too" products for which reimbursable equivalents exist already in Croatia. They are included in the reimbursement list following an application of the MAH, once they comply with HZZO's pricing regulations. These medicines will be included in the Basic List or the Supplementary List. Once a product is on the Supplementary List, it is reimbursed by HZZO up to the level of the equivalent product on the Basic List, with the patient paying the price difference out-of-pocket. The pharmacist is obliged to inform the patient of the need to pay extra and can substitute the product with a cheaper equivalent. There is no co-payment if patients receive medicines from the Supplementary List while in hospitals.

Patients can buy voluntary supplementary health insurance from private health insurers that cover co-payments for medicines (HZZO, the main provider of supplementary insurance in Croatia, does not offer the coverage of co-payments). Children under 18, war veterans, and other vulnerable groups are exempt from co-payments. On balance, only about 14 percent of patients are making the co-payments themselves[83].

HZZO has a separate budget for EMs, typically patented molecules and biologics for the treatment of cancer, autoimmune and rare diseases, termed the "Especially Expensive Medicines Fund". The reimbursement process for these EMs is the same as for other patented medicines. The EM List was

[83] Available at: http://www.euro.who.int/__data/assets/pdf_file/0009/373581/Can-people-afford-to-payCroatia-WHO-FP-007-2.pdf?ua=1

created for administrative purposes; it is merely a subset of medicines and indications already listed on the Basic Medicines List that can be distinguished from other medicines/indications mainly by their high price (although a strict criterion in terms of a threshold price for considering any particular medicine as an "Expensive Medicine" does not exist) and special prescribing procedure (patients are prescribed medicines from the Expensive Medicines List following a hospital physician-specialist's request and upon approval of the Hospital Medicine Council and HZZO). Funding of the EMs from the Expensive Medicines Fund, i.e., on-top of hospital budgets, is meant to (a) avoid imposing their relatively high cost on limited hospital budgets; and (2) ensure a more equitable and uninterrupted access for all patients in Croatia, independent of the limits of their local hospital's budgets.

While prices for EMs are formally regulated by HALMED (maximum price based on external referencing), HZZO reimburses based on risk-sharing agreements that allow for better budget impact management and reduce the incentive for the supplier to encourage overuse of these medicines. Risk sharing or MEAs come in different forms. A typical approach is to negotiate a budget or volume ceiling. If the ceiling is exceeded, the supplier provides the product for free or refunds the payer for the overpayment. There are also a few outcome-based agreements that limit payment to cases with proven efficacy of the treatment or cross-brand agreements that compensate for the high price of a new medicine with price cuts for older medicines already on the market. Croatia has been one of the first Western Balkan countries to introduce and use MEAs widely.

As most of these EMs are used in hospital settings, **the budget for them is split up and each hospital gets an annual allowance for the use of such medicines.** However, interviews with informants suggest that the annual allowance is notional; hospitals get reimbursed even if they overspend, so long as such medicines are used for approved indications. Hospitals do have to use their general revenue to pay for the EMs' costs for conditions other than indications approved by HZZO. When facing budget overruns, hospitals (especially tertiary ones) go into debt and delay payment to suppliers up to a point at which there is political pressure to top up the budget and eliminate the arrears. In summary, while the system for management of EMs is designed in a rational way, its cost-containing effect is undermined by the routine bailouts for hospitals that see the most expensive patients and the lack of monitoring and in-depth investigation for reasons behind budget overruns. Such arrangement removes all economic incentives for hospitals to behave rationally and operate efficiently.

Utilization monitoring

The list of HZZO's indication guidelines (reimbursement formulary) is publicly available [84]. Medicines listed on the Basic and Supplementary Lists (whether PM, EM, or HM) are usually accompanied by their respective indication guidelines, i.e., prescribing restrictions. These guidelines, issued by HZZO, show which indications are reimbursed per medicine and under which conditions (i.e., it includes diagnostic parameters as prescribing restrictions).

[84] https://www.hzzo.hr/indikacije-smjernice/

Treatment guidelines, on the other hand, are produced and endorsed by different medical professional societies. There are treatment guidelines for common illnesses/conditions that cover primary care, secondary care and pediatric conditions, but are not regularly updated. Importantly, however, there are no national, evidence-based treatment guidelines (which would include pharmacotherapy guidelines) that are universally endorsed and applied in Croatia as well as readily available in all public health practices (e.g., hospitals). Consequently, significant gaps between the reimbursement formularies and the issued professional treatment guidelines can occur. Treatment guidelines created by medical professional societies are often based on European or United States guidelines which endorse new, expensive technologies, creating pressure for HZZO to reimburse and make the same technologies available in Croatia.

Use of outpatient medicines

The Croatia health care information system assists physicians in prescribing, providing information on the indications and available therapies. The electronic prescription system makes it possible for HZZO to have direct and complete data on outpatient medicine use[85] while increasing patients' access to prescribed medicines. Incentives for prescribing generics are not considered necessary since HZZO pays the reference prices of medicines and, as a consequence, most manufacturers lower their prices to avoid co-payments. Strict controls of prescribing behavior are imposed by HZZO and financial fines are in place. HZZO is well equipped to monitor use of outpatient medicine on both staffing and data infrastructure. HZZO has over 120 staff responsible for monitoring prescribing behavior and intervening if physicians do not adhere to HZZO's prescribing restrictions (which are designed to promote rational prescribing of individual products).

It is not clear, however, how well HZZO monitors the use of medicines based on available data, as HZZO did not share data on the parameters used for monitoring the outcomes of interventions. Global experiences show that regular analysis of medicine use may point to loopholes in pharmaceutical policies and represent opportunities to promote rational use of medicines and improve value-for-money. For example, many insurance organizations routinely analyze use of antibiotic use, use of first line versus second/third line treatment for chronic diseases and cancer, polypharmacy (or the use of multiple medicines by a single patient, which increases the risk of medication errors) in treatment of elderly patients or other manifestations of non-rational use of medicines, as well as variations between different prescribers. It is yet to be understood how (even whether) HZZO refines policies based on findings of drug use monitoring and analysis. Anecdotal reports suggest that non-rational use may be a problem (e.g., duplication of therapies), despite the tools and transparency offered by the system.

Analysis of prescription recommendations by specialists could be useful in improving value for money. Some characteristics, such as personality traits, are clearly not observable. Thus,

[85] The software used for prescribing offers HZZO a detailed overview of what is prescribed to which patient, under which diagnosis. Moreover, it helps physicians prescribe the least expensive medicine among the comparable treatment options (dropdown menu with different colouring of alternative treatments based on their listed price) and thus contributes to decreasing HZZO's pharmaceutical spending.

Primary care physicians prescribe all outpatient medicines. For patients receiving a consultation with a specialist in one of the hospital outpatient clinics, the formal prescription also must be issued by the primary care physician responsible for the patient. The hospital specialist only issues a recommendation for treatment. The fact that primary care physicians are expected to issue prescriptions based on recommendations from hospital specialists creates a potential dilution of accountability. The primary care physician may not want to object, even if the recommendation is outside the limits of rational use for the individual patient. HZZO could analyze its data to verify whether this is a relevant concern.

Use of inpatient medicines

The use of inpatient medicines is monitored mainly within hospitals, not centrally by HZZO (due to the DRG-based system of payments). Among inpatient medicines, HZZO directly monitors only the use of EMs. The EMs are prescribed only within hospitals and only with approval of the Hospital Medicine Council, followed by HZZO's approval. The Hospital Medicine Councils, as well as HZZO, oversee the pre-defined diagnostic parameters of patients treated with EM, forming the basis for the decision on treatment continuation or termination.

For EMs, however, there is no systematic follow-up to establish real-world outcomes of treatments that may cost many thousands of Euros per patient per year (beyond the pre-defined diagnostic parameters).[86] Croatia lacks a central function that could follow up individual patients to verify that new treatments are living up to the promise and provide value for money under the local conditions. While managing budget impact through MEAs is an effective and necessary first step in managing EMs, it should not lead to complacency, but be seen as a foundation for a more holistic approach that uses real-world evidence for subsequent decision-making on whether an EM should remain on the reimbursement list or be removed in favor of better alternatives. Individual follow-up also would create a basis for more MEAs of the "pay for outcomes" type. Croatia has experience with this approach from Hepatitis C treatments, for which success can be established relatively easily through a lab test. Other countries increasingly apply this approach also to treatments for cancer and rare diseases that allow for definition of objective criteria (i.e., outcomes) for treatment success.

Medicine procurement

In 2012, the Ministry of Health (MoH) initiated a centralized procurement program for medicines and consumables for public hospitals to rationalize costs and ensure standardized quality of procured goods. The program has been implemented ever since, with some interruptions and several modifications regarding the list of procured goods and the model in which it is

[86] Personal information from Rebro Hospital management

organized. Currently, MoH acts as the central purchasing body with a dedicated department for centralized procurement in charge of all procurement processes. Participation in the program is only mandatory for 10 state-owned hospitals, while other hospitals participate on a voluntary basis. Close to a half of total annual hospital spending on drugs, commodities and supplies are procured centrally, with substantial results in terms of savings over the eight-year period.

Further measures could increase value for money in the procurement of pharmaceuticals. In order to sustain achievements and realize further savings, MoH will need to invest substantial additional efforts to develop a detailed catalogue of procured goods that will enable further standardization across the range of procured products. However, a modest leeway for specific needs will need to be left, as it is not realistic to expect that all procurement can be fully standardized. Furthermore, investments in supply chain management could accrue substantial additional savings through improved management of stock using just-in-time, bedside scanning and similar principles. Finally, some thought should be given to reconsidering the list of procured categories as, for instance, the practice of centrally procuring single source (patent protected) medicines (the expenditure of which is fully controlled through MEAs between the HZZO and the pharmaceutical companies) makes little sense.

The HZZO has not adopted the model of tendering for "preferred generic" on the Basic List, as other EU countries are doing. This model offers one particular generic (or limited number of products to ensure availability) preferred reimbursement status for a given period of time, based on the lowest price(s) offered. It is not clear how much HZZO could save by introducing such a model. The current internal referencing mechanism already creates downward pressure on prices. Therefore, a more detailed analysis would be needed to assess savings potential from generic tendering by HZZO.

One potential indicator for savings potential in generic prices is the level of rebates and "bonuses" given by manufacturers to wholesalers and retailers to ensure their products are on the shelves. In a market characterized by homogeneous prices among 10 or more competing generics, availability at retail level becomes critical for sales, as pharmacists have substitution rights. Wholesalers and retail pharmacies use their power to control shelf space by putting pressure on manufacturers. In some cases, they can bargain for significant discounts or free product (buy one, get one free) and profit from selling these products for the full price. If this is the case, and it can be quantified objectively, it would give an indication of how much HZZO could save by contracting directly with manufacturers through a tendering model.

3.4. Overall Findings

The Croatian medical system faces major cost pressures. While reliable data on hospital medicine (HM) spending is not available for this study, the data provided by HZZO shows that HM spending has been relatively stable over the years (see above). On the other hand, the overall hospital expenditure (reimbursed through DRGs) is one of the fastest growing components of health care expenditure, 45 percent over past 5 years, and hospital arrears have long been plaguing the system. These arrears have been boosted by the high cost of expensive medicines (EMs, including high-cost medicines not on the Basic Medicines List), much higher than what the hospital gets as its allocation from HZZO for this purpose. Costs for such medicines become the main driver for hospital arrears and require periodic injections of additional funds into the health system The practice of bailing out hospitals that go into arrears may cause complacency, as nobody seems to have a real incentive to improve the system. The issues of high overall costs and hospital arrears, although not the focus of this study, constitute the backdrop of the country health system and may affect formulation and implementation of pharmaceutical policies.

The mechanisms in place to control prices of prescription medicines (PM) seem to be effective, overall. However, the growth in PM volume emphasizes the need to further promote rational use. The fact that the number of prescription per capita is rising is not necessarily surprising given an aging population. However, polypharmacy (or the use of multiple medicines by a single patient) increases the risk of medication errors, especially for elderly people. Greater efforts might be needed to ensure that medicines are prescribed appropriately, and reconciled to avoid omissions, duplications and detrimental interactions.

Co-payments have also seen a considerable growth in the previous years. Although co-payments are private payments and do not contribute to HZZO's pharmaceutical spending, their growth indicates that an increasing percentage of PM expenditure is being transferred to patients, and it would be important to understand why this is happening and exert control over the trend. A high level of co-payments may have negative effects not only on household consumption but also on health outcomes, especially in patients with lower socio-economic status.

At a more fundamental level, Croatia's "right-to-health" legislation sets the scene for growing pharmaceutical spending. The legislation specifies explicitly that every patient has the right to receive the medicine that the treating physician sees as necessary for managing the patient's condition, even if this medicine is not on the Basic or Supplementary List.[87] The physician must make the case to the Hospital's Medicine Council in which the patient is treated. This committee, made up of hospital staff with no specific training in how to analyze value for money for a new EM, has the sole authority to decide whether to follow the physician's recommendation. Such decisions

[87] Excerpt from "Response of the Croatian Authorities regarding the Letter of the Special Rapporteur on the right of persons with disabilities to the highest attainable standard of health:": *"In certain cases, the insured person whose treatment for medical reasons cannot be undertaken with medication listed in the primary or supplementary HZZO lists has a right to medication not determined by said lists, under the condition that said medication use has been approved by the healthcare services commission of the institution in which the insured person is being treated, and at the expense of the hospital or healthcare institution which is required to ensure the acquisition of the medication. Under the same conditions and in the same manner, the insured person can exercise the right to medication determined by the primary or supplementary HZZO lists of medications in the case when the insured person does not meet the medical indications specified by the lists of medications."*

sometimes happen under immense public pressure, pushed by the patients' families and potentially the manufacturer of the medicine in question, with involvement of news media that love human-interest stories on patients with rare diseases. Under such circumstances, a negative decision is hard for the hospital to defend.

Once the positive decision has been made to treat a patient with a medicine not reimbursed by HZZO through the Basic or the Supplementary List, **the hospital is obliged to procure it at its own cost, within a short timeframe, that creates a very weak bargaining position.** The manufacturer must obtain a price from HALMED to be permitted to sell to the hospital, but this does not create a major hurdle as HALMED offers a fast-track procedure for this purpose. The patient's right thus creates a situation in which a few tertiary hospitals face immense costs for treating very few individuals with rare diseases, outside the framework developed by HZZO to manage high-cost medicines[88] (e.g., Rebro Hospital in Zagreb, which is the biggest hospital in Croatia with the most severe cases).

Strengths and weaknesses of the system

Overall, Croatia is applying a range of policy tools that correspond to general practice in the EU and have helped the country contain the growth of expenditure on medicines, while ensuring access to effective treatment for the population. There are no major omissions or obvious areas for reform that could generate a quick and significant win in efficiency without negative impact on access and outcomes.

However, there are some concerns that past successes in managing expenditures have led to a degree of complacency, and authorities may not be fully aware of market participants finding ways to grow sales without necessarily delivering adequate value. The pharmaceutical sector should not be a prime target for spending cuts or efficiency measures. As a previous World Bank study pointed out, the opportunities to improve overall system efficiency lie with improving management of the hospital sector and leaning towards more cost-effective outpatient services. It should, however, be possible, through better use of data and decision-making tools, to improve value for money in medicine spending and perhaps slow down the increase in spending.

Croatia has a relatively good data system in the health sector, and benefits from the simplicity of a single-payer model that puts consumption and cost data in one hand (HZZO). In addition to HZZO, HALMED and the Croatian Institute for Public Health have useful data that could be mined to create a better understanding of the performance of the health system. Rebro Hospital, in partnership with pharmaceutical companies, is planning to build up a cancer registry, which can provide a basis

[88] I.e., outside the standard HZZO's framework for reimbursement which all medicines undergo (which includes HZZO's value assessment and for Expensive medicines includes signing MEA). When a hospital procures medicines, which are not reimbursed by HZZO, the medicine's price is higher due to a hospital's lower bargaining power as well as a lack of MEA or other price-reducing mechanisms.

for future monitoring and improvement of treatment outcomes as one pillar of "value for money". All major players have a good understanding of the challenges of the pharmaceutical sector as part of the health system. However, they seem each to operate in their silos with no strong incentive for sharing data and insights across the various institutions jointly governing the sector.

Decision-making on inclusion of innovative medicines (including EMs) is structured and functional. However, the process does not seem very transparent. Members of the HZZO Committee for Medicines could be selected in a more formal and public process, ensuring their technical competence, diverse backgrounds and independence. Given the fact that they provide the service in their spare time, a small professional team of experts could be employed to preview and annotate the dossiers submitted by manufacturers and verify critical data. Croatia could, like Slovenia for example, publish decisions and explain the reasons why a medicine or indication has been approved for reimbursement or rejected.

Of particular concern should be the alternative pathway to getting a very expensive treatment reimbursed through a decision by a Hospital Medicines Council. This pathway, together with the expectation that hospitals will be bailed out by the public payer if they have arrears, undermines the discipline in managing medicine expenditures. Most countries have removed such difficult decisions from the frontlines of patient/provider interaction, where they tend to come under massive external pressures. Good practice would be to delegate such decisions to an independent team of experts that are better shielded from pressure, and more likely to decide on rational criteria. Croatia would have to change legal instruments to address this issue, so it may not be a politically expedient reform to undertake.

The system for pricing outpatient medicines reimbursed by HZZO seems to be working well, based on the data showing a downward trend on reimbursement prices for Basic List medicines. More in-depth analysis would be needed to identify potential savings through additional enforcement of rational prescribing practices based on reimbursement formularies or a generic tendering model for outpatient medicines. Given the political weight of the domestic generic industry as an employer and major exporter however, there may be limited appetite for reforms that cut further into generic industry profits.

HZZO could perform regular analysis of medicine prescribing (against well-defined benchmarks) to identify loopholes in pharmaceutical policies and, by doing so, improve value-for-money in the wider healthcare system. Pharmaceutical policies could be refined based on findings of drug use monitoring and analysis and subsequently fed into updated treatment practices and improved quality of care. The extensive use of medicines such as diazepam and bisoprolol in Croatia could be a signal of outdated treatment practices and lower quality of care for different conditions. Improving the quality of care (e.g., by changing prescription policies) may, on the other hand, come at higher overall healthcare costs.

Hospital medicine procurement could become more efficient through pooling over a larger portfolio of medicines and consumables. MOH is tasked with evaluating the impact so far and increasing the value of future pooled procurement relative to the amount left to individual hospitals to procure. Neighboring countries have achieved significant savings compared to previous fragmented procurement models that typically lack transparency.

3.5. Pharm recommendations for practical steps to improve "value for money" and the predictability of spending

Health financing systems that move the financial burden from the individual to the collective are a major achievement of the modern nation state, but they are demanding in terms of governance and management. The existence of a third-party payer (health insurance) creates a sense of entitlement that, if not restrained through rules and control mechanisms, can lead to financial ruin of the system as there are no limits to the creativity of market participants in offering new products and services and driving up prices for existing ones. Huge differences in per-capita health spending among developed countries with very similar health outcomes prove the point.

Spending on medicines is typically a key driver for health expenditures in middle-income countries, where other expensive high-tech services for in- and out-patients are not yet available at the same level as in high-income countries. Croatia is a high-income country but still spends a relatively high share of health expenditure (estimated at 27.4 percent in 2019) on medicines. New, patented medicines drive the spending as they become available and create demand from patients even if incremental benefits of some new medicines are not proportional to their high price. Intervening at this pressure point is politically difficult: the family of a child with cancer clings to a chance for survival even if it is small, no matter what the costs are. As taxpayers we all agree that it is not possible to finance everything for everyone, but nobody wants to be the person being told "no" when he or she are sick.

Another major challenge is to contain system overuse and mismanagement at the micro-level. Physicians all over the world tend to over-diagnose and over-prescribe, either in response to patient demands or "to be on the safe side". Marketing efforts by the industry are effective in influencing behavior, moving the product mix steadily towards more expensive alternatives if not managed. Overall, health systems are under constant reform pressure. There is never a time when all work is done, and one cannot sit back for a couple of years without change.

For Croatia, overall health spending is certainly not excessive compared to other EU countries. The pressure to introduce innovative and costly medicines is high (as in all developed countries) which, in particular, fuels the EM expenditure, causing it to grow at a fast pace. Rather than trying to cut costs, the political focus could be on "value for money" and the predictability of spending, making better use of existing tools and resources to ensure that (a) money spent already achieves better outcomes; and (b) future incremental spending decisions are made on a rational basis and implemented in ways that track outcomes.

Political economy is important – those benefitting from the status quo or used to operating without accountability may resist measures that increase transparency, which needs to be anticipated when formulating reforms. The resistance needs time and effort to be dissolved. However, some fights are worth picking, while others may not be, given the potential gains.

Another success factor for reforms is management and technical capacity to implement. Building such capacity comes at a cost of adding and sustaining additional staff and investing in data collection, analysis and management systems. The expected benefits must be high enough to justify such costs.

The suggested interventions are listed below in the order of likely impact on "value for money", recognizing the fact that Croatia is a relatively small country with limited resources compared to many of its EU peers.

- **Decision-making on coverage of EMs could be upgraded** through benchmarking against other EU countries. The goal would be a more explicitly defined process, transparent and supported by a small team of professionals at HZZO, who work closely with peers in other EU countries in reviewing policies and preparing dossiers for the decision-making committee[89]. Some countries have solutions for new medicines that are not yet listed for general use but can be prescribed to individual patients on a trial basis, with an obligation for the manufacturer to collect evidence that is being used to decide on the future status of the medicine. This approach could allow the payer to negotiate a MEA early on rather than being forced to pay full international price.

- **The central committee should handle decisions on individual cases which are currently made by Hospital Medicines Councils.** However, this change will require a modification of the law or by-law and may therefore not be achievable in the short-term.

- **Members of the HZZO Committee for Medicines could be selected in a more formal and public process,** ensuring their technical competence, diverse backgrounds and independence. Given the fact that they provide the service in their spare time, a small professional team of experts could be employed to preview and annotate the dossiers submitted by manufacturers and verify critical data. The expected benefits must be high enough to justify such costs. Decision-making on inclusion of innovative medicines (including expensive medicines) is structured and functional although it can be made **more transparent.**The reimbursement process could be guided by formal multi-criteria decision analysis, which would for instance award scores against pre-defined criteria. Different methods for guiding reimbursement decision-making are available and HZZO would need to decide on the most appropriate and feasible, and periodically improve the system of health technology evaluation. In attempt to increase transparency, all **reimbursement decisions (positive and negative) should be made public** with a detailed explanation of the underlying reasoning.

[89] In this context, for instance, consideration could be given by Croatia to actively contribute to the activities undertaken under the aegis of the EU by the OECD Expert Group on Pharmaceuticals and Medical Devices which Croatia can take part in.

- **HZZO and HALMED could set up a working group** with the leading tertiary hospitals to explore how existing **data collection tools can be used to follow patients treated with EMs and establish an outcome database.** While managing budget impact through MEAs is an effective and necessary first step in managing expensive medicines, it should be seen as a foundation for a more holistic approach that uses real-world evidence for expensive medicine decision-making. Some of the innovative manufacturers have interest in such work and may be willing to support it. Such data can be used to adjust the reimbursement status of a medicine, re-negotiate the MEA (including moving to more "pay for outcome" agreements) and make treatment decisions for individual patients.

- As a general measure to align the thinking among different institutions on pharmaceutical policy, a **pharmaceutical policy roundtable under the leadership of MoH** could be established that is tasked with conceiving options for better inter-institutional communication and collaboration, including more data exchange, with the goal to address potential issues proactively and in a coordinated way. All major players seem to have a good understanding of the challenges of the pharmaceutical sector as part of the health system. However, they seem each to operate in their silos with no strong incentive for sharing data and insights across the different institutions jointly governing the sector. Therefore, the roundtable should involve all stakeholders that have bearing on medicine expenditure and use (including pharmacists and patient groups). Members of this roundtable could also work with public opinion leaders and media to create a better public understanding of the specific challenges in managing pharmaceuticals under health insurance.

The suggested interventions are listed below in the order of likely impact on increasing the predictability of spending. Unlike the interventions addressing the "value for money", potential efficiency gains are less obvious in the Croatian context, but worth exploring with limited effort to identify potential future gains. These include:

- Budgeting practices which do not only rely on past expenditure levels could **increase the predictability of HZZO' future pharmaceutical spending.** Currently, for instance, HZZO predicts that EM spending growth rate will slow down in the future but provides no detailed reasoning on how/why these predictions are made. Changes in the budgeting practices could take different forms. HZZO could more closely monitor, analyze and forecast the expenditure on already reimbursed medicines and take the information on forecasted expenditure into account in budgeting (price reductions, MEAs, etc). Potential savings for reimbursing new medicines could be fiscally acknowledged (for instance on hospitalizations, sick leave compensations, expenditure on other medicines, etc.) in budgeting within and across silos. Horizon scanning procedures could be undertaken to financially estimate future needs and a clear link between decision making on reimbursement of new medicines and foreseen budget allocations could be established.

- A working group with participants from **MOF, MOH and HZZO could revisit the current system of hospital limits and allocations for EMs,** to better align incentives and optimize access within the given financial envelope. While HZZO has designed a system for management of expensive medicines in a relatively rational way, its cost-containing effect is undermined by the routine bailouts for hospitals that see the most expensive patients and the lack of monitoring and in-depth investigation for reasons behind budget overruns. Such arrangement removes all economic incentives for hospitals to behave rationally and operate efficiently. Maybe there are better system options, for example a centralized account for payments with a virtual allocation that is adjusted frequently based on transparent and agreed criteria.

• **Pooling medicines procurement for hospitals** is an initiative that has proven to deliver value in other countries. MoH should be encouraged to continue with this work and expand the basket that is centrally procured until maximum savings can be realized (which typically takes 2-3 years).

• HZZO could use its data systems to generate specific **data on rational use** of medicines in outpatient care. Typical metrics are, for example, antibiotics use in common cold or flu, use of first line versus second- or third-line treatments in hypertension or other chronic diseases, and polypharmacy in geriatric patients. Based on the findings, HZZO could publish detailed prescribing guidelines and update its policies on monitoring and enforcing rational use with a potential dual benefit: fewer side effects and lower overall prescription costs. Academics and research institutions could be involved in these processes, thus promoting better and more widespread use of available health data.

• **The impact of hospital outpatient recommendations on primary care prescription and rational use could be analyzed.** It may be the case that recommendations from hospital specialists influence primary care physicians in their prescribing behavior in ways that are leading to non-rational use of medicines. A quick review, based on HZZO's database, could be undertaken to either confirm this suspicion or prove it wrong.

• HZZO could do a quick "back-of-the envelope" calculation on whether there is savings potential if **Croatia moves from the current pricing model for generics on the Basic List to a model of competitive tendering for high-volume generics.** Such a calculation would involve comparison with price data from a few EU countries that are using tendering for the top 5 or 10 medicines in terms of value from the Basic List.

• **One potential indicator for savings potential in generic prices is the level of rebates and "bonuses" given by manufacturers to wholesalers and retailers** to ensure their products are on the shelves. In a market characterized by homogeneous prices among 10 or more competing generics, availability at retail level becomes critical for sales, as pharmacists have substitution rights. Wholesalers and retail pharmacies use their power to control shelf space b y putting pressure on manufacturers. In some cases, they can bargain for significant discounts or free product (buy one, get one free) and profit from selling these products for the full price. If this is the case, and it can be quantified objectively, it would give an indication of how much HZZO could save by contracting directly with manufacturers through a tendering model.

Some international good examples are summarized below, as references for Croatia when taking actions way forward.

Examples of international good practice

Submission of the reimbursement request for innovative medicines (new INN)	
National Institute for Health and Care Excellence, NICE (England and Wales)	Cost-utility analysis (CUA) required as a part of the company submissions, with quality-adjusted life years (QALYs) as the main health-related outcome measure. Local and disease-specific health-related outcomes data widely available (e.g., EURO-QOL utility tariffs for QALY calculation). Detailed HTA guidelines available.
Slovenia	Next to budget impact analysis (BIA), MAHs requested to submit CUA, with QALYs as the main health-related outcome measure. Health-related outcomes data mostly availably in the domain of oncology. If the submitted dossier lacks in quality, HIF Committee for Medicines requests additional information and clarifications.
Hungary	The Hungarian HTA guidelines have been available since 2002. Next to BIA, MAHs are requested to submit CUA, with QALYs as the main health-related outcome measure. Reliable cost data readily available.
Assessment/appraisal of the reimbursement dossier for innovative medicines (new INN)	
National Institute for Health and Care Excellence, NICE (England and Wales)	NICE, an independent public organization employing a myriad of experts in HE and HTA, assesses the clinical and cost effectiveness of health technologies, such as new pharmaceutical and biopharmaceutical products, procedures, devices and diagnostic agents. The assessment process, which considers evidence on the health effects, costs and cost-effectiveness of a health technology, is based on input from a broad range of stakeholders, with emphasis on the Assessment Group who critically reviews the available evidence and produces an Assessment Report. The Assessment Group comprises a panel of independent, academic experts from a number of academic centers. NICE provides clear guidance on their expectations of what should be included in a reimbursement dossier, which is available on the website. Criteria for recommendations are also clearly defined. NICE uses QALYs to compare different drugs, devices and other technologies for different conditions. NICE's 'threshold,' over which treatments are less likely to be recommended for use in the National Health Service (NHS), is typically between £20,000 and £30,000 per QALY. Procedures are periodically assessed and revised. NICE does not evaluate all interventions as they reach the market, only: • technologies likely to result in a significant health benefit, taken across the healthcare system (NHS) as a whole, if given to all indicated patients • technologies likely to result in a significant impact on other health-related government policies (e.g. reduction in health inequalities) • technologies likely to have a significant impact on NHS resources (financial or other) if given to all indicate patients
Slovenia	Slovenia uses a soft incremental cost-effectiveness ratio threshold which is currently set by the HIF Management Board at EUR 25,000 per QALY. The reimbursement recommendations of the HIF's Committee for Medicines are published on the HIF's website.
Hungary	Dossiers appraised by a relatively wide spectrum of professionals, the Technology Assessment Committee (TAC) and Itemized Reimbursement Committee (IRC). TAC: HIF staff and representatives of medical professional colleges (clinical experts) and the HTA Department of the National Institute of Pharmacy and Nutrition (HTA evaluation). IRC: Ministry for National Economy and State Secretary of Health dominated. All HTA department staff are educated in HE and full time employed. The criteria for the reimbursement appraisal recommendation are more elaborate than in Croatia, and include: verified safety and efficacy, availability in an economic and reasonable manner, cost-effectiveness, available funding, and steady supply. Medicines are declared as cost-effective under the threshold of 2xGDP per capita/QALY, and not cost-effective if the incremental cost-effectiveness ratio is higher than 3x GDP per capita/QALY. These are considered as soft reference points.

Reimbursement decision-making for innovative medicines (new INN)	
National Institute for Health and Care Excellence, NICE (England and Wales)	NICE bases its reimbursement recommendations on a review of clinical and economic evidence. Clinical evidence shows how well the medicine or treatment works. Economic evidence shows how well the medicine or treatment works in relation to how much it costs the healthcare system, i.e., reveals whether it represent value for money. Healthcare organizations must review clinical management following the publication of NICE clinical guidelines.
Slovenia	Extensive minutes of HIF Management Board meetings (and Committee recommendations) are published on the internet.
Hungary	Reimbursement decision is based on relatively more elaborated product-specific criteria: medical and therapeutic value, safety, lack of alternative therapies and prescription status. Economic criteria, such as cost-effectiveness, reference price and budget impact play a role. Patient and disease-specific criteria for reimbursement are: age, chronic or terminal illness, severity of illness, special medical needs.
Financing and budgeting of medicines	
England and Wales	Over time the NHS has used a number of policies to promote value for money in spending on medicines, such as encouraging the widespread use of cheaper generic drugs and biosimilars. But with growth in spending on medicines outstripping growth in funding, policymakers have recently introduced a budget impact test for new products that will cost more than £20 million a year. The UK also set up a Cancer Drugs Fund which is a new source of funding for cancer drugs in England since 2016. Although not without flaws, the Cancer Drugs Fund delivers a range of benefits, including: • Earlier access for patients to the most promising new treatments. • A new fast-track NICE process for companies to apply for appraisals. • Clearer and faster decision-making about which cancer drugs are available. • All new cancer drugs, and significant new licensed indications for cancer drugs, are referred to NICE for appraisal. • Financial certainty with a fixed budget and a mechanism to control expenditure. • Patient access, while uncertainty about a drug's effectiveness can be assessed through data collection. • Greater flexibility from NHS England in the deals agreed with the pharmaceutical industry to encourage the responsible pricing of cancer drugs.
Slovenia	Hospitals receive additional funds for all expensive inpatient medicines (set threshold price of therapy over EUR 5,000/year). There is no dedicated (separate) budget for this purpose. Predictability of future funding for new innovative medicines increased due to the fact that the health insurance fund publishes its financial plan for the current and the following year.
Hungary	The innovative medicines are in part budgeted separately through the name-based itemized reimbursement system. Most expensive innovative medicines are funded on top of hospital budgets through the itemized reimbursement system/patient name-based program. These medicines are centrally procured by the HIF.
Pricing of medicines	
Sweden	No price negotiations. The price is an integrated part of the cost-effectiveness analysis. If the price is too high, the medicine will be judged cost-ineffective and the Board will reject the application in question and the company will have to decide if they should apply again and suggest a lower price. No price negotiations because: • It is not possible to efficiently set prices. For example, if the reimbursement agency always tries to get a 30 percent lower price, the companies will learn to start the negotiation with a price 30 percent higher than they actually want. • The pharmaceutical market is very regulated. The market is allowed to work as freely as possible by letting the companies set the price and then the Board decides whether or not the taxpayers and patients are willing to buy that particular drug.
Denmark	Companies have to offer their lowest prices every two weeks and the cheapest medicine is fully reimbursed.
Slovenia	Internal price referencing is undertaken 6 times a year, both at the ATC 5 level (INN) and in the therapeutic clusters (defined-daily dose based).

Annex

Chapter 1 Annex 1

Public Finance Review that was prepared in 2014 contained numerous policy recommendations that reflected the circumstances of that time. Croatia just entered the EU gaining access to abundant EU funds, the country was in the prolonged recession and public finance faced major challenges in terms of sustainability. While many recommendations to address structural issue are still valid and some reforms are now included in the National Recovery and Resilience Plan, other no longer reflect the best policy option in the current context (e.g. tax policy).

PFR 2014 recommendations	Assessment
Revenue-side adjustment	
Short-term measures	**Fairly limited progress.**
• Eliminate a large number of tax exemptions given to households and businesses. • Resist increasing social contributions and consider combining a cut in the employers' contribution with an increase in consumption taxation—a fiscal devaluation	Regarding the tax exemptions, in the PIT system there was limited progress. Croatia simplified tax brackets, but also introduced new exemptions, including for young people), In the CIT system, the authorities broadened the base by removing some of the exemptions applied to companies in supported (underdeveloped) geographical areas and by abolishing the tax break for reinvested earnings introduced in 2012. Croatian authorities increased healthcare social contributions from 13 percent to 15 percent in 2014. (In 2019, total social contribution rate was decreased by 0.7 percentage points reflecting abolition of contributions for occupational injuries (0.5 percent) and for employment (1.7 percent) while healthcare contribution was increased to 16.5 percent.
Medium-term measures	
• Introduce modern property taxation (savings up to 1.5 percent of GDP).	Croatian authorities abandoned the plan to introduce recurrent property tax. The real estate transfer tax rate was cut from 5 percent to 3 percent.
• Strengthen and modernize Croatia's tax administration (CTA) to protect and expand the revenue base.	Croatia has joined the OECD/Council of Europe Multilateral Convention on Mutual Administrative Assistance in Tax Matters. Croatian customs were reorganized. Croatian tax administration started implementing a VAT fraud action plan and made some progress with introduction of the Compliance Risk Management System. Besides, it conducted

several targeted audits to detect under-reporting of tax liabilities, introduced lottery-based awards to improve tax compliance and increased cooperation with foreign tax authorities. There was also progress in digitization of various services.

Rightsizing the Government

Public administration

Limited progress.

Short-term measures

- Finalize provisions regulating criteria for the creation and management of agencies.
- Accelerate the full application of the HRMIS to control staff costs
- Reform the wage system to reduce the public wage bill and budget pressures in the short term, and proceed with structural reforms to enhance public sector performance over the long term

Croatian authorities adopted public administration developments strategy 2015-2019 in 2015. However, implementation of measures started late, based on the action plan 2017-2020.

In 2018/2019 35 out of the 54 selected state agency-type institutions have either been closed or merged with other agencies or into line ministries, however, without staff cuts. A new legal framework regulating the remaining agencies and bringing in a higher degree of consistency across the system was adopted in December 2019.

New legislation on wage setting in the civil service was postponed several times. Authorities are planning to carry out an independent in-depth analysis of the wage system, amid demands for wage increases from several parts of the public sector. The aim of the law is to achieve greater harmonization of wage setting across the central public administration (and at a later stage in the wider public sector) by introducing common wage grids and job complexity coefficients.

Medium-term measures

- Adopt a targeted downsizing program to contain the overall cost of public administration, accompanied by the introduction of outsourcing, electronic service, and staffing norms in particular sectors such as education and judiciary

No downsizing program was adopted. Number of public sector employees continued to increase.

The provision of e-public services has improved with the further development of the eCitizens systems, eIDAS (electronic Identification, Authentication and trust Services) and various other eGovernment services. eGovernment includes eNewborn (online registration of children), eTax (various tax-related activities). mSignature and mStamp (electronic signing, stamping or validation of documents) are planned to be developed.

- Reinvigorate attempts to enhance strategic planning, professionalization and the introduction of performance based management practices in civil service institutions

In June 2019, the parliament adopted a law with the aim of de-politicizing and professionalizing the central government administration by reducing the number of politically appointed state officials. In particular, within ministries, certain functions performed by politically appointed officials (such as

	assistant ministers) will soon be carried out by senior civil servants selected through open competition.
Local and regional self-governments	**Fairly limited progress.**
Short-term measures	
• Monitor fiscal operations of subnational governments to ensure fiscal prudence and alignment with the Excessive Deficit Procedure	na
• Increase LGUs' reliance on own-source revenues to ease financing constraints and reduce central government transfers	The fiscal capacity of LGUs' was strengthened by the new law on the financing of local government units in 2018, which streamlined the system of central government transfers and introduced a new system of fiscal equalization. The new system is no longer based on geographical criteria, but on the fiscal capacities of the local. However, it no longer ties revenue allocation for decentralized functions to the number of functions a unit commits to perform. PIT and tax real estate transaction tax are from 2018 and 2019 revenues of the LGUs'. The maximum amount at which local governments can set the tax on short-term accommodation rentals has been increased.
Medium-term measures	
• Redefine spending responsibilities of local governments to avoid duplication and overlap of functions and to increase accountability of LGUs for service delivery	In June 2019, the parliament adopted legislation to entrust competences and staff from branch offices of the central administration (e.g. ministries) to the county-level administration. However, it remains unclear to what extent this measure will bring efficiency gains.
• Proceed with territorial organization to address current disproportionate number and resources assigned to LGUs.	No progress.

Improving the Efficiency and Equity of Social Spending

Health	**Limited progress.**
Short-term measures	
• Clear the stock of arrears, and strengthen public financial management systems so that payment delays are eliminated and arrears will not reoccur	In the period from 2014-2019 healthcare system continued to accumulate arrears (moving between 0.5 percent and 1 percent of GDP), even after the strong increase in revenue from health contributions in 2019. As noted in the report, in 2015 there was a relatively strong reduction of arrears in 2015 but already in 2016 arrears increased. In the period from 2017 and 2019 the government implemented financial recovery programs to support the healthcare system, but these can be seen only as short term financial injections with no structural effects.

• Conduct a review of exempt copayment categories with a view to reducing them and adjust the complementary health insurance premium with actuarial standards • Identify redundant capacity to merge services and facilities • Create high-frequency lower-cost specialized centers for ambulatory diagnosis and treatment	Several initiatives were taken to improve the functioning of the health system, which remains focused on acute care. Already in 2015 Croatian authorities implemented some measures aimed at cost reduction in the healthcare system. One of the most important measures was centralization of public procurement. As a result, in 2019 around 45 percent of all hospital purchases are procured centrally, up from 8 percent in 2016, enabling substantial savings. However, while centralized procurement is mandatory for all state-owned hospitals, many health institutions owned by counties opt to purchase individually. Number of paying clients in supplementary insurance was increased by 15 000 during 2017. In September 2018, the government adopted the National Hospital Development Plan 2018-2020, the implementation of which should address some of the problems of hospital sector, namely rationalization of the hospital network and reducing the reliance on acute care. However, a number of structural reforms have been abandoned. These include: increasing the cap on patients' co-payment; reforming the 'additional insurance' scheme; and introducing new rules for emergency services.
Medium-term measures	
• Consolidate health service networks by geographic areas to streamline services for acute cases	Amendments to the Health Care Act give counties possibility to buy certain types of equipment for the health centers on their territories. The intention is to give these centers a crucial role in the health care system in Croatia.
• Develop and implement national care pathways to enforce clinical guidelines in the context of the adjusted networks	na
• Expand public health services to reduce the prevalence of behavioral risk factors.	Referrals from general practitioners to specialists were substantially reduced in the last decade. Still, the system remains focused on acute care provided in hospitals, while integration of preventive, chronic and long-term care remains low.
• Expand eHealth system	There are projects like e-prescriptions, which have been already operational and successful — 80 percent of prescriptions in community pharmacies are electronic. On the other hand, e-referrals or electronic health records (the latter used by only 3 percent of general practitioners) are still under development. Croatian authorities are preparing the e-Health Strategic Development Plan 2020-2025 and aims to launch a national mobile application allowing patients to schedule appointments.
Pension system	**Fairly limited progress**
Short-term measures	

• Consider accelerating the retirement age increase before 2030 and tightening and phasing out early retirement • Rationalize the categories of privileged pensions and accelerate convergence of privileged pensions to PAYG by equalizing the maximum privileged pension with the old-age pensions	No progress. Although announced, various reforms were postponed. These include the streamlining of the 100+ arduous or hazardous professions benefitting from more generous pension provisions, measures aimed at reducing access to early retirement, the increase of the statutory retirement age and the acceleration in the equalization of retirement age for women and men. Government extended the benefits granted to war veterans and their family members in 2017, resulting in further increases of their pension ceilings. Adopted major pension system reform came into force in 2019. However, reform was met by strong resistance from the trade unions, who collected enough signatures to call for a referendum on the stipulated elements aimed at lengthening working lives. In October 2019, the government accepted to withdraw those contested elements. Parliament adopted amendments to the pension law via urgent procedure, including bringing the retirement age back to 65, decreasing penalization for early retirement and stopping the acceleration of the equalization of retirement age for men and women that was brought in under the 2018 reform. These changes, which entered into force as of January 2020, reversed features of the most recent reform and the 2014 reform, which had first increased the retirement age to 67.
• Revisit the pension indexation/valorization	Changes in the Pension Insurance Law in December 2013 changed the weights for indexation from 50:50 to 70:30 between wage growth and inflation. With the amendments to the Pension Insurance Law valid from the beginning of 2017, separate valorization/indexation for pensions determined by special regulation were abolished. Pensions determined by special regulation are now indexed by general rules.
Medium-term measures	
• Consider gradually raising the second pillar contribution rate	No progress. In 2014 (military personnel, police and some other categories of public servants) and 2019 (27 percent adjustment problem) funds of some beneficiaries w ere e ven t ransferred f rom t he 2 nd pillar to the 1st pillar.
• Use means-testing for granting minimum pensions and award pension points only for periods with contributions paid	No progress.

Social assistance	**Fairly limited progress.**
Short-term measures	
• Establish one-stop-shop (OSS) for all social benefits [90]	No progress. Croatian authorities abandoned the plan to introduce one-stop-shops even they the legally established 127 OSS during 2015. The focus has instead shifted to improving the information system on benefits allocated throughout the territory. To this purpose, the authorities plan to harmonize the definitions of the benefits granted at local government level on the basis of the ESSPROS (European System of integrated Social Protection Statistics) nomenclature, and establish regular reporting channels from the local to the central government level.
• Introduce a single, unified set of criteria to assess eligibility for needs-based social assistance programs	No progress.
• Introduce a parametric redesign of the child tax allowance	No progress.
• Create high-frequency lower-cost specialized centers for ambulatory diagnosis and treatment	No progress.
Medium-term measures	
• Extend means-testing to most social assistance and family programs	No progress.
• Implement "make-work-pay" benefit reforms	No progress.
• Start reducing losses due to error, fraud and corruption through strengthened oversight and inspection	na
Long-term care	**Fairly limited progress.**
Short-term measures	
• Shift LTC services from the health to the social sector	No progress. The system is still fragmented across different health and social welfare institutions.
• Decrease care fragmentation and increase coordination.	
Medium-term measures	
• Develop a comprehensive LTC plan	No progress. Croatia lacks a strategy for the provision of long-term care.

[90] In September 2014 a World Bank loan was signed for the project "Modernisation of social protection system", for the implementation of the OSS and the Management Information System One Stop Shop (MISSOS) – the electronic system which keeps records of all beneficiaries via a joint interinstitutional database

• Favor community-based over institutional care	Some progress. Following the institutional reform in 2017, regions and communities have become responsible for long-term care.
• Explore a shift from the government producing LTC services to buying them from the private sector.	na
• Explore the potential of cash benefits and vouchers for funding LTC	na

Chapter 1 Annex 2. Estimation of public sector performance and efficiency- methodology and data

The first section explains how public sector performance indicator is constructed while the second and third sections explain the approaches used to assess public sector efficiency.

1.1 Public sector performance

Following Afonso et al. (2005) public sector performance is assessed by constructing composite indicators that are based on socio-economic indicators assumed to be the output of public policies. We can write this as:

$$PSP_i = \sum_{j=1}^{n} PSP_{ij}\,, \mathrm{i} = 1, \dots, \mathrm{n}\text{: with } PSP_{ij} = f(I_k), k = 1, \dots, n \;(1)$$

where $f(I_k)$ is a function of k observable selected variables.

Indicators are divided into two groups as shown by Annex Figure 1. The first group includes outcomes of public policies aimed at providing various and accessible public services for individuals. Afonso et al. describe these as opportunity indicators, referring to the role of the government as a promoter of equal opportunities in the market place. The second group include indicators linked to the standard Musgravian functions of the government - allocation, distribution and stabilization.

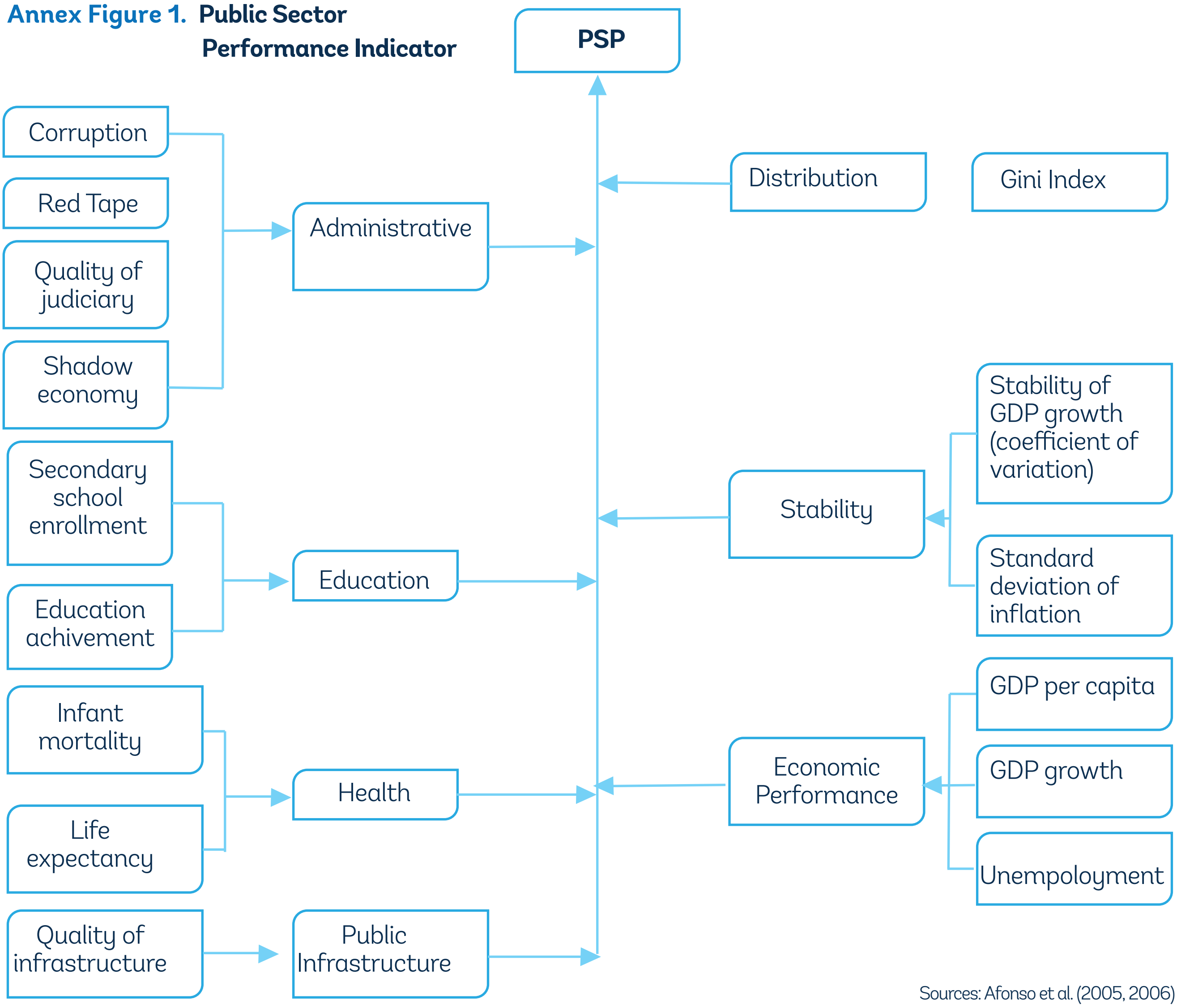
Opportunity indicators are divided into four sub-groups which reflect government performance in administration, education, health and infrastructure. The administration sub-indicator is comprised of indicators measuring corruption, burden of regulation, judiciary quality and shadow economy.

For the education sub-indicator we included data on secondary school enrolment rate and PISA scores in order to measure both education quantity and quality. The health performance indicator contains data on infant mortality and life expectancy, while the infrastructure sub-indicator is measured by the quality of overall infrastructure.

When it comes to standard Musgravian indicators, we only include income distribution which is measured by the Gini index.

Data used in this analysis is compiled from the various sources listed in Annex Table 1. The variables correspond to 2019 or closest available year, as they change very slowly over time.

Annex Figure 1. Public Sector Performance Indicator



Sources: Afonso et al. (2005, 2006)

The PSP indicator for each country is obtained by aggregation of sub-indicators after assigning equal weights to them, and each sub-indicator is computed as the simple average of the corresponding variables. In order to facilitate the comparison, all the variables are first normalized by dividing the value for the specific country with the average of that measure for all the countries in the sample.

Public sector efficiency

The public sector efficiency indicator is constructed by relating public sector performance indicators with relevant general government expenditures. For each country i with j areas of public sector performance, the public sector efficiency indicator can be written as:

$$PSE_i = \sum_{j=1}^{n} \frac{PSP_{ij}}{EXP_{ij}}, i = 1, \ldots, n \ (2)$$

Government performance in the area of administration is weighted by government collective consumption. Education and health performance are weighted by general government spending in education and health, respectively, while quality of infrastructure is weighted by general government investment expenditures. Distribution performance is weighted by spending on social transfers other than social transfers in kind.

General government spending is normalized across countries with the average taking the value of one for each specified sub-indicator. Different categories of general government expenditures are computed as 10-year averages for the period 20010-2019, given that we assume a lagged effect of spending to government performance.

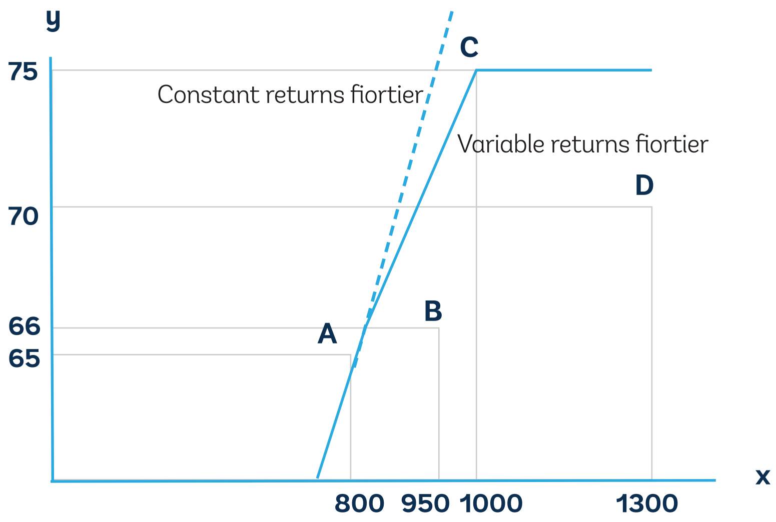
Data envelopment analysis

As noted by Afonso et. al (2006) the DEA methodology assumes the existence of a convex production frontier, which is constructed by using linear programming methods. The term "envelopment" stems from the fact that the production frontier envelops the set of observations.

DEA can be conducted for the input- and output-oriented analysis. The input-oriented specification shows how much input quantities can be proportionally reduced without changing the output quantities. Conversely, the output-oriented specification assesses how much output can be proportionally increased without changing the input quantities used. The two measures provide the same results under constant returns to scale but give different values under variable returns to scale. For detailed analytical description see Afonso et al. (2006).

An example of DEA analysis is illustrated by Annex Figure 2. The y axis represents the output while x axis the input used by the four countries. Under the variable returns to scale assumption, the frontier is determined by country A and C, so countries B and D can therefore be considered as inefficient. They have worse outcomes although their expenses are higher. Under the constant return to scale assumption, only country A can be considered as efficient.

Annex Figure 2. **Example of DEA frontiers**



Source: Afonso et al. (2006)

Robustness analysis

We test the sensitivity of the results in the baseline scenario by including alternative proxies for government performance (see Annex Table 1). Overall, results do not change significantly. Croatia's relative position improves somewhat but the country is still among EU member states which display weak public sector performance and efficiency, especially with respect to administration results (Annex Tables 2, 3 and 4 and Annex Figure 3).

Annex Table 1. **Variables and series in baseline and alternative specification**

Baseline specification				
Indicator:	**Variable:**	**Series:**	**Source:**	**Note:**
Administrative	Corruption index	Corruption index on a scale from 10 (perceived to have low levels of corruption) to 0 (highly corrupt), 2007-2011; Corruption on a scale from 100 (low corruption levels) to 0 (highly corrupt), 2012-2019	Transparency International's Corruption Perceptions Indeks (CPI), 2007-2019	
	Red tape	Burden of government regulation, 1-7 (best)	The Global Competitiveness Index Historical Dataset, 2007-2019 World Economic Forum	
	Judicial independence	Judicial independence, 1-7 (best)	The Global Competitiveness Index Historical Dataset, 2007-2019 World Economic Forum	
	Property rights	Property rights, 1-7(best)	The Global Competitiveness Index Historical Dataset, 2007-2019 World Economic Forum	
	Shadow economy	Shadow Economy in % of GDP	Schneider, F. (2016), "Estimating the Size of the Shadow Economies of Highly-Developed Countries: Selected New Results"	Reciprocal value used (1/x).
Education	Secondary school enrollment	School enrollment, secondary (% gross)	World development indicators, World Bank (up to 2018)	
	Education achievement	PISA report -Simple average of reading, mathematics and science scores	PISA results, OECD (up to 2018)	
Health	Infant mortality rate	Mortality rate, infant (per 1,000 live births)	World development indicators, World Bank	Reciprocal value used (1/x).
	Life expectancy	Life expectancy at birth, years	World development indicators, World Bank	
Quality of infrastructure	Quality of infrastructure	Quality of overall infrastructure, 1-7 (best)	The Global Competitiveness Index Historical Dataset, 2007-2017 World Economic Forum	
Distribution	Income distribution	GINI	Eurostat	100-value used
Expenditure categories	Administration	Collective consumption in % of GDP - National accounts	Eurostat	
	Public education	General government education expenditure in % of GDP - COFOG	Eurostat	
	Public health	General government health expenditure in % of GDP - COFOG	Eurostat	
	Transfers	General government social transfers other than social transfers in kind in % of GDP	Eurostat	
		General government gross fixed capital formation in % of GDP		

Alternative specification				
Indicator:	**Variable**	**Series:**	**Source:**	**Note:**
Administrative	Average of the six Worldwide governance indicators (WGI) - Voice and Accountability; Political Stability and Absence of Violence and Terorism; Government Effectiveness; Regulatory Quality; Rule of Law; and Control of Corruption	The Worldwide governance indicators on a scale from from approximately -2.5 (weak) to 2.5 (strong) governance performance.	World Bank	
Education	Skills acquired	Skillset of graduates, 1-7 (best)	The Global Competitiveness Index Historical Dataset, 2007-2019 World Economic Forum	
Health	Unmet medical needs	Self-reported unmet need for medical care	Eurostat	Reciprocal value used (1/x).
Quality of infrastructure	Quality of infrastructure	Quality of trade- and transport-related infrastructure, score (1=low to 5=high)	The Logistics Performance Indeks; World Bank	
Distribution	Income distribution	Difference between equivalised disposable income before and after social transfers		
Expenditure categories	Administration	Collective consumption in % of GDP - National accounts	Eurostat	
	Public education	General government education expenditure in % of GDP - COFOG	Eurostat	
	Public health	General government health expenditure in % of GDP - COFOG	Eurostat	
	Transfers	General government social transfers other than social transfers in kind in % of GDP	Eurostat	
	Public investment	General government gross fixed capital formation in % of GDP	Eurostat	

Annex Table 2. Public sector performance – alternative specification

Country	Administrative	Education	Health	Public infrastructure	Distribution	Overall Performance
Bulgaria	0.28	0.84	0.48	0.79	0.72	0.62
Czechia	0.92	0.97	1.34	0.99	0.95	1.03
Estonia	1.23	1.05	0.04	0.89	0.73	0.79
Hungary	0.42	0.85	0.67	0.94	1.04	0.78
Latvia	0.85	0.93	0.16	0.85	0.65	0.69
Lithuania	0.95	0.86	0.48	0.78	0.78	0.77
Poland	0.64	0.81	0.16	0.92	0.94	0.69
Romania	0.24	0.78	0.14	0.83	0.91	0.58
Slovakia	0.70	0.84	0.25	0.86	0.85	0.70
Slovenia	0.98	1.00	0.23	0.93	0.98	0.83
Croatia	0.46	0.74	0.48	0.86	1.02	0.71
EU-10	0.72	0.89	0.39	0.88	0.86	0.75
EU-25	1.00	1.00	1.00	1.00	1.00	1.00

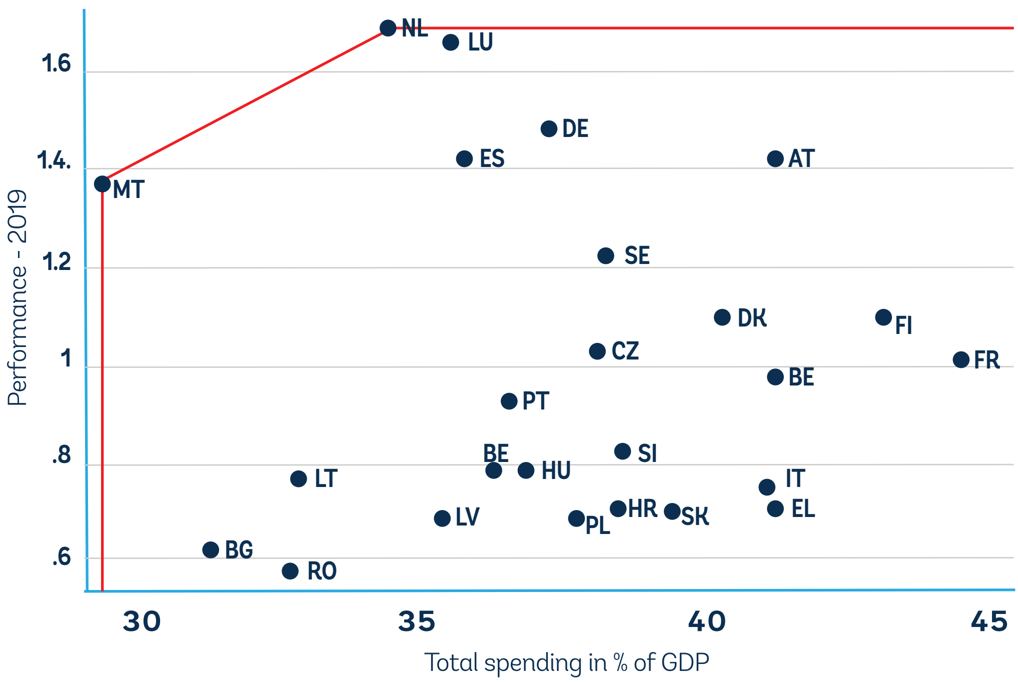
Source: World Bank staff estimates

Annex Table 3. Public sector efficiency indicators – alternative specification

Country	Administrative	Education	Health	Public infrastructure	Distribution	Overall Performance
Bulgaria	0.28	1.18	0.63	0.75	0.93	0.75
Czechia	0.86	1.11	1.12	0.88	1.09	1.01
Estonia	1.19	0.89	0.05	0.62	0.97	0.75
Hungary	0.35	0.86	0.87	0.74	1.16	0.80
Latvia	0.73	0.81	0.25	0.66	0.90	0.67
Lithuania	1.08	0.86	0.51	0.78	0.98	0.84
Poland	0.65	0.79	0.21	0.73	0.95	0.67
Romania	0.24	1.22	0.20	0.72	1.21	0.72
Slovakia	0.60	1.03	0.22	0.82	0.92	0.72
Slovenia	1.06	0.85	0.22	0.84	0.86	0.77
Croatia	0.38	0.78	0.49	0.87	1.09	0.72
EU-10	0.70	0.96	0.43	0.76	1.00	0.77
EU-25	1.05	1.02	1.00	1.07	1.02	1.03

Source: World Bank staff estimates

Annex Figure 3 Production Possibility Frontier – alternative specification



Annex Table 4.
Data envelopment analysis – alternative specification

	Input oriented		Output oriented	
	Rank	VRS TE	Rank	VRS TE
Bulgaria	4	0.94	21	0.42
Czechia	14	0.77	10	0.61
Estonia	10	0.81	16	0.47
Hungary	12	0.80	17	0.47
Latvia	9	0.83	24	0.41
Lithuania	6	0.90	15	0.49
Poland	13	0.78	23	0.41
Romania	5	0.90	25	0.37
Slovakia	18	0.75	22	0.42
Slovenia	16	0.77	14	0.49
Croatia	17	0.77	20	0.42
EU-10		0.83		0.45
EU-25		0.81		0.61

Source: World Bank staff estimates

Chapter 2 Annex 1 Methods for the estimation of the public-private sector wage gap

For the estimation of the mean public-private wage gaps, linear regression models are used. For the raw gaps, the following model is used (for individual i):

$$\ln y_i = \alpha + \beta \cdot \mathrm{Pub}_i + \gamma \cdot \mathrm{PubC}_i + \epsilon_i, \tag{1}$$

where y_i is gross hourly wage; Pub_i is a dummy variable for the pure public sector (Pub_i = 1 for employees in the pure public sector; Pub_i = 0 otherwise); PubC_i is a dummy for public companies (PubC_i = 1 for employees in the pure public sector; PubC_i = 0 otherwise); ϵ_i is a normally distributed random error. The parameters of interest are β and γ. The former is the raw wage gap between the pure public sector and the private sector (hereafter: Pub-Pri), and the latter is the raw gap between public companies and the private sector (hereafter: PubC-Pri). Positive (respectively, negative) β indicates a wage premium (respectively, penalty) for workers in the pure public sector relative to those in the private sector; and similarly for γ in the case of public companies. Given that the wage is expressed in logarithm, β and γ measure the Pub-Pri and PubC-Pri gaps in relative terms. In tables and figures with the results, we report these parameters transformed into percentage differences: (exp(β) – 1) · 100%, and similarly for γ.[91] Equation (1) is estimated separately for each year in the period 2008-2018.[92]

91 And for all other parameters measuring the wage gap that will be mentioned in this section.
92 And all other equations that will be introduced in this note.

For the estimation of the adjusted wage gaps, the regression equation (1) is modified by including a set of control variables in order to control for confounders. The equation reads

$$\ln y_i = \tilde{\alpha} + \tilde{\beta} \cdot \mathrm{Pub}_i + \tilde{\gamma} \cdot \mathrm{PubC}_i + \mathbf{X}_i'\boldsymbol{\delta} + \tilde{\epsilon}_i, \quad (2)$$

with $\tilde{\beta}$ and $\tilde{\gamma}$ as the parameters of interest, measuring the adjusted Pub-Pri and PubC-Pri wage gaps, respectively.[93] $\mathbf{X}_i$ contains the following controls: education (dummies for primary education or less, general secondary, college, and university)[94]; work experience (in years) and its square; gender (a dummy for female); and region where the place of work is located (dummies for the regions Central, Eastern, Adriatic North, and Adriatic South).[95] Although many other characteristics pertaining to either individual workers or jobs/employers are available in the LFS data, we have selected only this rather limited set of controls. The reason is that we wanted to control only for those factors that are likely not determined by the choice of sector. Take, for example, the size of employer, measured by the number of employees; it tends to be higher in the public sector, due to the way the sector and the institutions within it are organized. A related example is supervision of people below one in the hierarchy, which is more likely in larger hierarchical organizations in the public sector. These characteristics, and other similar ones, are determined by the sector of employment to an extent. To the extent this is so, they are outcomes with respect to the sector of employment, just as wages are, and controlling for them in a wage equation may yield biased estimates of the parameters of interest.[96]

A caveat on the interpretation of the mean public-private wage gap - it is not the gap in mean wage between the sectors; it is the mean of gaps across the distribution. Suppose we compute the public-private wage gap quantile by quantile for all quantiles of the two wage distributions, and then simply average the quantile gaps – the resulting quantity is the mean public-private wage gap, and it differs from the gap in mean wage. The reason is this: the mean wage gap weights each quantile gap equally, whereas the gap in mean wage gives larger weights to the gaps at higher quantiles. Also, the higher the wage inequality[97] in the private sector, the larger the weights given to the gaps at higher quantiles. The gap in mean wage, however, does not depend on the difference in inequality between the sectors, whereas the mean wage gap does: the lower the wage inequality in the public sector relative to that in the private sector, the higher the mean wage gap. In other words, the mean wage gap is determined by both the difference in mean wages and the difference in wage inequality. Therefore, the mean gap equals the gap in mean only if wage inequality is the same in both sectors.

93 Tildas are used to distinguish the elements in equation (2) that are denoted by the same letters in equation (1).
94 Reference education category: vocational secondary.
95 Reference region: Zagreb.
96 This sort of bias is known as the post-treatment bias.
97 Measured by the Atkinson inequality index for the value of the inequality aversion parameter ε=1 (Atkinson 1970)

We use the so-called unconditional quantile regression for the estimation of quantil wage gaps. Unconditional quantile regression is a special case of what is known as the Recentered Influ ence Function (RIF) regression (Firpo, Fortin and Lemieux 2009). It is basically a linear regre ssion, estimated by OLS, where the dependent variable is transformed in a certain way be fore the estimation. In particular, it is transformed into the RIF of the statistics of interest, a quantile in our case. For the τ^{th} quantile, q_τ, the RIF applied to ln $\tilde{y}_i$ is given by the expression

$$\boxed{\mathrm{RIF}(\ln y_i\,; q_\tau) = q_\tau + \frac{\tau - \mathrm{I}[\ln y_i \le q_\tau]}{f(q_\tau)},} \tag{3}$$

where $\mathrm{I}[\cdot]$ is an indicator function that equals 1 if the condition in brackets is true, and 0 otherwise, and $f(\cdot)$ is the density function of ln $\tilde{y}_i$. Having computed RIF(ln $\tilde{y}_i$; q_τ), the raw quantile gaps are obtained by estimating the equation

$$\boxed{\mathrm{RIF}(\ln y_i\,; q_\tau) = \alpha_{q_\tau} + \beta_{q_\tau} \cdot \mathrm{Pub}_i + \gamma_{q_\tau} \cdot \mathrm{PubC}_i + \epsilon_i^{q_\tau},} \tag{4}$$

where β_{q_τ} = raw Pub-Pri and γ_{q_τ}= raw PubC-Pri gaps. Similarly, the corresponding adjusted gaps are obtained by estimating

$$\boxed{\mathrm{RIF}(\ln y_i\,; q_\tau) = \tilde{\alpha}_{q_\tau} + \tilde{\beta}_{q_\tau} \cdot \mathrm{Pub}_i + \tilde{\gamma}_{q_\tau} \cdot \mathrm{PubC}_i + \mathbf{X}_i'\boldsymbol{\delta}_{q_\tau} + \tilde{\epsilon}_i^{q_\tau},} \tag{5}$$

where $\tilde{\beta}_{q_\tau}$ and $\tilde{\gamma}_{q_\tau}$ are the adjusted Pub-Pri and PubC-Pri τ-quantile gaps, respectively.

Chapter 2 Annex 2 Data used to analyze public-private sector wage gap

The main source of data for comparison of workforce characteristics in the public and private sector is the Labor Force Survey (LFS). The LFS sample consists of more than 35 thousand observations per year, including individuals aged below 15 years (Table A1). We focus on those who report to be employees (excluding the self-employed); the number of such respondents varied between 10,000 and 13,000 in surveys conducted between 2008 and 2018. The LFS is regularly conducted by the Croatian Bureau of Statistics (CBS). The LFS collects information on the stocks and flows on the labor market, including that on education, demographic characteristics, and type of workplace of the respondents. The Croatian LFS also has a question about the amount of net earnings on the main job. Answers to this question enable us to use the LFS for comparison of wages depending on the characteristics of the individuals and their sector of employment.

The sectoral wage comparison is focused on wages received by employees. That means that the analysis excludes the self-employed (farmers, craftsmen and other independent workers). Self-employment contains a significant component of independent decision making, meaning that a large part of incomes earned is linked to entrepreneurial activity. It also appears that there is much greater variation in the number of working hours and the value of work performed by the self-employed. If these activities were included in the private sector, it could lead to misrepresentation of the key comparative data that this research aims to analyze - differences in compensations for similar work done by employees in the public and private sector.

In order to augment comparability, the analysis takes into account only those who work full-time, defined here as working between 36 and 48 hours a week. LFS data for 2018 shows that around 93 percent of employees in Croatia work full-time. That proportion is even higher in the public sector. Having in mind our focus on the public sector, the analysis that covers full-time-employees will provide a good basis for matching with comparable parts of the private sector.

The analysis is only possible for those who have reported net wage. Net wage is the amount the interviewee said that he/she usually receives for his/her work on the main job on a monthly basis. Non-reporting of wages leaves us without some 20 percent of observations. In order to contain the impact of outliers on the results, we have applied top and bottom coding for wages. By bottom coding, all the wages reported to be below 70 percent of the minimum wage for the given year are set to be exactly 70 percent of minimum wage. By top coding, all the wages above 10 times the median are set at the level of 10 times the median.

After all the neccessary data cleaning, we are left with an average of 7,709 observations per year in period 2008-2018, ranging from 7,201 in 2014 to 9,954 in 2008 (Table A1). [98]

Annex Table 1 LFS sample size by years

	Total sample	Employees - total sample	Employees - final sample
2008	43,908	13,139	9,954
2009	42,295	12,391	9,270
2010	40,072	11,065	8,107
2011	38,237	10,215	7,274
2012	37,302	9,983	7,290
2013	35,826	9,397	6,709
2014	37,448	10,397	7,201
2015	38,206	10,806	7,567
2016	32,537	9,382	6,526
2017	32,475	9,739	6,808
2018	37,034	11,111	8,093
Average	*37,758*	*10,693*	*7,709*

Source: Staff estimates based on the Croatian LFS.

One potential weakness of survey-based wage research is incorrect reporting. This problem is more likely to be present among those respondents with higher wages. In addition, it is possible that this would be somewhat more present in the private sector, given that public sector wages are publicly known or can be easily found out. It is harder to verify wages in the private sector due to privacy concerns, and people might withhold the true information in the survey as well. Furthermore, it is more likely that a part of the salary is paid directly "on hand", especially by smaller employers, in the private sector and that respondents may not be willing to report this part of their salary while participating in the survey. However, it is also possible that a large proportion of such payments is still covered, which may in fact be an advantage over some other (official) sources of wage data. Despite certain difficulties faced by all surveys that collect data on wages and other income, we believe that the collected data and analysis enable us to draw valid conclusions about the main trends in wages between different sectors of ownership.

An additional caveat is related to several methodological changes within the survey during the observed period. For example, for 2014 and later LFSs, the sample frame is based on the Census of Population, Households and Dwellings in 2011. But for earlier surveys it was based on the 2001 Census. In order to achieve consistency and comparability of the LFS data over time,

98 More information on data cleaning and limitation of the LFS data in wage analysis is provided in Appendix 2.

the CBS conducted reweighting, applying the calibration method. Although that procedure should solve most of the issues, some may remain. We have applied the revised population we ights provided by the CBS in our analysis. Several methodological changes also should be me ntioned. Some workers – those working on service, author's or student contracts – were reclassified from self-employment to occasional (temporary) employment in 2014.[99] However, we do not take into account that change and leave this group of workers out of the analysis. Since the beginning of 2016, LFS data have been collected on laptops (CAPI) and by phone (CATI), which replaced the earlier data collection method of using paper questionnaires (PAPI). In addition, due to availability of new and more up-to-date estimates of the total population, data for 2015 and 2016 have been revised in order to adjust the survey data with demographic figures for the Republic of Croatia. Another methodological issue, although of lesser importanc e, is official reclassification of some employers and their activities between different NACE se ctors (from O to N) in 2013-2014.

Chapter 2 Annex 3 Central Salary System

At the end of 2018 the Employee Registry of the Central Salary System (COP) contained information on 254,857 public sector employees with 262,419 work contracts or decisions (Annex Table 2). The number of contracts is higher by 6,611 than the number of employees because some employees work under two or more contracts/decisions. This is most often the case for teachers, professors, and health personnel. Around 70 percent of contracts/decisions are concluded in public services; the remaining 30 percent refers to government bodies. Most employees (86.7 percent), have the status of servant (government or public) and 11.5 percent the status of supporting staff (Annex Table 3). State and judicial officials comprise around 0.1 percent of central government employees. As reported in COP, around 90 percent of employees have permanent work contracts/ decisions.

In 2018, the Central Salary System (COP) recorded expenditure on wages, salaries and compensation of HRK 29.1 billion, which is less than the figure reported by Eurostat for compensation of employees at general government level (HRK 44.5 billion). It is also lower than reported by the Ministry of Finance in its government finance statistics according to GFS2001 standard of HRK 41.8 billion. Lower expenditure reported by COP is due to missing information on local government employees and because some segments of central government are not fully covered by the COP, such are parts of military, foreign and internal affairs employees, as well as some employees in the science and education sectors.

We propose that the COP administrating agency should regularly publish key data on employment and wages in the public sector and its subsectors on a comparable basis. The

[99] MTomić (2020), for instance, reports that between 2013 and 2014 the share of workers in occasional jobs increased by 0.9 percentage points (from 0.5% to 1.4%) among the total number of employees, following a decrease during the crisis (with an average share of 1.1% in the period 2007-2017).

data presented above are taken from the audit report of the State Audit Office. Such data should be regularly published by the COP administrating agency (FINA) or the Croatian Bureau of Statistics to enable better tracking of public sector wages and employment. Due to its rich information, the use of COP data is of the utmost importance for the design of the reform of the public sector wage setting mechanism.

Annex Table 2.
Budgetary public sector employees by the number of entities and work contracts/decisions

Budget entity (employer)	Number of entities (employers) (as of December 31, 2018)	Number of work contracts/decisions (as of December 31, 2018)
Government bodies	226	78,896
-executive bodies	*71*	*65,079*
-judiciary	*143*	*12,690*
-other government bodies	*12*	*1,127*
Public services	1,953	183,523
-health and social care	*363*	*77,722*
-education and science	*1469*	*92,939*
-other	*121*	*12,862*
TOTAL	2,179	262,419

Note:
Employees of local governments are not included, nor parts of the Ministry of Interior, the Ministry of Science and Education, the Ministry of Foreign Affairs and employees dealing with classified data.

Source: State Audit Office (2019) [Državni ured za reviziju, 2019]

Annex Table 3. Budgetary public sector employees by labor status

Status	Number (as of December 31, 2018)
Servants (Government and Public)	220,982
Supporting Staff	29,344
Judicial Officials	2,377
State Officials	415
More than one or no status	1,739
TOTAL	254,857

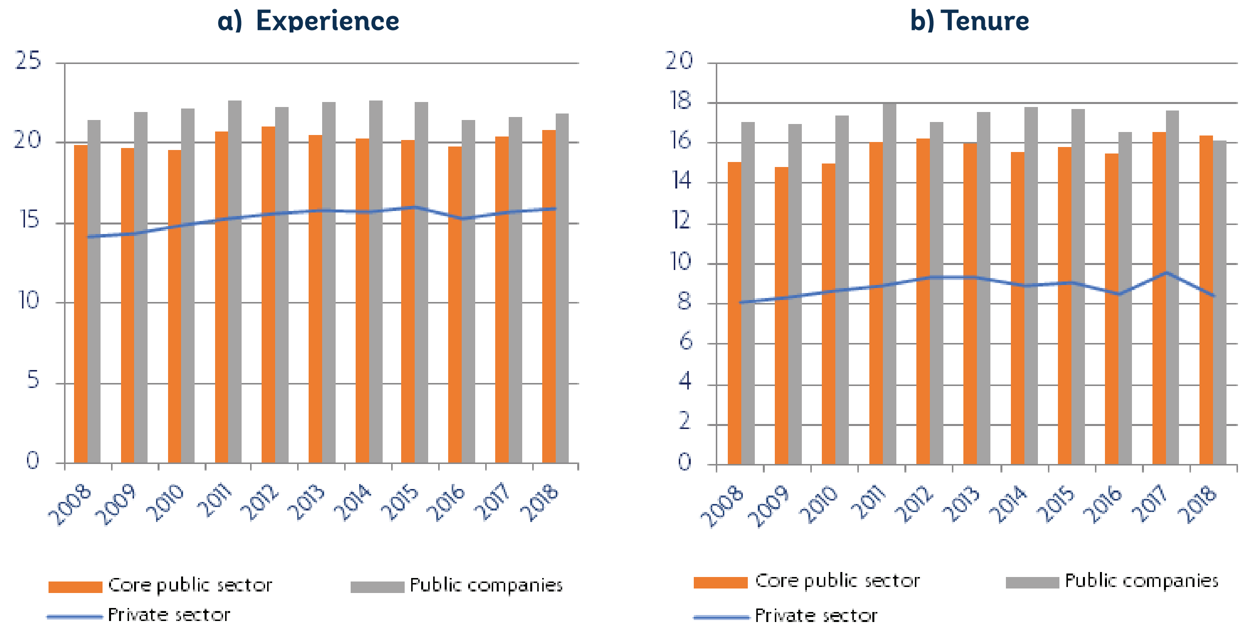
Note:
Employees of local governments are not included, nor parts of the Ministry of Interior, the Ministry of Science and Education, the Ministry of Foreign Affairs and employees dealing with classified data.

Source: State Audit Office (2019) [Državni ured za reviziju, 2019]

Chapter 2 Annex 4. The composition of workers - public sector vs. private sector

The average work experience among employees in the public sector is higher than in the private sector (Annex Figure 1). The average work experience in the private sector is 15 years, in public companies 22 years and in the core public sector 20 years. Differences in the average tenure (years of employment with the present employer) are even larger: the average te nure in the private sector over the observed period (2008-2018) is nine years, while in the public sector it is eight years higher (16 years in the core public sector and 17 years in public companies).

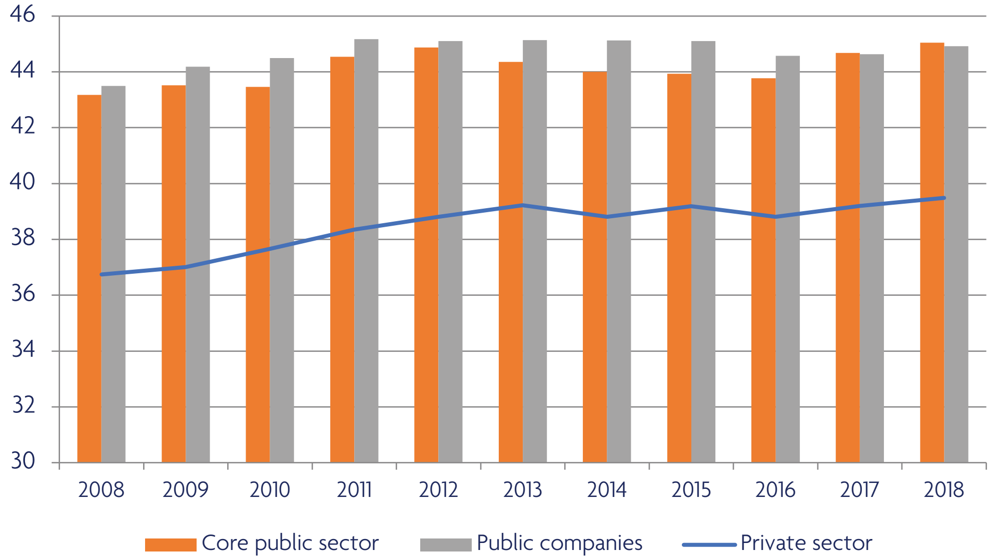
Annex Figure 1. Experience and tenure by sector



Source: Staff estimates based on the Croatian LFS.

The private sector employs younger workers than the core public sector or public companies do, although the difference has fallen recently (Annex Figure 2). The public sector in general employs older workers than the private sector does (Annex Table 1). The share of youths (15-24 years) among the workforce is highest in the private sector, although this share declined during the crisis; the share of the oldest age group (over 50) is highest in public companies. In general, there is a trend towards an aging workforce in every sector. In the period 2008-2018, the average age of private sector employees increased by almost three years (from 36.7 to 39.5) while the increase was somewhat slower in the public sector: from 43.2 to 45.0 in the core public sector and from 43.5 to 44.9 in public companies. The aging of the workforce partially reflects the gradual increase in the statutory retirement age for women. However, in the core public sector that effect is the weakest (or missing), as the legal opportunity for women to continue working until the age of 65 has been in place for some time. It is likely that women have increasingly used that option in recent years to protect their incomes, given the decline in the pension-to-wage ratio.

Annex Figure 2
Average age of the employees by sector



Source: Staff estimates based on the Croatian LFS.

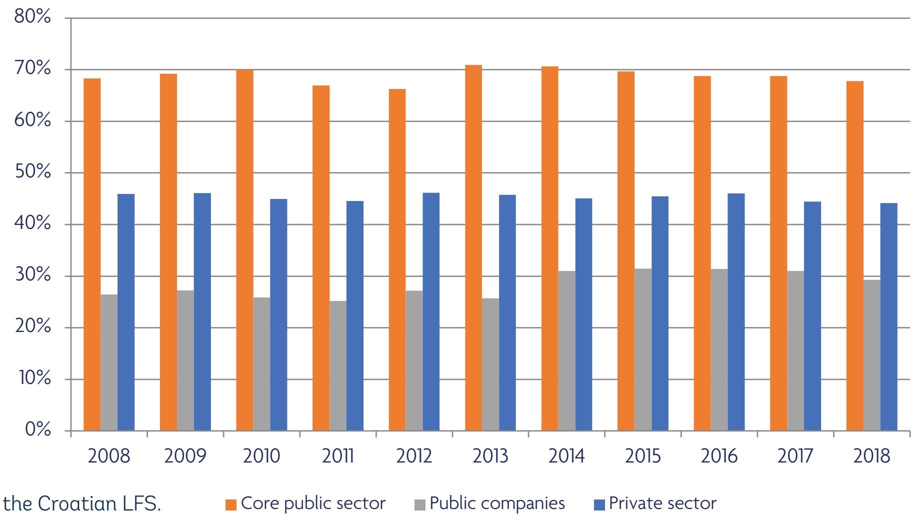
Annex Table 1. Employees' age structure by sector

	2008			2013			2018		
	Private	Core public sector	Public comp.	Private	Core public sector	Public comp.	Private	Core public sector	Public comp.
Age: 15-24	13.8%	1.8%	4.3%	6.8%	2.2%	0.9%	8.8%	1.9%	4.3%
Age: 25-49	70.6%	69.6%	63.9%	72.7%	60.1%	60.0%	68.0%	60.6%	55.5%
Age: 50+	15.5%	28.6%	31.8%	20.5%	37.7%	39.0%	23.2%	37.5%	40.3%

Source: Staff estimates based on the Croatian LFS.

The share of women in total employment is much greater in the public sector. Women accounted for 44 percent of private sector employees in 2018, 68 percent in the core public sector and 29 percent in public companies, (Annex Figure 3). The gender composition of employment did not change much from 2008 to 2018, except for the increasing share of female employees in the public companies in recent years.

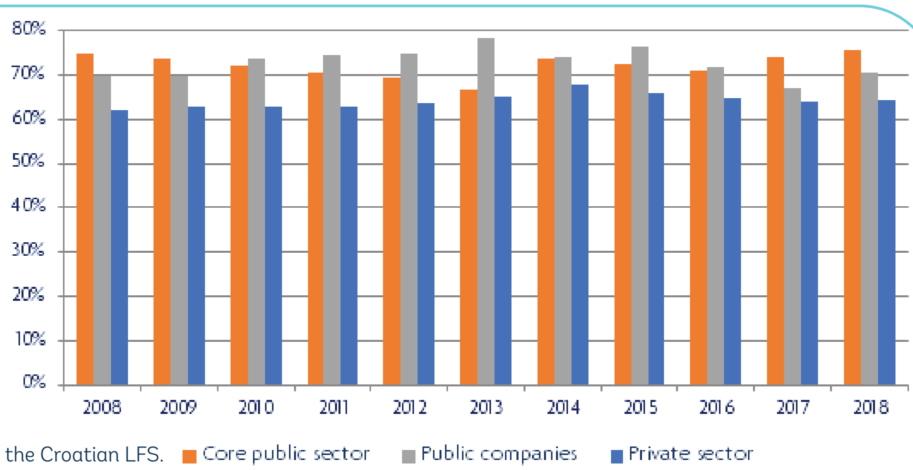
Annex Figure 3
Share of female employees by sector



Source: Staff estimates based on the Croatian LFS.

The share of married/cohabitating employees in the public sector was 72 percent on average in 2008-2018, compared to 64 percent in the private sector (Annex Figure 4). That should not come as a surprise, given the higher share of young workers in the private than public sectors. In addition, the public sector is generally considered to be a more family-friendly sector.

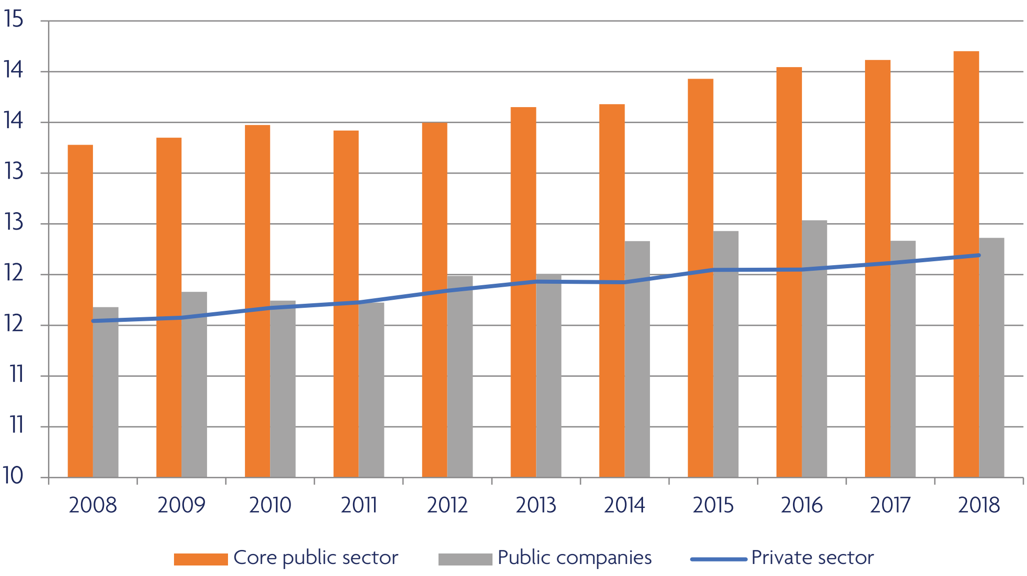
Annex Figure 4
Share of married/cohabitating employees by sector



Source: Staff estimates based on the Croatian LFS.

Employees in the public sector tend to be more educated than employees in the private sector. Employees in the core public sector have on average two years more of completed education than those employed in the private sector or those in the public companies (Annex Figure 5). In 2018, more than 56 percent of all employees in the core public sector had finished undergraduate or graduate tertiary education, compared to less than 20 percent of those employed in the private sector and 24 percent in public companies. The majority of full-time employees who have either an undergraduate or graduate degree in Croatia are employed in either the core public sector or public companies. The number of years of completed education increased in all sectors between 2008 and 2018, especially so in the core public sector. The decline in the average years of schooling of employees in public companies in 2017 and 2018 may be connected with the privatization of certain public companies with well-educat ed workers.

Annex Figure 5
Average years of schooling of employees by sector



Source: Staff estimates based on the Croatian LFS.

Although the improvement in educational attainment continued in the last decade, those with finished secondary education remained the majority of employees in all three sectors. The share of those with primary education or less has been decreasing. The highest share of those with finished higher education is in the core public sector and is increasing over time (Annex Table 2).

Annex Table 2. Employment composition by education level and sector

	2008			2013			2018		
	Private sector	**Core public sector**	**Public comp.**	**Private sector**	**Core public sector**	**Public comp.**	**Private sector**	**Core public sector**	**Public comp.**
Primary or less	13.3%	7.7%	13.5%	9.6%	6.1%	12.8%	7.7%	2.5%	8.8%
General secondary	32.2%	32.3%	35.5%	39.5%	33.2%	41.3%	36.9%	30.5%	39.0%
Vocational secondary	42.5%	13.5%	36.1%	35.1%	10.3%	26.2%	35.9%	10.7%	
Undergraduate tertiary	4.8%	18.3%	7.0%	6.2%	15.2%	8.9%	6.7%	16.9%	6.5%
Graduate tertiary	7.2%	28.1%	7.9%	9.7%	35.2%	10.7%	12.7%	39.5%	17.6%

Source: Staff estimates based on the Croatian LFS.

Average wages differ between the public and private sectors within groups of similarly-educated workers. While the core public sector pays higher wages to employees with secondary education, the private sector pays more to employees with primary education or less (Annex Table 3). Public companies pay the highest wages for each level of education in all three years, except in 2008 for graduate tertiary education.

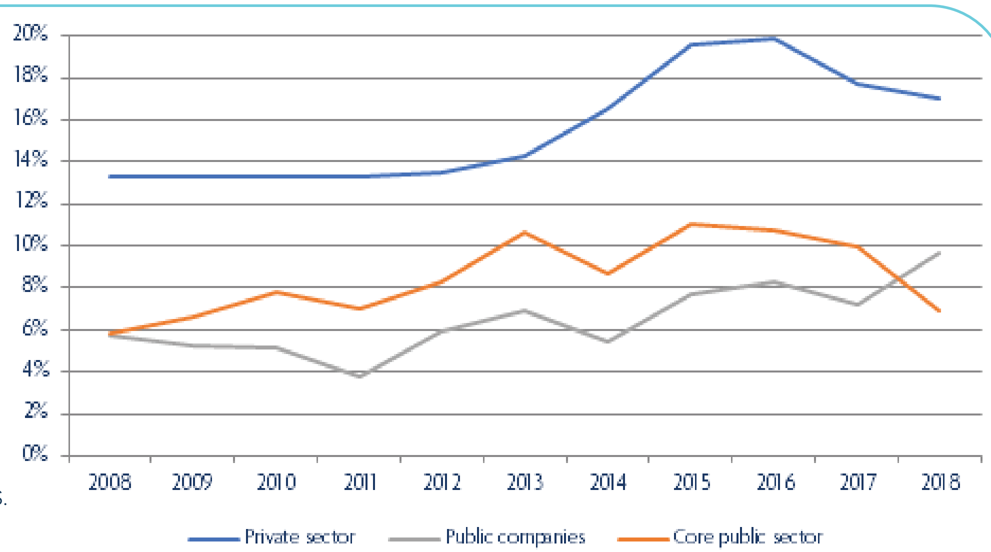
Annex Table 3. Hourly net wage by education and sector

	2008			2013			2018		
	Private sector	Core public sector	Public comp.	Private sector	Core public sector	Public comp.	Private sector	Core public sector	Public comp.
Primary or less	16.7	16.6	19.1	19.5	19.1	23.4	23.2	20.5	26.4
General secondary	19.4	22.6	23.3	21.0	24.0	25.2	25.1	25.6	28.7
Vocational secondary	21.5	25.0	26.1	23.4	26.9	28.8	27.6	30.0	33.5
Undergraduate tertiary	30.2	30.7	30.9	32.0	30.4	37.9	36.3	34.7	40.8
Graduate tertiary	39.1	34.5	38.8	41.6	37.7	43.4	44.1	42.8	45.6
TOTAL	21.6	27.7	25.5	24.5	30.5	29.5	29.0	35.2	34.2

Source: Staff estimates based on the Croatian LFS.

Permanent employment dominates in both the public and the private sector, but temporary work contracts recently have become somewhat more common (Annex Figure 6). The private sector is responsible for the bulk of temporary employment: in 2008-2018, 16 percent of private sector employees had temporary contracts, versus 8 percent in the core public sector and only 6 percent in public companies. However, all three sectors experienced a rise in temporary employment during the 2013-2016 period, with public companies continuing the trend even after 2016. This may partly reflect the increased employment of youth workers via the so-called vocational training without commencing employment, on a contract with the duration of 12 months. However, youth employment was not the principal reason for the overall trend of increased temporar employment among the Croatian workforce after 2013, as shown by Tomić (2020).[100] The private sector also has the highest share of employees working on seasonal and/or occasional jobs (Annex Table 4). Although the share of these jobs is rather small, there is a visible increasing trend in both private sector and public companies.

Annex Figure 6
Share of temporary contracts by sector



Source: Staff estimates based on the Croatian LFS.

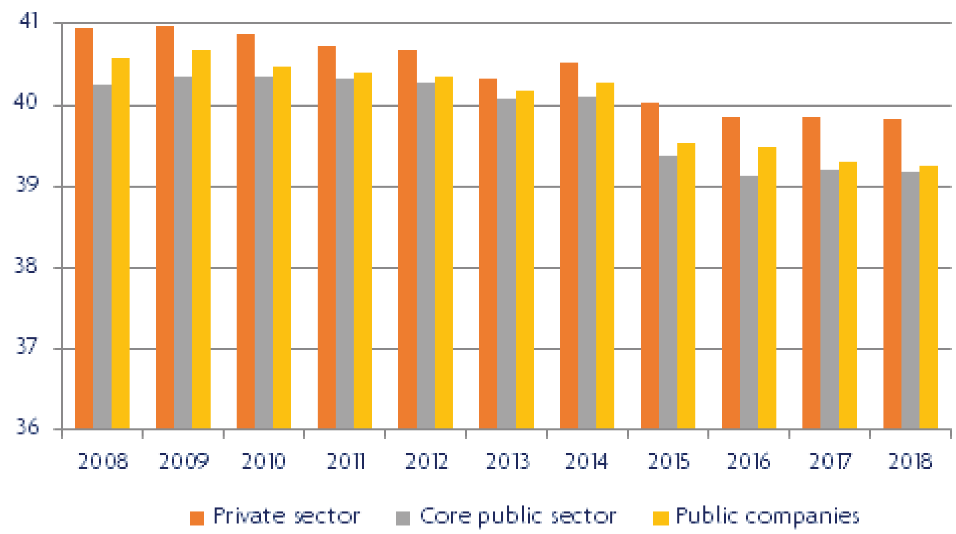
[100] Tomić, I. (2020), "Employment protection reforms and labour market outcomes in the aftermath of the recession: Evidence from Croatia", *Public Sector Economics, 44* (1), 3-39

Annex Table 4. Employment composition by type of work contracts and sector

	2008			2013			2018		
	Private sector	Core public sector	Public comp.	Private sector	Core public sector	Public comp.	Private sector	Core public sector	Public comp.
Permanent	85.4%	94.0%	93.8%	84.1%	89.2%	92.4%	80.8%	93.0%	89.0%
Temporary	13.3%	5.8%	5.7%	14.3%	10.6%	6.9%	17.1%	6.9%	9.7%
Seasonal / occasional	1.3%	0.2%	0.5%	1.6%	0.1%	0.8%	2.2%	0.1%	1.3%

Source: Staff estimates based on the Croatian LFS.

Annex Figure 7
Average weekly hours of work by sector



Source: Staff estimates based on the Croatian LFS.

The average number of hours worked in the private sector exceeds the number worked in the public sector (Annex Figure 7). Although these differences are not large, partially because we restricted the sample of employees in the analysis to those working between 36 and 48 hours, they are statistically significant for both the core public sector and public companies, compared with the private sector. It appears that employees in public companies are working somewhat longer hours than those in the core public sector. The average number of weekly hours of work fell in all three sectors from 2008 to 2018.

Chapter 3 Annex 1

Annex Table 1 – Spending per category

	Total HC expenditure	Total hospital expenditure	Expenditure HM (as reported by HZZO)	Expenditure HM (inflated by 20%)	Expenditure EM	Expenditure PM	Supplementary list co-payments	Dispensing fee	OTC**
2014	20,259,659,961	5.938.570.353	1.341.600.737	1.609.920.884	527.301.728	3.018.186.744	305.297.295	401.237.655	754.546.686
2015	20.101.295.820	6.381.896.070	1.155.209.750	1.386.251.700	619,260,723	2,894,995,790	375,097,891	411,568,770	723,748,947
2016	20,260,904,343	6,898,459,813	1,194,630,961	1,433,557,153	791,348,457	2,981,979,230	428,994,985	437,344,230	745,494,807
2017	20,588,389,597	7,388,187,229	1,228,459,489	1,474,151,387	1,009,514,604	3,089,911,744	468,118,900	451,518,930	772,477,936
2018	21,547,144,426	8,153,768,350	1,354,629,342	1,625,555,210	1,358,234,062	3,152,504,658	553,359,847	466,647,650	788,126,165
Forecast 2019	23,187,323,000	*8,583,182,509*	1,284,698,140	1,541,637,768	1,590,000,000	3,496,876,000	*602,917,618*	*484,894,492*	*874,219,000*
Forecast 2020	24,060,541,000	*9,126,851,224*	1,294,628,835	1,553,554,602	1,850,000,000	3,700,000,000	*661,832,229*	*501,971,507*	*925,000,000*
Forecast 2021	24,928,748,500	*9,670,519,940*	1,304,559,530	1,565,471,436	2,160,000,000	3,940,000,000	*720,746,840*	*519,048,522*	*985,000,000*
Forecast 2022	25,518,471,500	*10,214,188,655*	1,314,490,225	1,577,388,270	2,480,000,000	4,130,000,000	*779,661,451*	*536,125,537*	*1,032,500,000*

Note: Italics for linear trend, otherwise HZZO forecasts for 2019-2022; ** OTC or Over the counter medicines spending calculated as 25% of PM spending

Annex Table 2 – Total spending and relative shares

	Total pharmaceutical spending in Croatia (HM+EM+PM+CP +DF+OTC**)	HZZO pharmaceutical spending (HM+EM+PM)	GDP	Population	Total pharmaceutical spending in Croatia, per capita (HM*+EM+PM+CP +DF +OTC**)	Total pharmaceutical spending as a % of GDP	HZZO pharmaceutical spending as a % of GDP	HZZO pharmaceutical spending as a % of HZZO total healthcare expenditure
2014	6,348,170,845	4,887,089,208	331,343,000,000	4,238,389	1,498	1.92%	1.47%	24.12%
2015	6,179,881,871	4,669,466,262	339,696,000,000	4,203,604	1,470	1.82%	1.37%	23.23%
2016	6,579,792,670	4,967,958,648	351,169,000,000	4,174,349	1,576	1.87%	1.41%	24.52%
2017	7,020,001,603	5,327,885,837	366,426,000,000	4,124,531	1,702	1.92%	1.45%	25.88%
2018	7,673,501,723	5,865,368,062	382,624,000,000	4,087,843	1,877	2.01%	1.53%	27.22%
Forecast 2019	*8,333,605,250*	*6,371,574,140*	*393,039,200,000*	*4,051,694*	*2,057*	*2.12%*	*1.62%*	*27.48%*
Forecast 2020	*8,933,432,571*	*6,844,628,835*	*405,968,400,000*	*4,013,677*	*2,226*	*2.20%*	*1.69%*	*28.45%*
Forecast 2021	*9,629,354,892*	*7,404,559,530*	*418,897,600,000*	*3,975,661*	*2,422*	*2.30%*	*1.77%*	*29.70%*
Forecast 2022	*10,272,777,213*	*7,924,490,225*	*431,826,800,000*	*3,937,644*	*2,609*	*2.38%*	*1.84%*	*31.05%*

Note: Italics for linear trend, otherwise HZZO forecasts for 2019-2022; ** OTC or Over the counter medicines spending calculated as 25% of PM spending

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