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Social Stability in Serbia Challenged?

Effects of the first year of COVID-19 pandemic on the labour market and the position of vulnerable groups in Serbia

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Srpski:

ARS – Anketa o radnoj snazi

BDP – Bruto društveni proizvod

MMSP - Mikro, mala i srednja preduzeća

NSZ – Nacionalna služba za zapošljavanje

English:

AFSA – Accommodation and food services activities sector

AER – Arts, entertainment and recreation sector

EU – European Union

GAV – Gross added value

GDP – Gross Domestic Product

IES – Institute of Economic Sciences

ILO – International Labour Organisation

LFS – Labour Force Survey

MSME - Micro, small and medium size enterprises

NES – National Employment Service

NUTS – Nomenclature of territorial units for statistics

SES – South-Eastern Serbia

SILC – Survey on Income and Living Conditions (SILC)

SORS – Statistical Office of the Republic of Serbia

YoY – Year on year effect

Foreword

This book presents results from the research project "*Social Stability in Serbia Challenged? Pandemics, Economic losses, Inequality and Policy Responses*" (INEQ-RS-COVID-19), within the framework of Special Research Program on COVID-19, run by the Science Fund of the Republic of Serbia. The book analyses the effects of the COVID-19 pandemic on the labour market and household well-being in Serbia and identifies the groups that were hit the most during the crisis. We combine different sources of data, such as Labour Force Survey (LFS) and National employment service (NES) data and data from a new nationally representative survey on the effects of COVID-19 to analyse the changes in labour market outcomes (INEQ-RS-COVID-19 survey), household income before (2019) and after (2020) the effects of pandemic occurred. Part of the research results from this book, were presented in a preliminary form at the Conference "Applied Economics Conference: Labour, Health, Education and Welfare" which was held in Belgrade on 28th and 29th October of 2020.

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Belgrade, December 2022

Lara Lebedinski and Marko Vladisavljević

1 Introduction

The public health measures implemented by the Serbian government to limit the spread of the COVID-19 pandemic were expected to produce significant economic consequences that were likely to exacerbate social and economic inequalities. Although early projections indicated a relatively mild and temporary decrease of Serbian GDP as (3% decrease in 2020, and 7.5% increase in 2021[1]), the economic losses of different groups resulting from the COVID-19 pandemic were unknown and less easy to predict. Even before the pandemic, Serbia was characterized by high levels of inequality and poverty,[2] and previous research confirms that vulnerable workers: informally employed, self-employed, low-wage earners, employees with non-permanent contracts and in small firms, as well as women and young people were at the highest risk to suffer from this economic downturn (ILO, 2020).[3]

Women were particularly vulnerable as they were the main care takers of children during the periods of school and kindergarten closures. During economic downturns, young people's vulnerability stems both from the difficulty to find a good job match and from frequent non-permanent employment contracts of those employed. For these reasons, young people trying to get a foothold in the labour market during downturns may suffer a permanent negative impact on their employability and wages. Containment measures and decreasing aggregate demand will have harder effects on "non-essential" sectors (e.g. tourism, trade, etc.), where vulnerable employees are frequently employed and this will create further labour market distortions.

The first year of the pandemic resulted in even lower decrease than anticipated as the GDP decrease in 2020 compared to 2019 was only at

[1] https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOWORLD/SRB

[2] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Income_poverty_statistics&oldid=440992

[3] We do not study in this book the Roma community as a vulnerable group due to the small sample size in our data. However, Roma are indirectly included as informal workers or less educated individuals. For more information about the formal and informal employment of Roma refer to Lebedinski (2020).

about 1%. Employment remained at roughly the same level, however, this was an interruption of the previously favourable trends on the labour market in Serbia, during which employment rate grew by about 1 percent per year. On the other hand, there was a significant decrease in the working hours by about 2.6%. As we explain in length throughout the book the average employment and working hours effects hide the fact that in some vulnerable groups the pandemic has caused a significant worsening of labour market outcomes, while other groups prospered. Given the characteristics of those who are hit the most, in the absence of government intervention, the pandemic could have exacerbated already existing inequalities and worsened the position of those already vulnerable.

Timely implementation of measures was the first priority in the first wave of the pandemic. Due to the immediateness of the problem, the Government underlined the need for "efficient implementation of fiscal measures without unnecessary procedures, so that the help arrives in time to those who need it the most". Therefore, due to justified urgency to save jobs and prevent social collapse, the goal of financial sustainability of these measures was of secondary importance.

These measures undoubtedly had their role in preserving formal permanent employment, and the more substantial support towards micro, small and medium size enterprises (MSME) was justified, as they were more vulnerable in the terms of liquidity. However, the amount and length of the assistance to firms should have been differentiated according to the estimated risks each sector faced during the pandemic and initial estimates of their performances. This would have improved the targeting of the assistance, as some groups were completely left out of the assistance.

Implementing adequate measures was of the essence for those who were most severely hit. Although such measures would be in more direct interest of the most vulnerable, they would ensure a cohesive society and will benefit the equality in the labour market as a whole.

Given already existing high inequalities in Serbia (Žarković-Rakić & Vladisavljević, 2021) and that the most vulnerable are under the greatest risk of the economic losses during the pandemic, this crisis could seriously challenge social stability in Serbia. The focus of the implemented policies

in Serbia was to preserve jobs of those who were permanently employed, while the problems of vulnerable employment and unemployed have not been adequately addressed. We provide in this book a complementary set of measures which are focusing on those who are hit the most. Such measures, despite directly benefitting the worse off, are in the interest of all (including the best-off and those unaffected by the lockdown), because they reduce income inequalities.

Decreasing poverty and inequality, although important goals themselves, also have wider microeconomic implications, because they affect efficient division of labour in a society and incentives to work; as well as wider macroeconomic implications, as they can affect GDP growth and overall economic efficiency. Sustainable and inclusive growth means greater and fuller engagement of parts of the workforce that are trapped in low-productive activities or completely excluded from economic growth (Berg & Ostry, 2017) and their higher inclusion can only result in faster growth rates of the overall economy.

Previous research has shown that inequality can help spread the pandemics because poor people lack access to health services and information (Ahmed et al., 2020). Our research will point towards the fact that the policy makers wishing to shape more robust social environments should carefully consider this additional source of fragility stemming from high levels of economic disparities and the feedback loop between the inequality and contagion. Those who lose their jobs were driven to search for alternative income, in order to provide for their basic needs. This job search then involves ignoring containment restrictions which can further exacerbate the pandemic.

Designing adequate and efficient policies aiming to improve position of vulnerable groups is therefore especially important. Since the country already resorted to increased indebtedness during the first wave of the epidemic long-term financial sustainability becomes a primary, rather than the secondary, goal of the policy makers. Our research focuses on this aspect of the implemented and developing future policy measures which are cost-effective.

Research objectives

As the targeting, equity and effectiveness of already implemented measures was unknown the government was expected to carefully design future measures in order to maintain financial and political stability, and avoid excessive indebtedness, particularly as 11% of the GDP was already spent on the first set of measures.

This book aims to provide an in-depth analysis using the state-of-the-art techniques and to provide policy recommendations, in particular the book consists of:

1. *Analysis of the impact of the COVID-19 pandemic on the labour market in Serbia*.

   We analyse the overall changes and specific effects on vulnerable groups (informally employed, women, etc.) between 2019 and 2020, occurring due to state of emergency in Serbia and in the period after, which although with milder restrictions, is characterized by decreasing aggregate demand and particular impacts on some sectors.

2. *Exploration of best international practices for policy recommendations the COVID-19 pandemic*

   We summarise best practices Using together findings from this study and international literature, we catalogue best-practice measures to alleviate effects should similar extreme events in the future occur (including another wave of COVID-19 pandemic).

Concept and methodology

To analyse the changes in the labour market outcomes we use Serbian Labour Force Survey (LFS). LFS is conducted continually by the Statistical Office of the Republic of Serbia (SORS) and provides nationally representative data on the labour market. We analyse the data as a whole to obtain nationally representative estimates of the effects and exploit the panel structure of LFS to analyse the effects in a more direct manner.

We use the difference-in-differences methodology to compare the outcomes, before (2019) and after (2020) the effects of epidemic occurred, for different groups of individuals (e.g. young/prime age/old, female/male, formally/informally employed, etc.). Detailed LFS data enable us to analyse the changes disaggregated by job and personal characteristics in order to build a profile of the workers who were hit the most.

We complement the LFS analysis with an analysis of registered employment and unemployment at an individual level (available from National employment service – NES). The idea of using different data sources is to validate findings from one, by comparing the results from another.

A part of this research is a survey through which we collected information not available in the LFS or SILC data: take-up of transfers offered, attitudes towards the measures implemented, coping strategies and health risks undertook during the epidemic in order to provide for their families, division of household choirs and child care, well-being and health of workers, etc. Besides providing additional information on the effects, the survey information will also be used to calibrate micro-simulation analysis.

Our research provides several novel contributions to the economic literature and existing national COVID-19 related activities:

1. A rigorous analysis of the labour market allows us to identify the *subgroups who suffered most* during the epidemic and who need to be targeted by governmental policies (subsidies, active labour market policies, social transfers, etc.).
2. A comprehensive insight into the effect of the pandemic on both formal and informal employment, wages and the economic loss each of the vulnerable groups faces. To do so, we rely on *different data sources*, namely large representative surveys, administrative data, and a survey designed particularly to address the impact of COVID-19 epidemic. The idea of using different data sources is to validate findings from one, by comparing the results from another.
3. The case study of Serbia is relevant from the comparative perspective due to the large share of *informally employed workers*

(18.2%). These workers, particularly vulnerable during this crisis, are not recorded in the official administrative data and were excluded from government's measures targeting employed individuals. Changes in their position will be analysed in large representative survey (LFS) and within new survey designed to address the impact of COVID-19 epidemic.

4. Given the increases in public debt that have occurred as a result of government measures, effectiveness and sustainability of these measures is relevant for future pandemic and more broadly other extreme events which may occur.

The following population subgroups will be the focus of the research presented in this book as policies will be specifically devised for them:

1. *Those who lost their jobs or suffered a substantial wage decrease during the crisis*

   As mentioned previously, those who suffer the greatest risks from the pandemic are those workers who are already vulnerable: informal workers, workers with non-permanent contracts, in small firms, self-employed, and workers in non-essential sectors. Their jobs are more vulnerable as their employers do not face severance pays for firing them or they work in businesses more prone to bankruptcy due to lower liquidity. Informal workers are particularly vulnerable because they are overrepresented in the affected sectors, they are low-earners and are not covered by the social safety net. In addition to short-term effects on financial stability of their households, the crisis can have long-term effects on households' earning capacity, educational outcomes, nourishment and health.

2. *Women, youth and other vulnerable groups identified*

   Women are considered to be particularly vulnerable because they are not only overrepresented in the non-essential sectors, but they were the main care takers of children during the period of school and kindergarten closures. Even before the pandemic, women in Serbia were much worse off having significantly lower levels of

employment and wages (Vladisavljević et al., 2015), particularly in the presence of small children (Lebedinski & Vladisavljević, 2022), indicating the possible deterioration of their position. Additionally, austerity measures aiming to address the influence of the previous, 2008 economic crisis, had an adverse effect on the position of women in the labour market by increasing the gender pay gap and gender labour market segregation (Perugini et al., 2019). Thus, in designing measures of economic policy that will be used to alleviate the economic crisis, particular attention should be paid to gender aspects.

On the other hand, young people are particularly vulnerable in the cases of economic downturns. Their vulnerability stems from lower number of jobs available and low job security of those who are already employed. Additionally, a well-known fact in the economic literature is that if young people enter the labour market in times of recessions, they suffer a permanent negative impact on their employability and wages (Kahn, 2010).

Our research will investigate the heterogeneous impact of the COVID-19 crisis on other potential vulnerable groups. We will investigate urban / rural differences, regional discrepancies in the effects, position of persons with children vs. the childless persons and others.

Contribution to the literature

Theoretically, this book speaks to the literature examining how pandemics (McKibbin & Sidorenko, 2006; Parker, 2002) or natural disasters affect labour markets and economic inequalities (Cavallo & Noy, 2011). However, studies investigating causal effects of this type of crisis are practically non-existing. As society changes caused by overcrowding increase the chances of new pandemics, creating knowledge to decrease inequality is essential in preserving social stability.

As the impact of the pandemic is expected to vary between developed, middle-income and developing countries (Alon, Kim, et al., 2020), Serbia as a small-open, middle-income country, with sizeable share of informal employment is important from the comparative perspective. The results from this book can be compared to findings from other countries in order to understand which features of the institutions, labour markets and coping mechanisms were successful in mitigating the economic shock from the pandemic. Also, it will enable us to understand how successful different types of policies (cash transfers, transfers proportional to labour income losses, means-tested transfers) were in mitigating the effects of the crisis.

This book estimates the impact of the COVID-19 pandemic on different vulnerable groups in Serbia and allows the scientific community to understand and further investigate the consequences of the pandemic in this specific setting. The usefulness and importance of the results presented in this book extends to other social sciences as identifying groups most hit is the starting point of the examination of other sociological, psychological, legal and other consequences of the pandemic. It also informs public health scientist which groups are most likely to behave in a risky manner during the pandemic due to economic hardship.

As the crisis is unprecedented, the framework and the results of the analysis of vulnerable groups and policies can also be applied in the case of similar future shocks. The future shocks include not only novel waves of COVID-19 epidemic, but also other diseases and challenges of the climate change, which can have similar distributional effects.

This book follows the following structure. Chapter 2 gives an overview of the literature related to the effects of the pandemics on labour market and inequality. Chapter 3 discussed the COVID-19 timeline, economic measures and main macroeconomic trends. Chapter 4 analyses the main changes in the labour market and job characteristics; chapter; 5 studies the situation of the vulnerable groups on the labour market; chapter 6 extends the analysis by analysing the impact of particular aspects of COVID-19 pandemic on the labour market via results from a cross-sectional survey, Additionally, chapter 6 provides insights into the effects of the pandemic on household income, financial situation and division of household chores

during the pandemic. Chapter 7 analyses the effects that labour market trends had on poverty iand income inequality. Chapter 8 summarises the international best practises of policies implemented by the Public employment services in developed countries during the pandemic, while chapter 9 summarises and discusses the findings, offers policy recommendations and concludes.

2 Related literature

The COVID-19 pandemic is an unprecedented global health crisis which has slowed down the economic activity and impacted labour markets. The last pandemic comparable in terms of intensity with the COVID-29 pandemic was the Great Influenza Pandemic lasting from 1918 to 1920. This past pandemic was highly contagious, but more importantly also more lethal compared to the standard flu and to COVID-19. It is estimated that approximately 500 million persons have been infected, and that between 50 and 100 million died from the Great Influenza virus (Wheelock, 2020). The pandemic came in three waves with the second wave being the most severe one. Similar to the COVID-19 pandemic, restrictions on social and economic interactions were periodically imposed depending on the number of infections in a certain region. The Great Influenza had a high mortality rate among prime-age males and as a result the pandemic reduced the labour supply and increased real wages (Correia et al., 2022; Garrett, 2009). In contrast, to the Great Influenza, COVID-19 affects more the elderly population and this strange effect was not expected and did not happen in the case of COVID-19. The Great Influenza happened in parallel to the World War I and it is difficult to isolate the impact of the pandemic from the world war. Barro et al. (2020) suggest that Great Influenza generated a decline of GDP and consumption in a typical country in the range of 6 to 8 percent.

While at the beginning of the COVID-19 pandemic most countries had implemented severe lockdowns, after this initial shock countries learnt to live with the virus and adjusted the movement restrictions depending on the prevalence of the virus in the population. The impact of the economic crisis was felt throughout 2020 with the real GDP falling by 5.9% points in the EU (Eurostat, 2022a). The unemployment rate in the EU started rising at the end of first quarter of 2020 and reached its peak in the third quarter. Towards the end of 2021 it went back to its pre-crisis levels (Eurostat, 2022b). Many studies (Forsythe et al., 2020b; Gaudecker et al., 2020; Lemieux et al., 2020) find that the crisis had a negative impact on workers, both on intensive (the hours worked) and extensive margin (employment). Most European countries introduced job retention schemes, mostly short-time work schemes, which were successful in preventing a surge in

unemployment (OECD, 2020). The purpose of job retention schemes was to reduce the labour cost of the companies and help them bridge the difficult period until the economy starts recovering.

Therefore, once the health crisis started, the governments intervened with policies aiming to prevent mass lay-offs (e.g. job retention schemes), however, persons in vulnerable jobs were very often not covered by these policies (e.g. job retention schemes). We consider informal workers, who have no job protection and who are legally not employed (OECD/ILO, 2019), and temporary workers as their contract length is predetermined and there is no guarantee of renewal, to be vulnerable workers. In downturns these workers are the ones to be laid off first (International Labour Organization, 2016; Peck & Theodore, 2007). Moreover, informal employees were not protected by job retention schemes, while temporary workers were covered by job retention schemes only when they held longer period contracts. Additionally, self-employed and workers in small firms were also more vulnerable, as they are more exposed to economic shocks due to their greater credit constraints and a higher exposure to weak consumer demand (Kochhar, 2021). The economic crisis caused by the virus COVID-19 was also highly sectoral. Some sectors, most notably hospitality and more broadly the services sector, were severely hit, while other sectors, such as healthcare or logistics experienced a demand surge (Canton et al., 2021).

Groups with already lower employment rates, such as youth, women and low-educated, given the structure of their employment characteristics, are considered to be under a greater impact of COVID-19 pandemic. Therefore, the economic crisis caused by the virus COVID-19, aside from the overall adverse effects on the labour market, can also cause deepening of the existing inequalities on the labour market. Youth and low educated workers are more likely to be hit by the effects of COVID-19 pandemic as they work more frequently in vulnerable contractual employment arrangements (e.g. temporary contracts, employment in the informal sector). For young workers the consequences of economic downturns can be particularly strong as prolonged periods of job search or bad job matches at the beginning of one's career can have long-term effects on their future employment and incomes (Genda et al., 2010; Kahn, 2010;

Oreopoulos et al., 2012; Raaum & Røed, 2006). During the pandemic of COVID-19, women had to work more in the household due to increased household chores such as childcare and increased needs for home schooling due to recurring school closures. These additional responsibilities in the household were an additional burden for the working women (Alon, Doepke, et al., 2020; Del Boca et al., 2020; Farré et al., 2020). The rural population is also more vulnerable as informal employment is more frequent than in urban areas and as the lockdowns also caused massive and unprecedented disruption to agricultural activities (Rawal et al., 2020). The clustering of the vulnerable demographic groups in self-employment, temporary jobs and informal employment applies for the Serbian case as well. Youth, low-educated, and those residing in rural areas are more likely to be informally or temporarily employed. In addition, low-educated and rural workers are more likely to work in small firms, while young workers are more likely to be employed in tourism. Finally, women are more likely than men to work in the informal sector and in tourism (Institute of Economic Sciences, 2022).

A region-specific vulnerable group in Serbia is the Roma ethnic minority. Roma in Serbia and in the region more generally, are in some cases segregated (Battaglia et al., 2021), are less educated (Brüggemann, 2012), they work frequently in the informal sector and hold low wage jobs (O'Higgins, 2012). In the recent years, efforts have been made in the educational sector to create a more inclusive environment for Roma children (Battaglia & Lebedinski, 2015, 2022), but these programs led to little impact on educational achievement. There are promising active labour market programs targeting the Roma ethnic minority (Lebedinski, 2022), but a more systematic approach is required to integrate them in the formal economy. We do not directly study the Roma ethnic minority in this book, but we look at informally employed and seasonal workers and among these groups Roma are overrepresented.

In analysing the effects of COVID-19 overall and on vulnerable groups it is particularly interesting to analyse if the decrease in net stock employment is the result of increased job losses or decreases in abilities to find new jobs. Aside from theoretical implications, this can also be important from the policy perspective, as two explanations of the

decreased employment have different policy implications and require different interventions. Soares & Berg (2021) study short-term labour market transitions, i.e. transitions into and out of work, in a selected number of countries in Europe and in South America during the initial period of COVID-19 crisis when most of the countries implement lockdown measures. They find that countries which favoured job retention schemes such as wage subsidies were more successful in mitigating labour market volatility, while in countries where income support schemes were implemented the job loss rate was higher. Vulnerable employees such as women, youth and less educated workers were affected more negatively than other groups both in terms of higher job loss rate and lower job finding rate. Koczan (2022) studies job losses during the first half of 2020 in 14 emerging and advanced economies and he finds that, compared to advanced economies, in emerging economies job losses are more unequally distributed and they are more concentrated among youth, women and less educated. A large number of studies confirm that the vulnerable groups (such as racial and ethnic minorities, immigrants, women with children, the least educated, etc.) were the ones who showed the strongest job losses (Béland et al., 2020; Casarico & Lattanzio, 2020; Cowan, 2020; Montenovo et al., 2020). Aside from working in more vulnerable sectors, these vulnerable groups cluster more in sectors such as services with high face-to-face and low remote working indices (Montenovo et al., 2020; Soares & Berg, 2021).

On the other hand, persons who were unemployed at the onset of the crisis, faced large difficulties when they were searching for work. Although in periods of downturns, aggregate job search tends to increase, this was not the case during the COVID-19 crisis (Balgova, 2021; Forsythe et al., 2020b; Hensvik et al., 2021). Evidence on labour demand as measured by new job vacancies provides an additional perspective about the difficulties faced by those who were unemployed when the COVID-19 crisis started or those who lost their jobs during the crisis. At the onset of the COVID-19 crisis there was a dramatic drop in new vacancy postings (Forsythe et al., 2020a; Hensvik et al., 2021; Holgersen et al., 2020). In addition to the lower labour demand, the job search efforts of the unemployed decreased in this initial phase of the pandemic (Balgova, 2021; Forsythe et al., 2020b;

Hensvik et al., 2021). The job search intensity varied over the course of 2020 and 2021 and it depended largely on the containment measures. Lower job search activity is explained by fear of infection, limitations in activities of employment services, benefits receipts, expectations of return to previous employment after the pandemic or limited the availability of parents due to school closures (OECD, 2021, p. 31).

While labour market impacts are in the focus of this book, the pandemic had an enormous negative impact on health outcomes of the population. According to the WHO there have been 307 million of infections with COVID-19 and 5.5 million deaths in the first year of the pandemic (World Health Organization, 2022). As a result, the life expectancy fell in most countries. For instance, the Organization for Economic Co-operation and Development finds that in 24 out of 30 of its member countries life expectancy decreased in 2020 (Mueller et al., 2021).

Not all population groups were equally at risk to develop severe COVID-19 or die from it, the risk depended on the health status, (multiple) pre-existing comorbidities and age. For instance, obese individuals were more at risk to develop severe COVID-19 (Alberca et al., 2021; Kwok et al., 2020). Certain pre-existing comorbidities (i.e. chronic conditions) such as hypertension, diabetes, pulmonary disease or cardiovascular disease have been shown to bring an elevated risk of hospitalisation or even death due to COVID-19 (Callender et al., 2020; Tisminetzky et al., 2022). Finally, the older population, in particular, 55 years or older are at an elevated risk of the disease (Gallo Marin et al., 2021). The socially disadvantaged groups are overrepresented among the risk groups due to their less favourable initial health compared to the rest of the population. As a result, there was concern that COVID-19 would exacerbate existing disparities in the society and this has been confirmed by a number of studies which showed that the risk of infection and adverse health effects was higher among people with lower incomes (Decoster et al., 2021), those with lower educational level (Drefahl et al., 2020), ethnic minorities or immigrants (Martins-Filho et al., 2021; Vist et al., 2021). But even after the COVID-19 infection had passed, a number of patients developed long-term symptoms which were named “long COVID”. Patients with long COVID suffer from fatigue, breathlessness, chest pain or anxiety. The estimate of the

prevalence of long COVID in the population differs largely from study to study from 2.3% to 37 (Park et al., 2021). These patients cannot go back to their normal life for an extended period of time and they struggle to carry out their day to day activities. As a result, long COVID can have long-lasting social and economic repercussions on the patients. Finally, the COVID-19 pandemic had a significant negative impact on mental health. The reduction of social contacts, the change of daily routines and overall uncertainty affected the population's mental health and the prevalence of depression and anxiety increased significantly (Cullen et al., 2020; Mueller et al., 2021). Overall, the health systems faced a series of challenges during the pandemic and patients suffering from diseases other than COVID-19 had problems in accessing the services. The impact of the pandemic health outcomes on both COVID-19 and non-COVID-19 will certainly get attention in future research.

3 COVID-19 timeline, economic measures and main macroeconomic trends

3.1 COVID-19 timeline in Serbia

The COVID-19 pandemic is the biggest pandemic since the Spanish flu in 1918. The COVID-19 caused disruption in the world at many levels. Most importantly, it caused millions of deaths and many other millions of people suffered short and long-term health consequences due to the virus. Aside from the health aspect which was the most prominent, it caused output reduction and disruption to the functioning of the markets.

The initial projections suggested a mild and temporary decrease of GDP in Serbia caused by the COVID-19 pandemic, however, even a mild impact might not translate into equal impact on all demographic groups. There are several channels through which the COVID-19 pandemic could affect the economic activity and exacerbate economic inequalities. Already existing inequalities can increase, if the pandemic affects disproportionally more the vulnerable workers because they work more in the sectors negatively affected by the pandemic or if they get laid off more frequently because of decreasing aggregate demand. Several groups such as informally employed, self-employed, low-wage earners, employees with non-permanent contracts and in small firms, as well as women and young people should receive special attention during economic downturns.

In this book, we take the approach to exploit several data sources and use a rigorous methodology to identify among several potentially vulnerable groups, those groups which are actually negatively affected by the pandemic according to the available data. We quantify the impact of the pandemic on labour market outcomes and suggest policies to mitigate negative impacts. As suggested by Perugini & Vladisavljević (2021), in the absence of the proper government interventions, the situation of the vulnerable groups will worsen in economic downturns. This particularly applies in the case of Serbia, where the government policies typically do not put equality and higher employment in the focus of the policies, but instead focus solely on the efficiency and fiscal results (Randjelović & Vladisavljević, 2020; Žarković Rakić et al., 2016; Žarković-Rakić &

Vladisavljević, 2021). The policies that we discuss and analyse can be applied to similar future shock.

The start of the pandemic in Europe was in March 2020 and in this same month the movement restrictions were introduced in Europe. In Serbia, the government declared the state of emergency on March 15, 2020 which lasted until May 6, 2020. The introduction of the state of emergency implied restriction that impacted severely economic activity. In particular, the most important restrictions were the following:

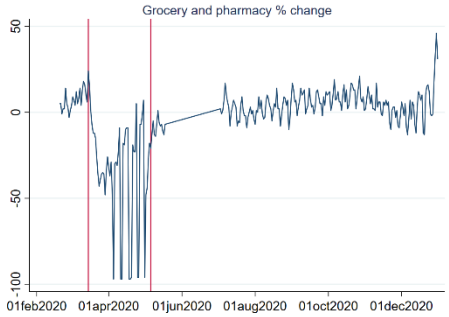
- Curfew for the whole population and prohibition of movement for people 65 years or older. The curfew times were mostly in the evening and during the night, but for some periods they extended over several days during weekends or holidays. The severity of the curfew was determined by the number of infections.
- Recommendation for employers to reorganize their work process so that employees can work from home. In case remote work was not possible, strict health measures had to be respected at work.
- All public offices were closed and moved their operations to the online mode.
- Bars and restaurants were closed and sports activities were suspended (i.e. gyms, sports trainings, etc.).
- Preschools, schools and universities started operating exclusively in the online mode. This put a burden on parents of young children who, if employed, had to take care of children and work often at the same time.
- The intensity of public transport was reduced and limitations were put on intercity public traffic. International travel restrictions were also imposed.

We use data from Google's community reports to illustrate in Figure 3-1 how the mobility of people in Serbia changed since the start of the pandemic which in turn affected negatively the economic activity and

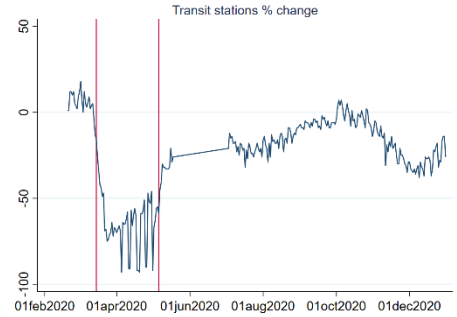
Figure 3-1: Community mobility during COVID-19

Panel A: Workplace % change

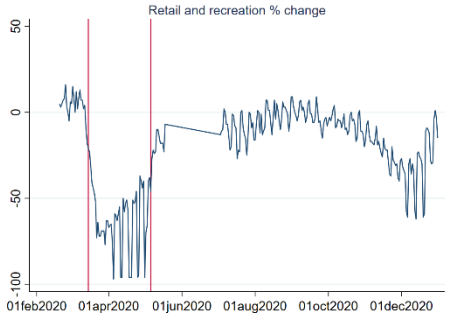
Panel B: Grocery and pharmacy % change



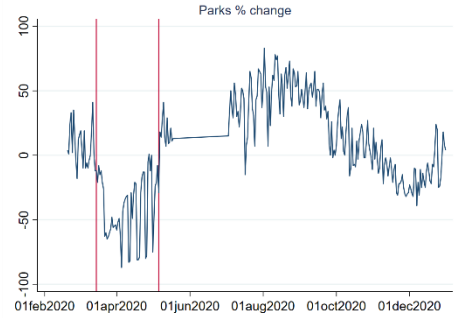
Panel C: Transit stations % change



Panel D: Retail and recreation % change



Panel E: Parks % change



Source: Google community mobility report for Serbia

businesses. We illustrate the movement changes during the first year of the pandemic (2020) in the following categories: workplace (panel A), grocery and pharmacy (panel B), transit stations (panel C), retail and recreation (panel D) and parks (panel E). The baseline is the median value, for the corresponding day of the week, during the 5-week period Jan 3–Feb 6, 2020. The two vertical lines mark the start and end of the state of emergency in Serbia. In all five categories it is evident that during the state of emergency the movements were at the lowest level.

Some categories were below the median movement throughout 2020 (workplace, transit stations and retail and recreations). However, going to parks and grocery or pharmacy increased in the second half of the year compared to the baseline, this can be partly attributed to better weather conditions in the summer and autumn. Finally, we observe that a surge in infections towards the end of the year 2020 led to an overall decrease of movements in all categories with the exception of grocery and pharmacy.

3.2 Measures adopted by the government

Once the stringent emergency state was introduced in mid-March 2020, the government had to react swiftly and adopt economic measures to support the economy and the population. The government adopted three sets of measures out of which the first package was the most generous, the estimated cost of the first package was 5.1 billion euros or 11% of the GDP. The economic measures implemented by the government can be classified as (1) fiscal policy measures, (2) direct support measures to the businesses, (3) measures to preserve liquidity in the private sector, (4) moratorium on loans, (5) direct transfers to all adult population and (6) targeted measures for the tourism industry. The goal of support measures for the businesses was to preserve employment and help businesses overcome the temporary shock. On the other hand, the support measures for the citizens targeted in most cases the whole adult population and their aim was to prevent poverty.

First package of support

The first set of measures was implemented in April 2020 and it included 4 categories:

1) Tax deferrals
2) Direct support to the private sector businesses
3) Measures to preserve liquidity in the private sector
4) Other measures including a moratorium and direct transfers to adult citizens.

All private sector companies with the exception of the banking sector were eligible for deferrals and direct financial support. As part of the tax deferral measure, the payment of all taxes and contributions on salaries and corporate taxes for the entire private sector were postponed (Government of Serbia, 2020e).

The main goal of direct support for businesses in the private sector measure was to preserve employment and help businesses overcome the economic difficulties resulting from the pandemic.

The direct support measure differentiated between (1) micro, small and medium enterprises (MSME) and (2) large businesses. For both groups of enterprise, a requirement to receive the subsidy was that the business did not lay-off 10% or more of the employees until May (when they received the first transfer) and three months after having received the last transfer. As part of the employment retention schemes, all micro, small and medium size businesses received per full-time employee the minimum wage of 255 euros for the months of March, April and May. Companies were proportionally compensated for part-time employees. Large businesses were eligible to receive 50% of the minimum wage or equivalently EUR 127 for the duration of the state of emergency, but only for furloughed employees.

In order to preserve liquidity of the private sector, a fund of 200 million euros was established. The aim of the fund was to support businesses struggling with liquidity and acquisition of working capital during the pandemic (Government of Serbia, 2020c). The fund would accept applications until the end of 2020.

A 3-months moratorium on loans for businesses (public enterprises excluded) and individuals was introduced (Government of Serbia, 2020b).

Part of the support package was also a universal cash transfer to the adult population in the amount of 100 euros (Government of Serbia, 2020f). According to the Minister of Finance about 6.15 million people has received the transfer. In addition to the universal transfer, pensioners and temporary benefit recipients received approximately 34 euros (RSD 4,000). Finally, 14,000 vulnerable women received assistance worth 100 euros in hygiene packages and essential foodstuff (Government of Serbia, 2020a).

The estimated cost of the first package was 5.1 billion euros or 11% of the GDP. With regards to the four categories, the largest share was spent on liquidity measures (42%), followed by fiscal policy support measures accounted (27%), direct support to businesses (16%) and other measures (14%) (Institute for Development and Innovation, 2020).

Second package of support

The second support package of (1) fiscal measures i.e. tax deferrals and (2) direct support measures for the businesses.

As part of the fiscal measures, the payment of contributions and taxes on earnings was deferred by 1 month. The direct support measures included two payments in the amount of 60% of the minimum wage for employees in MSMEs. Large enterprises could apply for two payments of 50% of the minimum wage for furloughed workers. Again, businesses were only eligible if they did not lay-off more than 10% of their employees and they had to retain employees 3 months after receiving the last transfer.

The estimated cost of the second package was 561 million euros or 1.5% of the GDP.

Third package of support

The third package included two targeted measures for the tourism industry: subsidies for hotels and tourist agencies (Institute for Development and

Innovation, 2020). The subsidies were allocated through a public call i.e. the beneficiaries had to apply.

The first public call targeted hotels, which could apply for a subsidy of 350 euros for an individual bed and 150 euros for a room. A hotel could receive a subsidy of up to 750,000 euros. Only privately-owned hotels could apply and the subsidy was only given to hotels located in 68 local self-governments. Similar to the subsidy for micro, small and medium enterprises, hotels receiving the subsidy could not lay-off more than 10% of their employees in the period from the August 15 to December 31 in 2020.

The second public call targeted tourist agencies. Only registered agencies with a license were eligible to apply for the subsidy. A tourist agency could receive an amount of up to 5,000 euros.

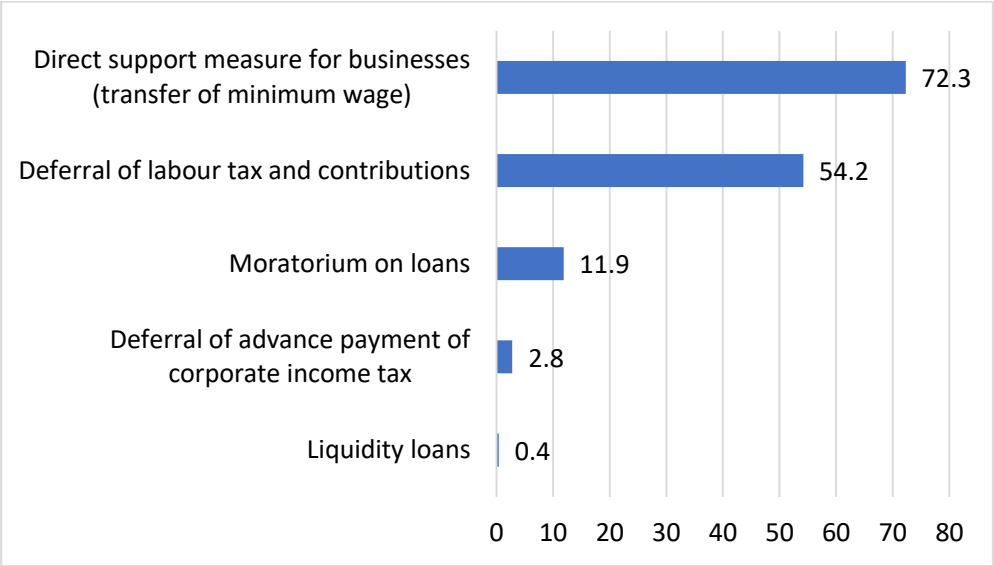
The third package was disbursed to 312 hotels and 90 tourist agencies. The estimated cost of the third package was 14 million euros or 0.03% of the GDP.

The impact of the three packages seen through the lens of businesses

As part of an analysis of the impact of COVID-19 on the economic activity, the National economic alliance for local economic development commissioned a survey with businesses to understand the impact of the pandemic on businesses and the impact of the implemented government measures (Institute for Development and Innovation, 2020).

Figure 3-2 illustrates the uptake of the first package of a selected number of government measures by businesses according to the survey. Most businesses used the direct support measures and received the minimum wage for their employees. Half of the businesses benefitted from the deferral of payments of labour tax and contributions. Only one out of ten businesses made use of the moratorium on loans. The remaining two measures-deferral of advance payment of corporate income tax and liquidity loans-were rarely used by the businesses.

Figure 3-2: Uptake of measures by companies



Source: National economic alliance for local economic development

The respondents representing businesses stated in the survey that the measures helped them retain the employees and it helped their businesses survive the crisis. The direct support measure was rated highly by the business community. While the uptake of liquidity loans was not high, those benefitting from these loans stated that it contributed significantly to the survival of the company.

In the second package, the businesses rated highly the direct transfer of the 60% of the minimum wage per employee. The survey did not ask respondents about the benefits of the third package.

Other measures

Aside from the three big packages, the government implemented in parallel several measures targeting specific groups: the health sector, free-lance artists and farmers.

The government increased the wages in the health sector to all health care professional by 10% in April 2020 (Government of Serbia, 2020g). More

than 2,500 health care workers, 455 caregivers and 127 health workers at social care institutions who worked on temporary contracts transitioned to permanent contracts. In November 19, 2020 a one-off lumpsum transfer of 85 euros was given to all employees working in COVID-19 and social protection system (Government of Serbia, 2020h).

A one-off transfer was also given in May 2020 to free-lance artists in the amount of 255 euros per person per month for three months. The estimated cost of this measure stood at approximately 2 million euros.

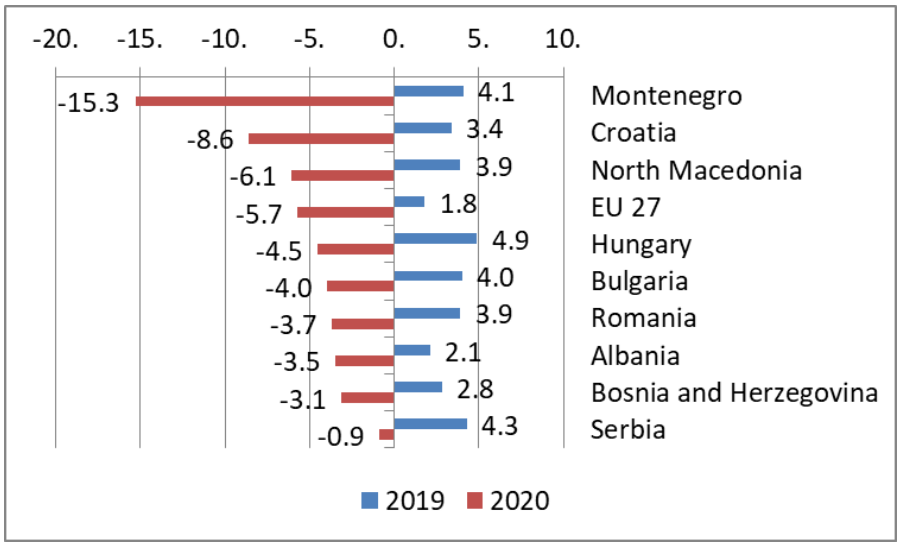
Finally, two measures targeting farmers where adopted. The first measure was a direct transfer which depended on the size of the agricultural farm, the number of farm animals, etc. (Government of Serbia, 2020d). The total amount of this measure was estimated at 10 million euros.

3.3 Main macroeconomic trends in 2020

The economic effects of the first year of the COVID-19 pandemic on Serbia's economy, on average, were not particularly strong. Overall, the GDP decrease in 2020 compared to 2019 stood at 0.9 percent. This is significantly lower than other countries in the Western Balkan region, where the GDP loss ranged from 3.1 in Bosnia and Herzegovina to 15.3 in Montenegro. The decrease in the GDP was also significantly lower than the EU average of 5.7 percent and lower than in the neighbouring EU member states (Romania, Bulgaria, Hungary and Croatia).

The lower decrease in GDP in Serbia is likely the consequence of the particular structure of the Serbian economy, notably lower shares of the Accommodation and Arts, recreation and entertainment sector, which was less affected by the COVID pandemic. Additionally, generous measures implemented by the government to preserve jobs in all sectors, regardless of their economic vulnerability during the first year of the pandemic, also provided a cushion for adverse effects. However, the decrease in the GDP is the reversal of previously favourable trends in the Serbian economy, which in 2019 grew by about 4.3 percent and had been growing by about 3 percent on average since 2015.

Figure 3-3: Yearly real changes in GDP in Serbia and selected countries



Source: Eurostat. Indicator: NAMA_10_GDP

GDP trends in 2020 varied significantly during the year and were correlated with the degree of containment measures implemented by the Government. During the first quarter (Q1) of 2020, GDP grew by 5.2 percent. This was because the state of emergency was declared only at the end of Q1, on March 15th. During the second quarter of 2020, GDP dropped by 6.2 percent because most containment measures were applied during this period. As the state of emergency ended on May 15th, many containment measures were dropped, and the economy continued to function more regularly. Therefore, in the third and fourth quarters of 2020, GDP decrease was significantly lower at 1.4 and 1.1 percent, respectively. Growth in the fourth quarter was low despite introducing new containment measures in late 2020 (Statistical Office of the Republic of Serbia, 2021).

The decrease in economic activities was also significantly different in different sectors. The highest activity reduction was in the Art

entertainment and recreation and other services[4] sector, in which the gross added value decreased by 14 percent overall and by 35 percent in the second quarter. The COVID-19 pandemic also had a significant impact on the sectors of Professional and support service activities[5] (by 9 percent), Trade transport and accommodation activities[6] (by 5.2 percent) and Construction (by 5.1 percent).

As evidenced in Figure 3-4, practically all sectors had the same dynamics as the overall economy. While in the first quarter of the year there was an increase in activities, in the second quarter there was a significant decrease. Finally, in the 3rd and 4th quarters of the year, the activity mainly stagnated or recorded a lower growth or decline. The outlier in these trends was the Construction sector, likely because the work in this sector could continue despite containment measures.

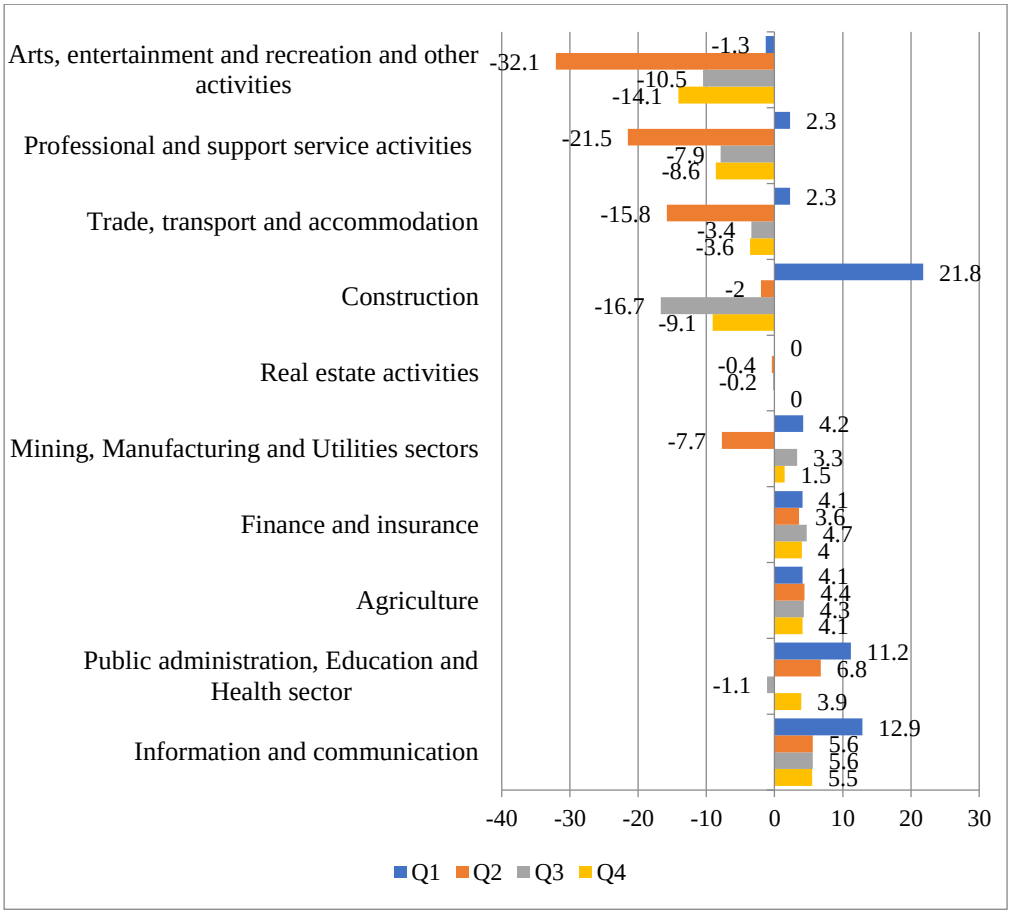
Other sectors recorded growth despite the hardening conditions due to the pandemic. The highest increase was recorded in the Information and communication sector, by 7.3 percent. According to the official statistics, Agriculture,[7] and Finance, and insurance sectors also grew by about four percent annually. Sectors predominantly publicly owned, such as public administration, education and health, also increased by about 5 percent. This was expected as their activity was not under the influence of severe economic conditions that affected other sectors.

Mining, Manufacturing and Utilities sectors[8] stagnated on the yearly level (decrease of 0.4 percent), resulting from a reduction in Q2 and an increase in activity in other quarters. Despite including different sectors, this indicator is a relatively good approximation of industrial production trends,

[4] In their report, SORS provides one growth indicator for three NACE sectors: sector R (Arts, entertainment and recreation), S (Other service activities) and T (Activities of households as employers).
[5] Similarly, within this category SORS provides one indicator for sectors M (Professional, scientific and technical activities) and N (Administrative and support service activities)
[6] Sectors G (Wholesale and retail trade), H (Transportation and storage) and I (Accommodation and food service activities).
[7] Sector A which includes: Agriculture, forestry and fishing
[8] Sectors B (Mining and quarrying); C (Manufacturing); D (Electricity, gas and steam supply) and E (Water supply, sewerage, waste management and remediation activities).

which also was reduced in the second quarter of 2020, while it recorded an increase in other quarters.

Figure 3-4: Yearly sectorial Gross Value-Added growth in 2020, by quarters



Source: Statistical Office of the Republic of Serbia, Monthly Statistical Bulletin 12/2020

Overall, the investment activity also decreased. Similar to other trends, the investment activity increased in the first quarter of 2020 by 12 percent, while it fell by the same amount in the second quarter. In the last two quarters of 2020, the decrease in investment activities was about 4.5 percent compared to the previous year. Both imports and exports decreased by about 20% in the second quarter of 2020 compared to the same period in the last year. On the other hand, exports and imports increased slightly

in the first quarter while decreasing somewhat in the 3rd, while in the fourth quarter they had diverging trends. Imports fell by 1.5, while exports increased by 6.7 percent. Overall, the annual decrease in exports was 2.8%, while the yearly reduction in imports was 3.8 percent. On the other hand, there were no price shocks as the inflation stood at 1.6% and did not increase above 2% at any point. [9]

The fiscal deficit in 2020 reached the highest level in history - 8.1 percent of GDP. The deficit followed surpluses in 2017 and 2018 and a mild deficit in 2019 (National Bank of Serbia, 2021). Record-high deficits were present in many countries worldwide due to high expenditures on healthcare systems and measures aiming to preserve economic activities. At the same time, the governments recorded lower revenues from taxes due to lower economic activity. Compared to other countries, Serbia's deficit was among the highest in the region (only Montenegro had a higher deficit at 11 percent) and higher than the EU 27 average of 6.9 percent of the GDP.

As mentioned, Serbia had relatively favourable fiscal trends in the years before the pandemic. This resulted in relatively lower levels of public debt, which in 2019 stood at 52 percent, a level significantly lower than the EU average of about 77 percent (National Bank of Serbia, 2021; World Bank, 2021). The high deficit in 2020 increased public debt by about 5.4 percentage points – to 57.4 percent. However, the debt increase was lower than in the EU-27 average of 13 percentage points (an increase from 77 to 90 percent of GDP).

[9] Statistical Office of the Republic of Serbia: Online database numerous indicators.

4 Main changes in the labour market and job characteristics

In this chapter we analyse the changes in the main labour market outcomes and job characteristics before (2019) and after (2020) the effects of epidemic occurred. We use the Labour Force Survey (LFS) for Serbia, which provides nationally representative data on the labour market.

Besides analysing the overall trends in 2019 and 2020 on the full nationally representative dataset, we also exploit the panel structure of LFS; which enables us to follow individuals in the same quarters for two years (for example, in the first quarter (Q1) of 2019 and the first quarter of 2020), to analyse the labour market dynamics between 2019 and 2020, and to compare this with 2018 and 2019.

In addition to analysing main labour market indicators within this chapter we disaggregate the analysis by focusing on vulnerable workers in the context of COVID-19 crisis. These include 1) informally employed, who are working without contract and are easily dismissible, 2) workers with temporary contracts, for whom employers do not face severance payments if their contracts are not extended; as well as 3) those working in small enterprises and 4) self-employed, because these enterprises are more susceptible to cessation of work in turbulent times, due to lower liquidity.

Furthermore, as during the initial phase of the pandemic some sectors were labelled as "non-essential", and it was suggested that their activity should be stopped in order to prevent the spread of the virus. They were viewed particularly risky as in these sectors there is a frequent direct contact between service providers and consumers (accommodation and food services, trade, transport, arts) or where large numbers of workers work together in a small workplace (manufacturing, real estate, administrative activities) (ILO, 2020). Typically, in these "non-essential" sectors, workers with vulnerable jobs (informal, temporary workers etc.) are also more frequently employed and these multiple vulnerabilities threatened to create further labour market distortions.

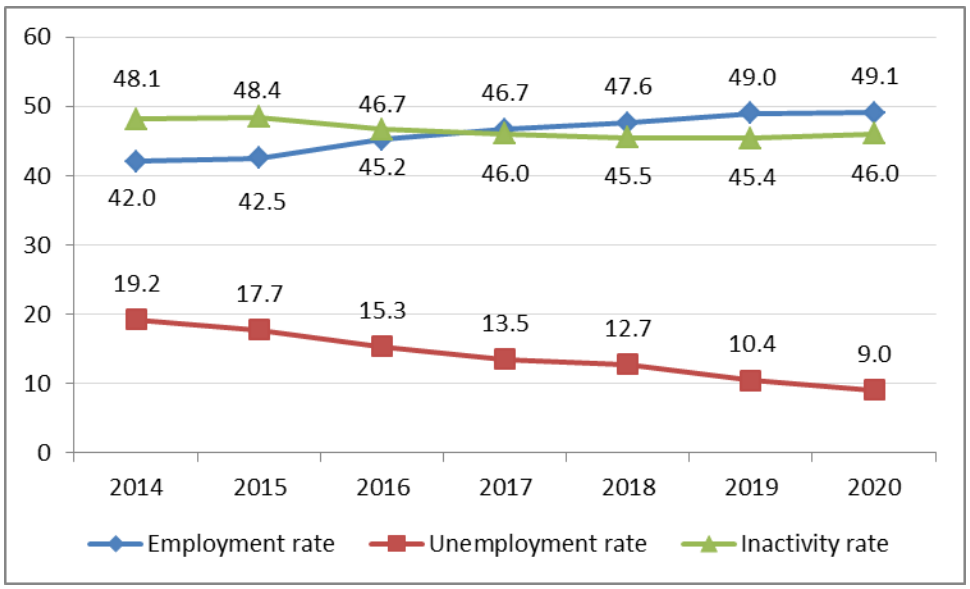
The analysis of the vulnerable jobs naturally extends to the analysis of vulnerable groups (such as low-educated, youth, women etc.) in the next chapter, as one of the reasons of their vulnerability is that they are more likely to work in vulnerable jobs than their non-vulnerable counterparts.

4.1 Employment and unemployment changes during COVID-19 pandemic

The main labour market indicators in Serbia did not show a worsening in 2020. The employment rate (population 15+) stagnated (i.e. increased by 0.1 percentage points), while the unemployment rate decreased by 1.4 percentage points (p.p.) to 9% in 2020, however with increase in inactivity of 0.6 p.p. The labour market trends in recent years in Serbia have been favourable, with employment rate rising from 2014 until 2019, and unemployment rate falling in this same period (Figure 4-1). Therefore, **the stagnation of the employment rate can be interpreted as an interruption of the favourable trends in the former period**.

From the comparative perspective, the unchanged employment rate in Serbia is more favourable outcome than the one in the EU, where employment rate decreased by 0.8 p.p., or the neighbouring countries which recorded a decrease in employment rate ranging from -0.2 p.p. in North Macedonia to -4.5 p.p. in Montenegro.

Figure 4-1: Main labour market indicators trends in Serbia, 2016-2020



Notes: Population 15 years and older. Source: LFS data, SORS database.

However, there was a clear, temporary effect of COVID-19 on employment in second quarter (Q2) of 2020. While long-term employment increase from the previous years continued in Q1 2020 (year-on-year growth of 1.3 p.p., compared to Q1 2019), in Q2 2020, there was a decrease in employment rate of 1.0 p.p., (or about 72 thousand employees) likely caused by containment measures aiming to prevent the spread of COVID-19 and the resulting decreasing economic activity. In the last two quarters of 2020 employment stabilized, with the employment rate unchanged compared to the same quarters of previous year (Figure 4-2). In absolute numbers, contrary to the slight increase in employment rate, in 2020 there was a slight decrease in the number of employed by about 6,000 in comparison to 2019, which is smaller than the decline in the size of the population aged 15 or more (by about 30,000).

Figure 4-2: Annual changes in the main labour market indicators (in p.p.), by quarter

Notes: All indicators are compared to the same quarter of the previous year. Source: LFS data, SORS database.

The decrease in unemployment rate of 1.4 p.p. in 2020 is mainly transferred to an increase in the inactivity rate. The unemployment decrease is the result of a long-term decreasing trend which continued in Q1 2020 (year-on year unemployment rate decrease was 2.4 p.p.), but also of an additional decrease in Q2 2020 (by 3 p.p.). The decrease in Q2

however coincided with the growth of inactivity rate (Figure 4-2). The analysis of LFS panel indicates that 43.3% of those unemployed in Q2 2019 were inactive in Q2 2020 (compared to only 26.2% for Q2 2018/Q2 2019). **In other words, the reduction of unemployment in Q2 2020 can be explained by lower job search activity during the lockdown, rather than by an increasing employment.**

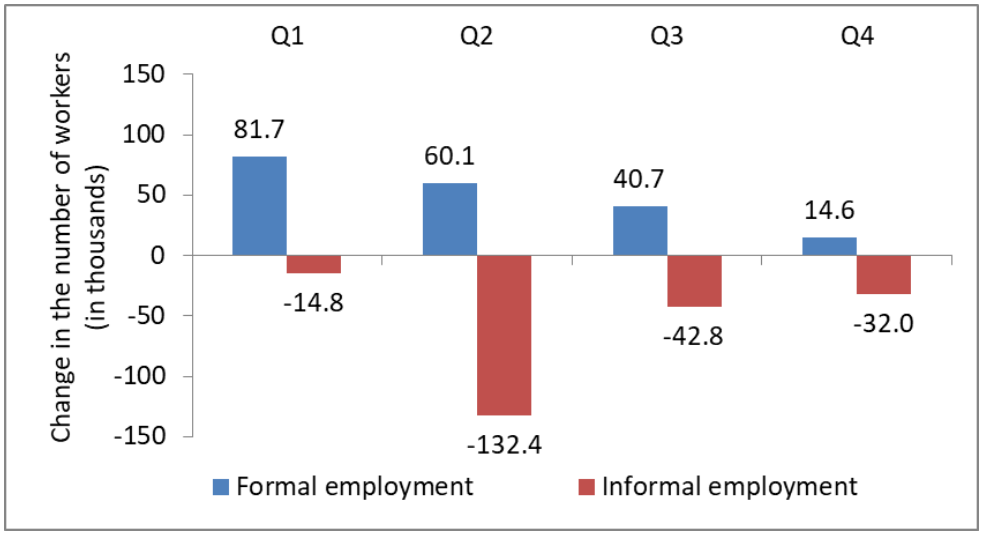
In the last two quarters the unemployment has stagnated (Figure 4-2), indicating reactivation of unemployed who were inactive during the lockdown. The temporary nature of the inactivity increase is confirmed by the analysis of reasons for inactivity, which indicate that the number of those who report "other reasons" (this was probably the answer people gave when they meant that pandemic prevented their job search) has increased by about 200 thousand people in Q2 2020, while the number of those who were discouraged about the job search remained at the same level as in 2019. In Q3 2020 and Q4 2020 the number of "other reasons" stabilized to the level from 2019, as did the overall number of unemployed and inactive.

Although employment in 2020 stayed at approximately the same level as in 2019, the analysis of reasons to stop working shows some interesting trends between the years. The number of those who were dismissed from work increased by about 14 thousand, while the number of those who stopped working because of the end of a temporary job within the calendar year decreased significantly in Q3 and particularly in Q4. These results, coupled with unchanged number of employees these quarters, indicate that some temporary jobs that existed in Q2 and Q3 of 2019 were missing in the same quarters of 2020. Overall it seems that the **decrease of employment in Q2 in 2020 was partially due to dismissals and partially due to lower availability of seasonal jobs** in this quarter.

Although the employment level remained the same, in 2020 there were significant changes in the structure of the employment. **Employment stagnation in 2020 is the result of a simultaneous annual increase of formal employment by about 50,000 and an annual decrease in**

informal employment[10] **by about 55,000 workers** (Figure 4-3). The employment in formal and informal employment is essentially different, as those working in informal employment are working without contracts and/or are working in unregistered business, and both of these groups were not eligible for the support measures provided by the government and are particularly vulnerable in the times of economic turmoil. Therefore, in the next part of the text we analyse trends in formal and informal employment separately.

Figure 4-3.: Annual changes in the number of employees in formal and informal employment (in thousands), by quarter



Notes: All indicators are compared to the same quarter of the previous year; i.e. we compare Q1 2020 to Q1 2019, Q2 2020 to Q2 2019 etc. Population 15+. Source: LFS data, SORS database.

[10] According to the ILO definition (adopted by SORS for LFS data), informal employment represents wokers working in unregistered companies, those working in registered companies, but without contract or social and pension contributions paid, and the unpaid family workers.

4.1.1 Changes in the formal employment

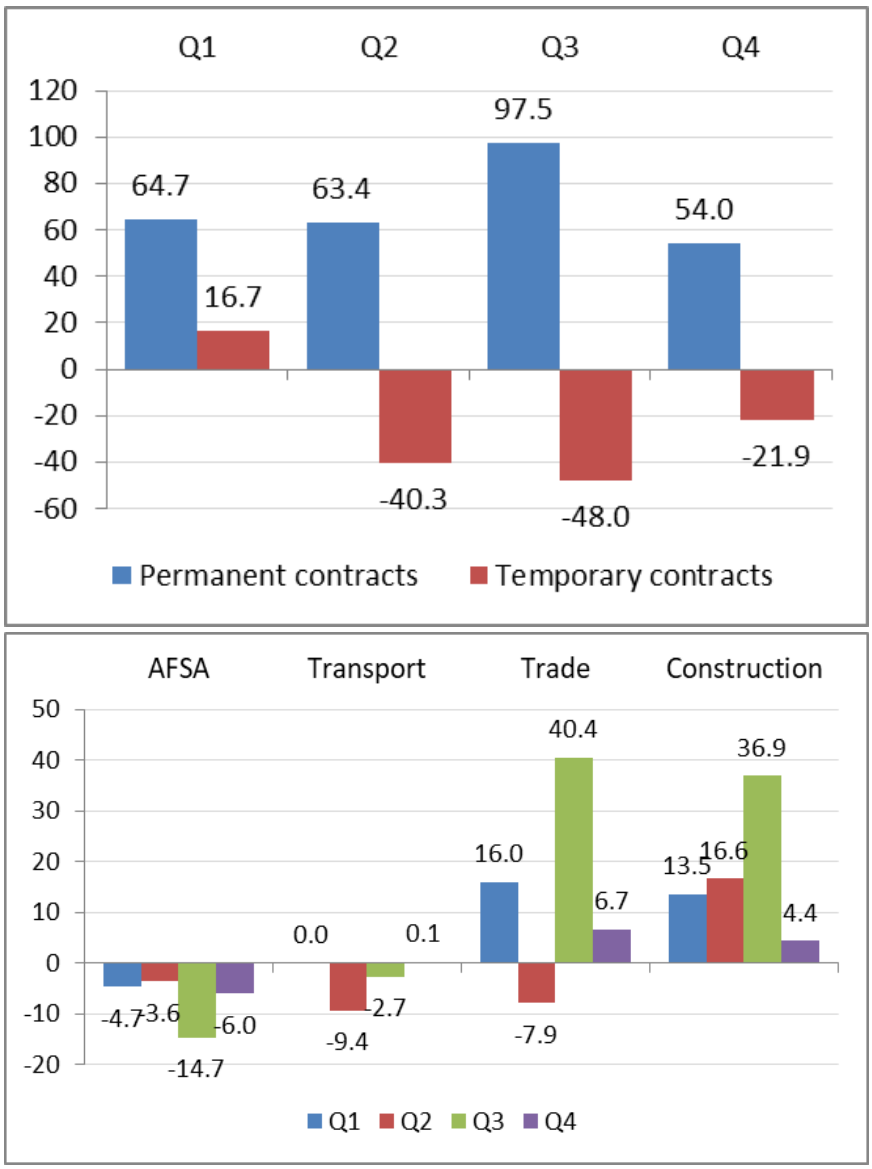
Increased formal employment in 2020 is caused by the combination of the long-term trends in recent years, higher job security and government retention measures which were directed only to formal jobs. Serbian labour market has been characterised by formalization in recent years, as the share of informally employed in total employed had decreased by about 1.3 p.p. annually. The increase in the formal employment of about 50,000 roughly corresponds to increase of the registered employment, which increased by about 40,000 workers.[11] The increase of formal employment was the highest in Q1 2020, and from there it had slowed down, probably due to lower economic activity (Figure 4-3).

Further analysis of formal employment in 2020 suggests that **within formal employment the number of persons working with temporary contracts** (including seasonal and occasional work) **decreased by about 24,000 workers**, with the decrease being particularly high in Q2 2020 and Q3 2020 (Figure 4-4, upper panel). On the other hand, the number of workers with permanent contracts increased by about 70,000. Analysis within the LFS panel data suggests that the decrease in the number of formal workers with temporary contract in 2020 stemmed from 1) lower inflow of temporary workers from those without work in 2019¸ 2) higher transfers from temporary work to inactivity/unemployment, and 3) higher transfers from temporary to permanent employment, compared to the 2018/2019 transitions. This suggest that the number of temporary workers decreased due to lower number of available temporary jobs (lower inflow from unemployment/inactivity from the previous year) and more dismissals/quits form temporary work, after which part of temporary workers was out of work and part of them found permanent employment.

From the sectorial perspective, **Accommodation and food service activity** (AFSA) **sector** (NACE sector I) **was hit the most, as the annual decrease in formal employment in this sector in 2020 was about 7,200 workers**.

[11] Source: SORS. Registered employment is based on the combined data from Central Register of Compulsory Social Insurance (CRCSI) and Statistical Business Register (SBR)

Figure 4-4: Changes in the formal employment: change in the number of employees (in thousands) by type of contract (upper panel) and sector of activity (lower panel)



Notes: Number of employed compared to the same quarter of the previous year. Population 15-64. Source: LFS data, own calculation based on SORS data.

In Q2 2020 the decrease was the strongest in Finance (sector K) and Transport (sector H), with about 11 and 9 thousand workers less than in

2019 (Figure 4-4, lower panel). However, Finance and Transport returned to the previous years' levels of employment in Q3/Q4 2020 while the decrease in employment in AFSA persisted even in Q4 2020. **Conversely, sectors such as Construction (Sector F), Trade (Sector G) and Information and Communication (Sector J) had higher number of employees in formal employment than in the previous year** (by about 15 thousand workers), although Trade also recorded a temporary decrease in Q2 2020.

The data do not indicate a decrease in the number of self-employed and workers in small firms in formal employment in 2020, although they were considered to be more vulnerable, due to their lower liquidity. On the contrary, the number of self-employed in formal employment increased by about 3,000 workers, while the number of workers in small firms (with 10 workers or less) increased by about 17,000.[12]

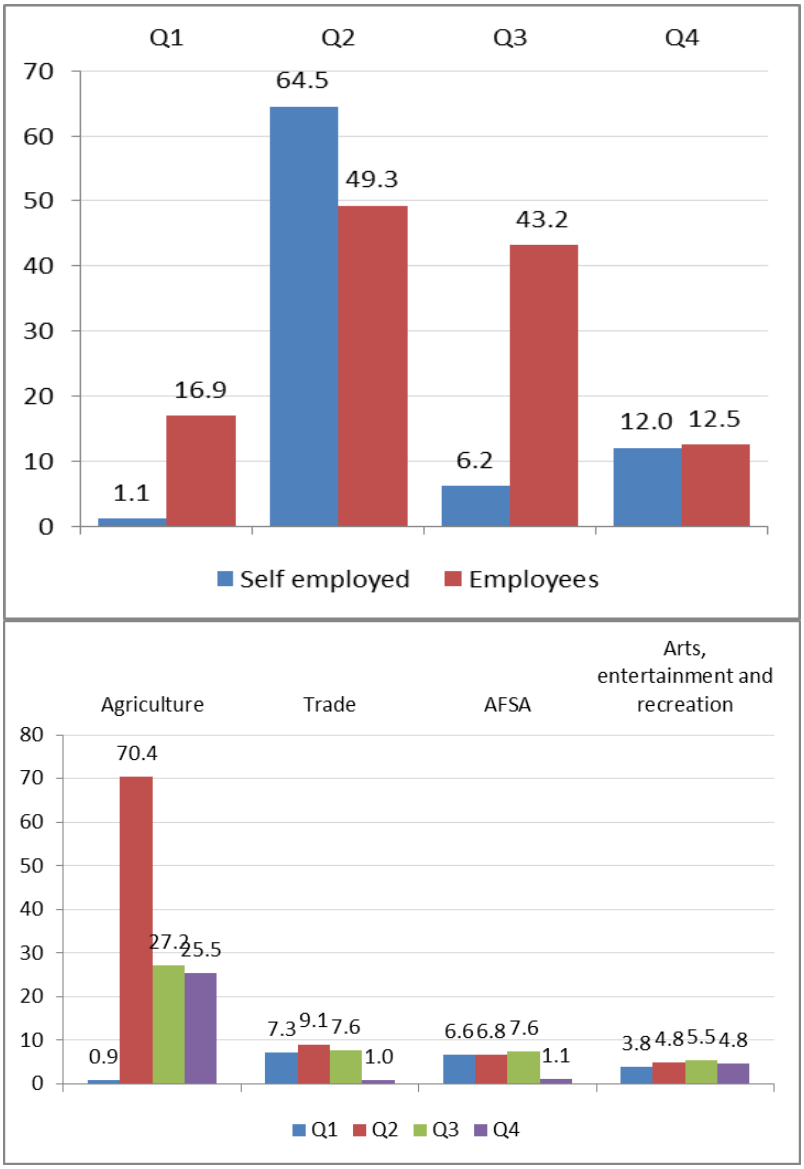
However, the compensation was the same for all sectors and regardless of the financial results. For some sectors, these funds seem to have been used for further employment as the biggest increase in the number of workers in small firms was recorded in Q2 in the period of the lowest economic activity.

4.1.2 Changes in informal employment

The number of workers in informal employment in 2020 had decreased by about 50,000, stemming from decreases in both wage- and self-employment, by about 30,000 and 21,000 respectively. **The biggest decrease in informal employment in 2020 was observed for Q2** in which about 132 thousand fewer workers were working comparison to the same period in 2019 (Figure 4-5, upper panel), about a quarter of total number of persons employed in informal employment in Q2 2019. This was particularly true for the self-employed, while, the decrease in the number of employees working informally was high in both Q2 and Q3 2020 (Figure 4-5, upper panel). The number contributing family workers

[12] Own cacluation based on the LFS data.

Figure 4-5: Decrease in the number of employees in informal employment by status (upper panel, in thousands) and sector of activity (lower panel, in thousands)



Notes: Number of employed is compared to the same quarter of the previous year; i.e. we compare Q1 2020 to Q1 2019, Q2 2020 to Q2 2019 etc. Source: LFS data, own calculation based on SORS data.

also decreased in 2020 by about 4,000. **From the sectorial perspective, the decrease in informal employment was the highest in Agriculture, where about 30,000 jobs were lost during 2020**, with the highest decrease in Q2 2020. Additionally, trade, AFSA and arts and entertainment sectors were hit the most.

The reduction in the number of informal employees in 2020 seems to be the consequence of two factors. Firstly, the **share of informal workers has been decreasing since 2016** (by about 1.3 p.p. or about 23,000 workers per year). The decrease of number of informal workers in Q1 2020, before the pandemic hit, suggests that this trend continued in 2020.

Secondly, LFS panel data suggest **lower inflow of new informally employed from formal employment, unemployment and inactivity** in Q2, Q3 and Q4 of 2020. The share of transitions from other statuses to informal employment in 2020 represented about 35% of total informally employed, significantly lower compared to 2019 when this share was on about 43%.[13] The lockdown and the subsequent COVID-19 outbreaks probably prevented workers from working on some informal jobs they are typically working on during this period.

Additionally, data suggest that those employed informally in Q2 2019 transitioned to formal employment (27.4% of them) or unemployment/inactivity (17.7%) in Q2 2020 more frequently than informal workers in the previous period (23.3% and 15.0% respectively for Q2 2018/Q2 2019 transitions). However, this is not true for Q3 and Q4 in 2020, where in fact we observe the opposite trend: the transitions from informal employment to formal employment/inactivity were less frequent than in the previous year.[14]

[13] Own calculation based on the LFS panel data (transition analysis)

[14] Own calculation based on the LFS panel data (transition analysis)

4.2 Changes in working hours and working from home

Actual working hours in Serbia in 2020 decreased by 1 hour per week. This change was both due to the increase in the share of the workers who were absent from work during[15]and decreasing working hours of those who were at work. The overall decrease was the strongest in AFSA (by 4.6 hours per week, compared to 2019), Arts, entertainment and recreation (by 3.1 hours) and Construction (3 hours).

The decrease in weekly hours worked in 2020 was most prominent in Q2 when the lockdown measures were in place. **The overall decrease was about 3 hours** (Figure 4-6, upper panel), **mainly due to an increase in the share of workers absent from work**. The share of the absentees increased by 6 percentage points (Figure 4-6, lower panel), compared to the previous year, while in the same period weekly hours of those who went to work were shorter by about 0.5 hours (Figure 4-6, upper panel).

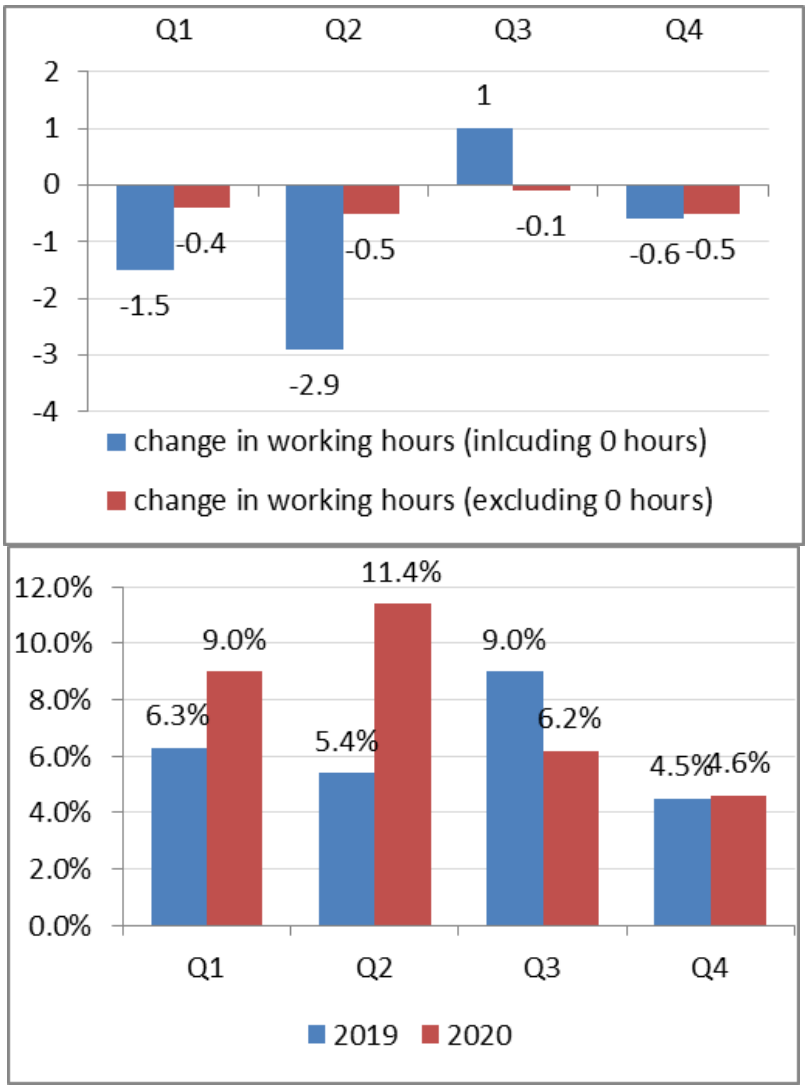
The analysis of reasons for being absent from work suggest that **in Q2 2020 there were about 204 thousand workers who were absent from work due to low business activity**, while in Q2 2019, only about 5,000 listed this reason (Figure 4-8). Increase in the share of workers absent from work in Q2 was prominent in almost all the sectors, although the strongest in AFSA, Arts, entertainment and recreation, and Crafts, repairs and service organisations. In these sectors, the share of workers who were absent from work in Q2 2020 was about 20 percent higher than in Q2 2019 (Figure 4-7).

The decrease in working hours was also prominent in Q1 2020 (about 1.5 working hours per week less than in Q1 2019), again mainly due to increasing share of workers absent from work (Figure 4-6, right). The **main reason for the increase in the number of absent workers was again low economic activity, with about 68 thousand workers** listing this reason in Q1 2020, compared to 12 thousand in Q1 2019. As lockdown started within Q1 2020, on March 15th, these absences probably happened

[15] In line with the LFS methodology, those who are absent from work are defined as persons reporting zero actual working hours within the reference week.

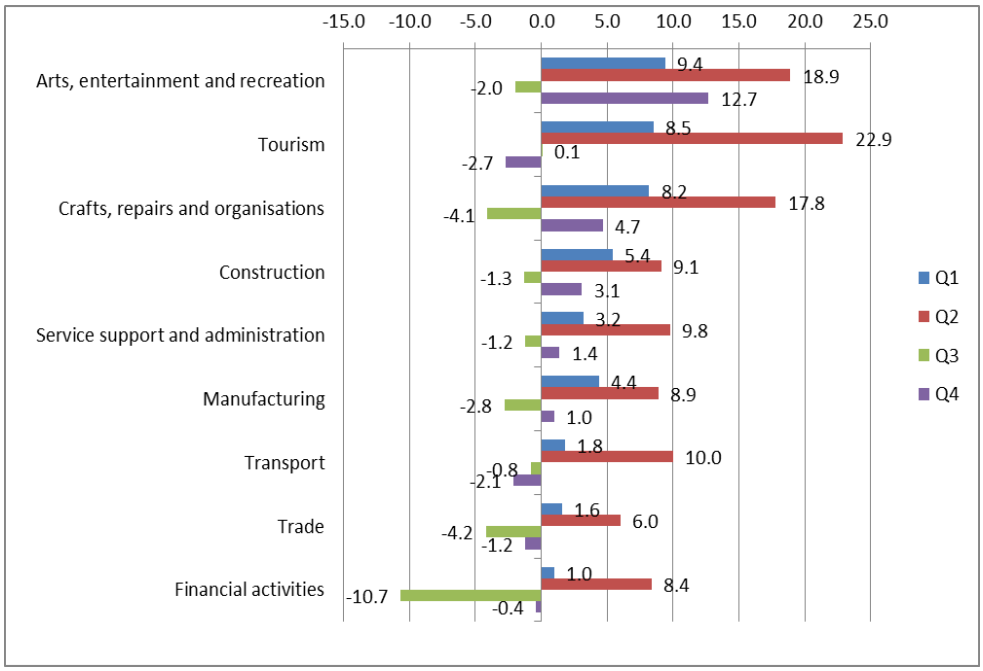
during that period with the same sectors being hit the most as in Q2 (Figure 4-7).

Figure 4-6: Change in the actual working hours with and without those absent from work (upper panel) and the share of workers absent from work (lower panel)



Notes: All indicators are compared to the same quarter of the previous year; i.e. we compare Q1 2020 to Q1 2019, Q2 2020 to Q2 2019 etc. Source: LFS data, own calculation based on SORS data.

Figure 4-7: Change in the share of workers absent from work by sectors of activity



Notes: Difference in share of workers absent are compared to the same quarter of the previous year; i.e. we compare Q1 2020 to Q1 2019, Q2 2020 to Q2 2019 etc. Source: LFS data, own calculation based on SORS data.

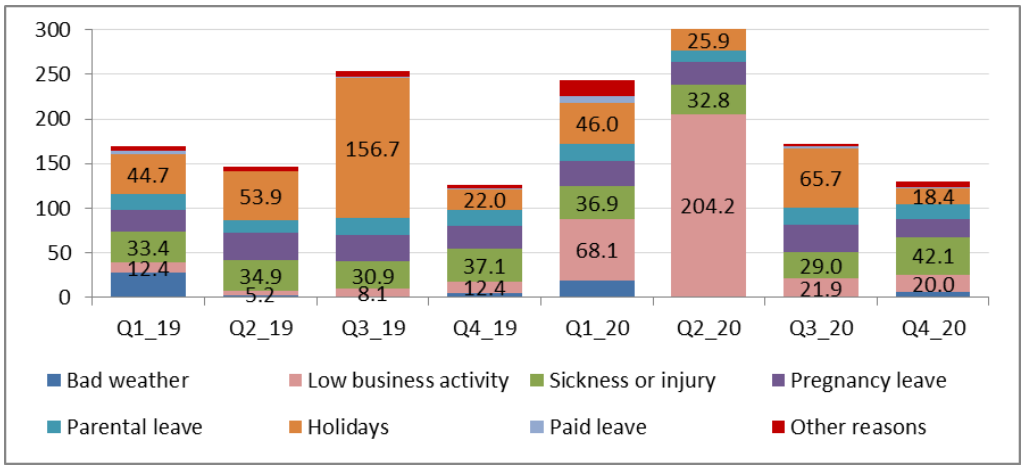
In Q3 2020 working hours were on average higher than in the same quarter of 2019, **due to lower share of those absent from work than is typical for third quarter of the year**. The data suggest that this is probably due to the **fact that some workers took (or were suggested to take) their holidays during the lockdown**, instead of during July and August – typical holiday months which are in Q3. As can be seen from Figure 4-8, **in Q3 2020, only about 66 thousand workers were on holidays within the reference week, compared to 157 thousand in Q3 2019**.[16] This trend was particularly pronounced in Finance, Trade, and

[16] The analysis of reasons for being absent from work is based on the data for the reference week, i.e. includes only workers who were absent from work within the reference week. Typically, within a firm, workers take Holidays in different weeks in order to preserve the business activity. The total number of workers who take holidays during Q3 in regular circumstances, therefore is much higher.

Crafts, repairs and service organisations, but also in Manufacturing, which were probably aiming to make up for the losses in Q2.

Finally, in Q4 2020 the working hours were again lower, but mainly due to a decrease of actual working hours, while the share of those who were absent from work was the same as in 2019. However, some sectors such as Arts, entertainment and recreation and Crafts, repairs and service organisations and Construction also recorded an increase in absent workers.

Figure 4-8: Workers absent from work, by reason of absence (in thousands)



Source: LFS data, own calculation based on SORS data.

While there were no differences in changes in working hours between formal and informal employment or depending on the size of the firm, there were **significant differences depending on the employment status and type of contract**. **Self-employed had the biggest losses in the working hours**, as on average they lost about 2.7 working hours per week in 2020, while the employees worked about 1 hour less in 2020 compared to 2019. For both groups, we observe the same pattern as for the overall trends: losses in working hours were mainly due to higher share of workers absent from work, while the biggest losses were observed in Q1 and Q2, with an attempt to make up some of the lost time and income in Q3, with reduction in holidays days. Interestingly, there were no significant changes

in working hours of farmers or unpaid family members, for either of the quarters.

Among employees, the **biggest decrease in terms of working hours was for seasonal and occasional workers, who on average worked 4.2 hours per week less in 2020 than in 2019**. Out of this approximately half was due to the loss in actual working hours (by 2.2 hours), while the other half was due to increased share of workers absent from work. The decrease in hours worked for permanent and temporary workers was about 1 hour per week.

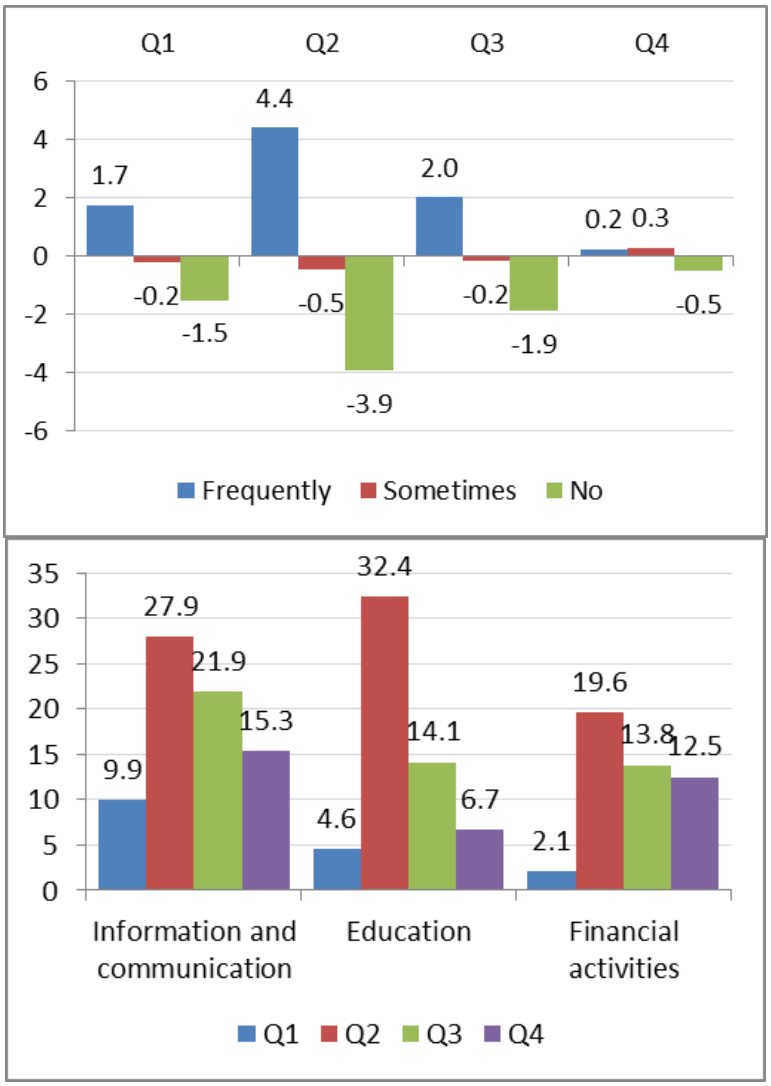
Figure 4-8 indicates that there were no prominent differences in taking sick leave as a reason for being absent from work between the years. **The only substantial increase was in Q4 2020 where about 5,000 workers more were absent due to sick leave**. This coincides with the highest number of COVID-19 recorded cases during 2020.

4.2.1 Work from home

Overall, **the share of workers working from home in 2020, had increased by about 2 p.p. compared to 2019**: While this share was about 5.4 percent in 2019, in 2020 it increased to about 7.5 percent. This increase was due to a decrease in the share of those who never work from home by about 2 p.p., while the share of those who sometimes work from home remained the same. **This indicates that large majority of workers simply transitioned from never working at home to working from home frequently**.

This trend, as most other indicators, had a clear pattern over quartiles and was related to the severity of lockdown measures (Figure 4-9, upper panel). **Working from home was most frequent in Q2 2020, when 4.4 p.p. workers worked more frequently from home than in 2019**, while in Q1 and Q3 2020 this increase was about 2 p.p. with respect to the corresponding quarters in 2019. In Q4 2020 on average there were no changes (Figure 4-9, upper panel).

Figure 4-9: Changes in the working from home by quartiles for all respondents (upper panel, in percentage points) and changes in the share of workers working from home frequently in industries where the changes were the highest (lower panel, in percentage points)



Source: LFS data, own calculation based on SORS data.

Increase in the share of workers who are working from home was most frequent in three sectors: Information and communication (increase was by 18.8 p.p. on average in 2020 compared to 2019), **Education** (by 14.5 p.p.) **and Financial and insurance activities** (by 12

p.p.). In other sectors the increase of the share of workers working from home was less than 4 p.p.. While Information and communication and Education generally had comparably high shares of workers working from home even in 2019 (12 and 11 percent respectively), in Financial sector working from home was very rare in 2019 (about 1 percent on average). Therefore, for this sector working from home probably required more adjustments than for the other two, and this is why probably the transfer of workers working from home started "slowly", as evidenced with lower increase in Q1.

While workers in other sectors, majorly returned to regular work from office, these three sectors continued to have an increase in the share of workers working from home even in Q4 2020, suggesting that some workers from these three sectors continued to work from home possibly even after 2020.

Interestingly, while Education sector had the highest increase of workers working from home frequently in Q2 2020, in Q4 2020 the increase was only 6.7 p.p., which even with an increase of about 4 p.p. of workers working sometimes from home seems low as many schools and universities transferred to online teaching. However, it is possible that teachers went to office to conduct the online classes as there was no lockdown.

By other employment characteristics, increase in the share of workers working from home was more prominent in formal (increase by 2.6 p.p. compared to 2019 on average) than informal employment (by 0.2 p.p); more frequent in public (by 4.9 p.p.) than in private formal sector (by 1.5 p.p.); and present among employees (by 3.6 p.p.) while self-employed (excluding farmers) remained at the same level of working from home as in 2019, albeit starting from already high levels of work from home (about 13 percent in 2019).

Wages

Compared to 2019, real growth in net earnings in 2020 was 7.7 percent (Statistical Office of the Republic of Serbia, 2021).[17] The growth was approximately equal in all quarters. The wage growth in 2020 was at least partially the consequence of the increase in the net minimum wage that was introduced at the start of the year. The minimum wage grew from 155.3 RSD in 2019 to 172.5 RSD per hour i.e. by about 11.1 percent (Ministry of Labour, Employment, Veterans and Social Affairs, 2021).

4.3 National Employment Service data on formal unemployment and unemployment benefit recipients

Additional perspective of the labour market situation in Serbia during the COVID-19 pandemic can be gained through the lens of the National Employment Service (NES) data. The NES holds a register of all formally unemployed persons and recipients of unemployment benefits. In this section we show and discuss the monthly evolution of the number of unemployed, the number of unemployment benefits recipients and the number of newly employed from NES register.

Historically, the number of the registered unemployed has been decreasing since 2014, and this trend continued **in 2020 as the number of registered unemployed was lower than in 2019 by about 20,000 workers** (reduced by about 4 percent). However, **this decrease was much lower than the one in the previous 3 years**, which averaged at about 60,000 reduction per year (National Employment Service, 2021).

In Figure 4-10, we show the evolution of total registered unemployed and the evolution of newly registered unemployed during 2019 and 2020. These trends suggest that in 2019 there was a reduction in the number of unemployed over the year while in 2020 the total registered unemployed remained stable throughout the year with a minor increase from May to

[17] LFS data on wages cannot be analysed as in 2020 the data include significantly higher percentage of the missing values (while in 2019 24.9% of workers refused to answer the question this percentage in 2020 was 36.1%, i.e. by about 2,500 respondents), which makes the comparisons unreliable.

June (Figure 4-10, lower panel). These findings are consistent with the main findings from the LFS data which suggest that labour market indicators did not show a worsening in 2020, but that the favourable trends from the previous years have been interrupted by COVID-19 pandemic. Furthermore, the analysis of LFS data suggests that the decrease in the number of registered unemployed is likely due to lower job search and higher inactivity rather than an increase in employment.

The monthly registration of new unemployed shows that 2019 and 2020 started off at similar levels in the first two months of the year. Then **there was a sharp drop of new unemployed from March until May 2020 followed by an increase in June**, which coincides with the period in which the state of emergency was implemented. One potential explanation for the drop is that **people registered to a lesser extent with the NES because of containment measures and because they did not expect that new jobs were opening in this period**. This is consistent with the reduction of unemployment rate and inactivity rate increase that occurred in Q2 2020 according to LFS data. The number of new registered unemployed stabilized in the second half of the year, however compared to 2019 towards the end of the year the number of new unemployed in 2020 on a monthly basis was slightly higher.

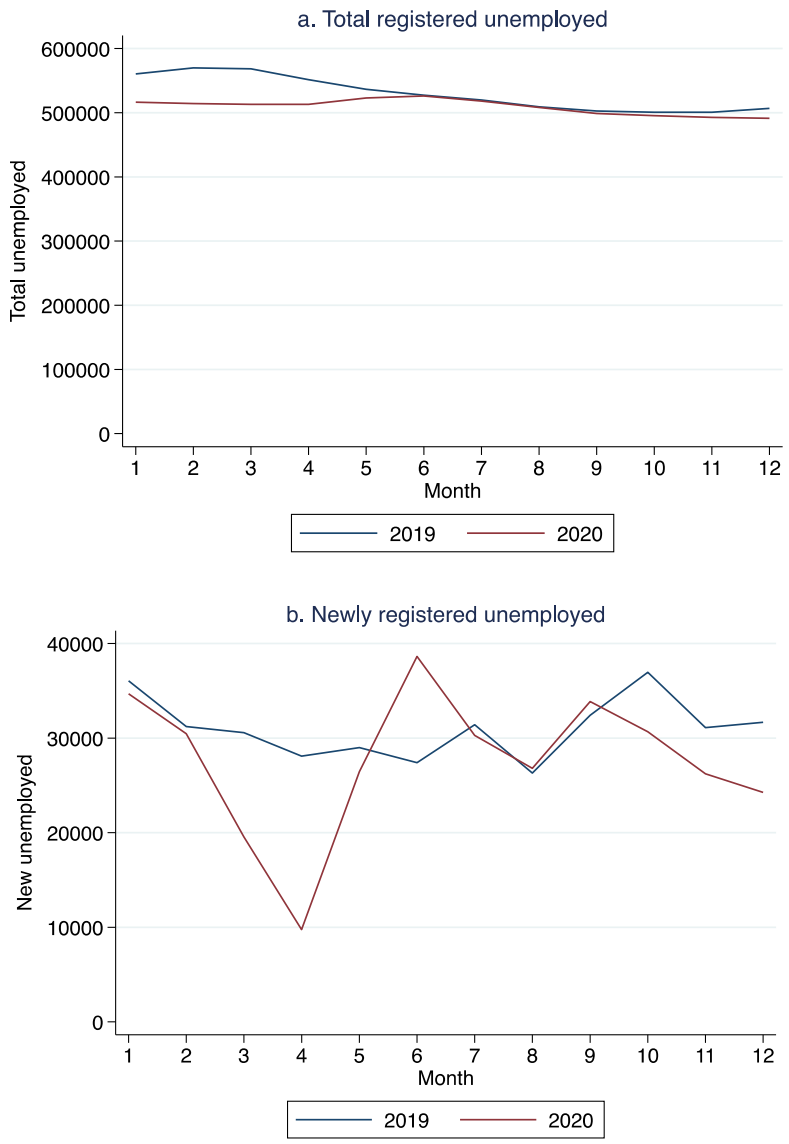
Again, the drop of new registered unemployed could be explained by a lower propensity to register with NES in periods when the infection rates were high (as was the case towards the end of 2020).

We turn now to the number of unemployment benefit recipients. The number of the benefits recipients has been decreasing since 2013, and this trend continued in 2020. **In 2020 the number of unemployment benefit recipients was about 32,000, i.e. lower by about 3,000 than in 2019** (National Employment Service, 2021).

This decrease was similar to the numbers in the previous year. Given that the formal (or registered) employment continued to grow in 2020, and that the dismissal from formal employment (after at least 1 year of tenure) is a prerequisite for receiving unemployment benefit, the continuation of the long-term decreasing trend of the unemployment benefit recipients is not surprising. On the other hands, vulnerable parts of the labour market that

have lost jobs in the pandemic: informal workers, temporary contract, seasonal and occasional workers could not be protected by this mechanism.

Figure 4-10: Total and newly registered unemployed, 2019 and 2020

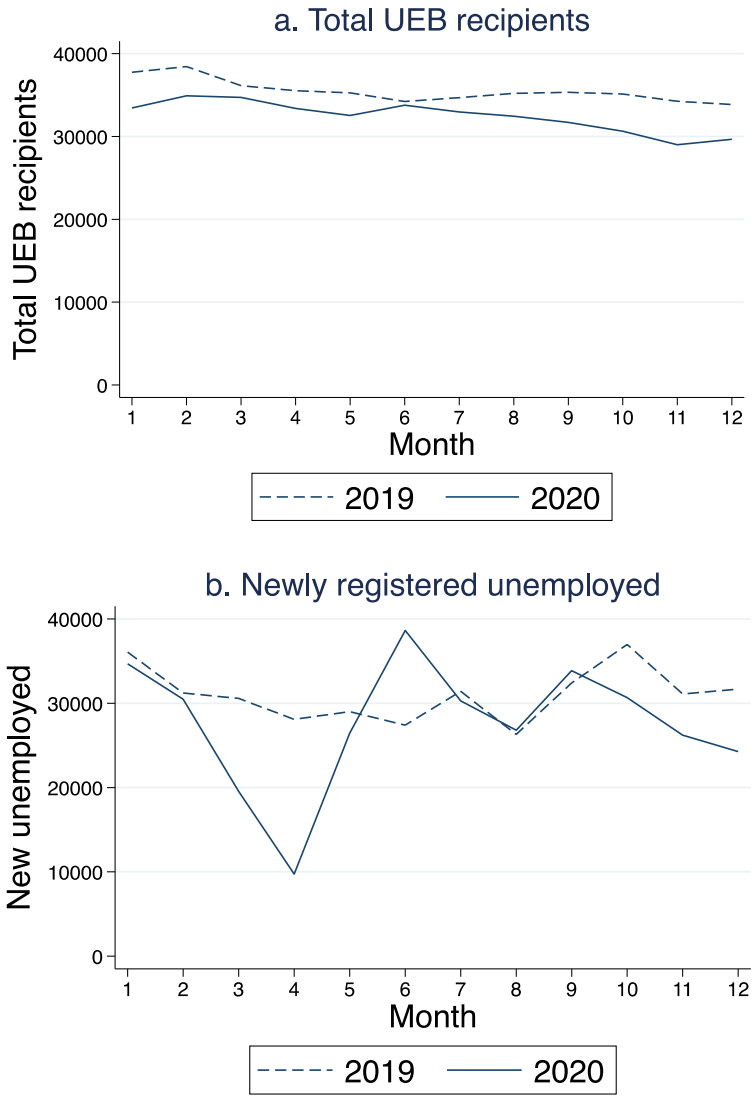


Source: Own calculation based on NES data.

Upper panel of Figure 4-11 indicates that in both years there was a reduction in the number of recipients throughout the year. The right panel

of Figure 4-11 shows new recipients and there we observe a sharp increase in March 2020 when the hard lockdown was introduced and there is an additional increase in July 2020.

Figure 4-11: Total and new recipients of unemployment benefits, 2019 and 2020

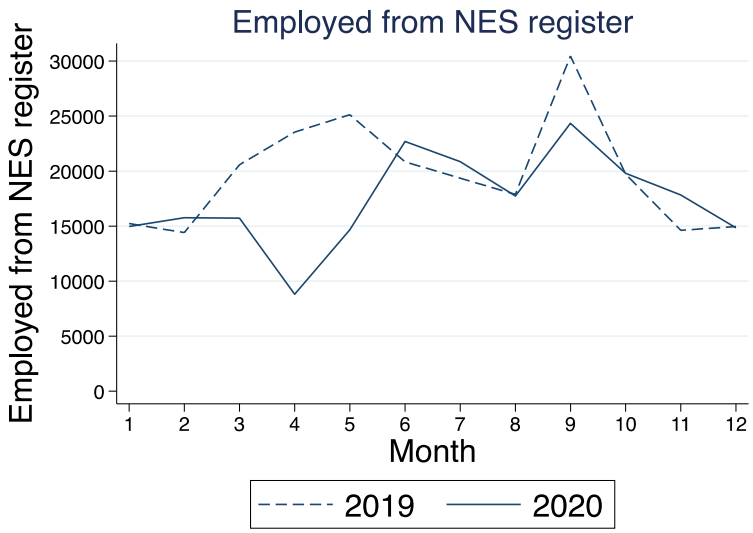


Source: Own calculation based on NES data.

In the second half of the year the monthly trends followed a similar pattern in 2019 and 2020. As most job losses happened in Q2, this indicates that the unemployment benefit was utilized as a mechanism of income stabilization after a job loss to a certain extent. Overall, however the number of unemployment benefit recipients was reduced, as the formal employment stabilized by the end of the year.

Finally, the NES administrative data has information on how many people from the NES unemployment register found employment and these numbers are shown in Figure 4-12. We see that in 2020 fewer people found employment compared to the same months in 2019. In particular, there was a drop in the months of the lockdown (March to May) and in September.

Figure 4-12: Number of employed from NES register, 2019 and 2020



Source: Own calculation based on NES data.

5 The position of vulnerable groups on the labour market

This chapter studies the labour market situation during the COVID-19 pandemic of the following five vulnerable groups: youth, female, people with low educational attainment, people living in Southern and Eastern Serbia and rural population. We apply the difference-in-difference methodology to understand whether these vulnerable groups were more affected during the COVID-19 pandemic than the rest of the workforce. We study the labour market outcomes at the quarterly level in order to capture the effects in different phases of the pandemic and focus on three labour market outcomes: employment, absenteeism and hours worked. Five vulnerable groups are identified based on the economic literature and the Serbian context, as the groups whose labour market response could be different than the response of the majority of the population and we examine their labour market situation during the pandemic in 2020.

Young people are particularly vulnerable as economic downturns can have long-term effects on their future employment and incomes. A large literature examines the impact of graduating during an economic downturn (Genda et al., 2010; Kahn, 2010; Oreopoulos et al., 2012; Raaum & Røed, 2006) and it finds that individuals who graduate in these times experience a scarring effect due to poor initial firm-worker matching and skills depreciation. They can have lower earnings for up to 10 years compared to individuals who graduated in better times. Not only young people who enter the labour market are affected, but also those who had a job when the crisis hit can be affected if they did not secure yet a stable job. Young people work more often in sectors that are more affected by the crisis, such as Accommodation and food services (AFSA) and trade (Verick, 2009) or they can be the first ones to get laid off in the presence of tenure based mandatory severance pay. We define youth as those aged 20-29.[18]

There are many reasons to be concerned about the position of **women** on the labour market during and after a pandemic. School and child care closures increased the needs for parental child care and this burden was

[18] The Eurostat defines youth as young people between 15 and 29 years old. We exclude the age group 15 to 19 from our analysis because most of these young people are still in education. According to(Serbia, 2021), the enrolment rate in secondary school was 87.5% in 2019.

mainly born by the women (Alon, Kim, et al., 2020).[19] In addition, the household chores, typically more frequently performed by women, such as cleaning and cooking increased as the whole family remained at home due to the containment measures. Overall, the evidence from other countries shows that women bore a larger burden of housework (Del Boca et al., 2020; Farré et al., 2020) and this could have potentially a negative impact on the female labour supply.

There are several reasons to consider **workers with low education** to be more vulnerable during a pandemic. First, they are more likely to work in the informal sector which does not offer any employment protection and even when they have a formal contract, they are more likely to hold seasonal or temporary contracts in comparison to more educated workers. Second, aside from essential services, low educated workers are more likely to be working in sectors affected by shutdowns (e.g. tourism and hospitality, etc). Third, low educated workers have, on average, lower savings than skilled workers and even small income shocks can make them enter into poverty.

We focus specifically on **Southern and Eastern Serbia (SES region)** as this is the poorest of the four Serbian regions (excluding Kosovo). SES region had in 2018 the lowest employment rate and the highest unemployment rate among the four regions (Statistical Office of the Republic of Serbia, 2019). While 21.6% of the population lives in this region, it contributes with only 13.8% to the GDP of Serbia. Finally, 15 out of 19 devastated local self-governments[20] in Serbia are located in this region. We consider the **rural** population to be potentially vulnerable because a large share of this population works in agriculture which could have been potentially disrupted due to the severe lockdown in Serbia. Additionally, the rural population is generally low educated and holds only

[19] This is also reflected in time use surveys and the so called child penalty. The child penalty captures the penalty that women have to bear when they become mothers, i.e. when women become mothers their income drops permanently and it does not return to pre-birth levels. For more details see Kleven, Landais, Posch, et al. (2019) and Kleven, Landais, & Søgaard, (2019) or for a eastern European country see Lebedinski et al. (2022)

[20] These are local self-governments were GDP per capita is less than 50% of the national average GDP per capita.

temporary or seasonal jobs with a low job protection which makes them more vulnerable to income shocks.

We further motivate the choice of vulnerable groups by analysing the job characteristics of these five groups in 2019. As suggested previously (chapter 2), the following job characteristics are considered to reflect vulnerable employment: informal employment, temporary employment, employment in small enterprises,[21] self-employment and employment in AFSA sector.

Table 5-1. shows to which extent each vulnerable group is exposed to labour market shocks resulting from vulnerable job characteristics. Compared to the older workers, young people are more likely to be informally employed, temporary workers and to work in the AFSA sector.

Table 5-1: Job characteristics of vulnerable groups

VARIABLES	Informal employment	Temp. workers+	Small-enterprises+	Self-employed+	AFSA sector+
Young	0.031***	0.22***	-0.036***	-0.060***	0.028***
	(0.051)	(0.054)	(0.078)	(0.0053)	(0.025)
Female	0.017***	-0.003	-0.001	-0.049***	0.010***
	(0.034)	(0.044)	(0.051)	(0.0030)	(0.019)
Low education	0.200***	0.067***	0.120***	-0.055***	-0.026
	(0.038)	(0.076)	(0.080)	(0.0057)	(0.033)
Rural	0.120***	0.015***	0.099***	-0.031***	-0.070***
	(0.035)	(0.046)	(0.052)	(0.0031)	(0.020)
SES region	0.032***	0.002	-0.002	-0.020***	-0.081***
	(0.037)	(0.050)	(0.058)	(0.0034)	(0.023)
Observations	43,500	29,894	35,825	35,825	35,825

Notes: This table estimates the likelihood that each vulnerable group is exposed to labour market shocks resulting from vulnerable job characteristics. Regressions are estimated with the probit model. + includes only formal workers. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Females are more likely than males to work in the informal sector and in the AFSA sector. Workers with low education and those residing in rural

[21] We define small enterprises as enterprises with 10 or fewer employees.

areas are vulnerable because, compared to more educated workers or urban population, they are more likely to be informally employed, to have temporary contracts and to work in small enterprises. Finally, workers in SES region are more likely to be working informally than workers from other regions.

Interestingly, all vulnerable groups are less likely to work as self-employed (in formal employment) than their counterparts, and this would have decreased their vulnerability. However, as we have seen in Chapter 2 of this report, self-employed and small enterprises were not particularly hit during the pandemic, mainly due to generous employment retention subsidies to micro, small and medium enterprises (MSMEs) from the government.

This remaining part of this chapter is structured as follows. The next section discusses the sample and provides an overview of the labour market situation in 2020 with a focus on vulnerable groups. Afterwards we present difference-in-difference methodology that will be used to assess the effects of the COVID-19 pandemic on the labour market position of the vulnerable groups in Serbia and present the results from the econometrics estimates.

5.1 Data, sample description and the changes in the labour market position of vulnerable groups in 2020

Within this chapter main data source is the dataset from the Labour Force Survey, collected by the Statistical Office of the Republic of Serbia. In our analysis, we include the years 2019 and 2020 and limit the sample to individuals aged 20 to 64 years.[22] We use 2019 as a benchmark year (stable

[22] The age variable available in LFS is divided into 5-year intervals. We decided not to include the age group 15-19, as the large majority of this group is high-school and although secondary school is not compulsory in Serbia, the enrolment rate in secondary school was 87.5% in 2019 (Statistical Office of the Republic of Serbia, 2021). Therefore the inactivity dominates this group, and the likelihood of their employment is very low, as it is difficult to combine high-school with jobs. On the other hand we opt to include the age group 60-64, although the retirement age for women is 63 (for men it is 65). However, as the majority of

state), while 2020, the year in which the pandemic has started is considered to be the year of treatment. The overall sample for the analysis contains 129,986 individuals.

Table 5-2: Sample characteristics

	2020 N=60,479	**2019 N=69,507**
Outcomes		
=1 Employed	65.9%	65.1%
=1 Absent from job	8.0%	6.5%
Actual hours worked	38.4	39.4
Individual characteristics		
=1 Female	50.1%	50.2%
Age groups		
20 - 29	18.8%	19.1%
30 - 54	57.6%	57.0%
55 - 64	23.5%	23.9%
Highest education		
Primary	16.6%	17.5%
Secondary	60.6%	60.2%
Tertiary	22.7%	22.3%
=1 Urban	59.5%	60.9%
=1 SES region	20.5%	20.6%
=1 Has children aged 0-14y	36.0%	36.0%

Notes: Data are presented as mean for continuous measures, and % for categorical measures.
Detailed descriptive statistics of job characteristics are shown in Chapter 2 of the report.

Our three main outcomes of interest are (1) an indicator for being employed, (2) an indicator for being absent from work and (3) the actual hours worked (self-reported).[23] The descriptive statistics suggests that,

this group is still not eligible for old-age retirement, we decide to include them in the analysis.

[23] We define employed persons in line with the ILO definition of employed; employed are those who worked at least one hour in the reference week and got paid for that work (in money or in kind), as well as persons who had employment, but who were absent from

compared to 2019, the employment rate for the 20-64 population was higher in 2020 by 0.7 percentage points, the likelihood to be absent from work was 1.5 percentage points higher in 2020 and the actual hours worked were by roughly 1 hour lower in 2020.

Turning now to individual level characteristics of the sample, we observe that there were no prominent changes in the sample between the years. Women represent about half of the sample, while in terms of age groups, close to 20% were aged 20 - 29, close to 60% fall in the age group 30 - 54 and the age group 55 - 64 is represented with slightly more than 20%. Most individuals have secondary education (approximately 60%), followed by tertiary and primary education, which make about 22 and 17 percent of the workforce respectively. Roughly 60% of individuals live in urban settings, 20% live in SES region and 36% of individuals had children aged 0 to 14 years.

Results from Chapter 2 suggest that employment trends in Serbia differed significantly within 2020. While in the first quarter employment rate increased (continuing a long-term increasing trend), in the second quarter employment rate decreased (by 1 percentage points) caused by containment measures aiming to prevent the spread of COVID-19. In the last two quarters of 2020 employment stabilized, with the employment rate unchanged compared to the same quarters of previous year. We consider the employment rate of the vulnerable groups by quarter in Figures 3.1. and 3.2.

The overall youth employment rate was by 0.9 percentage points lower in 2020 compared to 2019. With regards to quarterly data, we find that **the youth employment rate was lower in 2020 than in 2019 in all the quarters except in the first.** Youth employment rate (top left panel, figure 5-1) in the first quarter of 2020 was higher by 3.2 percentage points than in 2019, as a

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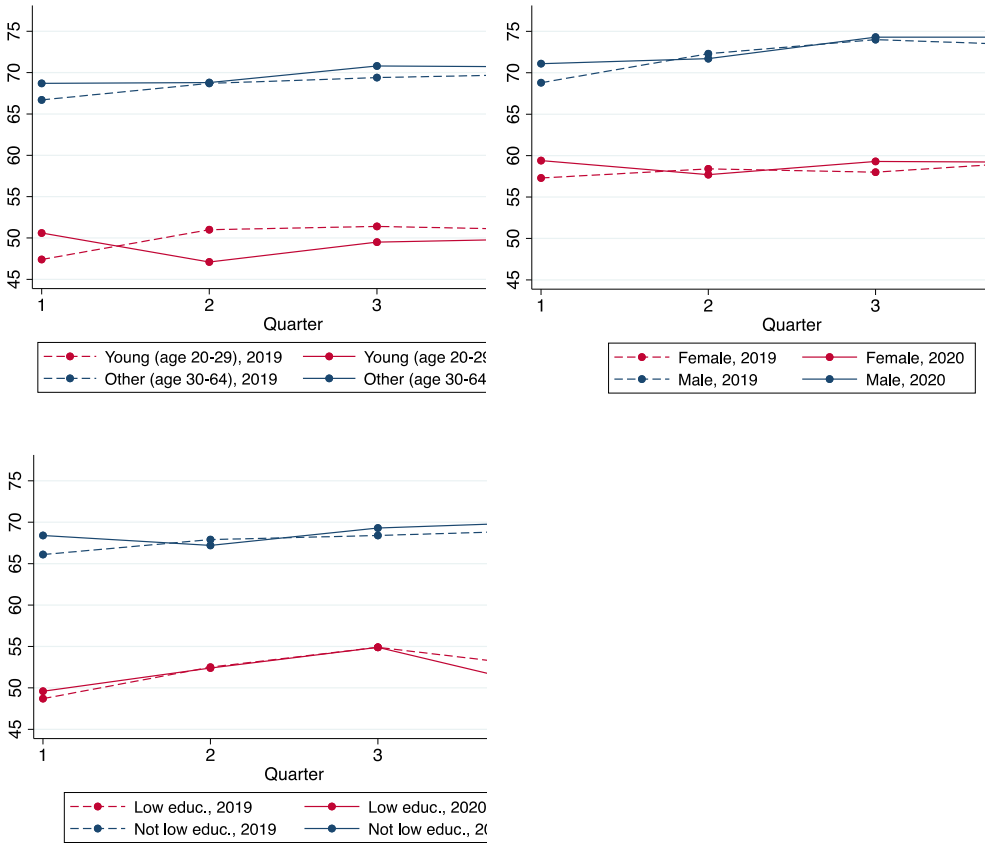
work that week (SORS, 2021: LFS 2020 report). We define an individual to be absent from work if they are employed but worked 0 hours during the reference week in the survey. The actual hours worked are the self-reported hours of work during the reference week.

consequence of the previous favourable trends on the labour market and the fact that the labour market effects of the pandemic had not occurred yet in Q1. In the second quarter of 2020 the employment rate dropped sharply by 3.9 percentage points as a consequence of the state of emergency which was introduced in this period (for more details see Chapter 1).

Figure 5-1: Employment rate of vulnerable groups (youth, female and low education)



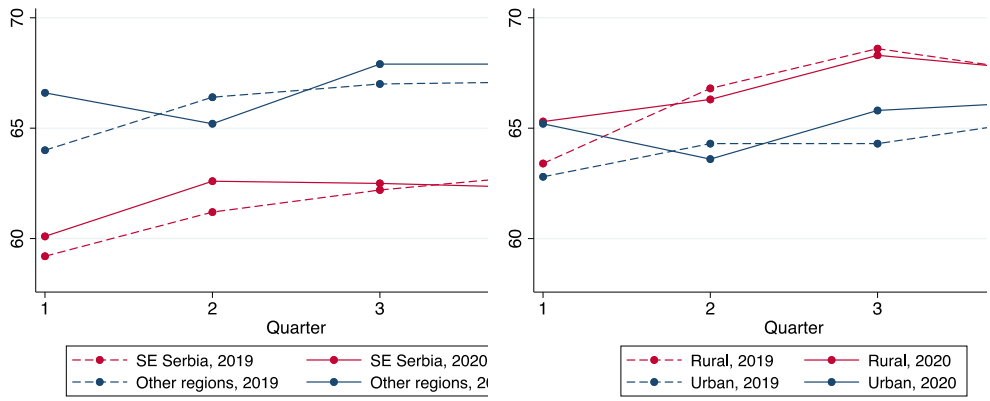
Notes: This graph shows the evolution of the employment rate of vulnerable groups (youth, female and low education) and their employment by quarter for the years 2019 and 2020. Source: Own calculations based on the LFS data.

Although in the last two quarters of 2020 youth employment rate increased, it remained below the 2019 levels (by 1.and 1.1 percentage

points in Q3 and Q4 respectively). In contrast, the employment rate of non-youth group (age 30 to 64) had in 2020 similar trend to the one from 2019, and actually marginally exceeded the employment rate from 2019 in all quarters.

Female employment has not decreased in 2020 and it has remained stable over the quarters,[24] while those with low education faced a significant decrease in employment in fourth quarter. For individuals with low education (Figure 5-1., bottom left panel), in the first three quarters we observe similar levels of employment as in the previous year. However, in the last quarter there is a sharp drop, and when compared to 2019 the employment rate of those with low education was lower by about 2.5 percentage points.

Figure 5-2: Employment rate of vulnerable groups (SES region and rural)



Notes: This graph shows the evolution of the employment rate of vulnerable groups (SES region and rural) by quarter for the years 2019 and 2020. Source: Own calculations based on the LFS data.

In the region of Southern and Eastern Serbia in the first three quarters the employment rate exceeded the rate from 2019, however it recorded a drop compared to 2019 in the fourth quarter. The employment rate in rural areas in 2020 did not decrease compared to 2019. The employment rate in the SES region was higher in 2020 than in

[24] Similar trends are observed for men and therefore the gender gap in employment did not worsen in 2020.

2019 in first three quarters (Q1: +0.9 percentage points; Q2: +1.5 percentage points; Q3: +0.3 percentage points) and in the fourth quarter it fell below the employment rate in 2019, by about 0.6 percentage points. For the other three regions, we only observe a temporary drop in the second quarter and generally a similar trend in the quarters of 2020 compared to quarters of 2019.

With respect to rural settlements, we see a comparable development over the quarters in 2020 as compared to 2019, the only difference is the first quarter when the employment rate in 2020 was 1.9 percentage points above the employment rate of 2019. The employment in urban areas followed a dominating trend in the economy caused by lockdown, it dropped in the second quarter and it was 0.8 percentage points lower than in 2019. While in the last two quarters it increased, and ended up 0.8 percentage points above 2019 levels in the fourth quarter.

5.2 A difference-in-differences estimate of the impact of the pandemic on vulnerable groups and sectors

5.2.1 Methodology

To analyse the changes in the labour market outcomes we use the difference-in-differences methodology and we compare outcomes before (2019) and after (2020) the effects of epidemic occurred for the groups that we identified as potentially vulnerable. Compared to the previous, descriptive analysis this methodology allows us to control for the effect of other relevant variables when analysing employment trends in two years. We do the analysis for each vulnerable group and quarter separately.

We estimate the following regression:

$$y_{itd} = \beta_0 + \beta_{DiD}(I(vuln.group)_{itd} * Y2020_t) + \beta_1 vuln.group_{itd} + \beta_2 Y2020_t + X_{itd}\delta + \gamma_d + \varepsilon_{itd}, \quad i = 1, \ldots, n;\ t=2019, 2020 \quad (1)$$

where y_{itd} is the outcome (employment, absenteeism and actual hours worked) of individual *i* in year *t* in district d.[25] We consider the standard outcome employment and the other two outcomes are indicators which were found to be especially relevant labour market indicators during the pandemic. Instead of firing workers due to a lower economic activity, there were other intermediary options available to firms such as furloughing or reducing the actual hours worked. An additional reason why hours worked could be affected by the pandemics is the increased burden of homework and childcare that fell on the household.

The variable $I(vuln.group)$ takes the value 1 if the individual belongs to the specific vulnerable group, and 0 if not. $Y2020_t$ is a dummy variable taking the value 1 for year 2020 and the value 0 for the year 2019. The interaction of $I(vuln.group)_{itd}$ and $Y2020_t$ is the difference-in-differences estimator which captures the impact of belonging to a vulnerable group in a given quarter in the year 2020, i.e. the effect of the pandemic on the relative position of the vulnerable group, compared to its non-vulnerable counterpart (e.g. the change of female employment rate between the years, when compared to the change in employment rate for men).

The vector X_{itd} contains the following individual level characteristics, which serve as controls in our model: female, 5-year age groups, highest level of education attained, living in a rural area and presence of children aged 0 to 14 in the household. For the outcomes absenteeism and number of hours worked, we also control for the following job characteristics: sector of activity (according to NACE classification) and employment status.[26] All regressions include district level fixed effects expressed by the term γ_d.[27]

[25] Districts represent third level of territory units used for statistical analysis according to Nomenclature of territorial units for statistics (NUTS), i.e. NUTS3 level territory units.

[26] For employment status we use a categorical variable with the following five categories: (1) employee with permanent contracts, (2) employee with temporary contract, (3) self-employed, (4) self-employed farmer and (5) unpaid family member.

[27] The variable *low education* holds the same information as the variable highest educational level attained (3 categories: primary school/low education, secondary school and college/university). As a result, these two variables are collinear and only one can be included in the regression. In order to be consistent among specifications, when estimating

The difference-in-differences estimation relies on the parallel trend assumption. This assumption requires that the pre-trends of the two groups (e.g. youth versus others, female versus males, etc.) were parallel before the treatment occurred. In our case, we consider treatment to be the pandemic and the treatment year is 2020.[28]

5.2.2 Results of econometric estimates

This section presents the results of the difference-in-differences estimations for the outcomes employment, absenteeism and actual hours worked for the identified vulnerable groups.

The estimates in the Figures 5-3 to 5-5 express whether the outcome, e.g. the employment for the vulnerable group, e.g. the youth changed in 2020 with respect to 2019 for a given quarter compared to the group of older workers. Full estimates are presented in tables 5-3 to 5-5. For instance, a positive estimate would imply that, in a given quarter, the employment rate of the vulnerable group increased compared to the rest of the population, while a negative estimate would mean that the employment rate of the vulnerable group decreased. In other words, given that vulnerable groups typically have lower employment rates, the positive (negative) sign of the estimates indicates a widening (narrowing) of the employment gap between the vulnerable group and their counterparts.

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the regression for the impact of COVID-19 on low educated, instead of the variable *low education* we use in the regressions the categorical variable highest educational level attained (this has among others the category low education) as in all other regressions. The variable of interest is the interaction between the vulnerable group, in this case low education, and year 2020 variable and this interaction is included in the regression. Similarly, (1) we do not include the variable young when estimating the gap between young and not young, because the variables capturing age categories contain the information on age: we include age categories instead; (2) we do not include the indicator SES region when estimating regional differences because the regional differences are captured by the district fixed effects: we include district level fixed effects instead. In all cases the interaction between the vulnerable group and the year dummy is included.

[28] To ensure that our results are robust and not driven by trends, we perform the so-called placebo tests where we assume the placebo treatment year to be 2019 and the pre-treatment year to be 2018. Results of the placebo tests are available upon request.

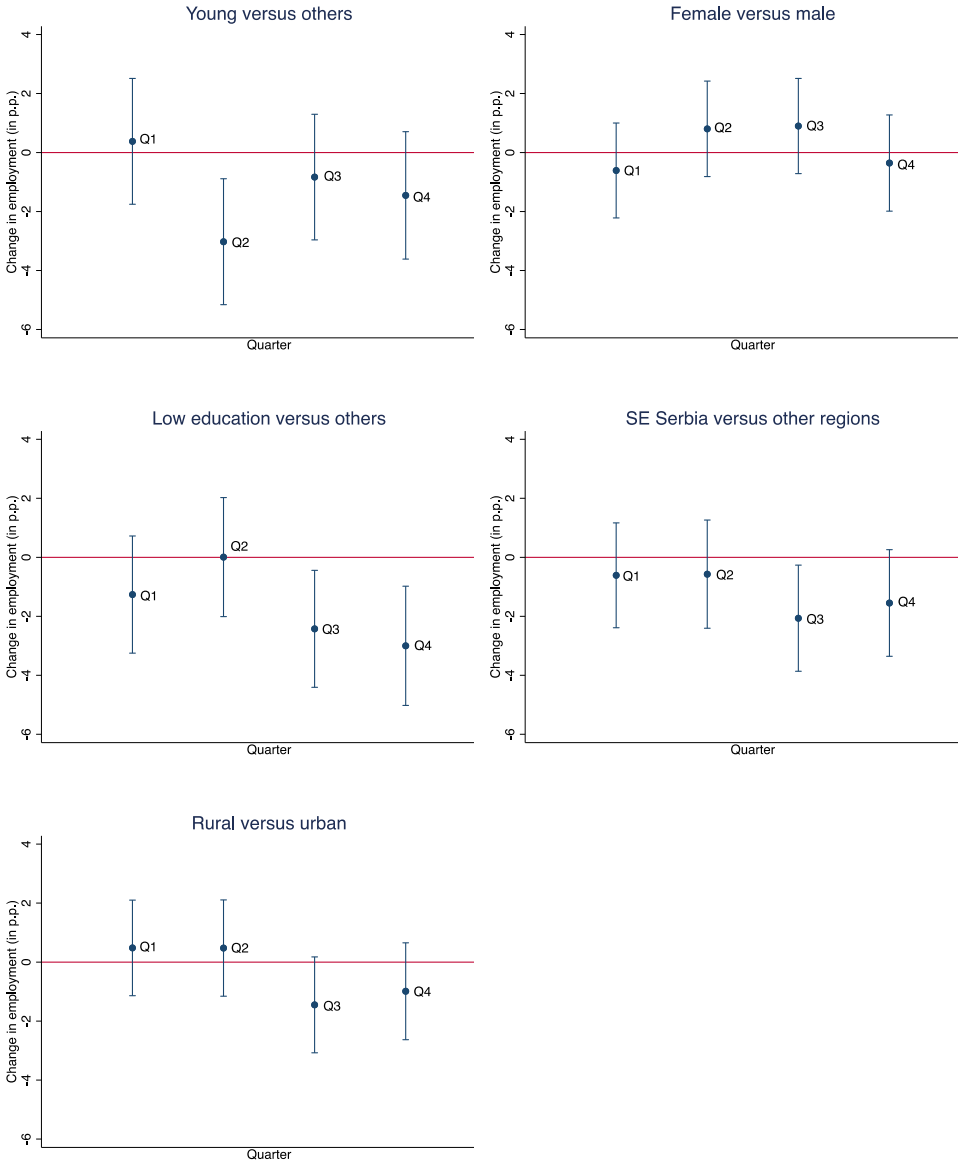
Figure 5-3 shows the impact estimates for employment of vulnerable groups. Estimated coefficients and standard errors are presented in table 5-3. Compared to those aged 30-64 which had no decrease in employment, we see that **the youth had a reduction in the employment rate by 3 percentage points only in the second quarter**. Furthermore, **for the low educated we find a significant employment reduction in Q3 and Q4 by 2.4 and 3.0 percentage points respectively (middle left subfigure)** compared to the higher educated individuals, for whom the employment had slightly increased in this quarters.

We further find **a significant reduction of 2.1 percentage points in employment in quarter 3 for the SES region in 2020** (middle right subfigure) **compared to other regions** in which the employment in this quarter had slightly increased. In the third quarter the employment rate increased in the other regions, while in the SES regions it stagnated and therefore the estimated impact is negative. For females (upper right subfigure) and urban population (bottom left subfigure) we do not observe any changes in employment in any quarter.

Overall the results indicate that, **those with low education have suffered a further, permanent reduction in their employment likelihood after the first year of the pandemic**. The gap in employment between those with low and higher levels of education was already substantial before the pandemic (see Figure 5-1) and it has even increased further during the pandemic in the second part of the year.

On the other hand, **for the youth and those from the SES region we find a temporary reduction in their employment likelihood in second and third quarter of 2020 respectively**. The gaps in employment chances between these two groups and their non-vulnerable counterparts have temporary increased in second and third quarter of 2020 respectively, while in the last quarter of 2020 those differences are insignificant, suggesting that this effect was only transitory.

Figure 5-3: Relative changes in employment of vulnerable groups



Notes: This graph shows the difference in impact estimates for employment of vulnerable groups and their non-vulnerable counterparts, for each quarter. The points in the graph present the estimates, while the lines present 90% confidence intervals. An impact estimate is statistically significant if the confidence interval falls completely below or above the red horizontal line (x=0). A positive (negative) coefficient means that the employment rate of the vulnerable group increased (decreased) compared to their non-vulnerable counterparts. We use the probit model in regressions and the reported estimates are marginal effects. Controls in regressions: female, rural, dummy for child aged 0 to 14 in household, 5-year age categories, education fixed effects and district fixed effects.

Table 5-3: Impact on employment of vulnerable groups

	Q1	Q2	Q3	Q4
Young				
Young * y2020	0.004	-0.030**	-0.008	-0.015
	[0.013]	[0.013]	[0.013]	[0.013]
y2020	0.012**	0.006	0.006	0.014**
	[0.005]	[0.005]	[0.005]	[0.005]
Dep var mean	0.460	0.480	0.485	0.498
Observations	33,418	32,571	32,229	31,768
Female				
Female * y2020	-0.006	0.008	0.009	-0.004
	[0.010]	[0.010]	[0.010]	[0.010]
y2020	0.016**	-0.003	-0.000	0.013*
	[0.007]	[0.007]	[0.007]	[0.007]
Female	-0.120***	-0.141***	-0.152***	-0.136***
	[0.007]	[0.006]	[0.007]	[0.007]
Dep var mean	0.548	0.552	0.557	0.564
Observations	33,418	32,571	32,229	31,768
Low education				
Low education * y2020	-0.013	0.000	-0.024**	-0.030**
	[0.012]	[0.012]	[0.012]	[0.012]
y2020	0.015***	0.001	0.010*	0.017***
	[0.005]	[0.006]	[0.006]	[0.006]
Dep var mean	0.483	0.522	0.535	0.508
Observations	33,418	32,571	32,229	31,768
SES region				
SES region * y2020	-0.006	-0.006	-0.021*	-0.015
	[0.011]	[0.011]	[0.011]	[0.011]
y2020	0.014**	0.003	0.010*	0.016***
	[0.006]	[0.006]	[0.006]	[0.006]
Dep var mean	0.589	0.604	0.616	0.611
Observations	33,418	32,571	32,229	31,768

continued on the next page

Table 5-4: Impact on employment of vulnerable groups - continued

	Q1	Q2	Q3	Q4
Rural				
Rural * y2020	0.005	0.005	-0.014	-0.010
	[0.010]	[0.010]	[0.010]	[0.010]
y2020	0.010	-0.001	0.011*	0.016**
	[0.007]	[0.007]	[0.006]	[0.007]
Rural	0.086***	0.089***	0.089***	0.086***
	[0.007]	[0.007]	[0.007]	[0.007]
Dep var mean	0.626	0.650	0.663	0.657
Observations	33,418	32,571	32,229	31,768

Notes: All regressions are estimated with probit model. Regressions include the following set of controls female, 5 year age groups, highest level of education achieved, living in a rural area and presence of children aged 0 to14 in the household. All regression include district fixed effects. Due to multicollinearity we exclude young, low education and SES indicator in the respective regressions. Dependent variable mean refers to the mean of the vulnerable group in 2019.

We turn now to the effect of the pandemics on absenteeism. Full estimation results (presented in the table 5-4) suggest that, compared to 2019, the share of workers who were absent from work in 2020 was higher in the first and second quarter (by about 2.5 and 6 percentage points), lower in the third quarter (by about 2.5 percentage points), while the difference between the years in fourth quarter was not significant. The analysis in chapter 2 suggests that the increased absenteeism in the first two quarters was mainly due to lower business activities, while the decrease in the third quarter was due to reduction of holiday days. The latter appeared to be an attempt to make up some of the lost time and income.

The changes in absenteeism of vulnerable groups are presented in Figure 5-4. The results indicate that, unlike those aged 30 to 64, **young aged 20 to 29 had a significant reduction in absenteeism in the fourth quarter** (upper left subfigure). One interpretation of this result is that the **young people work more frequently in sectors (such as AFSA) which tried to make up the lower working hours from the first half of the year in the**

fourth quarter in addition to already higher absenteeism in the third quarter, which was present for all workers.

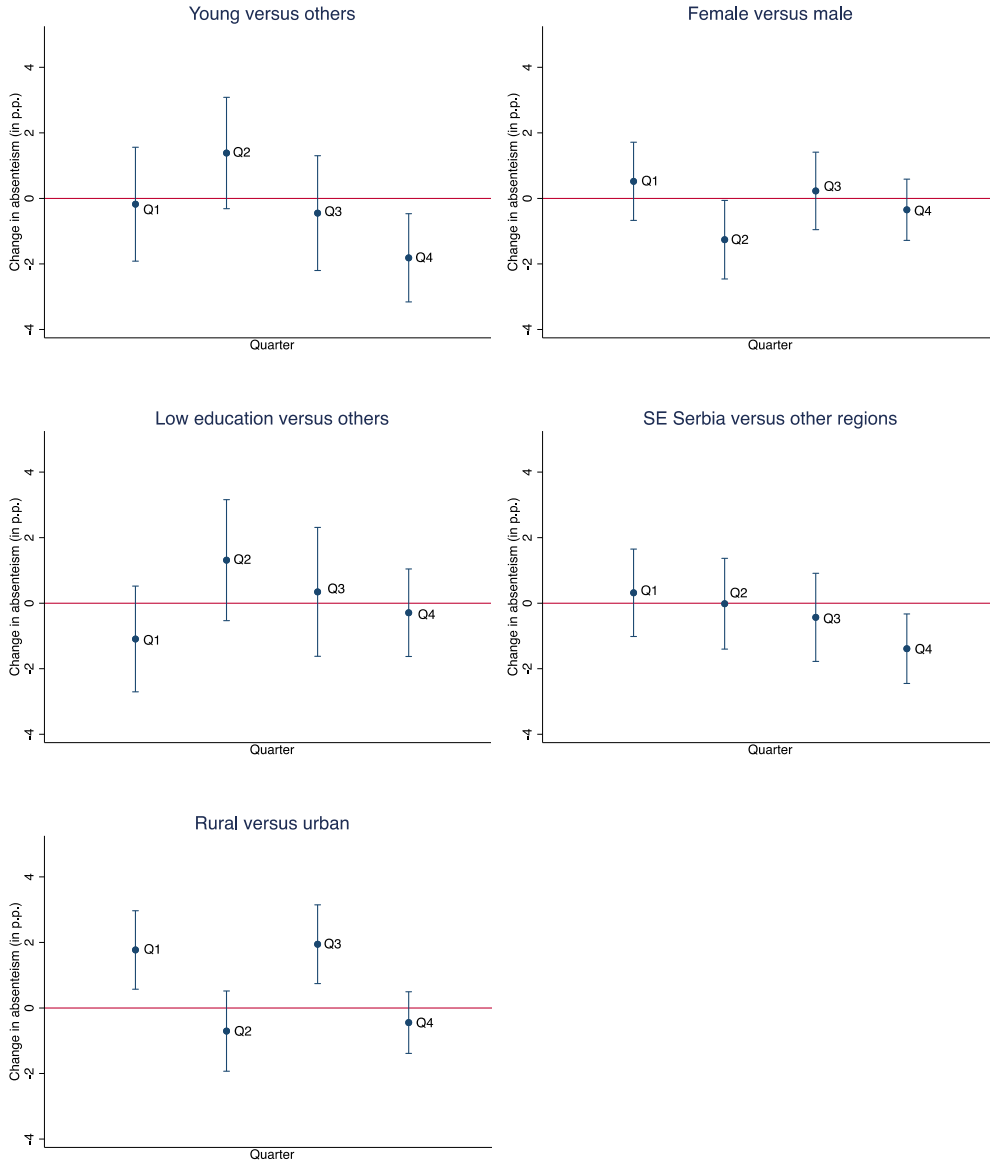
With regards to gender differences, a significant effect is found only in the second quarter. **Given that the overall absenteeism in Q2 has increased by 6.2 p.p.** (see Table 5-4) **the negative effect of 1.3 p.p. indicates that this increase was lower for females than for males** (top right panel). Given that women are more likely to perform housework than men, this result suggests that gender differences in job characteristics, rather than increased household chores during the pandemic were behind the differences in absenteeism in the work place. This is in line with the findings from Section 2 which suggest that the main reason for increased absenteeism in Q2 2020 is lower business activity. There were no differences in terms of absenteeism with regards to the education (middle left panel).

We turn now to the geographical differences in absenteeism. **Unlike the workers from other regions**, **workers from SES region were less likely to be absent from work in the fourth quarter** (middle right panel). One possible explanation could be that sectors dominating in the SES region tried to make up in the fourth quarter for the lower activity in the first half of the year.

Overall, workers from rural areas faced a higher absenteeism increase than workers in urban areas, resulting from different trends in the first and the third quarter. **In the first quarter, there was an overall increase in absenteeism compared to the previous year, but this increase was higher in rural than in urban areas** (by about 2 percentage points). In addition to the effects of COVID-19 on increased absenteeism which were observed for all workers, higher increase for rural workers in Q1 could be due to differences in weather conditions between the years.

In the third quarter, in which we find an overall drop in absenteeism, compared to 2019**, the drop was lower for rural than for the urban population,** and therefore the coefficient is positive. This indicates that decreasing holidays days – the mechanism that was used in the third quarter to make up for some lost time and income – was used less frequ-

Figure 5-4: Impact estimates: Absenteeism of vulnerable groups



Notes: This graph shows the impact estimates for absenteeism of vulnerable groups for each quarter. The points in the graph present the estimates while the lines present 90% confidence intervals. An impact estimate is statistically significant if the confidence interval falls completely below or above the red horizontal line (x=0). A positive (negative) coefficient means that the absenteeism rate of the vulnerable group increased (decreased) compared to the rest of the population. We use the probit model in regressions and the reported estimates are marginal effects. Controls in regressions: female, rural, dummy for child aged 0 to 14 in household, sector of the job, employment status, 5-year age categories, education fixed effects and district fixed effects.

Table 5-5: Impact on absenteeism of vulnerable groups

	Q1	Q2	Q3	Q4
Young				
Young * y2020	-0.002	0.014	-0.004	-0.018**
	[0.011]	[0.010]	[0.011]	[0.008]
y2020	0.026***	0.054***	-0.027***	0.004
	[0.004]	[0.004]	[0.004]	[0.003]
Dep var mean	0.072	0.058	0.094	0.059
Observations	20,552	20,43	20,625	20,356
Female				
Female * y2020	0.005	-0.013*	0.002	-0.003
	[0.007]	[0.007]	[0.007]	[0.006]
y2020	0.024***	0.062***	-0.028***	0.004
	[0.005]	[0.005]	[0.005]	[0.004]
Female	0.021***	0.041***	0.037***	0.024***
	[0.005]	[0.006]	[0.005]	[0.004]
Dep var mean	0.073	0.066	0.113	0.057
Observations	20,552	20,43	20,625	20,356
Low education				
Low education *				
y2020	-0.011	0.013	0.003	-0.003
	[0.010]	[0.011]	[0.012]	[0.008]
y2020	0.028***	0.054***	-0.027***	0.002
	[0.004]	[0.004]	[0.004]	[0.003]
Dep var mean	-0.011	0.013	0.003	-0.003
Observations	0.071	0.030	0.042	0.041
SES region				
SES region * y2020	0.003	-0.000	-0.004	-0.014**
	[0.008]	[0.008]	[0.008]	[0.006]
y2020	0.025***	0.056***	-0.026***	0.005*
	[0.004]	[0.004]	[0.004]	[0.003]
Dep var mean	0.064	0.048	0.085	0.048
Observations	20,552	20,43	20,625	20,356

Table 5-6: Impact on absenteeism of vulnerable groups - continued

	Q1	Q2	Q3	Q4
Rural				
Rural * y2020	0.018**	-0.007	0.019***	-0.004
	[0.007]	[0.007]	[0.007]	[0.006]
y2020	0.018***	0.058***	-0.034***	0.004
	[0.005]	[0.005]	[0.005]	[0.004]
Rural	0.001	-0.004	-0.011**	-0.003
	[0.006]	[0.006]	[0.005]	[0.004]
Dep var mean	0.061	0.040	0.060	0.041
Observations	20,552	20,43	20,625	20,356

Notes: All regressions are estimated with probit model. Regressions include the following set of controls female, 5 year age groups, highest level of education achieved, living in a rural area and presence of children aged 0 to14 in the household. All regression include district fixed effects. Due to multicollinearity we exclude young, low education and SES indicator in the respective regressions. Dependent variable mean refers to the mean of the vulnerable group in 2019.

ently in rural areas, although they were more likely to be absent from work in the first quarter. This can partially be due to seasonality of agricultural works which dominate the jobs in rural areas[29] as the activity in these jobs can probably be less compensated in this manner.

The impact estimates graphs for changes in actual hours worked are shown in Figure 5-5 (full estimates in table 5-5). Note that we include absent workers in this analysis, and we do this in order to estimate the impact of absenteeism on the reduction of the overall hours worked. Our analysis shows that quarterly changes in actual hours worked are to an important degree driven by changes in absenteeism.[30] Put differently, the decision on hours worked was more frequently whether the employees would work or

[29] Approximately 28% of the rural population works in the agricultural sector, while additionally about 6% is employed in sector T (Activities of households as employers; undifferentiated goods and services producing activities of households for own use), while other activities in Manufacturing sector which makes up about 20% of rural employment are likely to be more connected with agriculture than in urban areas.

[30] We estimated the impacts on actual hours worked without individuals who were absent from work, but these impact estimates were insignificant suggesting that differences in changes in actual hours worked are predominantly driven by absentees.

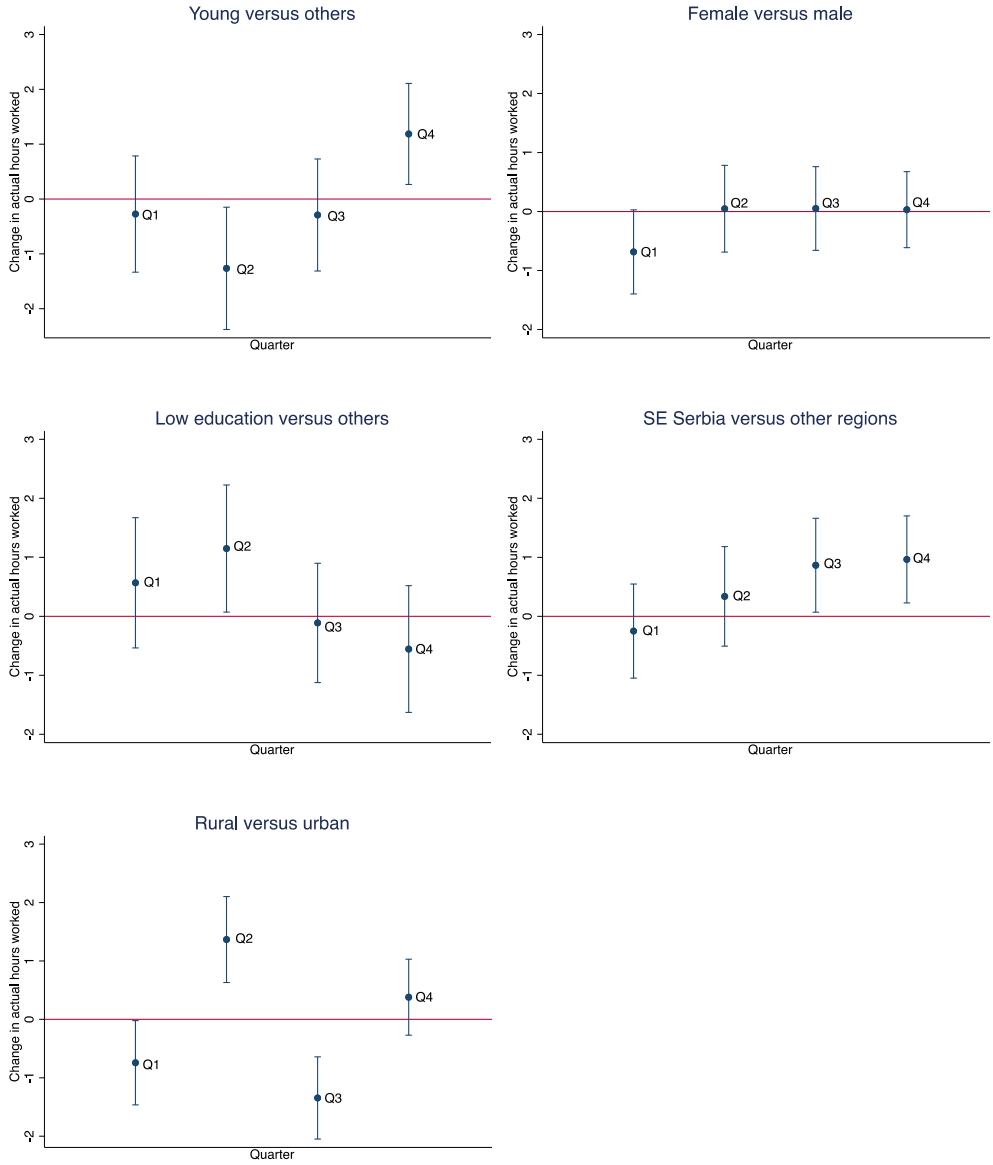
not, and not how many hours they would work. The actual hours worked follow a pattern similar to absenteeism but notice that the two outcomes go in opposing directions: an increase in absenteeism causes a reduction in hours worked.

Compared to the population 30 to 64, **youth (top left subfigure) had a significantly higher reduction of 1.3 hours in the second quarter**. While the working hours were reduced for all workers, this reduction was higher for younger workers. Although much of this difference can be contributed to the higher absenteeism of young workers (see Figure 5-4) although this increase was not significant.

We also observe that **unlike for those aged 30-64 who worked shorter hours in fourth quarter, for those aged 20-29 working hours increased by about 0.5 hours**, largely due to already described trends in absenteeism. We do not observe any gender differences in working hours changes be the years (top right subfigure).

The actual hours worked fell for both more and less educated workers in Q2 (see Table 5-5), **but the reduction was more pronounced for the more educated workers by about 1.2 hours** as evidenced in Figure 5-5. As this difference depending on levels of education was not observed for absenteeism, we conjecture that it is driven by individuals who actually worked, and among them less educated workers had a lower decrease in working hours. For other quarters we do not observe any differences in working hours depending on the level of education.

Figure 5-5: Impact estimates: Actual hours worked of vulnerable groups



Notes: This graph shows the impact estimates for actual hours worked of vulnerable groups for each quarter. The points in the graph present the estimates while the lines present 90% confidence intervals. An impact estimate is statistically significant if the confidence interval falls completely below or above the red horizontal line (x=0). A positive (negative) coefficient means that the actual hours worked of the vulnerable group increased (decreased) compared to the rest of the population. We use the ordinary least squares model in regressions. Controls in regressions: female, rural, dummy for child aged 0 to 14 in household, sector of the job, employment status, 5-year age categories, education fixed effects and district fixed effects.

Table 5-7: Impact on actual hours worked of vulnerable groups

	Q1	Q2	Q3	Q4
Young				
Young * y2020	-0.273	-1.264*	-0.291	1.187**
	[0.645]	[0.678]	[0.621]	[0.560]
y2020	-1.515***	-2.639***	1.082***	-0.641***
	[0.231]	[0.236]	[0.229]	[0.210]
Dep var mean	38.438	39.501	38.831	39.517
Observations	20,552	20,43	20,625	20,356
Female				
Female * y2020	-0.684	0.047	0.051	0.032
	[0.434]	[0.447]	[0.431]	[0.392]
y2020	-1.242***	-2.814***	1.024***	-0.508*
	[0.292]	[0.295]	[0.278]	[0.261]
Female	-2.741***	-3.782***	-4.128***	-3.509***
	[0.286]	[0.283]	[0.323]	[0.286]
Dep var mean	36.368	37.728	37.128	38.659
Observations	20,552	20,43	20,625	20,356
Low education				
Low education * y2020	0.568	1.149*	-0.112	-0.556
	[0.671]	[0.655]	[0.615]	[0.653]
y2020	-1.638***	-2.982***	1.065***	-0.409**
	[0.228]	[0.237]	[0.229]	[0.201]
Dep var mean	35.292	40.527	41.986	40.373
Observations	20,552	20,43	20,625	20,356
SES region				
SES region * y2020	-0.250	0.338	0.866*	0.965**
	[0.485]	[0.513]	[0.484]	[0.448]
y2020	-1.481***	-2.878***	0.820***	-0.748***
	[0.253]	[0.256]	[0.248]	[0.225]
Dep var mean	37.107	39.422	38.686	39.517
Observations	20,552	20,43	20,625	20,356

Table 5-8: Impact on actual hours worked of vulnerable groups - continued

Rural				
Rural * y2020	-0.743*	1.367***	-1.345***	0.380
	[0.438]	[0.447]	[0.428]	[0.395]
y2020	-1.204***	-3.433***	1.671***	-0.670***
	[0.271]	[0.292]	[0.283]	[0.243]
Rural	0.537*	0.691**	1.095***	1.067***
	[0.305]	[0.300]	[0.332]	[0.299]
Dep var mean	37.471	40.963	41.586	41.121
Observations	20,552	20,43	20,625	20,356

Notes: All regressions are estimated with ordinary least squares model. Regressions include the following set of controls female, 5 year age groups, highest level of education achieved, living in a rural area and presence of children aged 0 to14 in the household. All regression include district fixed effects. Due to multicollinearity we exclude young, low education and SES indicator in the respective regressions. Dependent variable mean refers to the mean of the vulnerable group in 2019.

While working hours in Q3 have increased for all workers this increase was higher in the SES region, by about 1 hour. This difference is driven predominantly by increased hours of those actually working, as absenteeism differences were not pronounced. On the other hand, **the working hours in Q4 were lower than in 2019 in all regions except in SES region.** This effect is due to two reasons. Firstly, workers from this region were less likely to be absent in the fourth quarter of 2020 than in the previous year (unlike the workers from other regions), and this has increased their working hours. On the other hand, regardless of the region we observe an increase in working hours of those who went to work. Therefore, the absence of change for workers in other regions is due to compensating effect of increased absenteeism and increased working hours of those who went to work.

The changes in working hours for rural and urban population show similar patterns as the ones for absenteeism (Figure 5-4). **In the first quarter both urban and rural population reduced their hours, but the reduction among rural population was more pronounced**. This difference stems from absenteeism which increased for all workers, but this increase was higher in rural areas. **In the second quarter, both**

groups reduced the hours, but in this case, the rural population less than the urban population (3.4 hours vs. 2 hours). Given that the differences in absenteeism were not significant, but were positive, this effect can partially be contributed also to lower decrease of working hours of those who stayed at work in rural areas. **While urban population in Q3 worked more than the previous year**, **the rural population working hours remained the same**. This effect was mainly driven by the absenteeism trends described above. Finally, no differences between rural and urban population are observed for the fourth quarter.

Summary of the results

The impact estimates in this section of the report have shown a very different pattern for the vulnerable groups highlighting the importance of a separate analysis for these groups. These differences are driven by the different characteristics of these groups such as differences in job characteristics, educational background, geographical location, etc. Here we summarize these effects by vulnerable groups:

- **Youth (aged 20-29)**. In addition to already unfavourable trends in the second quarter, youth were exposed to additionally adverse effects reflected by both lower employment and lower working hours (the latter stemming from both higher absenteeism and lower working hours of those who went to work). However, by the end of the year, the situation improved for them, and the labour market gaps between them and those aged 30-64 returned to the 2019 levels.

- **Women**. Surprisingly, we do not find any gender disparities in the negative impacts of COVID-19 pandemic and this is different from the findings in other countries (see for instance Collins et al. (2021)). This is especially surprising because the needs for homework and childcare have increased during the pandemic (see chapter 5).

- **Low educated**. The low educated population have suffered a further, permanent reduction in their employment likelihood in the

last two quarters of 2020, which has increased the employment gaps between them and persons with higher education. Higher vulnerability of their jobs can be due to lower costs of their dismissal, the fact that they typically work in vulnerable jobs and sectors, and lower opportunities to find new work during COVID-19 pandemic.

- **SES region**. Unlike the rest of the workforce, SES region experienced a temporary decrease in employment in the third quarter, which temporarily increased employment gap between them and other regions. Those who remained employed also worked longer hours in the last two quarters, and this increase was higher than in other regions.

- **Rural population.** While we do not find any differences between rural and urban population in the terms of employment changes, some interesting differences occur in the terms of working hours. In the first quarter, both urban and rural workers reduced their hours with respect to 2019, but the reduction among rural population was more pronounced, due to their higher absenteeism. Both groups also reduced hours in the second quarter, but in this case, the decrease was lower for rural workers, due to both lower absenteeism and actual working hours. Finally, while urban population in Q3 worked more than the previous year, the rural population working hours remained the same, mainly due to lower absenteeism of urban population than in the previous year. This lower absenteeism was due to an attempt to make up for some lost hours worked in first two quarters of 2020. Differences in rural and urban settlements could be explained by differences in lockdown effects, seasonality of the works among the rural population, as it is dominated by agriculture sector, and possibly differences in the two years in terms of the weather.

6 Analysis of the new survey data economic effects of COVID-19 pandemic

Description of the survey

While the LFS and NES data will provide detailed, nationally representative data on the labour market status, they are not particularly designed to analyse COVID-19 effects, and they cannot capture all the relevant information. To that end, a new nationally representative survey of the population aged between 20 and 64 years was conducted[31] which focuses on the effects of the pandemic on COVID-19. In this chapter we present most important results from this survey which complements the analysis presented in the previous chapters.

The sample frame was based on the population census from 2011. Information from census was used regarding the information on population size by regional NUTS2 and NUTS3 distribution, type of settlement (city and other), gender, age, level of education, On the other hand, the number of citizens of Serbia who are employed in the category 20-64 was taken from the Labour Force Survey.

Sample for the survey is based on the stratified random sampling and the urban and other areas within each region were identified as the main sampling strata (NUTS2 level). Random sampling was performed in a two-step procedure. In the first step, households were randomly selected within each predefined stratum. In the second step, a member of the household aged 20 to 64 was randomly selected from the pool of persons of that age group in the household.

Sample weights are used to correct for the overrepresentation and underrepresentation of surveyed groups. This effect can result from not answering the phone, refusing to participate in the survey, etc. and in that case the sample is not representative, and a multiplied weight is created that enables more precise measurement at the level of variables that are criteria for post-stratification Post-stratification variables are gender, age, level of education, type of settlement, and region. Weighting values range

[31] The survey INEQ-RS-COVID-19 was conducted via phone interview, by independent market research agency Ninamedia from Novi Sad, from July until October 2021.

between 0.35 and 2.5, with less than 5% of the weights exceeding the limits.

Interviews were done over the phone, via CATI (computer-assisted telephone interviewing). The software randomly selects the phone within predefined strata, using an algorithm built into the software itself. Within this step the same phone number can be called up to 3 times if no one answers, or to call after 120 minutes if the number is busy.

The survey is based on the questionnaire that was designed for the purpose of this study. The questionnaire defines the collected data on socio-demographic characteristics of the household, labour market status and employment prior to lockdown of respondent, job search and employment during the pandemic (including health measures at work and homework), health and access to health services, financial situation of the household, measures implemented by the government and division of household chores.[32]

Sample description

Table 6-1 provides a description of the sample and the labour market status of respondents before the COVID-19 pandemic. The sample includes 3,044 individuals. Males and females are equally represented in the sample and the average age of the respondent is 42.8 years. About half of the respondents are married, while 16.3% of persons live in households which have children 6 years or younger, 25% which have children aged 7 to 17 years and 18.6% which have household members older than 65. Most respondents (60.6%) reported secondary education as their highest educational attainment. More than half of the population lives in urban settings and the four regions are roughly equally represented.

[32] The questionnaire is available here . Given that this report relies on other data sources, we do not present the analysis of all the data collected within this questionnaire, but focus on the parts of the data which complement the best the previous chapters of this report. After the end of the project INEQ-RS-COVID-19, the data will be fully available to other researchers interested to analyze them in more detail.

Table 6-1: Socio-demographic characteristics and labour market status before COVID-19 pandemic

	Respondents N=3,044
Socio-demographic characteristics	
Female	50.1%
Age	42.8 (±12.7)
Married	55.0%
Household with child aged 0 to 6	16.3%
Household with child aged 7 to 17	25.0%
Has household member 65 or older	18.6%
Highest educational level	
Primary school or less	12.3%
Secondary school (VET or general)	60.6%
College or university	27.1%
Urban	61.0%
Region	
Vojvodina	27.2%
Beograd	23.7%
Western Serbia with Šumadija	27.9%
Eastern and Southern Srbija	21.1%
Labour market status before lockdown	
Working for wage/salary for someone, an enterprise, company or government	52.6%
Working on own account or enterprise belonging to the household	5.6%
Doing a seasonal or occasional job	4.2%
Unpaid work in a business or farm owned by a household (Contributing family member)	1.4%
Unemployed (looking for work)	19.3%
Student/pupil	6.5%
Pensioner	6.8%
Permanently disabled	0.4%
Person who performs housework	2.2%
Other inactive person	1.0%

Notes: This table reports socio-demographic characteristics and labour market status of respondents before COVID-19. Data are presented as mean (±SD) for continuous measures, and % for categorical measures.

With regards to labour market status, approximately half of the respondents said that they were working for salary for a company or governmental institution – 52.6%, while additionally 5.6% worked as a self-employed, 4.2% had an occasional or seasonal job, while about 1.4% were working as contributing family members. In total, 63.8% of the sample were employed in 2019. On the other hand, 19.3% of the respondents were unemployed and looking for work, 6.5% were students/pupils and 6.7% were pensioners. The remaining respondents represent other groups of inactive: permanently disabled, performing housework and other inactive respondents.

Table 6-2: Job characteristics of employed

	Respondents N=2,141
Ownership company	
Private sector	62.1%
Private sector: self-employed	8.8%
Government	29.1%
Number of employees at main work place	
Less than 10	44.0%
Between 10 and 49	25.3%
50 or more	30.6%
Contract type	
Permanent formal contract	61.3%
Temporary formal contract	24.5%
No contract	14.2%

Note: This table provides job characteristics of individuals who were employed at least one month during the COVID-19 pandemic (period March 2020 to May 2021). Data are presented as mean (±SD) for continuous measures, and % for categorical measures.

Table 6-2 provides the job characteristics of employed persons in detail. We consider a person to be employed if he/she reported that he/she was employed for at least one month in the period March 2020 until May 2021 (in total at most 15 months)**.** The majority of respondents worked as an employee in the private sector (62.1%), 8.8% are self-employed, while the remaining 29.1% work in the public sector. In most cases (44%) there are

less than 10 people at the main workplace of the respondent. A significant number of respondents works at work places with 50 or more employees (30.6%) and a quarter (25.3%) worked at a workplace with 10 to 49 employees. With regards to the contract type, 61.3% of respondents had a permanent formal contract, while the rest had less secure contracts - 24.5% had a formal, but temporary contract, and 14.2% had no contract.

6.1 Employment and job search during COVID-19 pandemic

In order to understand better the employment trends during the COVID-19 pandemic we create 5 groups based on their status before the pandemic. We do this to show how the labour market experience during COVID-19 differed depending on the pre-pandemics labour market status. We define the following 5 groups (1) those working for wage/salary or self-employed, (2) seasonal or occasional job or unpaid work in family business, (3) unemployed, (4) students, (5) those performing housework or other inactive.

Table 6-3: Number of months employed

	Respondents N= 2,786	
Employment status before pandemics	Months employed during pandemics	Share
Working for wage/salary or self-employed	14.2	62.7%
Season or occasional job, unpaid work in family business	10.6	5.97%
Total out of work before pandemic	2.4	31.3%
Unemployed	2.4	20.8%
Students	2.8	7.0%
Performs housework or inactive	1.2	3.5%

Notes: This table reports the number of months in employment (with maximum being 15 months, between March 2020 and May 2021). Data are presented as mean (±SD) for continuous measures, and % for categorical measures.

Results in Table 6-3 show the average months persons have worked during the pandemic. Individuals who were wage- or self-employed before the pandemic were employed on average 14.2 out of 15 months, while seasonal or occasional workers (including contributing family workers) worked about 10.6 months. Additionally, those who were not engaged in the labour market before the pandemic – unemployed, students or inactive, have been working for about 2.4 months within the period.

Therefore, while those who had stable employment, i.e. wage or own-account workers, have been out of work for about one month on average, there was some inflow into employment by groups which have not been employed before the pandemic – unemployed, students and inactive. Additionally, the results suggest that 13.3% of households reported that at least one member of their household, which did not work before the pandemic has found a job. These two results taken together suggest significant transition between the labour market statuses during pandemic.

In Table 6-4 we report the results based on the questions related to job search. The section on job search was asked to individuals who did not have a job before COVID-19 pandemic (except pensioners and permanently disabled) and to those who do not hold the same job as before the pandemic. Among those respondents, less than half searched for a job. Our results further indicate that **the unemployed experienced considerable difficulties when searching for jobs, as among those who were searching, 54.6% applied for jobs that they usually would not apply for and about one third of them (31%) could not perform seasonal jobs that they usually would do.**

Besides studying how the search of the overall population changed, we examine the job search behaviour by employment status before the pandemic. We observe that the most active group in terms of job search were individuals who worked for salary or were self-employed before the pandemic. Interestingly, one third of students also searched for the job.

Table 6-4: Job search by labour market status before pandemic

	N=1,256	N=303	N=70	N=585	N=198	N=99
	Total	Wage /self-empl.	Seasonal/ Occas.	Unempl.	Students	House-work/ inactive
Searched for job during pandemic	44.1%	58.2%	44.1%	47.5%	32.3%	4.8%
Applied for job(s) that he/she usually does not apply for (if searching)	54.5%	60.6%	87.8%	50.2%	38.5%	85.7%*
Could not perform a seasonal/occasional job (if searching)	31.0%	27.1%	58.4%	34.2%	28.3%	10.7% *

Notes: This table reports answers to job search questions. This section was asked to individuals who did not have a job before COVID-19 pandemic (except pensioners and permanently disabled) and to those who do not hold the same job as before the pandemic. Group (1): Working for wage / salary or self-employed, group (2) Seasonal or occasional job, unpaid work in family business, group (3) Unemployed, group (4) Students and group (5) Performs housework or inactive. * less than 20 responses.

The results by group further suggest that **more than half of all groups, apart from students, applied for jobs that they usually would not apply for**. On the other hand, seasonal/occasional workers and unemployed were the ones who most often reported that they could not perform a seasonal/occasional job they were able to work on during the pandemic.

6.2 Changes in the working conditions

Table 6-5 presents changes in the working conditions of individuals who were employed during COVID-19 pandemic. We first investigate if more workers had to take additional work during the pandemic and the nature of that work. Results indicate that while most employed individuals

performed one job during the COVID-19 pandemic, about a quarter (24.8%) performed more than one job.

Within this group, about half of them (49.7%) performed more jobs than they would have in case there was no pandemic. **In other words, for about 12.4% of the employed the number of jobs held during COVID-19 pandemic was higher than it would have been if the pandemic had not occurred.** For some of these workers, taking additional job was probably a **way to overcome the difficulties in the labour market in terms of job security or income**.

Among the workers who were employed before the pandemic, the share of individuals who held the same job during COVID-19 stood at 82.2%. **Among the workers who stayed in the same job, 78.0% of respondents reported that they faced at least one change in working conditions**, since the onset of the pandemic.

About one third of workers (34.9%) experienced reduced working hours, while 19.4% experienced increased working hours. Interestingly, about 16% of workers who had reduced also report increased working hours, indicating that some work time that was lost at one part of the pandemic was compensated during other period of work.[33] Workers also frequently reported **reduced wage/salary (17.6%)** and an **increase in the wage/salary (19.3%)**. Unlike the working hours, workers typically recorded only a reduction or an increase in wage. [34]

Table 6-5 also suggests that many workers were absent from work during pandemic. Most frequent reasons for absence were **using holidays in periods of lower economic activity (in 23.1% of the cases) and being away from work due to lower economic activity but being regularly paid (17.0%). Less frequently workers were forced to take temporary unpaid leave (7.2%)**. Other changes that respondents reported less

[33] Among all respondents, 577 reported that they experienced reduced hours, and out of these 94 said they experienced as well increased working hours. In total 310 individuals worked more hours, and out these again 94 had as well periods with fewer work hours.
[34] There are few individuals who experienced both, and overall it can be said that one experienced either a lower wage or a higher wage.

frequently include: (1) temporary business closure (9.5%), and performing different job within the same company (7.1%).

Table 6-5: Employment outcomes during COVID-19 pandemic

	Respondents N=2,141
Performed more than one job during COVID-19	24.8%
More jobs than usual (if more than one job)	49.7%
Held same job throughout	82.2%
Experienced changes in work conditions during COVID-19 (if same job throughout)	78.0%
Changes at main job during COVID-19 (if same job throughout)*	
Reduced working hours	34.9%
Used holidays in the period of lower economic activity	23.1%
Increased working hours	19.4%
Increased wage/salary	19.3%
Reduced wage/salary	17.6%
Been away from work due to lower economic activity, but I was still paid for	17.0%
Temporary business closure	9.5%
I had a temporary unpaid leave	7.1%
Performed different job within the same company	7.1%

Notes: This table shows the employment characteristics of respondents who were at least one month employed in the period March 2020 to May 2021. Data are presented as mean (±SD) for continuous measures, and % for categorical measures. *Multiple responses possible.

We can further explore the job characteristics of individuals whose job outcomes were adversely affected by the pandemic. We focus on the following three outcomes which capture different negative aspects on the labour market: (1) Job (in)security: Experienced more job changes during the pandemic than usually; (2) Temporary wage cut and (3) Temporary unpaid leave.

We explore how informal workers and temporary workers performed in terms of these 3 outcomes and we analyse the outcomes by sector.

Informal workers were more likely to experience 2 out of the 3 adverse outcomes compared to formal workers.[35] Similarly, temporary workers were more likely than permanent workers to experience each of the three adverse outcomes on the labour market.[36] Therefore, **our findings suggest that informal workers were more likely than formal workers to experience adverse employment changes during the pandemic, while within formal employment the same is true for temporary when compared to permanent workers.**

We turn now to sectoral differences, and we study the differential sectoral impact for temporary wage cuts and temporary unpaid leave (Figures 4.1 and 4.2).[37] In all sectors 17.6% of employees experienced a temporary wage cut and in Figure 6-1 we report sectors in which this change occurred most frequently. **Wage reductions were most frequent in Accommodation and food service (36.9%)**, but there are also other affected sectors, such as **Professional activities**[38] **(27.8%), Arts, entertainment and recreation (24.7%), Administrative activities**[39] **(, 24.3%), Manufacturing (22.5%) and Wholesale and retail trade (21.6%).**

[35] We regress each outcome on being informally employed. Surprisingly, informal workers were less likely to have more job changes than usual.
[36] Similar to informal workers, we regress each outcome on the likelihood of being a temporary worker.
[37] We do not examine workers who changed more than one job by sector due to low number of observations.
[38] Sector M according to NACE classification.
[39] Sector N according to NACE classification.

Figure 6-1: Temporary wage cuts in selected sectors

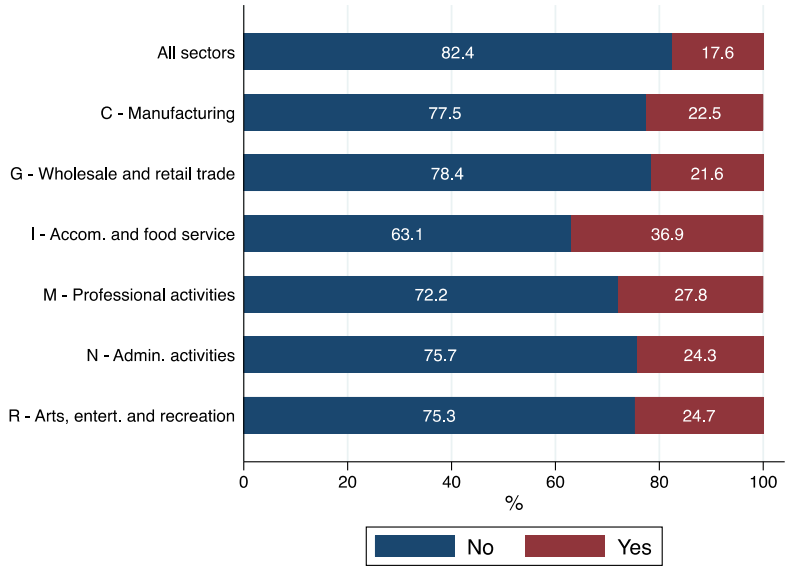
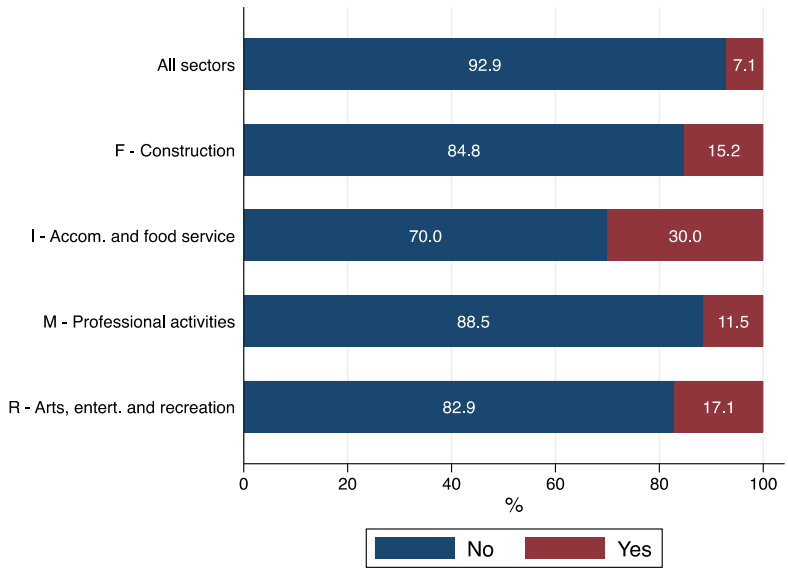


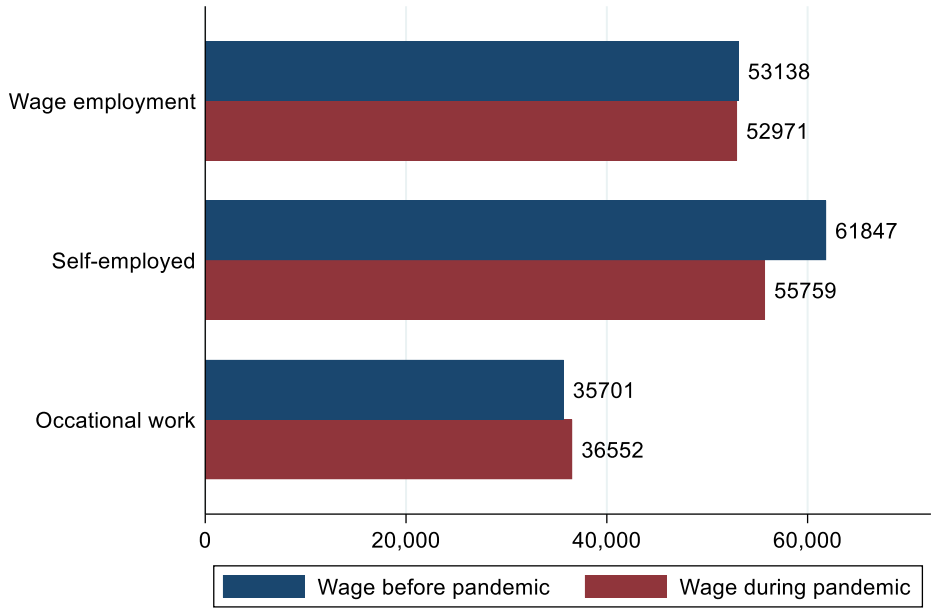
Figure 6-2: Temporary unpaid leave in selected sectors



Notes: The figure shows the share of workers by sector which reported to have had a temporary unpaid leave. We report only sectors with a share of employees of at least 10%.

For **temporary unpaid leave**, we find that overall there were 7.1% of employees who were on temporary leave during the pandemic (Figure 6-2). Again, the **most affected sector was Accommodation and food services (30.0%)**, but there were a few other affected sectors, **Arts, entertainment and recreation (17.1%), Construction (15.2%) and Professional activities (11.5%)**. Overall, according to the two indicators we use the sector Accommodation and food services was most affected, but two other sectors stand out in terms of vulnerability of employees: Professional activities and Arts, entertainment and recreation.

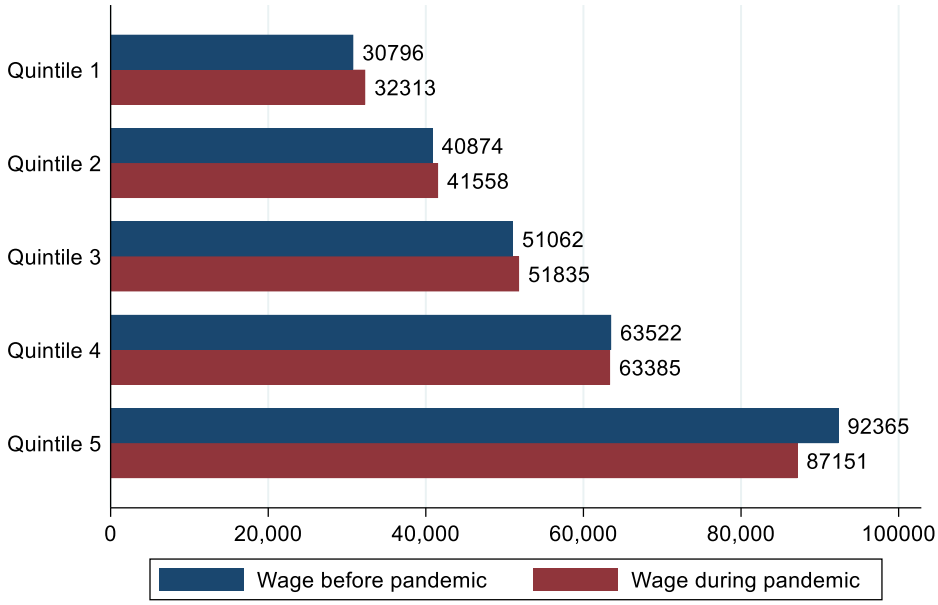
Figure 6-3: Wages before and during the pandemic by employment status



Notes: The figure shows the average earnings by employment status before the pandemic. Workers who report only wages before or during the pandemic are excluded from the analysis, as well as the workers who report interval wages. In order to reduce the effects of outliers, the sample also excludes bottom and top 1% of the wage distribution. Total sample includes 1,427 workers, out of which 1,278 wage employed, 83 self-employed and 66 occasional workers.

Figure 6-3 investigates the size of the changes in the average earnings by employment status before the pandemic. The results indicate that **while the earnings in wage employment on average have remained constant, the wages in self-employment have been reduced by about 10 % on average**. Occasional workers saw a slight increase in their wages, by about 2%, however they on average work less than first two groups of workers.

Figure 6-4: Wages before and during pandemic in wage-employment by quintiles



Notes: The figure shows the average wages by their position in the wage distribution before the pandemic (i.e. wage quintiles). Workers who report only wages before or during the pandemic are excluded from the analysis, as well as the workers who report interval wages. In order to reduce the effects of outliers, the sample also excludes bottom and top 1% of the wage distribution. Total sample includes 1,278 wage employed, divided into approximately equal groups.

Relatively large sample for the analysis of wage-employed has also allowed us to differentiate the wage changes depending on the workers' place in wage distribution. Figure 6-4 analyses wage changes in 5 wage quintiles. The results indicate that **within the wage employment the wages in the bottom quintile have increased by about 4.7%, while the**

wages in the top quintile have decreased, by about 5.2%. In other quintiles wage changes are much lower (about 1% or less) and insignificant. The increase of the low wages is likely due to the increase in the minimum wage by about 10% when compared to 2019.

We also used regression analysis to estimate the earnings changes that vulnerable groups faced during the pandemic. As suggested in Chapter 3 these groups include youth, women, low-educated, persons from the South-East Serbia region and persons from rural areas. The results suggest that **youth has faced the decrease in their wages of about 2% on average, the low-educated had an increase in their wages of about 3%**, while other groups had no significant changes. The increase of wages in the low educated group of workers is in line with the increase of the minimum wage between the years.

6.3 Work from home, productivity, and sick leave during COVID-19 pandemic

In table 6-6, we show the responses to questions related to remote working. Although LFS provides some data on remote work it does not provide any data on the working conditions that are present when workers are working from home, or the exact frequency of that work (for more details see chapter 4.3).

Approximately **one third of respondents said that they could partially or fully work from home**. Among these, a large majority was offered to work from home during the pandemic (85.6%). The share of employees who worked from home was thus 28.7% in Serbia which is less than the EU average of 47.9% reported in July 2020.[40]

Before the pandemic started, working from home was relatively infrequent. Most of those who can work from home worked from home

[40] According to a Eurofund report (Ahrendt et al., 2020), in July 2020, 33.7% of all employed persons in the EU reported to work exclusively from home, while another 14.2% reported to work both from home and at employers' premises.

less than 25% of their time (80.9%), while the share of workers who worked from home 50% of their working hours or more was less than 15%.

Table 6-6: Work from home during COVID-19 pandemic

	Respondents N=706
Among those who can work from home	
Offered to work from home	85.6%
Estimated share of time working from home during pandemic (if offered to work from home)	
Less than 25%	26.8%
From 25% to 49%	22.8%
From 50% to 74%	17.1%
From 75% to 100%	33.3%
Estimated share of time working from home before pandemic (if offered to work from home)	
Less than 25%	80.9%
From 25% to 49%	4.4%
From 50% to 74%	3.2%
From 75% to 100%	11.5%
Access to working from home conditions* (if offered to work from home)	
No office-like space	30.3%
No adequate chair for work	26.7%
No PC / Laptop (notebook)	12.4%
No mobile phone	12.1%
No internet access	11.0%

Notes: This table shows the responses to work from home questions. Data are presented as mean (±SD) for continuous measures, and % for categorical measures. *Multiple responses possible.

However, once the pandemic started the frequency of working from home increased significantly, and approximately half of the employees worked from home 50% or more of their time, with about a third working from

home full-time. Therefore, **among employees who can work from home, there was a considerable shift to remote working, as the share of those who worked 50% or more of their time from home increased by about 35 percentage points.**

For some workers, working from home could have caused additional strain in work they lacked adequate working conditions at home. **In terms of working equipment at home, respondents most frequently reported that they lacked office like space (30.3%) and adequate chair for work (26.7%)**. Other responses included no PC/laptop (12.4%), no mobile phone (12.1%) and no internet access (11.0%).

Table 6-7: Productivity outcomes during COVID-19 pandemic

Productivity now compared to period before COVID-19	
I get much more done	11.1%
I get a little more done	10.8%
I get about the same done	60.4%
I get a little less done	11.8%
I get much less done	5.9%

Notes: This table shows the changes in the productivity during COVID-19 pandemic. Data are presented as mean (±SD) for continuous measures, and % for categorical measures.

Overall, a majority of respondents said that they get done a similar amount of work as before (60.4%). Interestingly 21.9% of respondents say that they get done more, while the remaining 17.7% state that they get less done since the COVID-19 pandemic started (Table 6-7). Therefore, while **on average there were no changes in productivity, about one fifth of the workers experienced an increase and about one fifth experienced a decrease in productivity**

Out of the workers interviewed, 21.1% said that they contracted COVID-19[41], however **every fifth employee who contracted COVID-19 did not take sick leave** (Table 6-8). While employers were legally required to

[41] We consider that an employee contracted COVID-19 if the/she said that the disease was confirmed by a doctor or a test.

compensate workers 100% during sick leave, our data shows that only 64.5% actually did so. **This suggests that some employers did not respect workers' rights and did not provide the legally required compensation during sick leave.**

Table 6-8: Sick leave during COVID-19 pandemic

	Respondents N=816
Among those who had COVID-19 (and were employed)	
Took sick leave	80.09%
Replacement rate during COVID-19 sick leave	
100% covered	64.5%
65% covered	25.1%
Other %, please specify	7.2%
No income replacement	3.1%

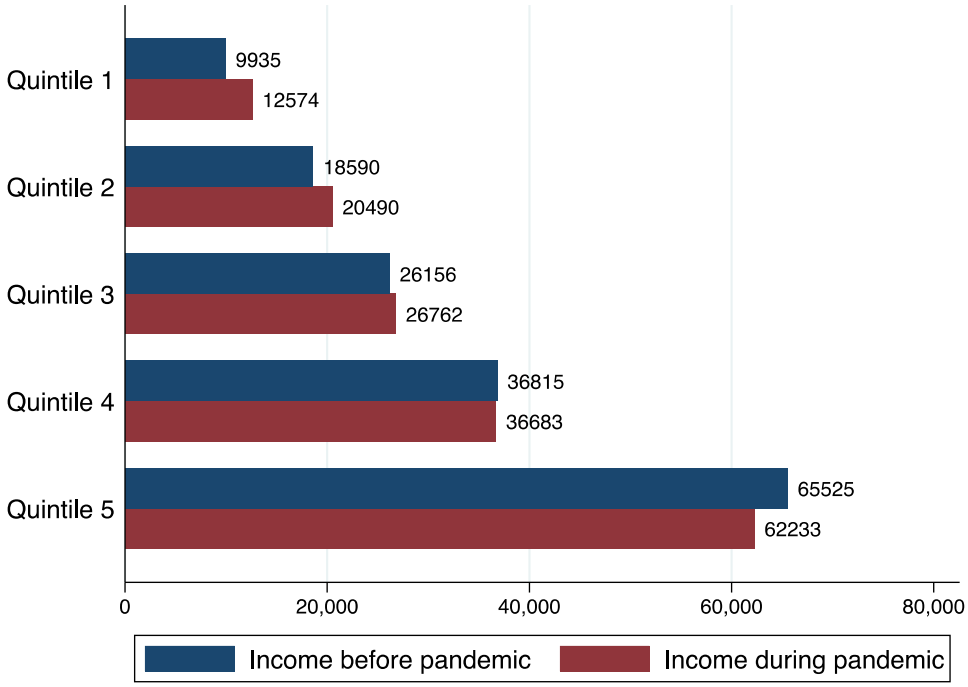
Notes: This table shows the share of respondents who had COVID-19 and whether they took sick leave. Data are presented as mean (±SD) for continuous measures, and % for categorical measures.

6.4 Household income and financial situation of households

Household income, inequality and poverty trends in Serbia are monitored via Survey on Income andd Living Condiitions (SILC). However, due to methodological reasons income data in SILC refer to the previous year. Therefore income data for 2020 are collected within SILC 2021 survey, and are available only in late 2022. In this section we present findings from the INEQ-RS-COVID-19 survey, which collects the data on self-estimated overall household income before and after pandemic stemming from all income sources: earnings from paid work, self-employment, rent, pensions, benefits, subsidies, financial assistance from other households (from Serbia or abroad) and others. Given that SILC data investigate all these sources of data in much more detail to arrive to the full estimates of the household income, results presented here are not necessarily going to be in line with

the official estimates of the changes in the household income or poverty trends. Additionally, the INEQ-RS-COVID-19 survey collects information on subjective comparison of the financial situation before and during the pandemic, and questions on using savings and loaning money from other sources.

Figure 6-5: Income per capita before and during pandemic by quintile



Notes: This figure shows the average per capita income by quintile. Quintile 1 are households with lowest per capita income, whereas quintile 5 are households with highest per capita income.

Firstly, we examine how households' income changed by comparing the per capita income before and during the pandemic. To do so, we divide the households into 5 equally sized groups based on their pre-pandemic household income per capita[42]. In Figure 6-5 we show per capita income before and after the pandemic for each of five groups. We find an increase

[42] Some respondents reported only the income category and in this case we calculated the mean of the income category and used this number for the calculations.

in the bottom two quintiles: **the income increased by 26.5% in the first and by 10.2% in the second quintile**. The average per capita income did not change much in quintiles 3 and 4, **whereas it dropped by 5.0% in the top quintile**. Although the percent increase seems substantial, it should be noted that the **increases in first two quintiles in the absolute terms are only about 2,600 and 2,000 RSD per capita respectively**, which is less than one tenth of the minimum wage in 2019, and lower than the income decrease for the top quintile in the amount of about 3,000 RSD.

Other indicators of household's well-being suggest a general worsening of the financial situation. While **the share of those who cannot afford to pay an expected expense of 10,000 RSD from household budget increased slightly (from 35% to 36.2%),** we see that there were significant transitions between the groups as 7.9% could pay an expected expense of 10,000 RSD before, but cannot pay now, while the opposite is true of 6.7% of the households. On the other hand, **about 40% of the respondents say that their current financial situation is worse than before the pandemic**. In contrast with the results presented within the Figure 6-5, the share is high in all the quintiles of income distribution; being the highest in the first (47.1%) and the lowest in the fifth quintile (34.8%).

These two results, when taken together suggest that **while on average the income in poorest households has increased**, **many of those from the first quintile actually saw worsening of their financial situation**. This result is not surprising given that the most vulnerable are heterogeneous category. This category is composed of different groups including both vulnerable workers and households which main sources of income are pensions or social transfers. Therefore, while the former faced job loss or reduction of wages, the latter rely on income sources which during the COVID-19 pandemic were not reduced, and in fact they have additionally been supported by the government.

On the other hand, **every fifth household (22% of them) had to borrow money to manage financial problems**. This share was the highest in the first quintile where approximately one third of household borrowed money, while in the top two quintiles this share was about 13 percent. To meet

short-term income shocks, households borrowed money predominantly from family and friends in the country (68.3%). Other sources they relied on are banks (24.1%) and family and friends outside the country (13.6%).

Table 6-9: Financial situation of the household during the pandemic

	Respondents N=3,044
Could pay unexpected expense of 10,000RSD from household budget	
Could pay before and can pay now	57.2%
Could not pay before and can pay now	6.7%
Could pay before and cannot pay now	7.9%
Could not pay before and cannot pay now	28.3%
Current financial situation worse than before COVID-19	39.9%
Household took loan to manage financial situation	22.0%
Lending sources	
Family/friends in the country	68.3%
Bank	24.1%
Family/friends outside the country	13.6%
Other sources	2.2%

Notes: This table reports responses on the financial situation of the household during the pandemic.

6.5 Household chores

Table 6-10 shows in detail responses on the additional household chores during the pandemic. We explore this subject because teleworking increased during the pandemic, which could in turn increase the household chores of these employees as they were spending more time at home. Additionally, schools were closed or operated only partially during some periods and this created an additional burden on the parents as they had to help children with their school work.

Every fifth respondent says that his/her household chores increased during the pandemic. We expected a higher number, but since only 33% of employees could work from home and 36% of households have children aged 7 to 17,[43] the share of people whose household chores increased is in line with these other numbers. Respondents reported that the following tasks increased: **time spent on house cleaning (15.9%)**, followed by **meals preparation (9.0%), caring for children (5.4%) and helping children with school work (4.1%)**. **Women were more likely to report for each of the tasks that it increased.** While 17.5% of females reported that cleaning increased this was the case for 14.2% of men. With respect to meal preparation, 10.2% of females said that it increased and this was the case for 7.8% of men. For child care and helping children with school we found that 6.7% and 5.4% of females said that it increased whereas in the case of males we have 4.2% and 2.8%.[44]

Parents of school aged child(ren) report that the time spent on school activities per week increased by 4 hours from 12 to 16. In order to explore whether parental time spent on school activities increased, parents of school aged children were asked how much time they spent before and during the pandemic on such activities. Already before the pandemic parents reported that they spent on average 12.3 hours on school related activities per week, and the amount of time spent on these activities increased by 4 hours during the pandemic. Respondents reported that both parents increased the time spent on school activities during the pandemic, but the mothers were the ones who increased their time more. Fathers reported an increase from 4.8 hours to 6.1 hours per week, while women reported an increase from 7.7 hours to 10.7 hours per week.

Every second parent reports that he/she incurred additional costs due to home schooling. Half of the households with school aged children reported that they had additional school costs because of the pandemic. 18.9% of parents reported that they had to buy a new mobile phone, 15.3%

[43] Note that preschools were closed only for a short period at the beginning of the pandemic.

[44] Even before the pandemic the lack of child care facilities and the scarcity of part-time contracts prevented mother from participating in the labour market at a higher rate (Lebedinski & Vladisavljević, 2022).

reported that they had to pay for additional tutoring, 12.0% had to acquire a new laptop and 7.5% had to buy a new computer.

Table 6-10: Household chores

	Respondents N=3,044
Tasks at home increase during COVID-19	21.0%
Tasks that increased most* (only if tasks increased)	
Cleaning the house	15.9%
Meals preparation	9.0%
Caring for children	5.4%
Helping children with school	4.1%
Hours spent per week on school related activities before (both parents)**	12.3 (±14.3)
Hours spent per week on school related activities now (both parents) **	16.4 (±16.7)
Household incurred schooling additional costs**	47.4%
Additional school costs incurred*	
New mobile phone	18.9%
Additional private tutoring	15.3%
New laptop	12.0%
New computer	7.5%

Notes: This table reports answers about the household chores during the pandemic. Data are presented as mean (±SD) for continuous measures, and % for categorical measures. *Multiple responses possible.** Sample includes only persons who have school aged children. Total number of respondents: 701.

7 Effects of the COVID-19 pandemic on poverty and income inequality in Serbia

7.1 Introduction

In the situations of economic downturns, timely indicators on poverty and inequality are essential in providing policy makers the right tools to assist those who are in the greatest need. COVID-19 epidemic has the capacity to deepen already existing economic inequalities in Serbia and worsen the position of those who are already most vulnerable. Timely implementation of the measures addressing short- and long-term effects of the epidemic plays a crucial role in supporting those who are most severely hit. By reducing the risk of social collapse such measures are not only benefitting the worse off, but are in the interest of the whole society. In order to adequately help those in need, avoid excessive indebtedness and maintain political stability, targeting, equity and financial sustainability of measures are of central importance.

This chapter aims at 1) identifying the groups with the highest income losses/gains due to COVID-19 epidemic. The precise estimate of the effects of the pandemic on poverty and inequality will be available in late 2022 when the data from Survey on Income and Living Conditions (SILC) data for Serbia for 2021 become available. Namely, due to methodological (data collection) reasons, income data in SILC refer to the previous year. In this case this means that although SILC 2020 data are available, they still contain information on income form 2019. Therefore, the income data for 2020 can be available only in late 2022. This means that in cases where a certain shock to the economy is applied, we can analyse inequality and poverty indicators only two years after the even has occurred.

However, given that many information is collected even before that period (such as Labour force survey (LFS) data, administrative data etc.), there is possibility to use them in order to provide estimates of certain indicators based on SILC before they are actually available. These estimates are frequently called “flesh estimates”, and are based on the combination of the estimates from the LFS data and microsimulation approach. This approach is used by the Eurostat (Eurostat, 2021), in order to “nowcast”

the income indicators during the pandemic. The effort of the Eurostat has been started even before the pandemic occurred, and it was based on the work of the authors from Institute for Social and Economic Research (ISER) at the University of Essex (Rastrigina et al., 2016). This approach consists of not only projecting the poverty and inequality indicators, but also updating the data so that the distributional characteristics of the income variables can be monitored in advance.

In this research we follow the approach used by Eurostat (Eurostat, 2020, 2021) in order to *nowcast* income and poverty statistics for Serbia, based on the information in the SILC 2020, which contains the data for 2019 and LFS and administrative data on the changes in the labour market and other income sources. The main two pillars of this analysis are

1) estimation of the changes in the labour income, which is based on the changes in the labour market status available from the Labour Force Survey between 2019 and 2020 and administrative data on the changes in the wages

2) estimation of changes in the other income sources (non-labour income, pensions, benefits) – based on the combination of the microsimulation approach and administrative data.

The first pillar of the analysis relies on the methodology estimating the labour market transitions between 2019 and 2020, which will be explained in more detail in section 7.2. The methodology relies on estimations of losses and gains in individual employment income which are based on the net stock changes in socio-demographic clusters (groups organized based on age, sex, education level, and region and settlement type). When the cluster in which decreases and increases in the labour force between 2019 and 2020 were identified, we use job loss and job finding function coefficients, estimated in LFS and applied in SILC to identify those who are most likely to lose / find the job within the cluster. Finally we use administrative data on wages to account of the wage growth between the years.

The second pillar of the analysis is based on the uprating of the administrative data sources on non-means tested social transfers and

microsimulation package labelled INEQ-RS-COVID-19[45] which is used to simulate the changes in means-tested transfers. The INEQ-RS-COVID-19 microsimulation package is a system of programmes (so-called *files* programmed in the STATA software package that allows analysis. The aim of this package is to analyse the effects of reforms in existing policies or introducing new policies in the field of taxation and social benefits. In the analysis of reforms of existing or introduction of new measures, the model is flexible and enables testing of different scenarios of new measures by changing the parameters of the model. INEQ-RS-COVID-19 package performs ex-ante analysis, which means that the analysis is based on policy changes before the change occurred, based on the simulations of the reforms and comparison to the status quo. The microsimulation tool developed was inspired by microsimulation systems such as EUROMOD - the European microsimulation model[46] and CEQ package[47] - implemented by the organization Commitment to Equity, which works closely with the World Bank. Microsimulation systems have been present for decades in analysing the effects of economic and social policy reforms on inequality and poverty and other indicators of household well-being.[48]

Compared to other economies, the GDP drop in Serbia in 2020 was relatively low – only 1%, with the employment rate remained unchanged. However, the stagnation of the employment rate represents an interruption of the favourable trends in the former period employment rate rising from

[45] INEQ-RS-COVID-19 microsimulation package is the result of work on the project " Social Stability in Serbia Challenged? Pandemics, Economic losses, Inequality and Policy Responses - INEQ RS COVID-19 ", no. 7552225, financed by the Science Fund of the Republic of Serbia, within the Special Research Program COVID-19. The members of the project team INEQ RS COVID-19 are solely responsible for all errors that may occur in the operation of the package. We owe great gratitude for the formation of this package to the employees of the Republic Statistical Office (SORS) who provided us with data from the Survey on Income and Living Conditions (SILC) and are always ready to respond to our requests and inquiries regarding the research they conduct.

[46] for more details see (Sutherland & Figari, 2013). EUROMOD: the European Union tax-benefit microsimulation model. International Journal of Microsimulation, 6 (1), 4-26.

[47] Lustig, (2018) (Ed.). (2018). Commitment to equity handbook: Estimating the impact of fiscal policy on inequality and poverty. Brookings Institution Press. p. 117.

[48] More details on the usefulness of the microsimulation approach can be found in Bourguignon & Spadaro, (2006). Microsimulation as a tool for evaluating redistribution policies. The Journal of Economic Inequality, 4 (1), 77-106

2014 until 2019 (from 42 to 49 percent). The analysis of the labour market trends in 2020 suggested that the average stagnation of the employment rate actually hides the fact that some sectors and some workers were more hit during the pandemic than others (Institute of Economic Sciences, 2022). The analysis indicated that while there was an increase in permanent wage employment, those who work informally or temporary contracts were more likely to experience severe disruptions in their usual working dynamic due to lower vacancies(Hensvik et al., 2021; Holgersen et al., 2020) (and job search hurdles related to COVID-19 such as Containment measures, fear of infection, limitations in NES activities, benefits receipts, expectations of return to previous job (Balgova, 2021; Hensvik et al., 2021). Furthermore, some sectors, such as Food and Accommodation, Transport, Arts, entertainment and recreation faced a decrease of the number of employees, while other sectors such as Information and communication or Construction hired new workers.

The income stability of temporary and informal workers who lost their jobs could have been preserved to a greater extent by additional income support measures in the pandemic period. Previous research (Institute of Economic Sciences, 2022) has indicated that the employment subsidy which was applied across the entire private sector had an unnecessarily wide scope and that some of those funds could have been saved or used to assist other groups in need.

Given that they are more likely to work as vulnerable workers, young workers and those with primary level of education and those from less developed regions were more likely to be hit by COVID-19 pandemic. At the same time, women had to work more in the household due to increased household chores such as childcare and increased needs for home schooling due to recurring school closures. These additional responsibilities in the household were an additional burden for the working women (Alon, Doepke, et al., 2020; Del Boca et al., 2020; Farré et al., 2020). The rural population is also more vulnerable as informal employment is more frequent than in urban areas and as the lockdowns also caused massive and unprecedented disruption to agricultural activities (Rawal et al., 2020).

However, according to the administrative data income sources in Serbia have increased on average, with formal wages increasing about 9.6%, and pensions and social transfers increasing by about 5% on average.

Relief measures implemented by the Government during and after the state of emergency can roughly be divided to 1) liquidity provisions (tax deferrals, loans guarantees etc.); 2) employment retention measures (i.e. two programs of subsidies: a) for one for micro, small and medium-sized firms and b) for large companies) and 3) income support measures (one-off universal cash transfer to all adults, one-off assistance to pensioners. etc.). As first two groups of measures were offered to all companies in the private sector (and thus they had almost universal coverage) their effects were already taken into account by estimating the effects that COVID-19 pandemic had on the labour market.

7.2 Methodology and data

The methodology for estimating the effects of COVID-19 pandemic on income inequality and poverty consists of two pillars. Within the first pillar we use LFS data from 2019 and 2020 to assess the changes that have occurred on the labour market and correspondingly what happened to the labour market income of the respondents. Within the second pillar we use administrative data sources and microsimulation tool INEQ-RS-COVID-19 to assess the changes in the social transfers and other non-labour income sources in Serbia. Within this chapter we explain in more details each of these two steps.

7.2.1 Estimation of the changes in the labour income

In this part we follow the methodology used by Eurostat (Eurostat, 2021), to "nowcast" the income indicators during the pandemic, with some deviations from their approach due to the specificities of the changes in the Serbian labour market. The update of labour income can be based either on reweighting or labour market transitions at individual level. Given that

COVID-19 has caused a structural changes in the Serbian labour market (Institute of Economic Sciences, 2022) we opted to use the latter method and explicitly simulate labour market transitions between labour market statuses. Similar methodology has been previously used in a number of EU countries (Figari et al., 2011). In this sense, we analyse the two types of transitions 1) transitions from non-employment to employment and 2) transitions from employment to unemployment.

In the first step, we use detailed quarterly LFS data to calculate quarter-on-quarter yearly changes in *net employment stock* that have occurred between 2019 and 2020. We analyse the net changes in clusters that are formed based on the five demographic characteristics: age group (15-24, 25-54, and 55-64)[49], gender, education group (primary, secondary, and tertiary), settlement type (urban or rural) and NUTS2 regions (4 regions). Therefore, for example, one cluster will be men, aged 25-54, with secondary education, from Belgrade urban areas, and the net stock employment change represents the difference in the number of employed in that cluster in 2019 and 2020. In case the cluster was too small to estimate the changes we joined individuals into one cluster until the minimum number of units per cluster was 20, by grouping different age groups and keeping other characteristics constant.

Estimated net employment changes will be applied to the SILC data in order to account for the changes in labour market structure that occurred between the years. If the net stock change in employment in LFS for a particular cluster (let's say men, aged 25-54, with secondary education, from Belgrade urban areas) is negative (lower number of the employees in 2020 than it was in 2019 in the cluster), this means that between 2019 and 2020 there were more job losses than new jobs within this cluster, and that the number of the employed within that cluster in SILC data should be reduced. And vice versa, if the net stock change in employment in LFS for a particular cluster is positive (higher number of the employees in 2020 than it was in 2019 in the cluster), this means that between 2019 and 2020 there were more new jobs than job losses within this cluster and that the

[49] Thus we limit the analysis to those aged 15 to 64 and assume that others do not change their laobur market status. We also drop unpaid family members from the sample as they are not paid for their work.

number of the employed within that cluster in SILC data should be increased.

In the next step, of the analysis we utilize the LFS panel data to estimate the model of determinants of losing and finding a job. The estimated coefficients from the job losing and job finding models from the LFS will be applied to SILC data in order to find those within the cluster who are most likely to lose a job if the cluster net change in employment was negative and those who are most likely to find a job if the cluster net change in employment was positive. Job loss/finding model can be represented as

$$P(\Delta E_i) = \alpha + \boldsymbol{\gamma_1 P_i} + \boldsymbol{\gamma_2 J_i} + \varepsilon_i \qquad (1)$$

where ΔE_i is the change in labor market status between the years which is regressed on the set of personal (P) (sex, age, education, marital status presence of children, household size, region and settlement) and job (J) characteristics (employment status, part-time – full time work, and sector of activity) in the year before the crisis. Obviously, for a job finding model, which represents transitions from non-employment to employment, we cannot observe job characteristics in the year before the crisis, so the model is limited to determinants from the set of personal characteristics. On the other hand, in the job loss model which represents transitions from employment to unemployment, we are able to include job characteristics as predictors of the status change.

In the job loss and job finding model we use variables which are available both in LFS and SILC data, so that the coefficients γ_1 and γ_2 from these models, estimated in LFS, can be applied to variables in SILC data. In this way we impute the probability of status change for each respondent in SILC. In SILC, in cluster where there is an estimated net stock loss we will select the individuals most likely to lose their jobs and change their status from employed to unemployed. On the other hand, in cluster where there is an estimated employment gain we will select individuals most to find new jobs and change their status from unemployed to employed.

Given that we analyse calculate quarter-on-quarter yearly changes in net employment, i.e. that the LFS is conducted on the quarterly bases, we

observe four net changes for each cluster. Therefore for each cluster we estimate the net change in the employment in each quarter, and select people with the highest likelihood of job loss/gain in order to accommodate for the net change in that cluster for a particular quarter. This is done in order to calculate the share of income from the previous year in SILC the person has lost/gained. Given that there are four quarters, person can lose 25%, 50%, 75% or 100% of their income, depending on the number of quarters the net stock change in its cluster was negative. Similarly, in clusters where there have been job increases we impute 25%, 50%, 75% or 100% of reference yearly income depending on the number of quarters the net stock change in its cluster was positive. The reference yearly income is set as the 80% of the median income of that cluster in the previous year for the persons who have had non-zero incomes in that cluster.[50] The wages are increased to account for the growth of the wages between 2019 and 2020[51].

7.2.2 Estimation of the changes in other income sources

In the previous chapter we described the methodology used to simulate income losses and gains in the labour market. These simulations are performed on SILC 2020 data, which contain 2019 income. In order to assess the effect that COVID-19 pandemic had on the poverty and income inequality we also need to update other income sources in SILC. Within this chapter we describe the methodology used to calculate the changes in other (non-labour) income sources.

As mentioned in the introduction and the methodology section other income sources such as non-labour income, pensions and non-means tested social transfers have been updated simply by using the administrative data. The value of pensions and non-means tested social transfers was updated based on the average increase of social transfers between 2019 and 2020.

[50] The 20% reduction of the median wage in that category acounts for the fact that the person has lower tenure within the firm. Similar approach is applied in Eurostat (2020)

[51] In order to calculate the increase in the reference income we increase 2019 wages for each employed person in the data. For each individual the increase corresponds to the wage increase of the sector of activity he/she works in. The average nominal yearly growth of wages in Serbia in 2020 was 9.4 percent

On the other hand, non-labour income such as rent and capital income have assumed to have been growing at the same rate as the wages (by 9.6%).

On the other hand, we use microsimulation package INEQ-RS-COVID-19 to simulate the changes in means-tested transfers. Among the means tested social transfers we simulate the effects of monetary social assistance and child allowance, as these two transfers are means-tested and function as automatic stabilizers in the cases of economic downturns. Namely as they depend on the wages of the household members, they change in the case household members loose or gain income.

INEQ-RS-COVID-19 microsimulation package

The INEQ-RS-COVID-19 microsimulation package is a system of syntaxes (so-called files), programmed in the STATA software package that allows analysis of the effects of reforming existing policies or introducing new policies in the field of taxation and social benefits.[52] The package performs ex-ante analysis, which means that the analysis is based on policy changes before the change occurred, based on the simulations of the reforms and comparison to the status quo. The microsimulation tool developed was inspired by microsimulation systems such as EUROMOD - the European microsimulation model (Sutherland & Figari, 2013) and CEQ package (Lustig, 2018) - implemented by the organization Commitment to Equity, which works closely with the World Bank. Microsimulation systems have been present for decades in analysing the effects of economic and social policy reforms on inequality and poverty and other indicators of household well-being (Bourguignon & Spadaro, 2006).

The starting point of the INEQ-RS-COVID-19 package is the income that a person or household receives, according to SILC survey data. In the baseline scenario the package analyses how different types of income affect the disposable income of the household. In addition to using existing data from the SILC survey, INEQ-RS-COVID-19 is also based on

[52] To use this tool, you need the STATA software package, knowledge of the work in this software, and harmonized micro data from the Survey on Income and Living Conditions (SILC), which can be obtained upon request from the Republic Statistical Office.

simulations of taxes and social transfers. The tax simulation is based on the income that a person earns from work or capital and the taxes (including contributions) that each person has to pay depending on their status in the labour market and other income that they have. The simulation of social transfers is based on the analysis of the characteristics (including income) of persons and households (e.g. number of children and family identifiers). Eligibility of the household or individual for the social transfer is based on the socio-economic and demographic characteristics of household members. For those who are eligible for the transfer, the transfer is "allocated" to households in the accordance with the rules prescribed in the laws regulating the transfers. For this research we use only the calculation of the social transfers, as we are not interested in the changes of the taxes collected during the first year of COVID 19 pandemic.

The basic indicators of poverty and inequality are checked against the official SORS reports, which are calculated on the basis of SILC data and derived variables. The calculation of the basic aggregate variables - total income and disposable household income - is reconstructed from lower-level variables (income from employment, income from self-employment, old age pensions, monetary social assistance, etc.) to determine whether the sum of the individual variables corresponds to the aggregate variable. After taking into account the results obtained in the changes of the labour market outcome, INEQ-RS-COVID-19 recalculates means tested transfers and analyses the changes in disposable income that have occurred as a result of the COVID-19 pandemic and additional measures applied. After calculating the new disposable income for each household member, the effects of reforms on poverty and inequality are analysed.

7.3 Simulating the effects of COVID-19 on household disposable income

7.3.1 Changes in the labour market income

Table 7-1 presents the overall trends in the number of the employees by different demographic characteristics used to formulate the clusters we use

in our analysis. These omit contributing family workers, as, by definition they do not earn any income.

Table 7-1: Changes in the number of the employed between 2019 and 2020 by demographic groups (population 15-64, without unpaid family members)

	2019	2020	change
Age group			
15-24	141,713	133,960	-7,752.70
25-54	2,010,464	2,008,091	-2,373.50
55-64	471,137	477,197	6,060.30
Gender			
Male	1,479,850	1,473,290	-6,560.70
Female	1,143,464	1,145,959	2,494.80
Education group			
Primary	337,846	312,239	-25,607.20
Secondary	1,547,364	1,570,717	23,352.70
Tertiary	738,104	736,292	-1,811.30
Settlement type			
Urban	1,623,067	1,587,234	-35,833.00
Rural	1,000,247	1,032,014	31,767.20
NUTS2 regions			
Belgrade	712,434	710,164	-2,269.30
Vojvodina	723,618	721,785	-1,833.30
West Serbia	676,645	682,766	6,121.20
South-East Serbia	510,617	504,533	-6,084.50
Total	**2,623,314**	**2,619,248**	**-4,065.80**

Source: Own calculation based on the LFS data

The data suggest that the youth faced the highest decrease in the number of jobs lost, while at the same time older population increased their numbers in the workforce[53]. The number of men working decreased, while the

[53] Although this result might seem surprising the same information can be found in the official gazette of the Statistical office of the Republic of Serbia, where their numbers

number of women working increased. Those with primary education faced significant decrease in their numbers, while there was an increase in the number of those working with secondary education. The number of *workers in urban areas decreased significantly,* while their numbers in rural areas increased, while *the biggest decreases in numbers of employees were recorded in South-East Serbia region.*

As mentioned in the methodology section, in the first step we analyse the net changes by forming the cluster based on these five characteristics in order to estimate the net quarter-on-quarter yearly changes in the labour market status for each cluster. For example we estimate the changes in employment for the cluster men, aged 25-54, with secondary education, from Belgrade urban areas in all four quartiles. In the end, the process ended in 559 clusters (or about 140 clusters per quarter), for which the net stock changes could be observed. In total 296 clusters recorded a decrease in the (weighted) number of employed, with the average decrease of about 2,842 employees; with the highest decrease observed in Q2 of 16,103 workers. On the other hand, 263 clusters recorded an increase in the (weighted) number of the employees, with an average increase of about 3,272 and a highest cluster increase again in Q2 – 14,107 workers.

By quarters, and in line with the results from the study on the effects of COVID-19 pandemic on the labour market (IES, 2020), in Q1 there was an increase in employment of almost about 80,000 workers compared to the same quarter in the previous year (i.e. average increase of 570 workers by cluster), which is a continuation of the previous positive trends on the labour market in Serbia. In Q2, during the period of the state of emergency and most strict lockdown measures there was a decrease in the number of the employees of about 95,000 workers compared to the same quarter in the previous year (i.e. average decrease of 684 workers by cluster). In the final two quarters the labour market stabilized with about 5,000 jobs lost and gained in Q3 and Q4 respectively (Table 7-2).

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have increased from 501.2 to 505.4 thousand workers (SORS 2020, SORS 2021). The estimate here is slightly higher due to the fact that we omit unpaid family members from the sample. Similar applies to all other categories listed here.

Table 7-2: Descriptive statistics on the net changes in employment by clusters

	Number of clusters[1]	Average	Minimum	Maximum	Total change[2]
Q1	138	570	-9,515	11,380	78,622
Q2	139	-684	-16,103	14,107	-95,031
Q3	141	-41	-10,305	10,841	-5,779
Q4	141	29	-9,354	9,838	4,100
Total	559	-43	-16,103	14,107	-18,087

Source: Own calculation based on the LFS data

[1] The maximum number of clusters was 144 for each quarter. The lower number of clusters is due to the fact that in some cases the original cluster was too small to estimate the changes, so we joined individuals into that cluster to a bigger cluster until the minimum number of units per cluster was 20. This was typically done by grouping different age groups and keeping other characteristics constant.

[2] Total change is calculated as the product of the number of clusters and the average change in the cluster.

As explained in the methodology section if the net stock change in employment in LFS for a particular cluster is negative this means that the number of the employed within that cluster in SILC data should be reduced. And vice versa, if the net stock change in employment in LFS for a particular cluster is positive this means that the number of the employed within that cluster in SILC data should be increased. In order not to pick people who are going to "lose" and "gain" jobs randomly, we estimated the models of determinants of losing and finding a job in LFS, in order to apply them to SILC data and pick individuals most likely to lose or find a job based on the set of their personal and, in the case of a job loss model job characteristics in the year before the pandemic.[54]

The results of the estimation of the models are presented in table 7-3 and largely in line with the expectations. The likelihood of losing a job was ceteris paribus higher for the younger workers, men, and workers with

[54] for a job finding model, which represents transitions from non-employment to employment, we cannot observe job characteristics in the year before the crisis, so the model is limited to determinants from the set of personal characteristics

primary or secondary education, and persons with young children. The likelihood of losing a job was lower if married compared to all other groups and in larger households. By status, the likelihood of losing a job was higher if working as temporary worker or informally (either as self- or wage- employed), than if working in permanent wage or self-employment, and also higher if working part-time. By sector, the higher likelihood of losing a job was observed in Construction, Transport, Food and accommodation services, and Arts, entertainment and recreation, and lower likelihood in the state sector.

Table 7-3: Job loss and job finding models (estimates from the LFS applied to SILC data)

	Job loss model		Job finding model	
	coef	se	coef	se
Age group 15-19	omitted		omitted	
20-24	-0.448***	(0.160)	0.486***	(0.069)
25-29	-0.678***	(0.159)	0.851***	(0.078)
30-34	-0.867***	(0.162)	0.824***	(0.084)
35-39	-0.875***	(0.161)	0.804***	(0.083)
40-44	-0.855***	(0.160)	0.766***	(0.083)
45-49	-0.943***	(0.163)	0.564***	(0.087)
50-54	-0.923***	(0.163)	0.520***	(0.084)
55-59	-0.774***	(0.163)	0.383***	(0.085)
60-64	-0.510***	(0.167)	0.150*	(0.091)
Female	-0.235***	(0.040)	-0.330***	(0.035)
Education - Primary	omitted		omitted	
Secondary	-0.074	(0.051)	0.223***	(0.041)
Tertiary	-0.183***	(0.066)	0.386***	(0.063)
Marital status - Single	omitted		omitted	
Married	-0.104**	(0.051)	0.215***	(0.051)
Widowed	0.123	(0.117)	0.372***	(0.132)
Divorced	0.051	(0.076)	0.231***	(0.085)

Continued on the next page

Number of children (aged 0 to 4)	0.099***	(0.026)	-0.043	(0.027)
Number of children (aged 5 to 9)	0.021	(0.025)	-0.033	(0.025)
Household size	-0.033**	(0.015)	0.039***	(0.013)
Region/settlement : Belgrade urban	omitted		omitted	
Belgrade rural	-0.035	(0.083)	0.109	(0.088)
South-East urban	0.023	(0.067)	0.005	(0.063)
South-East rural	-0.174**	(0.070)	0.298***	(0.065)
Vojvodina urban	-0.018	(0.063)	0.231***	(0.065)
Vojvodina rural	-0.060	(0.072)	0.108	(0.069)
West urban	-0.013	(0.068)	-0.071	(0.066)
West rural	-0.182***	(0.068)	0.171***	(0.063)
Employment status - Formal self-empl.	omitted		n/a	
Formal wage employed - permanent	0.049	(0.074)		
Formal wage employed - temporary	0.626***	(0.080)		
Informal self-employed	0.629***	(0.085)		
Informal wage employed	0.976***	(0.085)		
Part time job	0.302***	(0.060)	n/a	
Employment sector - Agriculture	omitted		n/a	
Industry (sectors B, C, D, E)	0.117	(0.080)		
Construction	0.409***	(0.088)		
Trade	0.102	(0.087)		
Transport	0.278***	(0.100)		
Food and accommodation	0.503***	(0.101)		
IT finance, real estate (sectors J, K, L)	0.102	(0.115)		
Professional services (Sectors M and N)	0.145	(0.104)		
State sector (sectors O, P and Q)	-0.366***	(0.097)		
Arts, entertainment and recreation	0.334***	(0.128)		
Other services (Sectors S, T, U)	0.042	(0.089)		
Constant	-1.009***	(0.187)	-1.781***	(0.087)
Observations	14,833		8,971	

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

On the other hand, job finding model suggest that the lowest likelihood of finding a job during the pandemic was among those aged 15-19 and the oldest members of the working age population. Women, those with primary education and those single had lower likelihood of finding a job during the first year of the pandemic, while the same is true for persons from smaller households.

After applying the estimated coefficients from LFS to SILC data we are able to locate the individual within each cluster that is most likely to lose or find a job during the pandemic. In the next step we, calculate the income loss and income gain index based on the number of quarters the net stock change in its cluster was negative / positive. As explained in the methodology section, in the clusters where jobs are lost (gained) person can lose (gain) 25%, 50%, 75% or 100% of their income from the previous year (reference income).

Table 7-4: Number of people who have lost/gained labour income

Income losses (employed)			Income gains (unemployed/inactive)		
Income loss	Number of people	Share	Income gain	Number of people	Share
0%	2,473,693	88.5	0%	938,962.02	75.4
25%	184,891.60	6.6	25%	167,928.98	13.5
50%	82,136.27	2.9	50%	77,808.75	6.3
75%	38,887.43	1.4	75%	41,255.73	3.3
100%	16,103.35	0.6	100%	19,073.42	1.5
	2,795,711			1,245,029	

Source: Own calculation based on the simulations in the SILC data

The results in Tables 7-4 and 7-5 represent the results of the simulation of the labour income losts and gains. For about 88.5 percent of the employed there are no income losses. According to the simulations about 6.6% of the employed lost 25% of their labour income, with 3% losing 50% of their

income, 1.4% losing 75% and 0.6% of employed losing their entire 2019 income.

On the other hand about 75.4% of the unemployed would not earn any labour income, while the 24.6% of them would earn some labour income during 2020. Out of this number 13.5% would earn a reference income for one quarter (i.e. 25% of the yearly reference income), 6.3% for two, 3.3% for three quarters, while 1.5% would earn reference income for the entire year. As explained in the methodology section, the reference income is calculated based on the median income of the employed members of the cluster.

Table 7-5 indicates the average yearly earnings according to SILC data in 2019 for those who are employed of about 547 thousand RSD. For those who were employed in 2019 for about 322 thousand workers we expect an income loss in 2019, which would on average be about 165 thousand RSD, and this would reduce the overall average wages of the employed by 3.6%. However, for the remaining employees the wages increased by 9.4 percent nominally (according to the official statistics from SORS) so that the overall average wages for those who were employed in 2019 would increase by 5.3% in 2020 (to 578 thousand RSD).

Table 7-5: Descriptive statistics on the net changes in employment by clusters

	Change in income (employed)		Simulated loss/gain (average)	
Status in 2019	Yearly earnings in 2019[1]	Yearly earnings in 2020	Income loss in 2020	Imputed earnings in 2020
Non-employed				171,528
Employed	547,008	577,607	165,222	.
Population size	2,795,711	2,795,711	322,019	306,067

Source: Own calculation based on the simulations in the SILC data

[1] Includes total yearly earnings calculated by summing variables py010n and py050n from harmonized SILC dataset.

Additionally, according to our simulations about 306 thousand of those who were out of work in 2019 would work for at least one quarter in 2020, with the average imputed earnings of about 171 thousand RSD yearly on average. This would further increase the wage mass in 2020 by 3.9 p.p. and the total increase of wage mass in 2020 would be about 9% (Table 7-6).

The main result of our simulation is in line with the overall trends in the labour market during the first year of the pandemic. While on average the number of the employed stagnated (or decreased by about 4,000 workers), the average wage increased by about 9.4% on average.[55] However, as presented in Table 7-1 the average stagnation of the number of workers hides the fact that some groups have been hit by more by the pandemic and have faced net employment decreases. These groups include the youth, those with primary education and workers from urban area and these inequalities will have different consequences on their labour market incomes.

Table 7-6 presents the simulated change in the total amount of earnings (including both income from employment and self-employment, and zero earnings) for each group. The table indicates that although all the groups have increase in the total net earnings, these trends differ significantly by groups. By age groups the increase in earnings is the lowest for younger people - by 5.6%, and this is in line with the observed negative change in employment. On the other hand, the highest increase is for the prime-age group (those aged between 25 and 54) – by 10.4%, surprising the increase for the older workers.

As already mentioned, the older workers faced with an increase in employment (Table 7-1), while the workers from the prime age group faced stagnation. Therefore, the highest decrease for the prime age group is not the consequence of their increasing employment, but the fact that those in this group who were most likely to lose their jobs, were more likely to have lower wages than those from the older group. Similar applies to men,

[55] The caveat of the aproach presented here is that administrative data refer only to the wages in the formal employment. Therefore, the increase in the wages that we observe is likely to be overestimated, but there are no information on the trends of informal wages in this period.

as they have faced a slight decrees and women a slight increase in the employment.

Table 7-6: Average earnings (population 15-64, without unpaid family members)

	2019	2020	change
Age group			
16-24	105,010	110,850	5.6%
25-54	436,741	481,996	10.4%
55-64	400,073	430,487	7.6%
Gender			
Male	457,740	498,392	8.9%
Female	295,548	322,924	9.3%
Education group			
Primary	175,517	181,674	3.5%
Secondary	349,222	385,110	10.3%
Tertiary	627,781	679,985	8.3%
Settlement type			
Urban	427,016	459,362	7.6%
Rural	305,797	342,681	12.1%
NUTS2 regions			
Belgrade	523,567	568,417	8.6%
Vojvodina	304,360	328,549	7.9%
West Serbia	378,674	418,339	10.5%
South-East Serbia	306,994	333,946	8.8%
Total	**378,465**	**412,628**	**9.0%**

Source: Simulation based on the SILC data.

On the other hand, the differences in the employment trends have majorly determined the differences in the changes in average earnings by education groups. Namely, since those with primary education faced the highest decrease in employment, they have also had the lowest increase in overall wages – only by 3.5%. On the other hand, the increase is the highest for those with secondary education as they have had an increase of the 10.3%

resulting from both annual increases in wages and increase in the number of people with secondary education who were employed. Similar applies for urban workers who have faced significant decrease in their employment, while rural workers faced increase. Finally, regional differences in total earnings increase, almost entirely reflect the differences in the net changes in employment, apart in Vojvodina, where the wage decrease is the strongest, while the region only had a mild reduction in net employment.

7.3.2 Changes in non-labour income, social transfers and pensions

In this chapter we describe how we accounted for the changes in non-labour income, which includes income from capital and rent, social transfers and pensions. Table 7-7 presents the coefficients used to uprate the values of pensions and social transfers that are non-means tested, which are based on the administrative data..

Table 7-7: uprate factors for pensions and other social transfers

Pensions	**Uprate factor**	**Notes**
Old age pensions	1.052448	
Private pensions	1.052448	no info - used old age pensions rate
Survivors pensions	1.056386	
Disability pensions	1.049189	
Benefits		
Unemployment benefits	1.09396	
Sickness benefits	1.091432	
Education benefits	1.04141	no info - used MSA rate
Housing benefits	1.04141	no info - used CA rate

Due to lack of information for the uprate of non-labour income sources such as income from capital and rent we used the growth rate of wages in the formal employment of 9.6%.[56] For the means tested benefits: child

[56] Income capital data are likely underestimated in SILC. According to 2019 data they represent less than 1% of the total labour and non-labour income. Therefore, we do not show this category separately from overall income in Table 6.

allowance and monetary social assistance we used INEQ-RS-COVID-19 package to simulate the changes between the years. The starting point of the analysis in this chapter is the updated earnings in SILC database from 2019. The changes in earnings were practically the only changes that were used in simulating the values of these social transfers

Table 7-8 presents the results of the changes in different sources of income that are included in the calculation of the in the disposable income. The biggest source in income growth was among the labour and capital income which grew by about 9%. As we have seen in the previous chapter the growth of earnings is due to the growth of the wages during the 2019/20 period, as there were no significant changes in employment in this period. Out of other income sources, pensions grew on average by 5.3%, while social transfers (social benefits, on average grew by about 4.3 percent. Given that the income from labour and capital represents the majority of the income of the household, the rate of growth of the total net disposable income is much closer to income growth rate than to other income sources. On average, net disposable income grew about 7.7%.

Table 7-8: Changes in net disposable income and its components

	2019 data		2020 simulated data		2020/2019 change
Income source	in RSD	percent	in RSD	percent	
Labour / capital income	660,148	70.7%	718,414	71.5%	9.0%
Pensions	217,356	23.3%	228,769	22.8%	5.3%
Social transfers	50,153	5.4%	52,316	5.2%	4.3%
Net transfers	5,565	0.6%	5,565	0.6%	0.0%
Net disposable income	933,221		1,005,064		7.7%

Notes: Own calculation based on the 2019

7.4 Impact of COVID 19 pandemic on poverty and inequality

In order to calculate the changes in the poverty and inequality between the years and to analyse the impact of the COVID-19 pandemic on the poverty and inequality we divide the net disposable income of the households with the adult equivalent index. [57] At risk of poverty rate represents the percentage of persons whose equivalent net disposable income is lower than the poverty risk threshold, which is set at 60% of the median equivalent net disposable income and which in 2020 stood at 22,000 dinars per month on average for a one-person household.[58] According to (S.O.R.S., 2021), poverty rate[59] in Serbia in 2020 stood at 21.7 percent. However, we should note that SILC 2020 use 2019 as the reference year and that thus this poverty rate refers to 2019[60] and in our analysis we will refer to these indicators as indicators for 2019. In the first part of the analysis we analyse the overall changes that have occurred between the years including the introduction of UCT and TPS, while in the second part of the analysis we will analyse the changes these two transfers have brought to the poverty rates and propose alternative solutions.

Table 7-9 compares the poverty indicators from 2019 and poverty indicators based on our simulations for 2020. Data indicate that, in line with the observed increase in the net disposable income, the poverty rate has decreased from 21.7% in 2019 to 20.2% in 2020 including the effect of two one-off transfers applied during COVID-19.

Table 7-9 also indicates how different groups have been hit by the pandemic. The biggest decrease of the poverty rate by age groups is in the group 55-64, in which the poverty rate decreased by about 3.2 percentage points (p.p.). This decrease is likely due to a significant increase in the

[57] Adult equivalent index is calculated according to the following formula adulteq=1+0.5*(nadults-1) + 0.3*(nchildren), where nadults reprsents the number of adults (aged 14 or more) in the household and nchildren represents the number of children in the sameple. This calculation is known in the literature as the modified OECD scale. See more is in OECD (2013).

[58] More details on the methodology can be found in SORS (2021). The same methodology for the calculation of the at-risk-of-poverty rates is used by Eurostat.

[59] in order to simplify the presentation of the results, we will only use the terms poverty rate and at risk of poverty rate interchangeably.

[60] Data for 2021 with 2020 income data will be released in late 2022.

number of workers in this age group, which is already described in more detail in section 3.1 as well as increases in pensions and social transfers, as this group has, before the pandemic had one of the highest poverty rates.

Table 7-9: Changes in the at risk of poverty (AROP) rate (population: all)

	2019	2020 (simulated data)	Change in the AROP rate (in percentage points)
Total	21.7%	20.2%	1.5
Age group			
0-17	24.2%	23.6%	0.6
18-24	23.6%	22.4%	1.2
25-54	19.6%	18.0%	1.6
55-64	23.0%	19.8%	3.2
65+	22.0%	20.9%	1.1
Gender			
Men	21.3%	19.7%	1.6
Women	22.1%	20.7%	1.4
Region			
Belgrade	11.3%	10.3%	1.0
Vojvodina	19.7%	18.2%	1.5
West Serbia	27.1%	25.8%	1.3
South-East Serbia	29.3%	27.0%	2.3
Settlement			
Urban	16.1%	15.7%	0.4
Rural	30.7%	27.5%	3.3

Notes: Own calculation based on the 2019 SILC data and simulated 2020 data. Poverty rate calculated a share of individuals below the poverty threshold. Poverty threshold is set at 60% of the median equvalized net disposable income for each year.

The lowest decrease in the poverty rate is for those under-age (0-17), only by 0.6 p.p. almost one percentage point lower than for the overall population. This is likely due to the fact that they were ineligible two large social transfers applied during COVID-19 pandemic, as UCT was reserved for adult population and TPS for pensioners and recipients of monetary social assistance. Given that his group had the highest poverty rate before the pandemic occurred, this indicates that the relative position of this group has deteriorated as the difference between the average poverty rate and group's poverty rate has increased from 2.5 p.p. (24.2% vs. 21.7%) to 3.4 p.p. (23.6% vs. 20.2%). Therefore, although this group has had a reduction in the poverty rate, its relative position compared to the population average has worsened. Similar applies to the youth (18-24) but in a much lower extent, as the reduction of the poverty rate for the group was 1.2 percentage points. Further evidence of this argument can be found in table 7-12, which indicates that between-group inequality, measured by generalized entropy index, has increased from 2019 to 2020.

While there were no differences in poverty rate reduction between the genders, the data indicate that the residents from South-East Serbia had the highest decrease in the poverty rates. Since the increase of labour income was on the average country level, the increase in social transfers and introduction of COVID-19 transfers are likely responsible for the largest decrease in the poverty rates. Finally, due to the higher increase of employment and labour income in rural areas, the decrease in poverty was much more significant in rural than in urban areas. As the residents of the South-East Serbia and those living in rural population have had the highest poverty rates, this indicates that after the first year of the COVID-19 pandemic, there was a decrease in the income inequalities between the regions and settlements.

Table 7-10 indicates the differences in the improvement of the position of the working-age population, defined as those aged between 18 and 64, by level of education and employment status. The results indicate that the poverty rate in this age group has decreased by about 1.8 percentage points. The **decrease in poverty rate was significantly below average for those who have primary level of education** – only by 0.5 percentage points, while the highest decrease was among those with secondary

education, reflecting different trends in the employment and labour income for these two groups. As those with primary education were most likely to be at the risk of poverty, after the first year of COVID-19 between group inequality has increased, and those with primary education now differ more from the working population average than they used to before the crisis. Further evidence of this argument can be found in table 11, which indicates that between-group inequality, measured by generalized entropy index, has increased from 2019 to 2020.

As expected, the decrease in poverty was much higher for those who were out of work in 2019 (unemployed or inactive), as they started from a significantly higher level of poverty rate and social transfers increase and COVID-19 transfers had much higher likelihood of decreasing their poverty.

Table 7-10: Changes in the at risk of poverty (AROP) rate (population: 18-64)

	2019	2020 (simulated data)	Change in the AROP rate (in percentage points)
Total	20.9%	19.0%	1.9
Education			
Primary	44.3%	43.8%	0.5
Secondary	19.8%	17.4%	2.4
Tertiary	6.9%	5.6%	1.1
Labour market status			
Unemployed and Inactive	36.5%	31.2%	5.3
Employed	13.1%	12.9%	0.2

Notes: Own calculation based on the 2019 SILC data and simulated 2020 data. Poverty rate calculated a share of individuals below the poverty threshold. Poverty threshold is set at 60% of the median equvalized net disposable income for each year.

Table 7-11 presents the overall indicators of the income inequality. All the indicators show that the simulated income distribution for 2020 is more

equal than the one pre-pandemic. In the next chapter we will look in more detail the reasons behind this decrease in inequality.

Table 7-11: Changes in the overall inequality indicators

	p90/p10	p90/p50	p10/p50	p75/p25	Gini
2019	4.631	1.931	0.417	2.116	0.333
2020 (simulated data)	4.237	1.881	0.444	2.060	0.320

Notes: Own calculation based on the 2019 SILC data and simulated 2020 data.

Finally, Table 7-12 presents the indicator of between-group income inequality for five different groups we analyse: age, gender, region, settlement, and education. Similarly to the conclusions from the poverty analysis, results indicate that there is a reduction in between group income inequality for different regions and urban/rural division. While the gender differences are not affected by COVID-19, the differences between age and education groups have increased, albeit only slightly.

Table 7-12: Changes in the between group inequality (general entropy GE(2) index)

	Age groups	Gender	Region	Settlement	Education
2019	0.0015	0.0001	0.0197	0.0095	0.0295
2020 (simulated data)	0.0016	0.0001	0.0187	0.0080	0.0298

Notes: Own calculation based on the 2019 SILC data and simulated 2020 data.

8 Overview of best practices of measures implemented during COVID-19 pandemic

This chapter summarises best practices of measures implemented during the COVID-19 pandemic to mitigate the negative impact of the pandemic on the labour market and labour market outcomes.[61] We first start by explaining certain features of successful Public employment services (PES) which helped them respond better to the COVID-19 pandemic. One important task of PES is to design successful programmes for vulnerable groups, we characterise such programs in the first part of the chapter. The second part of the chapter provides guidance on successful measures for pandemics. We consider different periods of the pandemic and discuss best practices for different phases of the pandemic.

8.1 General features of an agile and effective Public employment service

The COVID-19 pandemic was an unexpected and unique event in the recent history and it posed many challenges for the functioning of the labour market and the functioning of the PES. Countries which were successful in navigating the COVID-19 crisis had certain characteristics of active labour market policies (ALMP) systems.

According to a questionnaire administered by the OECD to its member countries, the respondents' successful ALMP systems had the following characteristics (OECD, 2021):

- Decentralised system with a flexibility in implementation and accountability framework.
- Flexible ALMPs with the possibility to pass regulations in exceptional circumstances and strong political support
- Mature relationship with private sector providers of ALMPs
- High level of engagement if stakeholders (social partners, researchers, etc.)

[61] This chapter synthetises some measures, experiences and policy recommendations of OECD countries which are elaborated in (OECD, 2021).

- High level of digitalisation
- Flexibility of resources such as budget and adaptive staff
- Preparedness for crisis situations (pre-existing contingency plan, pre-existing policies for economic crisis and pre-existing policies for teleworking)

Once the COVID-19 crisis started, it was difficult to change the characteristics of the system, but these are characteristics of PES which facilitated the functioning of PES in the emergency situation.

Aside from the general characteristics, a system needs to be established to target well vulnerable individuals both in good times, but even more importantly in times of crisis. A comprehensive approach across institutions and policies how to provide effective support to vulnerable groups would adopt the following steps (OECD, 2021):

1. Identify people in need, reach out, identify needs

The first step is to identify the people in need of support and to determine their needs. A key element of this first step is to understand who are the vulnerable groups and to understand which groups are not contacting PES and to proactively reach out to them. In particular, individuals who are only marginally attached to the labour market should be sought and it should be explored whether existing ALMPs target their needs.

2. Strengthen first life skills, social integration and motivation and then work-related skills

In a second step, one needs to strengthen their life skills, social integration, motivation and afterwards their work-related skills.

3. Assist in job search and consider sheltered employment and employment incentives

As a next step, the individual can be supported in her/his job search efforts. If necessary, options such as sheltered work or employment incentives (e.g. employment in social enterprise or public works) should be explored.

4. Primary labour market entry and follow-up support

The final goal is that the individual enters the primary labour market. Even when a vulnerable person enters the primary labour market, it might be required to provide continuous support to help the individual stay attached to the primary labour market (e.g. provision of social services and counselling).

8.2 Initial phase of the pandemic

There are several factors in the initial phase which require **adaption of the functioning of the Public Employment Service (PES) to the new circumstances.** First**,** in initial phase of the pandemic there is an increased inflow into unemployment due to lower economic activity and the inflow into employment is reduced as companies postpone employment decisions during uncertain times. Second, the health guidelines (e.g. distancing) need to be respected and the business processes need to be adjusted in line with the measures. Third, each pandemic is an unpredictable and unique and in order to serve the clients adequately, the PES needs to develop a daily information system to follow closely the labour market situation.

Based on these factors, the experience from the COVID-19 pandemic has shown that the following changes were necessary to adapt the PES functioning:

- Digitalising processes, boosting remote channels, automating processes for clients and the back-office
- Simplifying processes for clients and staff
- Adapting processes to meet health guidelines on the premises
- Adapting communication to staff and clients
- Adopting new tools to increase the quality and timeliness of statistics and management information
- Reallocating staff, increasing staff numbers and training staff to increase PES capacity

These changes need to be made early in the pandemic so that the functioning of the PES is not jeopardised. The process such as client registration, application for active labour market programs (ALMP), counselling should be offered online. Processes should be simplified so that a larger number of clients can be served. Additionally, processes which are repetitive can be automated and in this way the pressure on the PES can be reduced. During pandemics special health guidelines need to be followed and at the beginning of each pandemic such adjustments are necessary so that the provision of services does not experience disruptions. This applies both to the provision of in-person services and to the necessary adjustments so that the workplace of employees of PES is safe.

Each pandemic is specific and in order to be able to design policies and respond timely to the changes in the labour market, one needs to establish an information system where policy and decision makers can identify changes quickly and design responses and policies accordingly. Finally, special attention needs to be paid to the reallocation and development of PES staff. Depending on the labour market shock and the flow into unemployment, it might be necessary to hire new staff so that clients can be adequately supported. New health guidelines, the provision of most services online and the reallocation of staff might require additional retraining of the staff and training of new staff.

All these adaptations and changes require an increase in expenses of PES and this advice was also followed by many countries during the COVID-19 pandemic. After setting up a functioning PES system, the next step is to identify the vulnerable groups and vulnerable employees based on available data and based on past experience.

Special attention needs to paid to the groups that are generally considered to be vulnerable or those holding vulnerable employment.[62] In addition to vulnerable workers, the following three categories of workers need to be closely monitored: unemployed, displaced workers and workers at the risk of job loss need. A comprehensive information system of the PES facilitates the monitoring and targeting of those most in need.

[62] For more detailed motivation of the vulnerable groups see Chapter 5, p. 61.

8.3 Measures during the pandemic

Public employment services are expected to require additional staff during the pandemic to facilitate the transition to online services, to respond to a higher inflow of unemployed at the height of the pandemic and to support the transition of workers from negatively affected to expanding sectors. This will require both the retraining of existing staff, and hiring of additional staff. Some countries have shifted public sector employees from other public institutions to PES and this can be a temporary solution to overcome staff shortages. If PES faces capacity constraints, an alternative is to contract out publicly financed labour market services to external providers (e.g. counselling, case management of job seekers, etc.).

8.4 Maintained restrictions limiting economic activity

After the initial adaptation phase, the PES and the relevant policy makers can and should take a longer-term perspective and start to adjust their medium- and long-term strategies. In particular, the offer of ALMPs needs to be adjusted to the composition of jobseekers and it needs to support the recovery of enterprises and ensure matching of job seekers with new job openings. In particular, the offer and variety of labour market trainings should be increased in order to support the transition of worker from sectors which are shrinking to the expanding sectors. The key elements of the medium- and long-term strategies are targeting of unemployed and ALMP design. Targeting needs to take into account that groups and workers which were identified to be most vulnerable using statistical profiling and experience from similar past events. In the presence of social distancing restrictions, the PES needs to design ALMPs so that reskilling and upskilling of beneficiaries facilitates the transitions across firms, sectors and occupations. In this phase, additional financial resources will be required to prevent human capital depreciation and improve the employee-job matching process.

In this phase the following measures should be prioritized (all measures should be adapted to the health measures in place):

- **Job retention schemes**: Job retention schemes i.e. short-time work schemes have been a very important policy instrument to prevent lay-offs of workers in periods of lower economic activity. Through retention schemes, the government can directly subsidise hours not worked and in this way, companies can retain their workers at limited or no costs. Job retention schemes should be carefully used as they can have a lock-in effect and be an obstacle for job creation and job reallocation, especially during the recovery period. In the initial phase of the pandemic, job retention schemes can be made available to a wider number of firms and sectors, but in the medium-term they should be more restricted to sectors were activity can resume.

- **Labour market trainings** should be expanded in the short-term. Empirical evidence makes a strong case to invest in human capital in periods of low economic activity because this prevents human capital depreciation and the minimizes the deadweight loss (Card et al., 2018). Labour market trainings are expensive measures and skills assessment and anticipation exercises are required to take decision on adult learning investments. In this phase, the policy makers should have identified sectors that are expanding and they should help jobseekers and employers to move from sectors that were negatively affected to the expanding sectors. The offer of short-term trainings needs to support this process through offering vocational training, general and remedial training and internships. If there are employers in acute need of skilled labour, then tailored training programmes should be considered. High quality labour market trainings take time to be developed and expanding the capacities of high-quality programs can require time. This should be considered when expanding the labour market trainings because the quality should be of highest priority.

Subsidies to support labour demand should be limited in this phase because the labour market can be tight in this period and there can be reduced job-

search efforts (Forsythe et al., 2020a; Hensvik et al., 2021). As a result, such investments can result in deadweight losses and subsidies should be postponed for periods with a higher economic activity.

In this phase higher expenditures for ALMPs are required both to support the general services of PES and to support the reallocation of labour from declining to growing firms (i.e. for financing reskilling and upskilling).

8.5 Recovery phase

In the recovery phase it might be necessary to increase expenses and in particular, in this phase one should focus on the employment subsidies.

In this phase the following measures should be prioritized:

- **Subsidised private sector employment**: Hiring subsidies and start-up incentives should both be used to support employers in creating new jobs. Previous research has shown that hiring subsidies are more effective than other ALMPs in increasing participation labour market outcomes after economic downturns (Kluve, 2010). First, hiring subsidies should be temporarily used to support labour demand and economic recovery. Hiring subsidies should target specific groups, groups that were identified as vulnerable, e.g. long-term unemployed, youth, older workers and those with disabilities. Hiring subsidies should be given only for new hires and not for already employed workers. Hiring subsidies are often in the form of reductions or waivers of social security contributions. Second, start-up incentives will be needed for an extended period to create jobs, in particular jobs in specific sectors and locations.

- **Additional support to vulnerable groups**: Once the economy starts recovering it is important to identify groups which are remain marginalised and excluded from the labour market. For these groups one needs to design cross-policy responses and intensive ALMPs (such as rehabilitation and supported employment).

- **Continuous delivery ALMP measures**: Once the unemployment starts falling, it is important to keep implementing targeted ALMP

measures to increase the employability and skills of PES clients need to remain of high importance even when unemployment starts falling, considering that the most employable clients will be leaving the PES registers first.

- **Public works**: Public works are according to the empirical literature not effective in improving the employment opportunities of participants. However, they can still be considered together as part of a package with other measures (e.g. training or mentoring) to provide some complementary income to vulnerable groups and build public infrastructure, services and social capital (ILO, 2020).

Job search assistance programs comprise job-search training, counselling and monitoring and are short-term, low cost and low performance programs. The provision of job search assistance programs should be intensified in this period. Delivery of these programs can be both on-site and online in this phase.

In order to support the recovery phase, the policy makers need to continue developing their skills skill assessment and anticipation, and skills profiling tools, as well as their career guidance systems, which can guide workers to the most efficient job transition (OECD, 2021).

To the extent that cross-sectoral imbalances in labour and skill demand persist as economies open up, countries will also benefit from further developing their skill assessment and anticipation, and skills profiling tools, as well as their career guidance systems, which can guide workers to the most efficient job transition (OECD, 2021).

8.6 Post-pandemic period

In the post-pandemic period the PES should aim to support the labour market developments and to continue improving the functioning of PES taking into the experience from the pandemic.

The COVID-19 pandemic has shown that there are some areas which need further improvement in the post-pandemic period. Some potential avenues that can be pursued after the pandemic is over are the following:

- The COVID-19 pandemic has increased the digital penetration of services offered by PES and in the post-pandemic period PES should prepare their **digital strategies** and advance the offer of digital services. In the period after the pandemic, the PES should learn from the experience of offering digital services and it should aim to permanently offer some services online. Services such as registration and administration of benefits should be permanently offered online. However, there will always be clients which will require personal contact and this should be respected.

- Together with the digitalisation of services, the PES should explore the **use of artificial intelligence (AI) practices** and increased use of administrative datasets for decision making processes. Artificial intelligence practices can help PES to automate and improve some processes, such as identifying vulnerable groups, tailoring ALMPs to specific groups. The use of AI requires investment in data infrastructure and human capital and it should be gradually pursued.

9 Summary and discussion of results, conclusions and policy recommendations

Within this report we have analysed the effects of the COVID-19 pandemic on the labour market and inequality in Serbia and identified the groups that were hit the most during the crisis. The results presented in the previous chapters stem from different data sources, such as Labour Force Survey (LFS) and National employment service (NES) data and data from a new nationally representative survey on the effects of COVID-19 designed particularly to analyse the changes in labour market outcomes (INEQ-RS-COVID-19 survey), and household financial situation before (2019) and after (2020) the effects of pandemic occurred.

This chapter firstly summarizes and discusess the results presented in the Chapters 4, 5 and 6 of the report which separately analyse (1) main changes in the labour market and (vulnerable) job characteristics, (2) employment outcomes of the vulnerable groups and (3) results from the INEQ-RS-COVID-19 survey. These parts of the analysis have been presented separately as they rely on different methodologies and focus on different aspects of the labour market vulnerablities during COVID-19 crisis. We summarize the results by different labour market outcomes which have been studied in all the chapters, and additionally focus on household's income changes during the pandemic which have been investgated via INEQ-RS-COVID-19 survey.

In the second part of this chapter we offer some conclusions and policy implications of the analysis takin into account COVID-19 timeline, measures implemented by the Government of Serbia during pandmic and effects on the macro-level trends in the economy.

9.1 Summary and discussion of results

Employment and unemployment trends, structure of the employment

Although main labour market indicators in Serbia did not show a worsening in 2020, **results suggest that COVID-19 pandemic interrupted favourable trends in employment and unemployment in**

Serbia from the previous years. According to LFS data employment rate in Serbia stagnated, while in the majority of other European countries it decreased (in EU-27 it decreased by 0.8 p.p). **Results also suggest that there was a temporary decrease of employment in Q2 of 2020 of 1 percentage points (p.p.) or by 2%**, which was the consequence of the state of emergency that was introduced in order to contain the pandemic**.** The decrease in Q2 was both due to more dismissals and lower availability of temporary jobs when compared to the previous year. The latter finding is confirmed by NES data which suggest that in Q2 2020 there were fewer new employees from the pool of registered unemployed than in the previous year.

Although unemployment rate decreased the unemployed mainly transferred to inactivity, as the employment remained unchanged. Transition from unemployment to inactivity was predominantly happening in Q2, due to obstacles in job search during the state of the emergency. By the end of the year, unemployment rate reached the same levels as in 2019. NES data confirm this trend, as the number of registered unemployed was lower in 2020 than in the previous years.

Employment stagnation in 2020 is the result of a simultaneous increase in formal and decrease in informal employment. Increased formal employment in 2020 is the consequence of combination of the long-term employment trends from recent years, higher job security, and the government retention measures which were directed only to formal jobs. **However, some segments of formal employment, such as temporary workers and workers in Accommodation and food service sector, were permanently hit by the pandemic.** While the number of permanent workers increased by about 70,000; the number of temporary workers decrease by about 24,000 (or by about 6%). This decrease resulted from lower availability of temporary (including seasonal and occasional) jobs in 2020, and higher number of dismissals/quits from these jobs than in the previous year, while some temporary workers also found permanent positions. On the other hand, the employment of workers in Accommodation and food service sector was hit the most as their services depend on close contact with customers, and the number of employees in this sector decreased by 7,000 (or by 8%) in 2020. Finance and Transport

sectors also faced a decrease in formal employment in 2020, which was of transitory nature (largely due to decrease in Q2).

Conversely, sectors such as Construction (Sector F), Trade (Sector G) and Information and Communication (Sector J) had higher number of formal workers than in the previous year, by about 15,000, while other sectors had only temporary decreases or increases in number of workers**. Although self-employed and workers in small-firm were considered to be vulnerable, data do not indicate a decrease in their numbers,** likely due to generous retention measures for MSMEs.

The decrease in the number of informal workers of about 50,000 (or by 10%) stemmed from decreases in both wage- and self-employment. The biggest decrease was recorded in Q2 – 132,000 (about 25%), while the number of informally employed continued to be lower than in 2019 even in Q4, suggesting a permanent decrease. The decrease of informally employed in 2020 was the result of the long-term trend of employment formalization, but also lower availability of informal jobs during the pandemic, rather than dismissals from informal jobs, which occurred only temporary in Q2. **Among informally employed, the biggest drop was in Agriculture which suffered a loss of 14%**, while at the same time there were no changes in formal Agriculture employment.

In general, **labour market transitions had different dynamics in 2020 when compared to the previous years**. INEQ-RS-COVID-19 survey suggests that **about 31% of the job seekers during the pandemic faced difficulties to find seasonal or occasional work that they were able to perform before the pandemic.** This is corroborated with the evidence from the LFS data which suggested lower transitions from unemployment/inactivity to informal and temporary jobs than in the previous year. Survey data also suggest that **among those who were searching for work about a half applied for jobs that they usually would not apply for in the absence of pandemic**. This particularly applies to seasonal/occasional workers where this share is as high as 90%. On the other hand**, about 13% of persons who have not worked before had started working during the pandemic.** Furthermore, according to LFS data, there **were more dismissals in Q2 than in the previous year**.

From the perspective of vulnerable groups, **low educated have suffered a further, permanent reduction in their employment after the first year of the pandemic**. The gap in employment between those with low and higher levels of education was already substantial before the pandemic (about 15 percentage points) and it has increased in the second part of the year (by 2.4 and 3.0 percentage points in Q3 and Q4). On the other hand, **youth employment rate was about 1 percentage point lower in 2020 compared to 2019**. More detailed analysis suggested that this decrease was **mainly due to temporary reduction in their employment in Q2** by about 3 percentage points, which caused an increase of the gap between youth and older parts of the working age population (30-64). Finally, the **employment in the region of South-Eastern Serbia (SES) also had a temporary reduction in third quarter of 2020** by about 2 percentage points. Female and employment in rural areas, although also considered to be more vulnerable, were not hit differently than male employment and employment in urban areas.

Working hours

Working hours decreased by 1 (or by 2.6%) hour per week in 2020. Almost all sectors which are predominantly privately owned have suffered the decreases in working hours. The strongest decreases were in Accommodation and food services sector (by 4.6 hours per week, or 10.6%, compared to 2019), Arts, entertainment and recreation (by 3.1 hours or 9.2%) and Construction (3 hours or 7%). By employment status, **self-employed and seasonal and occasional wage workers had the biggest losses in the working hours (by 7% and 11 %).**

The biggest decreases were in the first half of the year, in Q1 – by 1.5 hours, and particularly in Q2 – by 3 hours (i.e. by 4.0% and 7.4%). The decrease in the working hours in the first part of the year was mainly caused by the state of emergency which lasted from March 15th to May 5th (therefore including both Q1 and Q2), with lockdown measures prohibiting work of some enterprises (restaurants, bars, sports centres etc.), while for others bringing lower levels of business activity (e.g. retail). LFS data suggest that the main reason for decreasing working hours were absences

from work due to low business activity, as about 270,000 workers in Q1 and Q2 2020 (compared to only 17,000 workers in 2019, i.e. increase by more than 15 times). INEQ-RS-COVID-19 data explored in more detail how these absences affected the workers position. The data suggest that **23.1% of workers had to take holidays in periods of lower economic activity, while 17.0% of workers were away from work due to lower economic activity, but were paid for their work.** At the same time, 7.2% of employees were forced to take temporary unpaid leave, while for 9.5% of them there was a temporary business closure.

Consequently, in Q3 working hours increased, as significantly fewer workers were taking holidays than in the previous year. This was due the fact that some workers have already used them in the first part of the year in the period of low economic activity. In Q3 2020 the number of workers who were on holidays was about three times lower than in Q3 2019, which is in line with above observations from INEQ-RS-COVID-19 data. Therefore, **in Q3 there was an attempt to make up for some lost time and income from the first part of the year**. In Q4, the share of absentees returned to 2019 levels, although working hours in total were slightly reduced (by 0.5 hours).

While vulnerable groups follow similar trends to the ones described for the overall population, we find also some differences. **Youth faced an additional reduction of 1.3 working hours in Q2**, driven by both absenteeism and decreasing working hours. **Additionally, they worked longer working hours in Q4**. **Workers in the SES region worked about 1 hour more in Q3 and Q4, compared to workers from other regions**. Compared to 2019, they have worked about 2 hours more in Q3 and had no change in working hours in Q4, unlike other regions which had a decrease in Q4.

Rural workers also faced different trends for working hours compared to urban workers, likely due to the **seasonality of work in rural areas**. In Q1, due to higher increase absenteeism, rural workers reduced their working hours by 2 hours, compared to urban where this decrease was lower. In Q2, both groups reduced working hours, but this reduction was lower for rural than for urban workers, although there were no differences

in absenteeism. In other words, rural workers who stayed at work, unlike urban workers did not reduce their working hours. In Q3, urban population worked more than the previous year (by reducing absenteeism), while rural population working hours remained the same. **Seasonality of work which in rural areas, which is dominated by agriculture related activities prevented making up for absenteeism in first part of the year by increasing the hours in others**

INEQ-RS-COVID-19 data suggest that relatively modest decrease in working hours hides the fact that **35% of employees reported reduced working hours**, **while at the same time for 19.4% working hours have increased**. About one fifth of both groups indicated that they have faced both reduction and increase in working hours during the pandemic. Increased working hours for some workers could be in line with the survey finding that **12.4% of the employed the number of jobs held during COVID-19 pandemic was higher than it would have been if the pandemic had not occurred**. For some of these workers, taking additional job was probably a **way to overcome the difficulties in the labour market in terms of job security or income**.

Wages

INEQ-RS-COVID-19 data show that for **about 15% of the workers there was a temporary interruption in the receipt of wages**.[63] For some workers – 7.1% of total number – this meant going on temporary unpaid leave, while for 9.5% of them experienced temporary business closure (small percentage of workers experienced both). Temporary unpaid leave was most frequently experienced in Accommodation and food services (30.0%), but there were a few other affected sectors, Arts, entertainment

[63] The analysis of wage trends relies only on the data from INEQ-RS-COVID-19 survey. The LFS data could not be used as LFS registers only wages for the employees, as the wages in the LFS data were presented only as intervals, which prevents certain types of analysis we conducted and since there was a significant increase (by about 10%) in the number of workers who refused to disclose wage information. On the other hand, SILC data could not be used for these purposes as income data for 2020 are collected within SILC 2021 survey, and are going to be available only in late 2022.

and recreation (17.1%), Construction (15.2%) and Professional activities[64] (11.5%).

On the other hand, about **one fifth of the workers reported having reduced wage/salary (17.7%) and an increase in the wage/salary (19.3%)**. Unlike the working hours, there was no overlap, and workers typically recorded only a reduction or an increase in wages. Wage reductions were again most frequent in Accommodation and food service (36.9%), but there are also other affected sectors, such as Professional activities (27.8%), Arts, entertainment and recreation (24.7%), Administrative activities[65] (24.3%), Manufacturing (22.5%) and Wholesale and retail trade (21.6%).

The results further indicate that **while the earnings in wage employment on average have remained constant, the wages in self-employment have been reduced by about 10 % on average**. Occasional workers saw a slight increase in their wages, by about 2%, however they on average worked less than first two groups of workers. **Within the wage employment the wages in the bottom quintile have increased by about 4.7%, while the wages in the top quintile have decreased, by about 5.2%.** In other quintiles wage changes are much lower (about 1% or less) and insignificant. Among the vulnerable groups, **youth has faced the decrease in their wages of about 2% on average, while the low-educated had an increase in their wages of about 3%.** The increase of the low wages and wages for low-educated workers was likely due to the increase in the minimum wage by about 10% when compared to 2019.

Other job characteristics: work from home, productivity and sick leave

The share of workers working from home had increased in 2020 by about 2 p.p., and majority of these workers simply transitioned from never working at home to working from home frequently. Increased work from home was particularly pronounced in Q2 2020, and in Information and communication, Education and Financial sector. While in

[64] Sector M according to NACE classification.
[65] Sector N according to NACE classification.

other sectors workers majorly returned to regular work, these three sectors continued to have high shares of workers working from home even in Q4 2020. Working from home was more frequent in formal employment, and particularly among public sector workers.

INEQ-RS-COVID-19 data suggest that while one third of respondents can partially or fully work from home, before the pandemic the share of workers who worked from home half or more of their working hours was less than 15%. During the pandemic, **there was a considerable shift in the intensity of remote working, as the share of those who worked half or more of their time from home increased by about 35 percentage points**. For some workers, working from home caused additional strain in work as they lacked adequate working conditions at home. **In terms of working equipment at home, respondents most frequently lacked office like space (30.3%) and adequate chair for work (26.7%)**.

Overall there were no changes in self-assessed productivity during the pandemic. However, about one fifth of the workers experienced an increase and about one fifth experienced a decrease in their productivity. The decrease in productivity could have occurred due to higher time spent in working from home, where many parents may have found that they needed to assist their children in school activities or spend more time doing household choirs. Every fifth respondent says that his/her household chores increased during the pandemic, while parents of school aged child(ren) report that the time spent on school activities increased from 12 to 16 hours per week.

Finally, while employers were recommended by the government to compensate workers 100% during sick leave if they have contracted COVID-19. However, our data shows that only 64.5% of the employees actually received full replacement rate, while 25% of them received a mandated pre-pandemic 65% coverage. **This suggests that some employers did not respect workers' rights and did not provide the recommended compensation during sick leave**.

Household income and financial situation

Household income, inequality and poverty trends in Serbia are monitored via Survey on Income and Living Conditions (SILC). However, since income data for 2020 are collected within SILC 2021 survey, they are available only in late 2022. In this report we present the findings from INEQ-RS-COVID-19 survey based on self-estimated household income.[66] The results suggest that **while per capita income in the first and the second quintile has increased**, **it has dropped in the top quintile**. **However, in absolute terms these changes were low,** as in the first two quintiles they amounted to about 2,600 and 2,000 RSD per capita respectively, while the income decrease for the top quintile was about 3,000 RSD. All changes are below one-tenth of the minimum wage, which in 2020 was about 30,000 RSD.

Other indicators of the household well-being suggest that **while on average income in poorest households had slightly increased, many of those from the first quintile actually saw worsening of their financial situation**. On average about 40% of the households say that their financial situation is worse than before the pandemic, this share is the highest in the first (47.1%) and the lowest in the fifth quintile (34.8%). Although this result seems contradictory to the income increase observed in the first quintile, it is not surprising given that the most vulnerable are heterogeneous category. **This group is composed of different groups including both vulnerable worker households and jobless households**, for whom the main sources of income are pensions or social transfers. Therefore, **while the former could have faced job loss or reduction of wages, the latter rely on income sources which during the COVID-19 pandemic were not reduced**.

[66] INEQ-RS-COVID-19 survey estimate of the household income is based on one question which is asked in the same manner for the situation before and during pandemic. Given that SILC data investigates different income sources in in much more detail and uses more complex information to arrive to the full estimates of the household income, results presented here are not necessarily going to be in line with the official estimates of the changes in the household income or poverty trends.

On the expenditure side, workers that switched to remote working have had unexpected expenditures when adopting their home to work. At the same time, every second parent reports that he/she incurred additional costs due to home schooling.

9.2 Discussion, conclusions and policy implications

As a response to the outbreak of the COVID-19 pandemic, the Government of Serbia declared the state of emergency on March 15, 2020. The state of emergency included a number of virus containment measures that affected the workers, population mobility, and the economic activity in general. After the state of emergency ended – on May 6, containment measures were gradually withdrawn, however, there was a new surge of COVID-19 cases in June/July and October to December and containment measures were introduced, albeit milder than during the state of emergency, once again putting limitations on business activities.

Workers who were particularly vulnerable during this period were informally and temporarily employed, for whom their (lack of) contract meant they were more likely to be dismissed; as well as those working in small enterprises and self-employed, because these enterprises are due to lower liquidity more susceptible to cessation of work in turbulent times. Additionally, "non-essential" sectors which assume direct close contact between service providers and consumers (tourism, trade, transport, etc.) or where large numbers of workers work together in a small workplace (manufacturing, administrative services, etc) were under a greater risk as their businesses were temporarily suspended and/or suffered reduced working hours.

As a response to the pandemic the government adopted generous support measures towards firms with near universal character, which undoubtedly provided a lifeline for some business who were under the greatest risk. Beside tax deferrals, main employment retention measures were direct subsidies applied across the entire private sector to the micro,

small and medium enterprises (MSMEs) and large enterprises.[67] The subsidy was applied across the entire private sector, excluding the financial sector, and enterprises that have cut their employment by more than 10% since the onset of the pandemic. Subsidy for MSMEs included payments of the minimum wage for each employee in first three months (May to July), which was later reduced to 60% of the minimum wage (August/September). On the other hand, large enterprises were eligible to receive 50 percent of the minimum wage for each employee who was on the furlough, for at least 15 days within the month. Anecdotally, this measure was used much less frequently than the one for MSMEs. Most important income support measure was universal cash transfer to adult population in the amount of 100€.

Compared to other economies the GDP drop in Serbia in 2020 was relatively low – only 1%, however, with diverging trends within the year. While in the Q1 GDP grew by 5.2% – continuing a long-term trend in recent years, in Q2 it dropped sharply – by 6.2%, mainly due to containment measures implemented during the state of emergency. In Q3 and Q4, GDP drop stabilized at about 1 percent decrease (year-on-year), indicating a gradual stabilization of economic trends. Trends were diverging across economic activities with the biggest losses in Arts, entertainment and recreation, Professional and support service activities, Trade, Transport and Accommodation and food services.[68] On the other hand, some sectors, such as Information and communication, Agriculture, and Finance and insurance recorded a growth.

The decrease in the economic activities has been transmitted to the labour market activity without any lag – with stronger effects in terms of working hours, i.e. at intensive margin, than in terms of employment. Compared to 2019, employment rate in 2020 remained unchanged, while working hours decreased by about 1 hour on average (or by 2.6%). The fact that the majority of the effects took place at the intensive margin can at least partially be explained by the design of

[67] See more details in Chapter 1.

[68] Within these sectors some subsectors were more probably more hit, however SORS provides disaggregation of the overall changes in the economic activity based on 10 large groups, with some NACE sectors grouped

employment retention subsidy, as an important condition for eligibility was that the enterprises must not reduce the number of their employees by more than 10%. However, this measure could not prevent the loss in the working hours occurred partially due to containment measures and partially due to lower business activity.

The intensity of containment measures directed the impact on the labour market in different quarters. As for the economic activity most of negative effects on the labour market happened in Q2 during the state of emergency. Employment rate decreased temporarily in Q2 by about 1 p.p. (or by 2%), while working hours decreased by 2.9 hours (or 7.4%). Working hours also decreased in Q1 by 1.5 (or by 4.0%), again likely due to state of emergency which started on March 15th. Decrease of working hours in Q1 and Q2 was, mainly due to low economic activity, and 23% of workers (un)willingly took holiday days in this period as they could not perform their jobs during this period, while others – to a much lower extent – were forced to go on unpaid leave. In Q3, when restrictions were low working hours actually increased (by 1 hour, or 2.6%), due to lower use of holiday days. This has put an **extra burden on some workers, who were contained in their homes during the state of emergency, and could not take their usual holidays to rest in the summer months.** Holidays, which are typically used in this quarter, could not be used again, and instead Q3 was used to make up for some lost time and income. Finally, in Q4, when the COVID-19 cases reached their maximum and limitations on working hours of some establishments were introduced, working hours decreased again and this time due to decrease of actual working hours of those who went to work.

Vulnerable workers

However, the described main trends in the labour market activity actually hide a more dynamic picture, as some workers, industries and groups were hit more by the effects of the pandemic, while others have actually increased their activity. Table 8-1 summarizes the effects that the pandemic had on vulnerable workers and vulnerable groups.

Although annual employment was unchanged, the number of informal and formal temporary workers decreased in 2020, by about 10% and 6%. Informal employment decrease was the strongest in Q2 – by 26%, while for temporary workers the decrease was the strongest in Q2 and Q3 – by 11%. For both groups the decrease seems to be permanent, as it persisted even in Q4. The analysis suggests that while some of these workers found permanent positions and some of them were dismissed, **the main reason for this decrease was low availability of informal and temporary jobs in 2020**. Employers, who were facing lower economic activity and/or the uncertainty of the conditions, have not created additional demand for work, which is usually absorbed by these workers. **Their employment is largely of transitory nature, and pandemic has put a significant hurdle in their usual labour market dynamics**. This hurdle caused them to search for jobs they would not usually do if there were no pandemic and/or perform more jobs as a way to provide for income stability.

On the other hand, the **biggest decrease in the working hours was among self-employed and seasonal and occasional workers**, **by 7 and 11% respectively**. While retention subsidies for MSMEs provided a safety for the jobs in formal self-employment, the pandemic decreased the time they can spend on the job. **This decrease in the working hours of self-employed is likely the reason they also faced a decrease in their earnings** which we estimated at about 10%. Beside them, among workers in dependant employment those in the top quintile of the wage distribution also faced a decrease in wages, by about 5%.

The consequences of pandemic were considerably different across the sectors. Accommodation and food services activities (AFSA) sector suffered the biggest decline in the economic activity – in terms of both employment and working hours – as well as in earnings. This sector was under the highest impact as it requires close contact with costumers, and cannot be performed from home or replaced with online purchases, while additionally, travel restrictions created lower demand for their services. **The number of formally employment in AFSA sector was in 2020 lower by 8% than in 2019**, with the biggest decrease in Q3 – of 16%**,** likely due to seasonality of their work and the fact that initial

retention subsidies were based on the number of workers in March, April and May. On the other hand, **working hours in AFSA sector were reduced by 10%,** with the biggest decrease in Q2 – by 25%. Additionally, about one third of workers in AFSA sector faced unpaid leave and wage reductions, which is the highest of all sectors.

Finance a significant temporary decrease in formal employment in Q2 by 25%, likely due to the fact that they were not included in the employment retention subsidy and that much of the personal finances that were needed in this quarter could have been done online. However, Finance sector finished the year with only a 3% decrease, no significant changes in working hours, while the sector as whole recorded an increase in gross added value. **Transport** also faced decreases in formal employment (2%). On the other hand, **most informal jobs were lost in the Agriculture sector**. While the number of formal jobs in agriculture remained unchanged, informal jobs in this sector shrunk by about 14%.

After AFSA, Arts, entertainment and recreation and Construction sectors faced as the strongest decreases in the working hours of 9% and 7%, the decrease being again the highest in Q2. and above average decrease in working hours (5%). **Above average decrease in working hours is also found in Transport, Professional, Administrative and Other service**s. Workers in the sectors which faced high decreasing working hours also had above average reporting of wage reductions.

On the other hand, Trade and Information and Communication had mainly positive consequences. They had higher number of formal workers in 2020 than in 2019 (together with Construction), and at the same time no changes in working hours.

Table 9-1: Summary of the changes in the labour market in the first year of pandemic

Outcome	Overall	Vulnerable workers	Vulnerable groups
Employ-ment rate	YoY: no change Q1: +2.5% Q2: - 2% Q3: no change Q4: no change	Vulnerable jobs • *Informal (-10%)* • *Formal temporary (-6%)* Formal - sectors • *AFSA (-8%)* • *Finance (-3%)* • *Transport (-2%)* Informal - sectors • *Agriculture (14%)*	Employment gap increases • *Low educated vs. others* by 2.4 (Q3) and 3 p.p. (Q4) • *Youth vs. others* by 3 p.p. (Q2) • *SES region vs. others* by 2 p.p. (Q3)
Working hours	YoY: - 2.6% Q1: - 4.0%; Q2: - 7.4% Q3: + 2.6%; Q4: - 1.5%	Vulnerable jobs • *Self-employed (-7%)* • *Seasonal and occasional workers (-11%)* Sectors • *AFSA (-10%)* • *AER (-9%)* • *Construction (-7%)* • *Transport (-5%)* • *Profess. services (-5%)* • *Admin. services (-4%)* • *Other services (-4%)*	*Working hours trends* • *Youth vs. others* additional reduction of 1.3 hours in Q2; increasing working hours in Q4 • *SES region vs. others* Worked about 1 hour more in Q3 and Q4 • *Rural vs. urban* Shorter hours in rural areas in Q1 and Q3 (by 1 hour), longer in Q2 (by 1 hour)

Abbreviations YoY – year on year effect, AFSA – Accommodation and food service activities; ***AER*** *Arts, entertainment and recreation, SES – South East Serbia*

Vulnerable groups

Even before the pandemics, vulnerable groups such as youth, women, low-educated, persons from SES region and rural areas had higher likelihood working in at least one of the vulnerable jobs such as informal and temporary employment or in Accommodation and food services. Given that these jobs and sectors were hit the most, the pandemic negatively impacted the position of vulnerable groups and increased their gaps in employment and/or working hours. We investigated the independent contribution of belonging to each of these groups on the likelihood of employment and changes in the working hours.

Results indicate that one of the consequences of COVID-19 pandemic was **the increase in the inequalities of employment opportunities of low-educated, youth and persons from SES region**. These groups had significantly lower employment rates than their non-vulnerable counterparts even before the pandemic, and this gap has increased after the first year of pandemic. **This effect was most pronounced for low-educated, as they faced decreased employment in both Q3 and Q4, suggesting more durable and permanent effects. On the other hand, youth faced lower employment only in Q2, and SES region only in Q3.** While some of these gap increases could be temporary, they have still impacted their income security and could have a permanent negative impact on their employability.

Young workers also had higher decrease in working hours in Q2 and also had **an increase in working hours in Q4**. The increase in Q4, which was contrary to decrease for other workers, could be an attempt to make up for higher lost time in Q2 for those who remain in the same job, or evidence of new jobs that provided more stable work time. **Youth are also the only vulnerable group with lower wages in 2020, by about 2%**, suggesting they were more likely to accept low-paid jobs than other groups, given that minimum wage had not changed. **In addition to a temporary reduction of employment in Q3, workers in SES region had longer working hours in this quarter. They also worked longer working hours in Q4 than other regions.** Increasing hours of those who remained at work in Q3 and Q4 could be an attempt to make up for the income losses of workers who were out of employment in Q3. **Rural workers faced different working hours**

trends than urban workers likely due to seasonality of work in rural areas. We do not find any evidence of gender disparities in impacts of COVID-19 pandemic and this is different from the findings in other countries.

Work from home, working conditions and financial situation of the households

Work from home increased both in number of workers and share of time spent working remotely. The share of workers working from home had increased in 2020 by about 2 p.p , while the share of those who worked half or more of their time from home increased by about 35 percentage points. We find no evidence that increased work from home had a negative impact on the productivity; however**, this has caused additional strain as workers frequently lacked adequate working conditions such as office like space (30.3%) and adequate chair for work (26.7%)**. **Further strain on the position of workers was caused by the fact that some employers did not provide full compensation during sick leave**, with only 64.5% of the employees who went on the sick leave due to COVID-19 actually receiving full replacement rate, which was recommended by the government.

Limited data that we had at our disposal (which did not include detailed analysis of income sources) suggest that while **on average the position of vulnerable households did not deteriorate**, **many of those from the first quintile saw worsening of their financial situation**. This group is composed of different groups including both vulnerable workers and jobless households. Since vulnerable workers were hit significantly during the pandemic, their income is likely lower. On the other hand, for jobless households the main income source are social transfers (pensions, benefits etc.) which have not decreased during the pandemic. Therefore, although more likely to be poor than vulnerable workers before the pandemic, haven't faced decreases in their incomes. Some research (Perugini & Vladisavljević, 2021) suggested that the pandemic is likely to produce "new poor", as **many of vulnerable workers who were out of work** (or had lower number of months of employment) **during the pandemic** cannot rely on the income from the vulnerable employment. However, additional research that would

analyse different income sources in more detail is needed to confirm this has happened in Serbia.

Increasing average incomes for those with lower incomes are in line with some of the measures implemented by the government. Firstly, the increase of the average income in the first and second quintile is in line with 10% increase of the minimum wage, which occurred at the beginning of 2020. Secondly, pensioners and social benefit recipients received one-off transfer in the amount of 4,000 RSD, while the assistance was also provided to 14,000 most vulnerable women in Serbia. Finally, universal cash transfer to adult population in the amount of 100€ has certainly had more impact on the household income in the first than on the income of the households in the upper parts of the wage distribution.

Policy implications

Support measures to mitigate the economic consequences of COVID-19 in Serbia were the most generous among the Western Balkans countries, as the government wanted *efficient implementation* of fiscal measures *without unnecessary procedures,* so that the help arrives in time to those who need it the most.[69] Employment subsidy and tax deferrals, main pillars of the support towards business were implemented across the entire private sector, with the exception of Finance sector, with stronger assistance to MSMEs than to large companies. According to ILO estimates (ILO, 2020) measures in the first half of the year only produced a cost of about 5 percent of the GDP. These measures and partially responsible for a high budget deficit of 8.1 percent – higher than in EU and most countries in the region, and the surge in the public debt to 57.4 percent of GDP (by 5.4 percentage points). However, the public debt share in GDP remains bellow EU-27 average. **These measures undoubtedly had their role in preserving formal permanent employment and the stronger support towards MSMEs was justified, as they were more vulnerable from the perspective of liquidity**

[69] https://ras.gov.rs/uploads/2020/04/program-01-web.pdf (Serbian only)

However, the amount and length of the assistance to firms should have been differentiated according to the estimated risks each sector faced and initial estimates of their performances. Our analysis suggests that some sectors such as Information and communication and Trade prospered in the terms of increased employment, while others such as Accommodation and Food services faced the strongest decreases in both employment and working hours. Estimation of the risks could have included the information whether workers in sector could work from home and if their work requires direct contact with other people, as these jobs were under a greater impact. Although such data are not available for Serbia, these estimates could have been taken from comparative research for other countries such as ICP (Barbieri et al., 2022) for Italy or O*Net for US (Dingel & Neiman, 2020). **Although sector-specific support was applied in the late 2020, differentiation could have been done earlier, and therefore the assistance would be better targeted.**

On the other hand, jobs of formal temporary workers were not directly targeted with employment retention measures, and they suffered a decrease in employment. If their contract expired during the pandemic, these workers had difficulties in finding next job due to pandemic, while their income stability was seriously compromised**. Similarly, the employment of informal workers was negatively affected by the pandemic**, as they don't have working contracts to rely on. Employment in both groups depends on availability of temporary jobs which have not be available during the pandemic, and their incomes were hit severely by the pandemic. **Income stability of these workers should have been targeted by income support measures. While it is difficult to target this group, one mechanism could be to grant financial support to all unemployed persons registered with the National employment service.**

Pandemic has also increased in the inequalities of employment opportunities of low-educated, youth and in SES region. While government programmes for youth such as "My first wage"[70] and support for young people to start their own business[71] are important programmes to support their employment, **for those who were hit the most – the low**

[70] https://mojaprvaplata.gov.rs/poslodavci (Serbian only)
[71] https://fondzarazvoj.gov.rs/lat/proizvodi/zene-mladi (Serbian only)

educated – there haven't been programs specifically designed to address their needs. **Similarly applies to workers from SES region, as a least developed part of the country.**

At the same time, some of the workers' rights were violated during the crisis and the government needs to ensure that they are adhered to a greater degree. Employees (un)willingly used holiday days in the period of low economic activity in Q1 and Q2 and therefore they could not use it during the summer. Therefore, **workers were not able to use their holidays for rest, but rather to accommodate for the low business activity**. Furthermore, according to the recommendation from the Government[72], the employers were to pay 100% of the wage to the employee who went on the sick leave due to COVID-19 infection. However, **about one third of the employees did not receive full amount of compensation during sick leave.** Finally, about one third of the workers who worked from home did not have adequate working conditions such as office like space and adequate chair for work, which could have cause additional health problems. In other words, the **employers haven't provided working conditions for those who were working from home to a sufficient degree**.

Implications for National employment service

The Public Employment Service has a very important role during economic downturns to mitigate the negative consequences on the labour force. In particular, certain characteristics of PES have been identified as facilitating in times when PES needs to adapt to new circumstances. In particular, the PES should strive to have the following features:

- Decentralised system with a flexibility in implementation and accountability framework.
- Flexible ALMPs with the possibility to pass regulations in exceptional circumstances and strong political support
- Mature relationship with private providers of ALMPs

[72] https://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/zakljucak/2020/50/2/reg (Serbian Only)

- High level of engagement if stakeholders (social partners, researchers, etc.)
- High level of digitalisation
- Flexibility of resources such as budget and adaptive staff
- Preparedness for crisis situations (pre-existing contingency plan, pre-existing policies for economic crisis and pre-existing policies for teleworking)

Overall, the expenditures on ALMPs should be boosted throughout the pandemics to mediate negative long-term impacts of the pandemic. There is a set measures for PES that have been identified as best practice both in the short and in the medium-term.

The following measures have been identified as beneficial in the initial phase of the pandemic:

- Digitalising processes, boosting remote channels, automating processes
- Simplifying processes for clients and staff
- Adapting processes to meet health guidelines
- Adapting communication to staff and clients
- Adopting new tools to increase the quality and timeliness of statistics and management information
- Reallocating staff, increasing staff numbers and training staff to increase PES capacity

After the initial adaptations of the functioning of the PES to the new circumstances, and while there are still restrictions limiting economic activity the PES should prioritise the following measures:

- Job retention schemes
- Labour market trainings

Once the economic activity has resumed, the recovery phase starts and now the PES should invest in subsidised employment and job search assistance

programs. In particular, the following measures can be implemented in this phase:

- Subsidised private sector employment (hiring subsidies and start-up incentives)
- Additional support to vulnerable groups
- Continuous delivery ALMP measures
- Public works
- Job search assistance programs (counselling, skills assessment, and career advice)

After the pandemic has ended, the PES and the government should evaluate the cost-effectiveness and impact of the implemented measures and develop strategy how to improve on weaknesses identified during the pandemic.

Summary

As a response to the outbreak of the COVID-19 pandemic, the Government of Serbia declared the state of emergency on March 15, 2020. The state of emergency included a number of virus containment measures that affected the workers, population mobility, and economic activity in general. After the state of emergency ended – on May 6, containment measures were gradually withdrawn. However, there was a new surge of COVID-19 cases in June/July, and October to December and containment measures were introduced, albeit milder than during the state of emergency, once again putting limitations on business activities.

This book analyses the effects of the COVID-19 pandemic on the labour market and financial situation of the households in Serbia and identifies the groups that were hit the most during the crisis. The results presented stem from the analysis of Labour Force Survey (LFS) and National employment service (NES) data and from INEQ-RS-COVID-19– a new nationally representative survey on the effects of COVID-19, designed particularly to analyse labour market and household outcomes changes that occurred during the pandemic.

Anticipating the economic downturn, the government adopted generous support measures towards firms with near-universal character, which undoubtedly provided a lifeline for some businesses. Besides tax deferrals, main employment retention measures were direct subsidies applied across the entire private sector to the micro, small and medium enterprises (MSMEs) and large enterprises. Compared to other economies, the GDP drop in Serbia in 2020 was relatively low – only 1%, however, with diverging trends within the year and across sectors.

Main findings

The decrease in the economic activities in 2020 has been transmitted to the labour market activity without any lag – with stronger effects in terms of working hours, i.e. at the intensive margin, than in terms of employment. Compared to 2019, the employment rate in 2020 remained unchanged, while working hours decreased by about 1 hour on average (or by 2.6%). The fact that the majority of the effects took place at the intensive margin can partially be explained by employment retention subsidy, which

receipt depended on keeping the pre-pandemic number of employees (i.e. not reducing them by more than 10%).

The intensity of containment measures in different quarters directed the impact of the pandemic on the labour market. Most of the adverse effects on the labour market happened in Q2, during the state of emergency. Compared to the 2019, the employment rate decreased only in Q2 by 1 p.p. (or by 2%), while the most significant decreases in the working hours were in Q1 – by 1.5 hours and particularly in Q2 – by 3 hours (i.e. by 4.0% and 7.4%). The main reason for lower working hours in the first part of the year was absenteeism due to low business activity. For some of them, businesses were entirely closed, while in other cases, their working time was limited. Restriction measures caused some companies to completely close, while in others working hours were limited. In Q3 working hours increased, as significantly fewer workers were on holidays than in the previous years, in an attempt to make up for some lost time and income. In Q4, as some limitations on working hours were reintroduced due to rising cases, working hours were again reduced (by 0.5 hours, or by 1.5% compared to the previous year).

While the number of permanent workers increased, **the number of informal and formal temporary workers decreased in 2020 by about 10% and 6%**. The analysis suggests that while some of informal and formal temporary workers found permanent positions, and some were dismissed, **the main reason for this decrease seems to be the low availability of informal and temporary jobs in 2020**. For a large number of these workers, employment is mostly transitory, so after completing one job, they look for another. In that sense, the pandemic has put a significant hurdle in their usual labour market dynamics. On the other hand, the **most prominent decrease in the working hours was among self-employed and seasonal and occasional workers**, **by 7 and 11% respectively**. While retention subsidies for MSMEs provided job security for the formally self-employed, the pandemic reduced the time they could spend at work. The decrease in the working hours of self-employed is likely the reason they also faced a decline in their earnings by about 10%.[73]

[73] The analysis of wage trends relies only on the data from INEQ-RS-COVID-19 survey.

The consequences of the pandemic were considerably different across the sectors. The accommodation and food services activities (AFSA) sector suffered the most significant decline both in employment and working hours. This sector was under the highest impact as it requires close contact with customers and cannot be performed from home or replaced with online purchases**.** The number of formally employed in the AFSA sector was in 2020 lower by 8% than in 2019, while working hours were reduced by 10%. Additionally, about one-third of workers in the AFSA sector faced unpaid leave and wage reductions, the highest of all sectors. **After AFSA, Arts, entertainment and recreation and Construction sectors faced the most substantial decreases in the working hours** of 9% and 7%. At the same time, an above-average reduction in working hours is also found in Transport, Professional, Administrative and Other services, however these sectors have not faced the loss of formal jobs. Finance sector faced a significant temporary decrease in formal employment in Q2 by 25%, however finishing the year with only a 3% decrease, while Transport also had a reduction of formal employment by 2% annually. **Most informal jobs were lost in the Agriculture sector.** While the number of formal jobs in agriculture remained unchanged, informal jobs in this sector shrunk by about 14%. On the other hand, Trade and Information and Communication had yearly increases in employment and did not face working hours decreases.

One of the consequences of the COVID-19 crisis was **the increase in the inequalities of employment opportunities for low-educated, youth and persons from South-Eastern Serbia (SES)**. These groups had significantly lower employment rates than the rest of the population even before the pandemic, and this gap has increased after the first year of the pandemic. **This effect was most pronounced for low-educated, as they faced decreased employment in both Q3 and Q4** (by 2.4 and 3.0 percentage points)**,** unlike other workers for whom employment was unchanged**. On the other hand, youth and workers from the SES region faced temporarily lower employment only in Q2 and Q3, respectively.** Young workers also had a higher reduction in working hours in Q2 compared to other workers, as well as an increase in working hours in Q4, in contrast to others, whose working hours were reduced this quarter. Young people were also the only vulnerable group to have lower earnings during the pandemic, by about 2%. In addition to a temporary reduction of employment in Q3, workers in the

SES region had longer working hours in this quarter and in Q4. Rural workers faced different working hours trends than urban workers, likely due to the seasonality of their work, which prevented making up for the lost time from the first part of the year in Q3.

The pandemic has caused a significant increase in remote working. While we find no evidence of negative impacts on productivity, **more frequent work from home did cause additional difficulties, because about one third of those who worked from home did not have adequate conditions** such as office-like space and adequate chairs for work. **An additional problem for workers during the pandemic was that some employers did not provide full compensation during sick leave**, in line with government recommendations.

Limited data on household income that we had at our disposal[74] suggest that while **the position of vulnerable households did not deteriorate on average**, **many of those from the first quintile saw a worsening financial situation**. These results are probably due to the heterogeneity of this group, which includes both households of vulnerable workers and households without work. While some households in the first group faced job loss or wage cuts, the main sources of income for jobless households – pensions and social transfers – were not reduced during the COVID-19 pandemic, while some additional transfers to them have been paid.

Policy implications

Support measures to mitigate the economic consequences of COVID-19 in Serbia were the most generous among the countries in the Western Balkans. The government has set a goal of *efficient implementation* of fiscal measures *without unnecessary procedures*, so that the help arrives in time to those who need it the most.[75] Employment retention subsidies and tax deferrals – central pillars of support to enterprises – were

[74] Nationally representative income data used to estimate poverty for 2020 are collected within Survey on Income and Living Conditions (SILC) 2021 survey and are available only in late 2022. In this report we present findings based on self-estimated household income from INEQ-RS-COVID-19 survey. These results should be treated as preliminary, given that SILC survey collects the data on different income sources, in much more detail than INEQ-RS-COVID-19 survey and uses additional information to arrive to a more reliable estimate of the household income.

[75] https://ras.gov.rs/uploads/2020/04/program-01-web.pdf (Serbian only)

implemented across the entire private sector, with the exception of the Finance sector, with more substantial assistance to MSMEs than to large companies. These measures partly caused a high budget deficit of 8.1% of the GDP – higher than in the EU and most countries in the region. At the same time, public debt rose to 57.4% of GDP (by 5.4 percentage points), but remains below the EU-27 average and most countries in the region. **These measures undoubtedly had their role in preserving formal permanent employment, and the more substantial support towards MSMEs was justified, as they were more vulnerable in the terms of liquidity.**

However, the amount and length of the assistance to firms should have been differentiated according to the estimated risks each sector faced during the pandemic and initial estimates of their performances. Our analysis indicates that some sectors such as Information and communication and Trade had increased employment and no changes in the working hours. In contrast, Accommodation and food services sector faced the most substantial decreases in employment and working hours, while other sectors are in between these two extremes. The risk assessment could include the information on whether workers in the sector can work from home and if their work requires direct contact with other people, as these jobs were under a greater impact of the pandemic. Although such data are not available for Serbia, these estimates could have been taken from research for other countries such as ICP for Italy or O*Net for US. **Although sector-specific support was applied in late 2020, differentiation could have been implemented earlier, and therefore the subsidy would be better targeted and cause lower costs.**

On the other hand, jobs of formal temporary workers were not in the focus of measures to preserve employment and their number decreased. If their contract expired during the pandemic, these workers had difficulties in finding their next job due to the pandemic, and as a result, their income stability was compromised**. Similarly, the pandemic has led to a reduction in the number of workers in the informal sector**, who do not have contracts to protect their employment and income. Employment in both groups depends on the availability of temporary jobs which have been less available during the pandemic. **The income stability of these workers could have been preserved to a greater extent by additional income**

support measures. While it is difficult to target these groups, one mechanism could be to temporarily, during the period of the pandemic, grant financial support to all unemployed persons registered with the National employment service.

Since the pandemic has increased the inequalities of employment opportunities of low-educated, youth and in the SES region, employment programmes focused on these groups are necessary. While government programmes for youth such as "My first wage" and support for young people to start their own business are important to support their employment, those who were hit the most – the low educated – haven't had programs specifically designed to address their needs. The same applies to workers from the SES region, as a least developed part of the country. While some of these increases in employment inequalities could be temporary, they have still impacted their income security and could have a permanent negative impact on their employability.

At the same time, **some of the workers' rights were violated during the crisis and the government needs to ensure that they are adhered to a greater degree.** During the period of low economic activity in Q1 and Q2 employees used their holiday days, and therefore they could not use them during the summer months. In other words, **during the pandemic, the vacation days of many workers were used in periods when business could not work**. **Therefore, they were doubly burdened - locked in their homes during the state of emergency and without holidays in the summer months.** Furthermore, according to the recommendation from the Government, the employers were to pay 100% of the wage to the employee who went on sick leave due to COVID-19 infection. However, **about one-third of the employees did not receive the full compensation during COVID-19 sick leave.** Finally, about one-third of the workers who worked from home did not have adequate working conditions such as office-like space and adequate chair for work, which could have caused additional health problems. In other words, **the employers haven't provided working conditions for those working from home to a sufficient degree**.

Rezime

U cilju suzbijanja pandemije virusa COVID-19, Vlada Srbije je 15. marta 2020. godine proglasila vanredno stanje, koje je podrazumevalo niz mera u cilju suzbijanja virusa, koje su uticale na radnike, mobilnost stanovništva i ukupnu privrednu aktivnost. Nakon prestanka vanrednog stanja 6. maja,ove mere su postepeno redukovane. Međutim, nakon novog rasta broja zaraženih u junu/julu i u periodu oktobar/decembar ponovo su uvedene su mere, iako blaže nego tokom vanrednog stanja, koje su opet ograničile privrednu aktivnost.

U ovom knjizi analizirani su efekti COVID-19 pandemije na tržište rada i materijalno stanje domaćinstava u Srbiji i identifikovane su grupe koje su bile najteže pogođene tekućom krizom. Rezultati su zasnovani na analizi podataka Ankete o radnoj snazi (ARS) i Nacionalne službe za zapošljavanje (NSZ), kao i iz INEQ-RS-COVID-19 – novog nacionalno reprezentativnog istraživanja o efektima pandemije, osmišljenog posebno za analizu promena na tržištu rada i finansijske situacije domaćinstava do kojih je došlo tokom pandemije.

U skladu sa očekivanim efektima pandemije na ekonomiju, Vlada je usvojila mere podrške preduzećima, koje su bile skoro univerzalnog karaktera i koje su nesumnjivo imale veoma značajan uticaj na opstanak nekih preduzeća. Pored odlaganja plaćanja poreza, glavna mera usmerena ka održanju zaposlenosti bile su direktne subvencije, u obliku direktnih davanja celokupnom privatnom sektoru. U poređenju sa drugim privredama, pad BDP-a u Srbiji u 2020. godini bio je relativno nizak – samo 1%, međutim, sa različitim trendovima u toku godine i po sektorima.

Glavni nalazi

Pored smanjenja privrednih aktivnosti u 2020. godini, efekti pandemije su se istovremeno ispoljili i na tržište rada, sa jačim efektima u pogledu smanjenja časova rada, nego zaposlenosti. U odnosu na 2019. godinu, stopa zaposlenosti u 2020. godini je ostala nepromenjena, dok su časovi rada u proseku bili niži za oko 1 sat (ili za 2,6%). Činjenica da se većina efekata desila na intenzivnoj margini, tj. kroz smanjenje časova rada, delimično se može objasniti subvencijama privredi, u okviru kojih uslov za prijem bio je

zadržavanje predpandemijskog broja zaposlenih (tj. smanjenja ne većeg od 10%).

Intenzitet mera suzbijanja pandemije u različitim kvartalima uticao je na jačinu efekata na tržište rada. Većina negativnih efekata dogodila se u drugom kvartalu (Q2), tokom vanrednog stanja. Stopa zaposlenosti je smanjena samo u Q2 za 1 procentni poen (p.p., ili za 2%), dok je najveći pad u časovima rada zabeležen u Q1 – za 1,5 sat i posebno u Q2 – za 3 sata (tj. za 4,0% i 7,4%). Glavni razlog za kraće radno vreme u prvom delu godine bio je izostanak sa posla uzrokovan niskom poslovnom aktivnošću. Dok su neka preduzeća bila potpuno zatvorena, u drugim je radno vreme bilo značajno ograničeno. U Q3 časovi rada su bili viši nego prethodne godine, jer je znatno manje radnika koristilo godišnji odmor, u pokušaju da se nadoknadi izgubljeno vreme i prihod. U Q4, nakon što su ponovo uvedena ograničenja radnog vremena zbog porasta broja zaraženih, časovi rada su opet bili niži nego prethodne godine (za 0,5 sati).

Dok je broj radnika koji rade za stalno povećan, **broj neformalnih i formalnih radnika koji nemaju stalni posao je smanjen u 2020. godini za oko 10% i 6%**. Analiza sugeriše da, dok su neki od ovih radnika našli stalna radna mesta, a neki od njih otpušteni sa poslova, **glavni razlog za ovo smanjenje je bila niska dostupnost neformalnih i ne-stalnih poslova u 2020. godini**. Kod velikog broja ovih radnika zapošljavanje je uglavnom tranzitorno, pa nakon završetka jednog posla, oni traže drugi. U tom smislu COVID-19 pandemija je postavila značajnu prepreku u njihovoj uobičajenoj dinamici na tržištu rada, jer ovi poslovi nisu bili dostupni u meri u kojoj je to bilo prethodnih godina. S druge strane, **najznačajnije smanjenje u časovima rada bilo je kod samozaposlenih i sezonskih i povremenih radnika**, **za 7% i 11%**. Dok su subvencije sektoru mikro, malih i srednjih preduzeća (MMSP) obezbedile sigurnost poslova formalno samozaposlenih, pandemija je smanjila vreme koje su mogli da provode na poslu. Manji broj časova rada samozaposlenih je verovatno razlog zašto su se oni suočili sa i padom zarada od oko 10%.[76]

Posledice COVID-19 pandemije bile su veoma različite u različitim sektorima. Najveći pad zaposlenosti i časova rada bio je prisutan u

[76] Analiza kretanja zarada oslanja se samo na podatke iz INEQ-RS-COVID-19 istraživanja.

sektoru usluga smeštaja i ishrane. Ovaj sektor je bio pod najvećim uticajem pandemije, jer obavljanje aktivnosti podrazumeva bliski kontakt sa korisnicima usluga, koji se ne može obavljati od kuće ili zameniti online kupovinom**.** Broj formalno zaposlenih u ovom sektoru u 2020. godini bio je manji za 8% u odnosu na 2019. godinu, dok su časovi rada smanjeni za oko 10%. Pored toga, oko jedne trećine radnika u sektoru usluga smeštaja i ishrane suočilo se sa neplaćenim odsustvom i smanjenjem plata, što je više od svih sektora. **Posle sektora usluga smeštaja i ishrane, sektori umetnosti, zabave i rekreacije i građevinarstva imali su najveće smanjenje časova rada** od 9% i 7%. Natprosečno smanjenje časova rada zabeleženo je i u saobraćaju, stručnim, administrativnim i drugim uslugama, ali u ovim sektorima nije došlo do gubitka formalnih poslova. Sektor finansijskih usluga suočio se sa značajnim privremenim smanjenjem formalne zaposlenosti u Q2 za 25%, ali ipak završivši godinu sa padom od samo 3%, dok je u sektoru transportnih usluga takođe došlo do smanjenja formalne zaposlenosti za 2% na godišnjem nivou. **Najveći broj neformalnih poslova je izgubljen u sektoru poljoprivrede.** Dok je broj formalnih poslova u poljoprivredi ostao nepromenjen, broj neformalnih poslova je smanjen za 14%. Sa druge strane, sektori trgovine i informisanja i komunikacija su imali godišnji porast zaposlenosti i nisu suočili sa smanjenjem radnog vremena.

Jedna od posledica krize izazvane virusom COVID-19 bilo **je povećanje nejednakosti u mogućnostima zaposlenja za niskoobrazovane, mlade i u regionu Jugoistočne Srbije** (JIS). Ove ranjive grupe su, i pre početka pandemije, imale značajno niže stope zaposlenosti od ostatka populacije, a ovaj jaz se povećao nakon prve godine pandemije. **Ovo povećanje je bio najizraženije kod niskoobrazovanih, jer su se u Q3 i Q4 suočili sa smanjenom zaposlenošću** (za 2,4 i 3,0 procentna poena)**,** za razliku od ostalih radnika kod kojih nije bilo promena**. S druge strane, privremeno niža zaposlenost bila je prisutna kod mladih u Q2 i radnika iz regiona JIS u Q3.** Mladi su takođe imali nešto više smanjenje radnog vremena u Q2 u odnosu na ostale radnike, kao i povećanje radnog vremena u Q4, za razliku od ostalih grupa kod kojih je radno vreme u ovom kvartalu bilo smanjeno. Mladi su bili i jedina ranjiva grupa koja je tokom pandemije imala niže zarade, za oko 2%. Pored privremenog smanjenja zaposlenosti u Q3, radnici u regionu JIS-a su u ovom kvartalu i u Q4 imali duže radno vreme. Radnici

iz ruralnih područja su se suočavali sa drugačijim trendovima časova rada od onih iz gradskih područja, verovatno zbog sezonskog karaktera posla u ruralnim sredinama, koji je onemogućio nadoknađivanje izgubljenog radnog vremena u Q3.

Pandemija je izazvala značajan porast učestalosti rada od kuće. Iako nije negativno uticao na produktivnost, **učestaliji rad od kuće je izazvao dodatne poteškoće, jer oko trećina oni koji su radili od kuće nisu imali adekvatne uslove za rad** kao što su prostor nalik na kancelariju i adekvatna stolica za rad. **Dodatni problem za radnike u toku pandemije bilo je to što pojedini poslodavci nisu obezbedili punu naknadu za vreme bolovanja**, u skladu sa preporukama Vlade.

Ograničeni podaci o prihodima domaćinstva kojima smo raspolagali[77] sugerišu da **iako se položaj ugroženih domaćinstava u proseku nije pogoršao**, **mnogi od onih iz prvog kvintila (najsiromašnijih 20%) beleže pogoršanje finansijske situacije**. Ovi rezultati verovatno su uzrokovani heterogenošću ove grupe, koja obuhvata kako domaćinstva ugroženih radnika tako i domaćinstva bez posla. Stoga, dok su se neka domaćinstva iz prve grupe suočila sa gubitkom posla ili smanjenjem plata, glavni izvor prihoda za domaćinstva bez posla su penzije ili socijalni transferi, koji nisu smanjivani smanjeni tokom pandemije COVID-19, a neki transferi ka njima su čak bili i povećani.

Implikacije istraživanja za javne politike

Mere podrške za ublažavanje ekonomskih posledica COVID-19 u Srbiji bile su najizdašnije među zemljama Zapadnog Balkana. Vlada je za cilj postavila *efikasnu primenu* fiskalnih mera *bez nepotrebnih procedura*, kako bi pomoć na vreme stigla onima kojima je najpotrebnija.[78] Subvencije za očuvanje zapošljavanja i odlaganje plaćanja poreza – centralni stubovi podrške preduzećima – sprovedeni su u celom privatnom sektoru, sa

[77] Nacionalno reprezentativni podaci o prihodima koji se koriste za procenu siromaštva za 2020. godinu prikupljaju su u okviru Ankete o prihodima i uslovima života (SILC) 2021. godine i dostupni su tek krajem 2022. U ovom izveštaju predstavljamo nalaze zasnovane na samoproceni prihoda domaćinstva iz INEQ-RS-COVID-19 istraživanja. Ovi nalaze treba posmatrati kao preliminarne, s obzirom da SILC istraživanje prikuplja podatke o različitim izvorima prihoda mnogo detaljnije od INEQ-RS-COVID-19 istraživanja i koristi dodatne informacije da bi došlo do pouzdane procene prihoda domaćinstva.

[78] https://ras.gov.rs/uploads/2020/04/program-01-web.pdf (Serbian only)

izuzetkom sektora finansija, i uz značajniju pomoć MMSP sektoru nego velikim preduzećima. Ove mere su delimično su uslovile visok budžetski deficit u 2020. – od 8,1% BDP-a, koji je bio viši nego u EU i većini zemalja u regionu. Istovremeno javni dug je porastao na 57,4% BDP-a (za 5,4 procentna poena), međutim i dalje je ispod proseka EU-27 i većine zemalja u regionu. **Ove mere su nesumnjivo imale značajnu ulogu u očuvanju formalnog zaposlenja radnika sa stalnim poslovima, a značajnija podrška MMSP bila je opravdana, jer su ona bila ranjiviji sa stanovišta likvidnosti.**

Međutim, iznos i dužina davanja pomoći preduzećima je trebalo da bude različita u različitim sektorima, u skladu sa procenjenim rizicima sa kojima se svaki sektor suočavao u toku pandemije i početnim procenama kretanja u njihovim aktivnostima. Naša analiza ukazuje na to da su neki sektori kao što su informacije i komunikacije i trgovina napredovali u smislu povećanja zaposlenosti. Nasuprot tome, sektor usluge smeštaja i ishrane se suočio sa najvećim smanjenjem broja zaposlenih i radnih sati, dok su ostali sektori bili između ova dva ekstrema. Procena rizika je mogla da obuhvati informacije o tome da li radnici mogu da rade od kuće, i da li njihov posao zahteva direktan kontakt sa drugim ljudima, jer su ovi poslovi bili pod znatno većim uticajem pandemije. Iako takvi podaci nisu dostupni za Srbiju, ove procene su mogle biti preuzete iz istraživanja za druge zemlje kao što su ICP za Italiju ili O*Net za SAD. **Iako je sektorska podrška primenjena krajem 2020. godine, diferencijacija je mogla da se sprovede i ranije, pa bi stoga pomoć bila bolje usmerena i uzrokovale bi manje troškove.**

S druge strane, poslovi formalnih radnika koji nisu stalno zaposleni nisu bili u fokusu mera očuvanja zaposlenosti i njihov broj se smanjio. Istek ugovora za ove radnike je značio ostajanje bez posla, jer su zbog pandemije imali poteškoća da nađu novi posao, i kao rezultat toga, stabilnost njihovih prihoda je bila značajno ugrožena**. Slično tome, pandemija je dovela i do smanjenja broja radnika u neformalnom sektoru**, koji nemaju ugovore koji bi štitili njihovo zaposlenje. Zaposlenost u obe grupe zavisi od dostupnosti privremenih poslova, koji su bili manje dostupni tokom pandemije nego inače. **Stabilnost prihoda ovih radnika mogla je biti očuvana u većoj meri uz pomoć dodatnih mera novčane podrške u toku**

pandemije. Iako je teško targetirati pomoć za ove radnike, jedan od mehanizama mogao je biti da se privremeno, tokom perioda pandemije, dodele finansijska sredstva svim nezaposlenim licima prijavljenim na evidenciju Nacionalne službe za zapošljavanje.

Kako je pandemija povećala nejednakosti u mogućnostima zapošljavanja niskoobrazovanih, mladih i u regionu Jugoistočne Srbije, neophodni su programi zapošljavanja fokusirani na ove grupe. Dok su vladini programi za mlade poput „Moja prva plata“ i podrška mladim preduzetnicima svakako važni, za one koji su najviše pogođeni – niskoobrazovane – posebnih programa za podsticaj zapošljavanja nije bilo. Isto važi i za radnike iz regiona Jugoistočne Srbije, kao najnerazvijenijeg dela zemlje. Iako bi neka od ovih povećanja nejednakosti mogla biti privremena, ona su svakako uticala na stabilnost njihovih prihoda, a mogu imati trajan negativan uticaj na njihovu zapošljivost.

Istovremeno, neka radnička prava bila su ugrožena tokom krize i vlada treba da obezbedi da se ona u većoj meri poštuju u vanrednim situacijama. Zaposleni su u periodu niske privredne aktivnosti u Q1 i Q2 koristili dane godišnjeg odmora, koji onda nisu mogli da budu korišćeni tokom leta. Drugim rečima, **u toku pandemije godišnji odmori mnogih radnika korišćeni su u periodima kada poslovanje nije moglo da se obavlja. Stoga su radnici bili dvostruko opterećeni – zatvoreni u svojim domovima tokom vanrednog stanja i bez odmora u letnjim mesecima**. Takođe, prema preporuci Vlade, poslodavci je trebalo da isplate 100% zarade zaposlenom koji je otišao na bolovanje zbog infekcije virusom COVID-19. Međutim, **oko jedne trećine zaposlenih nije primilo punu nadoknadu tokom bolovanja zbog COVID-19.** Konačno, oko jedne trećine radnika koji su radili od kuće nije imalo adekvatne uslove za rad kao što su kancelarijski prostor i adekvatna stolica za rad, što je moglo da izazove dodatne zdravstvene probleme. Drugim rečima, **poslodavci nisu u dovoljnoj meri obezbedili uslove za rad onima koji rade od kuće.**

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