THE HUNGARIAN LABOUR MARKET 2020

The COVID-19 Pandemic

Editors

Ágnes Szabó-Morvai
István Kónya
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Centre for Economic and Regional Studies

Institute of Economics

Budapest, 2022

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CENTRE FOR ECONOMIC AND REGIONAL STUDIES,
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BUDAPEST, 2022

Edition and production: Centre for Economic and Regional Studies, Institute of Economics.
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Translated by: Anikó Bíró (*In Focus 3.2*); Réka Branyiczki (*In Focus 3.2*); Czethoffer Éva (*Statistical Data*); Péter Elek (*In Focus 3.2*), Júlia Koltai (*In Focus 2.5*); Gábor Oblath (*In Focus 1*); Dániel Prinz (*In Focus 2.5*); Gergely Röst (*In Focus 2.5*); András Simonovits (*In Focus 3.3*) Avalon Consulting (*Intodruction; Foreword; Hungarian Labour Market 2020; In Focus: 1; 2.1; 2.2; 2.3; 2.4; 2.6; 2.7; 3.1; 3.4; 4.1; 4.2; 4.3; 4.4; 5.1; 5.2; 5.3; 5.4; 5.5; 6.1; 6.2; 6.3; 6.4; 6.5; K2.1; K2.2; K2.3; Labour market policy instruments; Labour market measures to counteract the coronavirus pandemic in Europe after the first wave of the pandemic; The impact of the coronavirus pandemic on the operation and human resource management of companies*)
Revised by: Avalon Consulting Bt.

The publication of this volume has been financially supported by the Centre for Economic and Regional Studies, Institute of Economics

ELKH
Eötvös Loránd
Research Network

ISSN 1785-8062

Publisher: Imre Fertő
Copy editor: Anna Patkós
Design, page layout: font.hu
Typography: Garamond, Franklin Gothic

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PREFACE

The Institute of Economics of the Hungarian Academy of Sciences, with the support of the National Public Foundation for Employment, started publishing yearbooks entitled Labour Market Mirror in 2000, which presents the current characteristics of the Hungarian labour market and employment policy and analyses in detail in certain specific areas. During the compilation of the volumes in the past years, we have always aimed to provide experts working in public administration, local governments, NGOs, educational institutions, research institutes and the media with useful information on labour market processes in Hungary, the legislative and institutional environment of employment policy, and the latest results of Hungarian and international research projects on the Hungarian labour market.

An important aspect is that the studies and data published in the yearbook series should contain knowledge in the fields of labour economics and human resource management that can be used by higher education. In keeping with previous practices, this year the editors have again selected an area that is considered particularly important for understanding labour market trends in Hungary and the effectiveness of evidence-based employment policies. This year's volume looks at the coronavirus crisis and its impact on the labour market.

The publication consists of five main parts.

1 The Hungarian labour market in 2020

Labour market trends in 2020 were largely influenced by the pandemic and the economic policy responses to it. In the spring, during the first wave of the pandemic, strict distancing measures were introduced, which led to a decrease in employment and an increase in unemployment. Although the health consequences of the second wave in the autumn were much more severe than in the first, the objective of keeping the economy functioning led to less-restrictive measures and therefore had less impact on the main labour market indicators. The upward trend in the number of people in employment was broken in 2020; with 52 thousand fewer people classified as employed in the annual average compared to the peak of 4,512,100 in 2019. The lowest point was in the second quarter of the year when employment fell to 4 million 408 thousand, but from the third quarter it stabilised at around 4 million 480 thousand, and the employment rate for the 15–64 age group crossed the 70% threshold. The European Union has set an employment rate target of 75 percent for the 20–64 age group by 2020, which Hungary was able to achieve again in the third quarter, after a decline in the second quarter.

This positive picture is overshadowed by the fact that for many it was only possible to retain their employment status by working only a few hours a day or taking unpaid leave, with significantly lower income than before. The falling number of people in employment was accompanied by a rise in unemployment, with the number of the unemployed according to the ILO definition rising by 38,000 to 198,000 in a year. However, the annual average unemployment rate of 4.3% remained one of the lowest in the European Union. As a consequence of the more intensive exit from unemployment status, the long-term unemployment rate fell from 34.5% in 2019 to 28.2%, with a corresponding significant reduction in the average duration of unemployment. The number of registered unemployed increased; at the end of 2020, their number was 56 thousand higher than a year earlier, and nearly a third more people were claiming jobseeker's allowance, which is still only paid for up to three months. The number of beneficiaries jumped during the first wave of the pandemic but fell back to previous levels during the second wave, as the majority of eligible persons exhausted this option.

Job losses were highly segmented; with a significantly higher-than-average proportion of job losses in the service sector; primarily in hospitality, tourism, cultural and recreational services, and small businesses, as well as employees in enterprises with fewer than ten employees, those with low educational attainment, Women were slightly more impacted than men. The persistent impact on certain sectors of the economy has led to an increase in the proportion of people changing occupations during the year. The pandemic has also restricted labour migration, as several measures have made it more difficult to move between countries. Although originally, it was envisaged that those who lost their jobs due to the pandemic would be offered public work opportunities, this did not materialise and the number of people in the public work scheme continued to decline in 2020. The only major instrument to mitigate the negative impact on employment was the so-called wage subsidy scheme, under which the state took over part of the wages of those whose employers could only employ them at reduced hours. As a result of efforts to reduce face-to-face contact, the use of teleworking, previously marginal, has become widespread, with employers making particularly high use of home office opportunities in the case of skilled workers. The high growth rate of 9.7% in gross earnings in 2020 also reflects the impact of the pandemic, as well as the fact that more jobs were lost in sectors with lower average wages and health workers receiving a one-off higher benefit in July.

2 In Focus

The theme of this year's In Focus is an examination of the impact of Covid on the labour market and some other related areas (such as education and health). The aim is primarily to present the facts gathered during the first three waves of the pandemic and to conduct a primary analysis. Given the short time that has elapsed, it is not yet possible to draw any long-term conclusions.

After a description of the status of the labour market before the crisis, the second chapter discusses the main trends during the pandemic for narrowly defined labour market variables. The underlying dynamics of employment, subject to measurement error, show a sharp decline in the first wave of the crisis, followed by a rapid rebound. The fall was mainly due to increased job losses, while the recovery was driven by a temporary rise in finding jobs. The picture is more complex as there is a reallocation among jobs, the lasting effects of which are not yet clear.

In examining the impact of the crisis, the third chapter looks at the social groups most affected. Lockdowns and home-schooling hit mothers with young children hardest, while difficulties in the labour market impacted young people the most. Pensioners were less-directly affected by the labour market effects of the coronavirus but were indirectly impacted by economic policy measures affecting the sustainability of the pension system.

The rise of teleworking is a central feature of the crisis, but it has affected different professions very differently. Other flexible forms of work were side-lined. This also had an impact on the housing market, the first stylised conclusions of which are also presented in the fourth chapter of In Focus.

A wide range of Hungarian and international labour market measures are discussed in chapter five. The low use of job-retraining wage subsidies by international standards in the first wave and then the more extensive use of it in the second and third waves, as well as the new entrants into the jobseeker register and the less-than-expected use of the public work scheme are also discussed. The pandemic and lockdowns have posed particularly difficult challenges in the education and health care sectors. While distance learning has reduced the annual drop-out rate in schools, it may have negative consequences in the longer term. For example, learning efficiency is now lower – a simulation study estimated this to be a gap of one year on average. According to a survey, this may be due to missed lessons, lack of adequate computing facilities for part of the population or inadequate housing conditions.

In case of health care, it is important to quantify not only the direct but also the indirect effects. The poor health status of the Hungarian population is exacerbated by the lack of preventive and curative screening and treatment due to the coronavirus crisis. Deterioration in cancer, cardiovascular and mental health can be observed. The change in the public's attitude to risk is partly related to the latter: a survey shows that risk tolerance decreased substantially during the pandemic. Changes in education and health care systems, as well as social attitudes, can have a long-term impact on the labour market.

3 Government and enterprise labour market policy during the coronavirus

The first part of this block summarises the main regulatory changes to labour market policy instruments between June 2020 and May 2021, including temporary changes in the context of the coronavirus. In the context of institutional changes, this section describes the changes in vocational education, as well as the new institutions created as a result of the pandemic. An overview of labour market support presents the changes linked to the increase in the minimum wage, and in the area of services, it describes the programmes newly introduced to help businesses and employees. In terms of active labour market policy instruments, this section covers changes to the public work scheme, new employment incentive schemes, the continuation of the wage subsidy schemes introduced in response to the pandemic and recently published calls for proposals. Finally, further important policy changes with labour market implications are presented, including changes to the minimum wage and the guaranteed minimum wage, and changes to the tax and contribution system affecting the labour market:

The second part reviews the labour market impact of the policy instruments introduced in Europe in response to Covid in the period after the first wave of the pandemic. While during the first wave of the pandemic, the primary objective of the measures was to quickly improve the liquidity of businesses and thus to avoid massive job losses, as the pandemic situation eased, more emphasis was put on supporting economic recovery and addressing post-crisis challenges. Furthermore, the newly introduced policy instruments will be described, including programmes introduced earlier and extended due to the new wave of the pandemic. In this context, we review the continuation of wage subsidy programmes, the new job creation subsidies, unemployment reduction programmes as well as direct and indirect support provided to enterprises with a labour market impact. In the conclusions, the first publications on the evaluation of the European crisis management and the potential risks and challenges for the post-Covid labour market are presented.

The third part focuses on the exposure of companies to the coronavirus, and their possible responses and consequences. The Quarterly and Semi-Annual Business Review and the *Short-Term Labour Market Forecast* surveys, which were also carried out in autumn 2020 and spring 2021, are data collections that usually involve interviewing thousands of business managers. Based on these data, the impact of the pandemic on company operations and workforce management at the level of businesses and, in some cases, at the level of jobs and occupational groups are examined in depth. First, the exposure of companies is analysed by comparing observations for 2020 and 2021 regarding the economic crisis resulting from the coronavirus. The enterprises' crisis preparedness and exposure are investigated based on managers' assessment and experience of the pandemic so far. We will then look at job movements in the most-affected occupations in the period 2018–2021, and at the evolution of the balance of redundancies and recruitments by Hungarian Standard Classification of Occupations (HSCO) headings in the period before and after the outbreak of the coronavirus pandemic. Finally, the business-demographic background of the enterprise-level redundancies and recruitments in the HSCO headings most affected by the fluctuation are explained.

4 Statistical data

This part provides detailed information, in the structure used in previous years, regarding the main economic trends since the start of economic transition, the main characteristics of the population, labour market participation, employment, unemployment, inactivity, wages, education, labour market demand, regional disparities, migration, industrial relations, welfare benefits as well as regarding the international comparisons of some labour market indicators.

The data presented here have two main sources: on the one hand, the regular institutional and population-type labour market data collection of the Central Statistical Office: Labour Force Survey (LFS), institution-based labour statistics (IMS), Labour Force Account (MEM). On the other hand, the register of the National Employment Service and its data collections: Unemployment Register (NFSZ REG), Short-term Labour Market Projection Survey (PROG), Service Wage Survey (BT), and the Labour Market Information System of the Ministry of Information and Technology (MKIR). More detailed information on these data sources can be found at the end of the section on statistical data. In addition to the two largest data providers, data on old-age and invalidity pensions and benefits in this chapter come from the Central Administration of National Pension Insurance. In addition, the online databases of the Hungarian Central Statistical Office (HCSO), the National Tax and Customs Administration (NAV) and Eurostat were used for some tables and graphs.

The tables and figures can be downloaded in Excel format using the links below. The full set of tables describing labour market developments published in the Labour Market Mirror since 2000 is available at http://adatbank.krtk.mta.hu/tukor_kereso.

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The members of the Editorial Board would like to thank the staff of the *Centre for Economic and Regional Research, the Hungarian Central Statistical Office, the Hungarian State Treasury, the National Tax and Customs Administration, the Budapest Institute for Policy Analysis, the Institute for Economic and Business Research and the members of the Scientific Committee on the Economics of*

Human Resources of the Hungarian Academy of Sciences for their work in collecting and verifying the necessary information, editing the volume, preparing and discussing the individual sections. The volume would not have been possible without the outstanding and dedicated work of the staff of the KRTK Data Bank (Centre for Economic and Regional Research). We would like to thank the Eötvös Loránd Research Network for the financial support for the publication.

HUNGARIAN LABOUR MARKET 2020

TAMÁS BAKÓ & JUDIT LAKATOS

INTRODUCTION

In 2020, the GDP was 5 percent below the previous year, mainly due to the measures introduced in response to the coronavirus and the shock on the supply chain caused by the pandemic. Not surprisingly, Gross Value Added fell most in the hospitality and catering industry (–51.1 percent) and transport and storage sector (–20 percent). These sectors represent a relatively large share of employment and thus contributed significantly to the decline in employment. The fall in external demand caused by the coronavirus led to a significant reduction in exports by Hungarian companies, which in turn had a negative impact on the demand for labour in export-producing sectors. The fall in labour demand triggered several changes in the functioning of the economy, which in several respects differed from the response of the economy during the 2008–2009 crisis. The adjustment in employment took place largely in terms of intensive margins of labour – with a significant increase in part-time employment – while the change at the extensive margins of labour was not as large as in 2008–2009.[1] The government introduced several measures that have mitigated the pandemic's negative impact on employment, both directly (sectoral wage subsidies, abolition of taxes on work in priority sectors) and indirectly (loan repayment moratorium for enterprises).

It is also worth noting that the relatively moderate decline in employment can also be contributed to the fact that the fall in consumption was the second-smallest in the European Union, due to the loan repayment moratorium and the strong increase in real wages, so that the demand for labour in enterprises producing mainly for the domestic market did not fall significantly. Labour demand was also strengthened by the fact that the investment rate was exceptionally high (27.5%) despite the crisis. One of the most important labour market changes resulting from the pandemic was the significant increase in teleworking, which highlighted the need to further develop the digital capabilities of the economy and society.

MAIN LABOUR MARKET DEVELOPMENTS IN 2020

In 2020, the favourable Hungarian labour market trends of recent years were interrupted by the global outbreak of the coronavirus. The pandemic and its economic consequences have had a shocking impact on the labour market worldwide, including of course the Hungarian labour market. Al-

1 In 2009, the unemployment rate for 15–64-year-olds was 10.1 percent, an increase of 2.2 percentage points compared to the previous year. By contrast, in 2020, the unemployment rate for 15–64-year-olds was 4.2 percent, an increase of 0.9 percentage points compared to the previous year.

though macroeconomic indicators show that Hungary is among the countries in the European Union that have suffered less damage to the labour market, the impact of the pandemic is still significant, and some of the effects are difficult to quantify and no predictions can be made on the long-term consequences.

During 2020, there were two major waves of the pandemic, to which the government response differed in some respects. During the first wave – in the early spring – the main objective was to prevent the spread of the virus, which was to be achieved through lock down measures. As a result, the economy virtually ground to a halt, many production units temporarily suspended operations, only shops selling essential items were allowed to stay open, health facilities provided only essential care, education was switched to online mode, cross-border trade was disrupted, international tourism virtually ceased as all countries sought to prevent the spread of the pandemic. By the end of May, most restrictions had been lifted thanks to favourable epidemiological data, allowing shops to reopen and most social and business services to be used. But the first wave was followed by a second wave in early September, earlier than expected. Although the number of people infected and thus in need of health care was significantly higher than during the first wave (the latter was characterised by very favourable epidemiological indicators due to very strong restrictions on social interaction), the focus of the measures shifted to keeping the economy functioning and no severe restrictive measures that were in place in the first wave, at least those that would have had a more serious impact on the productive sector, were introduced. Between the two waves, the economy functioned more or less as usual, except in segments such as tourism, hospitality and certain sectors of the entertainment industry.

The impact of the pandemic is reflected in all the main employment indicators for 2020 and has triggered some new labour market phenomena. Overall, however, the labour market consequences of the pandemic were less severe than those of the economic crisis that started at the end of 2008, but the impact was concentrated on particular areas of the economy.

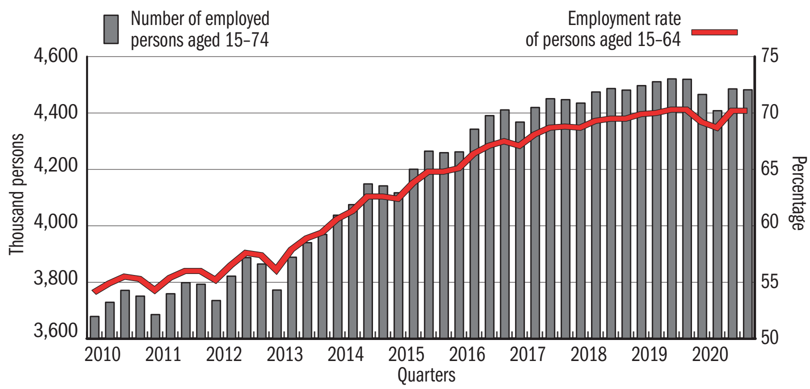
- The upward trend in the number of people in employment broke in 2020, with an annual average of 52,000 fewer people classified as employed compared to the peak of 4,512.1 thousand in 2019, but this was still only about half the decline seen in the 2008 crisis. The positive picture is somewhat tempered by the fact that it was sometimes only possible to retain employment status by working a few hours a day or taking forced leave, with a significantly lower income.
- The employment rate for 15–64-year-olds fell to 69.7% from 70.1% a year earlier, with a 0.3 percentage point drop for men and a 0.7 percentage point drop for women but was still the second-highest employment level in three decades. This positive figure was also helped by the fact that the

population aged 15–64, the denominator of the rate, fell significantly, by almost 50,000 (47,000) compared to the previous year.
- The European Union has set an employment rate target of 75 percent for the 20–64 age group by 2020, which Hungary achieved again in the third quarter after a decline in the second quarter.
- In one year, the number of so-called ILO unemployed increased by 38,000 to 198,000, which meant an annual average unemployment rate of 4.3%, which remained one of the lowest in the EU.
- As a consequence of the intensification of the outflow from unemployment, the long-term unemployment rate fell from 34.5% in 2019 to 28.2%, and the average duration of unemployment has also decreased.
- The number of registered unemployed increased, with 56,000 more people registered at the end of 2020 than a year earlier, and nearly a third more people were claiming jobseeker's allowance, which remains available for only three months despite adverse external conditions.
- Despite the increase in the number of job losses, the number of people in public works schemes, which is one of the instruments to tackle unemployment, continued to fall.
- The job losses were highly segmented, with a significantly higher than average share of job losses in the service sector, primarily in hospitality, tourism, cultural and recreational services, and impacting small enterprises, businesses with fewer than ten employees, low educational attainment, and women slightly more.
- Due to the constraints on the availability of services in both waves, and the temporary shutdown of production during the first wave, the number of hours worked fell significantly more than the number of persons employed.
- Migration for work was severely restricted by the pandemic, as several measures made it difficult to move between countries.
- The number of job vacancies reported fell significantly, by nearly 20,000 on average per year, as both workers and employers gave priority to keeping existing jobs.
- The use of teleworking, previously marginal, has become widespread, with a significant proportion of white-collar workers working from home for most of the year.
- The short-time working scheme was an important tool to avoid mass redundancies in 2020, which the government also supported with a wage subsidy scheme.
- The growth rate of gross earnings remained at the same level as in previous years. However, the high growth rate of 9.7% in 2020 was partly because the loss of staff was higher in sectors with lower average earnings, but measures affecting health workers were also important factors.

EMPLOYMENT TRENDS

According to data from the HCSO Labour Force Survey, in 2020, the annual average number of people who were in gainful employment or had a job from which they were only temporarily absent was 4 million 461 thousand. After 4 million 466 thousand in the first quarter, the low point was reached in the second quarter of the year, when the number of employed persons fell to 4 million 408 thousand, but from the third quarter onwards it stabilised at around 4 million 480 thousand, with the employment rate rising again to a level above 70 percent (75 percent for those aged 20–64) (*Figure 1*).

Figure 1: Number of employed persons aged 15–74 and employment rate per 15–64-year-old population, 2010–2020



Source: The Labour Force Survey of the *HCSO*.

In 2020, the relatively favourable employment rate figures were also helped by the continued demographically driven shrinkage of the potential labour force. The number of people aged 15–64 was 53 thousand lower than in the previous year. The decline in the number of people entering the labour market in 2020 was partly offset by the gradual increase of the retirement age. In 2020, women accounted for 45% of the employed population aged 15–74, while among the employed population aged 60 and over, the share was below 38%, and women accounted for almost two-thirds of this year's job losses. Cross-border migration has been significantly hampered by the pandemic, and according to the Labour Force Survey the number of people working abroad was lower than the previous year, and the number of non-Hungarians employed also fell.

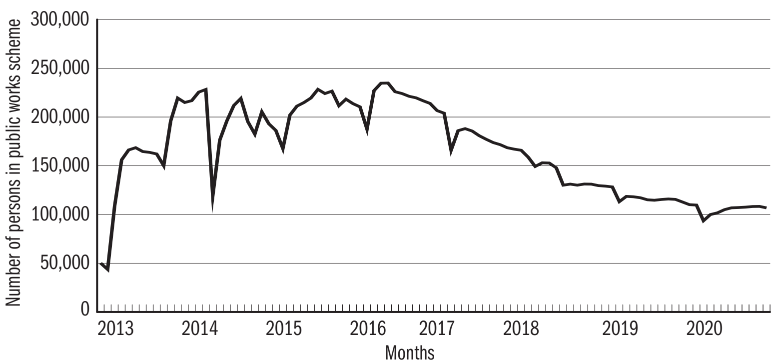
Despite the fact that even those who would (normally) be able to find employment could participate in the public work scheme because of the state of emergency, and the restrictions on skilled workers have been removed, the number of public workers continued to fall in 2020, and the role of this form of employment has become increasingly marginal. In 2020, an average of 88,700 people were employed in the public work scheme only, down by more than 12,000 compared to the previous year. As in previous years, every second person in public employment lived in Szabolcs-Szatmár-Bereg, Borsod-Abaúj-Zemplén and Hajdú-Bihar counties.

Table 1: The number of persons employed based on key indicators, 2018–2020

Description	Number of persons employed (thousands)			Change 2020/2019	
	2018	2019	2020	thousand persons	percent
Total	4,469.5	4,512.1	4,460.5	–51.6	98.9
Gender					
Male	2446.2	2,479.7	2,461.0	–18.7	99.2
Female	2,023.3	2,032.4	1,999.5	–32.9	98.4
Type					
Hungarian primary labour market	4,216.6	4,284.6	4,268.5	–16.1	99.6
Public work scheme	148.2	111.5	92.1	–19.4	82.6
Working abroad	104.7	116.1	99.9	–16.2	86.0
Region					
Budapest	833.8	848.1	851.1	3.0	100.4
Pest	595.2	614.7	619.9	5.2	100.8
Central Transdanubia	499.1	505.6	503.3	–2.3	99.5
Western Transdanubia	481.9	488.0	481.3	–6.7	98.6
Southern Transdanubia	374.0	373.0	363.2	–9.8	97.4
North Hungary	485.3	481.7	469.9	–11.8	97.6
Northern Great Plain	639.7	640.0	622.9	–17.1	97.3
Southern Great Plain	560.5	561.0	548.9	–12.1	97.8
Status					
Employee	4,003.9	4,023.6	3,923.2	–100.4	97.5
Member of a joint entrepreneurship or cooperative	149.4	164.8	178.6	13.8	108.4
Entrepreneur, independent and supportive family member	316.2	323.8	358.7	34.9	110.8

Source: The Labour Force Survey of the *HCSO*.

Figure 2: The number of public workers 2013–2020 (thousands)



Source: *HCSO* Stadat: institutional labour statistics, and from 2019 onwards, based on administrative data sources.

In 2020, the overall loss of jobs in the Hungarian primary labour market was not significant, with only 0.4% fewer jobs than in the previous year. However, there was a significant shift in employment status. While the number of employees fell by 2.5 percent, there was a sharp increase in the number of members of joint entrepreneurships and the self-employed. This may be because some of those who lost their jobs tried to find a new source of income as entrepreneurs, despite the fact that the economic environment did not give much reason for excessive optimism. In the so-called "stable employer" group (enterprises, public institutions and non-profit organisations with at least five employees), 3 million 76.7 thousand people were employed in 2020, compared to 3 million 185.7 thousand the previous year.

Employment varied across the different sectors of the economy, with the rate of change and the differences between sectors being larger than in previous years. In terms of the number of persons employed, the largest job losses, at least according to the Labour Force Survey, were in the transport and storage sector, hospitality and catering and manufacturing, while the construction and information and communication industry, among others, saw increases. The picture that emerges from the institutional labour data collection is not radically different, although the change is more significant in some sectors. Manufacturing employment fell by 4.4 percent (by over 30,000), transport and storage by 3.6 percent, administrative work by 11.3 percent and hospitality and catering by 16.9 percent, but employment in companies in the trade and commerce sector with five or more employees also fell by 3.5 percent. The number of people employed in the construction industry stagnated, while 6 percent more people worked in information technology.

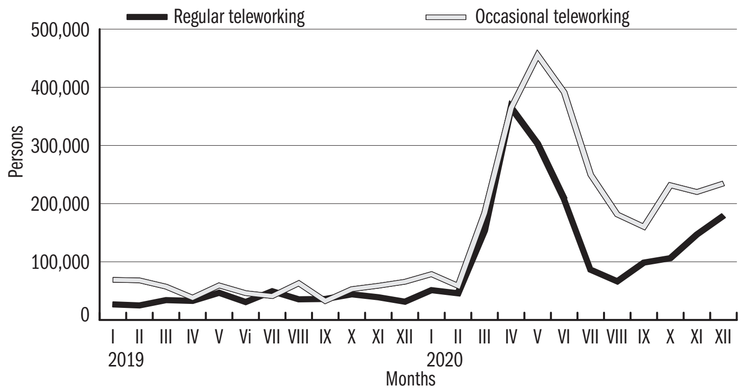
Even though the areas most affected by the pandemic and linked to tourism are mainly concentrated in Budapest, the number of people employed in the central region increased slightly, possibly because there were more opportunities for career change and employment in other areas there. In the more prosperous regions and counties, the number of people in employment decreased less than in the disadvantaged ones, i.e. regional disparities did not decrease in 2020. As the extent of the public works scheme greatly depends on the labour market characteristics of a given region, the reduction in the number of public workers also tended to maintain regional disparities.

Despite the economic difficulties caused by the pandemic, a significant proportion of enterprises tried to avoid mass redundancies, anticipating that hiring and training new workers once the situation returned to normal would entail additional costs and temporary operational difficulties. Shorter working hours offered a temporary solution; 260,000 employees were in short-time work in June 2020, and their number fell significantly already from the third quarter but was still 123,000 at the beginning of October. Employers in hospitality and catering made the most use of this option, with 12 percent of employees working shorter hours compared to 3 percent nationally, according to the week 40 count. During this period, the number of people employed with shorter working hours was also more than one and a half times the average in manufacturing and 1.4 times in trade and commerce, but unlike in hotels and restaurants, where a large proportion of enterprises were forced to do so throughout the year, this option was more commonly used in the latter sectors during the first wave only. Within manufacturing, the weight of short-time work was highest in the automobile industry, which is heavily dependent on foreign suppliers. Short-time work also meant lower earnings, even though employers could claim the net basic wage for the lost working hours up to a certain limit from the job protection wage subsidy fund. By August 2020, claims were made after 205,000 workers; it was the most extensively used instrument to maintain employment.

Temporary short-time work was typical for blue-collar jobs (within white-collar occupations, only office work and customer care jobs exceeded the national average), while most white-collar workers could work from home, ensuring employment with unchanged hours. Until the outbreak of the pandemic, working from home, typically with a computer, was only available in certain jobs and life situations and for a small number of people. As a result of the measures in the first wave of the pandemic, the number of people in so-called *home office* has increased many times over, with 11 times as many people (around 365,000) in April 2020 stating they had worked regularly remotely in the previous four weeks compared to the same month in the previous year, while the number of people who worked occasionally remotely also increased 9.5 times to 364,000. In May, the strict restrictions were partially lifted and on-site working was again possible, so the number of regular teleworkers fell, but the number of occasional teleworkers rose in May and remained high in June, presumably as employers shifted to a combination of on-site and teleworking. The next Covid wave in the autumn months increased the number of people teleworking again, but the number of people employed in this form was below the figures seen during the first wave (*Figure 3*).

The differences between sectors in the use of teleworking are very significant and depend mainly on the share of skilled white-collar workers. In 2020, on average over the year, the activities with the highest share of teleworkers included information and communication (39 percent), scientific and technical activities (33 percent), financial intermediation (30 percent) and education (21 percent), while agriculture and health care and social work, due to the nature of the work in these sectors, had no teleworkers. 77% of teleworkers had tertiary education, while 22% had a secondary school leaving certificate. Due to digital education, a higher-than-average proportion of people with children under 15 worked from home in 2020.

Figure 3: Number of regular and occasional teleworkers, 2019–2020

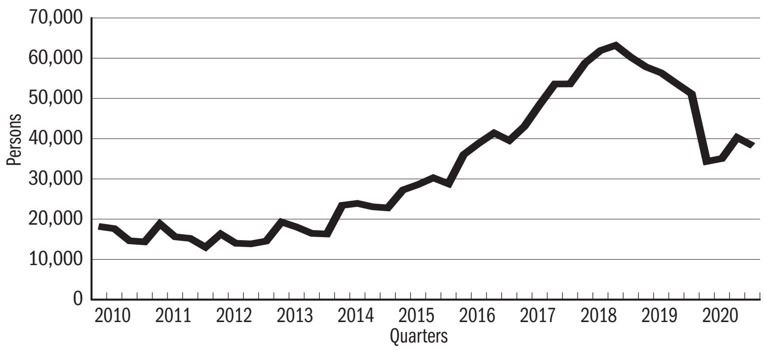


Source: The labour force survey of the *HCSO*.

LABOUR MARKET DEMAND AND RESERVE

With rising unemployment, the number of vacancies fell. In 2019, employers reported an annual average of 79 thousand vacancies or future openings, but this number fell to 61 thousand in 2020. The labour demand in the public sector remained essentially unchanged (20.5 thousand vacancies in 2019 and 20.7 thousand in 2020), i.e. the decrease was entirely limited to the private sector, where the demand for additional labour was only 37 thousand in 2020, compared to 55 thousand in the previous year.

Figure 4: Job vacancies in the private sector, 2010–2020



Source: Quarterly labour reports of the *HCSO*.

The vacancy rate as a percentage of total positions was 2.0% in 2020, 0.5 percentage points lower than the preceding year's but still slightly above the EU average. Within this, the ratio was 1.7 percent in the private sector, 3.0 percent in the public sector and 2.0 percent in the non-profit sector. The indicator remained well above average in health care and social work activities (3.9%), which is facing permanent staff shortages, and in the private sector, in the field of administrative services (3.3%). The high share of the latter activity is due to the fact that agency contract work falls into this category. The vacancy rate fell sharply (from 3.3 to 2.2 percent). In past years, some of the highest vacancy rates were in the information and communication sector, construction (from 2.6 to 1.6 percent) and hospitality and catering (from 2.4 to 1.4 percent), which were the sectors most affected by the pandemic. Among the sectors with the highest employment, the lowest vacancy rate was in trade and commerce (0.9 percent), where the priority was not to recruit new staff but rather to retain workers.

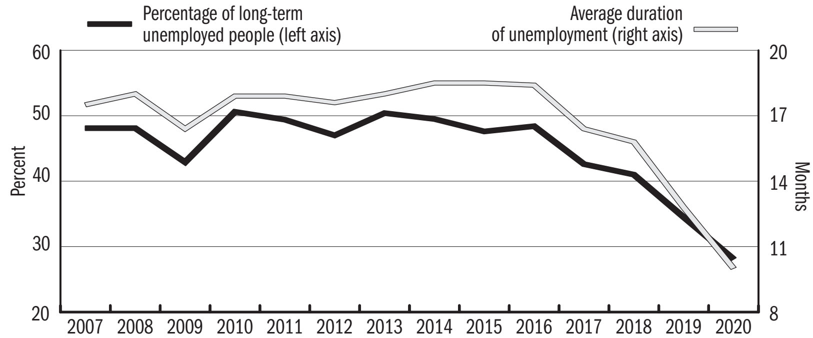
Statistics from the Public Employment Service (PES), based on employers' labour demand reports of employers, also indicated a reduction in the demand for additional labour force in 2020, although this reduction was slightly smaller than indicated by the HCSO data, due to the majority of vacancies being filled with workers employed in the framework of subsidy schemes (e.g. public workers).

The labour market reserve is comprised of several groups that are at varying distances from the labour market. The closest to the labour market are the unemployed, who, according to all commonly used definitions, are taking steps towards becoming employed. The average number of unemployed, as defined by the ILO, the UN's specialised labour organisation, (which is also used in the HCSO's Labour Force Survey), rose from a record low of 160,000 in 2019 to over 198,000 in 2020, representing a 4.3 percent unemployment rate, which is 0.9 percentage points higher than the previous year. The unemployment rate for women increased slightly more than that of men; to 4.5 percent compared to 4.1 percent for men. The main reasons for this include the fact that more women work in the service sectors most affected by the crisis and the fact that temporary restrictions on children's attendance at childcare facilities made it difficult or even impossible for them to work. While, proportionally, the unemployment rate of men with low educational attainment increased the most (in contrast, for example, the unemployment rate of those with tertiary education remained essentially unchanged), the worsening of the unemployment situation for women was independent of the level of education.

As the unemployment inflow in 2020 was drastically more intense than in previous years, the share of long-term unemployed decreased and the average length of time spent unemployed shortened.

In 2020, unemployment increased even in Hungary's best-performing regions, but the relative position of the regions did not change substantially. Unemployment rates remained lowest in Western and Central Transdanubia (2.4% and 2.8% respectively), while at the other extreme, the unemployment rate in Northern Great Plain increased to 7.3%. At the county level, the difference between the best-performing county, Győr-Moson-Sopron (1.8 percent), and the worst-performing county, Szabolcs-Szatmár-Bereg (9 percent), was almost fivefold.

Figure 5: Average length of job search (right axis) and share of long-term unemployed (left axis)

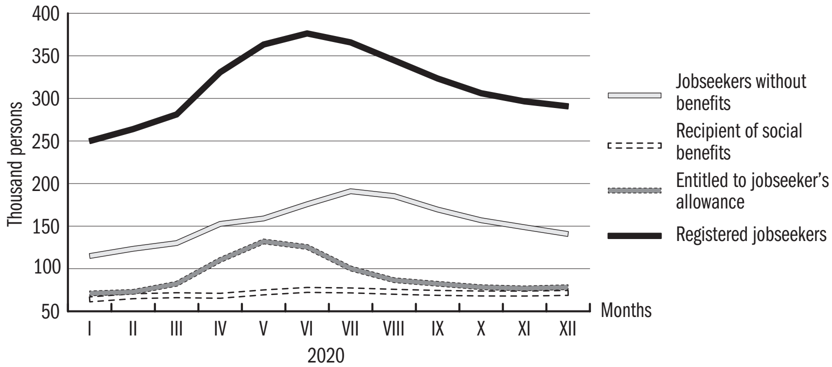


Source: The labour force survey of the *HCSO*.

While the number of unemployed persons as defined by the Labour Force Survey and the number of registered jobseekers typically used to move together in the past, the sudden change in the labour market environment has led to a significant increase in the gap between the two indicators from March 2020 (when the number of registered jobseekers started to increase rapidly). The number of registered jobseekers peaked in June 2020 at 376.3 thousand, and then steadily decreased, reaching 290.7 thousand in December. Many people lost their jobs due to the pandemic, and an alternative to partially compensate for lost income was the jobseeker's allowance. While in recent years the number of jobseeker's allowance beneficiaries was stable at around 60–70 thousand annually, in 2020 it rose to over 91 thousand. In May, 132 thousand people received jobseeker's allowance. Eligibility criteria remained unchanged despite the state of emergency, consequently, by July–August, most claimants were no longer eligible, and by the end of 2020 the number of beneficiaries returned to the levels of previous years. The processing of applications was also slow, with a significant delay in receiving the jobseeker's allowance, especially in Budapest. This support was only available for three months. The number of people receiving social benefits hardly changed (the amount of which has been unchanged for several years; HUF 22,800 per month), however, the number of registered jobseekers not receiving any benefits increased significantly again (*Figure 6*).

In addition to the unemployed, the underemployed, the inactive who want to work but are not actively seeking work or do not meet the availability criteria, are also part of the potential labour force reserve. As early as March, the number of inactive people who wanted to work but were not actively looking for work due to limited opportunities increased. There was a small increase in the number of underemployed, i.e. those who work part-time but would have liked to work more hours. The relaxation of restrictions and the subsequent lifting of the state of emergency provisions from May onwards had a stimulating effect on the labour market, leading to an increase in the number of people in employment and a parallel reduction in the inactive reserve (*Table 2*).

Figure 6: Monthly data on registered jobseekers, 2020



Source: *Public Employment Service* register.

Table 2: The number of persons employed and potential labour reserve (thousands)

Description	2010	2016	2019	2020	2020/2010	2020/2019
	Thousand persons				Percent	
Total employed	3,732.4	4,351.6	4,512.1	4,460.5	119.5	98.9
Of which: – underemployed	59.2	50.6	29.0	30.7	51.9	105.9
– public worker	72.5	220.9	101.0	92.1	127.0	91.2
Unemployed	469.4	234.6	159.7	198.0	42.2	124.0
Inactive: looking for work but not available	10.3	6.9	6.0	7.0	68.0	116.7
Inactive: want to work and is available	200.8	128.5	106.0	143.9	71.7	135.8

Source: The Labour Force Survey of the *HCSO*.

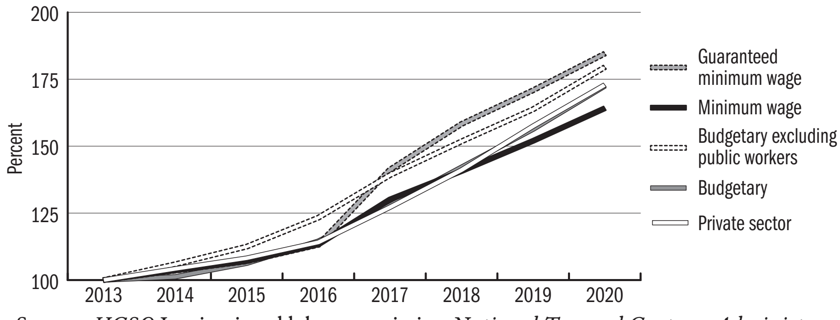
EARNINGS, LABOUR INCOME, LABOUR COST, HOURS WORKED

According to the HCSO's long-time series data, in 2020, the average gross earnings of full-time employees of enterprises, budgetary institutions and significant non-profit organisations with at least five employees amounted to HUF 403,620, which, excluding public workers, was HUF 414,500. Therefore, despite the unprecedented situation, gross earnings in this group continued to grow dynamically, by 9.7%, thus exceeding the level of the previous year. However, several pandemic-related factors contributed to this increase, including the fact that a large proportion of health care professionals received a bonus of HUF 500,000 in July and also, the largest redundancies were in sectors with significantly lower wages than the national average (hospitality and catering as well as administrative services). (In the former sector with 20 thousand, while in the latter 22 thousand fewer people worked than in the previous year.)

In 2020, as in the previous year, the government increased the minimum wage and the guaranteed minimum wage by 8 percent in line with the national negotiations of reconciliation of interest, which further increased the pay gap for workers in these categories. The gap between the earnings of workers in the private and public sectors has narrowed slightly as a result of government measures in several areas and the bonus paid to health workers. Furthermore, another contributing factor was a slight reduction in the number of public workers. The annual gross earnings increase of employees in enterprises was 9.8% (11.6% in 2019), resulting in average gross earnings of HUF 418,200. The year-on-year increase was 10.3 percent for employees in the public sector and only 9.6 percent for public sector employees excluding public workers, the latter corresponded to average earnings of HUF 409,200. The gross earnings of the more than 150,000 employees in the non-profit organisations studied, who are not public workers, increased by 9.5 percent, to HUF 379,800.

The wage for public workers has remained unchanged since 2017: in 2020, it was still HUF 81,800 gross (or HUF 54,397 net). Only a few public workers who were skilled or in managerial positions received higher pay. However, in September 2019, this was supplemented by a one-off payment of one month's wage, to compensate for the unfavourable ratio of public work scheme wages to the cost of living, however, there was no such payment in 2020, thus the average gross earnings of public employees were 6.4% lower than a year earlier and essentially the same as in 2018.

Figure 7: Increase in gross earnings (2013 = 100)



Source: *HCSO* Institutional labour statistics, *National Tax and Customs Administration* (*NAV*) contribution returns.

In 2020, there was a very significant difference in the earnings growth rates of the sectors predominantly active in the private sector (*Table 3*). The highest increase in earnings of 11.4 percent was observed in the construction industry, which, despite the pandemic, still had orders (and average earnings below the national economy average). Furthermore, average gross earnings rose by more than the average in the transport, storage and trade and commerce sectors. The lowest growth rate in terms of earnings was in hospitality and catering (except for mining, which is negligible considering its weight in the labour market, with an earnings index below 100 in 2020). Here, too, the earnings of full-time employees were only 4.7 percent higher than a year earlier with the highest proportion of part-time employees. The financial services, which had the highest average earnings (HUF 709,300/month), also recorded relatively modest earnings growth (6.6 percent). Also, in contrast to previous years, the gross earnings growth rate in manufacturing was below average (8.1 percent). In terms of the amount of salaries, the information and communication industry was second after only to financial services, with an average of HUF 676,600, while hospitality and catering showed the other extreme, with an average of only HUF 250,900.

Table 3: Average gross earnings of full-time employees by industry, 2020

Economic sector	Average gross earnings (HUF/person/month)	Average gross earnings index (same period last year = 100.0)
Agriculture	320,186	109.2
Mining	426,863	98.4
Manufacturing industry	424,297	108.3
Energy industry	651,764	108.1
Water and waste management	364,759	106.2
Construction	320,692	111.4
Trade and commerce	378,735	110.5
Transport and storage	379,890	110.1
Hospitality and catering	250,850	104.7
Information and communication	676,573	108.5
Financial services	709,341	106.6
Real estate	339,113	108.6
Scientific and technical activities	566,602	111.6
Administrative services	330,071	107.8
Public administration	467,331	105.6
Education	362,838	108.4
Health care, social care	296,212	119.8
Arts and leisure	394,493	107.5
Other services	312,727	102.3
Total national economy	403,616	109.7
Total national economy without public employees	414,494	109.6
Out of which:		
–public administration	478,969	105.3
–education	363,494	108.3
–health care, social care	377,720	120.0

Source: *NAV* income tax return.

Within the public sector, the earnings of employees in public administration and compulsory social security areas (excluding public workers) increased by only 5.3% in 2020, compared with 11.6% in the previous year. Among these workers, only the salaries of law enforcement personnel and judicial personnel were affected by government measures. The wage supplement for teachers was increased by 10 percent from July, as a result of which, there was an 8.3 percent increase in average gross earnings for teachers compared to the previous year. Due to a lack of resources, there was no adjustment of the teachers' salaries based on the minimum wage in 2020 either. Gross earnings of health care workers increased by 23.7 percent, as 81,000 health care professionals and 4,000 nurses received an average pay rise of 14 percent from January and another 20 percent from November under the multi-stage salary raise programme. Furthermore, health care workers involved in the management of the pandemic received a bonus of HUF 500,000 in July. The gross earnings of social workers rose by 13.9 percent in 2020, but their average earnings still amounted to only HUF 295,500.

In 2020, the earnings of physical and white-collar workers increased at nearly the same rate (8.8 percent and 8.9 percent respectively), with the average earnings of physical workers at HUF 293,800 and white-collar workers at HUF 512,700. The rate of earnings growth by main occupational group varied within a fairly narrow range. In 2020, earnings of people in occupations requiring secondary or tertiary education increased the most, by 10.1 percent, while the earnings of those in unskilled jobs increased the least, but still, at a rate of 8.2 percent. Financial, administrative and advocacy managers, as well as legislators with the highest gross earnings (768,400 HUF), earned 3.6 times as much as those with the lowest earnings (211,200 HUF) in unskilled occupations.

The gender pay gap narrowed slightly in 2020, with the average gross earnings of men in full-time employment being 15.9% higher than those of women. However, by job types, the gap was even larger, with men in physical jobs earning 23.3 percent more than women in the same job and male white-collar workers 29.5 percent more than their female counterparts. The gender pay gap even increased slightly for physical workers.

In 2020, the growth rate of median earnings, which is a better reflection of actual earnings, was the same as the growth rate of average earnings, amounting to HUF 320,600 (including public workers), which is slightly less than the 80% of the average salary. In the business sector, median earnings were 76% of average earnings, and in the public sector, where high earners are less likely to increase the average, the rate was 89% (or 87% excluding public workers).

In 2020, 32% of full-time employees earned less than HUF 250,000 gross, while the share of high earners (at least HUF 1 million per month) was 4%. Compared to 2019, the share of the former group decreased and the latter increased.

For the national economy, average net earnings excluding allowances rose at the same rate as gross earnings, by 9.7% (to HUF 268,600), and by 10.0% year-on-year when allowances are taken into account, such as the temporary reduction in, or exemption from, contributions payable on the gross wages of workers in certain sectors. Average gross regular earnings (excluding bonuses, allowances and extra one-month salaries) amounted to HUF 371,000, 9.3% higher than in 2019. Real earnings rose by 6.2 percent, with a 3.3 percent year-on-year increase in consumer prices.

In 2020, the average gross monthly labour income was HUF 420,000. Of this, the per capita fringe benefit was HUF 16,400, the largest item of which was the cafeteria scheme. As the range of cafeteria items with tax reliefs remained limited in 2020, the weight of other labour income items within total labour income decreased slightly further compared to 2019. Sectoral differences in the amount of other labour income per capita are very significant. The average monthly amount of other labour income for workers in the energy sector reached HUF 36 thousand, the amount was similar in public administration, while in the construction industry, for example, it was just over HUF 5 thousand.

As of 1 July 2020, the social contribution tax rate for employers will be reduced by another 2 percent to 15.5 percent, with no change in the contribution rates for employees.

In the first half of 2020, the number of hours worked fell significantly due to lock down: employees in the business sector with five or more employees, large non-profit organisations and public institutions worked 5.9% fewer hours in the first half of 2020[2] than in the same period of the previous year. Within this, the number of hours worked in full-time blue-collar occupations fell particularly sharply (by 11.1 percent), while the decline for white-collar occupations was only 3.9 percent, thanks to *home office.* As *a* result of the lockdown measures, the share of part-time workers increased and, accordingly, their hours, too (by 17.3 percent). The reduction in hours worked was not yet significant in the first two months of the year and was most pronounced in the second quarter, as a result of the economic impact of the pandemic. In the organisational group observed during this period, the total hours worked by employees fell by 11.6 percent, with physical occupations working 19.8 percent fewer hours and white-collar occupations working 9.8 percent fewer hours than in the same quarter of 2019. Thanks to the restart of the economy at the end of May, the decrease in the number of hours worked in the second half of the year was already less intense than in the first half of the year.

2 The calendar effect is not removed from the data.

IN FOCUS

LABOR MARKET EFFECTS OF THE CORONAVIRUS PANDEMIC

Edited by

ISTVÁN KÓNYA & JUDIT KREKÓ

INTRODUCTION

István Kónya & Judit Krekó

This year's In Focus examines the coronavirus crisis and its impact on the labour market. Although the pandemic is not over yet, the data collected during the one and a half years since its outbreak provide a basis for a more detailed analysis of labour market trends. This year's volume can be seen as a continuation of the work that begun last year focusing on the immediate effects of the first wave of the crisis.

The studies have been selected to provide as broad a picture as possible of both the direct and indirect effects of the coronavirus crisis. Therefore, in addition to the aspects of employment, unemployment and wages, the consequences of the pandemic in the areas of health care, education and the real estate market were also examined. Possibilities for analysis were primarily determined by the available data. The Labour Force Survey of the Hungarian Central Statistical Office is available until the second quarter of 2021, and two up-to-date administrative databases are also available: The Tax Authority's declarations of employers' contributions database for the spring months of 2019, 2020 and 2021, and for October 2019 and 2020, and the National Employment Service's Unemployment Register up to May 2021. In addition, several pandemic-related surveys and publicly available aggregated data have also been used. These are presented in more detail in the relevant chapters.

The first chapter of In Focus describes the main labour market trends in the pre-crisis period, with a focus on employment, wages and the benefit system. The second chapter examines the direct labour market effects of the pandemic. The presentation of employment trends also discusses measurement problems related to and arising during the crisis. Labour market flows, registered jobseekers, typical patterns of those losing their jobs or changing occupation, trends in wages and cross-border commuters are also presented.

The third chapter studies the impact of the crisis on social groups that have been particularly affected or vulnerable. One such group is mothers, who have come under particular pressure as a result of distance learning. Further sub-chapters analyse the impact on young workers and pensioners during the crisis.

The fourth chapter studies a relatively new phenomenon; teleworking. Two sub-chapters examine the sectors suitable for teleworking and the evolution of teleworking during the crisis. The real estate aspect of teleworking raises interesting questions, which is analysed in a sub-chapter, albeit based on incomplete data. The experience of co-working offices is also discussed as an interesting area that has been hit hard by the crisis.

In chapter five, the sub-chapters review the main facts and lessons learnt from international and Hungarian labour market policies. Particular attention is paid to jobseekers, people working in the public work schemes and the various wage subsidy measures introduced by the government.

Finally, the sixth chapter focuses on the labour market related areas of education and health care. Regarding education, the long-term impact of the pandemic on young people's future job prospects is analysed in the context of drop-outs or distance learning. In the field of health care, in addition to the direct impact of the pandemic, an important issue is whether the increased burden on the health care system compromised the care of people suffering from not Covid-related diseases. The final sub-chapter of In Focus looks at changes in households' risk preferences, which may have wide-ranging labour market implications that due to the lack of data, cannot yet be empirically validated.

What are the main lessons learnt from the studies collected in this volume? The coronavirus crisis was unusual, as the impact on the main aggregates was strong but temporary. Employment, unemployment and wages approached pre-crisis levels by Spring 2021. However, several patterns seem to emerge that do suggest a long-term impact of the pandemic. Examples include the increased role of teleworking, sectoral restructuring and the impact on education and health care.

It is encouraging that after the first wave of the pandemic, the economy learned to adapt. However, this volume also highlights the fact that the indirect effects of Covid are still only partially understood and could affect the labour market for many years to come. These indirect, delayed effects could be the subject of further research.

1. THE LABOUR MARKET BEFORE THE PANDEMIC

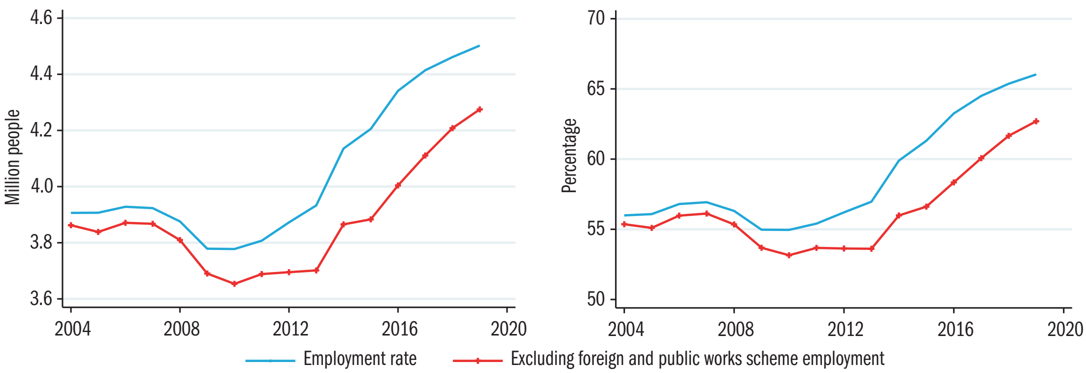
JÁNOS KÖLLŐ, GÁBOR OBLATH & ÁGOTA SCHARLE

In this chapter, we briefly describe the state of the labour market in the wake of the coronavirus pandemic, focusing on employment, wages, labour market services, and unemployment compensation.

Employment

As the two parts of *Figure 1.1* show, the number of employed people and their population share started to grow after the downturn caused by the global financial and economic crisis. Until 2015, the expansion of the public work scheme and the rise in the number of Hungarians working abroad played an important role (as shown by the increasing gap between the two curves), but afterwards the growth of market-based domestic employment became dominant. The increase in the employment rate was also affected by the decline in the population (a decrease of 158,000 over the period).

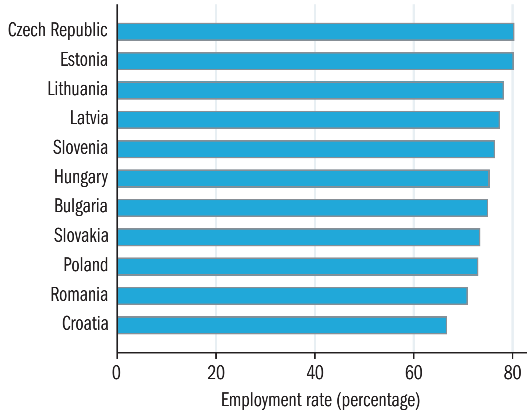
Figure 1.1: Employment and employment rates, 2004–2019



Source: Authors' calculations from data from the Labour Force Survey of the *HCSO*, managed by the Labour Force Survey Data Bank. Data refer to the population aged 15–74, excluding full-time students aged 15–24.

By 2019, the employment rate had risen to 66% for the population surveyed in *Figure 1.1*, 61% for the 15–74 age group, 70% for the 15–64 age group and nearly 76% for the 20–64 age group, the range most commonly used by Eurostat. On the basis of the latter indicator, Hungary was in the middle of the former socialist EU countries' ranking, ahead of Croatia, Romania, Poland, Slovakia and Bulgaria, but behind the Czech Republic, Slovenia and the three Baltic countries (*Figure 1.2*). Hungary's ranking is significantly improved by the exceptional size of its public works programme (PW) and the fact PW workers are counted as employed rather than as unemployment program participants. Accurate international comparative data on this are not available, but based on the existing sources (EC 2013, pp. 7–8 and 42) there is no doubt that Hungary would still rank in the bottom half of the list in terms of market-based employment.[1]

Figure 1.2: Employment rate of 20–64 year olds in the former socialist EU Member States, 2019



Source: *Eurostat*.

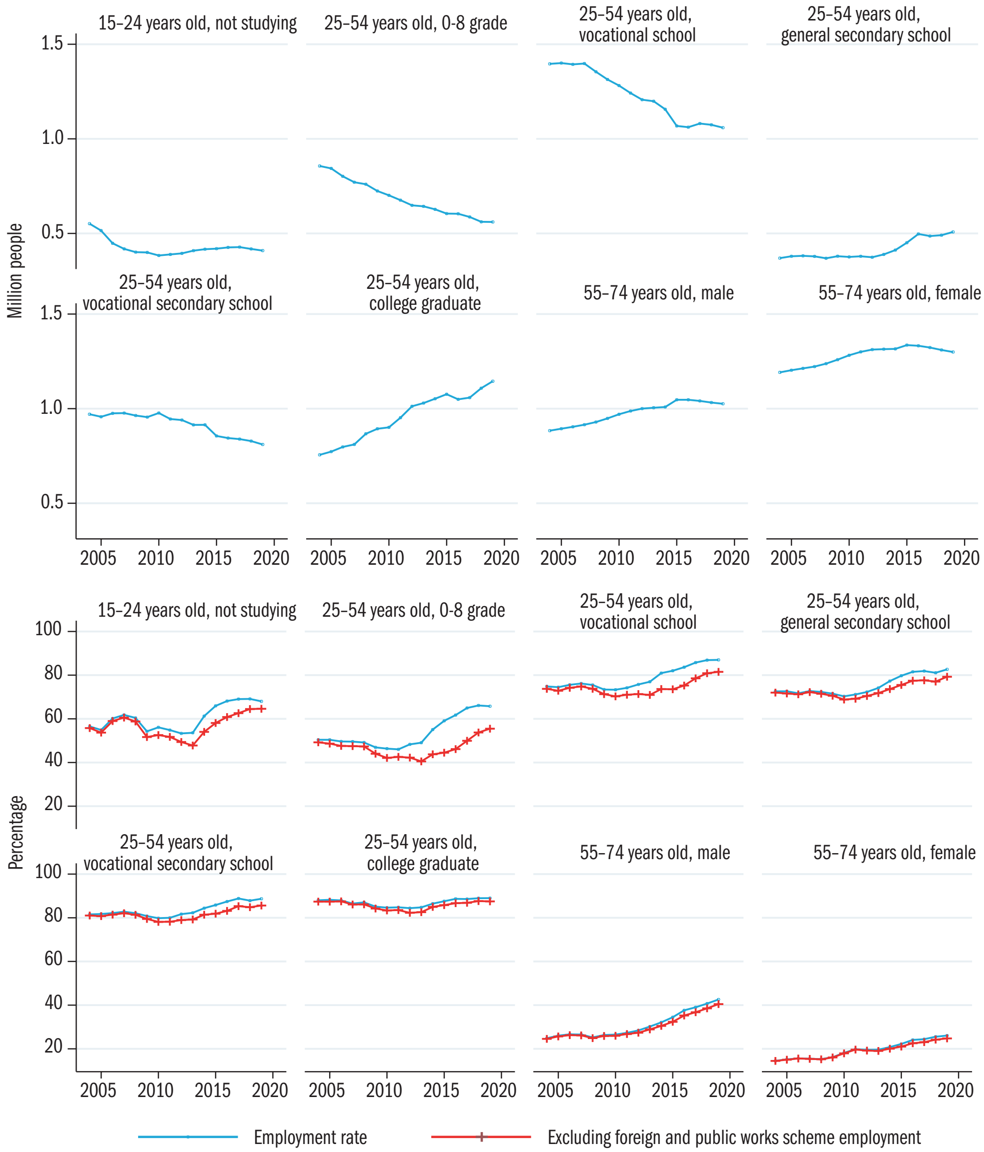
Employment growth is driven both by the changing composition of the population and by improvements in employment opportunities for specific groups. Eight groups are distinguished below: young people aged 15–24 not in education, people aged 25–54 by educational attainment, and people 55–74 by gender. We attempted to provide data that are not too detailed, but at the same time to include groups where Hungary is lagging behind the European average (uneducated, young and elderly people). The upper part of *Figure 1.3* shows the evolution of the population of each group. There has been a steady decline in the number of people with only primary education or uncertified vocational training and, to a lesser extent, in the number of people with vocational secondary education. There has been a strong increase in the number of tertiary education graduates (to a lesser extent those with a secondary school leaving certificate) and in the 55–74 age group.

The bottom part of the graph shows employment rates for the groups under study with and without the inclusion of those working abroad and public workers. Employment rates have increased in all the groups studied, especially where they were low at the start. The contributions of PW and working abroad were significant for the uneducated, vocational school graduates and young people.

It is noteworthy that the employment rate of over-55s was hardly affected by the 2008–2010 crisis, and no significant acceleration can be observed after a further tightening of disability pension eligibility in the early 2010s.

1 At the beginning of the period under review, Hungary was in one of the last places in the employment ranking, only ahead of Poland and (presumably) Croatia (*Fazekas–Varga*, 2005, p. 232).

Figure 1.3: Population groups and their employment rates, 2004–2019



Note: For educational attainment, the terms applicable for most of the period are used. Vocational school: secondary vocational education and training not leading to the baccalaureate. Vocational secondary school: upper secondary vocational education and training leading to the baccalaureate. Graduate: a graduate of a college or university.
Source: Authors' calculations based on data from the Labour Force Survey of the *HCSO*, managed by the *KRTK* Data Bank.

In Table 1.1, the change in aggregate employment (ΔE) is decomposed into factors according to formula (1), based on changes in the size of the above-described population groups (N_k) and changes in their employment rates (e_k).

$$\Delta E = \sum_{k=1}^{8} (N_k^1 - N_k^0)\bar{e}_k + \sum_{k=1}^{8} (e_k^1 - e_k^0)\bar{N}_k = \sum_{k=1}^{8} c_{1k} + \sum_{k=1}^{8} c_{2k} = C_1 + C_2 \quad (1)$$

In the formula, the lower indices (k = 1, 2, ..., 8) refer to the groups and the upper indices refer to the two years under study. The superscripts indicate the intertemporal average. The first component (c_{1k}) captures the effect on aggregate employment of the change in the size of the group and the second (c_{2k}) the effect of the change in the occupation rate of the group. We compare the last year preceding the pandemic (2019) to the last year preceding the global financial and economic crisis (2007).

Table 1.1: Employment change by groups between 2007 and 2019

	c_1	c_2	Total
Employment			
15–24 years old, not studying	–6	26	20
25–54 years old, 0–8 grade	–121	108	–13
25–54 years old, vocational school	–277	133	–144
25–54 years old, vocational secondary school	–142	53	–89
25–54 years old, general secondary school	100	44	144
25–54 years old, tertiary	293	24	318
55–74 years old, male	38	156	194
55–74 years old, female	16	134	150
Total (C_1 and C_2)	–98	677	579
Excluding working abroad and public works			
15–24 years old, not studying	–6	17	11
25–54 years old, 0–8 grade	–108	53	–55
25–54 years old, vocational school	–265	82	–183
25–54 years old, vocational secondary school	–139	31	–108
25–54 years old, general secondary school	98	31	129
25–54 years old, tertiary	290	14	304
55–74 years old, male	37	139	176
55–74 years old, female	15	118	134
Total (C_1 and C_2)	–78	485	407

Note: See formula (1) for the decomposition. Vocational secondary schools provide a certificate required for further studies while vocational schools do not.
Source: Labour Force Survey, version harmonized by the *KRTK* Data Bank.

Between the two points of time, employment grew by 579 thousand persons (407 thousand excluding PW and people working abroad). The strongest positive impact on change was due to an increase in the *number* of college and university graduates (293 thousand and 290 thousand persons respectively). A similar effect was produced by the sharp improvement in the *employment rate* of those aged 55–74 (290 thousand for both sexes combined). The contribution of the increase in the number of people with upper secondary school leaving certificate is also remarkable (100 thousand and 98 thousand respectively).

On the other side of the coin, there are negative composition effects from the reduction in the number of people with primary and vocational qualifications. The main reason behind was the falling number of people with such qualifications in the 25–74 age group (aging out from the working-age population).

Compared to that, the changing composition of education played a limited role. The percentage share of young people in vocational training (as opposed to vocational and general secondary schools) has barely decreased (*Hajdu et al.,* 2015) while the share of people aged 21–25 who had only completed primary school amounted to 17.6 percent in 2007 and still as high as 15.8 percent in 2019.

The parameter effects (c_2) measuring improvement in employment opportunities are positive in all groups, even if only domestic market-based employment is considered. The largest contribution to aggregate employment came from the 55–74 age group, thanks to the gradual raising of the mandatory retirement age (from 60 for men and 55 for women in 1998 to 65 in 2019), and tightening of eligibility for disability pensions.

Two long-term factors have played key role in improving the country's labour market performance: (i) the expansion of higher education in the 1990s, which increased the number of graduates without worsening their employment opportunities, and (ii) the gradual closing of the pension gate, which was wide open at the start of the post-socialist transition, conducive to a very low employment rate among elderly people. The parameter effects measured for the *working age groups* do not add up to the value observed for the over-55s, despite a series of measures to reduce income while unemployed relative to income while employed, after 2010.

To sum up: after 2014, Hungary managed to move to the middle range of the Central and Eastern European league in terms of employment rates. The limits of further improvement was indicated by a sharp rise in the number of unfilled vacancies in the years preceding the pandemic (see *Fazekas–Köllő,* 2018).

Labour productivity and wages

The evolution of wages is relevant both from the perspective of employees and that of employers. While employees are interested in the income from their labour, employers are concerned with labour costs compared to productivity. Although statistical indicators reflecting the two approaches often differ, these indicators have diverged unusually sharply in Hungary over the period 2010–2019. To give a sense of the divergence, on annual average, productivity grew by 1.1 percent, real labour costs by 0.4 percent and real net wages by 4.6 percent over this period. Hungary's productivity growth was very modest compared with the four countries included in our comparison – three Visegrád countries[2] (V3) and Romania – but the increase in real labour cost was even more modest. By contrast, net real wages have grown strongly, especially when measured against productivity.

In addition to providing an international comparison of the evolution of different types of wage indicators and the tensions between them,[3] our analysis also seeks to provide an estimate of the increase in net wages in Hungary at the *national level*, i.e., interpreted in a manner consistent with indicators of productivity and labour costs. The rationale for this estimate is that official data on net wages cover only a part of the economy, and we disagree with the practice of representing overall net wage developments by a partial indicator.

We first describe our main indicators and their sources, and then present data on Hungarian productivity and wage levels measured by alternative indicators in 2019, as compared to the V3 countries and Romania. Next, we compare changes in productivity and wages between 2010 and 2019. Finally, we estimate the approximate increase in Hungarian real net wages at the national level in the 2010s, and briefly discuss some factors that may explain the significant difference between our estimates and the official net wage index.

Concepts, indicators and sources

Within a country, changes in wages can be of interest from two perspectives: (1) how the real value of gross wage costs (the so-called producer real wage) has changed relative to productivity; (2) how the net (consumer) real wage has changed. The former is a cost indicator – it includes social contributions payable by the employer and taxes payable by the worker; its real change can be determined by deflating it by the price index of output. The second is an income or welfare indicator, whose nominal change is to be deflated by the price index of consumption to obtain the change in the purchasing power of the net wage, i.e. the real net wage. The importance of the use of alternative price indices is revealed by the fact that the price index of consumption in Hungary lagged behind the price index of output by almost 10 percentage points in 2019 as compared to 2010. Regarding a given country, only the *change* in real wages over time is meaningful, but in international comparisons, the *relative level* of both producer and consumer real wages, converted by appropriate purchasing power parity (PPP), can also be quantified.

The concept of gross wage cost corresponds to the category "compensation of employees" (hereafter: COMP) in the national accounts (NA), which has two components: employers' social contribution and gross wages and salaries (GWS), the latter including taxes paid by employees. Therefore, COMP can be considered as an indicator of "super-gross" wages. The net wage is what a worker takes home; no data are available for this indicator in the NA. The statistical source for this indicator differs from country to country. In Hun-

2 The Visegrád group consist of four countries: the Czech Republic, Hungary, Poland and Slovakia.

3 A lively professional debate on the tension between the indicators' signals emerged on Portfolio.hu in 2018, following an article by *Dedák* (2018), to which one of the authors of this chapter contributed (*Oblath,* 2018). The main themes of the debate were summarised by *Madár* (2018).

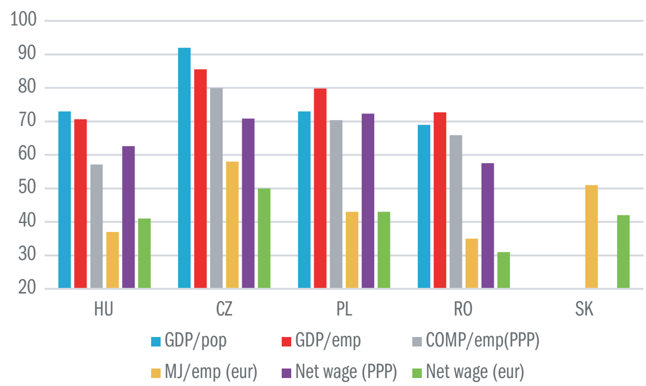
gary, until 2018, the source was the Institutional Labour Statistics (ILS) of the Hungarian Central Statistical Office (HCSO) – which changed in 2019, thus from that year the data are not necessarily comparable with the previous ones. It should be stressed that while the concept of COMP and GWS in the NA, according to the intentions of the statisticians, cover the whole economy (including informal and illegal activities), the source of domestic net wages covers full-time employees in enterprises with more than four employees (i.e., two-thirds of the employees considered by the NA in Hungary). This latter source (ILS) also includes data on gross wages (GW): this concept is the bridge between the two types of statistics on labour income.[4] We will return to its importance at the end of this section when we will try to estimate how much real domestic wage growth may have been at the national level.

In international comparison the level of labour productivity is measured by GDP per person employed, expressed in Purchasing power parity (PPP) units, its change, in turn, is measured by the volume index of GDP per person employed; the source of the data is the NA.

International comparison: relative levels in 2019

As a starting point, we compare the relative levels of indicators on wages, per capita income and labour productivity in 2019 between the four Visegrad countries and Romania (*Figure 1.4*).

Figure 1.4: Relative levels of per capita GDP, productivity and alternative measures of labour income in the Visegrád countries and Romania in 2019 (EU27 = 100)



Symbols and explanations: GDP/population and GDP/employed: measured at purchasing power parity (PPP); COMP/empe: compensation of employees per employee (measured at PPP of GDP); net wages: measured at PPP of individual consumption.
Source: *Eurostat:* Annual national accounts, Annual net earnings and Purchasing power parity database.

Figure 1.4 shows levels relative to the EU27 average.[5] The comparison of wage levels in real terms is approximate, as the PPP essentially serves the compari-

4 The two categories are not exactly the same: GW (ILS) includes only gross wages, while GWS (NA) includes supplementary earnings (cafeteria, etc.).

5 Slovakia's PPP indicators have become unreliable since 2016 (see *Oblath,* 2021) and are therefore not included in the figure.

son of expenditure items (e.g. household consumption) rather than costs or earnings in real terms, while levels expressed in euro (except for Slovakia) can be strongly influenced by where the nominal exchange rate stood in 2019.

Relative levels of per capita GDP and labour productivity (columns 1 and 2). In 2019, Hungary's GDP per capita at PPP was broadly in line with Romania and Poland, but labour productivity (GDP per person employed) was below that of both countries, primarily due to the significant increase in domestic employment (see the previous part of this chapter). The important change over the last decade in Hungary is demonstrated by the fact that in 2010, as compared to the EU average, per capita GDP was 12 percent lower than GDP per employed persons, while in 2019, it was by 3 percent higher.

The international comparison of wage levels (columns 3 to 6) may be relevant from four perspectives. (I) where the real producer wage bill (calculated at PPP of GDP) stands relative to labour productivity in other countries (column 2 vs. 3); (II) where the wage bill in euro (column 4) and (III) where the net wage in euro (column 6) stand; and finally (IV) where the net real wage (column 5) stands in international comparisons.

Comparison (I) gives a picture of how the level of real wage costs relates to value added, so at the macro level, it may indicate international differences in gross profit shares (including depreciation). Comparison (II) takes the perspective of the foreign investor involved in foreign direct investment (FDI), who is mainly interested in the relative level of labour costs in euro (apart from the institutional environment and tax incentives negotiated). The net wage in euro (III) is of interest from the point of view of the worker who may choose to work domestically or abroad for a short period. Finally, the net real wage converted at the PPP of consumption (IV) shows the relative size of the consumer basket affordable from the net wage in international comparison (this is obviously also of interest to the worker who wishes to work abroad on a permanent basis).

As regards the ratio between real wage costs (COMP converted at GDP PPP) and productivity, Hungary is characterised by a significantly wider gap (around 20 percent) than the countries compared (7–12 percent). The domestic labour cost in euro (column 4) is much lower than in the more productive Czech Republic, but not significantly different from Poland and Romania, but considerably lower than in Slovakia.

The source of the indicators discussed so far is the NA, which does not include net earnings data. For the latter, Eurostat provides internationally-comparable indicators under the heading "net earnings", depending on family size and the ratio to average earnings, of which the net wage of a single person earning 100 percent of the average wage is considered as a proxy of the average net wage (this is conceptually consistent with the net earnings indicator of the HCSO).

Domestic net wages as measured by PPP for consumption are significantly below the level of the Czech Republic and Poland, but higher than in Romania (where productivity is higher than in Hungary). In contrast, net domestic wage levels in euro are broadly similar to those in Poland and Slovakia and well above those in Romania.

Given the differences in data sources, one should not expect close consistency between indicators of net earnings and labour costs (from NA), however, it is striking that in 2019, the relative level of net wages in euro terms in Hungary was by 10 percent *higher* than COMP/employee (i.e., gross labour costs) – what obviously makes no sense. Among the countries compared, relative levels were similar in Poland and net wages in the other three countries were 10–15 percent lower than the COMP/employee. This suggests that Hungarian indicators on net wages should be treated with caution – as confirmed by comparisons based on changes over time.

International comparison over time: changes between 2010 and 2019

In this section, we review changes in labour productivity and wages in Hungary, the V3 and Romania. We compare annual average growth rates (calculated from logarithmic differences), dividing the period 2010–2019 into two subperiods. We split the time series at 2015 because this is the year from which the real value of Hungarian compensation (COMP) per employee started to increase. In the discussion of the data, we refer to the numbering in *Table 1.2*.

The top block of the table shows changes in productivity and its components. Over the decade as a whole, GDP per person employed grew at the slowest pace in Hungary (3), with virtual stagnation in the first half of the decade and a relatively modest recovery in the second period. This can be explained not by the relative size of economic growth (1), but by the exceptionally rapid expansion of employment (2), as discussed earlier. However, the domestic divergence with respect to other countries in terms of growth in real COMP per employee (real producer wages) (6) is even larger than that of productivity but is slightly mitigated when comparing the evolution of real gross wages and salaries (GWS) per employee (8). This calls attention to the fact that the slow growth of COMP in Hungary is partly due to the significant cut in employers' social contribution.

The indicators discussed so far have their source in the NA and can therefore be combined to produce synthetic indicators. Three such indicators are presented in the lower block of the table: the adjusted total (12) and direct (13) wage shares and the unit labour cost in euro (ULC; 14). The adjusted total wage share is the ratio between COMP per employee and GDP per employed (the direct wage share differs from the total wage share in that the numerator of the indicator is not COMP but GWS).[6] The comparison shows that the wage share in Hungary decreased more in the first period and did not increase or increased less in the second period compared to the V3 countries.

6 On the evolution of the wage share in Hungary measured by different indicators, see *Kónya–Krekó–Oblath* (2021).

Table 1.2: Evolution of productivity components and wage indicators in the Visegrád countries and Romania over the period 2010–2019 and two sub-periods (average annual growth rates in percent)

	2019/2010	2015/2010	2019/2015	2019/2010	2015/2010	2019/2015	2019/2010	2015/2010	2019/2015
	Real GDP (1)			Employment (2)			GDP/emp (3) = (1) – (2)		
Czech Republic	2.5	1.7	3.4	0.8	0.5	1.2	1.7	1.2	2.2
Hungary	2.9	2.1	4.0	2.0	1.8	2.2	1.0	0.3	1.8
Poland	3.6	2.9	4.4	0.7	0.8	0.6	2.9	2.1	3.8
Slovakia	2.6	2.5	2.8	1.3	0.9	1.9	1.3	1.7	0.9
Romania	3.8	2.8	5.0	–0.1	–0.5	0.3	3.9	3.3	4.7
	Real COMP (4)			Employees (5)			Real COMP/empe (6) = (4) – (5)		
Czech Republic	3.1	0.8	6.0	0.8	0.0	1.8	2.3	0.8	4.2
Hungary	2.2	0.6	4.2	1.8	1.4	2.4	0.4	–0.8	1.8
Poland	3.7	1.7	6.1	0.8	0.3	1.4	2.9	1.4	4.7
Slovakia	4.1	2.5	6.1	1.5	0.6	2.5	2.7	1.9	3.6
Romania	3.8	–1.2	10.0	0.7	–0.5	2.3	3.1	–0.7	7.8
	Real GWS (7)						Real GWS/empe (8) = (7) – (5)		
Czech Republic	3.4	1.6	5.6				2.6	1.6	3.8
Hungary	2.9	0.9	5.3				1.0	–0.5	2.9
Poland	3.9	2.3	6.0				3.2	2.1	4.6
Slovakia	4.2	3.1	5.5				2.7	2.5	3.0
Romania	6.2	1.0	12.8				5.5	1.5	10.5
	COMP/empe (eur) (9)			Net wage (eur) (10)			Net real wage (11)		
Czech Republic	3.8	0.6	7.9	3.3	0.4	6.8	1.8	0.4	3.4
Hungary	1.7	–0.4	4.3	4.7	1.4	8.9	4.3	1.5	7.8
Poland	3.6	2.0	5.7	4.4	3.6	5.4	3.9	3.1	4.9
Slovakia	3.6	2.5	4.9	3.2	2.3	4.2	1.5	0.6	2.7
Romania	5.7	1.4	11.0	6.9	5.6	8.6	5.9	4.0	8.3
	Adj. wage share (12) = (6) – (3)			Adj. direct wage share (13) = (8) – (3)			ULC (eur) (14) = (9) – (3)		
Czech Republic	0.7	–0.4	1.9	0.9	0.4	1.6	2.2	–0.6	5.7
Hungary	–0.6	–1.1	0.0	0.1	–0.8	1.1	0.7	–0.7	2.4
Poland	0.0	–0.7	0.9	0.3	–0.1	0.8	0.7	–0.2	1.9
Slovakia	1.3	0.3	2.7	1.4	0.8	2.1	2.3	0.9	4.0
Romania	–0.8	–3.9	3.1	1.6	–1.8	5.8	1.8	–1.9	6.3

Abbreviations and explanations: COMP: compensation of employees; GWS: gross wages and salaries (COMP minus employer's contribution); adjusted wage share: ratio of COMP/employee to GDP/employed; adjusted direct wage share: ratio of GWS/employee to GDP/employed; ULC in euro: wage cost per unit of product in euro. The number of persons employed and employees is based on the "domestic" concept: it excludes residents working abroad, but includes non-residents working in the country. The growth rates are additive (logarithmic differences), but due to rounding, they do not give exact sums or differences.

Source: *Eurostat:* Annual national accounts and Annual net earnings.

The change in the ULC (14) in euro (the ratio of COMP/employee in euro to GDP/employed) is a kind of cost-competitiveness indicator. For Hungary, it indicates that despite the very low productivity growth of the last decade (3), the country's cost competitiveness has not deteriorated but rather improved, which can be attributed to the relatively modest growth of COMP and the depreciation of the forint.

Turning to net wages, as indicated earlier, these indicators are based on net earnings data calculated by Eurostat, which are comparable *across* countries, but not necessarily comparable with the COMP and GWS data from the NA *within* countries.

In Hungary, the increase in net real wages (nominal net wages deflated by the consumer price index) (11) was well above that of the V3 countries over the period as a whole, especially in the second part of the period (when it was just below the equally high rate in Romania). The question is, however, how this picture, which is very favourable for net wage developments in Hungary, can be reconciled with the lag in productivity and wage growth as measured by the NA.

Due to differences in data sources and their content, it is generally not recommended to compare the evolution of net earnings with that of wages as measured by the NA, but it may be instructive to show the differences in the indicators from the two data sources across countries. Considering the differences in growth rates between net wages (10) and COMP/employee (9), both expressed in euro, we find that the deviation is much larger in Hungary (3 percentage points) than in the other countries (the difference is negative in the Czech Republic and Slovakia). If we look at the growth rate differential in terms of GWS/employee in euro (not shown in the table: 2.4 percentage points), the positive difference in favour of net wage growth compared to the other countries remains very significant.

This does not imply that the indicators on net wage developments are false for Hungary, but it does suggest that the part of the economy to which the net wage data refer is less representative of overall wage developments than in the comparison countries. The possible implications are quantified below.

By how much may have net real wages increased at the national level?

The foregoing international comparisons have shown that Hungary has experienced an unusually wide gap between changes in net wages and changes in gross wage costs (COMP). So far, we have relied on Eurostat estimates of net wages, which are useful for cross-country comparisons, but in the case of Hungary, they do not exactly match the official data of the HCSO. In the following, for gross and net wages, we rely on official indicators from the Institutional Labour Statistics (ILS) of the HCSO, which, unlike the NA data, cover only a part of the economy. We hypothesise that a possible reason for the significant tension between the NA and ILS data on labour income may be that the latter is not sufficiently representative of wage developments characterising the economy as a whole. As the national accounts do not include data on net wages, we have estimated ourselves how much real net wages may have increased at the national level in the 2010s.

The first five rows of *Table 1.3* contain official data and indicators derived from them; row 6 contains our own estimate of economy-wide net wages. To give a picture not only of the changes but also of the levels, the first three columns show the annual amounts per person (employed or employee) in millions of forints. The second three columns show changes at current prices and the last three columns show changes in real terms. Real changes are obtained by deflating the nominal change in *net wages by the consumer price index* and the *other items by the GDP deflator*.

Table 1.3: Levels (in forints) and percentage changes of GDP/employed, alternative indicators of wage per employee and implied national net wages between 2010 and 2019 and in two sub-periods

		Million HUF/person/year			Nominal change (percent)			Real change (percent)		
		2010	2015	2019	2019/2010	2015/2010	2019/2015	2019/2010	2015/2010	2019/2015
1	GDP/employed*	6.95	8.10	10.08	45.2	16.6	24.5	9.1	1.5	7.5
2	COMP/empe (NA)*	3.29	3.63	4.52	37.5	10.5	24.5	3.4	–3.9	7.5
3	GWS/empe (NA)*	2.67	2.91	3.85	43.9	8.9	32.1	8.1	–5.2	14.1
4	GW/empe (ILS)	2.43	2.98	4.41	81.6	22.4	48.4			
5	Net wage/empe (ILS)**	1.59	1.95	2.94	84.5	22.5	50.6	51.5	9.9	37.9
6 = 3 × × (5/4)	Implied net wage/empe**	1.75	1.91	2.56	46.1	9.0	34.1	20.1	–2.2	22.7

Note: COMP: compensation of employees; GWS: gross wages and salaries (compensation of employees minus employer's contribution); empe: employees; NA: national accounts; ILS: institutional labour statistics; GW: gross wages according to ILS. For measuring real change the GDP deflator (*), the consumer price index (**) is applied.
Source: *HCSO* and own calculations.

As a reminder, gross wages represent the conceptual bridge between the two types of statistics on labour income: gross wages and salaries according to the NA (GWS = COMP minus employer's contribution) [row 3] conceptually correspond to gross earnings reported by ILS (GW = net wage + taxes paid by employees [row 4]. However, the conceptual correspondence is far from being a numerical match: while in 2010 GWS (per employee per year) was HUF 2.7 million and 10 percent above the level of GW, the ratios were reversed by 2019: gross wages according to the ILS (HUF 4.4 million) were 15 percent higher than the level of gross wages and salaries under the NA.[7] The fourth column of the table also shows that, over the whole period under review, nominal gross wages according to the ILS increased by about 80 percent, which is almost double the corresponding indicator of the NA.

Skipping the question of whether the ILS data are accurate for the part of the economy covering about two-thirds of employees, but assuming that the ratio between gross and net wages reported by the ILS is valid for the economy as a whole,[8] and accepting the NA data for gross wages and salaries, we estimated the level of, and change in *net wages at the national level*. We refer to this indicator as the *implied net wage* (see row 6 of the table).

7 The alternative indicators per worker in 2010 are consistent with the fact that the concept of GWS is broader than that of GW, but over time the relationships between the two types of statistics have become less and less clear. In 2010 and 2019, the gross wage bill according to the ILS was respectively, 60 and 75 percent of the GWS according to the NA, while the ratio of the number of employees was 65.5 percent in both years, with no significant change in the intervening years.

8 For the national economy as a whole, the gap between gross and net wages may be narrower than in the scope covered by the IMS – for example, because the willingness to pay taxes is lower in the part of the economy not directly observed. This may affect the estimated net wage level in particular, but its impact on net wage dynamics is uncertain.

The level and change in officially reported and implied net wages can be compared on the basis of the indicators in rows 5 and 6, of which the evolution of net real wages is of particular interest (the last three columns). Over the period as a whole, implied real net wages have increased by much less than the official indicator – by less than half – and there is a significant contrast between the indicators in both sub-periods. It is noteworthy, however, that, due to developments in the second period, implied real net wage growth also exceeded that of labour productivity, suggesting that the macroeconomic share of real net wages has increased, although by far less than suggested by the official (ILS) net wage data.[9]

Regarding the period 2010–2019, what are the possible reasons for the difference between the 50 percent increase in net real wages (as shown by the ILS) and the 20 percent increase we estimate for the economy as a whole? Not ruling out the possibility that we have underestimated the increase in net wages in the total economy, the following explanations are possible. (1) Gross and net wage increases measured by labour statistics (ILS) may be higher than the actual increase, because this source may consider the "whitening" of wages (the formalisation of previously pocketed wages) as an effective increase. However, this whitening should not affect wage growth measured by the NA, if the actual levels had already been estimated by taking account of the approximate size of hidden earnings. (2) The difference in the definition of "gross wages" may also have contributed to the widening of the gap between the indicators. The GWS indicator of the NA includes not just wages, but also additional benefits paid to employees, which, as the tax rules on these items became stricter, could increasingly be reflected in gross earnings under the ILS, as it became less and less worthwhile for employers to pay this portion of wages as fringe benefits. (3) In the part of the economy covered by the ILS, productivity – and along with it, wage levels – may have grown much faster than in the areas considered only by the NA wage indicators.[10]

In addition to these explanations, it could in principle be argued that the wage growth in the part of the economy not covered by the ILS is significantly underestimated by the NA. However, it is not worth speculating on this, because then one would also have to wonder by how much the level and structure of GDP might have been misestimated. We wish to avoid this unstable ground, so we will remain with the first three explanations, which imply that the 50 percent increase in real net wages according to the ILS data is not an indicator for the economy as a whole, but only for the more productive part of it, and, even so, is likely to be an overestimate. We therefore object to the current practice of the HCSO which considers the ILS net wage index as a baseline indicator, reflecting developments at the level of the national economy.

9 Over the period as a whole, the significant difference between the change in *nominal* COMP and the change in the official indicator of nominal net wage reported by the ILS is due to two factors: (1) the difference between the change in the GWS (NA) and the GW (ILS), and (2) the significant decrease in the rate of employer's social contribution (from 27 to 17.5 percent). The difference between the *real* changes is due to the fact that the GDP deflator (the deflator of COMP) increased by about 9.5 percentage points more than the CPI the deflator of net wages.

10 After having finalised the Hungarian version of the present chapter, an article was published by top associates of the HCSO, who disclosed that the main reason why the ILS and NA wage data differ is "whitening", i.e., they confirmed explanation (1). See: *Janák–Szőkéné* (2022).

Summary. According to data provided by the national accounts (NA), Hungary experienced a very modest increase in labour productivity between 2010 and 2019, well below that of its east European peers, but even more modest growth in the national "super-gross" real wage indicator, i.e. real compensation per employee. The NA data refer to the economy as a whole, so they include estimates for the part of the economy not directly observed and also seek to correct for possible biases in the observed part covered by labour statistics (ILS). The ILS covers two-thirds of all employees; it is based on official data on gross and net wages regularly published by the HCSO, which indicate much faster wage growth than what would be consistent with productivity and wage data from the NA. We estimate that between 2010 and 2019 real net wages at the national level grew by about 20 percent, roughly 30 percentage points below the increase officially reported by the HCSO. However, our estimate is consistent with the indications of official data showing that net real wages have increased sharply, well above the increase in labour productivity since 2016.

Social and unemployment benefits

This section provides a brief account of the social aspects of the situation before the pandemic, highlighting the details relevant to the labour market.

Poverty and unemployment

The relative income poverty rate was low in Hungary before the pandemic, at 12.3% in 2019, on a par with Slovenia and Slovakia, well below the Bulgarian, Romanian and Polish poverty rates, and slightly above the Czech one (*Eurostat SILC,* 2019).[11] This indicator, however, conceals the wide gaps in median income and in the deprivation of the poorest.

In many aspects, the poor in Hungary are more vulnerable than their Czech, Slovak or Slovenian counterparts. The share of people living in extreme poverty was 5.3 percent in 2019, compared to between 2.1 and 5.2 percent in the Visegrád countries. The share of people living in a dwelling without a bathroom was 2.8 percent (ranging from 0.2 to 2.1 percent in the Visegrád countries). Hungary fared even worse in terms of child poverty: in 2019, for example, 4.7 percent of children lived in a dwelling without a bathroom, compared to 2.2 percent in Slovakia and zero in Slovenia.[12] The vulnerability of the Hungarian middle class is reflected by the fact that, when compared to the EU28 medina income, (rather than the national median), 78% of the Hungarian population was considered income poor in 2017, while the corresponding figure was 17 and 21% for Slovenia and Czechia respectively (*Gábos et al.,* 2021).

Before the pandemic, unemployment was at very low levels in all countries of the region (except in Slovakia), at around 3–4 percent, and 3.4 percent in Hungary.

11 People living on incomes below 60 percent of median equivalised income (At-risk-of-poverty rate by poverty threshold, age and sex. EU-SILC and ECHP surveys; online data code: ILC_LI02.) The proportion of people living in extreme poverty (below 40 percent of the median) is 2.1 percent (Czech Republic), 2.7 percent (Slovenia), 4.7 percent (Slovakia), 5.2 percent (Poland) and 5.3 percent (Hungary).

12 Eurostat SILC data for 2019. *Source*: Eurostat online database (ILC_MDHO02C and ILC_LI02).

Cash benefits

Cash benefits available to the unemployed or the poor were extremely ungenerous before the pandemic – and have remained so. Those who were in employment for at least 360 days (consecutive or interrupted) in the preceding three years are eligible to insurance-based unemployment benefit (jobseeker's allowance, *álláskeresési járadék*). Ten days of prior employment is required for each day of benefit payment and the maximum duration of the benefit is 90 days. The amount of the allowance is 60% of the last four quarters' earnings (or 130% of the minimum wage in force if the person worked for less than a year), but not more than the minimum wage, regardless of the level of education. The 90-day maximum is the shortest in Europe; in the Czech Republic, the maximum period varies between 5 and 11 months, depending on the age of the claimant, and it is 6, 9 or 12 months in the other countries of the region (*OECD,* 2020).

People without the required 360 days of employment can apply for unemployment assistance (employment substitution allowance – *foglalkoztatáshelyettesítő támogatás*).[13] This is conditional on the family's monthly income per consumption unit not exceeding 90 percent of the old-age pension minimum (HUF 25,640 in 2019) and having no assets. For example, in the case of a family with two children, if one parent works on minimum wage, the family's income per consumption unit exceeds HUF 39,000, thus the other parent is no longer entitled to employment substitution allowance. The amount of the unemployment assistance does not depend on income or household size, it is a flat rate of HUF 22,800. This is low even in the region, especially for low-income families with children.[14]

In addition to these provisions for the unemployed administered by the government office, people in need can also apply for so-called municipal assistance from local governments: the relevant rules are set by the local authorities. Municipal assistance (replacing the former earmarked and centrally funded allowances) are typically meant to cover housing-related expenses or as a crisis relief, while reimbursement of medical costs, support for full-time carers of dependant relatives and debt management services accounted for only a third of all municipal assistance in 2016 (*Kopasz–Gábos,* 2018, *Misetics,* 2019).

Due to the short duration of eligibility, on average, less than a fifth (18%) of the registered unemployed received insured-based benefit in 2019, averaging HUF 108,000.[15] Nearly one third (32%) of those registered, a monthly average of 79,000 people, received the means-tested unemployment assistance (HUF 22,800 per month), and an average of 58,000 families received municipal assistance each month.

Thus, even before the pandemic, social cash benefits were available only to a small share of those in need, benefit levels were low and not in line with the actual cost of living and housing.

13 If a person wants to find a job after an illness or after caring for a child, he/she may also be eligible to a disability or childcare allowance.

14 According to *Konle-Seidl (2021),* the maximum amount of social assistance for a couple with two children was the second lowest in the EU in Hungary, at 17% of the median income, taking into account minimum income type support (unemployment assistance, housing benefits) and family allowances.

15 See krtk.hu.

Social services

The intensity of labour market effects during a pandemic or an economic crisis depends, among other things, on the availability and quality of social services providing support to those personally affected by the crisis. In addition to these services, the Covid pandemic also impacted on the availability of day care services and, through that, the labour supply of families with children, so we briefly discuss these too.

Crisis management services help to solve temporary financial difficulties, such as utility arrears that may lead to loss of housing, and other situations that are less relevant to labour market processes. These services are provided by the family and child welfare services of municipalities and the family and child welfare centres in micro-regional centres (beside the basic tasks of child protection and family assistance).[16] According to HCSO data[17] a total of 6300 professional staff worked in these institutions in 2019.[18]

There has been no research in recent years that would map the actual accessibility and quality of social services across the country. Research in a few micro-regions shows that in disadvantaged areas, and especially in smaller settlements (where villages typically provide services in partnership with urban centres or other villages), many people in need are unaware of the services available from family support services and do not use them. Service providers are overburdened, and there is high turnover and staff shortages due to particularly low salaries (especially considering the psychologically demanding tasks) (*Rácz,* 2020). Smaller settlements are often unable to provide even basic, mandatory services on a continuous basis. Available capacities are also insufficient in the municipalities of the agglomeration of Budapest. There are few professionals to assist social workers (e.g. psychologists, psychiatrists, addiction specialists). The effectiveness of professional work is severely limited by the lack of meaningful, regular, institutional cooperation between related services as well as the low level of cash benefits. Since 2015, the management of utility arrears and debts that threaten housing has not been a designated municipal task,[19] and in many municipalities this service has been discontinued (*Misetics,* 2019).

Day care

In Hungary, almost all children over the age of six are in school (or kindergarten), and since the introduction of compulsory kindergarten in 2015, the participation of three-year-olds has also gradually increased, reaching 87% in 2019, which is also high in the region.[20] Lower primary school children are usually supervised between 7:30 am and 4 pm, and nursery schools between 7 am and 5 pm, but this varies across municipalities. The proportion of children attending nurseries is significantly lower but had increased steadily in the years before the pandemic.[21] In 2019, nearly 46,000 children under the

16 See kormany.hu.

17 See ksh.hu.

18 It is worth comparing this with the number of visiting nurses: in 2019, out of 4028 visiting nurse posts, 3675 were filled, which was enough for an average of six appointments a year for nearly 150,000 expectant mothers.

19 Between 2006 and 2015, municipalities with a population of more than 40,000 were obliged to provide a debt management service, consisting of cash assistance and related debt management counselling.

20 See OECD.

21 See ksh.hu.

age of three (roughly 16% of the corresponding age group) attended nursery school, and nearly 18% of mothers with children under three were working.[22] The employment rate for mothers with older children was significantly higher (35 percent for three-year-olds and 75 percent for children aged 4–10). Most nurseries also provide all-day care. The above suggests that the closures during the pandemic may have had the greatest impact on the labour supply of households with children aged between three and ten.

Employment services

In addition to the usual measures taken in economic crises, the management of the pandemic posed challenges to which the public employment services (PES), including the Hungarian one, had no ready-made answers. According to an OECD analysis, the response of employment services was more effective in countries where the PES had a flexible institutional framework, good relations with social partners and researchers with expertise in data analysis, and well-established partnerships with a wide range of external service providers (*OECD,* 2021). In general, flexibility is facilitated if the employment service's budget is automatically adjusted (even during the year) to the level of unemployment, it has relative autonomy in deciding how to use its budget and staffing levels, it enjoys a high degree of professional autonomy in managing active labour market policies, and the local branches have a relatively high degree of autonomy. PES that had already digitised a large part of their services before the pandemic, or made extensive use of teleworking, were also in a better position.

The Hungarian employment service, which operates as part of the network government offices, did not start from a good position in any of these areas. In 2019, it was highly centralised but lacking strong professional leadership, had limited autonomy, limited resources in terms of budgets and staffing, and provided most of its services face-to-face (*Janovics*, 2019).

Overall, the Hungarian welfare system was not well prepared, neither in terms of cash benefits nor social and employment services, to cushion the social impact of an unexpected and profound health care and economic shock, or to adequately mitigate its labour market impacts. At the same time, the (otherwise laudable) y high coverage of day care for 3–6 year-old children may have increased the indirect negative impact of closures on women's labour supply.

22 Source ksh.hu and calculations by János Köllő based on the Labour Force Survey.

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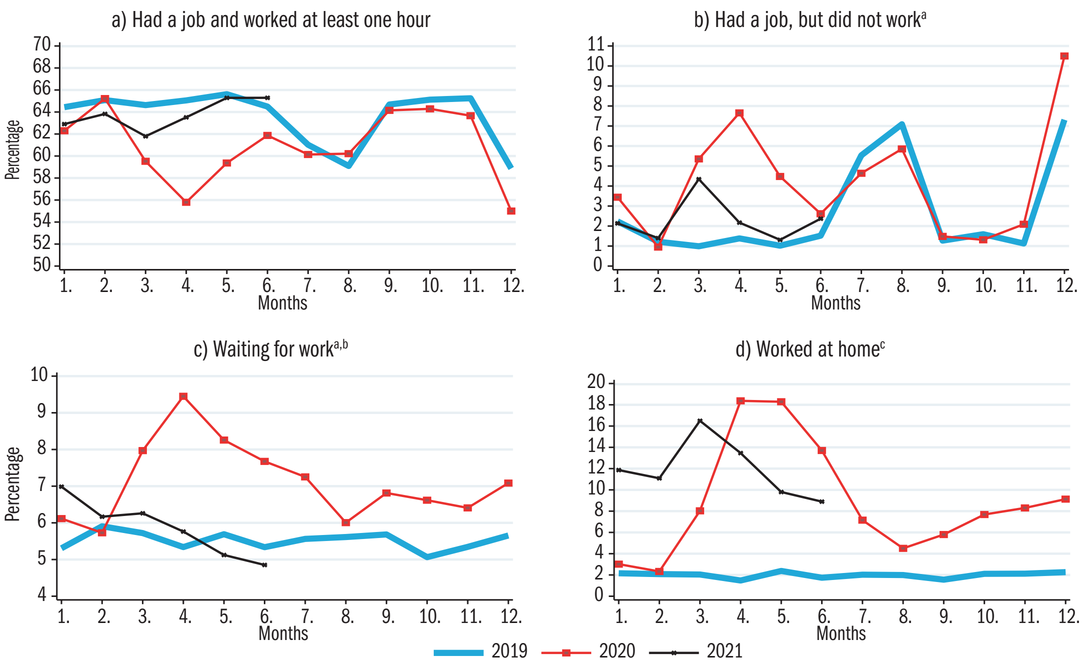
2 LABOUR MARKET AND UNEMPLOYMENT DURING THE CRISIS

2.1 EMPLOYMENT DURING THE PANDEMIC

JÁNOS KÖLLŐ

The first wave of the coronavirus pandemic had a severe impact on the labour market – as presented in last year's The Hungarian Labour Market (*Köllő,* 2021). With more recent data available up to mid-2021, the changes that occurred during the second and third waves can now be examined; starting with the four graphs in *Figure 2.1.1* All graphs show monthly data based on the Labour Force Survey of the Hungarian Central Statistical Office, with time series for 2019, 2020 and the first half of 2021.

Figure 2.1.1: Labour market indicators, 2019–2021



[a] 15–74 years old, not in education = 100.
[b] A person is waiting for work if he/she is (i) actively looking for a job, (ii) inactive but wants a paid job (iii) has a job but did not work during the week preceding the interview due to a temporary break initiated by the employer.
[c] Worked at least one hour = 100.
Source: Author's calculation based on data from the Labour Force Survey (LFS) of the *Hungarian Central Statistical Office* (HCSO) maintained by the *CERS* Databank.

As the top-left graph shows, the number of people actually working fell dramatically during the first wave of the pandemic from March to May 2020 but returned to the 2019 reference curve in the summer, and was not significantly lower in the first two months of the second wave than in the same period of the previous year. However, in December – at the peak of the second wave – a slightly larger drop than usual can be observed (including 2019), and this gap between the curves only disappeared in May–June 2021.

The top right graph shows the proportion of the population who had a job during the week preceding the survey but did not work at least one hour during that week. The proportion of this group tends to spike during the summer and the end-of-year holidays, as was the case in 2019.[1] At the peak of the first Covid wave in April, the rate rose from around 1% in 2019 to 7%, but then there was a declining trend until December when it reached the levels of the previous year. In the third wave, mainly during the lockdown in March, we see rates of around 4% compared to 1% in 2019.[2]

The bottom left graph is entitled "Waiting for work". We include those who were (i) actively looking for work, (ii) were inactive but wanted paid work, (iii) had a job but did not work during the week preceding the interview due to a temporary break initiated by the employer. (So, this graph does not include persons not working for other reasons, such as sickness or holidays). The proportion of such people stood at 5–6% in 2019, and jumped to nearly 10% during the first wave. This is an underestimate because it ignores those who chose to stay at home at the expense of their paid leave due to the pandemic. The rate then fell steadily and by August it was close to the 2019 level. During the second wave, there was a slight increase with a maximum of 7%, and during the third wave, there was a steady decline, resulting in a level below 2019 values in May–June 2021.

Finally, the bottom right graph shows the share of teleworkers among employees working at least one hour. This figure rose ninefold during the first wave, then declined but did not fall back to its pre-pandemic levels, remaining in the 8–12 percent range during the second and third waves, with a new peak of 14–16 percent in March–April 2021. The pandemic seems to have brought about a lasting change in this area.

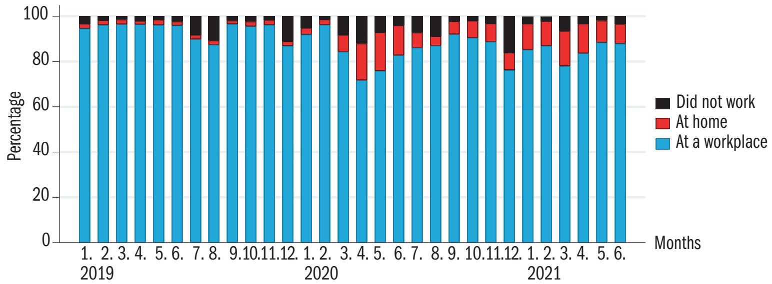
Changes in the structure of employment

Figure 2.1.2 shows the change in the structure of employment measured according to ILO–OECD conventions. Prior to the pandemic, office-based work accounted for 95–97% of total employment, excluding the summer and end-of-year holiday months. From spring 2020 onwards, the rate fell to about 80 percent even in months not affected by mass holiday leave (April–May 2020, March–April 2021), and even after the third wave had subsided, it did not reach 90 percent.

1 In this case, information on the reason for absence was not used, as during the pandemic there may have been many people who stayed at home on paid leave. We control for the seasonal effect by comparing the same months.

2 Please note that in 2021 we will continue to use the same definitions as before, i.e. we will not consider non-working childcare recipients as employed persons, who will be counted as employed persons by the HCSO under the new methodology if certain conditions are met. See K2.2 for more information.

Figure 2.1.2: Composition of employees by actual work and place of work, January 2019 – June 2021

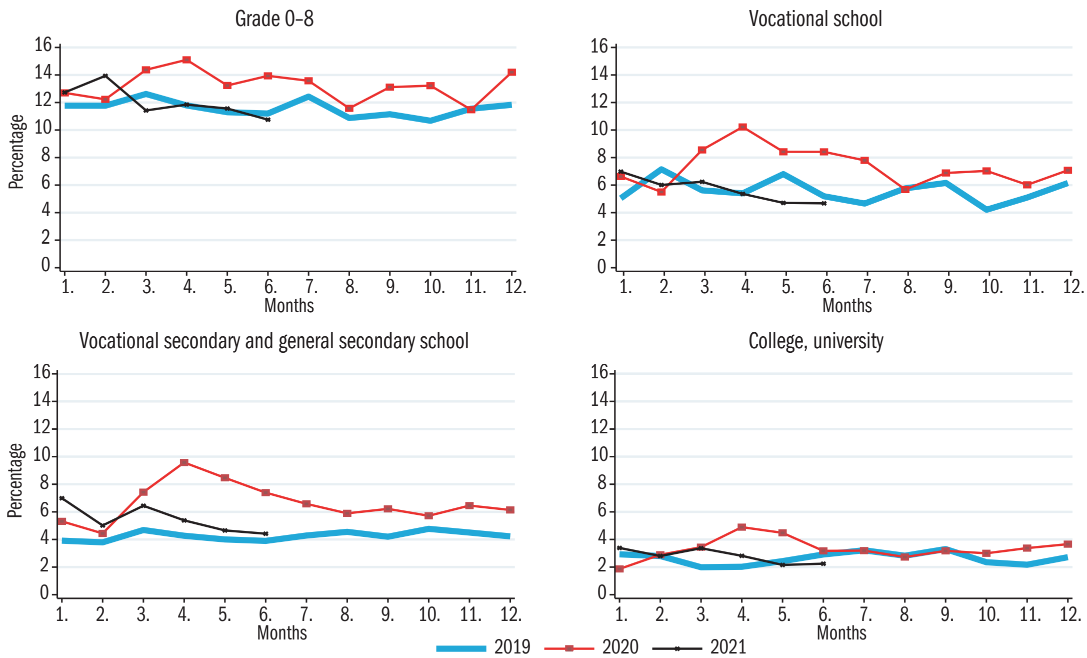


Source: The author's calculation from the *HCSO* Labour Force Survey data managed by the *Centre of Economic and Regional Studies*.

Differences by educational attainment

Figure 2.1.3 shows the change in the proportion of those "waiting for a job", as defined above, in the population aged 15–74 not in full-time education in 2019–2021, by the highest level of education.

Figure 2.1.3: "Waiting for a job" in each month of 2019, 2020 and 2021, by education level



Waiting for work: A person is waiting for work if he/she is (i) actively looking for a job, (ii) inactive but wants a paid job (iii) has a job but did not work during the week preceding the interview due to a temporary break initiated by the employer.

Education: we use the colloquial names. Vocational: vocational education and training without a school leaving certificate. Vocational secondary: secondary vocational education providing baccalaureate and vocational qualification.

Sample: population aged 15–74 not in full-time education.

Source: Author's calculation from the *HCSO* LFS managed by the *CERS* Databank.

Among those with up to eight years of schooling, the rate amounted to 11–12 percent in 2019, then jumped to over 15 percent during the first wave. It was only in March 2021, during the third wave, that this figure returned to its 2019 levels.

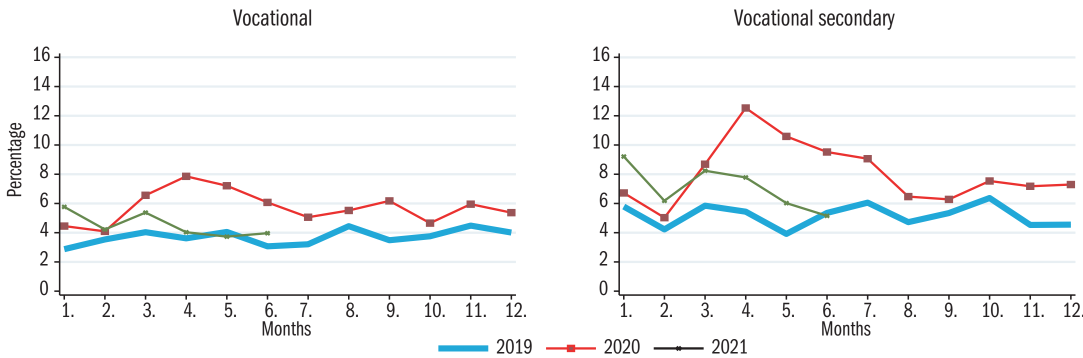
Among vocational school graduates, the share of those "waiting for a job" was only half as high, around 6 percent, but the increase in April 2020 was significantly higher (92 percent). The 2020 curve was already close to the 2019 curve in August and fell slightly below it during the third wave.

The most severe and sustained loss was among secondary school graduates: from a stable 4% in 2019, the indicator jumped to 9.6% in April 2020 (the largest increase in relative terms, 2.2 times the previous year's level) and has not subsequently fallen back to the initial level. We will come back to the question.

The share of university graduates looking for work was only 2–3% in 2019, and although the increase in April was significant (2.4 times), its absolute level was still below 5%. It increased again – to a lesser extent – during the second and the third waves, but disappeared completely by May–June 2021.

Figure 2.1.4 shows particularly unfavourable outcomes for secondary school graduates. This is most probably explained by their above-average likelihood to work in precarious jobs in retail trade, hotels, restaurants, and services.

Figure 2.1.4: People looking for work in each month of 2019, 2020 and 2021 (high school graduates)



Waiting for work: A person is waiting for work if he/she is (i) actively looking for a job, (ii) inactive but wants a paid job (iii) has a job but did not work during the week preceding the interview due to a temporary break initiated by the employer.
Education: Vocational: vocational education and training without a school leaving certificate. Vocational secondary: vocational education and training which provides baccalaureate and a vocational qualification.
Sample: population aged 15–74 not in full-time education.
Source: Author's calculation from LFS managed by the *CERS* Databank.

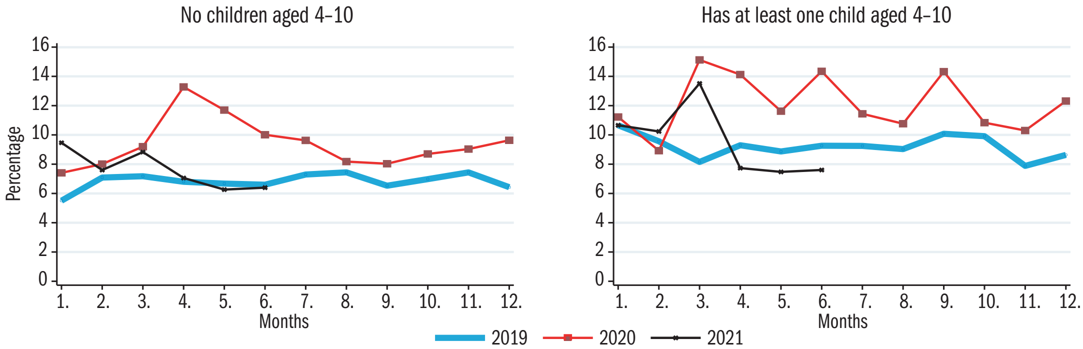
Mothers with young children

School closures during the first and third waves (with additional closures in December 2020 in many schools) may have strongly restricted parents with young children, especially mothers.[3]

3 With few exceptions, kindergartens and schools were closed from 16 March 2020 until June (the end of the school year) and from 4 March to 19 April 2021.

This can indeed be observed in *Figure 2.1.5*: women with at least one child aged 4–10 (most affected by the kindergarten and primary school closures) were more likely to "wait for a job" in March 2020, and a similar increase can be observed in March 2021, when schools closed again. The indicator then returned to the vicinity of the 2019 curve.

Figure 2.1.5: Women aged 20–50, who want to work in each month of 2019, 2020 and 2021



Waiting for work: A person is waiting for work if he/she is (i) actively looking for a job, (ii) inactive but wants a paid job (iii) has a job but did not work during the week preceding the interview due to a temporary break initiated by the employer.
Sample: population aged 20–50, not in full-time education.
Source: The author's calculation from the HCSO Labour Force Survey data managed by the *Centre of Economic and Regional Studies*.

School leavers

Analysis for the first wave of the pandemic (*Köllő–Reizer,* 2021) showed that, compared to the same period last year, the employment of school leavers fell dramatically (even after controlling for age). The data in *Table 2.1.1* show that this shock proved to be permanent.

Table 2.1.1: Employment rate of school leavers

Quarter	2019	2020	2021	Quarter	2019	2020	2021
1	67,5	64,9	56,3	3	58,5	51,2	..
2	67,9	57,2	59,6	4	60,3	57,1	..

School leavers: persons in full-time education the year before the survey, but not in education at the time of the survey.
Source: The author's calculation from the *HCSO* LFS managed by the *CERS* Databank

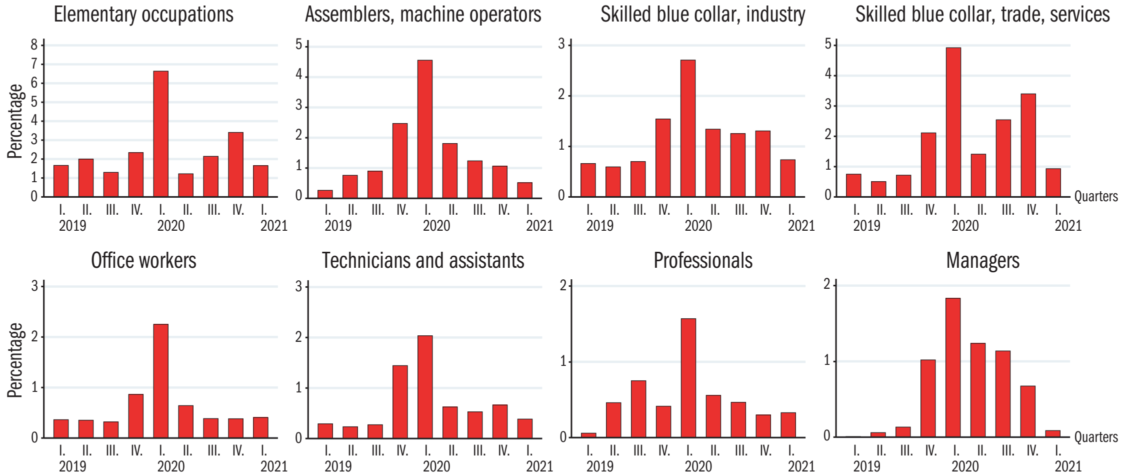
A person is considered to be a school leaver if he/she was in education one year before the interview but not at the time of the interview. The average age of people in this group is 22. Their employment rate is at its lowest in the third quarter, in the summer, when the group is dominated by recent school leavers, who often wait until the autumn to find a job and increases from then on (this is clearly visible when reading the 2019 column in order 3–4–1–2). The seasonality is so strong in their case that the results are presented in tabular rather than graphical form and measures are calculated quarterly due to the low number of cases (500–600 cases per wave).

In the first quarter of 2020, the rate was still close to the 2019 value, but in the second quarter, it was more than 10 percentage points lower than in the previous year. The difference persisted, albeit to a lesser extent, until the end of the observed period. For more information on the effects on young people, see *Subchapter 3.4* of the In Focus chapter.

Job loss by occupation

By looking at the probability of job loss, information on the impact on different groups of workers and sectors can be obtained. *Figure 2.1.6* presents job loss rates by occupation, the dimension that proved to be the most important in the first wave of the pandemic (*Köllő,* 2021). The columns show the proportion of people who worked at least one hour in the reference quarter and were "waiting for work" in the following quarter.

Figure 2.1.6.: Quarterly job loss rates by occupation Q1 2019 – Q1 2021 (percent)



Source: Author's calculation from the *HCSO* LFS managed by the *CERS* Databank.

Note that there are limitations to using LFS for reconstructing developments taking place over the period between two waves. Even if someone was in employment in waves t and t + 1, he or she may have been unemployed between the two interviews and if became unemployed or changed jobs more than once, it is impossible to determine the intermittent length of unemployment.

Due to the small number of observed people changing status, flows are examined here on a quarterly rather than monthly basis. For the same reason, we do not examine skilled agricultural workers.

Starting with low-skilled occupations: a jump can be seen during the first wave, with 6.5 percent of workers losing their jobs in the first quarter of 2020.

A small peak is also observed between the fourth quarter of 2020 and the first quarter of 2021.

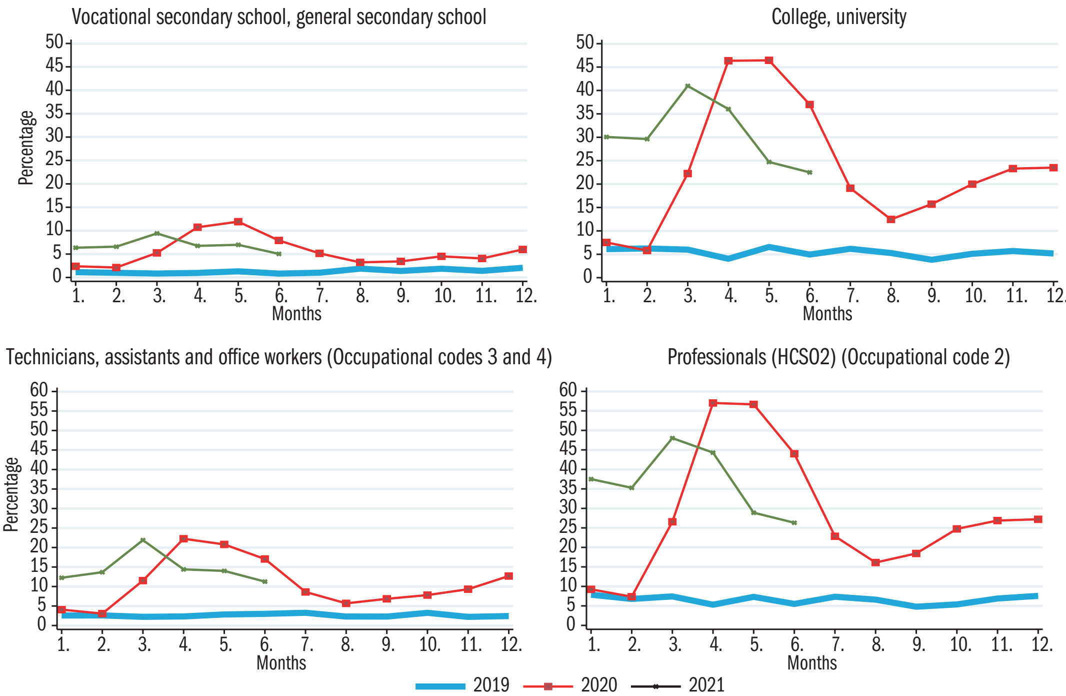
The risk of job loss for *assemblers and machine operators* already started to rise in the first quarter of 2020, during a period of turmoil in international trade. The peak between the first and second quarters was relatively small at 4.5 percent. There is a similar trend in the case of *skilled industrial and construction workers*, and *technicians and administrators*, but the peak rates for these occupations amounted to less than 3 and 2 percent respectively.

In the *trade, hotels, restaurant and services*, the data points to another shock in the winter of 2020–2021, in line with the next lockdown.

Regarding *administrative and graduate* jobs, the values have been low all along, returning to the 0.5–1% range after the first wave. For *managers* (*most of them are small business owners*), the shock has had a relatively long impact.

Teleworking

Figure 2.1.7: Skilled people working remotely in each month of 2019, 2020 and 2021, by education and occupation (working at least an hour = 100)



Teleworking: at least occasionally.
Sample: worked at least one hour in the week before the interview.
Skilled: has at least a baccalaureate.
Source: Author's calculation from the *HCSO* LFS managed by the *CERS* Databank.

The most important means of job retention was the transitioning to working remotely, as shown in *Figure 2.1.7.* For those without a school-leaving qualification, working at home remained very rare throughout, at 1–2 percent; they are therefore not shown in the figure. For graduates, the rate rose from the 1–2 percent range to the 10–12 percent range during the first, second and third waves, and did not fall below 5 percent even when the pandemic temporarily subsided in the summer of 2021. For graduates, the first wave has resulted in a huge increase in teleworking, partly due to school closures, bringing the share of teleworkers to the proximity of 40 percent in March–April 2021. Examined by occupation, we see peaks above 20 percent in technical, assistant and office occupations, and still around 10 percent after the third wave, while in graduate occupations the peak was around 55 percent and the rate was still above 25 percent at the end of the time window.

Change of occupation

Another way of adapting to the crisis could be to change jobs or employer. The former is examined among those who entered the LFS in the first quarters of 2017–2020, were in the sample on all six occasions and claimed to be employed on all occasions. Comparing the first and last occupation (based on the four-digit occupational code) of workers who were able to remain in employment, a huge increase in the proportion of job changers could be observed. The risk of occupational change almost doubled in the cohorts observed during the pandemic (*Table 2.1.2*).[4]

Table 2.1.2: Change of occupation among those who were employed at all six LFS waves

Year of entry to the LFS sample (first quarters)	The last occupation is different from the first (%)	Number of observations	Waves during the pandemic
2017	7.5	2256	No
2018	9.6	2083	No
2019	10.6	1671	Wave 6
2020	18.8	1699	Waves 2–6

Note: Occupation = 4-digit occupational code. The observations are not weighted.
Sample: Cohorts included in the LFS in Q1 2017–2020, interviewed on all six occasions and declaring themselves employed on all six occasions.
Source: Author's calculation from the *HCSO* LFS managed by the *CERS* Databank.

Changes of employer were also examined (as indicated by the number of months since entry), but we found no increase. It seems that the result shown in the table is mainly due to within-employer changes in the job, or of entrepreneurial profile.

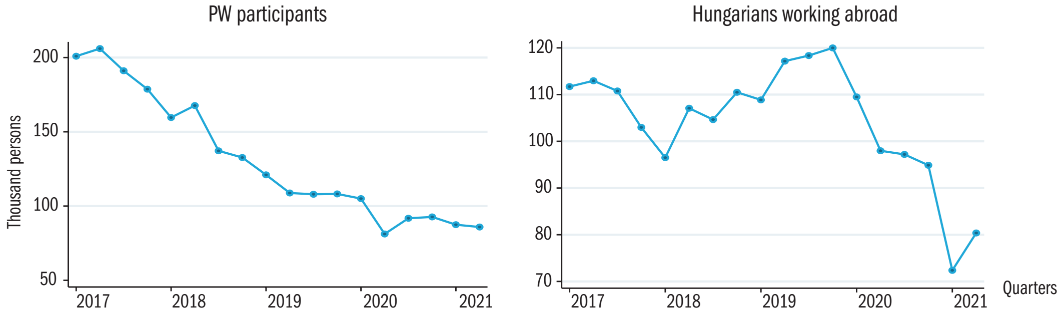
Public works and Hungarians working abroad

During the pandemic, the shrinkage of the public work scheme (PW) that started in 2017 continued: the average number of PW participants decreased

4 No differences by level of education were found in the intensity of occupational change.

from 200,000 at the beginning of 2017 to 100,000 at the outbreak of the pandemic (from 194,000 to 94,000 according to the Ministry of Interior – *BM,* 2021), and then fell to 86,000 (89,000 according to the BM) by the second quarter of 2021 (left part of *Figure 2.1.8*).

Figure 2.1.8: Average number of PW pasrticipants and Hungarians working abroad, Q1 2017–Q2 2021 (thousand persons)

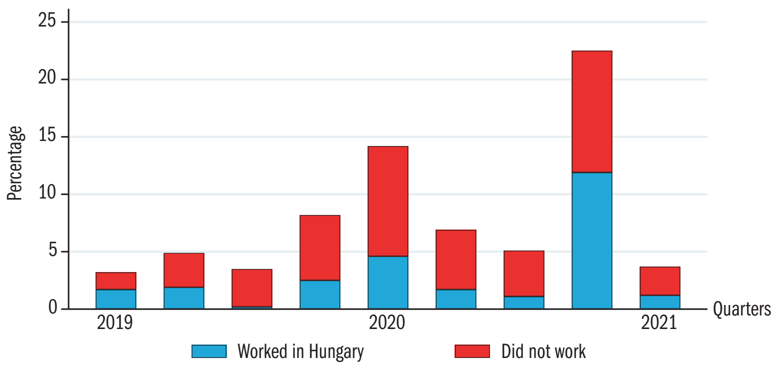


Source: Author's calculation from the *HCSO* LFS managed by the *CERS* Databank

The number of people working abroad also fell significantly, by a third. The LFS (as in other countries' labour force surveys) accounts persons attached to a Hungarian household but working abroad as part of Hungary's employment stock. This measure mainly covers cross-border commuting and casual work abroad.

Between the first quarter of 2020 and the second quarter of 2021, total employment increased by 20,000 and the number of people working abroad decreased by 40,000, so the increase in employment within Hungary is estimated at 60,000 (1.3 percent). This was because a part of people deprived of the opportunity to work abroad took jobs in Hungary, estimates for which are shown in *Figure 2.1.9*.

Figure 2.1.9: Employment of workers in 2019Q1–2021Q1 who lost or left their jobs abroad (%)



Source: Author's calculation from the *HCSO* LFS managed by the CERS Databank.

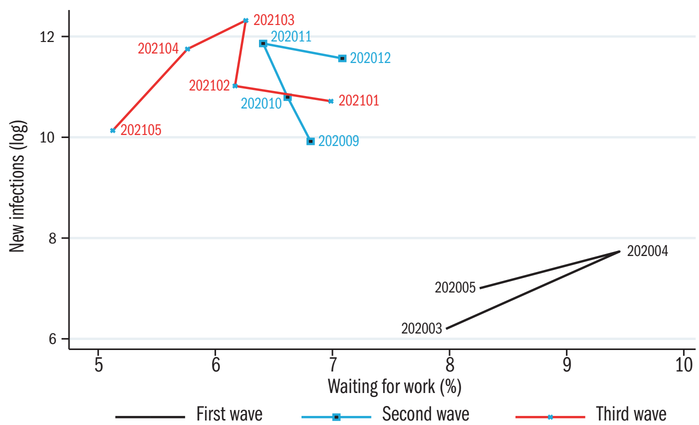
The height of the columns shows the proportion of those who worked abroad in a given quarter but lost or left their jobs there. The dark section of the bars show those who worked in the following quarter. The chart shows that in the months between Q4 2019 and Q1 2020, the risk of job losses abroad increased (a state of emergency was declared in Italy already in February 2020 and global trade was disrupted), and the vast majority of those affected were unable to find work in Hungary. An even higher rate of job losses abroad can be observed between late 2020 and early 2021, but by then half of those returning home were able to find work in Hungary.

While these figures are based on small samples (400–500 persons per quarter), the spikes are of a magnitude that could hardly be attributed to measurement error alone. On the other hand, there were, of course, reverse flows, but *Figure 2.1.8* on the evolution of Hungarians working abroad show that this could not offset the impact of the loss of jobs abroad.

Summary

Apart from a few groups (mothers with young children, school leavers, those employed in trade and services, or working abroad), all data point to a strong asymmetry between the severity of the pandemic and the labour market crisis. This is illustrated in *Figure 2.1.10*, where the horizontal axis shows the proportion of people "waiting for work", which indicates the depth of the labour market crisis, while the vertical axis shows the number of new infections, which indicates the severity of the pandemic (a logarithmic scale is used for this axis, due to very large differences between the values measured in natural units).

Figure 2.1.10: Log confirmed monthly cases of infection and proportion of people waiting for work, March 2020–May 2021



People waiting for work: see the definition in the notes to Figure 2.1.1.
Sources: Author's calculation from the *HCSO* LFS managed by the *CERS* Databank and the Covid database.

It should be stressed that the figure is descriptive, intended to illustrate the trends over time, and not to suggest a causal relationship or even a trade-off. (The existence of a trade-off between governmental restrictions and the severity of the pandemic has been demonstrated by several studies including *Davies et al.* [2021], *L'Angiocola–Monti* [2020] and *McLaren–Wanf* [2020], but these studies were of course not based on a single graph like the one above.) To assess the processes that generated the situation shown in the figure above, several questions would need to be answered.

The first question is what the *ex-ante* exposure to the pandemic was, i.e. what the infection rate would have been in the spring of 2020 and during the second and third waves without restrictive measures. We do not know and probably will never know.

A second contributing factor is the stringency, composition, and timing of the restrictive measures. The most frequently cited Oxford Covid-19 Government Response Stringency Index indicates high values for Hungary in spring 2020 and from mid-November 2020 to March 2021 (*OxCGRT,* 2021). However, while the first lockdown measures were introduced right at the beginning of the first wave, in the subsequent wave, it was not until mid-November that restrictive measures were taken, when infection rates were already very high. Kindergartens and schools remained open throughout the second wave (with some exceptions) and only shifted to online education at the peak of the third wave, for just over a month. The measures also differed by region and age (for example, concerning domestic travel, shopping times, and school closures), but no study has yet been conducted to assess their relative effectiveness.

There were also differences between the first and second/third waves in the size and timing of job-saving programmes. The first support schemes were launched just over a month after the restrictions of the first wave were introduced and were very limited by international standards (see *Stubnya,* 2020, based on Eurofound data), with very low take-up (see *Chapter 5.1* of this volume). Sectoral wage subsidy schemes were already in place during the second and third waves, but almost no information is available on their take-up and distribution. *Drabancz et al.* (2021) found the impact of low-interest loans to be positive.[5]

The labour market consequences were also mitigated by the kind of spontaneous adjustment suggested by the data on changes of occupation. The role of the "*added worker effect*" – where a spouse or other relative in the household takes a job to replace the lost income of a family member – in employment recovery could be the subject of a future study (which could be completed using LFS data).

Covid itself – the loss of labour supply due to illnesses – is not thought to have played a major role in employment trends. Considering the roughly 800,000 confirmed infections by summer 2021, and assuming a two-week

5 The public works scheme, however, was not expanded, thus did not serve as an instrument to prevent the decline in employment.

sick leave, the average number of infected persons is around 30,000, including a large proportion of pensioners and inactive people. The resulting reduction in labour supply, therefore, is estimated to be at most in the tens of thousands (less than 0.5%).

How the pandemic would have evolved in the first wave if the restrictions had been less stringent, or how many people would have fallen ill or died in the second or third wave if the government had responded with draconian restrictions to the first signs of a second wave, would require detailed data and quasi-experimental situations where different groups of people or regions were affected differently. This could include selective travel restrictions during the first wave, but the data needed to analyse them are not available and may not even exist.

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K2.1 The pandemic and the Labour Force Survey

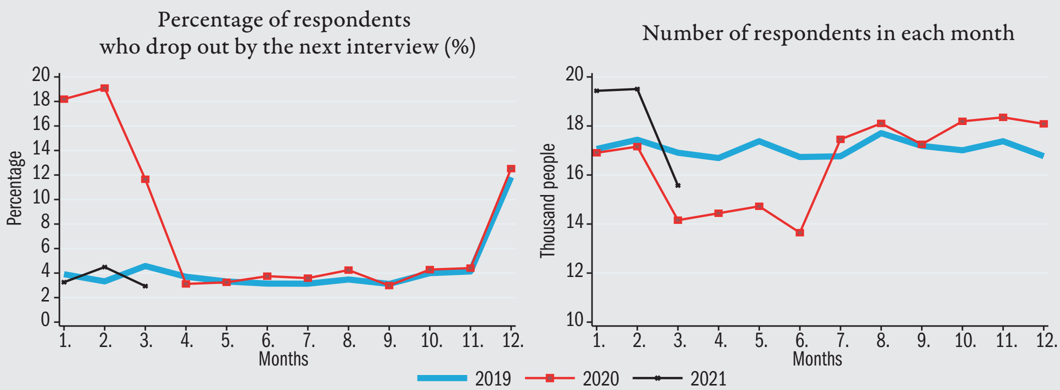
JÁNOS KÖLLŐ

The coronavirus pandemic had an impact on the HCSO's Labour Force Survey (LFS), the most imporant source to measure labour market developments. The LFS is a so-called rotating panel, where randomly selected households remain in the sample for six consecutive quarterly waves, and then give way to a new cohort.

In practice, of course, not everything goes according to plan: roughly four percent of the sample drop out between January and November, and ten to twelve percent in December, before the sixth interview due to moving, death or refusal to answer. The effect of panel attrition is corrected by the HCSO by reweighting the sample using population census-based data on sex, age and place of residence, (*Mihályffy,* 1994, *H. Richter,* 2004).

During the first wave of the pandemic, the dropout rate after interviews 1–5 increased significantly, as shown in the left graph of *Figure K2.1.1.* The points on the curves show the percentage of respondents in each month of 2019, 2020 and 2021 who did not participate at the survey three months after their 1st to 5th interview. The proportion jumps after the January–March 2020 interviews: 18–20% of the interviews scheduled for April–June 2020 were missed. Thereafter, the drop-out rate returned to 2019 levels.

Figure K2.1.1: Two indicators of the LFS sample, January 2019–March 2021



Source: Author's calculation based on the Labour Force Survey data managed by the *Centre of Economics and Regional Studies.*

However, after the first quarter of 2020, the dropout rate increased to 20% in this cohort and to 15–17% in all other cohorts, resulting in a drop of almost 20% in the number of successful interviews. The right-hand side of *Figure K2.1.1* shows that the monthly sample for March–June 2020 fell from 17,000 to roughly 14,000. Sample sizes returned to 2019 levels from July onwards and even exceeded them slightly from 2020 Q4. Calibration can restore the representativeness of the sample in "times business as usual". However, in the case of the pandemic and the first wave of lockdown measures, it is not certain that dropouts were not systematically related to labour market status.

In *Table K2.1.1,* we study the factors influencing dropout rates of the 1st to 5th time respondents between the first and second quarters in 2019 and 2020. The coefficients in the table show the impact of a given variable holding other explanatoy variables constant.

Table K2.1.1: Dropout from the LFS sample (linear probability estimation)

	Q1 2019		Q1 2020	
	Coefficient	*t-value*	Coefficient	*t-value*
Male	0.002	0.80	0.011***	2.59
Age	0.000	0.73	-0.000	-0.33
Budapest	0.056***	8.31	0.121***	11.12
Education				
Grades 0–7	-0.024***	-3.11	0.076***	3.83
8 grade	-0.010**	-2.54	0.029***	3.90
Vocational school	-0.015***	-3.95	-0.006	-0.92
Upper secondary School	-0.004	-0.93	0.022***	2.67
Secondary vocational school	-0.014***	-3.55	-0.032***	-4.50
Labour market status				
Unemployed	0.021**	2.52	0.010	0.73
Inactive, but wants a job	0.004	0.74	0.007	0.61
Inactive and not wanting a job	0.010***	2.70	0.027***	3.80
Other				
Retired	-0.011***	-2.72	-0.010	-1.35
Studying full-time	-0.004	-0.63	-0.050***	-4.69
Roma	-0.001	-0.08	0.191***	11.73
Number of interviews				
Second	-0.001	-0.14	0.018***	2.65
Third	-0.006	-1.50	0.020***	30.00
Fourth	-0.010***	-2.71	0.021***	3.11
Fifth	-0.014***	-40.00	0.023***	3.31
Constant	0.047	7.26	0.126	10.58
Number of interviews	31,360		30,741	
R^2	0.0075		0.020	
Attrition rate	0.044		0.142	

Dependent variable: person not observed in the Q2 sample =1, and 0 otherwise
Sample: LFS, 1st to 5th time respondents
Reference categories: graduates, employed, first time respondents.
Significant at the ***1 percent, **5 percent level.
Source: *HCSO* LFS data managed by the *KRTK* Databank.

Drop-out rates by gender and age have changed slightly, and this can be corrected by calibration, as can the more significant change by place of residence. However, significant differences can be observed in some other areas. In 2019, the differences by educational attainment were low, but in 2020 respondents with low levels of education or being Roma were more likely to drop out of the sample. The data do not suggest large changes in the effect of labour market status, except for full-time students, who were more likely to remain in the sample at the time of the pandemic than a year earlier.

The time trajectory of attrition also changed: in 2019, respondents were successively less likely to drop out, as expected: those more prone to drop out from the sample do so at an earlier stage, the composition is therefore steadily improving. In 2020, the sample attrition rates were almost identical after the 2–5th interviews and higher than for first-time respondents.

Based on the estimation, it appears that the LFS sample of 2020 Q2 was biased (mainly due to a higher dropout rate of the uneducated and Roma), but a major change in the effect of labour market status cannot be observed; the employment estimate from the reweighted sample is likely to be sufficiently accurate.

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K2.2 Change in measuring employment in 2021

János Köllő

Temporary absence from work without interruption of employment became more common during the coronavirus pandemic than ever before. Taking this into account, the ILO and the OECD have formulated new recommendations for measuring employment (*ILO,* 2020, *OECD*, 2020). The *OECD* (2020) recommendations include the following.

Employed persons include those who, in their present job, were "not at work" for a short duration but maintained a job attachment during their absence. Job attachment is determined on the basis of the continued receipt of remuneration, and/ or the total duration of the absence. In practice, formal or continued job attachment is established when the expected total duration of the absence is up to three months (which can be more than three months, if the return to employment in the same economic unit is guaranteed and, in the case of the pandemic, once the restrictions in place – where applicable – are lifted), or, workers continue to receive remuneration from their employer, including partial pay, even if they also receive support from other sources, including government schemes.

In turn persons are classified as "not employed" if the expected total duration of absence is greater than three months or there is no or unknown expected return to the same economic unit, and people in this condition do not receive any part of their remuneration from their employer.

According to the interpretation of these recommendations by the Hungarian Central Statistican Office, since the employment relationship (if any) of those claiming maternity leave benefit remains in force, they receive support during their absence and their employment relationship is activated at the end of their absence, they can be considered as employed if they are able to return to their previous job. According to the Methodological Guide of the Labour Force Survey (LFS): "From 1 January 2021, persons who last worked before receiving childcare allowance, receive financial support during their absence and can later return to their previous job, are also considered as employed persons (unlike in the past, when they were seen as inactive or unemployed). In other words, they are permanently absent from work because they are claiming childcare allowance. The change in methodology results in a significant change in the employment indicators for women." (*HCSO,* 2021.)

Indeed, employment of women calculated according to the new methodology is, 7 percent higher (by 138 thousand persons) than based on the previous methodology.

The method may be questionable as Hungarian parents tend to spend an extended period of time in the childcare scheme by international standards: between 2006 and 2020, respondents who declared to be on maternity leave had not been working for an average of 2.7 years and those who left the maternity leave system did so after an average of 3.7 years.

After such a long absence, it is not surprising that the number of people returning to their previous jobs is low. This can be documented using the panel database Admin3 of the KRTK Data Bank (*Sebők,* 2019). The sample, which includes data for half of the population, identifies 130,978 individuals who worked (at any time, for any length of time within the time window) both before and after receiving childcare allowance in 2003–2017. Comparing the last employer before childcare with the first employer after leaving childcare, only 44 percent of those returning to the labour market returned to their previous employer. (This calculation applies to those who entered the scheme only once during the period under review – the proportion is likely to be even lower for multiple claimants.) After almost four years, some employers have either ceased to exist, restructured or made it clear that they do not intend to employ the returning person on a permanent basis. Furthermore, a parent on childcare may have found a more suitable new job. Whatever the reason, the pattern of the Hungarian childcare support scheme is quite far from what the new ILO–OECD recommendations seek to measure: temporary absence from the employer concerned.

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2.2 LABOUR MARKET FLOWS DURING THE COVID CRISIS

ISTVÁN KÓNYA

The labour market impact of the Covid crisis will be examined in this subsection, using labour market flow data. Our main question is what detailed patterns can be detected, in movements among various labour market statuses underlying the observed decrease in employment and increase in unemployment. Flow data on the one hand, and augmented stock data on the other will be used to answer this question. In addition to unemployment, both outflows from and inflows into, inactivity and job changes are stated to have been important adaptation mechanisms.

Employed and unemployed

Labour market dynamics can be described by flows among the three main labour market statuses (employment, unemployment and inactivity). These statistics have received ever-increasing attention in recent decades in both theoretical and empirical literature.[1] We will hereinafter examine labour market flows in Hungary, mainly during the Covid crisis. After presenting the raw data, further details on labour market dynamics will be revealed using a simple analytical framework.

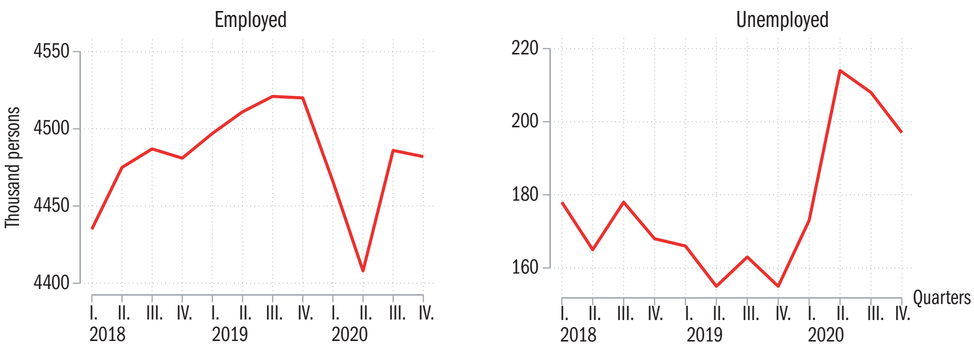
Before moving on to the detailed analysis, let us have a look at the development of the two important labour market groups. *Figure 2.2.1* demonstrates the development of employment and unemployment in Hungary.[2] The starting point is the first quarter of 2018, and the last available data point is the fourth quarter of 2020.[3]

1 As the relevant literature is vast, only two representative works are cited. The theoretical framework is described in detail by *Pissarides* (2000). An important empirical study was written by *Elsby et al.* (2013), calculating flow rates for OECD countries.

2 The data in the study are taken from the Labour Force Survey section on the Eurostat website.

3 Although Q1 2021 data are already available on Eurostat's website, the last data point is not comparable with the previous ones, due to a change in methodology. The Hungarian Central Statistical Office now publishes the time series according to the new methodology, but all the indicators (not required for the calculations presented in this study) are only available on the Eurostat website.

Figure 2.2.1: Employment and unemployment



Source: *Eurostat:* Labour Force Survey.

Employment fell during the first trough of the crisis (Q2 2020) and unemployment rose. The decline was followed by rapid correction, with employment in particular surging in the third quarter of 2020, while unemployment decreased to a lesser extent. The impact of the second wave of the pandemic is visible in the last quarter of 2020, at least for employment. However, the number of unemployed continued to decrease at the end of 2020. The apparent contradiction can be resolved by analysing labour market flows, in addition to stock data.

Quarterly transitions

Eurostat has published a transition matrix among the three main labour market statuses since the second quarter of 2010. The statistics use a certain feature of the Labour Force Survey (LFS): namely, a subset of households is sampled over several quarters. The resulting panel is used to calculate the evolution of the labour market status of observed households between two quarters. Transitional probabilities can be calculated by dividing the flow data with the size of the initial stock numbers in the previous quarter.

It is worth noting, that the panel used for the flow data is not representative of the population. The reason is that some of the households to be followed over several periods are not found in the survey, and the distribution of consequently lost households is not random. The distribution of households in different labour market statuses within the panel data does not match the distribution obtained in the original cross-sectional sample, which is a manifestation of the above. As the latter is representative of the population, the LFS panel needs to be re-weighed to be consistent with the cross-sectional aggregates. Eurostat applies the so-called "raking" procedure for this (*Frazis et al.* 2005, *Cseres-Gergely,* 2011). As the procedure is purely statistical, the resulting transitions cannot be certified to be a true measure of the actual processes, lacking any other information. We will return to this question in the next section.

A total of six independent flows can be distinguished, as shown in *Figure 2.2.2.* Each panel represents the number of people who moved from one labour market status to another during the specific period. The number of those who remained in their previous status can evidently be obtained by subtracting the flows in the figure from the employment data of the previous period.

The top left panel shows the number of people turning from employed to unemployed. This indicator increased significantly in the first and second quarters of 2020 in Hungary, rising by 50,000 in two quarters compared to an average of 30,000 in the previous quarters, and only partially recovering by the end of 2020. The middle panel in the top row suggests that outflow into inactivity contributed to a decline in employment, as shown in *Figure 2.2.1*, at the same rate. Similar to the top left panel, this number had also declined somewhat by the end of 2020, but it remained at a much higher level than before the crisis.

The top right and bottom left panels show outflows from unemployment. Interestingly, the number of people giving up their job search increased somewhat during the crisis, but the absolute size of the increment is relatively small, around 10,000. At the same time, the number of job finders did not decrease at the peak of the crisis, and it increased significantly afterwards. This phenomenon distinguishes the Covid recession from "typical" downturns, where rapid job losses are followed by a permanent decline in job finding rates (*Shimer*, 2012).

Figure 2.2.2: Outflow from employment and the labour market

Source: *Eurostat:* Labour Force Survey.

Finally, the bottom middle and bottom right panels show outflows from inactivity. Noteworthy, the indicators during the crisis are already higher in the second quarter of 2020 than before the crisis, and peak in the third quarter of 2020. The latter is consistent with the flow back into the labour market, either as employed or jobseekers, of those who had temporarily lost their jobs. The rise in the second quarter of 2020 is harder to explain, although the magnitude of the increase is relatively small and may even be a seasonal fluctuation in terms of unemployment. The (surplus) flow of inactive people into the labour market seems to have stopped by the end of 2020.

In summary, the fall in employment in the first wave of the crisis in Hungary is mainly due to outflows from employment, rather than to a fall in the number of recent job finders or an increase in the number of unsuccessful jobseekers. Those who lost their job became partly unemployed and partly inactive. For both inactive and unemployed, the summer of 2020 brought significant adjustments. However, pre-crisis flow levels did not typically recover until the end of 2020: both outflows and inflows appear to have stabilised at slightly higher levels than before, at least for the employed and unemployed.

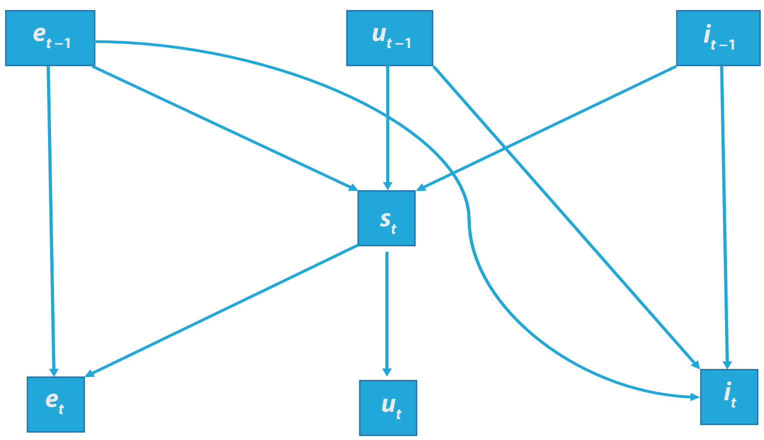
Labour market reactions in the second wave of the crisis (Q2 2020) were much smaller than in the first phase, which is another important finding. An underlying reason may be the employers' adaptation to the altered circumstances in manufacturing. Moreover, the summer of 2020 saw only a partial return to the previous situation in the worst-affected services sector, so autumn did not bring as drastic a change as the first shock six months earlier.

We have so far analysed the raw data, but further investigation is justified for two reasons. First, the flow data presented so far fail to include an additional important transition, the number of people changing jobs. The other reason is that additional important details can be learnt about the labour market by trying to interpret the data using an analytical structure. Integrating other labour market indicators in the survey, in addition to flow data, can help in both directions. These steps are described in more detail in the next section.

Changing jobs, finding a job, job search

A flexible analytical framework taken from the labour market search approach (*Campolmi–Gnocchi*, 2016, *Kónya*, 2016) can be used to interpret labour market transitions. The conceptual framework is illustrated in *Figure 2.2.3*. Job search is integrated with the different labour market statuses: to find a new job, one must first become a jobseeker (s_t). Potential jobseekers are those with no current job. They can be previously inactive (i_{t-1}), unemployed (u_{t-1}) or recent job losers (or leavers: e_{t-1}). If the job search is successful, the jobseeker becomes employed in the next period. If the job search is unsuccessful, the jobseeker starts the next period as unemployed.[4] This definition corresponds to the statistical definition of unemployment: an unemployed person is one who searched for a job in the previous weeks but has not yet secured one. In our framework, inactive will be those who, either as job losers or unemployed, do not become jobseekers or remain in their previous inactive status.

Figure 2.2.3: The process of labour market search



4 The concept of a jobseeker, therefore, implies a temporary status which will lead to either employment or unemployment by the end of the period. Based on our assumption, the statistical observation is made at the end of the period, and therefore, jobseeker is not shown as a separate status.

Jobseekers include not only the previously unemployed or inactive but also recent job losers (or job changers), which complicates the further interpretation of the flow data. As the flow data include six independent flows (see *Figure 2.2.2*) only, an identification issue arises. Let us now write down the flow probabilities using the above analytical framework, to understand the above.

P_{ij} will denote the transition rate from the i^{th} labour market status to the j^{th} labour market status.[5] Moreover, ρ_t will denote the probability of losing a job (job separation rate), and f_t^j the probability of finding a job, in regard to those who are actively searching and were in the $j = e, u, i$ status in the previous period. Finally, let λ_t^j be the ratio of those who were in the j^{th} job market status in the previous period, are out of work at the beginning of the current period and are actively in search of a job in this period. Using the above, the following relationships can be written down:

$$\begin{aligned}
p_t^{eu} &= \rho_t \lambda_t^e (1 - f_t^e) \\
p_t^{ei} &= \rho_t (1 - \lambda_t^e) \\
p_t^{ue} &= \lambda_t^u f_t^u \\
p_t^{ui} &= (1 - \lambda_t^u) \\
p_t^{ie} &= \lambda_t^i f_t^i \\
p_t^{iu} &= \lambda_t^i (1 - f_t^i),
\end{aligned}$$

where, for example, according to the first equation, the employed who lose (or give up) their job (ρ_t), search for a new job (λ_t^e), but fail to find one ($1 - f_t^e$) become unemployed. The other equations are interpreted similarly.

Evidently, we have a total of six independent flow observations and seven probabilities to identify. The seventh observation is based on the number of recent job starters, which is also available in stock data on the Eurostat website. Let e_t be the number of employed and e_t^s the number of recent entrants to their current position. The separation rate is then given by the following equation:

$$\rho_t = 1 - \frac{e_t - e_t^s}{e_{t-1}}$$

Given ρ_t, the six flows are sufficient to identify the other rates.

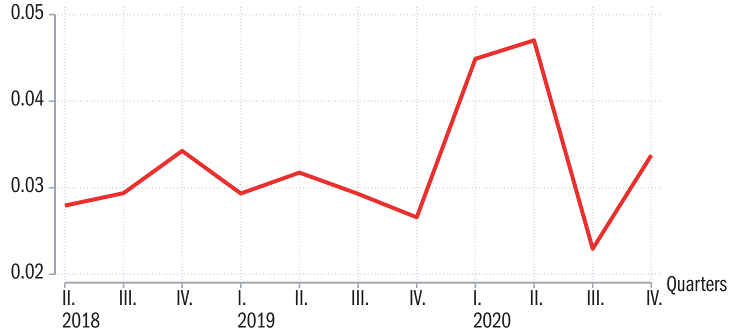
The estimated values of the separation rate are shown in *Figure 2.2.4.* A pronounced jump in the indicator is observed in the first and second quarters of 2020. The increase is significant, with the share of job losses rising from 3 percent before the crisis to almost 5 percent. Job loss probability returned to its previous values in the second half of 2020, although its durability cannot yet be assessed from the data.

Figure 2.2.5 shows further results. The detailed identification works well, with the exception of one data point. The job-finding rate (f^e) for recent job

5 $p_{eu} = EU/(EE + EU + EI)$ for example, where EX is the number of people who were employed in the previous period and are now in status X, where $X = E, U, I$.

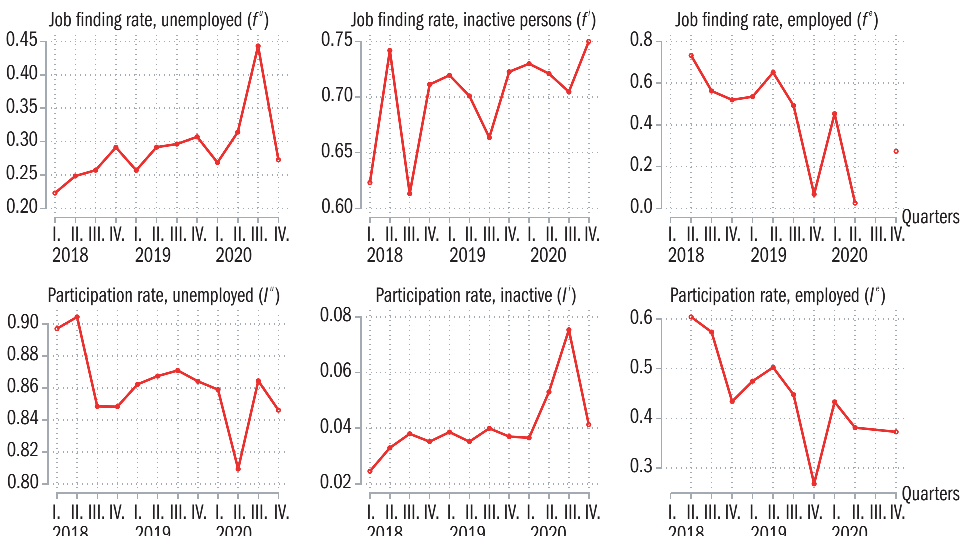
losers is negative in the third quarter of 2020, so it cannot be interpreted for this period. The problem probably derives from data error, which could easily lead to a wrong result due to the low values of the rates (p^{eu}, p^{ei} and ρ) needed for the calculation. Therefore, the indicators in the figure should be interpreted with caution, especially for job changers.

Figure 2.2.4: Probability of job loss



Source: *Eurostat, HCSO* Labour Force Survey and own calculations.

Figure 2.2.5: Job search and participation rates, details



Source: *Eurostat, HCSO* Labour Force Survey and own calculations.

The two panels on the left show that the job search activity (λ^u) of the unemployed fell at the peak of the crisis (Q2 2020), although the overall decline is not great, compared to the scale. The decline had virtually reversed by the next quarter. Consistent with the above, the job-finding rate of the unemployed tended to increase during the crisis, and then it increased drastically in the summer of 2020.

The participation rate of the inactive rose sharply in the second and third quarters of 2020, then fell back to its previous level by the end of 2020. Interestingly, the job-finding rate of job-searching inactive people increased during the crisis, albeit with significant fluctuations. We cannot be sure about the reason, but the return of the previously employed or unemployed into activity could provide a potential explanation.

Even allowing for measurement errors, job change rates are likely to have fallen significantly, with job change virtually disappearing temporarily during the crisis. Both the participation rate and the job-finding rate fell significantly among those who lost their jobs. The scale in the two right-hand panels is worthy of attention: the participation rate fell from 60 to 40 percent and the job-finding rate had dropped from 60 to around 30 percent by the end of 2020. One of the characteristics of the Covid crisis has therefore been a significant drop in the number of job changers.

In addition to the rates, the absolute numbers calculated from the rates are also worth describing briefly. The total number of jobseekers is given by the following equation:

$$s_t = \lambda_t^e \rho_t e_{t-1} + \lambda_t^u u_{t-1} + \lambda_t^i i_{t-1},$$

where the three components represent the number of jobseekers from among job losers, the unemployed and inactive. These typically fluctuated around 70,000, 150,000 and 100,000 persons, respectively, per quarter before the crisis. The number of jobseekers changing their job did not change significantly during the crisis, but the second two categories showed a significant increase in the third quarter of 2020. The number of previously-unemployed jobseekers rose to around 180 thousand and that of jobseekers returning from inactivity to over 200 thousand. All these figures are consistent with the picture above, showing that job losses were followed by rapid adjustment, except for job changes.

Summary

This study analysed the dynamics of the Hungarian labour market during the Covid crisis, based on flow data. At the height of the crisis, in the second quarter of 2020, falling employment resulted from outflows partly into unemployment and partly into inactivity. However, labour market inflows did not fall, but increased significantly in the summer of 2020, correcting for the decrease in employment in the previous quarter. As regards flow levels, most flows appear to have stabilised at higher levels by the end of 2020 than before the crisis. Statistics related to job separations are an important exception: both the participation and job-finding rates for job changers were significantly lower compared to pre-crisis levels. These indicators representing a significant part of labour market dynamics deserve further monitoring.

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2.3 HOW MUCH COULD UNEMPLOYMENT HAVE INCREASED? ESTIMATE BASED ON INTERNET SEARCHES

ISTVÁN KÓNYA & JÁNOS KÖLLŐ

Introduction

The first wave of the Coronavirus pandemic hit Hungary and the Hungarian economy in the spring of 2020. The supply and demand shocks caused by the pandemic resulted in a large number of job losses during the period. The relevant statistical data were published only after a considerable delay and at a level of accuracy still difficult to estimate. For example, verified data from the National Employment Service (NES) by the "closing date" of 20th March 2020 were only published in early May. Additionally, the second quarter data from the Labour Force Survey of the Hungarian Central Statistical Office, including information on working hours, job loss and job search, were only disclosed in June, with much greater data uncertainty than usual.[1]

However, it is important to understand labour market conditions (including the rate of unemployment) as soon as possible, so that policy makers can take appropriate policy measures in time. An indicator that is practically available in real time and is based on internet search frequency closely related to unemployment can help in this respect. Such a method will be presented below, mainly in the context of forecasting labour market processes in spring 2020, using the facts and figures received since then for external validation. Our calculation is related to similar experiments based on Google searches (e.g. *Kong–Prinz*, 2020, and *Tőth et al.*, 2020). Moreover, the method described in this chapter has its direct antecedents in the authors' blog post published on 15th May 2020 (*Kónya–Köllő*, 2020).

Monthly data

The basic data for labour market analysis are available on the website of the Hungarian Central Statistical Office (HCSO) in monthly and quarterly frequency.[2] We will first look at the monthly data forecast using Google search data. For this purpose, we have downloaded the time series of those searching for the term "unemployment benefit" in Hungary from the Google Trends website.[3] The data are also available at a monthly frequency. The starting date of the labour market stock time series according to the updated methodology of the HCSO[4] is January 2009, so the Google data can also be used from this month onwards. The Google data show the values on a relative scale for a given period, where the value for the month with the highest search intensity is normalised to 100.

1 See *K2.1* paper in frames on this topic.
2 See: HCSO.
3 See: Google Trends.
4 See *K2.2* paper in frames on the changed definition of employment.

When using the search data, it is also worth taking into account that the possibilities of Hungarian households to get access to internet increased substantially during the sample period. This may be particularly true for the unemployed, as the lower educated and low-income groups are over-represented in their case. In other words, a smaller proportion of the unemployed are likely to have searched the Internet in the first half of the period than in the second half of the sample. This is corrected as follows. We have downloaded the table "Individuals – internet use" from the Eurostat website,[5] and from this, we take the proportion of unemployed who used the internet over a period of three months prior to the survey. The data are available at an annual frequency, so the monthly values are produced by linear interpolation. The resulting time series take values between 52 percent (2009) and 81 percent (2021). The adjusted search data result from dividing the raw data with the monthly internet usage data thus produced.

The forecasting (or *nowcasting*) capacity of the Google data is examined as follows. Let us start from a simple time-series regression where the labour market variable is explained or forecast with its lagged values. Then we add the (adjusted) search frequency to this:

$$x_t = \alpha + \sum_{k=1}^{K} \beta_k x_{t-k} + \delta z_t + \varepsilon_t \,, \qquad (1)$$

where x_t is the labour market variable (unemployment or employment), z_t is the adjusted search index and K is the number of lags. The latter is taken as $K = 3$ for the monthly data.

The forecasting power of the search variable is evidenced by the significance of the coefficient δ, on the one hand. The stronger the significance, the greater the explanatory power of the indicator in the variance of the labour market variable. This is the so-called *in-sample* explanatory power. However, the *out-of-sample* forecasting power is more relevant for the question we are investigating. This will be tested as follows.

There was a lot of uncertainty about the development of the labour market at the beginning of the Covid pandemic. Let us now check how much the use of search frequency can help forecasting, relevant to the *information set available at the beginning of 2020*. To do so, first equation (1) for data between 2009 and 2019 is estimated. Then, using the estimated coefficients and the practically immediately available search data, the development of unemployment and employment in the consecutive months can be forecast. As a basis for comparison, we use the version of equation (1) without exogenous variables, meaning the case where $\delta = 0$.

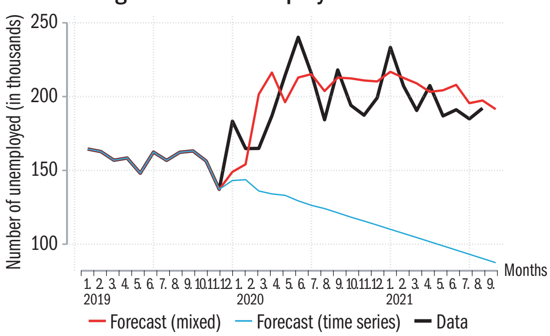
As the estimation is carried out up to December 2019, the forecast starts in January 2020. The last observation for the labour market variable used in the forecast is for December 2019, while the Google search indicator is the current monthly data. This means that we would like to see the forecast perfor-

5 See: Eurostat.

mance during the Covid crisis, in the knowledge of past labour market trends but *updating our information set only with the Google search data*.

The results for the unemployed are illustrated in *Figure 2.3.1*. The main observation from the figure is that the (adjusted) search variable improves the unemployment forecast substantially and significantly. Evidently, this is partly no surprise, as the pure time-series model is increasingly "lagging" behind real trends, given that the date of the last information there, is from the end of 2019. Still, how well the search frequency itself tracks actual unemployment trends is quite remarkable. Even if the monthly fluctuations are not perfectly reproduced by the forecast, medium-term unemployment processes are forecast with great accuracy in the extended model. Yet another observation can be made: a significantly more accurate estimation of the actual process can be made also in the short term when searches are taken into consideration. This is confirmed by the differences in the first few months of 2020, as shown in the figure.

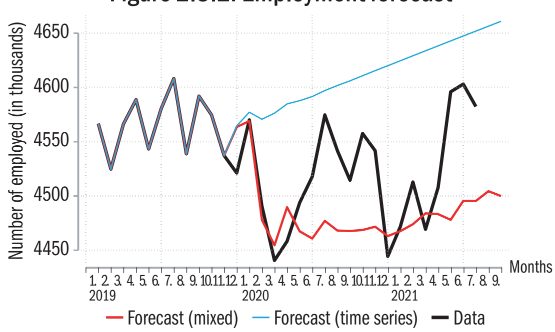
Figure 2.3.1: Unemployment forecast



Source: *HCSO* Labour Force Survey.

The forecasting exercise was also carried out for the employment data (*Figure 2.3.2*). In the short term, the results are perhaps even more striking than for unemployment.

Figure 2.3.2: Employment forecast



Source: *HCSO* Labour Force Survey.

The model based on the search data is almost perfect in identifying the employment trends, both the significant decline and the subsequent incipient recovery in spring 2020. In contrast, the time series model extrapolating only from the late 2019 data, quite naturally, fails to "anticipate" the Covid shock. Interestingly, the significant "bounce back" in employment was not followed by the search data in either the summer of 2020 or the spring of 2021. The reason might be that employment change was then dominated by job-finding, rather than job loss. We return to this issue in the next section.

Quarterly figures

The monthly data are rather noisy and there are presumably more measurement issues than at the quarterly frequency. Therefore, the calculations from the previous section are repeated with quarterly data, using only unemployment due to space constraints. An additional advantage of quarterly frequency is that flow data are also available, in addition to employee data. The time series of transitions between different labour market statuses have been downloaded from the Eurostat website.[6] Of these, we examine the forecast of the employment → unemployment flow, as this is presumably (and practically) the most closely related to the term used in the search. The Google dataset is aggregated to quarterly frequency by simple averaging, and for Internet usage, the annual data are turned into quarterly by linear interpolation, as before. For the forecast, we still use equation (1), and its version constrained by the $\delta = 0$ assumption, as our benchmark. Because of the quarterly frequency, the number of lags is taken to be 1 ($K = 1$).

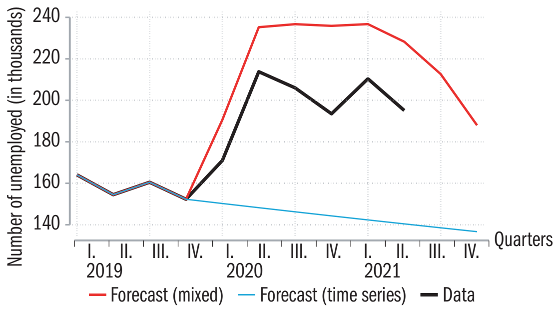
Figure 2.3.3 illustrates the results. As with monthly data, the inclusion of search information dramatically improves the forecasting ability. Although the model slightly overestimates the rise in unemployment, it performs particularly well especially in the first two quarters. The pure time-series approach cannot predict the Covid crisis now, either, so it is very useful to include the immediately available search information. Interestingly, as with employment in case of monthly data, the extended model diverges the most from the actual data in autumn 2020. An interesting investigation could be made into explanations for this; however, this cannot be done in our brief analysis.

Our last analysis is to try and forecast the labour market flows mentioned above, i.e. the number of people who go from being employed to unemployed. This is of interest because, on the one hand, unemployment increases at the onset of crises due to the effect of outflows from employment, so it is particularly important to forecast this indicator in unexpected recessions. On the other hand, the search term "unemployment benefit" is presumably most closely related to this flow, as such searches are likely to be made by people who have recently lost their jobs.

6 See: Eurostat.

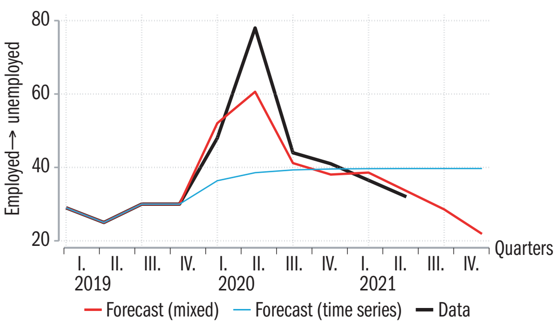
Figure 2.3.4 shows the results. As expected, the model performs extremely well. The only significant deviation from the actual data is in the second quarter of 2020, where the forecast including the searches also underestimates the actual rise in flows. In the other quarters, however, the forecast is very accurate. This is particularly notable in the second half of 2020 and in early 2021 where the model relies almost exclusively on search data, (and dynamics estimated from pre-crisis data).

Figure 2.3.3: Unemployment forecast (quarterly frequency)



Source: Labour Force Survey (*HCSO*) and Google Trends.

Figure 2.3.4: Forecast of employed becoming unemployed



Source: Labour Force Survey (*HCSO*).

Summary

This subsection made a forecast of unemployment and employment data using Google search intensity data. Our main result is that data accessible with some delay can be well forecast with this simple and easily available additional information. This is particularly true in times of crises, such as the Covid pandemic, when the status of the labour market changes particularly rapidly and radically. Although the search indicator performed well in forecasting both unemployment and employment, the most accurate results were seen in flow data for those who had recently lost their jobs. This strengthens our conclusion that the information set regarding the labour market should be expanded, especially at times of rapid changes.

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Appendix 2.3 – regressions

Table A2.3.1: Monthly data

	Unemployment		Employment	
	(1)	(2)	(3)	(4)
Google search	0.533***		−0.758***	
	(0.0911)		(0.208)	
1st lag	0.459***	0.585***	0.573***	0.654***
	(0.0744)	(0.0801)	(0.0828)	(0.0835)
2nd lag	−0.000888	0.00428	−0.0493	−0.0292
	(0.0850)	(0.0956)	(0.0975)	(0.102)
3rd lag	0.473***	0.417***	0.422***	0.371***
	(0.0719)	(0.0802)	(0.0811)	(0.0838)
Constant	−7.204	−5.783	275.5**	23.75
	(4.801)	(5.394)	(84.54)	(51.11)
N	129	129	129	129
R^2	0.979	0.973	0.983	0.982

Note: The term "jobseeker's allowance" was used in Google search. Standard errors are in brackets.
***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

Table A2.3.2: Quarterly data

	Unemployment		Employed to unemployed	
	(1)	(2)	(3)	(4)
Google search	0.336***		0.184***	
	(0.0556)		(0.0438)	
1st lag	0.864***	0.987***	0.102	0.343*
	(0.0321)	(0.0278)	(0.142)	(0.157)
Constant	−9.446	−0.0343	11.44	26.10***
	(7.966)	(9.528)	(6.630)	(6.822)
N	43	49	38	38
R^2	0.981	0.964	0.413	0.116

Note: The term "jobseeker's allowance" was used in Google search. Standard errors are in brackets.
***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

2.4 JOB LOSS, JOB AND OCCUPATION REALLOCATION, FROM DECLARATIONS OF EMPLOYER'S CONTRIBUTIONS*

ISTVÁN KÓNYA & JUDIT KREKÓ

Introduction

The restrictive measures imposed in response to the Coronavirus pandemic resulted in a rapid and significant decline in employment in the spring of 2020. In this chapter, we will first use administrative data to examine the group of people who lost their job during the Coronavirus pandemic: how the dynamics of job loss evolved, how the various groups of employed were affected by job loss, and what happened to those who lost their job in autumn 2020. On the other hand, we will analyse how the labour market has recovered: whether those who lost their job have returned to work and, if so, whether they have returned to the same firm, and what rearrangements can be observed in the composition of occupations.

A database of individual anonymous data from declarations of employers' contribution (NAV 08M return), including the total population with social security contribution paid by the employer, is used for the analysis. Data are available for a total of 11 months: March, April and May 2019, 2020 and 2021, and October 2019 and 2020. Accordingly, we can compare labour market trends in the springs before and during the Coronavirus crisis and track the effects of the first wave of the crisis (spring 2020) in the following October (and the following spring).

Individuals may have different identities in the data if the person has had more than one employment status in the same period. The identities have been sorted by the size of their respective incomes. For those receiving only a benefit subject to withholding, only one identity is created. Partly on this basis, and partly for the ease of use, only the first identity is used below; further identities may be the subject of future analysis.

Job losers

The largest wave of job losses due to the pandemic occurred in the spring of 2020 (see *Chapter 2.1* of "In Focus"). In this subsection, we will take a detailed look into what happened to these job losers in the following month and half a year later. A job loser is defined as a person who had a registered job in the previous month but no longer has a job in the current month. Job losers are divided into two main categories: (1) recipients of jobseeker's or other benefits,[1] and (2) job losers not receiving jobseeker's benefit. The second category of job losers refers to those who exit the database between the two months.

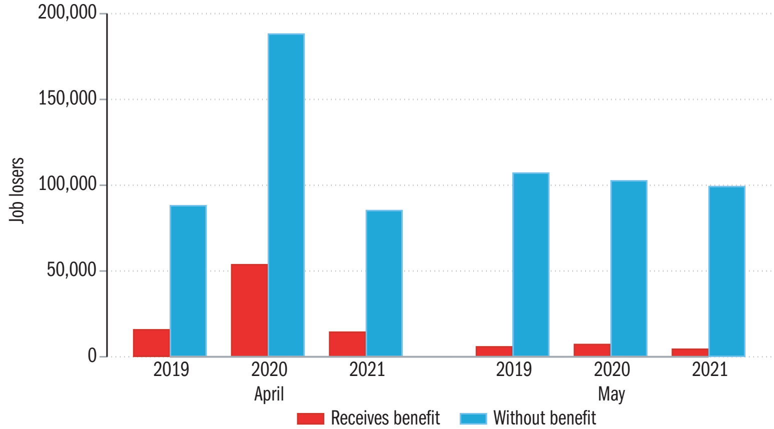
Figure 2.4.1 illustrates the extent of job loss and its distribution between the two categories. Due to the nature of the database, the monthly change in

* This document has been prepared using 11 months of anonymous individual data file(s) on legal relations from the 08M return of the Hungarian National Tax and Customs Administration. The data used were processed by the KRTK Databank, the calculations in the document and conclusions drawn from them are the sole intellectual property of István Kónya and Judit Krekó as authors.

1 The number of job losers subject to other benefits is negligible compared to those receiving jobseeker's benefit, i.e. this category is practically identical to those receiving unemployment benefit. Please note that the database only includes transfers that are themselves subject to contributions. For the sake of simplicity, other transfers subject to contribution will be included in the jobseeker's benefit.

employment status can be checked in April and May, and these are shown in the figure for the three years available. Two main findings can be made about job losses. Taking 2019 as a basis for comparison, the number of job losers increased during the first wave of the pandemic, including the period between March and April. However, no incremental outflow can be observed in the third wave, in spring 2021.

Figure 2.4.1: Number of and benefits to job losers



Source: Database of declarations of employers' contribution (08M returns) of the *Hungarian National Tax and Customs Administration*.

Another important phenomenon is that roughly two-thirds of those who lost their job in the spring of 2020 did not receive jobseeker's benefit. However, this proportion is not outstanding: the number of people entitled to jobseeker's benefit was still proportionally higher than in other periods.[2]

A further breakdown of labour market transitions is shown in *Table 2.4.1*, March to April. In addition to job loss, the table comprises two other categories: those who stay in their job and those who change their job (more details on the latter will be provided in the second half of this paper). The cells in the table show the breakdowns between columns in percentage, with the Total row and column showing absolute numbers. The table also provides the 2019 values as a basis for comparison. The rows show the initial (March) employment status.

The data clearly show that the proportion of job losers was higher in all employment categories in 2020 than in 2019. This was *not* reflected in job changes, as there were slightly fewer in this category in 2020 compared to 2019. Job transition rates did not increase overall, which is in contradiction with the experience collected in other countries such as the UK during the crisis, where job change rates surged in the post-crisis months (see *Anayi et al.*, 2021). However, there has been a significant increase in both the num-

2 The number of outflows from the database includes those who died or retired. According to the data from the Hungarian Central Statistical Office, around 5–6 thousand people retired during the spring months, and around 2000 people died in the non-retirement age population (15–64). These categories do not, therefore, explain the bulk of the outflow between March and April.

ber and ratio of people receiving allowances and those without benefits (as already shown in *Figure 2.4.1*).

Table 2.4.1: Job change and initial status

	Stayed in job	Changed job	Gets allowance	No benefit	Total
Previous job	(percentage)				(persons)
March–April 2020					
Employee	93.8	2.0	1.5	2.7	2,970,177
Service contract	73.1	6.2	0.8	19.9	66,878
Simplified	43.6	11.9	4.5	39.9	167,550
Public servant	98.9	0.5	0.2	0.4	459,426
Other	93.1	1.7	0.2	4.9	545,227
Total (persons)	3,871,176	95,770	53,943	188,369	4,209,258
March–April 2019					
Employee	96.2	2.2	0.4	1.2	2,950,131
Service contract	82.3	7.6	0.4	9.7	71,013
Simplified	64.8	14.8	1.9	18.5	178,682
Public servant	98.9	0.7	0.1	0.3	464,030
Other	95.6	2.3	0.2	1.9	578,098
Total (persons)	4,024,341	113,280	16,002	88,331	4,241,954

Source: Database of 08M returns, *Hungarian National Tax and Customs Administration*.

It is interesting to compare the people in different types of occupations. While the majority of employees kept their jobs, the crisis hit those with simplified employment contracts and service contracts much harder. Although both latter groups see higher fluctuation even in ordinary months (March–April 2019), there was a substantial increase in drop-out in 2020, compared to this. Almost half of those on simplified contracts were out of work by April 2020, mostly without benefits. Of the approximately total 240,000 job losers in March, around 90,000 were in the two most-affected categories, while their aggregated share in the total March employment group was 5.6 percent only.

We also looked at the age composition of job losers, dividing the adult population into four categories: young (15–24), middle-aged (25–54), pre-retired (55–64) and elderly (65+). Job losses in March 2020 hit the young age group the most. Of the approximately 315,000 people young employed in March, 55,000 were unemployed, the majority (90 percent) without benefits. 120,000 job losers are found in the middle-aged group of nearly three million, and about a third of them received jobseekers' benefit or other transfer. Job loss in the 65+ age group was also relatively high, but in this case, this presumably meant the termination of the employment relationship while receiving a pension. It is remarkable, however, that no spike in job losses is found in the 55–64 age group. No significant differences were found in the composition of job losers by gender.

In what follows, we will analyse what happened to those who lost their job in spring 2020 (March and April) and half a year later, in October 2020. The 2019 spring job losers will be used for comparison, looking at October 2019 in their case. *Table 2.4.2* shows the distribution of spring job losers by their labour market status in October.

Table 2.4.2: Number of spring job losers in next October

	2019	2020
Initial job	19,952	80,377
Other job	64,636	106,867
Receives allowance	5,422	8,355
Not in the system	127,743	157,005
Total	217,753	352,604

Source: Database of 08M returns, *Hungarian National Tax and Customs Administration*.

According to the table, a total of 350,000 people lost their job in the spring of 2020, an increase of 135,000 compared to the corresponding period last year. Roughly half of the job losers were back in employment in October 2020, with a small proportion receiving some form of allowance. Nearly half of those in employment were working for their previous employer. 45% were outside the system, meaning that they had neither a job nor other income subject to allowance. A smaller proportion of those who lost their job in 2019, taken as the control group, was re-employed by autumn 2019 (39%, compared to 51% in 2020). A likely reason could be that the 2020 job losers included more who lost their job temporarily or were more strongly connected to the labour market. In addition, it should also be noted that those who lost their job in spring 2020 but had returned to the labour market by October 2020 had a lower rate of permanent job loss than the spring 2019 job losers. This is presumably due to the fact that, as the lockdowns eased, there was again an increased demand for the products of the affected sectors, so companies took back more people than the number of ordinary job losers.

The impact of job losses in 2020 was further investigated, using some simple regressions. *Table 2.4.3* indicates some of the labour market indicators for the spring job losers by next October. The statistics include employed status, income from main activity, employee status and simplified employed status. The 2019 job loss is used again for control. The dependent variables in regressions (1), (3) and (4) are simple bivariate variables, while income is total monthly income. The regressions are controlled by age, gender, the HSCO (Hungarian standard classification of occupation) code in March prior to the job loss, the employer's one-digit industry and the type of employment (full-time or part-time). For clarity, only the coefficient of the bivariate variable indicating job loss is reported in the table, with their corresponding 95 percent confidence intervals.

Table 2.4.3: Impacts of job loss in 2020 and 2019

	Employed	Income	Employee	Simplified
	(1)	(2)	(3)	(4)
Job loser, 2020	–0.034***	–50,769.601***	–0.155***	0.104***
	(–0.034-0.033)	(–52,984–485,563)	(–0.157-0.154)	(0.104–0.105)
Job loser, 2019	–0.059***	–69,324.415***	–0.195***	0.130***
	(–0.060-0.058)	(–72,896–65,753)	(–0.197-0.192)	(0.128–0.131)

*** Significant at 1% level.
Note: 95% confidence intervals in brackets.
Source: Database of 08M returns, *Hungarian National Tax and Customs Administration*.

The table shows that job losers are less likely to be in work half a year later, they have lower wages, are less likely to be working as employees and more likely to have a simplified employment contract. These results are significant for both 2020 and 2019. However, the table also highlights that the effects are lower among the 2020 job losers and the difference is statistically significant. That is, although the subsequent labour market indicators after job loss are also worse in 2020 compared to non-job losers, the negative effect is smaller in 2020. An underlying reason could be a composition effect (according to the uncontrolled individual or company characteristics), or it could be the effect of a rapidly recovering labour market. However, answering this question requires further research, which is beyond the scope of this analysis.

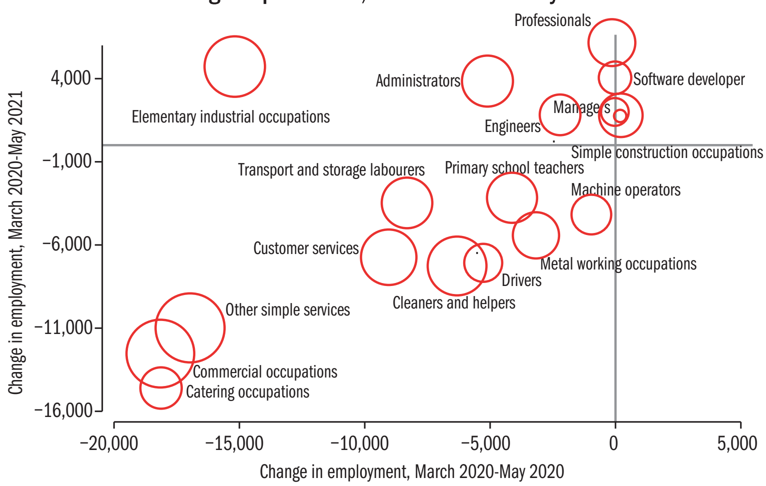
Occupation reallocation

One of the most striking features of the coronavirus pandemic was that it affected the various economic sectors and occupations differently. There was a sudden and dramatic drop in labour demand in the sectors most-affected by the lockdowns (linked to hospitality and tourism), while the increase in demand led to labour shortages in other sectors. Consequently, in addition to a temporary decline in employment, this also resulted in substantial changes in the sectoral and occupational composition of employment worldwide (e.g. *Costa et al.*, 2020). Some of the reallocation can be considered temporary, but the question is, which changes can be considered permanent? According to an *OECD* (2020) analysis, the pandemic accelerated the reallocation linked to automation and digitalisation, which was previously underway. Analysing US data, *Barrero et al.* (2021) found that much of the sectoral reallocation remained after the lockdown was lifted, in December 2020, with employment shifting towards sectors that are more conducive to telework.

In what follows, we will examine the occupational reallocations that occurred during the Coronavirus pandemic between March 2020 and May 2021 in Hungary. As our sample ended before the third wave subsided, the reallocations reflect the impact of the lockdowns in part, and longer-term effects can only be assessed after all the restrictions were lifted.

First, we examined how the occupational composition of the employed population (by three-digit HSCO codes)[3] changed between March 2020 and May 2021, which occupations were the most affected by the pandemic, and which occupations had the largest change in the number of employees, compared to early March 2020, meaning pre-crisis conditions.[4] *Figure 2.4.2* indicates a change in numbers in the most-affected occupations (with the largest increase or decrease) between the first wave of the pandemic (March to May 2020) and the end of the sample (March 2020 to May 2021).

Figure 2.4.2: Occupations with the highest increase and decrease in staff during the pandemic, March 2020 – May 2021



Source: Database of 08M returns, *Hungarian National Tax and Customs Administration.*

The increase in expanding occupations up to May 2021 is well below the employment decrease in the occupations hit by the pandemic. It should be noted that, in contrast to the results of the Labour Force Survey of the Hungarian Central Statistical Office, employment in May 2021 based on contribution returns is about 100,000 persons below the 2019 level. There was an increase in the ratio of employment forms not included in the database (individual entrepreneurs and those subject to KATA taxation), which may explain the above difference.

The most dramatic decline, both in absolute numbers and percentile change, was in the catering and hospitality occupations (chef, pastry chef, barman, waiter, restaurant-keeper): the number of people employed in catering occupations fell by more than 18 thousand, or almost 25 percent in the first wave, and 19 percent, meaning 13 thousand less worked in these occupations in May 2021. The number of people employed in trade and elementary transport occupations fell by a similar number but to a lower extent. They are not among the biggest losers, in terms of absolute changes, but there were also

3 Hungarian Standard Classification of Occupation (FEOR).

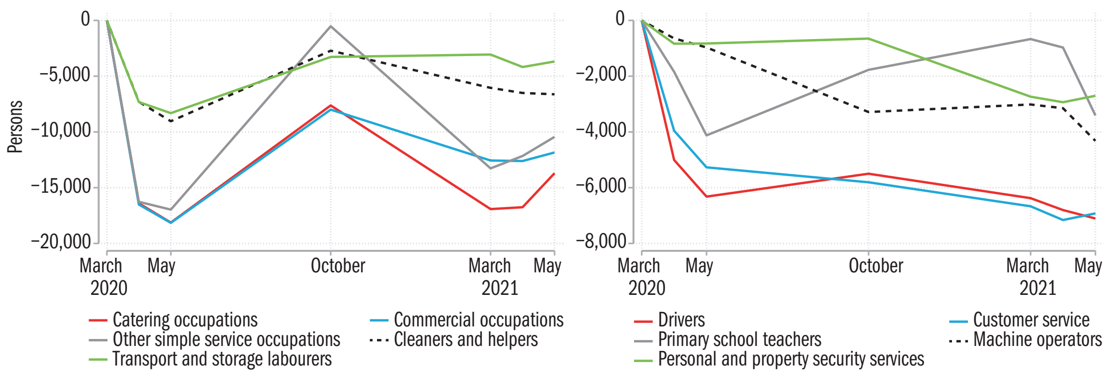
4 There is no HSCO for some types of legal status (such as simplified employment, employment partnership), applicable to a group of 280–320 thousand people. In addition, the database does not include entrepreneurs subject to KATA taxation.

large decreases in relative terms for example in human healthcare-related occupations (HSCO code 333 – e.g. dental technician, physiotherapist assistant – down 10 percent) and personal service occupations (HSCO code 521 – down 20 percent).

The largest increase was seen in the number of software and application developers, highly skilled administrators, industrial engineers and elementary industrial occupations.

Figure 2.4.2 concludes that there is an overall correlation between the change in the first wave and the change up until the end of the third wave. Taking a closer look, the specific occupations have different dynamics. Hospitality, trade and commerce and transport occupations experienced a rapid and significant decline in the first wave. They bounced back significantly in the period before the second wave, by October 2020, while the lockdowns of the second and third waves caused a further, somewhat smaller decline compared to the first wave (top part of *Figure 2.4.3*). A more gradual decline was observed for metalworkers and those in personal and property protection occupations (bottom part of *Figure 2.4.3*).

Figure 2.4.3: Occupations shrinking the most during the pandemic



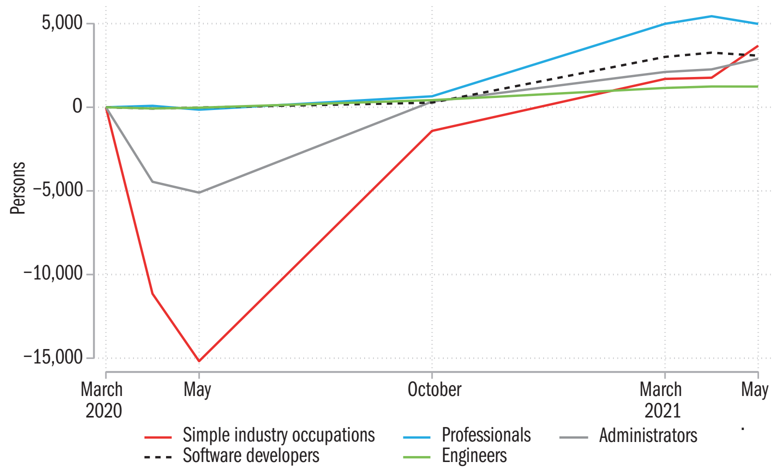
Source: Database of 08M returns, *Hungarian National Tax and Customs Administration*.

There is a striking change seen nowhere in international examples: teachers (primary school teachers, kindergarten teachers and nursery workers (HSCO code 243) are among the occupational groups with the largest declines: their number fell by more than a total of 3.5 thousand between March 2020 and May 2021, corresponding to around 3 percent of their numbers at the beginning of March 2020.

The occupations that managed to increase overall by May 2021, compared to their pre-pandemic numbers, declined to a greater or lesser extent or stagnated in the first wave of the pandemic (*Figure 2.4.4*). Practically speaking, no occupational groups increased in size in the first wave, in April–May 2020.

This also suggests that the reallocation of employment to sectors positively affected by the pandemic started with a significant delay, several months after the job losses following the start of the first wave.

Figure 2.4.4: Best expanding occupations between March 2020 and May 2021



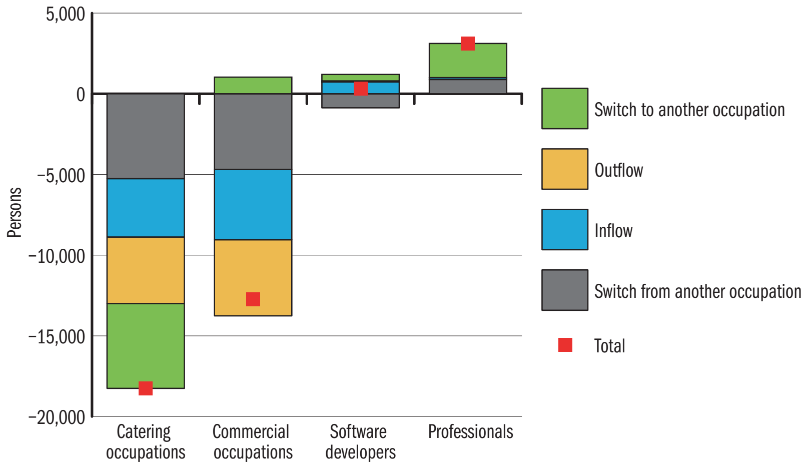
Source: Database of 08M returns, *Hungarian National Tax and Customs Administration.*

The group of elementary industrial occupations (HSCO code 931) has followed an extreme trajectory, with the number of people employed in this group falling by around 15,000 or 9% in the first wave, due to the stagnation of production chains and the halt in trade, but by May 2021, their number increased by more than 2% (by 3,600). The profession of software development saw a significant increase of around 7 percent (3,000 people) by May 2021, with a gradual increase in the number of employees from May 2020 onwards.

For the two occupations hardest hit by the pandemic, we examined how the change in employment between March 2020 and March 2021 could be broken down into (1) switching to another occupation between the two dates, (2) ceasing to have an employee status between the two dates, (3) new entrant, not having worked a year before, (4) switching from another occupation. This breakdown was compared with a similar breakdown of the change one year earlier (between March 2019 and March 2020). *Figure 2.4.5* shows the resolution of the difference in the one-year change in the number of employees measured in March 2021 and March 2020, i.e. the extent to which inflows, outflows and occupational changes contributed to the change in the number of employees in each occupation. The figure suggests that individual occupational changes are not the main driver of reallocation.

In the hospitality sector, new inflows, outflows switching from and to other occupations contributed equally to the 12-month decline in employee numbers in March 2021 compared to a year ago. However, there was no increase in the incidence of occupation change from trade occupations, which also suffered large losses, compared with the previous year, with the fall in new entrants, either as new employees or job changers, and exits from employment contributing roughly equally to the fall.

Figure 2.4.5: Breakdown of difference in the annual change of employee numbers (between March 2021 – March 2020 & March 2020 – March 2019)



Source: Database of 08M returns, *Hungarian National Tax and Customs Administration.*

The number of highly skilled administrators increased more between March 2021 and March 2020 than in the previous year, predominantly because fewer people changed to other occupations. The increase in the number of software developers was not much higher than in the previous year; the pandemic presumably accelerated the trend towards digitalisation here.

Summary

Job losses during the pandemic can be predominantly linked to the first wave. The biggest drop hit the less stable employment relations: half of those in simplified employment lost their job, compared to only 5 percent of employees. The pandemic led to reallocations in occupations, with almost 25,000 fewer working in hospitality and trade occupations than before the pandemic. The employment of highly skilled administrators, software developers and other industrial, IT and science graduates increased, but some unskilled physical occupations were able to also grow. However, the reallocation is not predominantly made up of an increase in year-on-year occupational changes and job changes, but of a decrease in new entrants, shifts to other occupations, and increase in exits.

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2.5 LABOUR MARKET ADJUSTMENT DURING THE CORONAVIRUS PANDEMIC: RESULTS OF A REPRESENTATIVE SURVEY

JÚLIA KOLTAI, DÁNIEL PRINZ & GERGELY RÖST

Introduction

In 2020–2021, the coronavirus pandemic and the measures taken to control it caused a severe economic downturn in almost every country of the world, including Hungary. In Hungary, output fell by 5% in 2020 (*IMF,* 2021). The economic downturn was accompanied by a significant increase in unemployment and placed a heavy burden on households. For example, according to official data from the Hungarian Central Statistical Office (HCSO/KSH), the unemployment rate was 4.2% in Q4 2020, 0.9 percentage points above the level in Q4 2019 (*KSH,* 2021).

However, it is difficult to accurately measure the trends of employment and unemployment during sudden economic declines. This was particularly true during the coronavirus pandemic, when many people were unable to work due to government-imposed restrictions but did not lose their jobs in the traditional sense. There was much debate about how unemployment could and should be measured during the pandemic. Different estimates were calculated from the data of the HCSO, the National Employment Service (NES) and the National Tax and Customs Office. For example, in October 2020, according to HCSO data using International Labour Organisation (ILO) methodology, there were 199,000 unemployed people in Hungary and the unemployment rate was 4.3% (KSH, 2021). Meanwhile, the NES recorded 306,000 jobseekers (*NFSZ,* 2021).[1]

In this chapter, we analyse the impact of the coronavirus pandemic on work and household finances using data from representative surveys carried out between April 2020 and May 2021.[2] Work is defined as the number of people who reported in the survey that they did at least one hour of income-earning work in the past week.

The survey was originally designed for the Mathematical Modelling and Epidemiology Task Force led by Gergely Röst at the Bolyai Institute of the University of Szeged. The survey has been conducted monthly since April 2020 on a nationally representative survey of 1000 (1500 until November 2020) individuals using CATI (Computer Assisted Telephone Interviewing) technique (*Karsai et al.,* 2020). Although respondents were asked about a wide range of topics (work, financial situation, health, vaccinations), this chapter analyses questions related to work and economic situation. In our analysis, we focus on three main dimensions: work, working from home, and general

1 On measurement problems, see *Chapter 2.1.* For analyses based on different data sources see *Chapter 2.2, 2.3, 2.4, 2.5, 2.7.*
2 A similar, survey-based research is presented in developing countries by *Khamis et al.* (2021a, b).

financial situation. In all three domains, it is important to note that the coronavirus pandemic may have affected people of different ages, genders, education backgrounds and geographic locations differently, therefore, we will examine these possible heterogeneous effects.

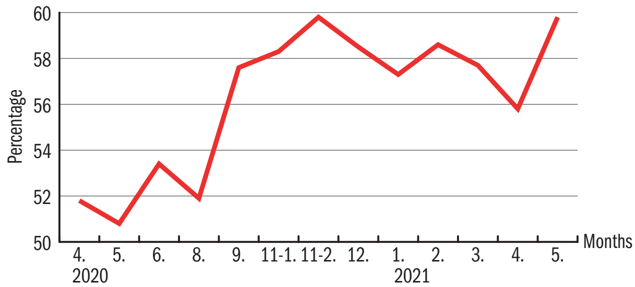
Data and Methods

The data analysed in this chapter are from a larger study, the Coronavirus Project of the Mathematical Modelling and Epidemiology Task Force (led by Gergely Röst). The original aim of the study was to estimate the contact patterns of the Hungarian adult population, as well as other factors like their beliefs and attitudes regarding the spread of the Covid-19 virus (*Karsai et al.,* 2020). The survey was repeated monthly from April 2020. Some of the questions were the same across all data collections, while others varied across waves. Some of the questions (like the ones on contacts and work-related questions) were asked about the previous day, which was a weekday in the case of two thirds of the respondents and a weekend for one third of the respondents. Data were collected using CATI (Computer Assisted Telephone Interviewing) method, and a multistage, proportionally stratified, probability sampling methodology was used for sampling. The database contained both landline and mobile telephone numbers. The sample is representative of the Hungarian population aged 18 years or older by gender, age, highest level of education and location. Sampling errors were corrected by iterative proportional weighting after data collection. The sample size is 1500 respondents in each month until November 2020 and 1000 respondents from November 2020 onwards.

Results

First, we examined work-related trends during the pandemic. Our data show (*Figure 2.5.1*) that the ratio of people who work was almost 6–8 percentage points lower (50.80–53.40%) during the first wave of the coronavirus pandemic, in the spring and summer months, than during the second wave of the pandemic the following autumn (55.80–59.80%).

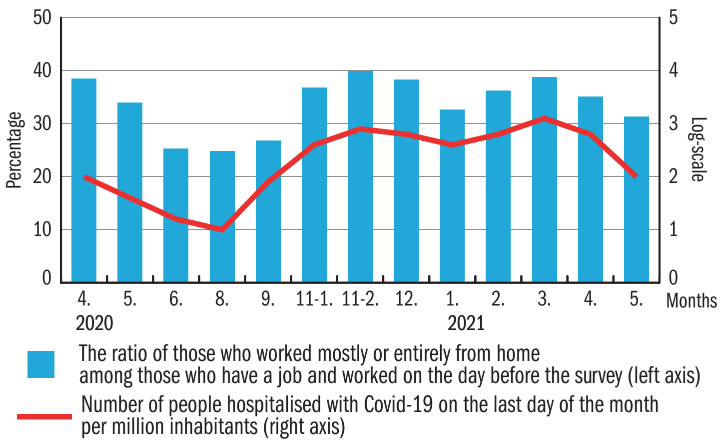
Figure 2.5.1: Proportion with at least one hour of paid work in the previous week, April 2020 and May 2021



The survey data puts the significant jump in the proportion of people who work to September 2020, by which time the restrictions imposed during the first wave had been lifted and no new restrictions had been introduced. Thereafter, according to our data, the second and third waves did not have a significant negative impact on employment, partly due to the relaxation of restrictions and partly due to the fact that the economy had also adapted better to the situation. The ratio of people in work remained roughly constant between autumn-winter 2020 and spring 2021, between 57.60% and 59.80%. One of the two exceptions was January 2021, when the proportion of people who had worked for an income at least one day in the preceding week was slightly lower, around 57.30%, presumably because of the restrictions in November and December. It was also a little lower (55.80%) in April 2021, which coincides with the third wave's restrictions which lasted for a few weeks though seasonal effects may have also played a role.

During the second and third waves of the pandemic, the proportion of people working from home had already reached and stayed at, a relatively high level (*Figure 2.5.2*) and working from home was more common among workers with higher education. The proportion of people who work from home also strongly correlates with the "pandemic curve" (the number of people hospitalised with Covid-19 per million population), shown on the same figure with the solid line. When the pandemic curve reached its low-point in August 2020, the number of people working from home also reached its low-point, and then following the increase of the pandemic curve, the number of people working from home also increased.[3] Our data also show that about one-third of those who work have flexibility in time spent with work, the place of work and the timing of their work.

Figure 2.5.2: Proportion with work-from-home arrangements



3 Among those with higher education, the proportion of those who worked mostly or entirely from home is higher (between 36 and 63 percent) in each month than the same proportion among those with maximum elementary education (between 18 and 32 percent). The increase between these two levels of education is not linear: in most cases, those with a vocation were less able to work from home than those with maximum elementary school education.

One possible way to adapt to changing circumstances is to change jobs. *Figure 2.5.3* shows the proportion of workers who have changed jobs since the beginning of the pandemic. Data are only available from August 2020, but it can be seen that during the second and third waves, changing jobs was an important adaptation option and that over 20% of the workers did so.

The questionnaire also asked about the reasons for passivity among those who did not work (*Figure 2.5.4*). Based on self-reported answers, only 3–4% of passives lost their job due to the coronavirus. However, it can be seen that both of the proportions of people who lost their jobs and who were sent on leave due to the pandemic are relatively high in the first wave, and decline slightly later.

Figure 2.5.3: Proportion changing jobs

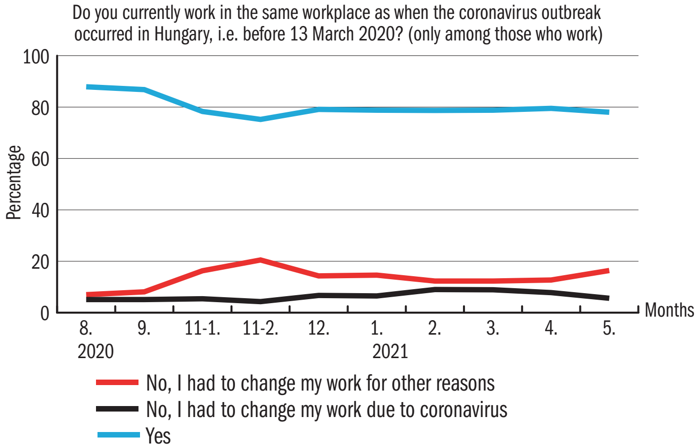
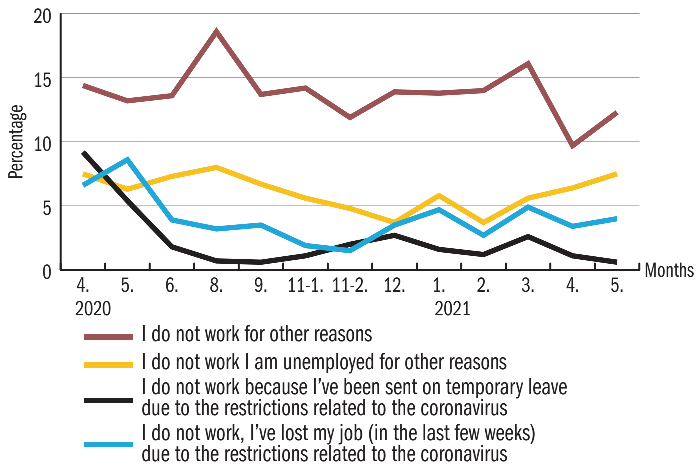
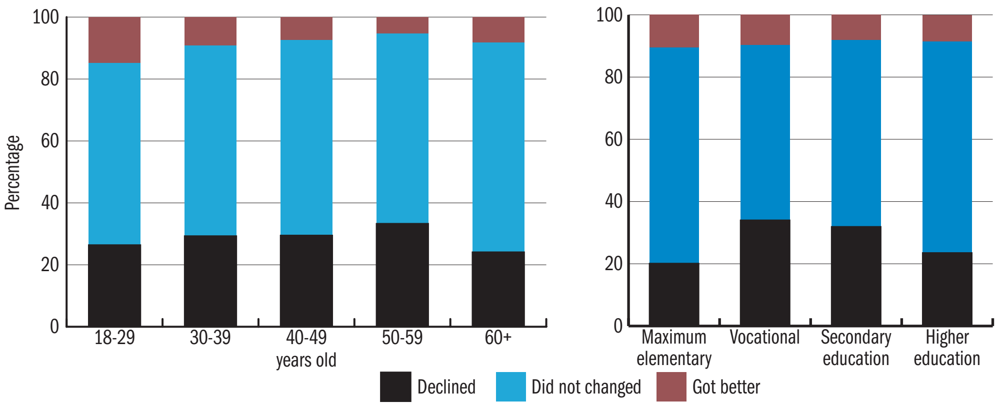


Figure 2.5.4.: Reasons for Passivity



The fall in employment could also have a serious impact on the financial situation of workers. In the survey, respondents were asked to evaluate their financial situation before the pandemic and at the time of the data collection on a 1 to 10 scale. In January 2021 (in the middle of the examined period), in the different social groups, around a fourth or fifth of the respondents replied that their financial situation had worsened and only about a tenth said that it had improved (*Figure 2.5.5.*). The proportion of those who replied that their financial situation worsened was even higher (around thirty percent) among older, but still typically active respondents who were between 50 and 59 years old, and among those who were the least educated.

Figure 2.5.5: Change in financial situation compared to before COVID times for different age groups and educational levels (self-reported answers, 1-10 scale) in January 2021



Discussion

The representative survey analysed in this chapter shows that the economic crisis that unfolded in the wake of the coronavirus pandemic had a severe but short-lived negative impact on employment, which returned to its previous level after the lifting of the restrictions. This may have happened due to the adaptation of firms and workers, for example the increasing availability of work-from-home arrangements.

The effects of the crisis have been heterogeneous, affecting some groups more severely. Older workers, the less educated and those living in smaller settlements were particularly vulnerable in financial terms. Although our survey does not provide detailed data on this, it can be assumed that changing economic structures and reallocation between sectors were also important during the crisis. On the one hand, different sectors were affected differently by the crisis, for example, more people lost their jobs in tourism and hospitality than in other, less-affected sectors. On the other hand, structural reallocation may have reduced the negative impact of the crisis on the labour market, as those who lost their jobs in one industry were able to find employment in other industries.

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2.6 REGISTERED UNEMPLOYMENT DURING THE PANDEMIC

István Boza & Judit Krekó

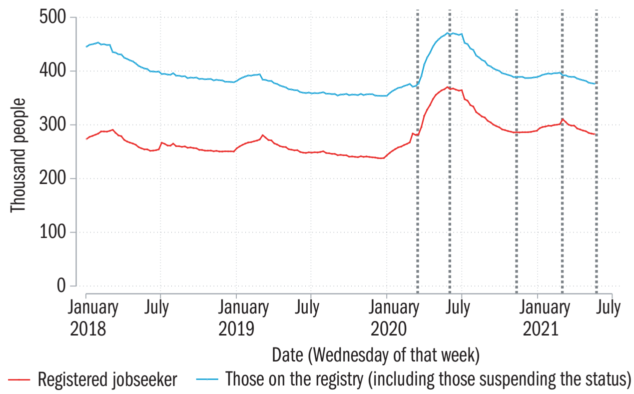
In this subsection, we examine how the labour market shock caused by the Covid-19 pandemic has impacted the extent and structure of registered unemployment in different waves of the pandemic. For the analysis, we use the individual-level database of the National Employment Service, which contains personal data on registered jobseekers, jobseeker's benefit and participation in the active labour market and public work schemes. We defined the start and end of the pandemic waves according to the restriction measures, as follows: the first wave lasted from 15th March 2020 to 2nd June 2020, the second wave from 11th November 2020 to 2nd March 2021, and the subsequent third wave lasted until 24th May 2021. The data are analysed weekly, in each case taking into account the headcount and statuses for the Wednesday of the given week.

Registered unemployment at employment services differs from the concept of unemployment included in the HCSO Labour Force Survey (LFS), addressed in detail in subsection 2.1., for several reasons: according to the LFS definition, a person is unemployed, if they did not work a single hour in the previous week while actively looking for a job, and could even start working the following week. At the employment services, on the other hand, those who were still working the previous week can also register as jobseekers, and a small amount of seasonal work is also allowed during registration. In addition, those registered with employment services do not necessarily actively seek employment. Due to these factors, registered unemployment has exceeded the unemployment level observed in the LFS in recent years, similarly to other European countries, even though some of the unemployed, such as those not currently entitled to jobseeker's benefit, are unlikely to register with the employment office. The difference between these two indicators of unemployment has been stable at around 2–3 percentage points over the last 15 years. However, due to measurement problems related to the Labour Force Survey caused by the pandemic (see framed article *K2.1*), the trend of registered unemployment is particularly important for assessing the labour market effects of the Covid pandemic.

Figure 2.6.1. shows the number of individuals registered at the employment offices on any given week. As the registered status of a (significant) portion of registered jobseekers is suspended, which may be due to participation in public work or training provided by the agencies, or due to childcare benefits, the number of registered s are calculated without those on suspension better grasps the trends of classic unemployment. The number of employees,

including those on suspension, shows how many are in the scope of the employment services.

Figure 2.6.1: Weekly trends of registered jobseekers



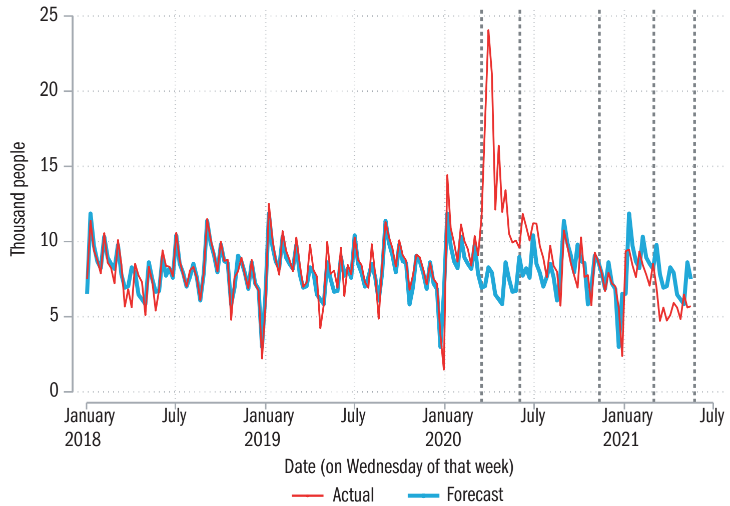
Note: Vertical lines indicate the three waves of the Covid pandemic. The first wave lasted from 15th March 2020 to 2nd June 2020, the second wave from 11th November 2020 to 2nd March 2021, and the subsequent third wave lasted until 24th May 2021. The top data set also includes those who are in the registry but have suspended their status as registered jobseekers, for example due to public work, maternity leave or receiving short-term wage subsidy.

Source: Based on individual anonymised data of ITM *National Employment Service's* register of jobseekers.

The figure shows that in the first wave of the pandemic, registered unemployment started to rise sharply immediately after the announcements of the lockdowns, and began to decline only in July 2020 after the lockdowns were lifted in early June. During the peak at the beginning of July, the number of registered unemployed was about 120,000 higher than in the same period in 2019, reflecting an increase of almost 2.6 percent of the active population. It can also be read from the figure that only the first wave brought a significant change in the development of registered unemployment, while the number of registered jobseekers did not increase significantly during the second and third waves. A potential explanation is that both periods affected the same persons or sectors, and those who had already received benefits from employment agencies during the first wave had not (intentionally) re-registered during the more severe waves or had not even left the register.

The inflow during the first wave is presented in *Figure 2.6.2,* showing the development of the number of new entrants to the register in the given week and the forecast of the inflow to the register without the pandemic, based on the inflow of the years 2017–2019. The difference between the actual and projected inflow shows that the restrictive measures introduced during the first wave led to a rapid and explosive increase in number of registries: a total of 75,000 more people registered as a jobseeker than in the same period in 2017–2019, twice the previous average inflow – or in some weeks up to three times as much – was experienced.[1] During the second and third waves, entries followed seasonality similar to previous years, so there was no spectacularly high inflow to the register.

Figure 2.6.2: Jobseekers newly entering the unemployment register



Notes: Vertical lines indicate the three waves of the Covid pandemic. The first wave lasted from 15th March 2020 to 2nd June 2020, the second wave from 11th November 2020 to 2nd March 2021, and the subsequent third wave lasted until 24th May 2021. The *Forecast* data set shows the average volume of entries during the years 2017–2019.
Source: Based on individual anonymised data of ITM *National Employment Service's* register of jobseekers.

The majority of the increase in registered jobseekers during the first wave of the pandemic – around 80% – is due to the entry of those newly losing their jobs due to lockdowns However, the fact that people entered the register before the crisis, then left the register at a lower rate than in previous years due to the drop in job offers, also contributed to the increase in the stock of registered jobseekers. For example, people who lost their jobs in December 2019 and exhausted their jobseeker's benefit in March did not have the opportunity to return to the labour market affected by the pandemic and lockdowns. (Trends of the registered unemployment duration are discussed in more detail in *Section 5.3.*)

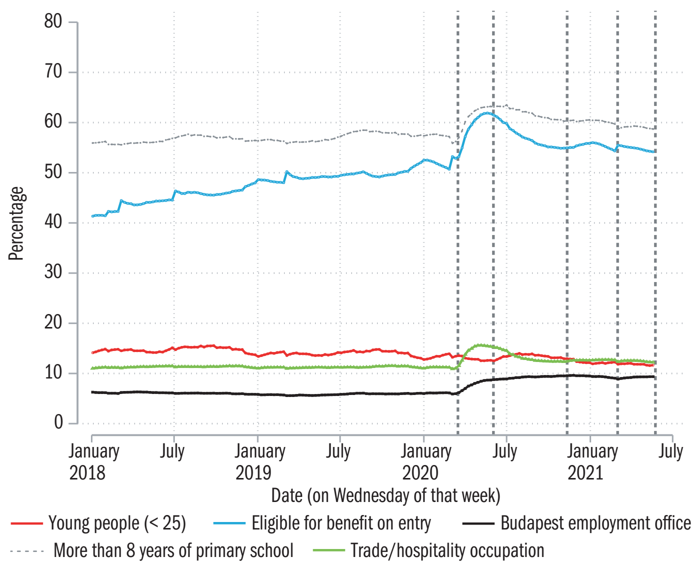
In addition to the number of people entering (and not being able to leave) the register, it is important to point out that the Covid pandemic and the restrictive measures taken in response to it have not only affected the same (potential) workers who have been affected by the risk of unemployment also in previous "typical" years. In addition to the fact that almost twice as many people entered the register during the first wave than during the same period in 2019, the composition of the newly registering population is also very dif-

1 During the period, an average of 1.8 times more people entered, than the average for the period 2017–2019.

ferent from the usual composition of registered jobseekers, which has transformed the structure of the registered unemployment stock.

When examining the proportion of each subgroup within the register, striking patterns can be observed reflecting the fact that previously less-affected groups signed up at the employment offices. *Figure 2.6.3* shows, during the first wave of the pandemic, for example, the proportion of those with higher than primary education increased, mainly due to the increase in the weight of those with secondary education. Although it is not indicated in the figure, the historically ery low proportion of those with tertiary education has not changed. No perceptible change was experienced in the proportion of those under the age of 25, although according to the LFS indicator, the employment of young people dropped more than the average (see *Köllő-Reizer,* 2021 and *Subsection 3.4*). This may have been because of their shorter work history; a smaller proportion of young people were presumably entitled to jobseeker's benefit or fewer of those losing their jobs registered with the employment services, due to individual considerations.

Figure 2.6.3: Characteristics of registered jobseekers



Source: Based on individual anonymised data of ITM *National Employment Service's* register of jobseekers.

However, we can see a significant jump in the proportion of those who are entitled to a jobseeker's allowance when they enter, the main condition of which being at least 360 days of employment within three years prior to becoming a jobseeker. In this proportion, a positive trend has already been observed in previous years, presumably due to increasing employment – and thus more frequent eligibility. During the first wave of the pandemic, several people registered at employment agencies who had previously had stable employment and their three-month jobseeker's benefit eligibility was not even exhausted yet. Therefore, a population with a better labour market status has entered the register compared to that of previous years. However, these factors diminish e over time, and since the second and third waves of the pandemic did not cause further waves of entry, we do not see any further increase in the proportion of those eligible for benefit, for example.

The economic impact of the lockdowns and other restrictive measures imposed as an answer to the pandemic was different from previous crises: hospitality, tourism and entertainment sectors suffered an immediate and drastic drop in demand, while other sectors were not affected or were even affected positively. The specific structural impact of the pandemic is also reflected in the unusual regional and occupational distribution of those entering the unemployment register.

Figure 2.6.3 shows that the number of people indicating commercial or catering occupations as a job opportunity upon being registered has also increased significantly. In addition, while there was no increase in the proportion of registrations at county seats, there was a significant inflow in Budapest. Moreover, the proportion of people in the capital could not decrease to the previous level in the year following the first wave.

In the following, we examine the occupational and territorial transformations in more detail. *Table 2.6.1.* shows which occupation categories were hit the most by the pandemic and most often indicated as a desired job by the jobseekers during the first wave and one year before the first wave for the entrants, based on the three-digit HSCO identifiers. During the first wave of the pandemic, the largest increases in the number of new jobseekers were in the hospitality sector (from 4.5 percent to 10.5 percent), trade (from 8.3 percent to 11.6 percent), customer relations and personal services, and driving (Part A of *Table 2.6.1*). It is noteworthy that the top 10 most-affected occupations include non-tertiary occupations and health assistants related to human health, with some 2,300 unemployed looking for health occupations registered during the time of the first wave. A significant proportion of this group is thought to have come from private health care that has been forced to close temporarily due to epidemiological restrictions. Half of the entrants are dental assistants or dental technicians, many of whom are looking for jobs in western counties set up for dental tourism. In addition, 700 physiotherapy assistants are among the registered job losers during the first wave.

Although the proportion of simple service and transport occupations has decreased, in terms of the absolute number of entrants (with more than 20,000 entrants), this occupational group still ranks first (Part B of *Table 2.6.1*). There is a strong, if not complete, rearrangement in the composition of those entering during the second wave.

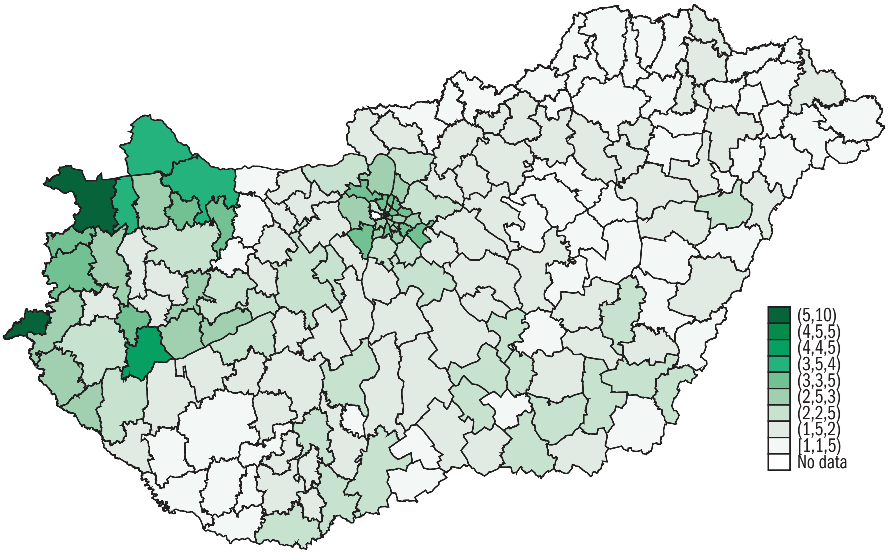
Table 2.6.1: Occupational categories searched by registered jobseekers (based on three-digit HSCO codes)

		Entrants'			
		number		proportion	
	Occupational group	2019	2020	2019	2020
	A) Occupations showing the largest increase during the first wave of the pandemic				
1	Jobs in catering	3,689	16,504	4.5	10.4
2	Jobs in commerce	6,834	18,529	8.3	11.7
3	Jobs in customer relations	829	2,714	1.0	1.7
4	Jobs in personal services	1,142	3,224	1.4	2.0
5	Jobs related to human health care	370	1,560	0.4	1.0
6	Jobs in the clothing and wine industry	540	1,740	0.6	1.1
7	Drivers and related jobs	2,837	6,085	3.4	3.8
8	Managers of units pursuing commercial, catering and similar service activities	628	1,784	0.7	1.1
9	Trade and sales administrators and agents	1,454	3,173	1.8	2.0
10	Health care assistants	230	790	0.3	0.5
	B) Jobs most wanted during the first wave of the pandemic				
1	Other simple service and transportation jobs	15,119	20,324	18.3	12.8
2	Jobs in commerce	6,834	18,529	8.3	11.7
3	Jobs in catering	3,689	16,504	4.5	10.4
4	General office and administrative jobs	5,242	9,681	6.3	6.1
5	Drivers and related jobs	2,837	6,085	3.4	3.8
6	Cleaners and supporting staff	3,874	6,076	4.7	3.8
7	Metal workers	2,822	5,006	3.4	3.2
8	Assemblers	2,813	4,097	3.4	2.6
9	Transportation jobs and loaders	2,161	3,792	2.6	2.4
10	Jobs in personal services	1,142	3,224	1.4	2.0

Note: The first wave refers to the period from 15th March 2020 to 2nd June, 2020.
Source: Based on individual anonymised data of ITM National Employment Service's register of jobseekers.

Although the joint examination of the territorial and sectoral dimension goes beyond the scope of this subsection, the specific occupational structure of the labour market shock caused by the pandemic is certainly reflected in the territorial distribution of entrants. *Figure 2.6.4* shows the number of registrants during the first wave of the Covid outbreak among those living in a given district (or districts) compared to the same period of the previous year. The increase was not significant in districts with higher unemployment in the past. In contrast, the proximity to the capital and to the Austrian border seems to be a determining factor. In the case of the latter, the closure of (land) borders and in the case of the capital, the closure of the air borders may have hit those working in the tourism-related sectors particularly hard, and one of the most important tourist regions, the Keszthely district, which includes Hévíz, a top attraction among western tourists is located, is also of outstanding value.

Figure 2.6.4: Increase in the number of registered jobseekers per district in the first wave of the pandemic compared to the same period in 2019

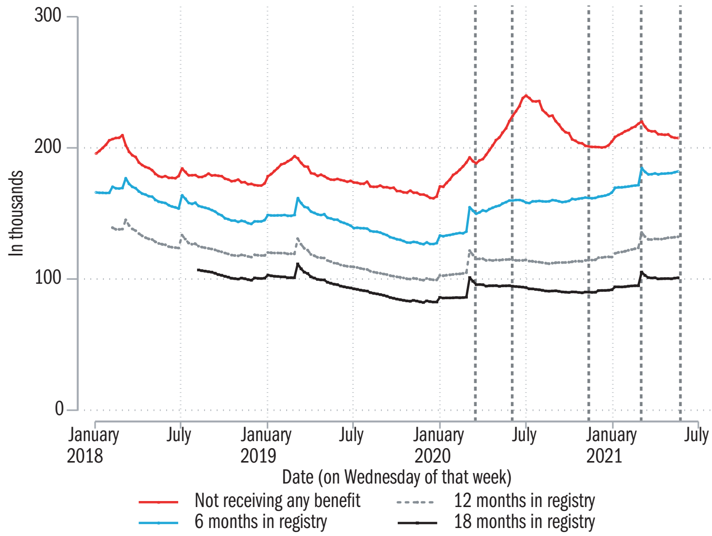


Note: The first wave refers to the period from March 15, 2020 to June 2, 2020.
Source: Based on individual anonymised data of ITM *National Employment Service's* register of jobseekers.

In addition to the fact that the first wave caused the most spectacular fluctuations in the composition of entrants, long-run or medium-term effects are also worth mentioning. After the first wave subsided, the number of unemployed also decreased rapidly, and in the next two waves, there was no longer an inflow of a magnitude similar to the first wave. At the same time, some unfavourable trends emerge from the data, as well. *Figure 2.6.5* shows that while in the summer of 2020, after lifting the lockdowns, registered unemployment began to decline the number of long-term unemployed for at least 6 and 12 months increased steadily: at the end of the period, in May 2021, 95,000 people had been registered jobseekers for at least 12 months, which exceeds the pre-pandemic level by 30,000. The fact that the outflow of those registered before the pandemic slowed down at the beginning of the first wave also contributed to this, and some of those who lost their jobs during the pandemic have not found a job since then. The share of long-term entrants continues to rise during the second and third waves, mainly due to the slower rate of return to the labour market of those losing their jobs in the second half of 2020, as discussed in detail in *Subsection 5.3.*

Although a higher than usual number of jobseekers who registered during the first wave of the pandemic were entitled to jobseeker's benefit, the three-month benefit proved to be short compared to the time spent in unemployment, so the number of jobseekers left without jobseeker's benefit increased significantly, and even in May 2021, there were approximately 30 thousand more jobseekers without assistance than in May 2019.

Figure 2.6.5: Number of long-term unemployed and people not receiving jobseeker's benefit



Source: Based on individual anonymised data of ITM *National Employment Service's* register of jobseekers.

*

In summary, the first wave of the coronavirus pandemic caused a surge in registered unemployment that had not been seen for many years, with almost twice the population of a completely different composition than in previous years entering the registry. During the second and third waves, however, the number of people entering the register was similar to previous years. In addition to the new inflow, the increase in registered unemployment was also due to the fact that those who entered the register right before the lockdown periods were slower to find a job due to the shrinking job opportunities.

In parallel with the improvement of the labour market situation, the registered unemployment rate also decreased significantly, but in May 2021 it still exceeded the level of May 2019 by 50,000 people. In addition, the composition of the group remaining on the register has become less favourable: the proportion of those who have been unemployed for a long time or those who do not receive jobseeker's benefit has increased.

Reference

Köllő, János–Reizer, Balázs (2021): A koronavírus-járvány első hullámának hatása a foglalkoztatásra és a vállalatok árbevételére. (Impact of the first wave of the coronavirus pandemic on the employment and company revenues). Közgazdasági Szemle, Vol. 68, No. 4, pp. 345–374.

2.7 AVERAGE WAGES AT EXCEPTIONAL TIMES. WAGE TRENDS IN HUNGARY DURING THE FIRST EIGHTEEN MONTHS OF THE CORONAVIRUS PANDEMIC*

ATTILA GÁSPÁR & BALÁZS REIZER

Introduction

How did the pandemic affect wages in Hungary? We are looking for the answer to this question with the help of individual-level tax return data from the National Tax and Customs Administration. According to the Hungarian Central Statistical Office (HCSO), the average gross earnings of full-time employees increased by about eight percent between April 2019 and April 2020; annual growth was 7.6 percent in May and 8.9 percent in October. In this chapter we argue that remarkable average wage growth rates during the coronavirus crisis can be misleading. On the one hand, they cover large cross-sectional differences, and on the other hand, they do not take into account the fact that in the first wave of the pandemic, masses of workers moved from full-time to part-time and unpaid leave. Thus, in the following, we also examine in detail the impact of part-time employment on wage dynamics.

First we aim to reproduce the wage statistics published by HCSO as closely as possible with the help of micro-data for March, April and May 2019, 2020 and 2021, and also for October 2019 and 2020. The raw growth rates that we calculate are very similar to those reported by the HCSO. However we argue that these figures do not take proper account of either the external or internal labour demand adjustment that companies were forced to make as a result of the crisis. To approximate these effects, we calculate how much the average earnings of those in full-time employment in 2019 changed during the months of the pandemic, taking into account those as well who fell out of full time employment at the time of the epidemic.

To support this approach, we use a decomposition methodology to examine the extent to which the wage change is explained by the wage increase for each employee and the composition effect, i.e. that the pandemic affected low- and high-wage workers with varying severity. In the next step, we will look at how wages changed by occupational group and company size, as well as by income decile. We examine the extent to which unpaid leave and the transition to part-time employment were typical along these dimensions.

Data

Employers file the benefit return form every month, and they fulfil their tax obligations on that basis. In this subsection, we rely on an individual-level, monthly breakdown database prepared from the benefit return forms. Since

* This document has been prepared using the 11-month individual anonymous data file(s) of the National Tax and Customs Administration's 08M return. The used data were processed by the KRTK Databank, the calculations contained in the document and the conclusions drawn therefrom are the exclusive intellectual products of Balázs Reizer and Attila Gáspár, as authors.

2019, the average wage statistics calculated by the HCSO have also been based on this database. The benefit return can also be modified after the reporting period (for example, sick-leave payments are reported by companies only in the month following the reporting period). As we observe only the months of March, April, May, and October in the database (column 1 of *Table 2.7.1*), these post-modifications could be included in the study only to a limited extent. This may explain why the wages we calculate differ slightly from the HCSO statistics (columns 1 and 2).[1] In the meantime, this difference does not affect the comparison for each month, as the average wage is calculated using the same methodology each month.

Table 2.7.1: Change in average wages during the coronavirus pandemic

Month	HCSO statistics (HUF)	Full-time only (HUF)	With part-time and unpaid leave (HUF)	Part-time employment (persons)	Unpaid leave (persons)
March 2019	358,991	356,782	265,412	518,160	18,872
April, 2019	352,848	362,053	269,228	519,929	21,580
May 2019	353,430	353,803	267,076	521,676	20,225
October 2019	353,773	353,867	265,786	527,397	21,680
March 2020	387,867	387,000	283,488	531,123	31,606
April, 2020	387,568	388,663	278,818	604,202	63,164
May 2020	386,242	381,789	276,669	676,725	53,276
October 2020	385,330	381,115	283,036	541,545	24,355
March 2021	423,706	422,932	313,691	518,637	27,707
April, 2021	427,641	425,323	315,642	515,350	22,415
May 2021	419,073	413,130	311,299	514,033	19,600

Source: *HCSO* statistics, and in-house calculation based on *Tax Authority's* benefit returns.

A disadvantage of the database is that we do not observe the actual income of sole proprietors and small taxpayers (kata). This leads to an underestimation of the real impact of the crisis, as a significant proportion of those working in this form provided personal services that were severely hampered by the lockdowns (such as hairdressers).

The first column of *Table 2.7.1* shows the average earnings of full-time employees according to the HCSO. According to the table, immediately before the coronavirus crisis, in March 2020, the average wage in this group was HUF 387,867, which remained essentially unchanged for the next two months. Wages rose by 9.5 percent to HUF 423,000 between April 2020 and April 2021, followed by a decline of HUF 8,000 in May. Our own calculations of the wages of full-time employees (column 2) follow very closely the data provided by the HCSO (column 1).

1 At the time of writing the draft HCSO only publishes preliminary statistics for these months, so further data cleaning and corrections are possible on begalf of HCSO.

Adaptation of working time during the crisis

Examining changes in the wages of full-time employees during a recession can be misleading. If companies in crisis temporarily need less labour, they can try to reduce working hours by retaining employees (adaptation at the intensive margin) or laying off some of their workers (adaptation at the extensive margin). Reducing working hours can mean not only reducing the number of overtime hours ordered, but also, where appropriate, reducing full-time work to part-time work or, in extreme cases, sending workers on unpaid leave. However, these employees are not included in the statistics on full-time employment, so they underestimate the impact of the pandemic on wages or may just have the opposite effect.

It is important to note that according to Hungarian legislation, a reduction in the basic wage or a reduction in full-time work is only possible with the written permission of the employee, and unpaid leave must be requested by the employee from the employer. Nevertheless, we can assume that a significant proportion of employees may have accepted this, if their employer wanted to send them on part-time or unpaid leave because they might have thought that this was the only way to keep their job and continue working after the lockdowns were lifted.

The importance of part-time work and unpaid leave is highlighted in columns 5 and 6 of *Table 2.7.1*. The number of part-time workers ranged from 520 to 530 thousand between March 2019 and March 2020 and then began to rise rapidly in the spring of 2020 due to the lockdowns. The number of part-time workers rose to 604,000 in April 2020 and 670,000 in May.[2] In October 2020, that number dropped to 541,000, while in 2021 it no longer exceeded the 2019 values.

The rise in unpaid leave in the first wave of the coronavirus pandemic was even steeper. In 2019, there were approximately 20,000 employees on unpaid leave for more than 15 days in a given month. By April 2020, in a single month, that number had tripled to 63,000. By October, their numbers returned to pre-pandemic levels, and rose much less during the third wave of the pandemic: in March 2021, the number of people on unpaid leave peaked at 27,000.

We show the effect of working time reductions on average wages using an alternative indicator. We calculate the average monthly wages also including part-time workers and people on unpaid leave who used to be employed full time before the pandemic. We impute a HUF 0 wage for the latter group. Thus, if the company reduced the number of hours worked by its employees, it corresponds to the actual reduction in wages in this indicator.

The results are shown in column 3 of *Figure 2.7.1.* Unsurprisingly, the average wage thus obtained is lower, 75 percent of the average wage of full-time workers. On this basis, wage growth rates are also much lower. While according to the HCSO calculation, the wages of full-time employees increased by 9.2 percent between May 2019 and May 2020, the average wage calculated for all employees increased by only 3.5 percent. By 2021, the number of people on part-time and unpaid leave had decreased again, so the difference be-

2 The increase between April and May may be partly explained by government support for part-time employment. Under the government decree of April 2020, companies could be granted a subsidy, if they met the conditions of the relevant government decision and undertook to employ workers on a part-time basis while maintaining their headcount. (Sources: Government Decrees 105/2020 and 141/202.)

tween the two wage growth rates (18.6 and 16.6 percent, respectively) over the two-year period (May 2019 to May 2021) is much smaller.

Next we examine the extent to which the crisis had a different effect on the wages of different employee groups.

Factors behind wage growth

One of the most important issues in examining wage growth is whether the wages of those in employment are increasing or the composition of employees is changing. This issue can be investigated using growth decomposition methods.

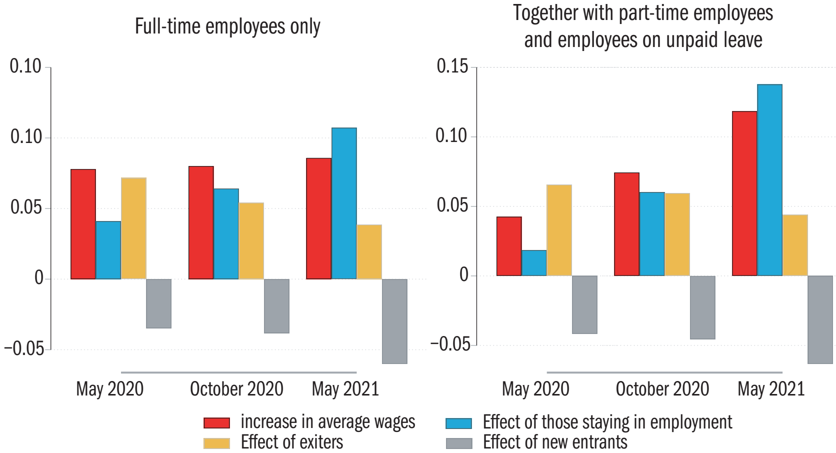
Using the decomposition method of *Melitz–Polanec* (2015), we divide the total wage increase into three channels: the effect of those who remain in the job, the effect of those who leave, and the effect of those who enter. The first is the wage increase for those in full-time employment all along. The second and third channels together give the composition effect. The composition effect can also impact the average wage even if the wages of those on the job do not change. For example, if low-income earners were more likely to lose their jobs during the crisis, this would have raised the average wage even if the wages of those who remained in the job had not changed at all. New entrants, on the other hand, reduce the average wage as new entrants earn less than average.

Figure 2.7.1. shows that between May 2019 and 2020, the exit effect played a key role in the increase in wages for full-time workers. On the left side of the figure, the wage change for full-time employees (black bar) is broken down into the three channels discussed above (grey bars). While average wages rose by 7.8 percent, the wages of those who remained in employment rose only by 4.1 percent. The exit effect added 7.1 percent to the average wage because more low-income people lost their full jobs than high-income ones. Meanwhile, lower wages for new entrants reduced the average wage by 3.4 percent.

The figure on the right shows the average wage together with those on part-time and unpaid leave. According to this method, the wages of those who remain in employment increased by 1.8 percentage points, and the exit effect increased wages by 6.5 percent between May 2019 and May 2020. The impact of entrants pushed the average wage down by 4.1 percent.

After the first wave of the epidemic, the increase in the average wage was mainly driven by the increase in the wages of those remaining in employment the whole time. Between May 2020 and May 2021, wages of those in full-time employment the whole time increased by 10.7 percent. If we take into account part-time employees, the growth rate is 13.7 percent. The explanation for the difference is that many returned from part-time to full-time work.

Figure 2.7.1: Decomposition of year-on-year wage growth



Note: Wage growth is calculated compared to the same month of the previous year.
Source: In-house calculation based on *Tax Authority's* benefit returns.

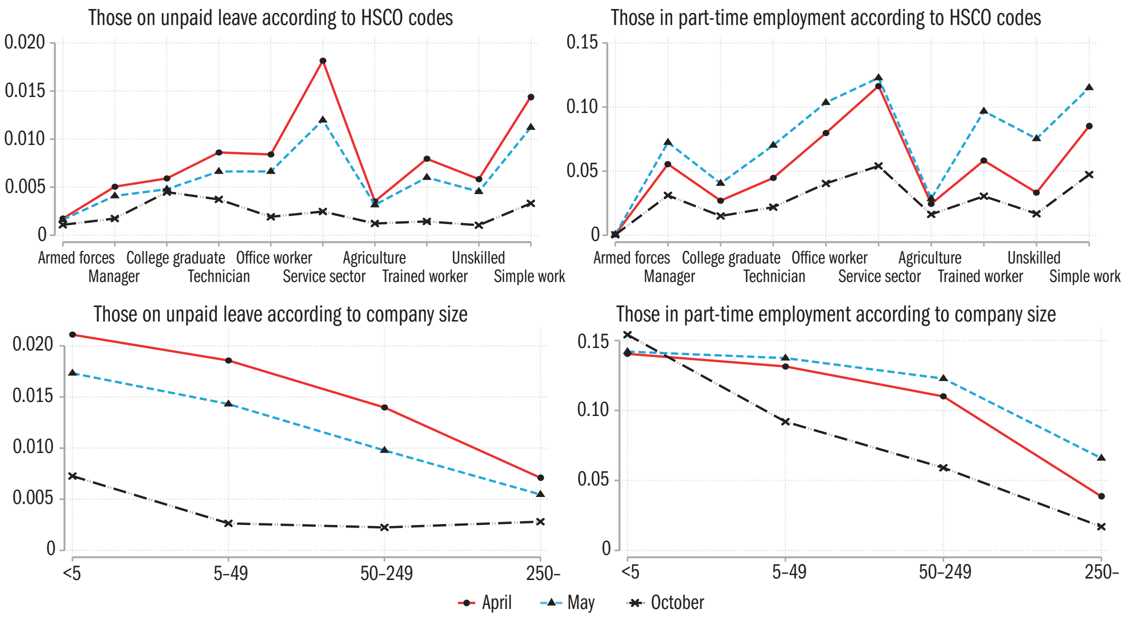
Changes in wages and the form of employment by occupational group and company size

Next we examine the extent to which part-time and unpaid leave affected individual workers differently by occupational group and company size. We then look at how wages differ depending on whether we consider the adjustment of labour demand on the intensive margin.

In Figure 2.7.2. we examined employees who, according to our database, were also working full-time in March, April, and October 2019 and were never on unpaid leave for more than four days. We were interested in how many of them took more than 15 days of unpaid leave (top left figure) and how many became part-time (top right figure) in the given months of 2020. In both panels, we aggregated employees to the first digit of the HSCO codes. In the two figures below, we examined the same two groups broken down by company size. In this figure, we focused only on the first two waves of the coronavirus because, based on aggregated numbers (last two columns of Table 2.7.1), by 2021, the frequency of both part-time employment and unpaid leave had returned to pre-crisis levels.

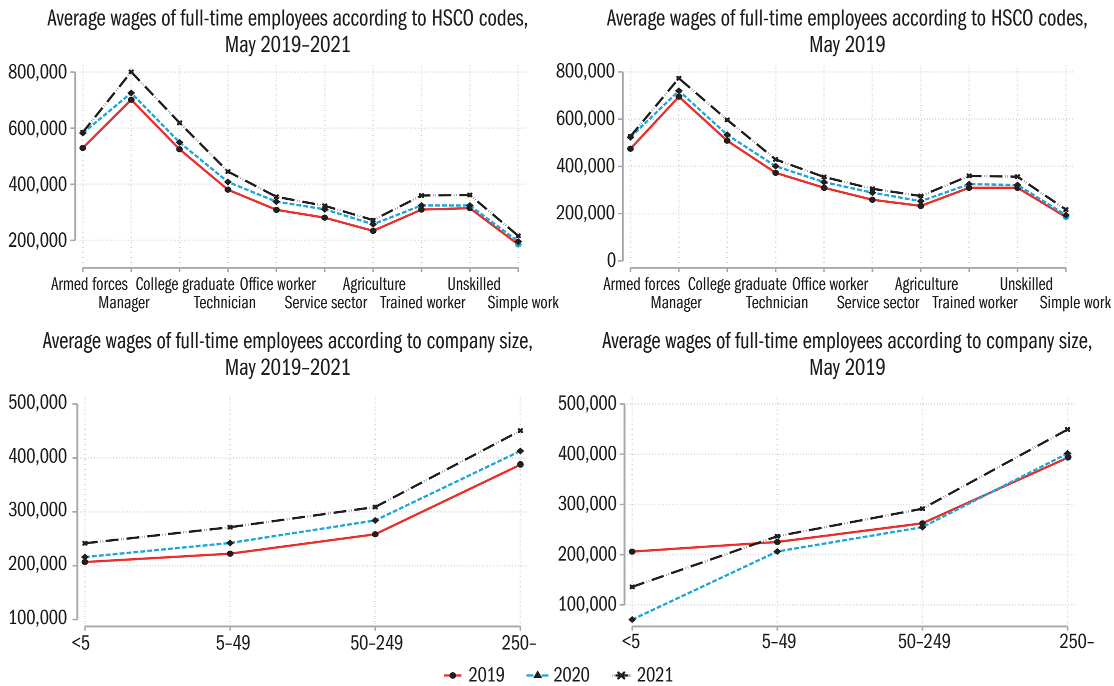
The figure clearly shows that unpaid leave peaked in the first month of the crisis, in April 2020, and its role had already diminished by May. In contrast, part-time work – although well above previous levels in April – peaked in May among the months we examined. This presumably reflects the fact that subsidies for part-time employment had already begun, and an increasing number of employers had prepared for a long, protracted crisis instead of a temporary shutdown. The cross-sectional pattern is very similar in both areas of adaptation. Unpaid leave affected those working in the service sector and trained workers the most. In addition to them, switching to part-time work has severely affected office workers, technicians, trained workers and unskilled workers. The crisis has affected the armed forces, managers, college graduates and agricultural workers the least. By October 2020, the role of both part-time work and unpaid leave had declined significantly, but even more of those working in the service sector were part-time than the number of college graduates in the worst month of the crisis, May. The breakdown by company size paints an even clearer picture: the smaller the company, the more typical it was to send its employees on unpaid leave or part-time work. Of the previously full-time employees of micro-enterprises with less than five employees, one in seven (!) became part-time employees by spring 2020.

Figure 2.7.2: Adaptation on the intensive margin according to HSCO and company size



What does mean for wages? In *Figure 2.7.3* we examine how wages developed in May 2019, 2020, and 2021 in the above two breakdowns, i.e., by HSCO codes and company size, respectively. In our data series, May 2020 was the month, when lockdowns and the recession had the greatest possible impact. The top left figure shows the wages (broken down by HSCO codes) of those who have been in full-time employment throughout (i.e. the circle on the basis of which the HCSO calculates the wage growth rate). In the top right figure, we examine those who worked full-time in 2019 and were not on unpaid leave; however, we report them to the average in 2020 and 2021 even if their labour market status has changed in the meantime (i.e., we look at the same circle as in the figure on the left). In the lower two sections of the figure, we examine the same conditions by company size.

Figure 2.7.3: Wage adaptation per HSCO codes and company size, considering the intensive margin



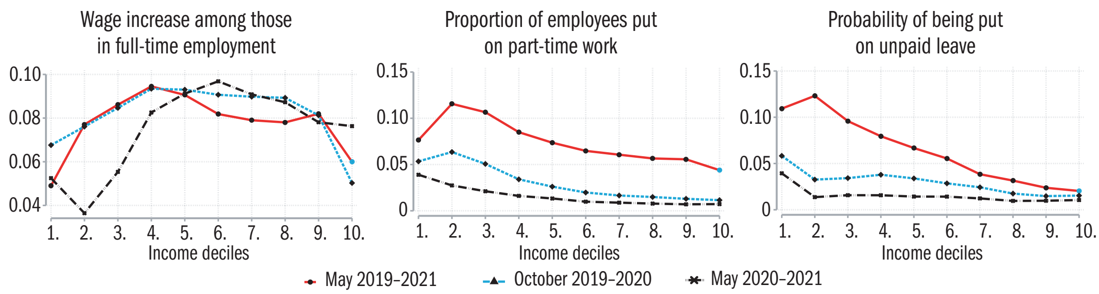
The average wage of full-time employees increased in all HSCO categories between 2019, 2020 and 2021 (top left figure). In contrast, if we focus on workers who worked full-time in 2019 but may have been on part-time or unpaid leave thereafter, wages will stagnate on average in 2020 and increase again only by 2021 (top right figure). The situation is even more dramatic in the breakdown by company size. On the one hand, the wages of full-time employees increased on average in all categories over all periods examined (bottom left figure). However, if we take into account the wage adaptation on the intensive margin, the average earnings of former full-time employees in companies with less than fifty employees decreased in May 2020 compared to the previous year. The decline has been dramatic, especially for micro-enterprises with less than five employees: wage levels of May 2019 were not reached in 2021, either.

The rate of increase in wages per decile of income

Based on previous empirical studies, economic downturns disproportionately affect low-income groups (*Klein,* 2015, *Forsythe–Wu,* 2021). In line with this, the decomposition study also led to the conclusion that lower-income workers were more likely to lose their jobs. We will examine this result in detail. To do this, we divide full-time employees into income deciles in different base months and calculate how much the average earnings in each decile changed over the next 12 months and how likely they were to become a part-time employee.

Figure 2.7.4 shows that the highest rate of wage increase is found in the middle of the distribution. Between the fourth and ninth deciles, wage growth was significant despite the crisis, hovering around 8–9 percent a year. The fact reflecting the increase in wage inequality is that the growth rate was a lot slower than this in the lower three deciles. In this group, the wage increase between May 2019 and 2020 did not reach 8 percent, and in the subsequent year it remained below 6 percent. In contrast, wage inequality was reduced by the fact that wage increases in the upper-income decile also remained below the average.

Figure 2.7.4: Wages increase per decile of income



We get a particularly worrying picture when we look at the proportion of people who went on part-time and unpaid leave. In the lower three deciles of full-time employees in May 2019, the transition from full-time to part-time work was around 10 percent. In contrast, the proportion of part-time workers was lower in higher income deciles. From this, we can conclude that higher-income jobs were also more stable during the first wave of the coronavirus pandemic.

Between 2020 and 2021, the role of part-time work diminished. Between Mays of the two years, the share of full-time jobs remained below 5 percent in each income decile. Despite the favourable changes in income levels, the pattern across deciles has not changed, as lower-income jobs were also more likely to be part-time between 2020 and 2021.

Finally, we look at the proportion of people taking unpaid leave. Similarly to previous results, we can see here that most often employees in the lowest income deciles went on unpaid leave. In 2019, more than 1 percent of workers in the top three income deciles went on unpaid leave in the subsequent year, compared to around 0.5 percent in the top three deciles. This confirms our conclusion that it was mainly due to the pressure from employers that the number of people on unpaid leave increased and not changes in the labour force supply. If employees had requested unpaid leave due to the lockdowns (for example, because they had to supervise their children staying home due to school closures), we would expect a higher proportion of high-income households with more savings to request unpaid leave, and the rate of unpaid leave would have risen during the second and third wave of the pandemic.

Summary

Our subsection examined the impact of the coronavirus crisis on wage dynamics in Hungary. Using the Tax Authority's benefit payment database, we found that the role of the composition effect was very large. In other words, the remarkable rise in average wages is partly explained by the fact that low-income employees were more likely to lose their jobs or be forced to work part-time or go on unpaid leave. Part-time work and unpaid leave reached their highest levels during the first wave of the epidemic and dropped again by 2021. Nevertheless, taking part-time employment into account, the growth rate was 2 percentage points between May 2019 and May 2021, than the wage growth of full-time employees (18.6 percent *versus* 16.6 percent). Part-time work and unpaid leave were most common in the service sector and among unskilled and trained workers, as well as among workers in small enterprises and in the lower three income deciles. From this, we can conclude that the coronavirus crisis has exacerbated income inequality in Hungary.

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K2.3 Employment of Hungarian workers in Austria before and during the coronavirus pandemic

BALÁZS REIZER

This section analyses the employment of Hungarian nationals in Austria during the coronavirus epidemic. To better understand the impact of the pandemic, I first briefly describe trends before the epidemic. For this purpose, I use aggregated social contribution data published by the Austrian Ministry of Labour. The Ministry publishes monthly the number of employed persons broken down by detailed demographic categories.[1] The database records not only the nationality of the employee but also whether the employee is resident in Austria. This makes it possible to distinguish between daily commuters and workers residing in Austria. However, the Ministry of Labour does not record the occupation code and the level of education of the workers, so I approximate these on the industry.

Looking at longer-term trends, the number of Hungarians working in Austria stagnated until 2010, and then started to rise. This is because the Austrian labour market only became available to Hungarian workers after our accession to the EU. As a first step, occupations considered to be in short supply in Austria (mainly jobs in the construction industry and engineering) became available in 2008, and after May 2011 all administrative barriers to the employment of Hungarian nationals were removed. Consequently, the number of Hungarian workers in Austria has been steadily increasing since 2011 (*Table K2.3.1*). While there were approximately 20,000 Hungarian workers in Austria in 2010, this number had risen to 100,000 by the beginning of the coronavirus pandemic. The share of cross-border commuters in total employment decreased, reaching around 40 thousand in 2020. The employment time series provides another important lesson. The highest number of commuters work in the summer, while employment of Austrian residents increases again in the winter, which is a result of the structure of the sectors. As shown in *Table K2.3.1*, Hospitality and catering plays a prominent role in winter. These workers are typically seasonal workers who work and live in hotels in ski resorts and then move back to Hungary at the end of the ski season. Apart from hospitality, the most common industries are manufacturing, construction and wholesale and retail trade. Finally, it is important to note that temporary agency workers on fixed-term contracts are classified in the Austrian statistics as administrative and other services. This industry should be examined separately, as temporary agency workers are relatively easy to lay off and are therefore particularly vulnerable to the pandemic.

Regarding the impact of the pandemic, employment of Hungarians in Austria peaked in February 2020. At that time, 101,305 Hungarians worked in Austria. This number dropped to 78,062 in a month due to the first wave of the pandemic. The decline was clearly the result of closures of hotels and other catering establishments (mainly ski resorts). Employment in this sector fell from 27,965 to 10,816 in a month, a 61.3 percent drop. The decline in employment in this sector continued, with a further 1,600 fewer people employed in April. The decline in the number of Hungarian workers also exceeded the decline in the industry as a whole. Indeed, employment in the sector as a whole fell by 45.1 percent (from 235.6 thousand to 129.4 thousand). However, the decline affected other industries much less. Not surprisingly, apart from the hospitality industry, employment decreased most in administrative and other services. Here, the number of Hungarians in employment fell by 2,300 between February and March, that is, by nearly 20 percent. However, the decline here was particularly short-lived, and employment was already on an upward trend from April.

1 The data used for this study are available at dnet.at. The most recent data at the time of download is as of August 2021.

Table K2.3.1: Number of Hungarians working in Austria in the main industries, 2020–2021

Month	Total employees	Manufacturing industry	Construction	Wholesale and retail trade	Hospitality, catering	Administrative and other services
2020						
January	100,502	14,319	8,214	13,228	27,895	11,557
February	101,305	14,367	8,699	13,261	27,965	11,530
March	78,062	14,114	7,362	12,711	10,816	9,240
April	78,315	14,049	8,743	12,788	9,286	9,834
May	83,925	14,272	9,356	13,066	12,037	10,463
June	92,429	14,531	9,889	13,426	17,537	11,533
July	98,000	14,623	10,024	13,768	21,678	12,075
August	98,740	14,671	10,027	13,838	21,967	12,356
September	98,705	14,776	10,173	14,060	20,100	12,530
October	92,803	14,751	10,140	14,447	15,215	12,506
November	90,011	14,683	10,061	14,543	12,957	12,441
December	83,932	14,370	7,538	14,297	12,767	10,227
2021						
January	85,510	14,460	8,254	14,301	12,671	10,939
February	87,328	14,571	9,037	14,400	12,655	11,298
March	90,035	14,912	9,853	14,731	12,644	12,050
April	91,500	15,123	102,54	14,875	12,523	12,559
May	98,374	15,291	10,521	15,073	17,405	13,082
June	104,582	15,441	10,653	15,326	21,909	13,605
July	106,554	15,573	10,637	15,554	23,581	13,675
August	107,638	15,720	10,728	15,542	23,756	14,331

Source: *Austrian Ministry of Labour.*

During the first wave of the pandemic, most countries introduced border crossing restrictions to slow the spread of the virus, which made employment of commuters particularly difficult, but the employment pattern of commuters did not differ significantly from that of Austrian residents (*Figure K2.3.1*). Similarly to Hungarian workers resident in Austria, commuters were most affected by restrictions in the hospitality sector. The number of workers in this industry fell from 8,919 to 4,580 between February and March 2020, while the other industries saw much smaller declines.

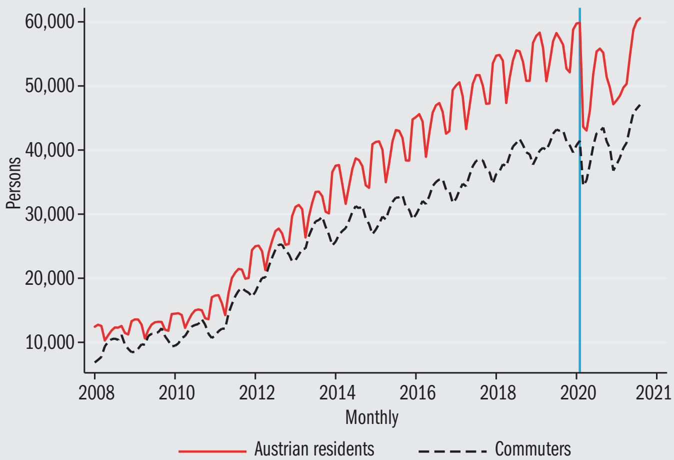
Table K2.3.1 also shows that at the end of the first wave, in the summer of 2020, employment levels returned to pre-pandemic levels. By August 2020, the number of Hungarians working in Austria had risen to 98,740. As in previous years, the number of workers in the hospitality sector did not reach the winter peak, but the level of employment was still significant compared to the trough, reaching nearly 22,000.

The second Covid wave hit the hospitality sector hardest again. Unlike in previous years, the number of people employed in the ski season did not increase, with 15,800 fewer people working in the industry in February 2021 than a year earlier. This 43.6 percent decline exceeded the 36.7 percent decline for the entire sector. However, the other sectors weathered the second wave much more easily and no decline can be observed compared to the months before the epidemic.

Looking at the data for 2021, employment levels returned to the upward trend seen before the pandemic. Consequently, in August the number of Hungarians working in Austria broke all previous employment peaks to stand at 107,638, and both the number of commuters and the number of workers residing in Austrian exceeded the pre-pandemic records. The breakdown by industry shows that all industries, except for hospitality, employ a higher number of workers than before the pandemic. Therefore, data suggest that, if the hospitality industry is not restricted because of the pandemic, the number of Hungarians working in Austria will continue to rise even in the short term.

Finally, looking at the gender gap, two thirds of Austrian workers are men. Another important difference is that in February 2020, 36 percent of women worked in the hospitality industry, compared to only 22 percent of men. Accordingly, the employment of women was hit harder by the pandemic. Their employment fell by 26.2 percent between February and March 2020, compared with only 21 percent for men. However, this difference is entirely due to the composition effect, because when calculated separately by industry, the percentage drop in employment for men and women does not differ significantly.

Figure K2.3.1: Number of Hungarians working in Austria, 2008–2021



Source: *Austrian Ministry of Labour.*

3 THE IMPACT OF THE CRISIS ON VERIOUS SOCIAL GROUPS

3.1 THE IMPACT OF LOCKDOWN ON MOTHERS

ÁGNES SZABÓ-MORVAI & DZSAMILA VONNÁK

Introduction

In this subsection, we examine how the labour market situation of women with young children has changed during the coronavirus pandemic. Since the outbreak of the pandemic, there have been several interruptions in day care for children, placing a heavy burden on families. During the closures, parents had to stay at home with their young children. Due to the traditional division of labour within the family in Hungary, women tend to spend more time caring for the children and men more time in paid employment (*Szabó-Morvai,* 2018), so in most families, mothers tended to stay at home with the children during the pandemic. As a result, many mothers were unable to perform their jobs properly and lost their jobs or even exited the labour market.

The background

For the analysis data from the Labour Force Survey (LFS) of the Hungarian Central Statistical Office (HCSO) was used. The LFS contains information on demographic and labour market characteristics of the population. Our sample consists of people aged 25 to 45. We focus on mothers whose youngest child is over 4 years old but under 11 years old. This is the age group when the mother has a high chance of returning to the labour market (compulsory start of kindergarten at age 3)[1] but the child is not yet independent enough, requiring the presence of an adult.

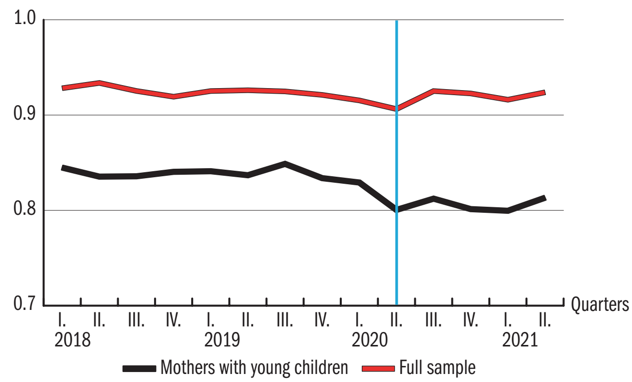
During the period of our study, day-care for children was unavailable for several weeks. The first nationwide closure of public education institutions was on 16 March 2020. Daycare in schools was suspended until the end of the school year, and children returned to nurseries and kindergartens at the end of May (in rural areas) or the beginning of June (in Budapest). Then, in the second wave, secondary schools switched to digital education on 11 November 2020. During this period, there were no permanent breaks in nurseries, kindergartens and primary schools, only shorter, ad hoc closures due to Covid infections. In the third wave, public education institutions across the country closed on 8 March 2021, with younger children returning to their institutions on 19 April, while digital education for senior primary school and secondary school pupils remained in place until 10 May.

We examine how the labour market situation of mothers with young children changed compared to the group less affected by the suspension of child-

1 Act CXC of 2011 on National Public Education.

care. It is important to note that the labour market situation of other groups was also affected by the closure of childcare facilities. Of course, there were also families where the father stayed at home with the child. However, the opposite effect is also possible, i.e. the job loss of the mother with a young child made the father's job even more crucial so that in the event of a job loss, the father would be more likely to take up work again. Furthermore, it is also possible that one of the parents stayed at home even with older children at the expense of his or her job. Therefore, there is no examined group and control group in the traditional sense. Consequently, we can only examine how the situation of the most affected group has changed on average compared to others. *Figure 3.1.1* shows the evolution of the activity rate of 25 to 45-year-olds for the total sample and for mothers with young children.

Figure 3.1.1: Activity rate

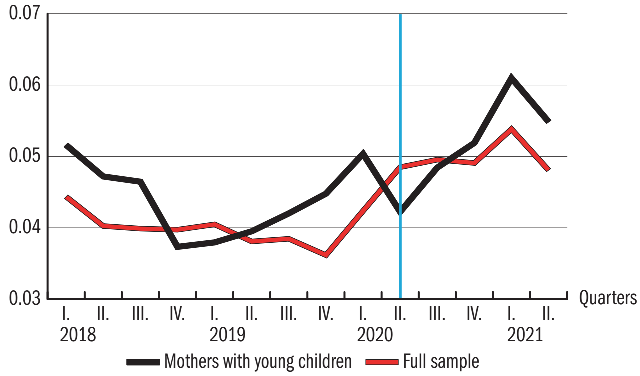


Note: Evolution of the activity rate (25–45 years) between Q1 2019 and Q2 2021 for the total population and mothers with a youngest child aged 4 to 10.
Source: Own calculation from *HCSO* LFS data.

There was a downturn in the second quarter of 2020, at the time of the coronavirus outbreak, and then, a correction in the third quarter. For mothers with young children, the pattern is similar, but the decline was stronger in the second quarter and remained lower throughout the subsequent period. The LFS data show a slight shift in the pattern of transfers received for those in the 25–45 age group entering inactive status in the second quarter of 2020. The share of those receiving an early retirement pension or an invalidity pension has decreased and the share of those receiving childcare allowance, or some other benefit has increased.

Figure 3.1.2 shows the evolution of the unemployment rate. For the entire sample, we see an increase in the second quarter of 2020. For mothers with young children, however, the pattern is interesting: we see a decline in the second quarter of 2020, a jump in the third quarter and then an increase until the first quarter of 2021. At first sight this may seem surprising but taking into account that many mothers left the labour market in Q2 2020 and then many returned in Q3 2020, one can see that the unemployment rate for women with young children is driven by the number of active workers in this period.

Figure 3.1.2: Unemployment rate



Note: Unemployment rate (25–45 years) between Q1 2019 and Q2 2021 for the total population and mothers with a youngest child aged 4 to 10.
Source: Own calculation from *HCSO* LFS data.

In the following, we use regressions to compare the average change in employment indicators of mothers with young children and the rest of the population (i.e. women[2] without young children and men) between the pre- and post-lockdown periods. Two dependent variables are examined: one is a bivariate variable of labour market activity, with a value of 1 if the individual is active in the labour market (i.e. employed or unemployed) and 0 if inactive. The other is a bivariate variable of unemployment status, which takes the value 1 if the individual is unemployed and 0 if employed.[3] Our key explanatory variables are the bivalent variables for mothers with young children and post-lockdown periods and their interaction. The coefficient of the interaction variable shows the effect of closures on mothers with young children. We control for educational attainment, age, gender, household characteristics, marital status, county, trend, and seasonality. We use data from the first quarter of 2016 to the second quarter of 2021.

Results

Table 3.1.1 shows the results. The dependent variable in column (1) is labour market activity. After the closure, the probability of men and mothers without young children leaving the labour market increased by 2.4 percentage points on average. The coefficient associated with the variable *mother with young children* shows that even before the pandemic, the probability of a mother with young children entering the labour market was on average 5 percentage points lower than the rest of the population. After the closure of educational institutions, this gap increased by a further 3.2 percentage points.

2 That is, women without children and mothers whose youngest child is over 10 years old.

3 Those out of the labour force are not in our sample at this time.

Table 3.1.1: Regression estimation of the impact of closures on the labour market situation of mothers with young children

	Labour market activity	Unemployed status
Dependent variable	(1)	(2)
Post-closure period	–0.024**	0.012
	(0.010)	(0.009)
Mother with young children	–0.050***	0.006
	(0.009)	(0.006)
Mother with young children × Post-closure period	–0.032***	0.004
	(0.010)	(0.004)
R^2	0.100	0.035
Number of observations	98,808	89,602

Note: OLS estimates.

Dependent variables: labour market activity is a bivariate variable with a value of 1 if the individual is in the labour market and 0 if the individual is inactive. Unemployment status is a bivariate with a value of 1 if the individual is unemployed and 0 if employed. Mother with young children: a mother whose youngest child is between 4 and 10 years old. Post-closure period: Q2 of 2020 and subsequent periods. Control variables not marked in the table: education, age, sex, number of household members, head of household and relationship, marital status, county, trend, month bivalent variables. In brackets are county-level clustered robust standard errors.

*** Significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Source: The authors' calculations.

Estimates in column (2) examine unemployment status. The results show that the unemployment probability of mothers with young children did not differ from the rest of the population before and during the pandemic.

Our results suggest that most mothers who were unable to work because they had to stay at home with their children left the labour market. Some of them left employment and some left a job-seeking status. These exits have increased the labour market disadvantage of mothers with young children compared to other groups, and this disadvantage persisted until mid to late 2021. Based on current data, it is not yet possible to determine whether mothers with young children have suffered a permanent disadvantage. Future analysis of longer-term labour market data is needed to be in the position to answer this question.

Conclusions

In this study, we analysed how the labour market status of women with young children changed as a result of the lockdown during the pandemic. In most families, mothers are responsible for the care of children at home, and their jobs were more at risk due to the interruption of day care for children.

For our analysis, we used data from the LFS between Q1 2016 and Q2 2021 to examine the extent to which mothers with young children behaved differently from the rest of society following the lockdown measures. Our estimates suggest that following the closure of public education institutions, the probability that mothers with young children left the labour market increased by 3.2 percentage points compared to the rest of society. However, the unemployment probability of mothers with young children remaining in the labour market did not change significantly differently from the rest of the labour market.

Reference

SZABÓ-MORVAI, ÁGNES (2019): Division of labour in households. In: *Fazekas, Károly–Szabó-Morvai, Ágnes* (eds.): The Hungarian Labour Market, 2018. IE CERS, Budapest, pp. 167–170.

3.2 ADHERENCE TO AND IMPACT OF PRECAUTIONARY MEASURES AGAINST THE CORONAVIRUS IN THE EUROPEAN POPULATION OVER 50 YEARS OF AGE

ANIKÓ BÍRÓ, RÉKA BRANYICZKI & PÉTER ELEK

At the outbreak of Covid-19, drastic precautionary measures were introduced across Europe as governments sought to curb the spread of the virus through hygiene recommendations and measures to increase distance before vaccines were released. The number, timing, and severity of the restrictions varied from country to country during the pandemic, and there were also differences in the willingness of people to follow them. Within the population, the behaviour of the elderly is particularly interesting, as this age group is more vulnerable to the coronavirus.

According to international research, precautionary behaviour is influenced by several factors. For instance, older people who have had an infection among their acquaintances are more cautious (*Litwin–Levinsky,* 2021a), and hygiene precautions are less prevalent among those with habits detrimental to health (e.g., smoking, drinking alcohol) (*Mendoza-Jiménez et al.,* 2021). However, when evaluating precautionary behaviour, questions arise about the cost of avoiding coronavirus, such as how precautions affect mental health. Interestingly, a longitudinal study found that the mental health of the elderly improved on average between 2017 and 2020 in the 11 European countries studied (*Van Winkle et al.,* 2021). On the other hand, based on the results in the literature so far, restrictions are negatively correlated with mental health, e.g., those who maintain physical distance feel lonelier (*Cohn-Schwartz et al.,* 2021, *Litwin–Levinsky,* 2021b).

In this chapter (building on our previous article, *Bíró et al.,* 2021), we examine the factors that affect the likelihood of adherence to coronavirus precautionary measures and mental health. Among others, we analyse the impact of pre-pandemic employment status and loss of employment during the pandemic on these variables. We also analyse the stringency of restrictions and the mortality rate in relation to precautionary behaviour and mental health observed during the pandemic at the country level. Finally, we depict the association between the prevalence of precautionary behaviour and mental health. In addition to the explanatory variables related to the labour market, our results speak to labour economics given that mental health alone influences individuals" subsequent productivity and labour market participation.

Data

SHARE (Survey of Health, Ageing and Retirement in Europe) is an internationally-harmonised, multidisciplinary panel survey, which collects data biannually about the health, labour market situation and socio-economic characteristics of the population over 50 years of age in the member states of the European Union, Switzerland, and Israel. The data is accessible free of charge. We use the SHARE-Covid19 data (*Börsch-Supan,* 2021a, b)[1] that were collected via phone during the summer of 2020 on a subsample of SHARE panel respondents, with a focus on the impact of the coronavirus and the measures related to the pandemic on the population over 50 years. 54.5 thousand individuals responded to the survey via phone from 27 countries.

We analyse eight indicators of health behaviour that capture how people changed their health behaviour in response to the outbreak of the Covid-19 pandemic. We define binary variables as follows. (1) "No walks" equals one if someone has not gone for a walk since the outbreak of the pandemic. (2) "No shopping" equals one if someone has not gone shopping since the outbreak of the pandemic. (3) "No meeting with family" equals one if someone has not visited other family members. (4) "No meeting with others" equals one if someone has not met more than 5 people outside the household. (5) "Distance to others" equals one if someone has "always" kept distance from others in public. (6) "Wearing mask" equals one if someone has "always" worn a face mask in public. (7) "More hand washing" equals one if someone has washed hands more than usual. (8) "More hand sanitising" equals one if someone has used hand sanitiser more than usual. Besides, indicators (1)–(4) equal one if someone has not left home since the outbreak of the pandemic and indicators (5)–(6) are not defined for these respondents (18% of the sample). Finally, our composite precaution indicator is the average of the eight indicators.

We analyse two indicators of mental health deterioration. The anxiety-indicator equals one if the respondent felt more anxious during the last month than before the outbreak of the pandemic. The depression-indicator equals one if the respondent felt sadder or more depressed during the last month than before the outbreak of the pandemic. We define our mental health indicator as the average of the two indicators above.

As a restriction index we use the so-called „stringency index" as of June 2020, compiled by the University of Oxford (*Hale et al.,* 2021), and the country level cumulative mortality rate due to the coronavirus, which is from the World Health Organization (*WHO,* 2021; we use the rate as of 1st of June 2020).

We use the following control variables in our regression analysis: presence of a chronic illness that increases the risk of coronavirus (drugs taken regularly for high blood cholesterol, high blood pressure, heart- and cardiovas-

1 We use data from SHARE Waves 7 and 8. (DOI 10.6103/SHARE.w7.711, 10.6103/SHARE.w8.100, 10.6103/SHARE.w8ca.100), see Börsch-Supan et al. (2013) for methodological details. The SHARE data collection has been funded by the DG Research and Development of the European Commission through: FP5 (QLK6-CT-2001-00360), FP6 (SHARE-I3: RII-CT-2006-062193, COMPARE: CIT5-CT-2005-028857, SHARELIFE: CIT4-CT-2006-028812), FP7 (SHARE-PREP: GA N°211909, SHARE-LEAP: GA N°227822, SHARE M4: GA N°261982, DASISH: GA N°283646) and Horizon 2020 (SHARE-DEV3: GA N°676536, SHARE-COHESION: GA N°870628, SERISS: GA N°654221, SSHOC: GA N°823782), and the DG Employment, Social Affairs & Inclusion from the following sources: VS 2015/0195, VS 2016/0135, VS 2018/0285, VS 2019/0332, and VS 2020/0313. Additional funders are the German Ministry of Education and Research, Max Planck Society for the Advancement of Science and U.S. National Institute on Aging (U01_AG09740-13S2, P01_AG005842, P01_AG08291, P30_AG12815, R21_AG025169, Y1-AG-4553-01, IAG_BSR06-11, OGHA_04-064, HHSN271201300071C, RAG052527A) (see www.share-project.org).

cular disease, diabetes, and chronic bronchitis), factors of overweight (BMI 25–29.9) and obesity (BMI 30 and above), gender, age categories, education level, being employed at the time of the Covid-19 outbreak ("worked" variable in the tables), job loss or shutdown of workplace due to the pandemic ("job loss" variable in the tables), depression prior to the outbreak of the pandemic (only in the models of mental health), living alone, and calendar month and country fixed effects. We apply the SHARE calibrated weights to enhance representativity.

32% of the individuals in our sample were working at the time of the outbreak of the pandemic (23% in the Hungarian sample). Among those who worked at that time, 21% lost their job or their workplace was closed because of the pandemic (12% in the Hungarian sample).

Results

Precautionary behaviour

The last row of *Table 3.2.1* shows that more than 80% of respondents answered yes to the questions on hand washing and hand sanitising, and more than 70% to the questions on distancing from others and mask wearing. This is followed by not meeting with others and with family members (59% and 46%, respectively), and then by avoiding walking and shopping (28% and 20%, respectively). We see, therefore, that low-cost hygiene precautions, such as hand washing, hand sanitising, mask wearing, or distancing were adopted by the vast majority of people over the age of 50, while giving up personal encounters, especially with family members, and fundamentally changing daily routines were less frequent among the elderly.

The benefits and costs of the precautionary measures also vary between individuals. For example, it is well known that older people, men, and those with certain chronic diseases have higher mortality from the coronavirus, so they may benefit more from protecting themselves. At the same time, for example, it may be more costly for single people to comply than for non-single people. In addition, risk preferences may differ by group (e.g., between men and women). Our regression estimates largely reflect these expected patterns: *Table 3.2.1* shows that older people are more cautious, as well as people with a chronic disease (by 1–4 percentage points) and women (by 3–8 percentage points, presumably due to higher risk aversion), while those who were employed at the outbreak of the pandemic and those living alone are less cautious. At the same time, losing one's job reduces the probability of meeting others. The impact of education varies across indicators – better-educated people are more likely to leave home and meet others, but also to wear a mask and keep distance in public places. In our previous article, we also showed that older people with a high-risk chronic disease relaxed their behaviour to a lesser extent during the easing phase of the pandemic (*Bíró et al.,* 2021).

Table 3.2.1: Determinants of precautionary behaviours (regression results)

	No walks	No shopping	No meeting with family	No meeting with others	Distance to others	Wearing mask	More hand washing	More hand sanitising
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Chronic illness	0.032***	0.035***	0.011	0.023*	0.024**	0.027**	0.013	0.028***
	(0.009)	(0.007)	(0.012)	(0.012)	(0.012)	(0.011)	(0.010)	(0.008)
Overweight	0.001	−0.011	−0.013	−0.009	0.004	0.006	0.014	0.016*
	(0.010)	(0.008)	(0.013)	(0.012)	(0.012)	(0.011)	(0.010)	(0.009)
Obesity	0.040***	0.019**	−0.001	0.018	0.013	0.011	0.015	−0.000
	(0.012)	(0.010)	(0.014)	(0.014)	(0.013)	(0.013)	(0.010)	(0.011)
Female	0.055***	0.031***	0.048***	0.055***	0.069***	0.080***	0.036***	0.029***
	(0.009)	(0.007)	(0.011)	(0.011)	(0.011)	(0.010)	(0.009)	(0.008)
Age 64–70	0.004	0.029***	0.035**	0.025*	0.028**	0.014	0.023*	−0.002
	(0.012)	(0.010)	(0.015)	(0.015)	(0.013)	(0.012)	(0.013)	(0.011)
Age 71–76	0.037***	0.082***	0.109***	0.067***	0.030**	0.018	0.020	−0.015
	(0.014)	(0.012)	(0.017)	(0.017)	(0.015)	(0.014)	(0.014)	(0.013)
Age 77+	0.151***	0.270***	0.182***	0.132***	0.008	0.016	−0.027*	−0.102***
	(0.015)	(0.013)	(0.018)	(0.017)	(0.016)	(0.015)	(0.016)	(0.014)
Secondary education	−0.045***	−0.089***	−0.039**	−0.008	0.017	0.047***	0.045***	0.061***
	(0.014)	(0.012)	(0.017)	(0.016)	(0.017)	(0.015)	(0.013)	(0.011)
Tertiary education	−0.094***	−0.112***	−0.072***	−0.041**	0.032*	0.051***	0.078***	0.089***
	(0.014)	(0.012)	(0.019)	(0.019)	(0.018)	(0.017)	(0.015)	(0.013)
Worked	−0.035**	−0.061***	−0.085***	−0.140***	−0.009	−0.018	0.012	0.060***
	(0.014)	(0.011)	(0.019)	(0.019)	(0.018)	(0.016)	(0.015)	(0.012)
Job loss	−0.033*	−0.007	0.052*	0.086***	0.008	0.004	0.050***	−0.019
	(0.019)	(0.013)	(0.028)	(0.029)	(0.025)	(0.025)	(0.016)	(0.020)
Lives alone	0.013	−0.003	−0.010	0.015	−0.001	−0.025**	−0.033***	−0.038***
	(0.009)	(0.007)	(0.012)	(0.011)	(0.011)	(0.011)	(0.008)	(0.009)
Calendar month effects	yes	yes	yes	yes	yes	yes	yes	yes
Country effects	yes	yes	yes	yes	yes	yes	yes	yes
Number of observations	46,579	46,579	46,579	46,579	37,877	37,877	46,579	46,579
Mean of dependent variable	0.284	0.201	0.461	0.589	0.778	0.731	0.875	0.820

Note: Weighted results, using SHARE calibrated weights. Heteroscedasticity robust standard errors in brackets.
Benchmark variables: BMI < 25, age 50–63, primary education.
Data: SHARE Wave 7 Release 7.1.1 and Wave 8 Release 1.0.0. Due to missing observations, the sample size is smaller than the total number of respondents.
$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Mental health

According to *Table 3.2.2,* 17–21% of individuals indicated that they were more likely to feel sad or nervous than before the outbreak. The most important explanatory variables are pre-pandemic depression (an effect of 12 percentage points) and job loss due to the pandemic (5–7 percentage points, but we have to keep in mind that poorer mental health itself can lead to job loss).

Female gender (9 percentage points) and the presence of chronic diseases (3 percentage points) also have an effect, while the other explanatory variables are typically insignificant.

Table 3.2.2: Determinants of mental health indices (regression results)

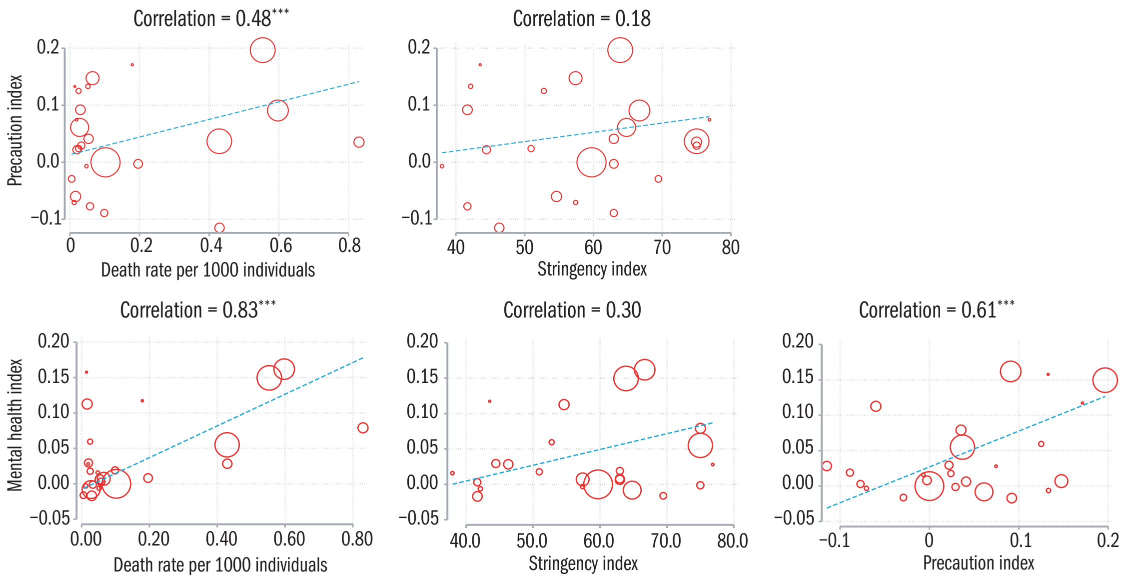
	Depression	Nervousness
Chronic illness	0.031***	0.030**
	(0.011)	(0.012)
Overweight	0.011	0.001
	(0.011)	(0.013)
Obesity	0.034***	0.011
	(0.013)	(0.014)
Female	0.093***	0.087***
	(0.010)	(0.011)
Age 64–70	–0.014	–0.021
	(0.013)	(0.014)
Age 71–76	–0.007	–0.020
	(0.016)	(0.017)
Age 77+	–0.005	–0.041**
	(0.016)	(0.018)
Secondary education	0.006	0.002
	(0.017)	(0.017)
Tertiary education	–0.008	0.001
	(0.018)	(0.019)
Worked	–0.030*	–0.009
	(0.018)	(0.019)
Job loss	0.050*	0.065**
	(0.029)	(0.031)
Pre-pandemic depression	0.119***	0.121***
	(0.010)	(0.011)
Lives alone	0.015	–0.005
	(0.011)	(0.012)
Calendar month effects	yes	yes
Country effects	yes	yes
Number of observations	31,346	31,346
Mean of dependent variable	0.174	0.210

Note: Weighted results, using SHARE calibrated weights. Heteroscedasticity robust standard errors in brackets.
Benchmark variables: BMI < 25, age 50–63, primary education.
Data: SHARE Wave 7 Release 7.1.1 and Wave 8 Release 1.0.0. The sample size is different from Table 1 because the indicator of pre-pandemic depression is missing in many cases.
$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Cross-country relationships

The cross-country differences in the compliance with the precautionary measures and in the deterioration of mental health due to the Covid-19 pandemic can be measured with the country fixed effects of the above regressions, after taking into account the control variables. The left panels in *Figure 3.2.1* show, weighted by country-level populations, that a higher cumulative mortality rate before 1 June 2020 was associated with a higher precaution indicator in the summer of 2020 (calculated as the average of the individual indicators) and with a more substantial deterioration of mental health. Interestingly, however, the stringency index, calculated on the basis of legal regulations and therefore not necessarily perfect, is not statistically significantly correlated with the observed precautionary behaviour or with the deterioration of mental health (right panels of *Figure 3.2.1*). Finally, the bottom panel of *Figure 3.2.1* shows that the country-level precaution index and mental illness index showed a positive correlation in the summer of 2020. Hungary was in the middle tertile of the countries according to all variables examined here (precaution index, mental illness index, cumulative mortality rate until 1 June 2020, stringency index in June 2020).

Figure 3.2.1: Relationship between the country-level precaution index, mental health index (country fixed effects), death rate and stringency index



Note: Results weighted by country size. Fixed effect of Germany is set to zero.
$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Conclusions

Our results show that people take individual precautionary measures in line with the generally understood health risks of Covid-19 and are willing to follow the different types of precautionary behaviours to varying degrees. Social interaction is the most difficult to give up, while certain hygiene habits are easily incorporated into our daily lives. According to data on mental health, only about one-fifth of the population over the age of 50 in the examined European countries felt more nervous or sad/depressed in the summer of 2020 than before the outbreak.

The country-level differences need to be treated with caution, but our descriptive results suggest that the deterioration of mental health is more related to the mortality rate than to the stringency index.

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3.3 COVID-19 AND THE HUNGARIAN PENSION SYSTEM*

ANDRÁS SIMONOVITS

This study analyses the impact of Covid-19 on the Hungarian pension system. We outline the workings of the foregoing system before the pandemic started and the expected effects of the pandemic. Our main observation: the pandemic further strengthens the tension already present in the system. Two tensions are emphasised: (i) the fixed/loose retirement age (except for Females with 40 years of eligibility, nobody can retire before reaching the statutory retirement age) – unlike in a flexible system, in a loose system, early retirement is not punished; (ii) polarisation of intra- and intercohort pensions (the standard deviation of pensions within a cohort and the average real benefit of subsequent cohorts steeply rise).

Economy and the pension system

Every country has its own pension system, which is determined by its history but is open to change. Apart from these variations in space and time, one can characterise a good pension system as follows. It must fulfil two main functions: (a) it replaces incomes missing due to old age and (b) it dampens, even eliminates old-age poverty (*Barr–Diamond,* 2008). Of course, the system should be sustainable in the long run, and it cannot change erratically. A special criterion is *fairness*: after statistical averaging, there should be strong positive correlation if not equality, between lifetime contributions and lifetime benefits.

The mandatory Hungarian pension system had two pillars between 1998 and 2010: (i) the unfunded public pillar and (ii) the funded private pillar. In 2011, the second pillar was nationalized, its capital amounted to 11% of the GDP in 2011. The nationalisation reduced the explicit government debt in 2011 and exempted the government budget from replacing the missing contributions (flowing to the private accounts, cc 1.5% of the current GDP) for decades. It is another question that at the end of the day the government has to pay back the nationalised capital.

The revenues of the present Hungarian pension system are much more strongly connected to the level of the GDP than to its expenditures. In principle, the revenues are financed by the contributions paid by the employees and the employers, though the latter are renamed as social contribution tax. In the last years, the reported real wages exploded (between 2015 and 2020 by 4.4; 7.4; 10.3; 8.3; 7.7 and 6.6 – together by 54% [*Czethoffer,* 2020, *Table 1.1*]). The rising effective retirement age would have raised the revenues of the pension system if the employers' contribution rate had not dropped from 27 to 15.5%. The real expenditures only grew moderately, because the benefits in progress were stagnating since 2010 (apart from a transitory period of 2013–

* I would like to express my gratitude to *Csaba Fehér* and *Mária Lackó* for their help during the research, to Ádám Reiff for writing the joint paper (*Simonovits–Reiff,* 2021) and for the financial support of NKF 129078.

2016, when overestimating the expected inflation rates, pensions were also over-indexed.) Furthermore, the rise in statutory retirement age diminished the number of beneficiaries. As a result, the pension/GDP-ratio dropped from 11 (2010) to 8% (2019), though it rose somewhat in 2020/21.

The rise in the effective retirement age was a result of the raising of the statutory retirement age, introduced by the previous government in 2009. The foregoing age rose step-by-step from 62 to 65 between 2013 and 2022. The internationally accepted *variable* (or flexible) retirement age (which combines fairness with sustainability by punishing early retirement and crediting delayed retirement) has been absent in Hungary. Until 2008, the previous governments only lightly punished *early retirement*, and delayed retirement was not popular, therefore the bulk of the new retirees retired before reaching the statutory retirement age. The system of disability retirement also functioned as a tool to reduce unemployment.

A well-designed system was introduced in 2009, but the new government did not trust the disincentives, and in 2012 prohibited any early retirement. Delayed retirement has remained, but it was limited in the public sphere, and very few people used it. The disability system was transformed and transferred from the pension system to the health care. To dampen the rigidity of the retirement age, the government already introduced the Females40 rule, allowing any female accumulating at least 40 years of entitlements to retire with full benefits before reaching the statutory retirement age (*Czeglédi et al.,* 2017).

The new government preserved the indexation of *benefits in progress* to prices, which is less expensive than the previous mixed indexation. (More precisely, in 2012 a conditional mixed indexation, which would only raise benefits in real terms for fast real wage growth, was eliminated.) In the calculation of *initial pensions*, the role of net nationwide wages has remained, serving as a fictitious interest rate adding up subsequent annual contributions. Therefore, the reported real net wage explosion opened wide the gap between the average benefits of subsequent retiring cohorts. For the longer run, the average real wage growth cannot overtake that of the productivity and the GDP, some pension corrections are inevitable.

The inequality between these cohorts' pensions is made plausible by the drop in the ratio of average benefits to average net wages from 67 (2015) to 50% (2020) (*Simonovits,* 2020). In addition to the phasing-out of progressivity of the personal income tax, the government also eliminated the cap on the employees' pension contributions in 2013, which implicitly limited the initial pensions. (There was no cap on the employers' pension contributions.) Without having a cap, in the long run, the difference between subsequent cohorts' benefits will grow. It is true that those earning above the previous cap also contribute more but it does not compensate for their enjoying their benefits much longer on average than others do.

The *longevity gap*, created by the difference between life expectancies of higher and lower lifetime earners, transforms apparently proportional pensions into degressive ones, redistributing transfers from the lower earners to the higher earners. *Holzmann et al.* (2020a), especially *Holzmann et al.* (2020b) analysed this process with a certain self-critique (see also *Simonovits,* 2021) and *Simonovits–Lackó*, 2021).

In addition to the Hungarian society, the Hungarian pension experts had not understood these processes from the start; or if they had, then they had not criticised them openly: the pension polarization and the fixed/loose retirement age avoided any public critique. Currently, there is no public sphere where one could connect the phasing in the variable retirement age with the phasing out of Female40. (It would be quite strange to deduct 6% from a 64-year-old woman with 39 years of entitlement for retiring a year before reaching the normal retirement age while another woman of age 60 with 40 can retire without paying any reduction.) Most analysts do not expose the unsustainability of halving the employers' contribution rate in the medium run. (The reason for unsustainability is that every year an old cohort with a low benefit dies out and a new cohort with a high benefit enters.) Since January 2022, the newer and final reduction of 2–4%points sacrifices 1% of the GDP. Another side effect of the reduction should be noted: for given total labour compensation, higher and higher share flows to the employees, further opening the scissors between newer and older retirees. At this point, sustainability and fairness are lost at the same time (*Simonovits,* 2020).

Covid19's impact on pensioners and the system

The pandemic has a heterogeneous impact on the various strata of the Hungarian system. There are workers (mostly skilled ones) who can fully continue their work from a distance for the previous real wage. Others (mostly working in services) fully or partially – at least temporarily – lost their jobs and their wages. The impact on pensioners is also heterogeneous. Younger, healthier and better-positioned pensioners were hardly affected at all. Older, sicker and worse-positioned pensioners suffered from higher food prices, the securing of necessities. Unfortunately, the first group is much smaller than the second. The position of those between them is somewhat between the two extremes.

In contrast to the practices of other countries (even that of the USA), the Hungarian government did not immediately support the neediest pensioners (and workers). Rather, in April 2020, it announced the phasing-in again the 13th month pensions between 2021 and 2024. Every pensioner was planned to receive 1, 2, 3 and 4 weeks of benefits in February of the given year. After paying out the first year's extra benefits, in late 2021, the government decided to accelerate the pay-out process and pay full 13th month benefits from

February 2022. The annual cost of such an operation is about 0.7% of the GDP. This will improve the pensioners' standard of living and raise the mentioned pension-to-net-wage ratio from 50 to 54%. Probably it would have been fairer to equalize this benefit for every pensioner at the current average monthly pension, the more so that it has nothing to do with the contributions or the incentives. Such an operation would have diminished the intra-cohort inequalities, too.

We have already mentioned that since 2010, the ratio of pension expenditures to GDP has sunk significantly. Though the phasing-out of the 13th month pensions in 2009 was partially compensated for by the so-called *pension reward*, until 2021, the latter's costs were negligible. (If the GDP growth rate lies between 3.5 and 7.5%, then for each 1% point, a pensioner gets 1/4 of the nominal median value of a monthly pension in 2009, currently about 1/8th of the average monthly pension. If his/her benefit is lower, he/she receives proportionally less.) There were years when the GDP grew by 5%, meaning that the pensioners received 37.5% of the maximal reward, but in 2021, after recovering from the covid-crisis, the GDP grew by 6.5%. The government decided to pay the full reward for everybody, spending about 0.3% of the GDP.

There is an obvious question: how does the pandemic influence mortality and through it the pension balances. By the time of writing (January 28th, 2022) about 42 thousand Hungarian citizens had died in Covid-19, and we do not know what the end figure will be. Even assuming that every victim was a pensioner (an overstatement), it is difficult to estimate the "savings" in the pension system. We do not know the victims' two-dimensional distribution by age and pension; we can only risk a simple estimation. Working with annual data of 2021, the annual amount is cc. 1–2% of the total expenditures.

Reiff (2021) and *Simonovits–Reiff* (2021) gave a more exact but earlier estimation. Relying on a sophisticated model by *Freudenberg et al.* (2016), they found a smaller number that converges to zero (see *Simonovits–Reiff,* 2021, *Figure 9.4*). If we add the reduced pensions due to reduced earnings (*Figure 9.7*), we obtain a similar number to our ballpark estimate (*Figures 9.8 and 9.9*).

There is a separate issue, the dynamic of the initial pensions in 2020 and 2021. Contrary to expectations, the Hungarian Central Statistical Office presented a real net wage growth rate of 6% for 2020. The reason was simple: during the crisis, lower-paid workers lost their jobs in much higher probability than the others (*Köllő et al.*, 2022 and *Köllő–Reizer,* 2022). As a result, the real value of the initial benefit rises by 6% for those who delay their retirement from December 31st, 2021 to January 1st, 2022. (Unfortunately, the acceleration of inflation from 5 to 15% pushed the difference of +5% into −5%!) This makes delaying retirement attractive for those who could preserve their full job. But it is impossible for those who lost full-time employment or become unemployed.

We are convinced that variable (flexible) retirement is socially optimal but during a severe recession, it is even more so. Until now the government has rejected such proposals together with retaining the shortest unemployment aid.

The unprecedented reduction of employers' contribution rate together with rising new pensions produced a social security deficit of about 0.6% of the GDP in 2020 and it grew to 670/48,000 = 1.4% in 2021. The emerging deficits should be covered by a budget already suffering from the crisis and the anticyclical government policy: the budget deficit in 2020 in the EU framework is about 9% of the GDP and the government debt ratio is above 80%. The finalized government budget is quite loose.

In summary, at first sight, the pandemic has not influenced the Hungarian pension system. The official employment rate is high, the related unemployment rate is low, the benefits in progress retained their purchasing power, at least on average. A more thorough examination, however, reveals that the number of hours worked dropped, the total amount of wages in real terms stagnated. The previous balance of the pension system went into the red. The reintroduction of the 13th month pensions raises the budget deficit while not dampening the intra- and intercohort tensions. It is welcome that certain researchers (*Reiff,* 2021) recalculated their previous studies. More work is needed, which incorporates the attest government action, to be prepared for the future.

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3.4. YOUNG PEOPLE IN THE LABOUR MARKET AND IN THE PUBLIC EMPLOYMENT SERVICES DURING THE PANDEMIC*

MÁRTON CSILLAG & BALÁZS MUNKÁCSY

In both Hungary and Europe, youth employment has been hit hardest by the labour market crisis caused by the coronavirus pandemic.[1] In this section, we first present the most important changes with the help of the HCSO Labour Force Survey, including the first to the third Covid waves. Next, based on data form National Employment Services (NES), we present what happened to young people who registered as jobseekers in the years 2019–2020. In our analysis we investigated what happened to the population aged 16–29 – similarly to the delimitation of the Youth Guarantee program.

Main trends

Figure 3.4.1 shows the most important changes based on the HCSO LFS broken down by quarter. In the upper two panels of the figure, we show the ratio of three different categories, compared to the population NOT in full-time education: (1) who were not in employment but wanted to work, (2) who did not work in their job due to a temporary suspension of work, (3) who did not work in the given week for any other reason, but did have a job. It is evident that the proportion of those wishing to work is high among the youngest age group, and it is 3–4 percentage points higher during the three waves of the pandemic than in 2019. Even in the slightly older generation, 2–3 percentage points more people wanted to work than in 2019, and the proportion of this group did not fall back to the pre-pandemic level either. On the contrary, in the second quarter of 2021, there were about 13,000 more young people than in the same period of 2019 who, although they wanted to work, did not have a job. LFS data also show that in the 25–29 age group the proportion of those not working due to temporary suspension of work increased during the first wave, and as a result, suspension of temporary work reached outstanding numbers as well.

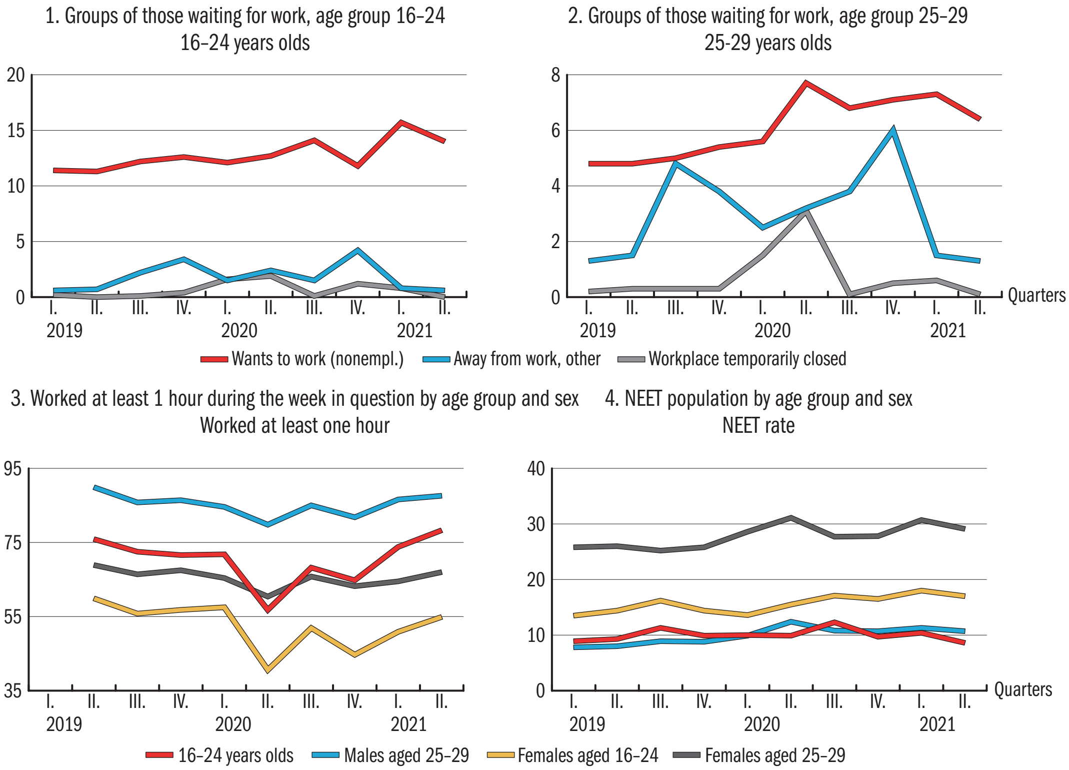
The bottom left graph shows the proportion of those who worked in their jobs. Among the youngest age group, this proportion fell by almost 20 percentage points during the first wave (i.e., about 40,000 people), while during the second wave there was a large proportion of "not working", but by the second quarter of 2021 this effect practically disappeared. In the lower right part of the figure, young people who are not in employment, education or training (NEET) are compared to the whole age group. Here we find a lasting negative effect in the case of the older generation, even in the second quarter

* This subsection is based on the research conducted as part of the project funded by the EEA Fund and the employment subsidy programme of the Norway Grants "Youth Employment Partnership: evaluation studies in Spain, Hungary, Italy and Poland".

1 See for example Eurostat.

of 2021: 14 thousand more young people between 25–29 remained outside of employment, education or training. In contrast, in the younger age group, only women had a sustained increase in NEET rates.[2]

Figure 3.4.1: Main labour market indicators, 16–29 age group (percentage)



.Source: Own calculation based on the *HCSO* Labour Force Survey.

Young people in the NES system

It is also clear from labour statistics that, as a result of the first wave of the coronavirus pandemic, a significant number of young people registered as jobseekers between mid-March and mid-May 2020. At the same time, the proportion of young people among registered jobseekers did not increase significantly compared to the situation a year earlier.[3] It is also clear from the data that by the second quarter of 2021, the number of young people in the NES register fell to the number experienced in previous years, 2018/2019. From this, it can already be concluded that young people who registered as jobseekers in the first wave of the Covid-19 epidemic found work (or at least left the NES system) at least as fast as young people seeking jobs prior to the pandemic. In the following paragraphs, we will examine this phenomenon and present the reasons behind it.

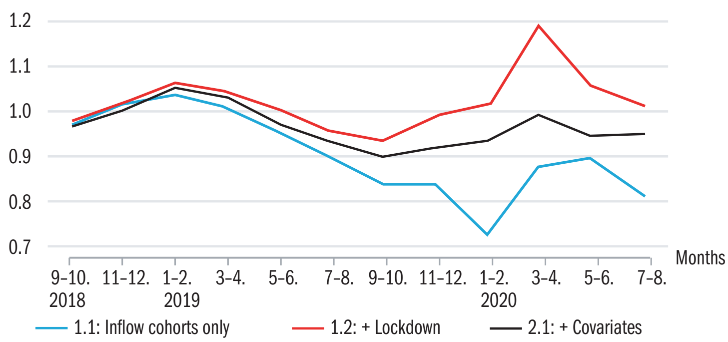
2 It is worth mentioning that younger women (aged 16–24) were hit hardest by the crisis. Even in the second quarter of 2021, the (aggregated) number of working hours of this group was 89% of the volume from two years earlier, whereas for the whole group of young people this ratio was 95%.

3 The willingness to register may be worth examining in more detail. One limitation could be that the data on registered jobseekers estimated from the LFS are smaller than the official NES statistics, and this discrepancy intensified during the pandemic.

In the following analysis, we rely on the individual level data of the National Employment Service of Hungary and examine the "career" of young people who registered as jobseekers between 2018 and 2020. Specifically, we analyse data on entrants registering (again) after an intermission of at least three months who did not reach the age of 30 at that time. We first examine how quickly they left the labour system if they left for at least three months (a substantial period). Thus, when someone temporarily suspends their registration (most often due to participation in public works)[4] or re-enters after a few months,[5] that is not considered a "successful exit" in this analysis.[6]

In the following, we present the results[7] of duration models – estimated on weekly data. The key variables discussed in more detail are the inflow cohort (defined over two-month periods); and the periods of restriction of the first wave of the Covid-19 pandemic.[8] *Figure 3.4.2.* depicts changes in the relative hazard coefficients of inflow cohorts,[9] and results of the corresponding estimation are presented in *Table Appendix A3.4.1.* Our first model (1.1), in which we used only the indicators of inflow cohorts, shows that the risk of exit for young people entering in the winter of 2019/2020 was lower, i.e. they left the register more slowly than those entering during the same period of previous years. In the second model (1.2), which also included indicators of the lockdown periods, this difference disappears, suggesting that lockdown mainly affected those who registered *before* the lockdown, and not those who did so *during* the lockdown. In addition, the second model shows that the relative hazards of those entering in March–April 2020 (during the first lockdown period) are higher, i.e. without the lockdown, people entering at that time are expected to leave faster than those entering in previous periods. In other words, these young people (who became unemployed in March–April 2020) seem to be more successful despite the impact of the Covid-19 crisis.

Figure 3.4.2: Relative hazard coefficients for each inflow cohort in Cox proportional hazard models



4 There is only one exception to this: the parents leaving for GYED (childcare allowance) or GYES (childcare benefit). In their case we censored the period of observation, i.e. we treated them as if they had disappeared as a result of some random event.

5 This way not only do we exclude temporary or seasonal work but other types as well. We decided to use this rule also because those who do not accept an appropriate job offer or otherwise fail to fulfil their obligation are excluded from the NES register for two months.

6 Hereinafter, for the sake of simplicity, we use the terms "successful exit" and "found a job" interchangeably, although we do not have precise data on whether the person who left the register actually found a job.

7 Cox proportional hazard models were used, but the robustness of the results was also tested using duration models assuming a Weibull-distribution hazard function.

8 We also controlled for the lockdown periods of the second and third waves, but we do not interpret the coefficient related to them.

9 The relative hazard coefficients show how much the exit hazard increases/decreases compared to the reference category (over the whole period): a coefficient higher than 1 means a faster outflow, a coefficient less than 1 means a slower outflow. The hazard function shows the probability that an individual will leave unemployment during a given period, if he or she has not left the register before the beginning of that period.

In the third model (2.1) we also include many control variables that characterise the background of the individuals and the micro-region. These are: four categories of educational attainment (primary school or lower, vocational school without matura certificate, grammar school or vocational school with matura certificate, tertiary education), gender, age dummy (above or under 25), the interaction between age and gender, HSCO-1[10] code of the occupation sought, complex micro-region development level based on Government Decree 290/2014 (XI. 26.), county dummies, time spent in public works during the last 18 months (four categories: 0 months, less than 6 months, 6–12 months, 12–18 months), number of months spent in the NES register (same four categories), the amount of the benefit (none, low (below minimum wage), medium (maximum 5/3 of the minimum wage), high (above 5/3 of the minimum wage).[11] This way we filter out the effects due to the different composition of each entry cohort. On the one hand, here we do not see any of the jumps estimated in the previous models (we see only a small positive difference in March–April 2020), i.e. the higher relative hazard risk of entrants during the first lockdown period is mainly due to observable differences (education, work history, geography, etc.). On the other hand, this model shows that the first lockdown made successful exit nearly impossible:[12] the first wave made it more difficult to find a job than if the young person had spent 18 months in public work before entering.

Figure 3.4.3. illustrates in part why young people becoming jobseekers as a result of the epidemic are not "permanently stuck" on the register. Here we focus on the first wave of the pandemic and describe the status of each entry cohort during the months following the registration. The main difference is that the entrants in 2020 had a much more favourable labour market history and therefore presumably better prospects than those entering in 2019. It is also clear from the figure that while in the spring of 2019 slightly less than 40% of young people were entitled to unemployment insurance benefit, this rate was more than two-thirds of young people registering in the spring of 2020. In other words, the "surplus" of entrants during the first wave of the pandemic can be attributed to the jump in the number of young people eligible for unemployment benefit.[13] However, it also appears that about six months after entering the register, nearly 60 percent of young people have left the NES system, regardless of their year of entry.

Table 3.4.1 summarises how the composition of young people registering during the first wave is more favourable than that of young people registering a year earlier. First, the proportion of those eligible for benefits more than doubled (the proportion of those with relatively low or medium previous average earnings increased the most). Second, the proportion of those who want to work in "trade and service occupations" has increased by 1.5 times. Third (in accordance with this): the proportion of those without vocational

10 Hungarian Standard Classification of Occupations. Comparable to the International Standard Classification of Occupations (ISCO), having only slight differences.

11 These coefficients are not reported here but can be provided upon request.

12 Also the second and third, but here we cannot give an accurate and robust estimate of the decrease in relative hazards.

13 A person who has been employed for at least 360 days in the previous three years is eligible for unemployment benefit.

qualification or high school diploma (matura exam) dropped by 11 percentage points. Finally, geographic patterns also shifted significantly: the proportion of people living in the most-developed micro-regions increased, and the proportion of entrants in the capital city and Győr-Moson-Sopron County doubled (similar to the trends observed in the total population).

Figure 3.4.3: Path of young people entering the register during the first wave of the pandemic (March 16 – May 31, 202) and during the same period of 2019 (40-week follow-up)

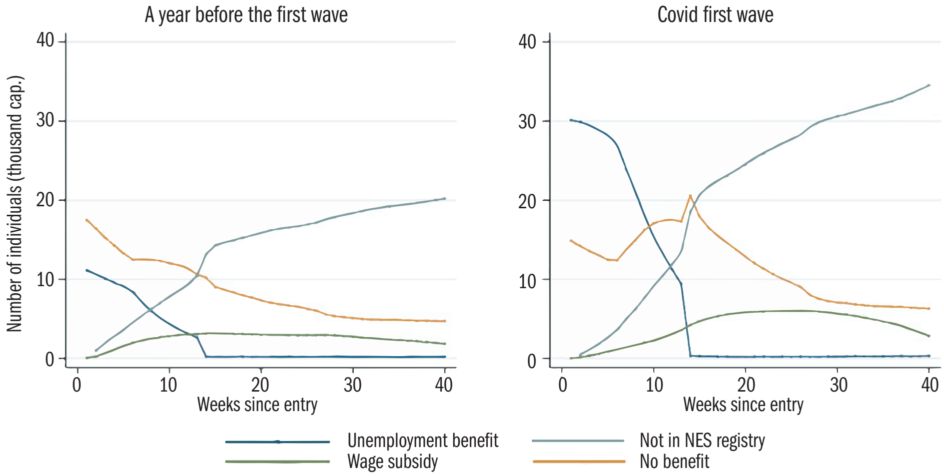


Table 3.4.1: Characteristics of entry cohorts

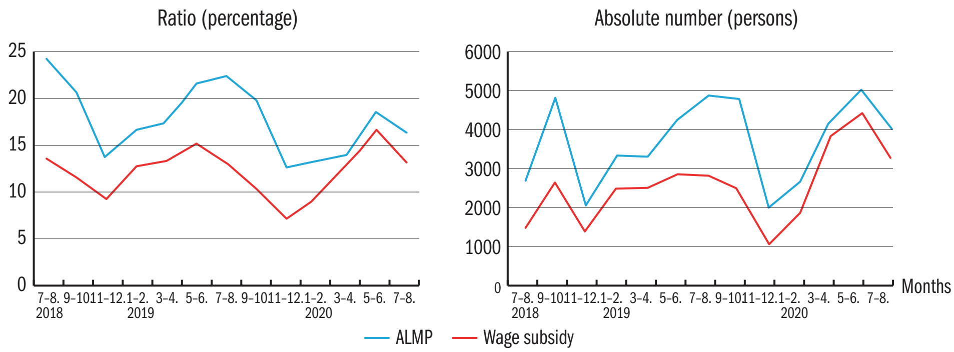
Characteristic	2019 average	2020 average	*p value*
Proportion of those with maximum primary education	0.356	0.241	<0.0001
Proportion of those eligible for benefit	0.403	0.665	<0.0001
Number of months spent in public work (during the 18 months preceding the entry)	1.065	0.419	<0.0001
Proportion of those seeking jobs in trading or services	0.189	0.302	<0.0001
Proportion of those from Budapest	0.058	0.101	<0.0001
Proportion of those from Győr-Moson-Sopron County	0.025	0.057	<0.0001

The table compares the average characteristics of jobseekers registering in the same period of the two years (March–April). In the last column, we presented *p*-values from independent sample a *t*-tests. These significant differences also indicate a leap from the multi-year trend in 2020. For background variables not included in the table, we did not find any change between the two periods that the changes presented would not show.

Finally, we investigated the role of the National Employment Sevice. As seen in *Figure 3.4.4,* the number of active labour market policies (ALMPs) offered did not increase significantly, so young unemployed people who lost their jobs due to the pandemic had a slightly lower chance to be enrolled in an ALMP than jobseekers entering in previous years. At the same time, the number (and proportion) of those receiving wage subsidies within four months increased compared to the same periods in previous years,[14] somewhat helping the situation of those who lost their jobs due to the lockdowns because of the epidemic. This appears to have been timed for weeks immediately following the exhaustion of the unemployment benefit. During the first wave of Covid-19 pandemic, 21,000 young people left the register (45% of the entrants) left the register in the first 16 weeks, and 5,000 of them (i.e. almost a quarter of those leaving) participated in a wage subsidy programme.

14 Most of this is due to benefits belonging to the Youth Guarantee and the Road to the Labour Market programmes. The latter probably contributed more to the increase, as the budget for the Youth Guarantee is less flexible.

Figure 3.4.4: How many people enter to active assets (wage subsidy) within four months from the individual entry cohorts?



Appendix

Table A3.4.1: Regression results (Cox proportional hazards)

Entry cohorts	(1.1) model	(1.2) model	(2.1) model
September–October, 2018	0,967*** (0.00958)	0,973** (0.00964)	0,968*** (0.00960)
November–December, 2018	1.005 (0.0111)	1.018 (0.0113)	0.999 (0.0111)
January–February, 2019	1,031** (0.0107)	1,050*** (0.0109)	1,045*** (0.0108)
March–April, 2019:	1.003 (0.0106)	1,028** (0.0108)	1,023* (0.0108)
May–June, 2019:	0,959*** (0.0101)	0.994 (0.0104)	0,971** (0.0102)
July–August, 2019:	0,902*** (0.00919)	0,954*** (0.00974)	0,937*** (0.00956)
September–October, 2019	0,848*** (0.00851)	0,934*** (0.00940)	0,905*** (0.00913)
November–December, 2019	0,847*** (0.00950)	0.984 (0.0111)	0,921*** (0.0104)
January–February, 2020	0,744*** (0.00789)	1.009 (0.0110)	0,938*** (0.0103)
March–April, 2020:	0,882*** (0.00844)	1.169*** (0.0115)	0.987 (0.00986)
May–June, 2020:	0,903*** (0.00910)	1.041*** (0.0107)	0.947*** (0.00973)
July–August, 2020:	0.827*** (0.00866)	1.003 (0.0109)	0.949*** (0.0103)
Lockdown waves			
First wave		0.468*** (0.00422)	0.466*** (0.00420)
Second + Third wave		0.527*** (0.00593)	0.535*** (0.00603)
Control variables	–	–	+
N	7,827,834	7,827,834	7,827,834

Note: Relative hazard coefficients are given in the table, standard errors are given in parentheses.
$^{*}p < 0{,}05$, $^{**}p < 0{,}01$, $^{***}p < 0{,}001$.

4 CHANGING WORKING, TELEWORK

4.1 WHO WORK IN JOBS SUITABLE FOR TELEWORKING?

LÁSZLÓ CZALLER, ZOLTÁN ELEKES & BALÁZS LENGYEL

Introduction

One consequence of the coronavirus pandemic has been a sudden and drastic change in the conditions of daily work. As a result of mandatory epidemiological measures and the encouragement of voluntary social distancing, many have been forced to do their work from home. Teleworking is a solution to reduce epidemiological risks from occupational exposure in occupations that do not require physical presence or personal contact with employees and clients (*Dingel–Neiman,* 2020, *Koren–Pető*, 2020, *Gottlieb et al.*, 2021). While in-store vendors, chimney sweeps, and health care workers don't have the option to do their work remotely, web developers and accountants can do this more easily. The opportunity to work remotely divides the labour market, as those who are forced to travel regularly to work during the pandemic face different risks and challenges from those who can perform their duties from home. Several international studies have documented that the likelihood of job loss is related to the possibility of teleworking, even within individual occupational groups and industries (*Adams-Prassl et al.,* 2020a*, Bick–Blandin,* 2021). In addition, follow-up studies among infected individuals have also revealed a higher risk of infection in "blue-collar" occupations that require a permanent personal presence (*Baker et al.,* 2020).

In order to gain a deeper understanding of the labour market effects of the pandemic and to develop effective interventions, it is essential to examine in which occupations we can talk about the possibility of teleworking in principle and which groups of workers have the greatest and least chance of switching temporarily or permanently to working from home. Understanding how the "ability" to work remotely is distributed between different groups of workers, companies and sectors may greatly contribute to shaping policies to reopen the economy and to prepare family policy measures to reconcile work and family life effectively. In this subsection, we analyse what individual and employer characteristics explain finding jobs in occupations suitable for teleworking.

Data and Methodology

The research uses the 2018 data of the National Labour Office's (NMH) Wage Tariff Survey, which is available and researchable in the Databank of the Centre for Economic and Regional Studies. The target population of the database used is employees of budgetary institutions and full-time or part-time employees of companies with more than four employees. For the public sector, the sample includes randomly selected employees from all institutions, randomly selected employees from companies with more than 50 employees, and all employees from a random corporate sample below the 50-person threshold. For the year 2018, the sample size is 274 thousand people, the representativeness of which is ensured by comprehensive weights.

The survey provides detailed information on the key characteristics of employees and employers but does not provide information on working conditions, including whether an employee travels to work or works from home. Unfortunately, individual-level data on teleworking and working from home are difficult to access,[1] making it significantly more difficult to study the groups of workers, companies and sectors for which, teleworking is a solution to avoid redundancies and keep businesses running smoothly.

A detailed study of the prevalence of teleworking requires individual-level data on the extent to which workers in different companies and budgetary institutions can do their work from home.[2] In the absence of this, most studies use O*Net occupational data to assess the feasibility of working from home or to point out the groups of workers most affected by teleworking.[3] In the present research, we use the classification of *Dingel–Neiman* (2020) to determine whether each of the four-digit HCSO'08 occupations can be performed from home.[4] This classification is also based on the U.S. Department of Labour's O*Net database, which contains data on working conditions, nature and regularity of the work to be performed, and skills required for the job for more than a thousand occupations. From the criteria measured on standardised scales, the authors selected 15 examples that clearly indicate whether the work requires physical presence or can be done from home. Based on these, the occupations that can be done in telework were assigned a value of 1 and the others a value of 0.

If any of the following criteria concerning working conditions are true, the occupation cannot be performed from home: the average worker

- uses email less than once a month.
- comes into contact with violent people at least once a week,
- is exposed to diseases or infections at least once a week,
- exposed to burns, cuts, bites or stings at least once a week,
- spends most of his time walking or running,
- wears or uses protective gear or safety equipment most of the time,
- works outdoors every day.

If any of the statements regarding the following activities within the occupation is true, the job cannot be done from home:

- performing general physical activities is very important,
- handling and moving objects is very important,
- control of machines and processes (not computers and vehicles) is very important,

1 The CSO's Labour Force Survey measures the prevalence of teleworking and other "atypical" forms of work in a separate supplementary questionnaire. These data were also used by *Köllő* (2021) to analyse the prevalence of telework during the first wave of the coronavirus pandemic.

2 Such detailed data were used among other by *Adams-Prassl et al.* (2020b) and *Gottlieb et al.* (2021).

3 The Occupational Information Network (O*Net) is a free online database that describes each profession in terms of the skills and knowledge needed to fill the job, the way of work and the working conditions. The database was developed with the support of the U.S. Department of Labour and is updated annually.

4 The Hungarian Standard Classification of Occupations (HSCO) classifies the various occupations into a four-digit decimal system, grouped according to the qualifications and skills required for the occupation. In addition to its use for statistical purposes, HSCO is also used in employment personnel registers, employment services, the vocational training system and social security.

– handling vehicles, machinery or equipment is very important,
– working for the public or working directly with the public is very important,
– the repair and maintenance of machinery are very important,
– the repair and maintenance of electronic equipment is very important,
– inspection of equipment, structures or materials is very important.

By combining the binary telework variable derived from O*Net with the 2018 Wage Tariff Database, it becomes possible to examine in which groups of employees, in which companies and in which sectors the possibility of telework is most prevalent. For this, we use simple descriptive statistical tools, and then we use logit models to examine the characteristics of workers in telecommuting occupations.[5]

> Although it is common practice to apply O*Net data to other countries, it is far from problem-free, as the range of tasks to be performed in each job may vary from country to country (or even from company to company), on the other hand, the theoretical possibility of telework is also strongly influenced by the proliferation of telecommunication devices (*DiCarlo et al.*, 2016, *Gottlieb et al.*, 2021). It is conceivable that certain tasks that can be easily performed from home in the United States or in developed Western European countries due to the proliferation of the Internet and various information technology tools may still be performed only in the workplace in developing countries. These differences clearly distort the results, however, in our case the extent of such bias is presumably small, the application of O*Net data to HCSO may give an approximate picture of the role of telework in Hungary.

It is important to emphasise that in the present research the actual prevalence of telework is not examined, but who typically has an occupation that can be performed remotely. In this sense, the results reported in this study provide an upper limit on the prevalence of telework. However, it should not be overlooked that the tasks to be performed as part of individual occupations are not uniform across the country. It is possible that the same HCSO occupation may cover different tasks depending on the size of the company, sector or type of settlement we are talking about. *Adams-Prassl et al.* (2020b) found that there are significant sectoral differences in the United States and England concerning the extent to which certain occupations can be organised remotely. Depending on the degree of heterogeneity within the occupations in terms of the tasks to be performed, the results may be distorted.

Teleworking in different employee groups

Apart from jobs requiring different qualifications in the armed forces, we were able to determine for 483 four-digit HCSO jobs, whether they are suitable for telework. Slightly more than a quarter of these (27.0 percent) can be done from home, representing 26.4 percent of those employed. Proportions of those who can be employed in teleworking are shown in *Table 4.1.1* broken down by gender into the main social groups.

5 At the time of the preparing of this study, the 2019 data of the Wage Tariff Survey were not yet available, however, given that the employment structure changes only slightly from year to year, the 2018 data are close to the domestic situation before the first wave of the coronavirus pandemic.

Table 4.1.1: Proportion of people working in occupations suited for telework in 2018 (percent)

	Women	Men	Total
Whole sample	30.5	22.3	26.4
Age			
under 30 years	30.5	20.5	25.1
31–40 years	36.7	27.8	31.8
41–50 years	30.4	22.5	26.7
51–60 years	26.4	17.7	22.4
Above 61 years	25.7	19.8	22
Educational attainment			
8 grades or less in primary school	2.9	3.1	3.0
Vocational school, vocational training	7.0	4.4	5.2
Vocational high school, high school (graduation)	33.6	23.5	28.9
College, university	52.2	61.2	55.9
Career starters	28.7	21.0	24.4
Part-time (< 36 hours/week)	23.6	18.5	21.5
Public/private			
Public sector	30.6	35.9	32.0
Private sector	30.5	20.0	24.2
Ownership (companies)			
Mostly in foreign ownership	32.2	23.7	27.2
Mostly in public-municipality ownership	38.9	15.5	22.7
Size of the premises			
less than 10 persons	32.6	23.0	27.1
10–49 persons	26.0	19.5	22.9
50–299 persons	25.8	19.6	22.7
Above 300 persons	34.3	24.9	29.8
Economic sector			
Agriculture and processing industry	23.1	10.2	14.2
Services	32.2	30.2	31.4
Settlement type			
Budapest	47.2	41.7	44.6
County seat or city of county rank	30.5	19.8	25.1
City	23.6	15.2	19.4
Village	33.0	26.0	29.4

Note: Observations were weighted with appropriate individual-company weights.
Source: Version of *NMH* Wage Tariff Survey handled by the *KRTK* Databank.

It is generally true that the proportion of jobs that can be performed from home by women is higher than in the case of men. For the whole sample, this difference is 8 percentage points. As age increases, the proportion of those working in jobs that can be performed in telework first increases, then decreases among those over the age of 40, whereas the gender differences seen for the whole sample remain. The higher the educational attainment, the higher the ability to work from home. While those theoretically capable of working from home make up just 3 percent of those with no more than 8 grades of primary school, the proportion of those with tertiary education is 56 percent.

The gender gap is reversed in the highest educational category, where 61 percent of men and only 52 percent of women are potentially affected. The main reason for this is that women who have graduated from college or university are more likely to find employment in jobs in health care and social care (e.g., nurse, visiting nurse, social worker). It also explains why the proportion of women in the public sector who can be employed in telework is lower, while in the private and non-profit sectors the proportions calculated by gender follow a pattern typical of the total target population.

Among part-time employees, the occurrence of telework is 3 percentage points lower than the average of the whole sample, but there is only a small difference for career starters. Among the employer characteristics, we also see smaller differences between the individual subcategories in terms of the proportion of foreign ownership and the size of the site. Higher telework probabilities are expected for small and large sites (less than 10 people and more than 300 people) and for foreign companies. In the case of companies with state and municipal interests, although the theoretical possibility of telework remains behind the proportion measured in the total sample, the gender gap is increasing significantly; while the rate of work from home is 38 percent for women, it is only 15.5 percent for men.

Among the employer characteristics, mainly the sectoral classification of the main activity determines the extent to which the transition to work from home is possible. While in the production sectors (agriculture, mining and manufacturing) the potential for telework is lower (14.2 percent), in services it is much more likely to introduce atypical forms of work. Examining the economic sectors separately, it is striking that while the gender gap is negligible in the field of services, we see differences of more than 10 percentage points in agriculture and industry.

The breakdown by settlement type gives the typical site selection patterns for the different sectors.[6] The possibility of teleworking is mostly given in the capital (44.6 percent), while in the case of county seats, cities with county status and other cities, this proportion is only 20–25 percent. Interestingly, the potential for teleworking in villages is greater in principle than in larger cities. The reason for this is that the local employment role of manufacturing plants established on the outskirts of medium-sized and small towns is greater than in villages, where, in addition to the production sector, the public sector (local governments and public institutions) is also a significant employer.

It is worth comparing the ratios of *Table 4.1.1* with the rate of the actual spread of telework measured between January – February and April – June 2020, about which *Köllő* (2021) provided a detailed overview based on the data of the CSO Labour Force Survey (MEF). Comparing the results of the two analyses, data from the O*Net and the 2018 Wage Tariff Survey identify the groups of employees where working from home can be a real alternative

6 Another important component of the differences between settlement types is the functional division of work within sectors, i.e. the geographical separation of production and management functions. Large companies are often headquartered in larger cities, while production offices are pushed to the edge of smaller towns and villages. For this reason, it happens within a manufacturing sector that jobs that are easier to manage from home are concentrated in cities.

to daily travel to work in the event of a pandemic. *Köllő* (2021) found that the rate of telework increased the most among graduates and college and university graduates during the first wave of the coronavirus pandemic, and the transition to work from home helped women, those in the capital and those working in the public sector.

According to real data, in April – May 2020, 16.5 percent of the total population considered, 37.4 percent of college graduates, 49.6 percent of university graduates and 32 percent of service workers worked from home. For women, telework increased by 17.7 percentage points to 20 percent between the beginning of the year and May, compared to 13.6 percent for men. The ratios calculated based on the CSO Labour Force Survey for April – May 2020 reflect the values obtained by combining O*Net and the Wage Tariff Survey at the level of different employee groups.

Employment and teleworking at sectoral level

Comparing the proportion of jobs suitable for teleworking with the number of employees in the sector, we can get a raw, comprehensive picture of which sectors are most affected by the possible labour market effects of the measures taken to control the pandemic. Significant disruptions are expected in sectors with relatively high employment and lower opportunities for teleworking. In addition, the extent to which the consumption of goods produced in the sector requires a personal presence, as well as the degree of interdependence between teleworking and fixed work, are also important factors. For example, office workers in the hospitality, catering and cultural sectors, although able to do their work from home, are more likely to lose their jobs due to restrictions imposed on the sector. In sectors where teleworking and fixed work are rigidly complementary to each other, the negative labour market effects of the pandemic may be stronger.

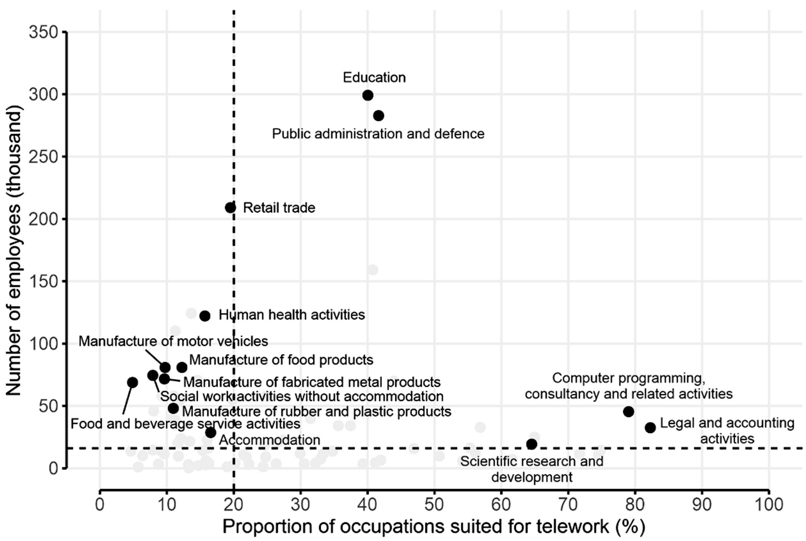
According to *Figure 4.1.1,* a high employment rate and a relatively low probability of telework characterise several sub-sectors of the manufacturing industry (such as the manufacture of food products, motor vehicles, fabricated metal products, and rubber and plastic products), construction and transport. Here, adherence to social distancing can lead to a significant setback.[7]

Education and public administration are also significant employers, but here it is easier (about 40 percent) to switch to work from home. Among the sub-sectors of the service sector, the clear losers of the pandemic are accommodation and hospitality activities, but human health activities and social work activities without accommodation, which are also significant employers, are also less likely to be provided at a distance. There has been a significant decline in employment in these sectors during the pandemic. In the case of accommodation and hospitality activities, the decline in the first quarter of 2021 compared to the same period of the previous year was 26 percent (see

7 Handling the manufacturing sub-sectors together, the largest employer is manufacturing industry labelled “C”.

Table A4.1.1 in *Appendix 4.1*), while in the case of human health activities the decline was 5 percent. In contrast, there has been an increase in legal, accounting and tax expertise, information and communication, scientific research and finance and insurance, where the number of employees is lower and it is most common to be able to work from home. In the field of information and communication, for example, employment grew by 27 percent in the year following the outbreak, while in the financial sector it grew by 7 percent.

Figure 4.1.1: Proportion of occupations suited for telework and the number of employees in each sector, 2018



Source: Version of NMH *Wage Tariff Survey* handled *by the KRTK* Databank.

Based on the number of employees and the theoretical possibility of teleworking, retail occupies an intermediate position, with an outstanding employment weight (second only to the manufacturing industry), but the transition to work from home is easier than in most productive sectors, potentially in 20% of jobs. This sector experienced a 4 percent decline between 2020 and the first quarter of 2021.

Who has a job suitable for teleworking?

In the following, we use logistic regression to estimate the chances of finding a job suitable for teleworking. We estimate two models, the first of which uses only individual attributes (e.g., gender, age, education, etc.) as explanatory variables, and the second uses some of the observed characteristics of employers (e.g., site size, sector, ownership) in addition to the individual ones. The full range of explanatory variables is given in characteristics listed in *Table 4.1.1*, we deviated from this for only two variables. On the one hand, we fit age into the model as a continuous variable, and we also include a square term. On the other hand, we use a two-digit sectoral classification instead of economic sectors.

The results are summarised in *Table 4.1.2.* According to the first model, men are less likely to work remotely than women, but education increases their chances. For example, an employee with a college or university degree is forty times more likely to find a job suitable for teleworking, than a person with no more than primary education. The partial effect of age on the chances of teleworking is positive, but for career starters and part-timers, the estimated odds ratio does not differ significantly from 1.

Table 4.1.2: Factors that explain finding jobs suitable for teleworking

Dependent variable: telework =1

	Base model		Extended model	
Variable	odds ratio	standard error	odds ratio	standard error
Gender (Man = 1)	0.9046***	(0.0125)	0.7619***	(0.0125)
Age	1.0481***	(0.0049)	1.0560***	(0.0052)
Age on the square	0.9994***	(0.0001)	0.9994***	(0.0001)
Educational attainment (reference category: 8 grades or less in primary school)				
Vocational school, vocational training	1.8083***	(0.0942)	2.0192***	(0.1056)
Vocational high school, high school (graduation)	12.9792***	(0.6016)	12.536***	(0.5952)
College, university	39.944***	(1.8450)	39.201***	(1.8733)
Career starter (yes = 1)	1.0338	(0.0197)	0.9664	(0.0200)
Part-time (yes = 1)	0.9592	(0.0256)	0.9249**	(0.0272)
Private sector (yes = 1)			1.4237***	(0.1002)
Foreign ownership (> 50%)			1.0448*	(0.0243)
State-municipality ownership (> 50%)			0.7217***	(0.0298)
Size of the premises (reference category: less than 10 persons)				
10–49 persons			0.8710***	(0.0244)
50–299 persons			0.9692	(0.0300)
Above 300 persons			1.1269***	(0.0334)
Settlement type (reference category: Budapest				
County seat or city of county rank			0.7221***	(0.0218)
City			0.6339***	(0.0195)
Village			0.7368***	(0.0212)
Constant	0.0137***	(0.0015)	0.0064***	(0.0010)
Two-digit sectors	No		Yes	
Pseudo R^2	0.2118		0.2910	
Log likelihood	–14,472,278		1,301,686	
Number of elements	246,732		246,732	

Note: Robust standard errors are in parentheses. The observations were weighted during the calculation.
$^{***}p < 0{,}01$, $^{**}p < 0{,}05$, $^{*}p < 0{,}1$.

In the second model, some attributes of employers are also included among the explanatory variables. In terms of employee characteristics, this model yields a different result at one point than the basic model reported in the first two columns: part-time workers are less likely to appear in jobs suitable for working from home. However, there are several characteristics of the employer where the extent of the estimated odds ratio contradicts the picture that can be read from the raw averages. Even though there are several jobs in public institutions that can be filled from home, the chances of teleworkers in the private sector are higher, considering the composition of employees and other characteristics of employers. In addition, state- or municipally owned firms have a significantly lower chance for teleworking, given the sectoral classification and the basic characteristics of the workers. Outside the capital and in the sectors classified as manufacturing (not reported), the chances of finding a job suitable for teleworking are lower than expected.[8] Overall, logit models reflect the patterns that can be surmised from raw data.

Summary

The coronavirus pandemic has brought significant changes in the world of work, one of the most remarkable of which has been the widespread use of teleworking and other atypical forms of work organisation. Teleworking can play an important role in reducing job losses, but this option is not equally available to all workers. The possibility of switching to telework protects highly skilled workers in the capital in the services sector from the risk of losing their job and becoming infected the most. Thus, the labour market effects of measures to encourage social distancing may typically affect those who are already considered to be the most vulnerable workers: low-skilled, blue-collar workers. While the spread of telework is undoubtedly welcome in terms of curbing the pandemic, delivering economic value uninterruptedly and retaining jobs, it can play a major role in deepening social inequalities.

8 Within the manufacturing industry, printing and reproduction are best suited for work from home, while the services have the highest chance of doing work from home in the areas of legal, accounting, tax expert services, information, communication, and marketing and market research. In contrast, telework is the least achievable in social care, residential, non-hospital care, and veterinary care.

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Appendix 4.1

Table A4.1.1: Employment trends in various branches of the national economy in the first quarter of 2020 and 2021

Branch of the national economy	Q1 2020	Q1 2021	Extent of change (percentage)
Agriculture, forestry and fishing	215	203	94.2
Mining and quarrying	10	6.	61.7
Manufacturing	1008	965	95.7
Electricity, gas, steam and air conditioning supply	35	38	108.5
Water supply; sewerage, waste management and remediation activities	54	53	99.0
Construction	358	375	104.8
Wholesale and retail trade; repair of motor vehicles and motorcycles	595	571	95.8
Transportation and storage	295	280	95.0
Accommodation and food service activities	191	142	74.2
Information and communication	128	162	127.2
Financial and insurance activities	86	92	107.0
Real estate activities	22	26	117.0
Professional, scientific and technical activities	185	211	114.1
Administrative and support service activities	147	139	94.6
Public administration and defence; compulsory social security	397	427	107.5
Education	340	370	108.8
Human health and social work activities	338	323	95.8
Arts, entertainment and recreation	85	79	93.3
Total	4,489	4,463	99.4

Source: *HCSO* STADAT summary tables (based on LFS).

4.2 IN WHICH INDUSTRIES AND REGIONS TELEWORK IS POSSIBLE ALSO IN THE LONG RUN?

RITA PETŐ & MIKLÓS KOREN

The coronavirus epidemic has completely rearranged work in many industries and occupations. On the one hand, reducing the risk of infection has necessitated fewer employees visiting their workplaces and less frequent meetings with their co-workers or company customers in person. The governments of almost all the countries concerned have taken measures to maintain distance. On the other hand, the necessity of sending employees home has made many company executives realise that employees can perform a significant part of their tasks from home, remotely. Many intellectual workers today use online video conferencing and other collaboration platforms with a naturalness that would still have been a rarity a few years ago. The eighteen months since the outbreak of the coronavirus pandemic has also taught employers and workers what tasks can be done almost as well from home. This new kind of knowledge could reorganise the labour market in the long run, and its impact will be felt even when the waves of the pandemic are over.

Of course, not all tasks can be performed from home, for example in occupations where frequent personal interaction is required, either between team members or between consumers and workers or between the worker and the machinery. In this subsection – relying on detailed job descriptions – we examine, how the proportions of workers who can work from home are distributed based on industries and also territorially in Hungary. Although the role of teleworking will diminish as the pandemic subsides, most workers expect to work remotely in the future (*Baert et al.*, 2020), and the announcement of many companies has already confirmed this.[1] Therefore, it is important to see which regions and industries in Hungary will be most affected by this change.

Measuring the possibility of working from home

In our analysis, we rely on the work of *Dingel–Neiman* (2020) and *Koren–Pető* (2020) to determine which activities could in principle be done from home. Both papers use detailed job descriptions (O*Net,) to categorise occupations. While *Dingel–Neiman* (2020) differentiate occupations along one dimension – could work be done from home in principle – *Koren–Pető* (2020) consider the type and importance of interactions required to do the work. The starting point for both analyses is the assumption that much of the workflow is constrained by technological limitations, and only within these can companies decide on teleworking. Dentists, for example, must be in physical proximity to their patients. Finance managers on the other hand can also access the reports they need through the Internet. Such structural differences will

1 Facebook was among the first and several companies followed its example in the neighbouring countries (for example e-mag in Romania).

persist across occupations in the long run and may therefore help to understand the long-term effects of the pandemic.

Of course, actual technology usage varies by country and time period. An American chief financial officer works differently than a Hungarian. And dentists may be able to take advantage of telemedicine in the future. However, the basic limitations are similar, so we find it useful to use U.S. job descriptions to explore domestic conditions.[2]

Koren–Pető (2020) distinguish three types of interactions: (1) internal communication (*teamwork-intensive*); (2) external communication (*consumer-oriented*); (3) interaction with machinery (*physical presence is required*). However, due to the development of communication technology, many interactions today no longer require physical connection. Accordingly, an occupation is considered communication-intensive (both internal and external) only if multiple personal contacts per week are required and e-mail and correspondence are a less common form of communication than personal contact. The focus of the present study is on the possibility of working from home, so we are interested in occupations that do not require personal interaction or physical presence from employees. By reprocessing the detailed data used by *Koren–Pető* (2020), we created a list of occupations that do not require personal interaction and physical presence.[3]

From now on we'll focus on the four indicators summarised in *Table 4.2.1.*

Table 4.2.1: Indicators and definitions used to measure the possibility of working from home

Variable	Definition	Source
Can be done at home	value is 1 if the tasks to be performed during the given session could also be performed from home	*Dingel–Neiman* (2020)
Personal interaction or presence is not required	the value is 1, if the tasks to be performed in the given occupation do not require personal communication (neither internal nor external) that could not be replaced by a modern technological device, and the physical presence of the employee is not required, either	*Koren–Pető* (2020)
Personal interaction is not required	the value is 1, if the tasks to be performed in the given occupation do not require personal communication (neither internal nor external) that could not be replaced by a modern technological device	*Koren–Pető* (2020)
Physical presence is not required	the value is 1, if the tasks to be performed in the given occupation do not require the physical presence of the employee.	*Koren–Pető* (2020)

The basis of our study is The Panel of Linked Administrative Data (Admin3) compiled by the Databank of the Research Centre for Economics and Regional Sciences (KRTK).[4] Our analysis shows the situation in May 2016. As our research question is not about the direct effects of the epidemic, but about long-term trends in working from home, we feel it is sufficient to use data collected a few years earlier.

2 Like us, *Hardy et al.* (2018) use U.S. job descriptions (O*net) for several European countries to understand what tasks employees perform in their workplaces.

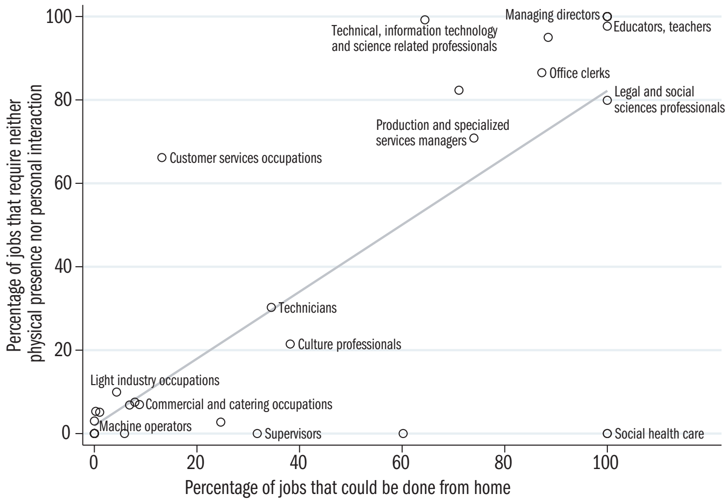
3 In both studies, occupational-level indicators follow SOC classification, which we translated into FEOR–08 codes. The official translation keys were used during the translation. From the study of *Dingel–Neiman* (2020) we used the *teleworkable* dummy variable, while in the case of *Koren–Pető* (2020) we used the index variables. These variables take on values between 0 and 100 – the higher the value, the more interaction-intensive the occupation is. The session was considered non-interaction-intensive if the indicator was less than 40.

4 The associated public administration data collection is the property of the data owners ONYF, OEP, OH, NAV, NMH and NYUFIG. The data used were processed by the KRTK Databank. See the detailed description of the database in the *Sebők* (2019) study.

The sample was narrowed down to persons working full-time,[5] older than 20 years, and younger than 63 years of age, it is known where they live, and we were able to link the above variables to them based on the occupation code. We have more than 1.4 million observations in the final sample.

The indicators developed by *Dingel–Neiman* (2020) and *Koren–Pető* (2020) (hereinafter DN and KP indicators) are related, yet they capture different characteristics of the occupations. This is illustrated in *Figure 4.2.1.*

Figure 4.2.1: Relation between DN and KP indicators



Note: In the figure, DN and KP indicators are aggregated to two-digit occupation codes and weighed with the number of employees. The horizontal axis shows the proportion of employees whose work could in principle be done from home (DN indicator), and the vertical axis illustrates the percentage of employees who have a job that does not require personal interaction (either internal or external), and no physical presence is required (KP indicator). The straight line is fitted to the points.

We aggregated the indicators to two-digit occupation codes and weighted them with the number of employees. The horizontal axis shows the percentage of employees in each occupational category that has a job that could be done from home (DN indicator), and the vertical axis shows the percentage of employees who have a job that does not require personal interaction (either internal or external) and physical presence is not important (KP indicator). Of course, the latter does not mean that contact with others is not important to fill the job, but that a personal meeting is not required for this. The best example of this is the category of *managing directors*, for whom communication with others is very important for work, but due to the achievements of modern technology, it is not necessary to be present in person. In contrast, in the category of *commercial and catering professions* the vast majority of jobs require personal contact or physical presence.

5 The number of working hours is known and they work at least 36 hours a week.

In general, most jobs that cannot be done from home at all (DN indicator) require the physical presence and/or personal communication of workers, i.e. the proportion of workers in these occupations that do not require personal interaction or physical presence is low (CP). An exception to this is the *Social Services occupations*, which can be done mainly from home according to the DN indicator, while according to the KP indicator, the productivity of these occupations at home would decrease significantly. The reason for the latter is that personal interaction is very important to get the job done and cannot be replaced by modern technological tools.

It is interesting to note that although communication with others is essential for the work of the *Teachers*, according to the KP indicator, these communications do not require personal interaction, they can be replaced by modern technological means. *Teachers* can also work from home based on the DN indicator. In the last year, there have been examples everywhere in the world that teachers have taught from home, but we do not state that this could be a good solution in the long run without a deterioration in quality. All indicators used in this subsection are intended to capture the characteristics of occupations that make it completely impossible to work from home, so this can be considered an upper limit. However, it is thought-provoking that in 2018, teachers in the European Union had the highest proportion of workers who were able to work from home at least sometimes (*Milasi et al.,* 2020). In 2018, of course, this did not mean that most teachers held their lessons from home, but that some of their tasks (e.g., preparing for lessons, dissertation correction) could also have been done from home.

Possibility of working from home in Hungary

One of the barriers to working from home may be that doing the work requires interaction (*Koren–Pető*, 2020). In 64 percent of domestic jobs, interaction requires physical presence (e.g., performing tasks with machines) or personal contact, which by their nature cannot be replaced by modern means of communication (e.g., e-mail, video conferencing). 31 percent of the duties require both physical presence and personal contact from employees, nearly 20 percent require only personal (external or internal) contact, while 13 percent require only physical contact.

In Hungary, in 2016, according to the DN indicator, 40 percent of the work could in principle be done from home, while according to the KP indicator, this proportion is 36 percent. These figures are very close to what *Dingel–Neiman* (2020) finds in the U.S. labour market (37 percent). In comparison, in reality, in 2016, only 4.9 percent[6] of those employed worked (regularly or irregularly) from home. In addition to the fears on the part of the employer, there may be several other reasons why there is such a big difference between theory and reality.

6 Source: Eurostat, Employed persons working from home (lfsa_ehomp).

One of the basic requirements for working from home is the availability of digital skills. Hungary performs below the European Union average in this area. Luxembourg and Denmark are at the forefront, where the digital capability of more than 50 percent of the population goes beyond the basics. In Hungary, this proportion is half as high, 24 percent. In the leading countries, nearly 80 percent of the population has at least basic digital skills; in Hungary, this is only half of the population.[7] Looking to the future, the news is even worse; young people in Hungary are more lagging behind the EU average in this respect than the older generation. In 2016, the proportion of people aged 25–34 with digital knowledge above the basic level in Hungary (33 percent) was more than 10 percentage points lower than the EU average, while this gap was only 3 percentage points for those aged 55–64 (*KSH,* 2017).

In addition to capabilities, the presence and use of tools are also important. In 2016, 21 percent of households in Hungary did not have a broadband Internet connection, which is higher than the EU average. There are large regional differences in Internet access, with a difference of 14 percentage points between the best-served region (Central Hungary) and the most backward region (Southern Alföld). In addition to the territorial distribution of supply, internet use also varies greatly by age group. While the majority of young people use the Internet regularly (89 percent of those aged 25–34), in the case of the older generation this is typical for only half of the population (54 percent of those aged 55–64) (*KSH,* 2017). In addition to the technical conditions and knowledge, the apartment must be suitable for working from home in several other ways (for example, a sufficient number of quiet rooms, heating).

In addition to the considerations mentioned above, the institutional background may also explain why in reality they work far less at home than they could in principle.[8] Shortcomings of the domestic institutional framework are well illustrated by the fact that during the coercion of the recent period, a long debate has developed between Hungarian labour lawyers about the interpretation of Hungarian laws. According to the *consensus*, home office and telework are two separate concepts. While the former means a change of workplace, the legal framework of which is disputed, the latter is an atypical employment relationship regulated by the Labour Code. In the latter case, in addition to the assignment of the task, the employer may not have much influence on the work processes, the work is done on computer, and the result is transmitted electronically by the employee to his employer (typically *data recording* or *call centre* jobs). Home office, on the other hand, refers to occasional work at home, which was not subject to general rules until the outbreak of the pandemic, and has since been supported only by a government decree on emergencies, a long-term solution has not yet been reached. In the absence of a general policy, if a company

7 Source: Eurostat, Individuals' level of digital skills (isoc_sk_dskl_i).

8 Sources: ado.hu; jogaszvilag.hu; net.jogtar.hu.

wanted to use this option, it first needed/will need a company-level home office policy and an amendment to the employment contract. This policy must include details, such as

– who is entitled to authorise working from home (employer/employee), and who is entitled to veto it,
– the work schedule,
– who provides the necessary working tools, and how their depreciation is to be accounted for,
– whose task it is, to ensure work safety conditions, and who will monitor them,
– which party pays for any extra overhead costs that arise, and in what proportions.

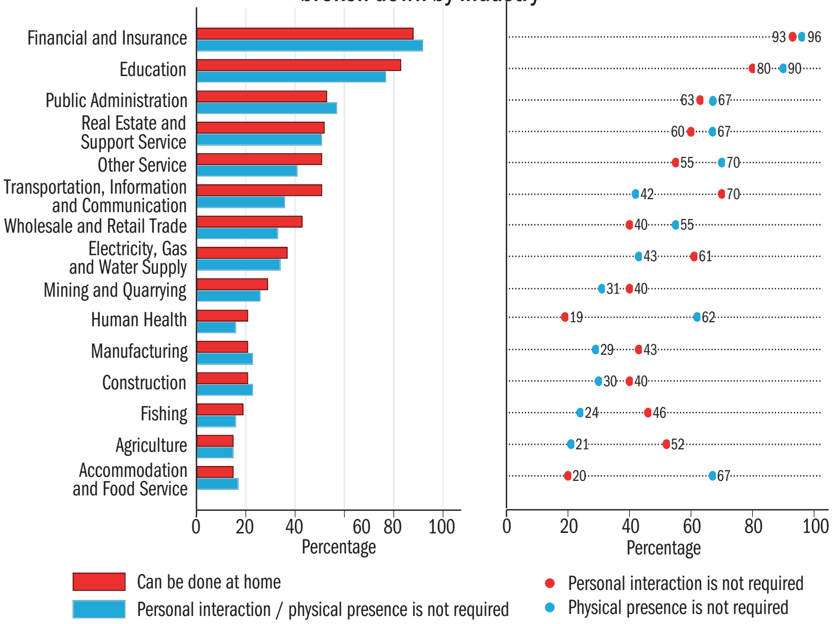
In the following, we assume that in the long run, the legal framework will be clarified and the primary limitations of working from home will not be determined by these, but by technological possibilities and business interests.

Industrial distribution of possibilities of working from home

In the following, we look for the answer to how the opportunity to work from home is distributed at the industry level. Here, there may be more serious differences between countries, as the occupational composition of an industry in the United States covered by O*Net data collection may be different than in Hungary. According to our already mentioned assumption, occupational differences are considered technological characteristics. However, the industry weightings are taken from the 2016 Hungarian database. To do this, we use the indicators in *Table 4.2.1* and aggregate our database into one-digit industry codes (weighted by the number of employees). The left-hand graph of *Figure 4.2.2* shows the breakdown by industry of the proportion of work that can be done at home (DN indicator) and the proportion of work that does not require personal interaction or physical presence (KP indicator), whereas the right-hand graph further breaks down the latter and separately illustrates what percentage of the employees do not need personal interaction or physical presence to do their job.

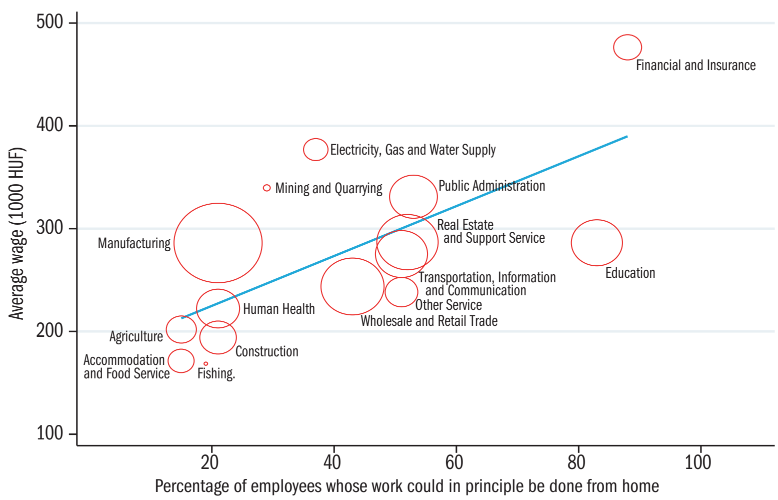
The *Financial and Insurance* industry has the highest proportion of employees whose work could be done from home. In second place is *Education*. This phenomenon may seem surprising at first, but already in 2018, the proportion of employees in the Education sector in the European Union who work from home at least occasionally was over 30%, and thus *Education* was in the third place in the industry ranking (*Milasi et al.,* 2020). In the *Public Administration, Real Estate, and Support Services, Other Services* and *Transport and Telecommunications* industries, the proportion of workers who could work from home in principle is above 50 percent (DN indicator).

Figure 4.2.2: Proportion of jobs that can be performed from home, broken down by industry



Note: The figures show the proportion of workers whose work could in principle be done from home, per one-digit TEOR code. The indicator, marked in black in the figure on the left, is based on the study by *Dingel–Neiman* (2020), and all other indicators are based on the study by *Koren–Pető* (2020).

Figure 4.2.3: The proportion of work that can be done from home and the relationship between wages by industry



Note: The horizontal axis shows the proportion of work that can be done from home per one-digit industry code, while the vertical axis shows the average wage in that industry, the size of the circles being proportional to the number of observations.

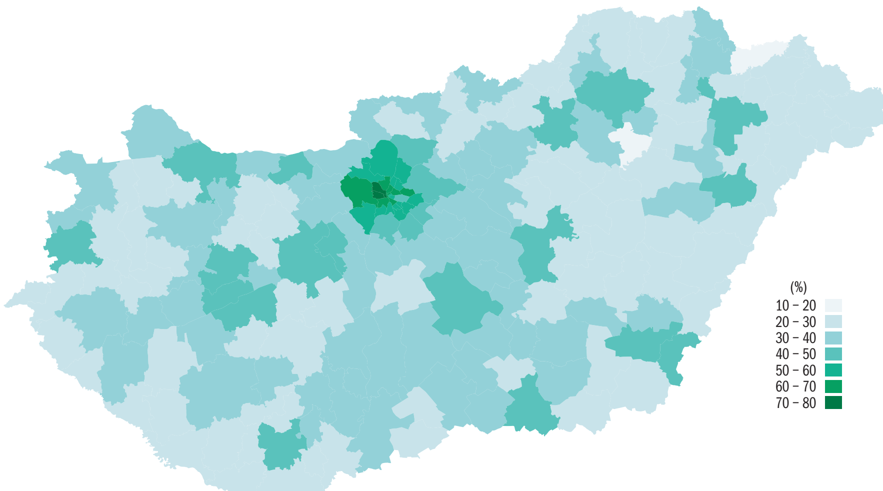
Industries where most of the work can be done from home also offer higher wages to their workers. *Figure 4.2.3* shows the proportion of jobs that can be done from home on the horizontal axis (DN indicator), while the vertical axis shows the gross average wage[9] in the given industry. The size of the circles is proportional to the number of people working in the industry. The financial sector has the highest proportion of workers who could work from home in principle, and the average salary is also the highest here. In contrast, the average wage in accommodation and food services, construction, and agriculture is low, and only a very small percentage of workers could work from home.

9 An individual's earned income in a given month. If an individual has more than one job, his or her income is in the job that provides the highest earnings. In the case of child care benefit, child care allowance or baby care allowance, if the given status started mid-year, and an employer is regarded as social security payment point, then the income from work and the allowance amount are mixed in the amount of the income, as the income is related to the insurance period, which is not cancelled during the term of the childcare. Hereinafter we call this amount wage.

Territorial distribution of possibilities of working from home

The possibility of telework is distributed in Hungary very unevenly. *Figure 4.2.4.* shows the proportion of work that can be done from home per district. Nearly 60 percent of the employees living in Budapest work in a job in which it would be possible to work remotely, in Budapest the proportion is the highest in Buda (the proportion of potential teleworkers is above 70 percent in districts I, II and XII). Besides the capital, this proportion is also remarkably high in the surrounding agglomeration, while it is particularly low in the Northern Hungary and the Northern Alföld regions.

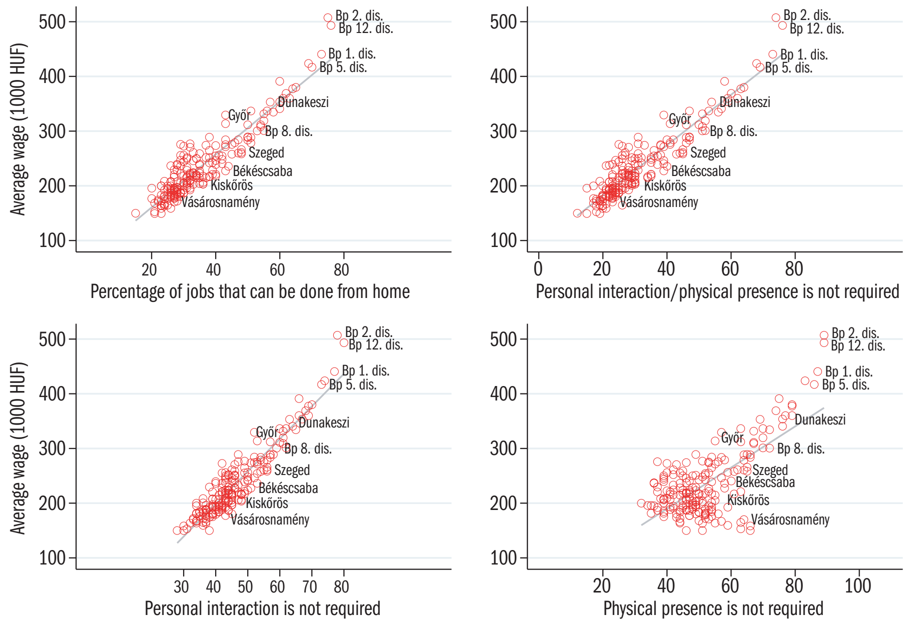
Figure 4.2.4: Territorial distribution of work that can be done from home



Note: The figure shows the territorial distribution of possibilities of working from home on district level. It was prepared on the basis of the permanent residence address of the employees valid in May 2016. The darker the colour of the area, the higher the proportion of workers in a given district who have an occupation that could be performed from home. The indicator from the *Dingel–Neiman* (2020) study was used to prepare the figure.

In districts where the proportion of work that can be done at home is higher, the average wage is also higher. In *Figure 4.2.5* a dot indicates a district, the vertical axis shows the average wage of the given district in thousands of forints, while the horizontal axis shows the proportion of work that can be done at home (in principle) in the given district. In the upper left figure, we use the indicator used by *Dingel–Neiman* (2020) to look at what percentage of work could be done from home in the given district. In the upper right figure, the horizontal axis shows the percentage of workers who work in a job where neither personal (external and internal) communication nor physical presence is required, i.e. it could in principle be done from home (*Koren–Pető*, 2020). This is further broken down by the type of interaction in the two lower figures, the proportion of occupations that do not require personal communication is shown in the figure on the left, and the proportion of occupations that do not require physical presence is shown in the figure on the right.

Figure 4.2.5: Proportion of work that can be done from home and average wages per district



Note: A dot in the figure shows a district in Hungary. The vertical axis shows the average salary of the given district in thousand forints, while the horizontal axis shows the proportion of work that can be done at home in the given district. To define the work that can be done at home, we relied on the study of *Dingel–Neiman* (2020) in the upper left figure, while *Koren–Pető* (2020) for the other figures. For the analysis, the permanent address of the observed employee was taken into account.

The proportion of those who could work remotely is the highest among the residents of the 2nd and 12th districts of Budapest, and the average wage of those living in these districts is also the highest. The richest areas include the districts of Budapest and the districts of Pest County, and these areas also have the highest proportion of jobs for which it would be possible to work from home. This is in line with what *Mongey et al.* (2021) find in their research: workers who have an occupation that cannot be done from home are less educated, work for smaller companies, are in a higher proportion tenants (and not owners) of their dwellings, and a larger proportion of them belong to one of the minorities.

Conclusions

The theoretical possibility of working from home differs significantly in Hungary, both between occupations and between industries and regions. In some industries and regions, the proportion of jobs affected by telework is as high as 70 to 80 percent, while in others it is just about 20 percent. Moreover, these huge differences are linked to the wage level in a given industry and region: work that can be done from home pays more.

The inequality revealed here is not just about the direct impacts of the pandemic. As *Köllő* (2021) shows, in the past year, lower-income households, in particular, were adversely affected by lockdowns due to the pandemic. The labour market position of workers who are already in better positions will be strengthened if work from home becomes more widespread, further increasing inequalities in employment and income. If many businesses switch to working from home (for example to reduce their office rental costs), inequalities within occupations will increase between those who can work from home (their working conditions allow, and they have the skills) and those who do not. The primary task of economic policy is to monitor and control this inequality.

In this subsection, we have examined only the theoretical and technological possibilities of teleworking, not its legal and financial incentives. Appropriate legal regulations (employer-employee relations in the regulation of telework, liability, reimbursement, and taxation rules) can promote teleworking. However, the problem of inequality must also be borne in mind when designing them. For example, there is no need to encourage teleworking in jobs and industries where it is already easy to do so. It is more useful to focus scarce resources on marginalised groups of workers.

In addition to the labour market, other areas will also be affected by teleworking, such as the office rental and construction market (*Milasi et al.*, 2020, *Gupta et al.*, 2021). We cannot draw any conclusions about these effects from the data available to us.

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4.3 TELEWORKING AND PLACE OF WORK: REAL ESTATE MARKET EFFECTS

ÁRON HORVÁTH

International overview

Offices

Stakeholders are cautious about speculating on the impact of the post-pandemic spread of teleworking in the workplace. The uncertainty is also due to the fact that the economic consequences of the pandemic will also dampen demand for office space in the short term. *Voigtländer* (2020) expects rental and price declines in almost all European cities in 2020 to be several times higher than the forecast GDP decline and to approach or even exceed the largest declines of the period 1990–2020. Voigtländer also foresees structural changes in the market, namely that the crisis will be deeper and more lasting in the office market due to the spread of teleworking. However, he also notes that in the short term, this trend may be offset by an increase in office space per capita due to public health considerations. In his analysis, he cites as a rule of thumb that a 10 percent increase in teleworking reduces office space demand by 5 percent.

Even with the current levels of uncertainty, company managers expect a significant change in the way they work compared to the period before the pandemic. Studies conducted by *EY–ULI* (2020) and *KPMG* (2020) show that the vast majority of managers believe that teleworking will account for more hours and affect more workers than ever before. Despite the uncertainty highlighted, there is a consensus that the spread of teleworking does not affect all types of work and ages of workers to the same extent. Among the types of work, it is essential that strategic and collaborative decision-making, talent management, building corporate culture as well as creative, innovative development are done on site, in a workplace environment, as opposed to, for example, administrative tasks. The main reason for this, according to the respondents, is that teleworking has mostly reduced the efficiency of these areas. Regarding the age of workers, the younger generation may be more supportive of traditional, office-based work because of the social interaction and sense of belonging to a community than their older counterparts, potentially with families. Company managers also noted that this rapid, revolutionary change may be constrained by the nature of the already existing office stock, as his change requires a transformation of the office environment, too: post-pandemic workplaces need to be greener, more energy-efficient, less crowded, more worker-friendly and offer more community space.

As in the rest of the world, there are no signs of rapid changes in the office market in Budapest. For the time being, rents reflect the levels of the past few years of price increases, with an average specific cost of €25 per month (*Hegedűs,* 2021). The vacancy rate is not yet high (9.1%), but it has been increasing for several quarters and is expected to rise further, as office space, representing 12% of the current stock, is under construction mainly along the Váci út office corridor and in South Buda.

Residential properties

The volume of contracts completed in the *residential rental* market fell in several countries during the first, rigorous lockdowns as a result of a combination of collapsing demand and overall uncertainty. Subsequently, in the following waves, more properties came on market of long-term accommodations, providing a more secure flow of income for owners, typically, properties which had previously been mainly rented out on a short-term basis or as tourist accommodation were brought onto the long-term rental market. Demand, on the other hand, declined further, as lower-income tenants may have found it more difficult to afford housing. Furthermore, due to the introduction of distance learning, the demand attributable to university students temporarily disappeared in some cities as a result of which the increase in prices observed in recent years has reversed leading to decreasing rental fees. Based on analysis of data from Krakow (*Tomal–Marona*, 2021), the two waves caused a roughly 6–7% decline in the rental market each, with predictions of a further long-term decline in early 2021, and growth could follow thereafter (and reaching pre-pandemic levels), depending of course, on economic growth.

After its initial effect on the rental market, the economic effects of the pandemic on the residential property market could also be observed in the first period of the pandemic, leading to a fall in the supply of properties: in April 2020, supply in U.S. metropolitan areas declined by an average of 33 percent compared to the same period last year (*Gascon–Haas,* 2020). At the same time, demand fell, a combination which had a lesser effect on prices. In the second half of last year, however, demand began to pick up, leading to both price increases and a further reduction in the already-low level of transactable properties, which, according to an October analysis, reached a national low in the US in August compared to the previous year.

In addition to the effects observed during the epidemic, the likely spread of teleworking will also shape housing demand *in the longer term*. By necessity, larger properties with more rooms may be in demand with extra workspace and additional rooms. As people spend more time in their homes, the home recreation (e.g. garden, terrace, barbecue area, pool) and the need for refurbishment are gaining in importance (*Courtney*, 2020, *Balasubramanian,* 2021).

Not only the nature of properties but also the *demand for certain locations* may change. Spending a lot of time at home has increased the importance of the natural environment and having a garden. At the same time, the accessibility of jobs has been reassessed, as teleworking allows daily tasks to be carried out from cheaper, more remote locations, outside the city. If teleworking is expected to remain in the long term, the demand for housing will shift towards larger, greener properties outside city centres. This hypothesis related to changes in housing demand became so notorious in the real estate market during the pandemic that it is now referred to as the *doughnut effect*. The doughnut effect describes a geographical shift in housing market demand, with demand increasing in areas around large cities and decreasing in downtown areas. *Ramani–Bloom* (2021) examined a comprehensive US housing market database and showed evidence for the doughnut effect. While rents in the 12 largest US cities fell during the pandemic in urban centres and most densely populated areas, rents rose in the cheaper suburban areas. The different trajectories of rents opened up a gap of roughly 10 percent between the two types of neighbourhoods. This difference was also evident in sold house prices: while house values fell slightly in business districts, prices in mid-range areas and low-cost locations outside urban areas went up. For house prices, a difference of 4–6% was seen by the second half of 2020. *Liu–Su* (2021) used the doughnut effect hypothesis to conduct research in US cities. The authors' results also suggest a significant and expected correlation: during the epidemic, prices and rents decrease as the density increases, and rents increase as the distance from the centre decreases, but prices do not change significantly. An investigation into the possible emergence of the doughnut effect in Hungary is presented in a boxed text.

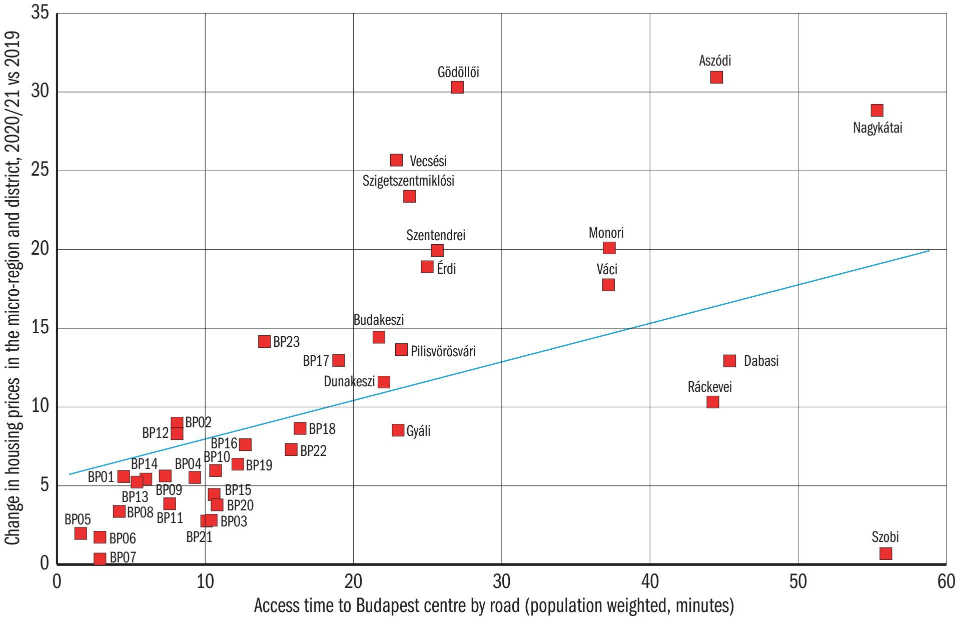
The doughnut effect in Hungary

Changes in property prices in Budapest and Pest County

The hypothesis of the doughnut effect and the idea of international analysis were also used to analyse the Hungarian market. We examined how relative house prices evolved during the pandemic as a function of accessibility distance from the centre of Budapest. Although this effect could only have a short-term effect so far, the fully processed housing price data for 2019–2020 and the partially processed data for 2021 were examined. According to *Figure 4.3.1,* real estate prices increased in Pest County even during the pandemic. The smallest increase was observed in the inner districts of Budapest and in the Szob micro-region. The other areas experienced a price increase of about 10–20 percent. There is a significant positive correlation between distance and house prices: 1 minute more travel is associated with a 0.24 percent higher increase in house prices over the period. In the 23 districts of Budapest, this figure is twice as high.

The graph shows that the residential property price changes in the Budapest area during the pandemic also demonstrate the doughnut effect. This may be due to an appreciation of the green areas in outer districts and agglomerations, but also to a decline in the benefits of living in the inner districts – in the inner districts, the advantage of renting out properties for short-term accommodation has almost disappeared due to the disappearance of tourism during the pandemic and the expectation that the restrictive measures will remain in place in the long term. Proximity to the workplace as an advantage may also be reassessed in the long term due to teleworking, which is analysed below.

Figure 4.3.1: Change in residential property prices as a function of distance from the centre of Budapest



Source: Calculated by the authors based on *HCSO* settlement-level specific house prices and T-STAR access times.

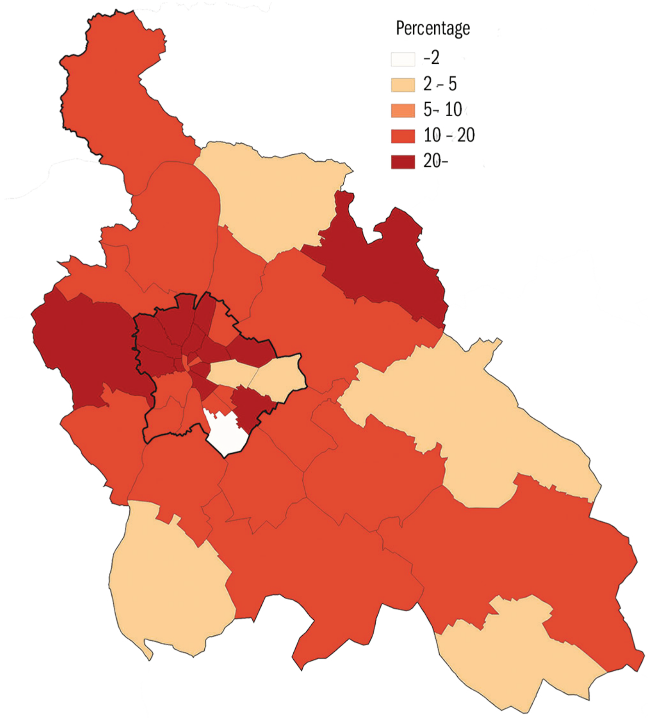
Teleworking in Budapest and Pest County

The direct effect of work can be examined for the relationship between house prices and telework. In the Labour Force Survey database maintained by KRTK, we examined the evolution of the share of home-based work[1] in 2020 at district level and the relationship between the share of teleworking and house prices during the pandemic, i.e. between 2019 and 2020/2021.

In 2019 the proportion of people working from home ("teleworkers") was estimated to be at 2 percent nationally, rising to 9 percent in 2020. Around regional centres, teleworkers accounted for 10–20% in 2020 (*Figure 4.3.2*). The proportion was highest in and around Budapest, where more than a fifth of workers also worked from home. In our analysis, we therefore focus on the phenomena observed around the capital city in 2020, but we have also carried out the analysis for other locations and periods in an analogous manner.

1 Percentage of workers who occasionally or regularly worked from home.

Figure 4.3.2: Share of teleworkers in the various micro-regions of Pest County in 2020



Source: Calculated by the authors based on Labour Force Survey of the *Hungarian Central Statistical Office* maintained by *KRTK*.

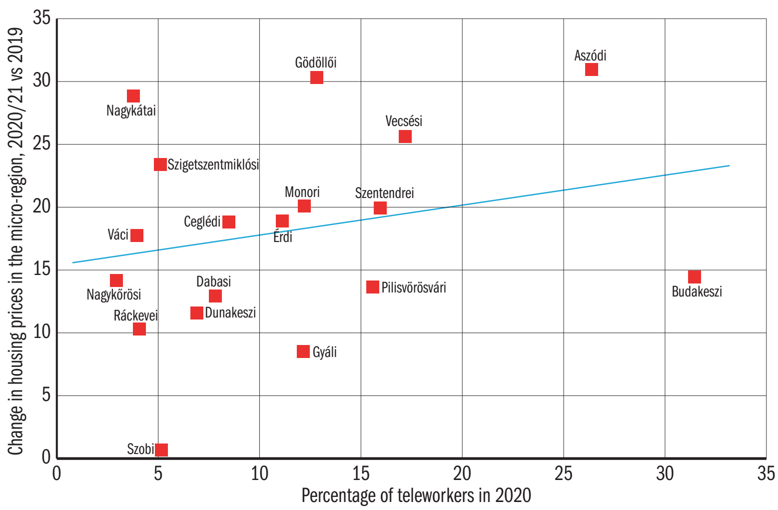
Regarding Budapest, the districts on the Buda side, as well as the inner-city areas – districts 7, 8 and 9 – saw the largest increases, but an increase in teleworkers could also be observed in districts 13, 4, 14, 16 and 18. In the agglomeration, the increase was exceptionally high in the case of the districts in Buda, but also in the south-eastern Vecsés micro-region and the north-eastern Aszód micro-region. In all these areas, the rate of expansion of teleworkers in 2020 was more than 10 percentage points, indicated on the map with darker colours. In the rest of Pest County and Budapest, the increase was typically between 4 and 10 percentage points. As a result, the proportion of teleworkers in areas that expanded the most was over 20 percent in Budapest and in the micro-regions of Budakeszi and Aszód, while in the other areas it was mostly between 10 and 20 percent.

Teleworking and the doughnut effect on the housing market around Budapest

Our hypothesis is that teleworking may play an important role in the causes of the doughnut effect. We assume that the areas with a higher share of teleworkers may also have become more attractive as a place to live, and thus properties are relatively more expensive. However, based on housing price transactions between 2019 and 2021, no positive correlation could be detected statistically between the prevalence of teleworking and the change in housing prices at micro-regional level. In Pest County, there is a non-significant positive correlation between the share of teleworking and changes in house prices.

For example, while the teleworking proportion in the Szob micro-region was 5 percent – with a 1 percent increase in house prices between 2019 and 2020/2021 (according to the already processed data) –, the 11 percent teleworking rate in and around Érd was accompanied by a 19 percent increase in property prices (*Figure 4.3.3*). The largest increase in house prices was recorded in the Aszód micro-region, where housing prices rose by 31 percent and the share of teleworking was 26 percent. The highest teleworking rate was recorded in Budakeszi and its surrounding area, while house price growth was only around 14%, which may have been largely driven by the already high property prices in this area, with unit property prices exceeding those of several Budapest districts in 2020. The price increase was also significant in the Gödöllő micro-region (30 percent), where the 13 percent share of teleworking is not considered to be particularly high.

Figure 4.3.3: The relationship between the share of teleworkers (2020) and the estimated change in housing prices (2019–2020/2021) in the micro-regions of Pest County



Source: Calculated by the author based the *HCSO's* Labour Force Survey on the settlement-level unit house prices.

The analysis was carried out using data for all micro-regions in the country, and potential correlation with the annual change in the teleworking rate was also examined. These calculations did not lead to statistically significant results. Although our statistical study has not yet confirmed a link between the doughnut effect and teleworking in Hungary, it is worth following the trends in the real estate market in the coming years. If the increase in teleworking remains long term, its effect may be better reflected in transaction prices. Further detailed analysis is more likely to filter out the impact of other factors involved in the changes in house prices. The above-mentioned availability of properties previously used for short-term accommodation, the current income of residents, the level of house prices and, in smaller municipalities, the more intensive use of the CSOK (family housing) subsidy in 2020, are likely to play a role in the price change. It may also be the case that teleworking rates are not an indicator of the long-term attractiveness of a settlement, but rather show that the housing choices of residents of some municipalities may change as a result of working from home. Finally, it is also worth pointing out again that the present analysis was conducted at the micro-regional level but that there may be significant differences within micro-regions. Similar correlation tests should be carried out in the coming years.

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4.4 COWORKING OFFICES IN BUDAPEST AND THE IMPACT OF THE CRISIS

JUDIT KÁLMÁN

C*oworking spaces of all sizes started to* emerge in the 2000s, first in the US, then in Europe, Asia and around the world, and then their number increased in the 2010s, in parallel with the emergence of teleworking opportunities brought about by technological change (*Orel,* 2021, *Grazian,* 2020). These are spaces that offer an alternative to traditional office rental, where people can work not only individually or in small teams, but also receive clients, meet people, exchange experiences, give presentations, print, etc., either as permanent members or just dropping in for a few hours. Their target groups are those working flexibly, self-employed, freelancers, often working in the technology and infotech sector, students, small businesses, start-ups, non-profit organisations, and the so-called digital nomads – so all kinds of individuals, who work independently but still in a shared space (*Spinuzzi,* 2013, *Foertsch–Cagnol,* 2013). However, as they have grown in popularity, coworking offices have also become increasingly important for large corporations, which outsource part of their offices or employees, saving costs, and for small businesses and *start-ups*, which can adapt their office needs to their actual size.

The essence of coworking offices is that their spaces with modern interior design offer not only a place for working, but also for networking, and community building – these are often encouraged, moreover to share leisure activities, meals and games. A key element is community building, *networking* and community events, organised by managers of coworking spaces, which are often open to the public – generating extra income (*Mariotti et al.,* 2017). All these *can lead to greater productivity, more creativity and the realisation of new business ideas, innovation and knowledge transfer* (*Morisson,* 2018, *Spreitzer et al.,* 2017, *Mariotti–Akhavan,* 2020). This is the reason for the growing popularity of the *coworking* model in recent years, as these spaces have often become integral part of the local business ecosystem (*Kwiatkowski,* 2012, *Akhavan–Mariotti,* 2018), kind of magnets for highly skilled, talented, knowledge-oriented workers in both urban and rural settings, and also preforming business incubator and accelerator roles (*Orel–Dvouletý*, 2020, *Grazian,* 2020, *Mariotti et al.,* 2021).

Before the coronavirus pandemic and the global crisis, these new types of coworking offices have thus been developing dynamically across the world, including Central and Eastern Europe. In Hungary, since 2009 in Budapest, but also in many countryside cities, with participants of diverse business sizes, profiles and ownership, and growing in popularity.

In 2018, there were around 18,000 coworking offices in the world, but the number is projected to rise to over 40,000 by 2024, while the number of co-workers was only around 3 million in 2019 worldwide, and is expected to at least double by 2022, and could even increase further due to the spread of teleworking caused by the pandemic (*Konya*, 2020). The JRC reports that 33–44% of employees in EU Member States could be employed in remote jobs, which correlates well with the actual numbers during the pandemic (*Sostero et al.,* 2020).

In 2021, the concept of remote working has changed radically, with workers in many sectors being forced to work remotely due to the pandemic. The crisis has also hit coworking spaces hard, not only because of temporary lockdowns, but also due to changed financial, business and working conditions of their members, as well as travel restrictions. At the same time, the spread of teleworking has brought new clients and different roles to coworking. In 2021, interviews and online survey were conducted with managers of Hungarian coworking offices, discussing their survival strategies, the services they had to discontinue or introduce, their client numbers, finances etc., how they see their present situation and in the changing world of work after the crisis – the results of which are the subject of this paper.

The interviews and questionnaires were conducted as part of an ongoing European collaborative project[1] with participants from 28 countries. In Budapest, a total of 13 coworking office managers participated in the first wave of interviews, which represents a rather good response rate, as there were about 20–25–30 coworkings previously, and even decreasing in number during the pandemic. The pandemic made it difficult to conduct the research. Fortunately, we were able to reach the heads of the largest agencies (L'Office, Hive, Impact Hub, HubHub, HUB55, Content, among others).

Coworking managers are all university graduates, typically less than 40 years old, many of them are also owners of the office they manage and have been working in this field for 2–5 years on average, but some for more than 10 years. The offices vary in size, some are larger (70–200 desks and several meeting rooms), but there are also many smaller operators in Budapest (with less than 20 desks). Some rent out offices to smaller or larger businesses, and some provide a mix of all these, targeting a variety of groups. Users are mostly male, with higher education degree (but not exclusively), and from younger age groups – a demographic composition similar to that observed elsewhere in the world, although there are also coworkings specifically for women. In Budapest, too, each site has a slightly different profile, some with regular membership as the main focus, but also some coworking spaces with a mix of local and international users, the latter being either digital nomads who spend several months a year travelling for work or expatriates living in Budapest, and some with a focus not on common space but rather on private office rentals and headquarters services.

1 CA 18214 COST action "The geography of new working spaces and the impact on the periphery", 2019–2023.

Overall, both in the interviews and in the survey, all coworking managers reported that they had been severely affected by the pandemic, as they had been forced to close for extended periods due to the lockdown measures. Furthermore, many of their clients had cancelled their contracts even for the months they were open or had not been able to keep up their previous regular rent payments. As a result, they experienced a severe (50–90 percent) drop in membership, were unable to organise further revenue-generating events and trainings (100 percent drop), previous event room bookings were cancelled, CWSs were unable to provide many of their services or only to a very limited extent (75 percent or more drop), while most of them had to keep paying rent for the property, which did not decrease – or not significantly – during this period. Of course, *size* and being *part of* an *international coworking chain* (Impact Hub, HubHub) mattered for survival – international chains could offer their members a wide range of discounts and cross-funding, organise online trainings and events that could also be advertised by their Hungarian partners as own events, etc., while smaller and independent coworkings could only do this on their own. Still, managers of coworking offices are now more compelled than ever to build a community – to organise online events to retain their members. This has not been achieved by all, which shows their vulnerability (*Ceinar–Mariotti,* 2020).

Hungarian coworking offices were also not in the category of companies that received government support to retain jobs, so unlike many of their Western counterparts they found it very difficult to survive and many previously well-established smaller coworkings closed permanently. There is one coworking whose owners have offices both in Vienna and Budapest, so they were able to compare different government approaches and support received during and after the pandemic.

> 57% of European coworking offices surveyed by Deskmag in 2020 applied for government support during the pandemic, but only 39% found it somewhat useful. 43 percent received no government assistance at all. Financial problems and loss of income were reported by 77 percent of European coworking offices in 2020, and 39 percent reported a decrease in size (*Deskmag,* 2020). Hungarian respondents report similar results (see above for figures), and of the approximately 36 coworking offices in Budapest and 18 in rural areas known in 2019, at least 15 were not reached in our research in spring 2021; they likely closed during the pandemic.

An interesting effect of the pandemic around the world is that remote work and the change in commuting behaviours has transformed the attractiveness of downtown / suburban, urban / rural or peripheral areas. Even slightly before the pandemic, but triggered by out-migration from urban areas, coworking offices have also emerged in rural areas, offering an alternative to the isolation of the *home office,* while potentially becoming new local hubs and innovation centres (*Deskmag,* 2020, *Avdikos–Merkel,* 2020). It is also notable that while in Europe, coworking offices used to be more of a metropolitan or even inner-city phenomenon, partly driven by high real estate prices, in the US, most coworking offices are located in medium-sized and smaller cities, and 65% of coworking office workers are in small towns and peripheral areas (*Deskmag,* 2019). In Budapest and in Hungarian midsize cities (e.g. Pécs, Debrecen), virtually all coworking offices used to be located in downtown areas with good transport and infrastructure, in denser urban areas, or possibly in brownfield sites, but in 2020–2021 many coworking offices moved to more peripheral districts (partly because of high rental fees). There were also a few new entrants to the market, which now catered specifically to suburban residents and their commuting patterns (Solymár and Zebegény), offering them coworking offices and community locally, hence the possibility to avoid commuting to the city centre.

When asked about future plans, *coworking* managers were mostly cautious, given the uncertainty and the significant downturn they experienced during the pandemic, but there were some who predicted that everything would return to previous levels after the pandemic, and some even expect growth – whether as a result of new members who like working remotely but are tired of working from home, or as a consequence of new corporate real estate strategies and office needs, or operators requiring more advice. However, due to the pandemic, coworkings have lost one of their main attractions, namely, community, interaction, events and a good atmosphere – and the question is how they will recover from this and where the scene will go from here. However, coworking offices would also deserve public policy attention and government support in Hungary, especially during and after a crisis period, precisely because of their role in innovation, creative job creation, supporting digital transformation, teleworking, entrepreneurship and local economic development.

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5 LABOUR MARKET MEASURES

5.1 INTERNATIONAL AND DOMESTIC MEASURES

JÚLIA VARGA

In this subsection, we provide a descriptive analysis of the support measures applied by European countries and the United States to help businesses survive, keep jobs, and provide income support to those who were losing their income at different stages of the Covid-19 pandemic. Most countries have now experienced several waves of the pandemic, but at the time of writing the pandemic is not yet over, and we cannot predict whether further restrictive measures will be needed or not: vaccination rate increases but new variants of the virus are also evolving. We do not know either how long the fall in demand for certain services will last, or how much net job destruction will ultimately be resulted from the Covid-19 pandemic. So, it is difficult to assess yet the efficiency of the measures used as we can currently only see the short-term effects.

In the first quarter of 2020, when the pandemic broke out, almost all countries tried to prevent the overload of their healthcare system and to stop the spread of the virus by initiating widespread lockdowns. At the same time, most governments took measures to protect workers and firms. The Covid crisis was fundamentally different from previous economic crises, as administrative measures, the lockdown and other restrictions affected both productive and non-productive businesses. The lockdown immediately resulted in a significant supply shock. The lockdown forced businesses in sectors directly affected, such as catering, from restaurants to hotels to airlines, to halt or at least drastically reduce their supply. The sharp fall in output, lower incomes and increased uncertainty caused a drop in demand too not only in the sectors directly affected by the lockdown but also in unaffected sectors. Thus, the supply shock and the demand shock occurred together (see for example *Blanchard et al.,* 2020, *Blanchard–Pisani-Ferry,* 2021). However, the crisis affected different sectors and different groups of workers in very heterogeneous ways throughout the pandemic and during its different phases. Most countries have tried to tackle these problems through a combination of different measures.

In the first phase of the crisis, the focus of measures was *on protecting businesses, helping workers* and *those who lost their jobs.* During this period, little could be done to increase output in the sectors concerned. Measures were aimed at protecting firms from bankruptcy, preventing a surge in unemployment and, compensate for lost income if someone did become unemployed This was also justified by the fact that the demand and productivity shock was a consequence of the physical distancing rules, which were expected to be temporary, and the restrictions made it difficult for those who had lost their job to find work.

Different countries have used a wide range of protection measures, so we can only present the most important groups of them here. Measures included various short-time working schemes, an extension of unemployment benefits or relaxation of the eligibility criteria, providing non-repayable subsidies, grants for firms, loan guarantees, tax deferrals, changes in paid sick leave rules, support for households with children, etc. Crisis management in European countries and the United States differed fundamentally. European countries have used job retention schemes as one of their main measures while the US has tried to mitigate the impact of the crisis by strengthening unemployment benefits and family support (see for example *Blanchard et al.,* 2020, *Cohen-Setton–Pisani-Ferry,* 2020, *Fischer–Schmid,* 2021). Financial support to firms and enterprises in European countries and the United States has differed in a similar way (*Blanchard et al.,* 2020).

Support for businesses

Governments have tried to help businesses survive with the help of various forms of financial support, mainly for firms affected by total or partial lockdown. The most important problem was the sudden drop in liquidity of firms caused by the restrictions, and the measures used tried to address this problem. The temporary, emergency financial measures used can basically be classified into three categories: (1) providing access to finance through government-backed loan guarantees; (2) deferral of payment of loans, taxes, and social security contributions; (3) direct subsidies, lump-sum supports to businesses *Table 5.1.1* summarises the measures used by each country.

Table 5.1.1: Financial support measures for businesses during the Covid crisis

Credit guarantees	Deferral of payments of taxes or social security contributions	Direct subsidies, lump-sum support
Austria, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Norway, Portugal, Rumania, Spain, Sweden, the Netherlands, United Kingdom	**Deferral of payments** Austria, Belgium, Finland, France, Greece, Italy, Lithuania, Luxemburg, Luxemburg, Malta, Montenegro, Poland, Portugal, Rumania, Serbia, Slovakia, Slovenia, Spain, Sweden, United Kingdom, United States (Employee Retention Tax Credit) **Temporary moratorium on payments** Czech Republic, Estonia, Poland, Hungary, Slovenia **Reduction of tax or social contributions** Austria, Greece, Sweden, United Kingdom	United States*

* See US Congress.
Source: *Eurofound* (2020).

European countries have tried to guarantee access to finance for businesses by providing loan guarantees. These could take the form of direct government backing for business loans or the allocation of government funds to commercial banks to ensure and encourage continued lending to businesses. Government guarantees ranged from 50 percent to 100 percent, most often in the range of 80 percent (*Eurofound,* 2020). In addition, there have been widespread use of payment moratoria on loan repayment, deferrals and waivers of tax or contributions liabilities, as well as targeted (e.g. sectoral) subsidies.

The US has adopted a slightly different approach from the European solutions. Various programmes were introduced under the *CARES-Act*[1] (*Coronavirus Aid, Relief, and Economic Security Act*), adopted in March 2020 to deal with the economic shock of the coronavirus.

One of these the *Employee Retention Tax Credit* scheme has allowed employers to defer tax liability on their employees. The *Payroll Support Programme* provided industry-wide, non-refundable assistance to air carriers and contractors to pay their employees' wages. And the *Funding for Emergency Economic Injury Disaster Loan Programme* provided non-refundable assistance to businesses particularly affected by the restrictions. The most important programme was the *Paycheck Protection Programme* (*PPP*) for small and medium-sized enterprises, which contrary to European practice, was not a loan guarantee, but a bank loan programme provided by commercial banks that could be totally or partially turned into a government-financed, with the condition that the enterprise did not lay off a certain proportion of its workers or rehired them before a certain date. The scheme targeted small and medium-sized enterprises and provided loans of up to 2.5 times the average monthly wage bill. The evaluation literature on the programmes is not yet conclusive; the results so far show that the programmes improved the survival of enterprises but had only a modest impact on employment (see for example *Bartik et al., 2020, Hubbard–Strain,* 2020).

With the new waves of the pandemic, most European countries have extended their programmes to help businesses and firms survive. Given the specificities of the Covid crisis, this caution seems justified (*Blanchard et al,* 2020), but as vaccination rate increases, countries are increasingly seeking to adjust their support measures so as they do not prevent reallocation of the economy to reflect the changed circumstances while maintaining protection (see for example *Blanchard et al.,* 2020, *OECD,* 2021), as the pandemic is likely to have a lasting impact on some segments of the economy due to changes in habits, preferences and technologies (see for example *Costa Dias et al.,* 2020).

Job-retention measures

During the Covid pandemic, most governments adopted measures to protect workers from the labour market shock caused by Covid-19, but the means

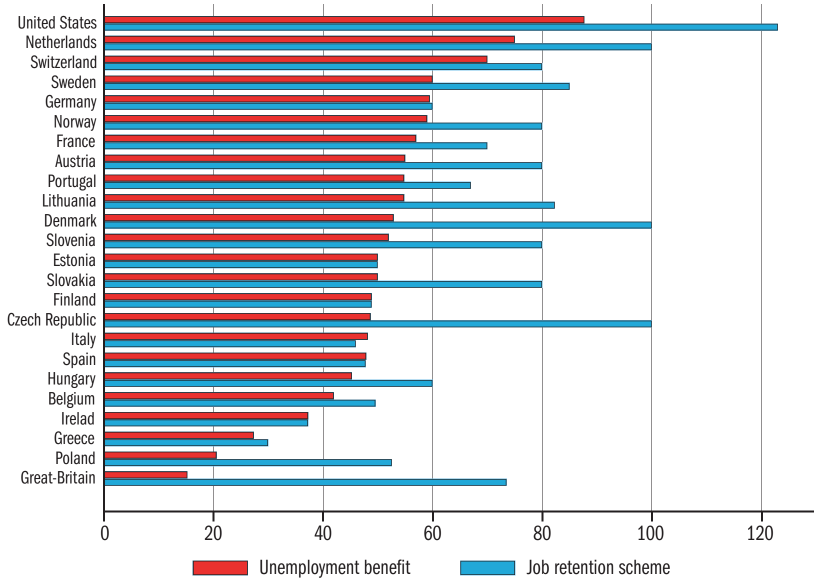
1 See US Congress.

used varied widely between countries and at different stages of the pandemic. Job retention schemes took the form of short-time working schemes (STW) or wage subsidies. In wage subsidy schemes, firms receive financial support per employee, regardless of whether or not the actual hours worked by each employee have been reduced or not, while in short-time working schemes, the hours not worked are subsidised. In most European countries, the most commonly used job retention measure has been a short-time work programme, inspired by the German *Kurzarbeit* scheme. The *Kurzarbeit* system was very successful in protecting Germany from high unemployment during the financial crisis of 2008–2009 (see for example *Burda,* 2011, *Brenke et al.,* 2013). Some European countries had already used such schemes before the Covid crisis and have now expanded them. These measures were first introduced during the 2008–2009 financial crisis and have not been discontinued afterwards, but the number and share of beneficiaries were negligible until the Covid crisis. At the start of the crisis, Austria, Belgium, the Czech Republic, Denmark, Finland, France, Sweden and the United States modified their existing short-time work schemes to *increase the number of beneficiaries.* Austria, Belgium, the Czech Republic, Finland, France, Germany, Luxembourg, Norway, Slovakia, Spain, Sweden and the United States *increased the generosity of the previous schemes* (*OECD*, 2020a). Finland, France, Germany, Italy, Portugal and Spain *have also allowed access for workers in non-standard jobs*. Estonia, Ireland, the Netherlands and Portugal *have introduced new wage subsidy schemes* (*OECD,* 2020a). And of the countries that did not have such a system, most have introduced one (Denmark, Greece, Hungary, Island, Latvia, Lithuania and the United Kingdom [*OECD,* 2020a, *Eurofound,* 2020]).

Details and the generosity of the systems used varied greatly between countries, but the essentials were the same. STW workers remain under contract with their employer, accept a small pay cut, and the government pays some or all of the employers' wage costs. These schemes differ from standard unemployment insurance schemes in several features. On the one hand, they allow workers to work part-time, with the state paying all or part of the wages due for the time not worked. On the other hand, they allow workers to remain in a contractual relationship with their employer even if they do not work at all. This not only makes it easier for the worker concerned but also for companies to restart: it prevents them from losing workers with firms-specific skills and having to recruit again when their activities restart. Finally, another difference between unemployment benefits and short-term working schemes is that the latter typically provides workers with more generous benefits than the former (see *Figure* 5.*1.1*).

New job-retention measures or extensions of old ones were introduced by most European countries very early in the pandemic, usually in mid-March, to prevent lay-offs. Although most countries had some kind of job retention scheme in place, these varied widely between countries in terms of conditions, take-up rates and at different stages of the pandemic.

Figure 5.1.1: Gross replacement rates of job retention schemes and unemployment benefits in May–June 2020



Source: *OECD* (2021).

Table 5.1.2 compares some of the main features of job retention schemes in the European countries and the take-up rates in April–May 2020, September 2020 and February-March 2021. Following the OECD three types of *short-time work* are distinguished (1) the *unrestricted short-time work*, when there are no significant limits on the rate of reduction in working time; (2) *furlough* schemes, where no partial reduction of working time is allowed. In this scheme the workers are effectively temporary unemployed, but they keep their contract with the employer; (3) *Work sharing* schemes, in which there are serious limitations on the reduction in working time. The table distinguishes between two categories of *wage subsidy* schemes, (4) *pure schemes*, in which wage subsidy is based on the wage bill only and (5) *mixed schemes*, in which reductions in wage bill and in business activity are taken into account. The take-up rates show the number of workers under these schemes as a proportion of total employees.

The characteristics of the schemes and take-up rates varied widely between countries and at different stages of the pandemic. Typically, the highest uptake rates were during the first wave of the pandemic, in the spring of 2020, when uptake rates reached 25–35% in some countries. By autumn 2020, uptake rates dropped significantly, and then during the spring wave in 2021 they picked up again, although not to the level witnessed during the first wave.

Table 5.1.2: Characteristics of job retention schemes and take-up rates (as a percentage of total employees)

	Type	Rate of subsidy	Requirements regarding percentage reduction in turnover	Requirements regarding share of workforce affected	Duration of the support (in months) according to the September 2020 rules	Take-up rate percentage		
						April-May 2020	September 2020	February–March 2021
Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(6)
Austria	1	80–90 percent of the previous wage	None stipulated	None stipulated	6	27.5	5.1	4.4
Belgium	1	70 percent of the average wage (EUR 2755/month)	10 percent	20 percent	2	29.9	5.5	9.7
Czech Republic	1	60–100 percent of the average earnings	None stipulated	None stipulated	6	13.5	2.5	6.6
Denmark	2	100 percent	None stipulated	30 percent	6	10.3	0.2	1.3
Estonia	4	70 percent of gross salary between March and May 2020; 50 percent in June 2020	20 percent	30 percent	4	20.1	0	0
Finland	2	EUR 2000 fixed amount	None stipulated	None stipulated	9	7.5	2.6	2.9
France	1	At least 70 percent of net salary	None stipulated	None stipulated	12	35.2	4.9	9.6
Germany	1	60 percent of the net wage. (67 percent if the employee has at least one child), 70 percent after 3 months, 80 percent after 6 months.	At least 10 percent reduction in working time	10 percent	21	15.5	5.8	8.4
Great-Britain	2	80 percent of gross salary, maximum GBP 2,500*	None stipulated	None stipulated	6*	31.7	10.2	15.1
Greece	2	60 percent of net pay for hours not worked	None stipulated	None stipulated	7	20.7	4.6	19.2
Hungary	3	70 percent of net pay for lost working time	75 percent reduction in working time	None stipulated	3	2.6	5	n. a.
Ireland	4	70 percent of salary or 85 percent if weekly salary is less than EUR 412	25 percent	None stipulated	5	23.2	17.7	15.7
Italy	1	80 percent of the last wage	None stipulated	None stipulated	10	30	6.5	8
Lithuania	1	70 percent of gross wage, but not less than the minimum wage	None stipulated	None stipulated	n. a	13.8	.8	7.8
Netherlands	5	90 percent of wages lost from March to May 2020; 80 percent from June; 85 percent from January 2021	20 percent	None stipulated	8	35.4	13.4	7
Norway	1	n. a.	n. a.	n. a.	n. a.	10.7	2.5	2.9
Poland	5	50–80 percent of gross salary	15 percent	None stipulated	2	4.3	0.1	n. a.
Portugal	1	70 percent of 2/3 of gross salary from March to June 2020, 100 percent of gross salary from January 2021	None stipulated	None stipulated	n. a.	19.4	1.6	n. a.
Slovakia	5	80 percent of gross salary, maximum EUR 880, later increased to EUR 1,100	20 percent	None stipulated	7	21.5	8.5	1.6
Slovenia	2	80–100 percent of gross wage, not less than the minimum wage	None stipulated	10 percent	7	21.2	3.1	7.1
Spain	1	70 percent of net salary for the first 180 days, then 60 percent	None stipulated	None stipulated	8	20.5	4	5.4
Sweden	3	75–80 of the wage bill, maximum EUR 4,400 per month	None stipulated	None stipulated	8	12.2	6.8	2.2
United States	3	n. a.	n. a.	n. a.	n. a.	0.2	0.1	0.1

* See cipd.co.uk.

Sources: Columns (1), (6), (7), (8) *OECD* (2021); column (2) *Baptista et al.* (2021); columns (3), (4), (5) *Eurofound* (2021).

In contrast to European countries, the United States has given much less importance to job retention measures, instead trying to address the problems of workers through massive social transfers (for example, providing grants to all households below a certain income level) and the extension of unemployment benefits. As the number of claims, suddenly increased dramatically especially at the beginning of the Covid crisis the unemployment offices in charge of paying benefits often became overloaded, causing serious confusion and delays in the payment of benefits. Job retention schemes in European countries relied on firms to pay workers and were, therefore, more effective in reaching workers (*Blanchard et al.,* 2020).

As the pandemic progressed, some of the job-retaining schemes s were modified. Partly the level of support has been changed (as can be followed *in Table 5.1.2*), partly the targeting of support has been strengthened in some countries, partly the duration of support has been limited (*OECD,* 2021), and some countries have increased the employers' share of the cost of support if they wish to continue participating (France and Spain) or introduced new eligibility criteria (e.g. Estonia) (*Eurofound,* 2021).

Support for job losers and the unemployed – changes to unemployment benefits

The Covid-19 pandemic has led to a very serious drop in labour demand, making it difficult for those who have lost their jobs to find new ones. This is why the United States[2] and most European countries have temporarily introduced changes to unemployment benefits. There were only a few countries that did not introduce any changes (Cyprus, the Czech Republic, Croatia, Hungary, the Netherlands, Slovenia and the United Kingdom). The changes either affected the duration of receipt of benefits or the relaxation of eligibility criteria. In many countries, the duration of receipt of benefits was extended or/and the eligibility criteria were modified to allow access for those who were not previously eligible for benefits because they had not worked long enough or were self-employed, or had a non-standard employment contract or did not meet other criteria to receive benefits. The amount of the benefit has been increased in the United States and nine European countries, and the rule that the amount of unemployment benefit decreases over time has been suspended in several countries. The main changes affecting unemployment benefits are summarised in *Table 5.1.3.*

Other measures

In addition to the measures presented so far, many countries have used other measures too, such as extending paid sick leave or increasing the compensation rate and amount of sick pay, protecting tenants and mortgage holders, supporting parents during school shutdowns, etc. (for more details see *Eurofound,* 2020, 2021, *Baptista et al.,* 2021).

2 See US Government.

Table 5.1.3: Temporary changes to unemployment benefits during the Covid-19 pandemic in European countries and the United States

Country	Relaxation of eligibility conditions	Extension the duration of receipt benefits	Increasing the size of the benefit
Austria			yes
Belgium	yes	yes	yes
Bulgaria	yes	yes	yes
Croatia	no		
Cyprus	no		
Czech Republic	no		
Denmark		yes	yes
Estonia	yes		yes
Finland	yes	yes	yes
France	yes	yes	yes
Germany		yes	
Greece	yes	yes	
Hungary	no		
Ireland	yes		yes
Italy	yes	yes	
Latvia			yes
Lithuania	yes	yes	yes
Luxembourg		yes	
Malta	yes		yes
Netherlands	no		
Poland	yes		yes
Portugal	yes	yes	
Rumania	yes	yes	
Slovakia	yes		yes
Slovenia	no		
Spain	yes		
Sweden		yes	
United Kingdom	no		
United States*	yes	yes	yes

* Based on usa.gov Table 2.1.
Source: *Baptista et al.* (2021).

EU-level measures

After the outbreak of the Covid-19 pandemic, the European Commission took several measures to support national efforts to tackle the crisis. One of the first important measures was the relaxation of EU state aid rules and the application of the full flexibility of EU fiscal rules to allow governments to provide liquidity to the economy to support businesses and jobs. In April 2020, an emergency rescue package of EUR 540 billion was adopted to tackle the consequences of the crisis. The package included a EUR 200 billion Guarantee Fund established by the European Investment Bank to provide support for businesses, especially small and medium-sized enterprises, and also a new EUR 100 billion fund created in May 2020, the *SURE* instrument, (*Euro-*

pean Instrument for Temporary Support to Mitigate Unemployment Risks in an Emergency) *which* provided financial support to EU Member States that needed to mobilise significant financial resources to combat the negative economic and social impact of the coronavirus pandemic (*Eurofound,* 2021). In July 2020, the *Next Generation EU* (*NGEU*) recovery fund was established to support Member States affected by the Covid-19 pandemic. This is the largest stimulus package in the history of the EU.

Summary

European countries and the United States have already spent unprecedented amounts of money on programmes to address the economic and welfare impacts of the Covid pandemic. No comparable data are yet available on total and country expenditure by programme. According to some calculations, among Europe's leading economies, the UK spent 3.2 percent of its GDP in 2020 on job-retention measures from the start of the pandemic until the end of July 2021, Germany spent 1.2 percent, France 1.6 percent, Italy 1.5 percent and Spain 1.7 percent. The United States spent 3.7 percent of its 2020 GDP on unemployment benefits by the end of July 2021, including unemployment assistance programmes established at the start of the pandemic, such as support for the traditionally ineligible or the self-employed (*Look et al.,* 2021).

The huge expenditure and the protraction of the crisis have revived the debate about whether the US or Europe's handling of the crisis has been more successful. So far, only preliminary assessments of the impact of the different forms of aid have been made, showing that job-retention measures initially helped to prevent a serious rise in unemployment in European countries (*OECD,* 2021), while in the United States unemployment rose sharply at the beginning of the pandemic. However, this short-term positive effect may be offset by the fact that job-retention measures may slow down economic transformation by slowing down reallocation processes, which could lead to a prolongation of the crisis. However, the Covid crisis is in many respects unique compared to previous economic crises, because the future evolution of the pandemic will primarily decide how long the changes in demand and supply we are witnessing now will be sustained once the need for distancing is no longer necessary. Given the uncertainty about changes in the structure of the economy, it would be difficult at this stage to decide which crisis management approach has been more effective in the long run (*Claeys et al.,* 2021).

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5.2 JOB RETENTION WAGE SUBSIDIES DURING THE PANDEMIC IN HUNGARY

JUDIT KREKÓ & JÚLIA VARGA

During the coronavirus pandemic, the government launched three major job retention wage subsidy programmes. The *Short-time work compensation scheme Programme* (*Csökkentett munkaidős foglalkoztatás támogatása*) was launched on 16th April, during the first wave, more than a month after a state of emergency was announced on 11th March.[1] Similar programmes in other countries were available just at the beginning of the lockdowns or after a short time. The Hungarian programme, however, only became available weeks later (see *Subsection 5.1*). At the time of its introduction, the eligibility conditions were strict, and the amount of the wage subsidy was low in international comparison: the state reimbursed 70 percent of the maximum 30–50 percent loss of working time, up to a maximum of HUF 75,000. It seems likely that these conditions caused that only a few thousand companies submitted applications in the weeks following the introduction of the programme. Finally, the government relaxed the initial, extremely strict conditions to some extent from 29th April: it increased the allowable range of lost working time to 15–75 percent and increased the maximum amount of support to HUF 112,000.

In the following, the support programmes are described using the individual anonymised data of the jobseekers' register of the National Employment Service. We do not have information on the structure of job retention benefits launched during the first wave of the coronavirus pandemic, but we do have information on the number of recipients and the time of admission.

In May 2020, following a change in the eligibility criteria, the number of beneficiaries of the Short-time work compensation scheme increased, but this could not prevent earlier lay-offs in March and April. The impact of delays in the wage subsidy schemes summarised in *Table 5.2.1* is reflected in *Figure 5.2.1*. By the time the short-time work compensation scheme started to make a difference, already nearly 70 thousand more people had registered as jobseekers than in March and April in 2019. Data of the declarations of employer's contributions of the NAV (National Tax and Customs Administration) show that from March to April 2022 the number of people losing their health insurance from March to April 2020 was by 140 thousand higher than during the same period in 2019 (see *Subsection 2.5*).

The Specific scheme for workers in R&D programme which was also launched in mid-April 2020, can be considered to be very generous internationally, in contrast to the short-time work compensation scheme.[2] More than 27 thousand researchers working in the research, development and in-

1 Government Decree 105/ 2020. (IV. 10.).
2 Government Decree 103/2020. (IV.10.).

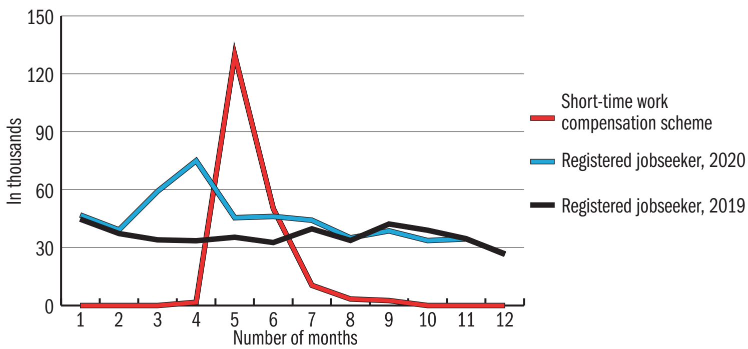
novation sector received wage subsidies, while according to the data of KSH (Hungarian Central Statistical Office, CSO), the number of research and development positions was 48 thousand, of which 34 thousand were researchers. Highly qualified employees working in research and development were entitled to a wage subsidy even if their job or work was not directly threatened by the pandemic. The amount of research and development wage subsidy per capita (a total of HUF 740 thousand) was well above the Short-time work compensation scheme subsidy of HUF 250 thousand per capita. The Specific scheme for workers in R&D programme originally lasted three months, and in January 2021 it was relaunched for another three months.

Table 5.2.1: Characteristics of programme the job retention schemes launched during the coronavirus pandemic in Hungary

	Short-time work compensation scheme	Specific scheme for workers in R&D	Sector-specific scheme
Number of subsidised employees (thousand persons)	198	27	165
Amount spent (thousand HUF/person)	140	740	670
Duration of the programme	April 16, 2020 – August 31, 2020	April 16, 2020 – August 31, 2020; January 04, 2021– May 8, 2021	November 11, 2020 – May 2021

Source: Based on individual anonymised data of ITM *National Employment Service's* register of registered jobseekers and the *State Audit Office of Hungary*.

Figure 5.2.1: Number of newly registered jobseekers and those entering the short-time work compensation scheme



Source: Based on individual anonymised data of ITM *National Employment Service's* register of registered jobseekers.

The Sector-specific scheme programme was introduced during the second wave, and unlike the programmes during the first wave, it was launched without delay the day after the 11th November lockdown. So, it was more likely to help preserve jobs than the programmes introduced during the first wave.[3] The new wage subsidy programme was available to companies in the sectors most af-

3 See NFSZ.

fected by the pandemic, mainly in the 25 NACE 2 (Statistical Classification of Economic Activities in the European Community) groups related to tourism, hospitality and cultural services. The amount of subsidy – up to 150 percent of the minimum wage – covered a maximum of 50 percent of the wage. Thus, sectoral wage support was more generous than the first programme, but even then, the level of subsidy was lower than in other countries (see section 5.1). As of 8th March, 2021, due to the lockdowns related to the third wave of the coronavirus pandemic, the government extended the scope of sectors.[4]

The distribution of the wage subsidy programme – based on individual-level National Employment Service data – is shown in *Table 5.2.2.* The vast majority of the subsidies were received by the beneficiaries for several months, three-thirds from the start of the programme until at least 31 May, i.e. for seven months. By the end of May, 165,000 people had received wage subsidies, 60 percent of whom were women. This is explained by the fact that a higher proportion of women work in the sectors concerned.

Table 5.2.2: Composition of sector-specific wage subsidy recipients, November 2020 – May 2021

Indicator	Value
Number of people receiving wage subsidy (persons)	165,422
Proportion of women (percentage)	58.2
Professions (percentage)	
Proportion of white-collar jobs (HSCO 1–3)	23.0
Unskilled jobs (HSCO 9)	24.0
Jobs in catering	35.0
Jobs in commerce	22.0
Educational attainment (percentage)	
At most lower secondary education	9.2
Upper secondary	75.8
Tertiary	14.9
Sector (percentage)	
Hospitality (NACE 56)	38.1
Retail trade (NACE 47)	20.7
Accommodation services (NACE 55)	9.8
Company size (number of employees)	
1–9	38.0
10–49	30.0
50–249	15.0
Above 250	17.0

Source: Own calculations based on individual anonymised data of ITM *National Employment Service's* register of registered jobseekers.

38% of the beneficiaries were employed in the hospitality, restaurant and mobile hospitality industries (NACE 56). The second-largest group was formed with 20% by the retail industry (NACE 47), followed by accommodation services with 10% (NACE 55).

4 See TB Szemle.

According to data of the declarations of employer's contributions of the National Tax and Customs Administration (NAV) about 42 percent of the employees in the sectors eligible for sectoral wage subsidies received assistance. Between October 2020 and March 2021, the number of employees of employers filling in the monthly declaration of employers' contribution to the tax authority decreased by about 40,000 from 360,000 to 320,000, close to the April 2020 level in the subsidised sectors. However, this is largely due to a decline in inflows: about 3,000 more people lost their health insurance than between October 2019 and March 2020.[5] We do not have sufficient information available yet to estimate the number of jobs the programme has prevented from being lost; this would require a proper impact analysis.

5 Source: Declarations of employer's contributions of the National Tax and Customs Administration (NAV) see section 2.5.

5.3 WHAT HAPPENS TO JOBSEEKERS AFTER BEING REGISTERED?

István Boza & Judit Krekó

In this subsection, we address the issue of the types of support and active programmes provided to people registered as unemployed with the employment services, as well as the time these people will remain on the register. For this analysis, we will be using the individual level database of the National Employment Service containing – besides the personal data of registered jobseekers – data regarding participation in active labour market programmes and public employment programmes.

As a result of job losses during the first wave of the coronavirus pandemic, the number of people registered on the employment service registry doubled compared to the same period in 2019, whereas the fall of demand for labour significantly worsened the chances for employment also of those already on the registry (see *Subsection 2.6*). All this represented a considerable extra burden for the employment services, which operated with limited capacities, whereas in the meantime lockdowns and other restrictive measures related to the pandemic made effective, personalised administration with jobseekers even more difficult for the employment services (see in *Section 5.5*). The question is, to what extent the employment services were able to help jobseekers entering the registry in finding jobs, and whether the jobseeker's benefit was an adequate income substitute for those left without employment.

In the following, we analyse what happens to the registered jobseekers during the first 40 weeks following registration. The analysis focuses mainly on new entrants registered during the first wave of the pandemic (16th March and 2nd June 2020.). We compare the post-registration history of this group with that of those entering during the same period of 2019.[1] *Figure 5.3.1* follows the jobseekers entering the registry in the two different periods for 40 weeks following registration. In the figure, the following mutually exclusive statuses are distinguished: receives jobseeker's benefit, receives pre-retirement jobseeker's benefit, employed with wage subsidy, works in public employment, participates in classroom training. In cases where there were overlapping statuses, we accepted the higher status based on the hierarchy according to the previous listing. In the lack of these – or other special statuses that are not indicated in the figure or are very rare – we consider the individuals to be registered without subsidy, who will be given a distinct status: left the registry.[2]

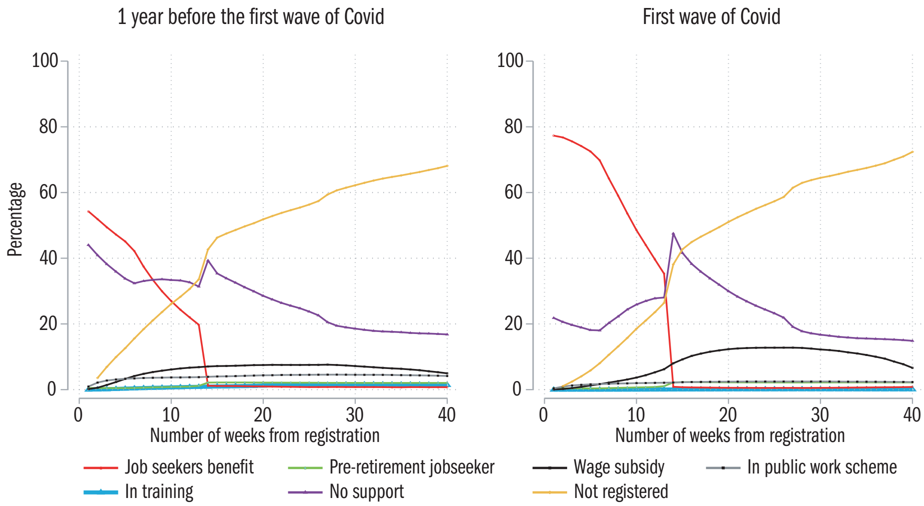
During the first wave of the pandemic – as many people who lost their jobs due to the pandemic after long work histories entered the registry – a much higher-than-usual proportion (approximately 80%) of the entrants were grant-

1 We prepared the figures also for the year 2018, and have found that they are almost identical to the patterns from 2019, so for the sake of transparency, we only kept the latter in this study.

2 People granted long wage subsidies are also removed from the registry, in their case we illustrate the wage subsidy as an observable outcome.

ed job search benefit, whereas only 50–55% of those entering during the summer of 2019 received such benefit. However, after the expiry of the three-month period of the jobseekers' benefit, the proportion of non-subsidised jobseekers entering during the first wave of the pandemic jumped much more significantly, than in the years 2018 and 2019. As a result, unemployed people were left without jobseekers' benefit and labour market programmes in much higher proportions, than usual. Among those initially receiving benefit during the first wave, the number of those registered without jobseekers' benefit and labour market programmes jumped by approximately 30 thousand people after the expiry of the three months, the ratio of those without support returned to pre-pandemic levels only after approximately 4–5 months from entry.

Figure 5.3.1: Following new entrants on the registry during the first wave of the pandemic for 40 weeks following registration



Source: Based on individual anonymised data of ITM *National Employment Service's* register of jobseekers.

As a result of the labour market shock caused by the pandemic, most European countries have changed their unemployment benefit systems by loosening the eligibility conditions, increasing the amount of the benefit or extending the term of disbursing the benefit (see *Subsection 5.1*). Hungary did not modify its system of unemployment benefits and did not extend the duration of the unemployment benefit – despite having the shortest duration among all EU member states even before the pandemic –, even despite the figures indicating that the three-month period was not sufficient to replace the labour income lost because of the pandemic.

During the crisis, employment services of OECD and of the EU member states typically increased financial resources spent on active labour market programmes and the scope of programmes. (*OECD,* 2021). In order to assess the domestic role of active labour market programmes more accurately, we evaluated the probability of those still on the registry 14 weeks after being registered, getting into one of the active programmes during the subsequent three months. *Figure 5.3.1* shows that those who registered during the first wave of the pandemic participated in active labour market programmes after at least three months spent as jobseekers to a lesser extent than during the years preceding the pandemic: instead of the 37% rate typical for the years 2018–2019, only 29% of them entered one of the programmes in 2020. Among them, the proportion of those involved in public work dropped to 5%, training practically ceased to exist, and the subsidy for becoming an entrepreneur significantly dropped, as well. However, more wage earners than usual have been placed in wage subsidies than usual.

Table 5.3.1: Distribution of individuals entering the registry in the first wave of the pandenic-time by participation in labour market programmes (percent)

Date of entry	All labour market programs	Public work	Wage subsidy	Training	Subsidy to becoming an entrepreneur
March 15 – June 2, 2018	39.6	11.1	17.5	4.2	4.5
March 15 – June 2, 2019	37.0	9.5	16.6	3.8	5.7
First wave (March 15 – June 2, 2020)	29.9	5.1	22.0	0.3	1.8

Note: Distribution of registered jobseekers by participation in labour market programmes, provided they have been on the register for at least three months.
Source: Based on individual anonymised data of ITM *National Employment Service's* register of jobseekers.

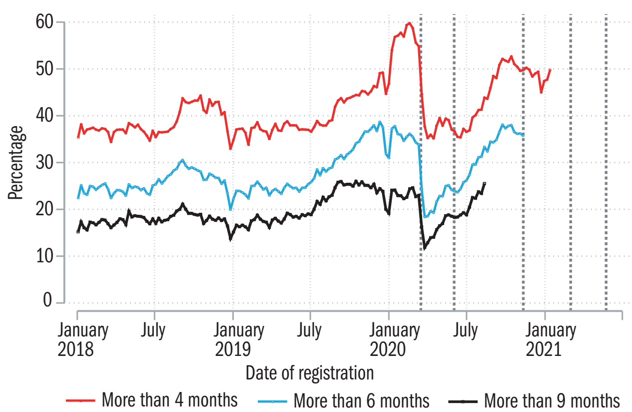
The largest increase in wage subsidies happened in the "Road to the Labour Market" wage subsidy program,[3] which provides a maximum of 100 percent subsidy primarily to companies employing registered jobseekers over the age of 25, with lower education. Although the program was primarily designed to help jobseekers with primary education, during the first wave of the pandemic it became much more common for individuals with secondary or higher education to enter the program. Comparing jobseekers entering in the spring of 2020 with those entering a year earlier, we found that the share of unskilled jobseekers within the "Road to the Labour Market" wage subsidy program decreased by 14 percent, while the share of those with vocational education increased by 9 percent and that of jobseekers with general education by 5 percent. Based on the available data, we cannot determine, whether this was due to the fact that the companies concerned would have preferred to employ qualified people in the first place, while not having enough applicants, or that the agencies used the opportunity to support at least new entrants with higher qualifications than usual, who are easier to get a job for.

Based on *Figure 5.3.1*, a similar proportion of people entering during the first wave left the register after 40 weeks as in the same periods of the previ-

3 "Road to the Labour Market", GINOP 5.1.1-15-2015-00001 labour market program.

ous years, but during the first four months we experienced a slower rate of leaving among those entering in 2020 and receiving a higher share of benefit. At first glance, the rise in long-term unemployment (see *Subsection 2.7*) contradicts the above finding. The contradiction, however, can be resolved: the most severely affected group of entrants is not those who lost their jobs during the first wave, but those who lost their jobs during the three months preceding the first wave. This phenomenon is illustrated in *Figure 5.3.2,* where we show the proportion of the population entering the register at a given point in time and remaining on the register for at least four, six or nine months. As can be seen, the proportion of those who remain registered for at least four or six months among those entering during the first wave is indeed not higher, than it typically used to be previously for this part of the year. However, the chances to quit for those joining during the months immediately preceding the pandemic have dropped drastically.

Figure 5.3.2: Proportion of those permanently on the register



Source: Based on individual anonymised data of ITM *National Employment Service's* register of jobseekers.

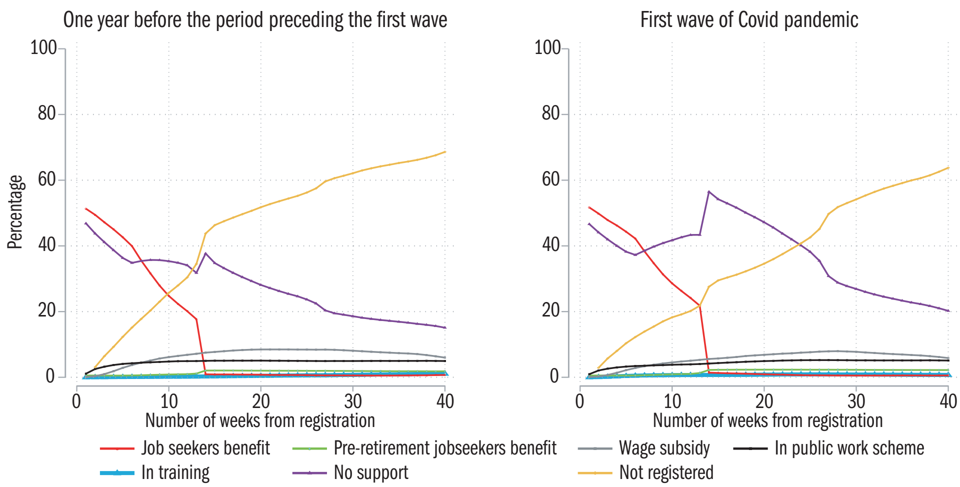
In addition, the better-than-usual composition of entrants at the time of the first wave also plays a role, which was tested using Cox's proportional hazard regression model for exit rates. Based on the model, the difference in expected exit rates between years is statistically significant, if we control for time-invariant characteristics of individuals as well as whether they were eligible for an allowance. So, taking into consideration the changed composition of entrants of 2020 – on average, people who tend to find work more easily have entered the registry – people with similar characteristics could expect a somewhat slower exit after the beginning of the pandemic.[4]

Figure 5.3.3 shows that those who enter the registry during the period directly preceding the pandemic (between January 1 and March 15, 2020) were even more unfortunate than those entering during the first wave, as their job-

4 The controlled hazard ratio is 0.9, and is significantly different from 1.

seekers' benefit was terminated during the lockdowns in the first wave of the pandemic, when their chances to find work became even slimmer than during the months following the end of the lockdown. Accordingly, they left the registry more slowly than those entering during the crisis, and more of them were left without support. In addition, fewer of them participated in other active labour market programmes (provided by the employment services), than those entering during the same period of the previous years (*Table 5.3.2*). Moreover, the proportion of those getting jobs as part of wage subsidy programmes decreased compared to the first wave as well.

Figure 5.3.3: Following up new entrants for 40 weeks from the date of entry (January 1 – March 15, 2020)



Source: Based on individual anonymised data of ITM *National Employment Service's* register of jobseekers.

Table 5.3.2: Participation of individuals entering the registry between January 1 and March 15 2020, in active labour market programmes (percent)

Date of entry	All labour market programs	Public work	Wage subsidy	Training	Subsidy to becoming an entrepreneur
January 1 – March 15, 2018	43.2	13.5	18.6	4.5	4.4
January 1 – March 15, 2019	38.1	11.1	18.2	1.8	5.7
Before first wave (January 1 – March 15, 2020)	28.0	8.8	13.4	1.7	3.3

Note: Distribution of registered jobseekers by participation in labour market programmes during the six months following the entry, provided they have been on the register for at least three months.
Source: Based on individual anonymised data of ITM *National Employment Service's* register of jobseekers.

In summary: people registering as jobseekers during the first wave of the crisis – also taking into consideration the different composition – left the registry with worse chances compared to those in previous years, and the chance of being stuck in the registry increased, especially for those becoming unemployed just before the pandemic. However, compared to the years before the pandemic, the duration of the jobseekers' benefit has not increased, and chances of being involved in the active labour market programs have even decreased, so larger proportions of those registering before and during the pandemic were left without jobseekers' benefit and active labour market programs, for a longer period.

Reference

OECD (2021): Active labour market policy measures to mitigate the rise in (long-term) unemployment. – A summary of country responses to the OECD-EC questionnaire.

5.4 PUBLIC WORK DURING THE CRISIS

BALÁZS BAZSALYA & GYÖRGY MOLNÁR

An increase in the number of registered unemployed – occurring every year – started already in January 2020, but while in previous years this would start to fall off in April, in 2020 – due to the pandemic – it continued growing dynamically from the start of the lockdowns, peaking in June (*Subsection 2.6.*) It was mainly those who were entitled to the *jobseekers' allowance* (*see Figure 2.6.3*) that registered as unemployed, so the number of recipients of the allowance increased together with the number of those registered. The number of jobseekers without benefits also started to increase in January, then peaked in July after the expiry of the three-month eligibility period for jobseekers entitled to benefits in the first wave. In the meantime, the number of public workers – apart from the usual seasonal fluctuation – did not grow at all.

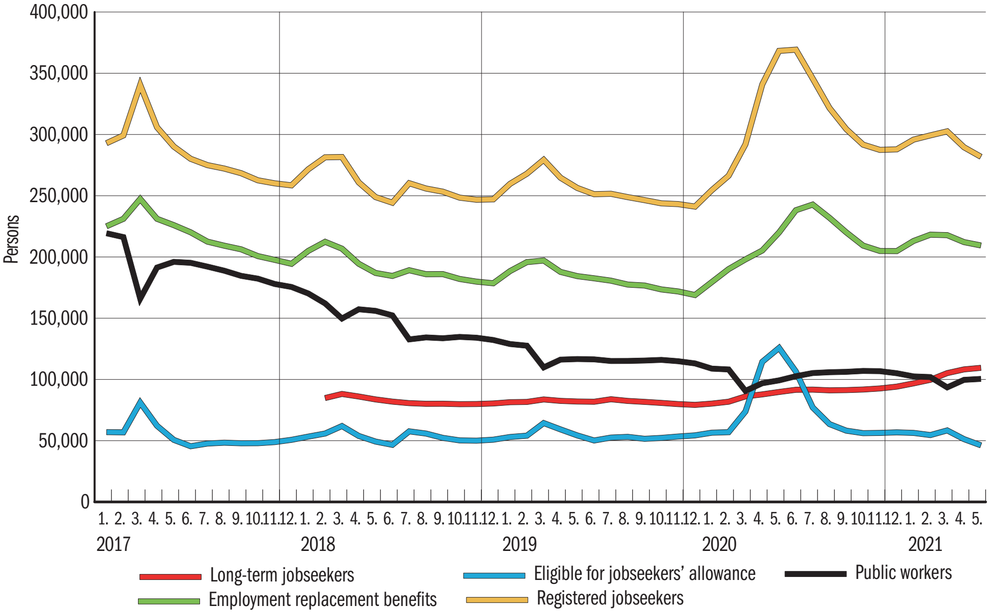
In order to see cyclically repeating phenomena, as well, *Figure 5.4.1* shows the trends in the numbers of registered jobseekers, in particular those eligible for jobseekers' allowance, jobseekers not eligible for jobseekers' allowance (i.e. those without benefits and those eligible for subsidies substituting employment, combined), long-term jobseekers, as well as public workers starting from 1st January 2017, based on monthly data.[1] Planning period of public work lasts from March to February, March always being the low point in public work, as most of the programmes in the previous year are discontinued at the end of the planning year, and new ones do not start right away. The same phenomenon could also be observed in 2020, but the increase was not higher than usual in April or during the summer, when the three-month period of the allowance started to discontinue for the new jobseekers of the first wave. The number of public workers was more than 10% lower between March 2020 and February 2021, than a year before. The only difference from the previous years was that the number of public workers did not continue to decrease in 2020.

During the last decade, public work fulfilled employment policy, social and settlement operation functions (cf. *Molnár et al.,* 2019). Compared to the dynamic growth observed in the middle of the decade, the number of public workers started to decrease considerably from 2017. The expansion of the primary labour market played a decisive role in this, and government measures aimed at reducing public work also had an impact.[2] One might have expected that public work would be given an important role in the present crisis situation to mitigate the social and labour market tension due to the increasing number of jobseekers. Our primary research question was, "Why did public work not react to the increasing number of jobseekers, particularly those without benefits?"

1 We would like to thank *Zsuzsanna Sinka-Grósz* for her help in processing the data set.

2 See Government Decree 113/2017 (III. 20.).

Figure 5.4.1: Trends in monthly average numbers of different types of public workers and registered jobseekers



Note: Long-term jobseekers mean people searching for jobs for at least a year. in the case of those receiving jobseekers' allowance, the data related to suspension are only available from January 1, 2019, but the rate of those suspending is negligible, below one-thousandth.

Source: Own calculation based on the *NFSZ* data set.

In order to reconstruct public policy ideas and measures in the field of public work during the coronavirus pandemic we conducted 17 semi-structured interviews with various players in the employment institution system, as well as with public workers. The interviewees were ministry officials, employees of county and district employment (general) departments, and mayors of municipalities.[3]

The demand for public work did not grow

According to the unanimous testimony of the interviews, after the outbreak of the pandemic, both government decision-makers and those working at the county and district levels of the labour apparatus expected that public work would need to be expanded to accommodate new job seekers. Planning of public work schemes begins as early as the previous autumn; the pandemic had just broken out when the new annual programmes were launched, so the government would have intervened in programmes already planned and contracted. According to the interviewees, the Ministry of the Interior developed a forecasting system to monitor and model the development of the labour market situation in each region, in which it would be necessary to in-

3 We preferably selected interviewees, whom we interviewed in our research conducted five years ago (*Molnár et al.,* 2019) thus being able to make comparison. All of them were willingly and openly at our disposal, we hereby thank them for their cooperation.

tervene in the labour market processes by means of the system of public work. The additional needs of national public employers were assessed and an action plan was drawn up on how the potentially increased number of public workers could be involved in pandemic-related measures (e.g. mask-making, sheet production, supporting the work of law enforcement organisations).

In May 2020, certain provisions of the 2017 government decree aimed at the reduction of public work referred to above were suspended, once again facilitating the entry to the public work scheme for those eligible. In addition, new entrants did not have to wait for a three-month placement period or a three-time (or even one-time) failed placement in the primary labour market to enter public work.[4] Public work planners also expected that when those entitled to job search assistance who became unemployed at the beginning of the first wave ran out of the three-month period of the assistance, the demand for public work would increase, so Government Decree 1466/2020 (VII. 31.) issued at the end of July increased the funds available for public work by HUF 5 billion. A further relief in 2021 was that settlements previously excluded from public work due to their excessive tax capacity were again given the opportunity to organise public work.

Since 2017, planning the so-called Start programmes as part of public work scheme was conducted on the basis of the previous year. This meant that if in a given year an average of 90% of the planned headcount was reached, then the next year's planned headcount could not exceed this 90% level. However, during the 2021 planning, it was not required to stick to planning based on the previous year's base, there was an opportunity to expand. Despite all these measures and the increase in the number of jobseekers, the pandemic did not lead to an increase in the number of public workers, because *the demand for public work did not grow*, neither on behalf of those becoming unemployed nor on behalf of the public employer local governments.

Players of the employment institutional system and mayors of settlements have identified the following reasons for this. For newly registered jobseekers, public work was not a competitive alternative. They usually had a higher level of education and more work experience than the usual jobseekers in recent years; many of them had moved home from abroad or, in the case of smaller settlements, temporarily from one of the big cities due to the pandemic. Typically, after the three-month assistance expired, they were more likely to wait, but firmly refused to become public workers, as they considered it to be detrimental to their chances of returning to the primary labour market. Upon registration, most of them indicated their previous salary as a wage claim, suggesting that they would not want to find a job for significantly less. Some think that public work has a stigmatising effect, which would worsen their chances of finding a job later.

The wait was made easier for many by the fact that they weren't actually completely without work. A typical solution was for the employer to lay off

4 Government Decree 1240/2020 (V. 15.) and 1344/2020 (VI. 24.).

its employees only temporarily, with the promise to take them back once the pandemic subsided and the closures were lifted, and to partly support this promise, and partly to perform the reduced volume of tasks, employed them under simplified employment with daily registration.[5] If this type of employment does not exceed fifteen days per month, the person will still be considered a jobseeker and will remain on the register. During the full lockdown, when educational institutions were closed, this solution was beneficial also for parents, because they could take care of the children, and regarded such simplified employment as assurance that they would be taken back. Presumably, this situation is reflected in the fact that while employment reduced significantly, and also the average headcount of employees working in simplified employment showed a slight decrease, between May and October 2020 the number of man-days worked in simplified employment slightly increased in comparison with the same period of the previous year.[6]

According to our interviewees working in the employment network, re-employment of those laid off due to the pandemic was greatly facilitated by the fact that – unlike earlier – they were allowed to grant wage or wage cost assistance also to those returning to their last workplace. However, the transition to simplified employment often proved to be "contagious". One of the heads of the district employment department reported that everyone who had been on the register during one of the waves of the pandemic and was still there was called in for counselling that spring. It turned out that about half of them work under simplified employment and do not want to change this situation yet. Though giving a less accurate ratio, several employment professionals reported a similar phenomenon.

Most of those returning home from abroad – according to their intentions temporarily – had reserves, and registered basically for social insurance, but did not really want to take on a job at home. There were also people, who had temporarily become unemployed in one of the domestic large cities and decided to get through the toughest period of the pandemic in the countryside, mostly in their parents' homes. After the expiry of the three-month assistance period, they, too remained on the register for a couple of more months for the insurance legal relationship, in some cases complementing their revenues with occasional agricultural work during the summer. The opportunity for occasional agricultural work in the agricultural border regions was improved by the fact that due to the pandemic, no employees content with lower daily wages came from the other side of the border, so the daily wage significantly increased compared to the previous years. During the emergency, a government decree[7] made it possible to increase the number of monthly days worked in simplified employment from 15 to 20, and the annual duration from the previous year's 120 days to 180 days. For people, to whom seasonal agricultural work is part of their livelihood strategy, this was a favourable short-term solu-

5 See Act 75 of 2010 on simplified employment.

6 Report on the number of employees planned to be employed in 2021 in simplified employment, on kormany.hu.

7 Government Decree 112/2020 (IV. 16.).

tion, especially in the light of the pandemic. In the longer term, if this situation remains after the pandemic, it may result in even more people choosing this livelihood strategy, which is unfavourable due to their increased vulnerability.

From the point of view of the system of labour institutions, all this was made possible by the fact that, unlike in the first half of 2010, no efforts were made to recruit as many people as possible into public work. This change of attitude already took place before the pandemic.

While the number of public workers had stagnated, the number of jobseekers had been steadily increasing for at least a year since the end of 2019 (*Figure 5.4.1*). The period up to March corresponded to the usual fluctuations at the beginning of the year. Growth was 18 percent between March 2020 and February 2021, and then rose another 11 percent over the next three months of 2021. By the nature of the situation, those who become long-term unemployed by February 2021 may not be the ones who lost their jobs due to the pandemic, but those who enter after it may. As it is discussed in subsection 5.3. mainly those who became unemployed earlier became stuck in this situation due to the pandemic. The question is, why don't they choose public work instead? Our interviewees see complex reasons behind this phenomenon.

People living on the edge and alternating – often seasonally – between the primary labour market and unemployment could not return to the primary labour market, partly because they had nowhere to go, and partly because their former positions were occupied by more-skilled and higher-status employees. Another significant proportion of those receiving long-term unemployment benefits or employment replacement benefits actually work informally, partly because of the health insurance option and partly because of employment replacement benefits. Many of them do not take up declared work due to their debt or alimony obligations.[8]

According to our interviewees, partly for demographic reasons and partly more and more older workers laid off due to the pandemic are receiving pre-retirement job search assistance (in short: NYES). This type of assistance can be applied for five years before retiring and it can amount to 40% of the minimum wage, i.e. 66,960 HUF/month in 2021, whereas the net wage of unskilled public workers is 56,525 HUF/month, and 73,150 HUF/month for skilled public workers.[9] So it is not very worthwhile for even skilled jobseekers to become public workers if they are entitled to NYES, as their public work wages would barely exceed the amount of the NYES. The subjective experiences of the interviewees are also supported by the data. While during 2019 the number of people receiving NYES was practically stagnant, during the first eight months of 2020 it increased by nearly 30%, exceeding 36 thousand people.

In the end, many have already been in public work but "for some reason they didn't make it". Public employers are reluctant to hire people who have to be dealt with a lot. Among them there are people struggling with physical

8 Cf. *Berlinger et al.* (2021).

9 The vast majority of those about to retire are not eligible for family tax credit. In 2020, nyes was relatively more favorable, than the public worker's wage.

or mental problems, addicts and also people who, for some reason do not get along well with the local mayor. Several mayors have stated that they would not call in jobseekers with whom they had a dispute or did not perform the task entrusted to them well. In larger settlements, this type of vulnerability is less prevalent.

Neither the local employment departments nor the municipalities have the competence to deal with clients who require a little more attention or other types of expertise. Several of those closest to clients have stated that poor mental and physical condition is often the result of living in deep poverty for many years, as one of our interviewees put it: "they run out of energy".

Characteristics and challenges of the public work system in recent years

The narrowing of the public work system in recent years has posed new types of challenges to the system's actors, and the role of public work has changed somewhat compared to the past. In the period of growth of public work, the main challenge was to tie up the labour supply side and reduce social tensions. With the expansion of the primary labour market, a shortage of labour also appeared in public work, mainly in the case of the skilled labour force. It was the professionals (masons, carpenters, joiners, etc.) who left, on whom the value-creating public work activities were built in the case of the Start sample programmes.

The emigration of a more skilled, employable workforce from public work often made it impossible to operate the capacities built up in previous years. The risk that the primary goal would be for public workers to enter the open labour market while the planned programmes would have to run was already in the system. During the time of abundance in headcount, however, this was less apparent, than during the recent years.

The organisers of public work were confronted with the fact that they are no longer able to carry out many of the activities previously based on public work, due to a lack of adequate labour force. The Ministry of the Interior also sought to respond to the challenges posed by a shrinking supply with some regulatory changes. On the one hand, activities previously included in the Start programmes as separate programmes (such as elimination of illegal landfills, maintenance of urban roads) were merged into a programme element named social programme element, this way local governments had the opportunity to carry out different activities under a single programme. Another such easing of restrictions coming from the regulatory side was lowering the 90% filling requirement regarding the contracted population, which was a particularly severe problem for the employers in the public work scheme.

In addition to the shrinking headcount, the composition of public workers has also changed. The proportion of women in public work has steadily increased, but the offer of public work work opportunities has shown little response. An increase in the proportion of women began already in the period of expanding public work; in 2013 it was below 40%, by 2016 it had increased to 50%, and in 2021 it exceeded 60%. This trend continued during the pandemic, as well. The reason for the process is partly the fact that (unskilled) men can more easily find a job in the primary labour market, for example due to the boom in the construction industry. In addition, there were inadequate public services for children and public transport. Some families can only handle the task of taking their children to kindergarten or school if one of the family members – typically the mother – works in the given settlement, and in many cases the only opportunity to do so is public work.

The proportion of public workers whose integration into the labour market is no longer possible solely with labour market services but would also need more complex health and psychosocial support, has increased. These tools, however, are still missing from the system. Although in the past there were experiments and pilot programmes for special public work providing more complex interventions, their scale was insignificant, the professional coordination of programmes requiring complex interventions was not adequate, and political support was lacking.

The mayors have previously faced a significant challenge in organising public work, but while in the past the main difficulty was in coordinating the headcount size equal to often medium-sized or even large companies, today the challenges of employability of public workers are the most difficult. Such a complex, social and health problem cannot be addressed by public employers without competence.

One of the main challenges from a settlement point of view is that public work was often used as an opportunity for settlement development. Public work resources were provided to carry out settlement maintenance, upkeep and development activities. With the reduction of headcount, these resources have also been significantly reduced. In recent years, the Hungarian Village Programme has been launched, which is a new opportunity for smaller settlements. However, these funds can be used for top-down development purposes, while public work funds, despite all regulatory problems, have allowed municipalities to initiate or formulate their own development needs. The importance of the development function of public work is also reflected in the fact that also during the period of narrowing it was typical that the Ministry of Interior supported several individual development ideas or other pilot programmes on the basis of individual needs, upon the initiative of the settlements. We have heard many examples of this, from cheese factory through the processing of organic food to sewing.[10] However, these investments often lack the professional base, local expertise and experience, especially to be sustainable in the long run, relying on a hard-to-employ group.

10 To avoid identification, very unique development ideas are not mentioned.

The change in the economic environment caused by the pandemic caused further difficulties, most negatively affecting the social cooperatives that had previously received various support sources and were growing out of public work projects, as well as the municipal management projects intending to enter the primary market. In recent years it has been a powerful effort to bring the seemingly operational production capacities built from public work-related investment and development resources to the competitive market in some form and to strengthen them so that they can be viable without support.

A number of sources were available for this, such as the Fókusz programme[11] aimed at social cooperatives and pilot investment programmes for municipalities and municipal companies, high value-added programmes, but the Ministry of Interior also supported multiple projects based on individual needs. The common feature of these subsidies was that local governments and social cooperatives undertook maintenance and re-employment obligations in return for the subsidy. Until a few years ago, in regions where market processes could not be counted on, social cooperatives were thought to be the ideal way out of public work. In cooperatives, however, all members, including the local government, have equal voting rights, which has led to management complications, so local governments have recently set up their own companies.

A significant proportion of production capacities is based on food processing, mainly suppliers of hotels, restaurants and catering, and these sectors have been most exposed to the negative effects of the pandemic. In other words, economic organisations that continue to benefit from public work, based on the assets they received in the framework of public work, were hit by an economic shock just when they should have been able to stand on their own feet. Another problem was that, due to the re-employment obligation mentioned in the previous paragraph, they were not able to respond to the changed situation with staff rationalisation, and most of them were not entitled to wage and compensation benefits for job retention. Rather than expanding and strengthening, they had to settle for survival, which in many cases made it doubtful how viable they would be once the maintenance obligation was lifted. Due to such problems, previous re-employment agreements with the Ministry of the Interior were renegotiated in some cases, with occasional waivers of the assumed obligations.

GÉP- and FETE-programmes

The Ministry of the Interior launched two programmes in recent years that affect disadvantaged settlements and are partly related to public work. One of them is the programme of the "Catching-up settlements" (FETE, www.fete.hu; Government Decree 1404/2019. [VII. 5.]), aimed at the 300 settlements in most disadvantageous situation with a complex development programme. The organisers of the programme are mainly Hungarian church aid organi-

11 See OFA.

sations, the content of the intervention primarily means the adaptation and extension of the Presence programme based primarily on the methodology of the Hungarian Maltese Charity Service. The other is the Economic Recovery Programme of the Beneficiary Settlements (GÉP), which provides investment support to local governments and micro, small and medium-sized enterprises in settlements lagging behind in economic indicators in order to reduce labour market disadvantages, expand local employment and increase the population retention capacity of rural areas. (Government Decision 1403/2019 [VII. 5.]). According to long-term plans, the GÉP programme will concern more than 400 settlements in the future.

The two programmes run in parallel and are partly funded by the Start-up programme of the Economic Protection Employment Fund (i.e. public work). In theory, there is no overlap between the subsidised settlements, the list of specific settlements has been expanded in several rounds. While the FETE programme focuses more on strengthening social, educational and human services, the GÉP programme seeks to support job-creating investments that increase local employability. For the time being, it is difficult to comment on the programmes and there is a lack of publicly available impact assessments and basic research. According to our limited on-the-spot experience, these programmes have problems similar to those already experienced in the field of public work. There is a lack of locally available and appropriately trained and competent human resources to run and manage the programmes. In the case of the GÉP programme, it is also doubtful that what has not been achieved in the field of public work, namely the creation of long-term viable self-employed and local jobs, would change in the case of the GÉP programme. In the case of the FETE programme, the big question is how the education, social and health sectors, which are already struggling with a lack of capacity, could attract the right amount of professionals to disadvantaged areas, even with additional support.

In addition to these programmes, resources were available in the European budget period 2014–2020 to improve the employability of the disadvantaged, including those in public work.[12] However, data and analyses on the effectiveness and impact of programmes exceeding several hundred billion forints are not really publicly available. Several interviewees noted that there is no coordination between programmes running in parallel and that they often target the same target group (people with low level of education, over-50s, returnees, Roma, etc.) so that the total number to be achieved as shown in the indicators is not necessarily available. In other words, in many cases the individual development programmes struggle with not being able to involve enough people, moreover, the individual interventions are not built on each other, they are island-like, are not continued upon the completion of the projects, but everything starts over again with the new projects, so the results achieved so

12 Analysis of these programmes is beyond the scope of this study, but in this case we mainly mean GINOP 5 and 6, as well as TOP 5 programmes.

far are often wasted. It is difficult that there is no coordination between the labour market programmes in question and the management of public work, either, nor do they belong to the same ministry.

During recent years, we have seen the government devote huge resources to public work. Undoubtedly, public work has alleviated local social tensions and provided opportunities for settlements to carry out many of their development and maintenance tasks. However, in the absence of proper impact assessments, the question remains as to whether these resources could have been spent more efficiently and effectively on the development of disadvantaged regions in order to maintain the long-term well-being of the people living there.

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5.5 WHAT DID PUBLIC EMPLOYMENT SERVICES DO DURING THE COVID CRISIS?

MÁRTON CSILLAG

The coronavirus pandemic represented an unprecedented challenge for the public employment services.[1] Not only was there a huge number of jobseekers applying for benefits and expecting help, but they also had to deal with the transformations in work organisation that resulted from the protective measures requiring distancing and lockdowns. Later (in most countries) they also had to perform the administrative tasks related to subsidies granted to sectors most affected by the lockdowns and subsidies to compensate for reduced working hours. Although in the summer of 2020 the situation was dramatic in most European countries, one positive outcome of the pandemic is that a significant proportion of employment services have now rather quickly made multiple developments that would have been more slowly adopted in "peacetime", and the pandemic also forced the employment services to establish partnerships with other (non-governmental) organisations. The following factors seem to be the key to successful adaptation: the previous penetration of digital (hybrid) service channels and flexible organisation. Independence from the central government, previously flexible budget planning and close cooperation with partners have also contributed to the latter.[2]

Immediate measures

The workload of public employment services has, of course, increased significantly with the administration of job-search allowances and benefits. Although not decided by the organisations themselves at their discretion, benefits became much more generous during the pandemic, as many governments extended the eligibility period of allowances (for example in Denmark, France, Germany, Portugal and Slovakia), or (less often) increased the earnings replacement rate (in Belgium and Estonia). In addition, many (former) employees were granted temporary eligibility, who'd remained uncared for in "normal" times (for example those working in various entrepreneurial legal relationships). In addition, in a significant number of European countries (such as Austria, Germany and Hungary), public employment services were responsible for administering part-time company subsidies concerning reduced working hours, which further increased the workload of the employment services. In comparison, it represented some easing of the workload, that in several countries, obligations related to the job-search allowance were formally loosened, so that "availability" and active job-seeking had to be monitored more sporadically.

The organisations tried to respond to this emergency scenario largely by redeploying internal resources (i.e. those working in other jobs were also dealing

1 In our writing, we relied primarily on the collection of information from the European Union Network of Public Employment Services (*EU PES Network,* 2020) and on the material of some webinars. In addition, ILO and OECD also provided several overviews of the activities of the employment services, which have also been used during data collection (*ILO,* 2020, *OECD,* 2020, 2021).

2 It is important to emphasize that this is not a complete catalogue or comprehensive assessment, but rather a perspective on the measures put in place by public employment services between March 2020 and March 2021, with a particular focus on good practices. Where not specifically indicated, the National Employment Service has not introduced the services mentioned here in Hungary.

with new registrations), but quite a few organisations also significantly (temporarily) expanded their staff (for example, the Slovak organisation opened 150 new counsellor posts in 2021, which represented in a temporary increase in capacity of around 5%). In addition, of course, the transition to digital and telephone administration was also a partial solution (this was naturally accompanied by temporary difficulties, as many advisers had to be newly trained for such contacts). In countries where this has been possible in the past, digital solutions have now been further developed. All European countries (including Hungary) authorised national employment services to accept documents required for admittance to the registry (and for the application for job search allowance) also in electronic format.

Mid-term: digital services

When it became obvious that lockdowns could last for several months, most public employment services started further development of digital services, which were very diverse. Firstly, automated (competence-based) job-matching systems needed fine-tuning to shepherd people who had recently lost their jobs towards professions with labour shortages (nursing, delivery) as quickly as possible. In some countries (for example in France or Sweden) this was supplemented with the opportunity of video interviews arranged by the public employment service. Secondly, many public employment services published a lot more programmes facilitating "self-service" on their websites; the scope of career counselling tests or online training courses was considerably broadened.[3] Thirdly, in certain places public employment services started developing online counselling, for example through establishing (intelligent) chatbots (for example in Estonia or Germany) to be able to serve as many jobseekers, as possible. Additionally, also group job counselling was held online, in the form of webinars.[4]

One of the greatest advances in digital services was the organisation of digital training. Firstly, public employment services offered free online courses in partnership with major digital providers (for example in Greece or Spain), mainly in order to develop digital competences. Secondly, public employment services (or their training partners) reorganised their own courses by modularising and transforming them into an online format (for example in Flandres or Portugal). Naturally, the key question here (as for most online services) is how public employment services were able to reach jobseekers in a disadvantageous position. The simplest way to accomplish this was to provide free mobile internet, but in Portugal they went much further.[5] The Portuguese public employment service offered places on its own training institutions, and to a much smaller extent also provided tablets for home use. On the top of that, they developed a quick test to assess digital competences, then the jobseekers in most need were prepared

3 This was implemented in many countries and in a variety of ways, with self-service career counselling being posted on the website of public employment services from the Netherlands through France to Slovenia.

4 This had been present earlier in some public employment services, where digital services are granted significant emphasis, for example in Flandres or the Netherlands, but was just recently introduced in quite a few countries, including Portugal or Slovenia.

5 A dedicated programme was launched in Portugal to the develop digital skills of jobseekers between the age of 18 and 35 with at least secondary education. Similar training was launched during the summer of 2020 by ITM/NIVE in Hungary under the name of the "Redesign Programme".

for digital training as part of a crash course lasting a few days, and digital training started only after that.

Strategic issues of using the active labour market programmes

Two major issues have been brought up in connection with active programmes: (1) which programmes (and services) are worth developing and how; and/or (2) which groups should be given priority. Economic theory also suggests that it is worth studying at times when there is no work, and accordingly, in quite a few countries (e.g. in Austria, Germany or Hungary) wage subsidies granted for shortened working hours were conditional upon the training of employees, although it's unclear through what means it could (have been) enforced. This was markedly different from the strategy, where, overall, not only was the budget for active programmes raised significantly but training programmes were given a prominent place, as well (for example, in France or Norway). In some countries, jobseeker training was explicitly (financially) encouraged: in Austria, for example, in addition to the job search allowance, those who have completed at least four months of training have been rewarded; in Iceland, for example, one semester at college was made free for jobseekers.

In addition, in several countries, clear priority was given to certain disadvantaged groups: long-term jobseekers (Belgium, Denmark, Portugal), young people (France) or the chronically ill/disabled (Norway). This did not simply mean prioritising these groups, but special wage subsidies were also launched for them. It was perhaps the French public employment service, that most firmly committed to subsidising young people: they announced the comprehensive programme "One youth – one solution" (*1* jeune *1* solution) already in the summer of 2020. The goal of this programme was to provide tailored assistance to every young person without a job. The programme provides support to young people in three main directions: a) providing intensive counselling and supplementary services to those in a disadvantageous situation, b) significant capacity expansion of training programmes (especially healthcare education), c) broad variety of wage subsidies to companies willing to hire young people in various life situations.

What's next?

As painful as it may sound, in some sectors the aftermath of the Covid pandemic has had a modernising effect on the functioning of public employment services in several respects, making them potentially better prepared for future labour market challenges.[6] First, they not only digitised their own operations but realised how essential it was to develop the employees' digital skills, as well. Second, streamlining of training programmes and dividing the material into smaller modules also began. Third, relations with employers have been renewed in connection with benefits for reduced working hours. At the

6 To our knowledge, no significant change in this respect has taken place at the National Employment Service. At the same time, in 2021 the system of active assets and services underwent major changes, however, the overview and assessment of this are beyond our scope.

same time, the crisis has brought an even more serious problem to the surface: how can public employment services reach the most vulnerable people without even minimal digital competences.

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6 EDUCATION, HEALTH CARE, DISEASE CONTROL

6.1 PARTICIPATION IN EDUCATION, DROP-OUT RATE AND REPETITION IN THE FIRST YEAR OF THE COVID PANDEMIC

ZOLTÁN HERMANN

This section examines changes in participation, drop-out rates and repetition rates based on descriptive data. The coronavirus pandemic can affect students' educational careers through several channels. School closures are certainly associated with significant learning loss (see for example *Lannert–Varga,* 2021, *Burgess–Sievertsen*, 2020, Maldonado–De Witte, 2021), which may affect students' progression through the school system; in particular, repetition and, partly through this, dropping out of school. These effects may also be influenced by the extent to which schools change their practices in assessment and grading or even the administration of absenteeism. At the same time, parents losing their jobs or lower family income can increase dropping out and reduce participation in education.

This carries the risk of increased social inequalities in education. Students from poor families may find it more difficult to participate in online education, and parents with lower levels of education attainment may be less able to make up for lost schooling, which will lead to higher learning losses (*van de Werfhorst,* 2021). In addition, unemployment was also higher in families where parents were in manual work.

Overall, there are fears that the coronavirus pandemic could lead to an increase in drop-out rates and a decline in average educational attainment (*World Bank,* 2020). These concerns are mainly supported by simulation projections based on historical data (van der Berg *et al.,* 2020, *Khan-Ahmed,* 2021). Only a few small-sample studies present evidence of the increase in dropout and repetition rates (*Shuja et al.,* 2021, *Abreh et al.,* 2021). The European and North American literature focuses on learning losses, test scores and expected earnings effects. However, anecdotal reports show that drop-outs in public education (*McMorris–Santoro,* 2021) and higher education (*Kakuchi*, 2021), as well as repetition of years (*Sitrin*, 2021), can be a real problem in developed countries. In Hungary, this may be of interest also because the share of early school leavers (those who do not complete upper secondary education) is significant by European standards, above 10 percent (see for example *Lannert–Varga,* 2021).

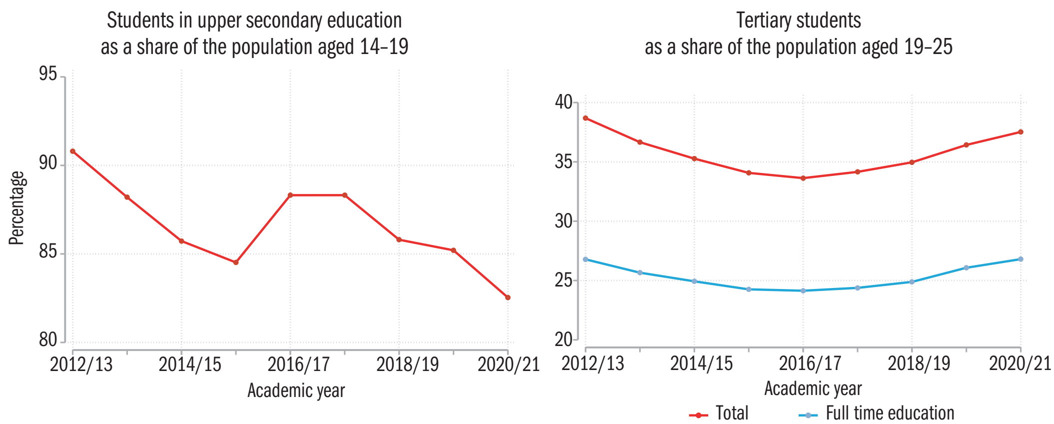
In the following, we present trends in secondary and tertiary school enrolment and drop-out rates, supplemented by data on primary school repetition. The data are descriptive and reflect only the short-term impact of the pandemic. It is possible that the negative effects will only be felt in the longer term.

Participation in upper secondary and higher education

Education participation rates provide an indirect measure of changes in drop-out rates and, in the case of higher education, in further education. The evolution of participation rates is influenced by several factors, including changes that occurred several years earlier – it is therefore not a sensitive indicator to assess the impact of the pandemic. However, it is worth looking at because, unlike drop-out rates, these are not estimates from a limited sample but data for the whole student population.

Figure 6.1.1 shows the evolution of participation rates in upper secondary and tertiary education based on aggregate data from the Hungarian Central Statistical Office (HCSO). The data show that in the academic year 2020/2021, the participation rate followed the trend of previous years, decreasing at upper secondary level and increasing at tertiary level. There is therefore no sign of a large number of students dropping out of education as a result of the pandemic.

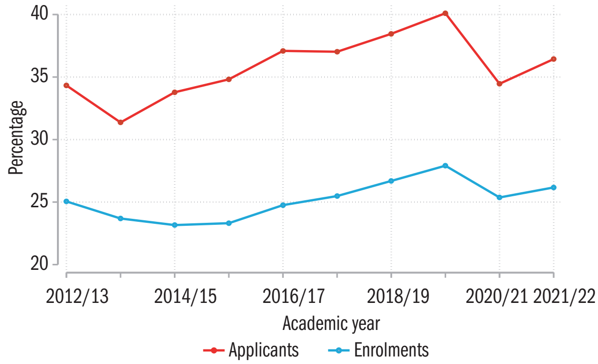
Figure 6.1.1: Participation rates in upper secondary and tertiary education, 2012–2020



Source: *HCSO* information database.

Figure 6.1.2 shows the proportion of full-time applicants and enrolment in tertiary education in relation to the population aged 18–19. In the 2020/2021 academic year there is a significant drop in applications, but this is not due to the pandemic. On the one hand, the application decisions were taken by students before the 15th February threshold, i.e. before the outbreak of the pandemic in Hungary. On the other hand, an important rule changed that year: from this academic year onwards, higher education is subject to an advanced GCSE, which has certainly led to a drop in applications (*Eduline,* 2020). In the following academic year, the number of applicants increased somewhat but did not reach the previous level. Based on the available data, we cannot say how much the pandemic or slow adaptation to the changed requirements played a role.

Figure 6.1.2: Full-time applicants and enrolment in tertiary education as a proportion of the 18–19-year-old population, 2012–2021



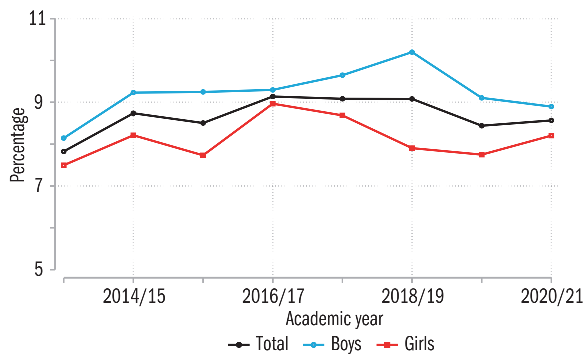
Source: *HCSO* information database.

Dropping out of school

In this section, we present the trends in drop-out rates in upper secondary and tertiary education based on the HCSO Labour Force Survey (LFS). The LFS data are available until the second quarter of 2021, so the analysis covers the whole academic year 2020/2021. Summer months, when some students are not enrolled, are excluded from the analysis.

Figure 6.1.3 shows the evolution of the share of early school leavers, i.e. those who left education without completing upper secondary education, in the 16–20 age group. Overall, the share of early school leavers did not change in the school year 2020/2021 compared to the previous school year. For girls, the rate increased slightly, but the difference is not statistically significant.

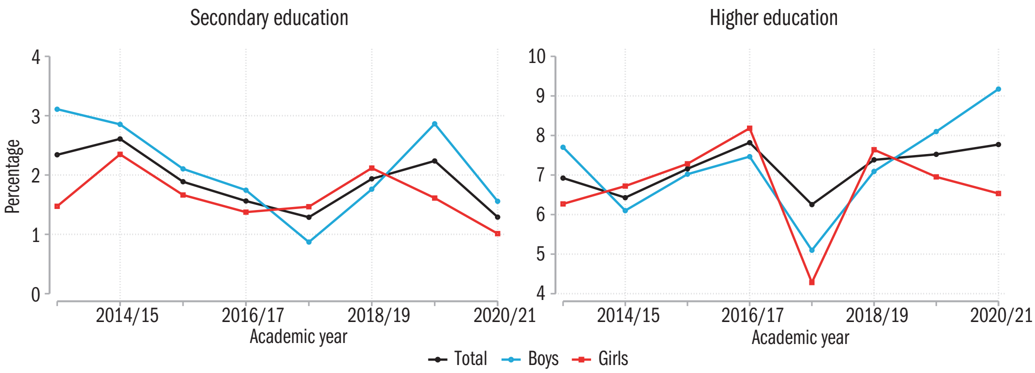
Figure 6.1.3: Early school leavers in the 16–20-year-old population, 2013–2020



Source: *HCSO* LFS.

Figure 6.1.4 shows the proportion of students who drop out in a given quarter compared to the previous quarter, i.e. students who in quarter *t* were no longer in education and had no secondary/higher qualification as a proportion of those who had been in upper secondary/higher education with no secondary/tertiary qualification in quarter $t - 1$ and who were still observed in quarter *t*. Drop-out rates between quarters are averaged over academic years. This indicator shows dropping out *in a given period* as opposed to the stock of early school leavers at a given time. Moreover, dropping out can be applied for higher education, as well.

Figure 6.1.4: Average quarterly drop-out rates in upper secondary and tertiary education, 2013–2020



Source: *HCSO* LFS.

Overall, the data show that there was no increase in dropping out in the first year of the pandemic. The drop-out rate in upper secondary education is lower in the 2020/2021 academic year than in previous years, while the overall drop-out rate in higher education is similar to previous years. In higher education, the drop-out rate for boys has increased slightly, but a similar increase was observed in the year before the pandemic. Thus, this increase cannot be attributed to the impact of the pandemic.

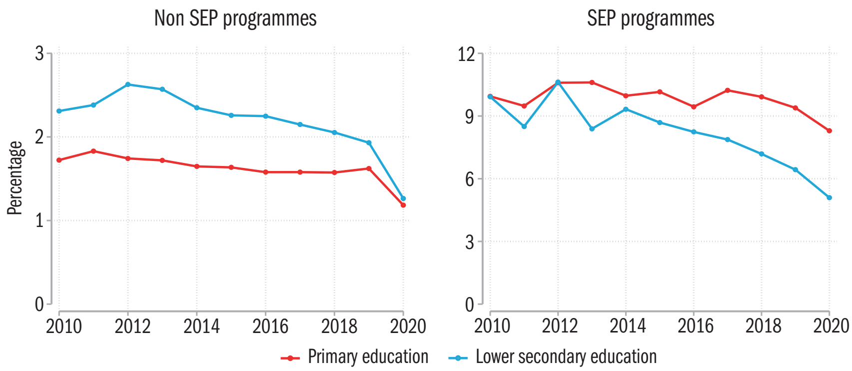
Repetition

The evolution of repeat rates is noteworthy for several reasons. On the one hand, grade repetition increases the risk of dropping out (*De Witte et al.*, 2013). On the other hand, the evolution of the repetition rate is also determined by the practices followed by schools in assessing students. Learning losses may increase the risk of repeating a grade, but the change in assessment and grading in remote education and the presumably less rigorous administration of unexcused absences may also have had an impact on reducing repetition.

Below we present the change in the repetition rate at primary and lower secondary levels based on administrative school data. Upper secondary education is not included in the analysis because the KIRSTAT school database is not available for vocational schools for 2020.

Figure 6.1.5 shows the evolution of repetition rates in two types of schools. Overall, in both types of schools, fewer students repeated a grade in 2020 than in 2019, but in special education programmes (SEP) provided for students with special education needs, where 2–2.5 percent of students are enrolled and repetition is more common, this decrease is in line with the previous trend, i.e. it is unlikely to be attributable to the pandemic. However, in other primary schools, there is a break from the previous trend. In 2020, the repetition rate fell to around two-thirds of the previous year's level in both lower and upper primary schools. This decline was the same for boys and girls and similar across grades (slightly higher in grades 1 and 7 than in others).

Figure 6.1.5: Year repetition rates in primary and lower secondary education, 2010–2020 (%)

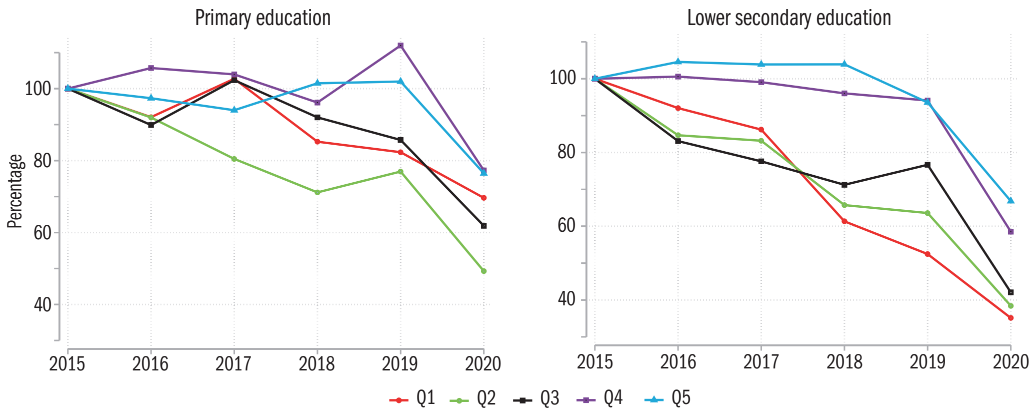


Note: School averages weighted by number of students.
Source: *KIRSTAT.*

Figure 6.1.6 shows the trend in the repetition rate for quintiles of schools by the proportion of disadvantaged pupils. In 2020, we see a similar change compared to the previous year in all groups. However, in the bottom three quintiles, where there are few disadvantaged pupils and the repetition rate is rather low, this decrease is in line with the previous trend. In the top two quintiles, with a higher share of disadvantaged pupils, however, there is a clear break in the trend. In these schools the proportion of repeaters decreased sharply in 2020.

Overall, it appears that in the majority of schools, and particularly those with a high proportion of disadvantaged pupils, the repetition rate fell significantly in the first year of the pandemic. The data do not allow us to determine whether this is the result of explicit decisions by schools and teachers or changes in assessment and grading and fewer absences. However, there is no evidence that the majority of schools have completely suspended failing pupils because of this particular situation. There do appear to have been such schools, albeit not in large numbers: the proportion of schools where no pupil repeated a grade in primary or lower secondary education – even among schools with previously high repeat rates – has increased by around 10 percentage points (just over 20 percent) for non-SEP programmes.

Figure 6.1.6: Repetition rate in quintiles of schools by share of disadvantaged pupils, 2015–2020 (2015 = 100)



Note: Student-weighted school averages, excluding SEP programmes.
Source: *KIRSTAT.*

The decrease in the repetition rate can be seen as positive in the short term, as it gives students (most of them presumably of lower social status) who have suffered a higher-than-average learning loss a chance to catch up, without the stigmatising effect of repetition and increasing the risk of dropping out. However, in the longer term, the more important question is whether the education system will be able to provide the necessary support and pedagogical services to help them catch up.

Summary

This section has shown how participation and drop-out rates in upper secondary and tertiary education and repetition rates in primary and lower secondary schools have changed. Overall, the data suggest that in the first year of the Covid pandemic there was no increase in drop-out rates in either secondary or tertiary education in Hungary. This may have been partly because schools temporarily set slightly lower standards for pupils in the light of the exceptional situation, as indicated by the decrease in the repetition rate in primary school. However, it is also possible that the negative impact of the pandemic on early school leaving will appear later on.

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6.2 LEARNING LOSS DUE TO COVID. SIMULATION RESULTS

JÚLIA VARGA

During the first two years of the pandemic, schools around the world were closed for long periods – entirely or partially – and students were educated by other methods, mainly online. Such prolonged school closures have not occurred in Europe since the end of the Second World War and this raises serious concerns. Previous research, which had investigated the long-term impact of local school closures, partly due to war (*Ichino–Winter-Ebmer,* 2004) or local natural disasters or other causes (e.g. *Marcotte–Hemelt,* 2008, *Baker,* 2013, *Andrabi et al.,* 2020), has shown that school closures can cause severe learning losses that decades later can affect the labour market trajectories of those who suffer closures.

There have already been several studies in international literature quantifying the learning losses caused by the Covid pandemic. The World Bank's projection, first published in 2020 and updated in 2021 (*Azevedo et al.,* 2020, 2021), presented four different scenarios of potential learning losses, using different assumptions on the duration of school closures. *Blaskó et al.* (2021) used data from TIMSS[1] to investigate how the school outcomes of fourth-graders in Europe would change as a result of school closures and found that there is likely to be an increase in educational inequalities across and within countries across Europe. *Kaffenberger* (2021), using an existing pedagogical production function model (*Kaffenberger–Prichett,* 2020), found that without appropriate mitigation methods, today's third-grade students lose 1.5 years or more of learning due to missed school hours by the time they reach tenth grade. These studies did not yet know the length of school closures and therefore made different assumptions about the duration of school closures and the effectiveness of remote learning. There is also existing research that has used measures of student achievement to examine the learning losses already experienced due to school closures during the Covid pandemic in Belgium, the Netherlands, Germany and the United States (for a summary of the results of these studies, see *Donnelly–Patrinos,* 2021).

As such data are not yet available for Hungary, we have made estimations of the potential learning loss of Hungarian students based on the method of *Azevedo et al.* (2020).[2]

Our estimates have assumed that learning is a linear function of time spent in school, that learning success also depends on the quality of education, and that students can forget what they have learned if they do not progress at the right pace. A further assumption is that remote learning methods are not as effective as face-to-face learning and that the longer the schools are closed

1 TIMSS: Trends in International Mathematics and Science Study, an international survey organised by the *International Association for the Evaluation of Education A*chievement (see NCES).

2 Estimates are made for European countries, only Hungarian results are reported here, for results for other countries see *Lannert–Varga* (2021).

and the more time students spend in remote learning, the higher the expected learning loss is. An estimate has been made for the last 1.5 school years. The estimates are based on previous calculation results showing the number of PISA points per school year of progress in PISA countries. The first calculation concerns what the observed PISA scores would have been as the result of the learning in the last 1.5 academic years if there had been no pandemic and no lockdowns. We then calculated student learning outcomes over the last 1.5 years, taking into account actual school closure periods and making various assumptions about the effectiveness of remote learning. The difference between the two estimated learning outcomes was interpreted as the learning loss caused by the pandemic over the past 1.5 school years.

Our estimates are based on different data sets. Data on school closures were obtained from the Oxford Covid-19 (OxCGRT) government measures tracking database (*Hale et al.,* 2020). As the OxCGRT data do not distinguish between normal school holidays and closures due to pandemic, the data were adjusted for school holidays and public holidays using Eurostat's Eurydice publications (*Eurydice,* 2020, 2021). The database distinguishes between three types of closures: compulsory closures at all school levels; compulsory closures at certain school levels; and recommended closures. These have been converted into "equivalent days" for the calculations, with each day of a compulsory closure only at certain school levels being considered as a half-day full closure and each day of a recommended closure as a third of a day. Thus, in the second semester of the school year 2019/2020 and in the school year 2020/2021, schools were closed for 52.1 percent of the total number of regular school days.

To measure student performance, we used individual-level student data from PISA 2018. For the estimates, we had to make assumptions about (1) what the learning gains would have been over one and a half school years if schools had not been closed; and (2) how much lower the learning gains would have been because students did not receive regular classroom instruction during certain periods. To do this, we adopted the calculation results of *Kuzmina–Carnoy* (2016) for Hungary: the authors measured 38 PISA point gains in reading and 39 PISA points in mathematics achievement over one year in Hungary.

Three different scenarios were estimated, each making different assumptions about the effectiveness of remote learning. These assumptions used existing empirical results on actual learning losses in developed economies, which showed that students performed on average 0.01–0.03 standard deviations worse after a completed week of remote learning than without it. This translates into 1–3 PISA points per week. The first scenario assumed that students' performance would be 0.01 standard deviations worse for each week the schools were closed. This scenario assumed that students benefit *equally* from remote learning regardless of their socio-economic status. The second and third scenarios assumed that students from different family backgrounds may use remote learning methods with different levels of effectiveness. The PISA Economic, Social and Cultural Status Index (ESCS) was used to measure students' family backgrounds. This is a composite measure that combines into a single score the financial, social, cultural and human capital resources available to students. In the last two scenarios, we assumed that students who are in the top quartile of the distribution of the ESCS index for their country do not suffer from learning loss. Students in the second and third quartile of the distribution suffer a learning loss of 0.01 standard deviation per week after school closure in the second scenario and 0.03 standard deviation per week in the third scenario. The most disadvantaged students, who are in the bottom quartile according to the ESCS index, suffer a 50 percent higher loss (0.015 standard deviation loss per week) than students in the second and third quartile in the second scenario, and a 0.035 standard deviation loss per week in the third scenario.

The magnitude of the hypothesized differences is based on empirical results by *Engzell et al.* (2021), which showed that in the Netherlands, students from low-educated homes suffered 50–60 percent larger performance losses due to school closures caused by the Covid pandemic than their better-off peers. In the individual student database, the performance of each student was adjusted as described above, from which average student performance was calculated.

Table 6.2.1 summarises the results of the three scenarios for Hungary. It shows how many PISA points students have lost as a result of school closures over the last year and a half. It also shows to what extent the proportion of underperforming (below level 2) students in the PISA tests would increase under the best and worst scenarios.

Table 6.2.1: Estimated learning losses due to school closures in Hungary for the school years 2019/2020 and 2020/2021

	Estimated average learning losses	Increase in the percentage share of underperformers in Reading, percentage points (below level 2)	
	PISA point		Percent
Scenario 1	63	Scenario 1	9,7
Scenario 2	54	Scenario 3	17,4
Scenario 3	91		

Source: Own calculations.

The results show that even in the best-case scenario, students on average lost more than a year of learning, and the proportion of students performing below level 2 increased significantly.

In 2018, the average earnings gain of an extra school year in Hungary was 11% on average.[3] If the learning losses due to the pandemic are not made up, the future earnings of those who suffer a learning loss will be on average that much lower. In addition to earnings losses, future employment prospects, es-

3 Calculated using the 2018 Wage Scale Survey data.

pecially for those performing below the second level, may also be affected. To prevent these losses from having a lasting impact, appropriate catch-up programmes would be needed.

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6.3 REMOTE LEARNING DURING THE CORONAVIRUS PANDEMIC

ZOLTÁN HERMANN, DÁNIEL HORN, JÚLIA VARGA & KINGA VARGA

Following the coronavirus outbreak, schools had to be closed completely or partially on several occasions to slow the spread of the virus. Learning continued online in most cases during these periods.

There is still relatively little information on the difficulties that students, families or schools have encountered in studying online during remote education. Only data of a few very small samples are available, such as a telephone survey conducted during the first wave of the pandemic in April 2020 (the "Impact of the Coronavirus on Families" survey by the Maria Kopp Institute for Demography and Families), which reached 259 families with children under 18 years of age (*Engler et al.,* 2021), asking families about changes in their child's study habits. In March 2020, *Thékes* (2021) surveyed 44 schools in the Southern Great Plain by postal questionnaire about the difficulties of transitioning to remote education. *Németh et al.* (2021) investigated the difficulties of education during the lockdown through focus group interviews with 18 pupils and parents. *Kende et al.* (2021) conducted online questionnaire surveys with 425 teachers after the first month of the transition to digital curricula and interviewed NGO leaders to explore the problems of digital education for disadvantaged pupils. This subsection draws on a telephone questionnaire survey to describe the problems that families encountered with online education.

About the data

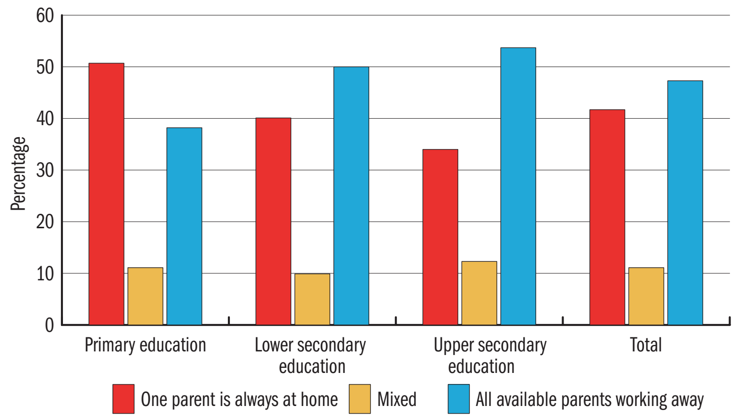
The survey was conducted on behalf of the Institute of Economics of the Centre for Economic and Regional Studies by TÁRKI Institute for Social Research by telephone between the 12th and 19th of April 2021. The survey sample was a representative sample of Hungarian families with children and having a telephone subscription, by area and age of the children. The sample eventually included 1016 families with a child or children in school. The raw sample differed significantly from the total parent population in terms of parents' educational attainment. In the sample children of less-educated mothers were underrepresented and children of highly educated mothers were overrepresented. This may be the result of the inclusion of those in the sample who had a prepaid mobile phone, so families in poor financial circumstances, where parents did not have a mobile phone or did not have a prepaid phone, were excluded from the sample. This bias was corrected by weighting (for details of this see *Hermann et al.,* 2021). In what follows, based on these data we present how well prepared students and families were for the remote education and what kind of difficulties they had to face when unexpectedly they were forced to take part in remote education. When interpreting the results, it worth remembering that this study cannot say much about the extent to which the children of under-educated mothers were reached by remote education and the difficulties this group faced during remote education although we tried to alleviate the problem by weighting. All results reported in this subsection are weighted results.

Remote learning and work

We created a composite variable based on the employment status of the parents, describing the household in terms of the presence of the parents in the home in three distinct categories. Families, where parents were either working at home or being unemployed were able to stay at home were classified as "one parent always at home". Those where both parents were employed and had to go to work every day (or where there was only one parent and had to go to work) were categorised as "all available parents work away". Families which could not be classified in any of these categories were described as a "mixed" households.

Our data show (*Figure 6.3.1*) that around half of the families had to manage with parents working away from home while their child was in remote education. This proportion was lower for children in primary education and higher for children in secondary education, but even in the former case, more than a third of families had to manage a day-care for their children, which could make it difficult for parents to go to work or could have been a heavy financial burden.

Figure 6.3.1: Place of work of caregivers' by type of school for children (percentage distribution by level of education)

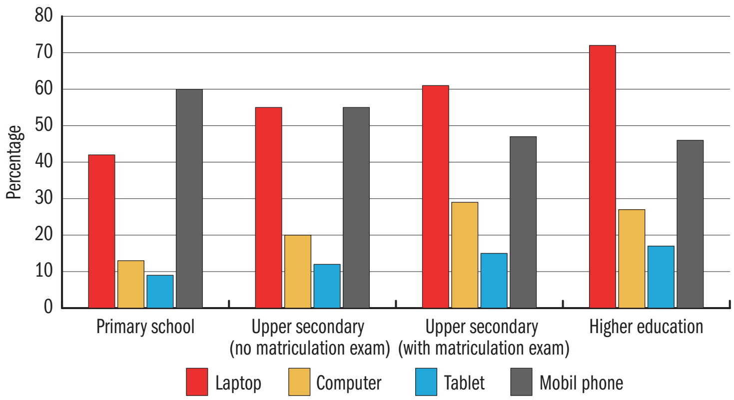


Internet access, IT equipment

The vast majority of responding households (84%) had unlimited Internet access during the survey period. The majority of students used a laptop (29 percent) or smartphone (51 percent). The proportion of pupils using a smartphone was 34 percent among primary school pupils and about 60 percent among lower secondary and upper secondary school students. The laptop and the desktop computer, or the smartphone and tablet were used as substitutes for each other in education. For r primary school pupils, the use of laptops and desktop computers or smartphones or tablets was split evenly. At lower secondary level, the same split was almost two-thirds (65 percent) in favour of smartphones and tablets, which were also dominant at the upper secondary level (62 percent).

The type of device used is also related to the mother's educational attainment (*Figure 6.3.2*)*:* the higher the mother's educational level, the higher the proportion of students using laptops and desktop computers, and the lower the proportion using mobile phones. Assuming that devices with larger screen are more suitable for online education, children of higher-status parents were better able to follow and participate in online education.

Figure 6.3.2: What type of device was the child using to participate in the online education, by mother's educational attainment (percentage distribution)



Parents were asked to rate on a scale of one to five whether the lack (or the condition) of equipment limited their children's participation in education. More than three-quarters of respondents felt that the lack or condition of equipment did not limit education at all, and 7 percent indicated the opposite (*Figure 6.3.3*).

Partial differences were found, however, when the rates were examined according to the mother's educational attainment (*Figure 6.3.4*). Children of mothers whose highest educational attainment was primary education or upper secondary education without matriculation exam were more likely to report that the lack of IT tools was a barrier to their child's education than families of mothers with higher education.

Figure 6.3.3: To what extent has the lack of IT tools limited the child's participation in education? (percentage distribution)

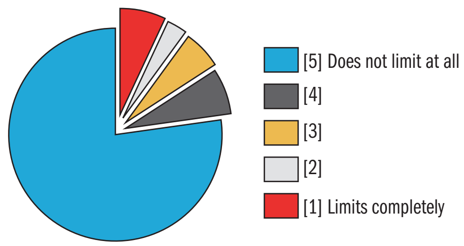
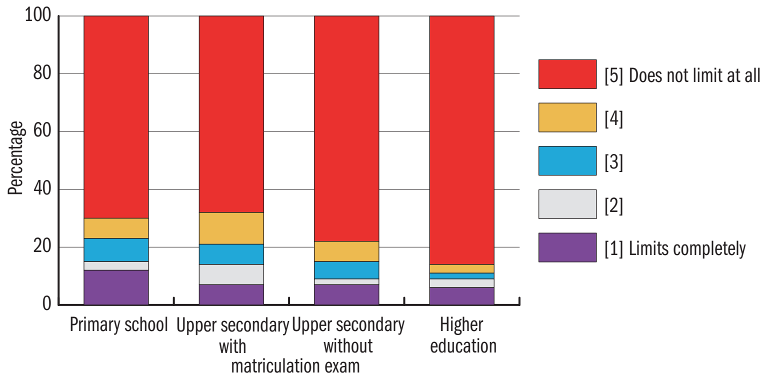


Figure 6.3.4: To what extent has the lack of IT tools limited the child's participation in education? (by mother's level of education, percentage distribution)



Housing conditions and online learning

Not only the availability of IT tools but also the availability or lack of separate learning space in the home may have an effect on the success of the participation in remote learning. To examine the impact of housing conditions, we looked at the number of rooms per person, to assess whether the child was able to separate during the lessons or had to share a room with other family members while studying. In 39% of cases, lack of a separate learning space was certainly not a problem, in families with more than one room per person.

However, more than 60 percent of the families surveyed, had more than one person per room. The lack of a separate learning space could be a particular problem in families which more than two people per room This was the case in 15 percent of the families surveyed where more than two family members shared a room during remote learning (*Figure 6.3.5*).

Number of learning hours

An important determinant of potential learning loss due to remote learning is whether student spend the same amount of time learning during remote learning as they do otherwise. *Figure* 6.3.6 (a) shows the percentage of online classes cancelled per week by grade, compared to the number of weekly classes (without physical education) required by the 2011 Public Education Act CXC. The proportion is highest in lower grades; 36 percent in first, 29 percent in second and third, 21–26 percent in fourth to eighth, and 17–21 percent in secondary grades. The proportion of classes cancelled is not only significant overall, but there is also a significant difference between the number of classes provided and the number of classes lessons kept in mathematics and especially in Hungarian language and literature in grades 1 to 6 (*Figure 6.3.6,* part b).

Figure 6.3.5: Number of family members per room (percentage distribution)

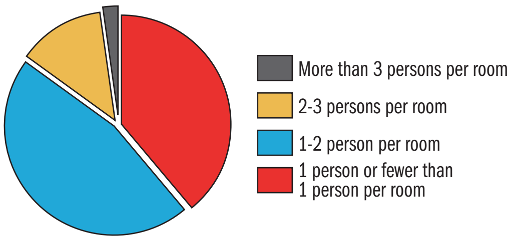
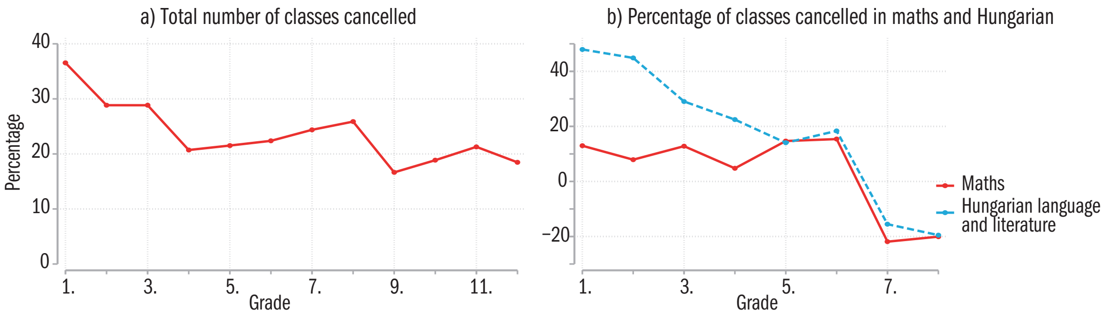


Figure 6.3.6: Average weekly classes cancelled per grade as a percentage of the number of classes required by the Public Education Act (percentage)



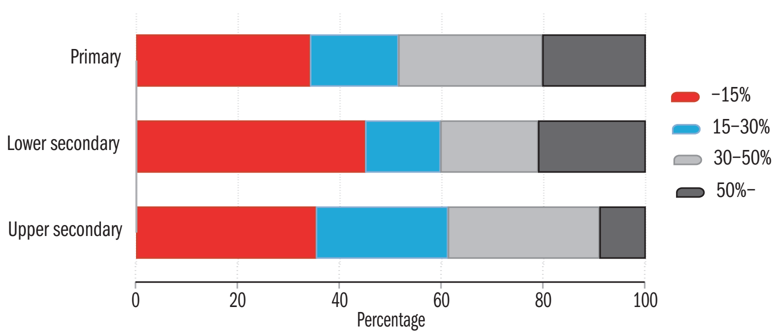
Note: Pupils in the preparatory language year are included in the group of pupils in grade 9, and pupils in year 13 are included in the group of pupils in grade 12.
Required teaching hours: The number of weekly teaching hours required in a given grade according to the Public Education Act CXC of 2011, excluding physical education.
Percentage of classes cancelled: The difference between the average number of online classes and the number of compulsory classes (excluding physical education) as a percentage of compulsory classes.

At the same time, the number of classes taught in grades 7–8 is usually higher than the minimum compulsory number of classes set in the national curriculum. This difference between the grades is due to the fact that the number of classes required in grades 1 to 6 is significantly higher. However, the data do not allow us to determine the exact proportion of classes cancelled and we can only provide a lower bound estimate. On the one hand, this is because we have used for the estimations the number of minimum compulsory classes whereas the number of classes to be taught in the different specialised classes is higher. On the other hand, some of the respondents report a higher number of hours taught than required by the law (e.g. in case of specialised classes). Both of these factors tend to bias towards underestimating the proportion of classes cancelled.

It is worth mentioning that the time spent in online classes does not necessarily indicate how many class were taught because it also depends on whether the pupils have participated in the lessons or not However, it seems that the role of the latter is not significant, as the proportion of classes cancelled is not higher among those whose participation was limited by the lack of computing resources. Overall, the average number of online lessons taught is 20–40% (5–8 classes per week) below the required number of lessons per week. The proportion is highest in primary education.

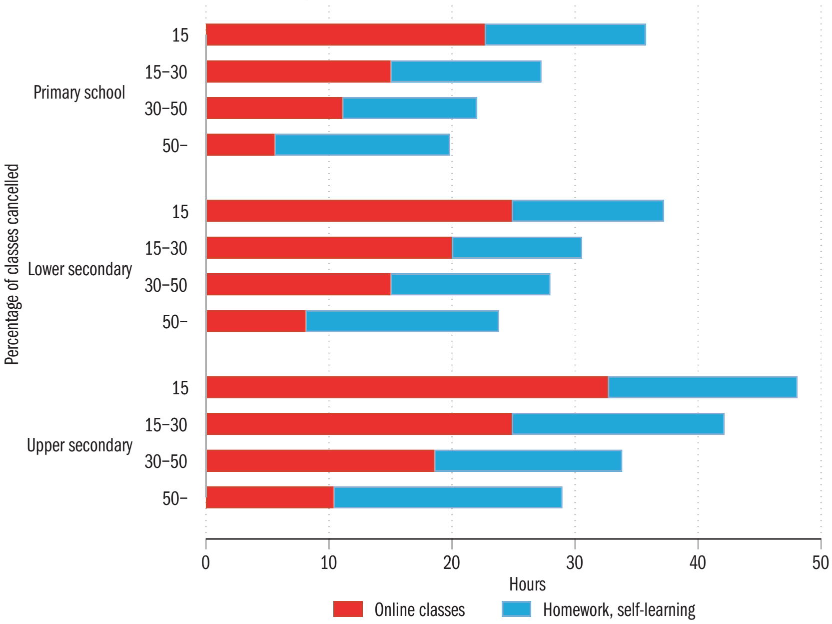
Figure 6.3.7 shows that there are marked differences in the proportion of classes cancelled Parents of primary and lower secondary school pupils say that less than half of lessons were held for one in five pupils, and at all levels of education, the proportion of parents who say that at least a third of lessons were not held is above 40 percent. These differences are greater in primary and lower secondary schools than in secondary schools. One-third of primary school pupils and 45 percent of lower secondary school pupils report that the number of online classes was close to the number of classes required (excluding physical education); the difference is up to 15 percent. However, for one-fifth of primary and one-fifth of lower secondary school students, the number of online classes was less than half of the number of compulsory classes. In more than a third of upper secondary schools, almost all lessons were taught, and in 60 percent, the vast majority of lessons were taught (with classes cancelled accounting for 15–30 percent). There are no significant differences in the proportion of classes cancelled by the educational level of the mother or the composition of the schools (proportion of disadvantaged pupils and pupils with multiple disadvantages).

Figure 6.3.7: Distribution of students by the percentage of classes cancelled and by level of education (percentage)



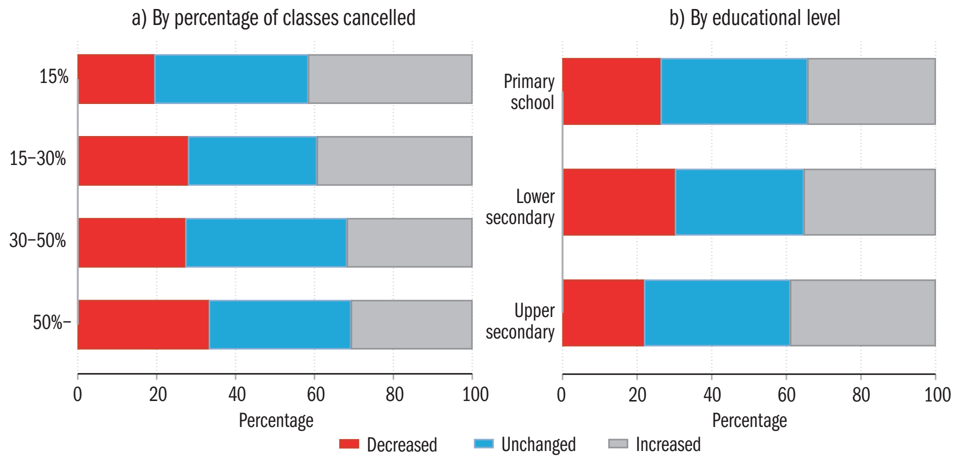
The question may arise as to what extent the time spent on self-learning compensates for the classes cancelled whether it is not the case that some schools have been teaching fewer online lessons and instead giving students more assignments. *Figure 6.3.8* shows the average time spent on self-learning, on online lessons and the total time spent on learning by categories of the proportion of classes cancelled. Students who are in the category of very high rates of classes cancelled on average spent slightly more time on self-learning (differences are statistically significant in primary and lower secondary schools, and are not in upper secondary schools). However, this does not compensate overall for the learning time lost due to classes cancelled, since the higher the share of classes cancelled, the less time is spent on total learning. The total time spent on learning is clearly lowest for those with the fewest online lessons (the differences are statistically significant for all school types). It appears that self-learning only partially compensate for lost hours of learning, at best.

Figure 6.3.8: Average number of hours spent self-learning and on online lessons per week by the percentage of classes cancelled and by level of education



This conclusion is supported by the changes in the total time parents report that students spend studying compared to the period before the pandemic (*Figure 6.3.9*). The higher the proportion of classes cancelled, the higher the share of students who spent less time studying than before. According to parents, 35 and 40 percent of students spent the same amount of time studying as before the pandemic. Among the rest, a higher share of students have increased their time spent studying than have not, especially among upper secondary school students. However, it is worth noting, that this increase cannot be attributed entirely to the change in time spent with studying due to the pandemic, as students generally spend more time studying in higher grades and the responding students were in one grade lower the year before the survey.

Figure 6.3.9: Change in total learning time compared to the pre-pandemic period, by percentage of classes cancelled and by level of education



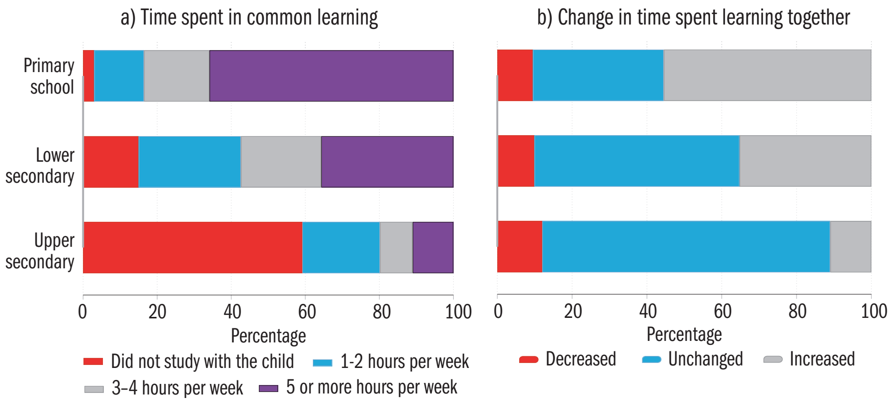
It is not only spending more time studying at home that could help students to catch up, but also having parents who increased the time studying with their children. *Figure 6.3.10* shows that *a* significant proportion of parents reported that they spent a lot of time studying with their child. Parents spend more time studying with their children at lower levels of education, and among them is the highest proportion who reported that they spent more time doing so during the pandemic than before. At lower levels, nearly two-thirds of parents spent five hours or more per week studying with their child. More than half of parents of primary school pupils and one-third of lower secondary school pupils reported that compared to the time they used to study with their children before the pandemic

they had increased the time they spent studying with their children. For parents of upper secondary school students the time spent with studying with their children was typically unchanged. There are no significant differences in the time spent studying with children or in the change of time spent studying with children by educational attainment of parents.

We also examined what kind of class activities and homework were used during remote education by the share of classes cancelled. The results suggest that students who had more classes cancelled may have had poorer quality as well as quantity of instruction (see *Hermann et al.,* 2021 for details).

Our results confirm that students may have suffered educational losses during remote education, and that the magnitude of the losses and differs across different groups of learners.

Figure 6.3.10: Parents' time and change of time spent on learning with children compared to the pre-pandemic period, by educational level (percentage)



Summary

Remote education has had a variety of short and longer-term effects. In the short term, families with both parents working had to manage somehow the day-care of their school-age children, especially the younger ones. Parents working in *home office,* had to manage the learning and working in their home. The most important long time impact of remote education may be that students were not unable to progress at the pace of provided by their normal education if they have received less and/or lower quality education during remote education (see *Lannert–Varga,* 2021 and *Subsection 5.1* for more on this). Short-term difficulties may have had an impact on parents' employment decisions, and long-term ones may have an impact on students' learning trajectories. These may be the subject of further research.

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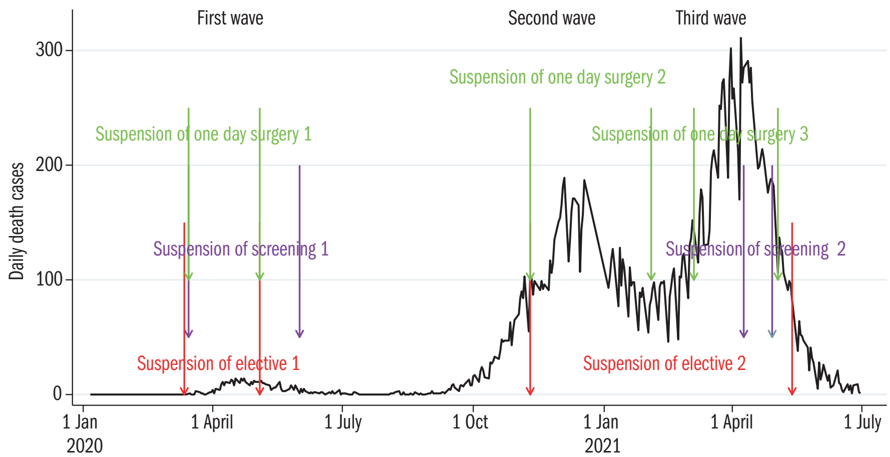
6.4 IMPACT OF THE COVID-19 PANDEMIC ON MORTALITY AND ON THE HEALTH CARE SYSTEM*

PÉTER ELEK, BALÁZS MAYER & BALÁZS VÁRADI

Last year's In Focus followed the Covid-19 pandemic and its consequences up until the first half of 2020 (*Köllő,* 2021, *Váradi,* 2021). Since then, until the time of writing of this chapter, two more waves of the pandemic have hit Hungary: one in the autumn of 2020 and another in late winter-spring 2021 (*Figure 6.4.1*). Unfortunately, the pandemic is still not over in Hungary in the autumn of 2021: the moving average of Covid-19 deaths was over 50 at the beginning of November 2021 and the number of people treated in hospital due to Covid-19 was over 3000.[1] However, the health effects are much clearer than in last year, thanks to a few publications. Below we summarise these studies and make some new calculations. The factors presented will increase the time spent out of work in the short term and may reduce the size of the workforce in the longer term and worsen the health condition of the working-age population.

Figure 6.4.1: Three waves of the Covid-19 pandemic and some health policy measures in Hungary



Source: *WHO* (2021) on mortality, *Hungarian Official Gazette* (2020a, b) and *index.hu* (2021) on the measures.

The course of the pandemic over time and its impact on mortality

The most dramatic statistical indicator is the number and proportion of deaths caused by Covid-19 and the number of years of life lost as a result. As *Bogos et al.* (2021), *Ferenci* (2021a, b), *Tóth* (2021) and *Vitrai* (2021) all point out, the administrative statistics reported in the press, based on hospital administrative data, which show that about 30,000 people, or 0.3 percent of the popu-

* The authors thank the members of the Covid trade-off working group of the Hungarian Society for Health Economics (META) for their help. *Hanna Erős* provided excellent research assistance.

1 See the Government's Covid page.

lation died from coronavirus infection, by June 2021, are far from complete. There are three main reasons for it: (1) Comorbidity is common in deaths due to Covid-19: it is not at all certain that the deaths of all patients who have been confirmed to have an infection were caused by the infection itself and not by other diseases; (2) despite all care, patients may have died of a coronavirus infection while being undiagnosed; and (3) Covid-19 can indirectly affect mortality rates in a number of ways (*Váradi*, 2021). Perhaps the most important of these is the impact on patients' behaviour, lifestyles, including health care use, and health capacity, and the impact of public health measures to curb the spread of other communicable diseases, such as influenza.

Therefore, more accurate information on the effect of Covid-19 on mortality is obtained by focusing on the excess mortality from expected (counter-factual) 2020 mortality calculated from trends over the previous few years. This was analysed by *Tóth* (2021). The author – comparing the actual figures for 2020 with the expected value that was calculated from the 2010–2019 data, broken down by year of age – came to the conclusion that the excess mortality in Hungary was approximately one and a half times of the Covid-19 mortality (9500 people until the end of 2020) calculated from the administrative data (in total, approximately 11% of the mortality in 2019). According to the weekly calculations, the peak of excess mortality during the second wave occurred significantly earlier, in early November 2020, than at the end of November, as in the administrative data. Similar conclusions were drawn by *Islam et al.* (2021), who forecast the mortality expected for 2020 from the data of 2016–2019 (but neglected atypical shocks like a major influenza pandemic, including the one in Hungary) for the entire OECD, as well as by the continuously updated calculations of *Ferenci* (2021b) for the year 2020. However, for the first half of 2021, Ferenci found that compared to the twenty thousand Covid-19-related deaths calculated for that period, there were fewer excess deaths – about 15,000 (about 22 percent of deaths in the first half of 2019).

Referring to the calculations of *Karlinsky–Kobak* (2021), *Tóth* (2021) also pointed out that with the one and a half times undercount rate calculated for the year 2020 Hungary does not stand out from the European Union row (1–1.7; average: 1.5). *Bogos et al.* (2021) examined the Hungarian excess mortality in the European context on the 2016–2019 basis, using Eurostat data, and found that the cumulative (starting from the first wave), age-adjusted excess mortality (as a proportion of the population) in Hungary for 2020 was well above the German level, for example, but remained below the Slovenian, Czech, Romanian and Polish levels. However, this calculation does not include the third wave, which resulted in higher mortality in Hungary than the first two.

In Hungary, life expectancy at age 60 decreased by 0.65 years for women and 0.71 years for men due to Covid-19 mortality of the elderly in 2020 (*Aburto* *et al.,* 2021). Regarding the years of life lost, Ferenci (2021a), using careful statistical tools and the age of the deceased and their comorbidities reported on the government's website, calculated that 9.2 years were lost on average for each Covid-19 death in Hungary in 2020 (and it increases to only 10.5 years if we do not consider comorbidities, only age).

An extremely important question is how the direct burdens of the pandemic have been distributed within society. More than 95 percent of those who died were over 50; 68 percent struggled with high blood pressure, and 30 percent had diabetes (*Ferenci*, 2021a). (Of these two most common comorbidities, diabetes plays a larger role in Covid-19 mortality, as almost the same proportion of the population over the age of 50 is hypertensive, according to pharmaceutical consumption data, but only 14 percent are diabetic.)[2] *Gholipour et al.* (2021) presented in detail the descriptive statistics related to other comorbidities in Hungary.

Uzzoli et al. (2021) examined the territorial dimensions of the burden distribution. With the descriptive analysis of the case numbers, it was found that "during the first wave, the majority of infections were mainly related to geographical (Budapest, Pest county) and institutional (hospitals, homes for the elderly) focal points", in the second wave infection chains ran throughout the country, and Nógrád, Vas, Győr-Moson-Sopron, Veszprém and Csongrád-Csanád took the place of Budapest, Fejér, Komárom-Esztergom, Zala and Pest in the forefront of per capita infections.

Oroszi et al. (2021) sought answers to the same question from municipal-level administrative data for the second wave of the pandemic (June 22, 2020 – January 24, 2021). Examining the relationship between the number of cases and deaths per capita and the deprivation index describing the socio-economic nature of the settlement, it was found that the more the settlement in need, the lower the case number, but the higher the mortality is: in the half-year under review, excess mortality was 38 percent higher among the worst-fifth of the settlements according to the deprivation index than in the best-fifth.

We conducted a similar, but longer-term study on settlement-level data provided by the National Centre for Public Health (NNK),[3] and our estimates are consistent with those of *Oroszi et al.* (2021). Until the end of the third wave (May 29, 2021), the cumulative number of cases per 100 inhabitants was 8.2 in Budapest, 8.9 in county seats, 8.2 in other cities, and 7.7 in villages, and was positively associated with the per capita income of the settlement.[4] Covid-19 mortality could only be studied at the settlement level until 4 March 2021, i.e. before the peak of the third wave. Mortality follows a somewhat different pattern than the number of cases: as a result of different health status and testing intensity, a higher proportion of registered infected people died from the infection in the poorer than in the

2 Proportion of people over the age of 50 who bought pharmaceuticals in the given class at least once a year; own calculation based on the Admin3 database of the Databank of the CERS.

3 Availability of the data at Google Docs.

4 To examine this, we used the variable "taxable income" of the settlement statistics of the CSO (KSH TSTAR).

richer settlements. (According to the type of settlement, the proportion of those who died by 4 March 2021 and those who became infected by 14 February was 3.9 percent in Budapest, 3.7 percent in county seats, 6.3 percent in other cities and 4.8 percent in villages.) Overall, Covid-19 mortality per 100 inhabitants was found to be balanced by settlement type up until March 2021 (0.155–0.163) and was slightly negatively related to the per capita income of the settlement.[5]

Impacts on the health care system

Of course, the pandemic also significantly affected parts of the health care system other than Covid-19 care. On the supply side, the suspension of some parts of care, the switch to teleconsultation and flat-rate financing may have played a role, but capacity may have declined anyway due to the increased resource requirements for Covid-19 care.

> The main health care measures are shown in *Figure 6.4.1.* At the beginning of the first wave, from March 15, 2020, elective interventions, including one-day surgery, as well as organised public health screening, were suspended and then resumed in several stages during May and June, respectively. In the second and third waves, health care was suspended more selectively; one-day surgeries were paused between 10th November 2020 and 3rd February 2021, and between 5th March and 3rd May 2021, but screening was only stopped for three weeks, from 9th April to 29th April 2021. Other measures affecting inpatient care (such as freeing up bed capacity for those infected) are not shown in the figure.

On the demand side, fear of infection and changed work and home conditions (such as increased household tasks due to distance learning) may have reduced the likelihood of visiting a doctor. All of this is well observed in outpatient and inpatient care data. *Figure 6.4.2* shows the evolution of outpatient (including CT-MRI and laboratory diagnostics) financing points and active inpatient financing weights (monthly values on the left and deviation from trend and seasonality on the right, estimated from a simple time series model).[6]

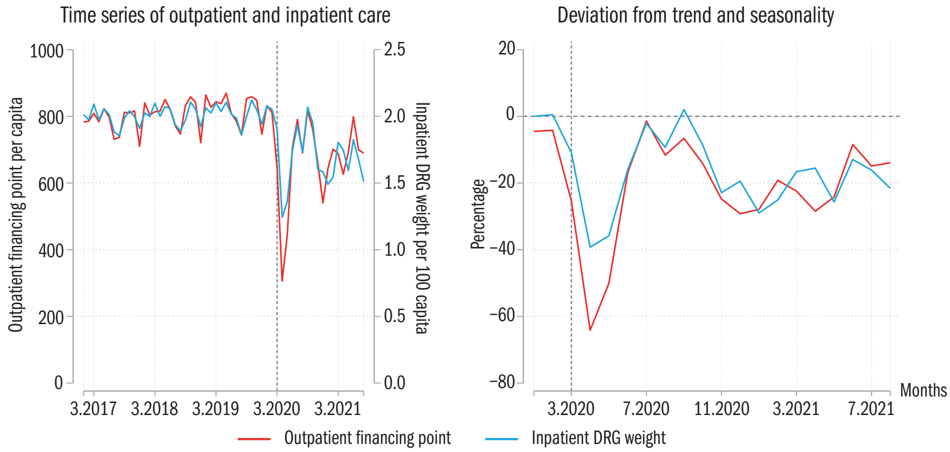
From March to April 2020, the performance of outpatient care fell by 50–65 percent (and by 25 percent in March as a result of mid-month measures), while the performance of inpatient care fell by 35–40 percent. It then gradually recovered and operated at close to normal levels until September–October, and then was reduced by 15 to 30 percent until May 2021. Since then, in the summer of 2021, it has still not reached its historic value, but there has already been some level of restoration, especially in outpatient care. It should be noted, however, that the number of cases (as well as the number of days in inpatient care) fell more sharply than the outpatient financing point and inpatient weight. In inpatient care, the *case mix* index (the average weight per case) indicating the "severity" of a case has been consistent-

5 As there were no deaths in many smaller settlements, we examined the number of deaths using a Poisson regression model where the explanatory variables were the logarithm of per capita income and the logarithm of the population.

6 Outpatient care is funded on the basis of the values of the interventions performed, so the total financing point is the product of the number of cases and the average value of the intervention per case. Similarly, the weight of active inpatient care depends on the number of cases and the severity-dependent DRG (disease related group, HBCS in Hungarian) value.

ly above historical levels, declining back to normal only by the very end of the period (August 2021).[7] Similarly, in outpatient care in 2020, the number of reported cases decreased by 20 percent, whereas the financing points decreased by 16 percent.[8] This may indicate that more severe cases have remained inside the system.

Figure 6.4.2: Development of outpatient and inpatient care performance (outpatient financing point and inpatient weight)



Note: The right side shows the residuals (in percentages) for the period from January 2020 to August 2021 of the models with trend and seasonality fitted to the values of the logarithmic time series for 2017–2019. Outpatient care includes CT-MRI and laboratory care.

Source: Own calculation based on *NEAK* (2021a).

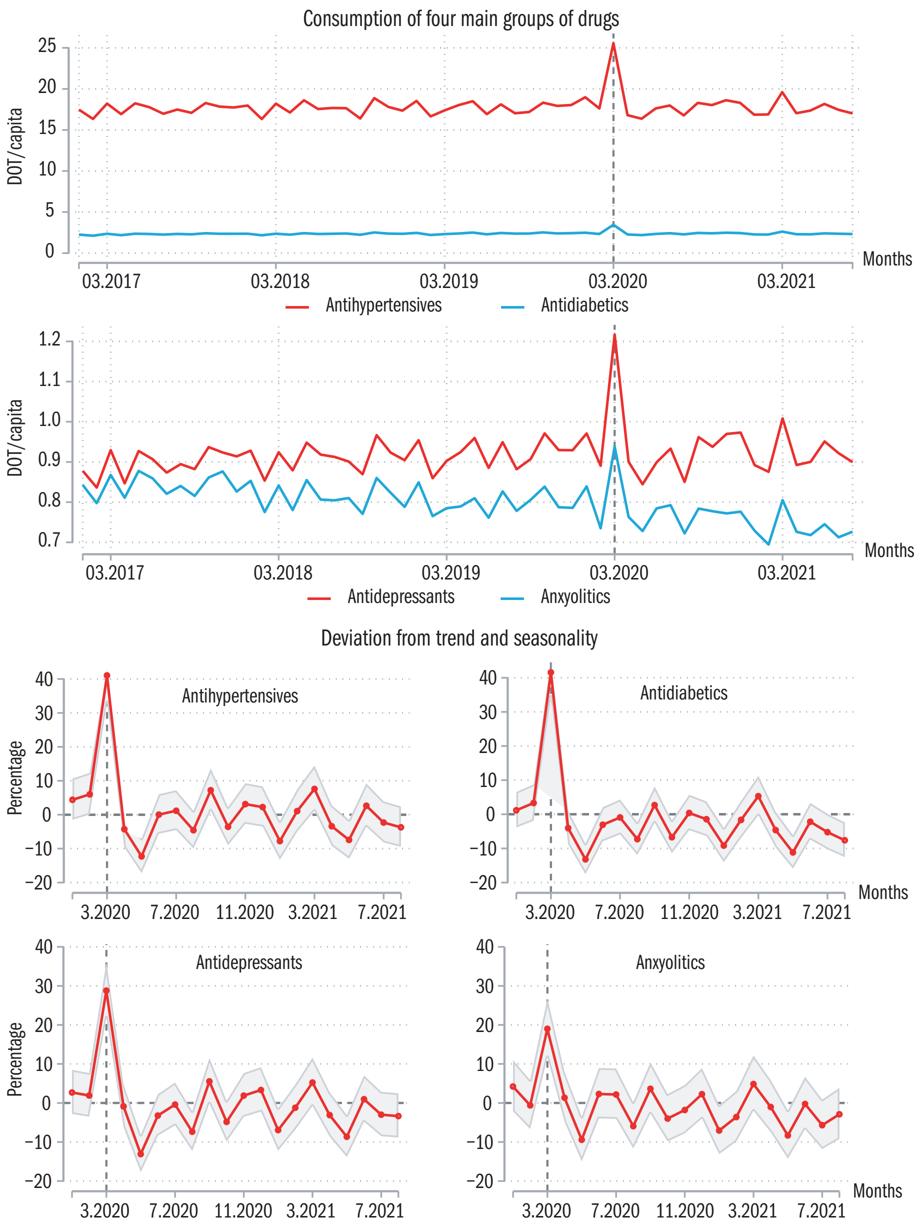
Figure 6.4.3. shows the development of another important component of the health system, the consumption of prescription drugs for four main drug categories (antihypertensives, antidiabetics for the treatment of diabetes [insulins and oral medicines], antidepressants for the treatment of depression and anxiolytics for the treatment of anxiety) (the left side of the figure shows the time series and the right side shows the percentage deviation from the trend and seasonality and its 95 percent confidence interval).[9] It can be seen that during the first wave, in March 2020, pharmaceutical panic buyingcaused a spectacular one-time jump (an increase of almost 40 percent for antihypertensives and antidiabetics, and a 20–30 percent increase for antidepressants and anxiolytics) in the data. *Elek et al.* (2021) also showed on district-level data that this effect was stronger in richer, presumably better-informed districts. According to the figure on the right of *Figure 6.4.3*, drug use in the post-panic months was lower than usual, but during 2021, with the possible exception of antidiabetics, historical levels appear to be recovering.

7 Source: neak.gov.hu, p. 9.

8 Source: Own calculation based on NEAK (2021b).

9 Source: Own calculation based on NEAK (2021c).

Figure 6.4.3: Development of consumption of four main groups of drugs (Days Of Therapy – DOT)



Note: The right side shows the residuals (in percentages and with a 95% confidence interval) for the period from January 2020 to August 2021 of models with trend and seasonality fitted to the values of the logarithmic time series for 2017–2019. Drug groups: antihypertensives (ATC C02-09), antidiabetics (ATC A10), antidepressants (ATC N06A), anxiolytics (ATC N05B)

Source: Own calculation based on *NEAK* (2021c).

Impacts on health conditions

Examining the consequences of redeployment within the healthcare system, as well as the even more indirect health effects of the pandemic, is a complex task using the available data. Below, we summarise some of the results so far and report some calculations for cancer, cardiovascular and mental illness. These are important not only for future evidence-based health policy decision-making but also because without careful analysis, changes in the incidence of certain diseases may even be attributed to the effect of the vaccine by the general public or the press, which may adversely affect vaccination propensity.

Diagnosis and treatment of cancer

Elek et al. (2022a) examined the quarterly incidence (number of new cases per 100,000 people) of the three most important cancer types (lung, colorectal and breast cancer).[10] It was found that in the second quarter of 2020, the incidence of the two types of cancer covered by the public health screening program – colorectal and breast cancer – decreased significantly, followed by a temporary reversal, and then was mainly below the historical average during the first half of 2021. In the case of lung cancer, the decline was less volatile compared to the historical trend. Overall, between April 2020 and June 2021, there was a 10–20 percent lag compared to the usual trend and seasonality in the incidence of the three tumour types. Patients who did not appear during the pandemic would appear later in the health care system, probably at a more advanced stage, with poorer chances of treatment and survival.

Within the supply- and demand-side reasons detailed earlier, a decrease in the number of screening procedures due to the temporary cessation of organised screening and to the decline in the willingness to participate in screening may have partly contributed to the decline in the number of diagnosed cancers. From 2019 to 2020, the number of mammographic screening procedures decreased by 28 percent and the number of breast imaging procedures by 24 percent.[11]

Elek et al. (2022b) used the upper age limit for organised breast cancer screening for women (65 years) to distinguish this factor from the others. The authors found that before the pandemic, there was a discontinuity at the age of 65 in the rate of mammographies and breast surgeries, including partial breast removals that promised a better prognosis, but this discontinuity completely disappeared in some quarters of the pandemic. In line with this, the number of partial breast removals indicating early diagnosis fell more sharply among those aged 61–65 years in the second quarter of 2020 than in those aged 66–70 years, while a reversal occurred in the opposite direction in early 2021. Meanwhile, there was no difference in the trend of total breast removals. The decrease in partial breast removals in the 61–65 age group at the beginning of the pandemic suggests that there was a decrease in the number of

10 It was considered a new case if an individual appeared in inpatient care for the first time (more precisely, for the first time within the previous five years) with the appropriate main diagnosis code (lung cancer: C34, colorectal cancer: C18-C21, breast cancer: C50 ICD codes).

11 Source: Own calculation based on NEAK (2021b), using the appropriate ICPM (International Classification of Procedures In Medicine) codes of outpatient care.

breast tumours that could be detected previously in the early stages by screening because they were diagnosed at a later stage during the pandemic. It should be noted, however, that due to different trends in other age groups, partial breast removals fell less than total breast removals in the general population.[12]

Cardiovascular diseases and related chronic conditions

Among the acute cardiovascular events, *Böjti et al.* (2021) found a decline due to the Covid-19 pandemic in stroke diagnoses and, to a lesser extent, in related interventions. Although the real incidence of stroke may have also decreased due to a lifestyle change during the lockdown, the authors argue that the relapse is more likely to be due to the strain on the health care system and the delay of the patients visiting the doctor.

It can also be observed that patients with chronic conditions related to cardiovascular diseases turned up less often than usual in outpatient care: for example, the total financing points reported in diabetes clinics decreased by 21 percent and the number of cases by 16 percent from 2019 to 2020.[13] However, as we have seen, drug consumption data show an approximate recovery in the consumption of antihypertensives and antidiabetics in the first eight months of 2021 (*Figure 6.4.3*), so more detailed data are needed to examine the effects more accurately.

Mental illnesses

Finally, *Wernigg* (2021) examined the care of psychiatric patients and found a decrease in the number of patients in outpatient and inpatient care with a psychiatric diagnosis in the first three quarters of 2020, suggesting a decline in access – although antidepressant use seems to be returning to its previous level in the first eight months of 2021. Of course, the Covid-19 pandemic itself has had an impact on mental health (see, e.g., *Osváth et al.,* 2021), so the role of these factors in the observed increase of the number of suicides is a further issue to be investigated. According to the CSO's mortality statistics, the number of cases of "intentional self-harm" increased by 10 percent from 2019 to 2020[14] and according to *Osváth et al.* (2021), the increase was 16 percent compared to the declining trend of the previous period.

Summary

Thus, publications and calculations to date show that, based on the available data, excess mortality during the first three waves of the pandemic (including its geographical and socio-economic patterns) can be estimated with relative accuracy and the effects on the health care system can be measured: non-Covid health care supply was somewhat reduced; within this, delayed cancer diagnoses may, unfortunately, worsen mortality in the future. Detailed examination of the medium- and long-term effects of contacting the coro-

12 See also the annual numbers of the 491 and 492 DRG (diagnosis related group, HBCS in Hungarian) cases in *NEAK* (2021b).

13 Specialty codes 0103 (endocrinology, metabolism and diabetology) and 0123 (diabetology) were examined together. Source: own calculation based on *NEAK* (2021b).

14 See HCSO STADAT.

navirus (post-Covid syndrome, see, e.g., *Fekete et al.,* 2021), of the capacity re-allocations within the health care system, and of the lockdowns and economic downturn due to the pandemics will be the subject of further research.

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6.5 RISK PREFERENCE AND COVID-19

DÁNIEL HORN, SÁRA KHAYOUTI & HUBERT JÁNOS KISS

The Covid pandemic has brought a lot of changes to our lives. In this paper, we investigate whether the pandemic changed our attitude to risk, i.e. our risk preference. This question is important because our preferences (in addition to our opportunities and constraints) are important determinants of our decisions and behaviour, and thus may also affect our labour market status. For example, risk-averse people are more likely to choose jobs that provide a stable income (*Bonin et al.*, 2007), less willing to change jobs (*van Huizen–Alessie*, 2019), to move (*Dustmann et al.*, 2020), have lower reservation wages (*Pannenberg*, 2010) and their salary also grow more slowly (*Budria et al.*, 2013). Risk-takers are more likely to take more precarious jobs with higher expected earnings (*Dohmen–Falk,* 2011), and higher risk-taking is associated with higher entrepreneurship (*Koudstaal et al.*, 2013, *Caliendo et al.*, 2014)

Changes in risk preferences

Although economists usually assume that preferences are stable, recently increasing attention has been paid to the question of how preferences change over our lifetime and what kind of events can shape preferences.

The coronavirus outbreak came as a shock. In the literature, shocks caused by economic crises, natural disasters and wars are also studied from the perspective of their ability to trigger changes in preferences. For example, in the context of the 2008–2009 financial crisis, most studies found that risk-taking decreased (see *Schildberg-Hörisch*, 2018 and references therein). Interestingly, a decrease in risk-taking is not necessarily combined with a change in risk preferences. For example, *Malmendier–Nagel* (2011) argues that economic shocks change our perceptions of future returns and may lead to lower risk-taking, although they do not rule out the possibility of a change in preferences. In terms of mechanisms, several studies (*Sahm*, 2012, *Bucciol–Miniaci*, 2018) have found that changes in risk preferences are not driven by changes in income or wealth. That is, people are more risk-averse not because economic crises reduce their income, but for other reasons; some studies suggest that negative experiences and emotions may cause this change (*Necker–Ziegelmeyer*, 2016, *Guiso et al.*, 2018). This is supported by the results of *Kandasamy et al.* (2014), who found that an increase in the stress hormone called cortisol reduces the willingness to take risks.

Some studies on natural disasters and war situations concluded that these extreme situations reduce risk-taking, while others found the opposite (see *Chuang–Schechter*, 2015 and references therein). Unfortunately, the reason for this inconsistency in literature is not known to the authors. In line with the effect of economic shocks, some authors find that risk-taking declines because people attribute a higher probability to future disasters, i.e. risk perception changes (see for example *Cameron–Shah,* 2015 and *Cassar et al.,* 2017). As a reason for increased risk-taking, some point to Prospect Theory, according to which people's risk-taking increases after a loss (*Page et al.,* 2014), others point to the effects of emotions (*Eckel et al.,* 2009).

Overall, therefore, it is not clear from the literature how the pandemic may have affected risk-taking. In the following subsections, the data used for our analysis is briefly summarised, followed by a description of how and in which social groups the risk-taking willingness of Hungarians has changed in recent years.

Hungarian data, descriptive statistics

With the help of Tárki, we measured risk attitudes in a representative sample of the Hungarian adult population by gender, age, education and place of residence in early 2017, June 2020 and November 2020. The samples included different respondents, i.e. no panel data was used. The 2017 survey captures risk preferences before the pandemic, while the 2020 surveys measure attitudes to risk during the first and second waves of the pandemic. Of course, risk preferences can be influenced by several factors. If there is a difference between the 2017 and 2020 data, it reflects not only the impact of the pandemic, but also the influence of other factors that may have changed in society during this period. In the following section, we attempt to take these factors into account.

Risk-taking was measured by a hypothetical question: how much of 10,000 forints the respondent would be willing to bet on a game in which there was a 50 percent chance of doubling the amount and a 50 percent chance of losing it.[1] The more someone is willing to gamble, the higher their risk tolerance is. This type of question is often used to measure risk-taking (see for example *Gneezy–Potters,* 1997 or *Sutter et al.*, 2013).

Information is available on the demographic and social status of respondents (gender, age, education, family characteristics, employment status, financial situation), therefore, it could be examined how risk preferences have changed in certain groups and could also use them as controls.

Table 6.5.1 shows the descriptive statistics. There is a decreasing trend in the overall sample as well as in the different subsamples. Compared to 2017, respondents would risk a smaller amount in June 2020 and a further decrease is observed between June and November 2020.

Two graphs below give a more detailed picture of how risk-taking has changed for various groups of respondents. First, the data from the 2017 survey were compared with the data from the first survey in 2020, followed by the data between the two surveys in 2020.

1 There was a minimal difference between the 2017 and the 2020 survey. While in 2017 the gamble was to draw from a bag of 10 red and 10 blue balls and hit the colour, the 2020 questions were based on a coin toss.

Table 6.5.1: Amount risked during the risk-taking exercise in the three surveys (HUF)

	2017	2020 June	2020 November
Full sample	3,860	3,329*	2,894*
Gender			
Men	4,316	3,470*	3,047
Women	3,452	3,204	2,758*
Age			
18–30	4,454	3,489*	2,973
31–50	4,217	3,656*	2,931*
51–65	3,722	3,218	2,992
65+	2,702	2,650	2,581
Type of settlement			
Village	3,331	3,287	2,738
City	4,094	3,354*	3,034
Budapest	4,100	3,329*	2,768
Education			
Max. eight years of primary school	3,287	3,244	3,003
No high school degree	3,785	3,309	3,073
High school degree	3,984	3,435*	2,811*
More than high school degree	4,377	3,253*	2,595

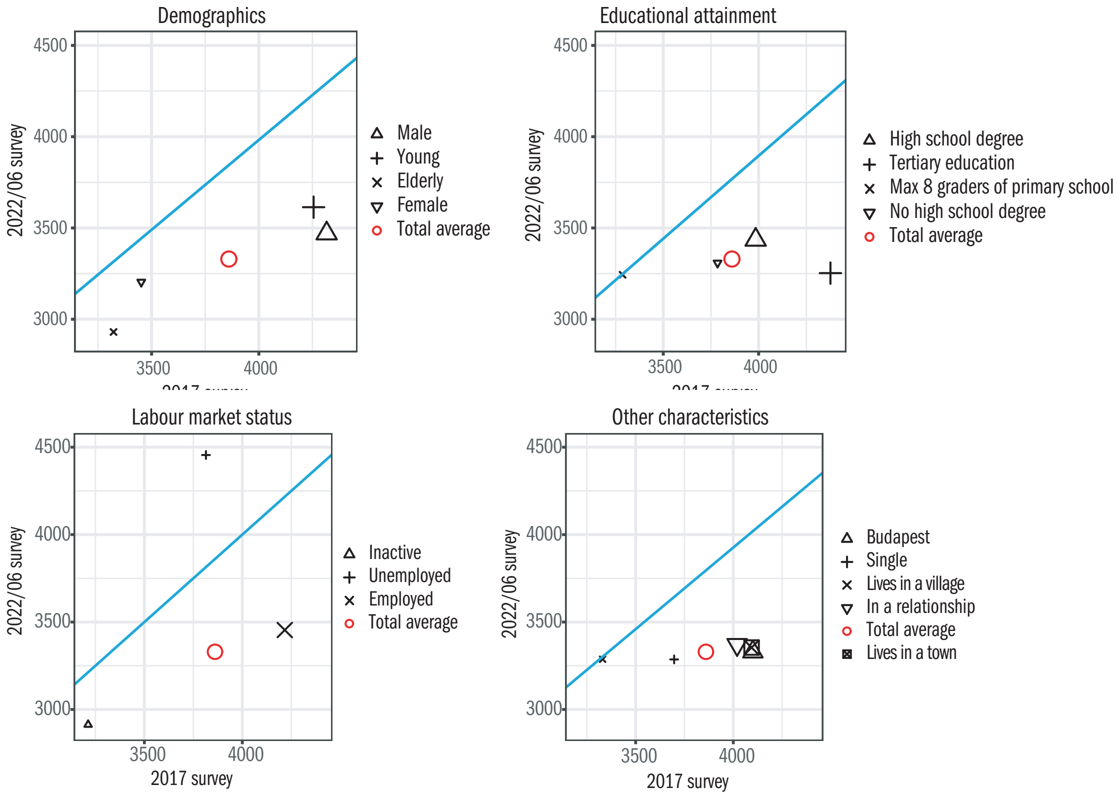
Note: Smaller amounts mean less risk-taking. Asterisks indicate significant deviations at the 5 percent level, always relative to the previous period observation.

Figure 6.5.1 shows the changes in the various population groups between 2017 and June 2020. If the symbol representing a group lies on the line, average risk-taking for members of that group was exactly the same over the two data collection periods. If the symbol is below the line, risk-taking was lower in the second survey than in the first survey, i.e. risk-taking decreased over the period. The further a symbol is from the line, the greater the difference. Large symbols show a statistically significant difference at 5 percent.

The figure shows that the symbols tend to lie below the line, i.e. people in the various categories typically risked more at the time of the first data collection. The difference is often not significant, i.e. although risk-taking decreased during the pandemic, the change is not significant. However, statistically significant differences can be observed in several categories. The figure shows that risk-taking has decreased for the total population, but there are also differences between surveys by age, gender, education and labour market status.

Similarly to the figure above, *Figure 6.5.2* shows the changes in the population groups between June and November 2020. As in the period between spring 2017 and June 2020, risk-taking declined significantly between the first and second waves of the pandemic. The decline in risk-taking between these two later dates is statistically significant for the groups of employed, unemployed, young, people with high school degree, single persons and women. However, there was no or only a minimal decrease for inactive or low-educated people, for example. In other words, from the descriptive data, the average decrease in risk-taking is likely to be due to the part of society with a higher status.

Figure 6.5.1: Changes in the correlation between individual characteristics and risk-taking between 2017 and June 2020



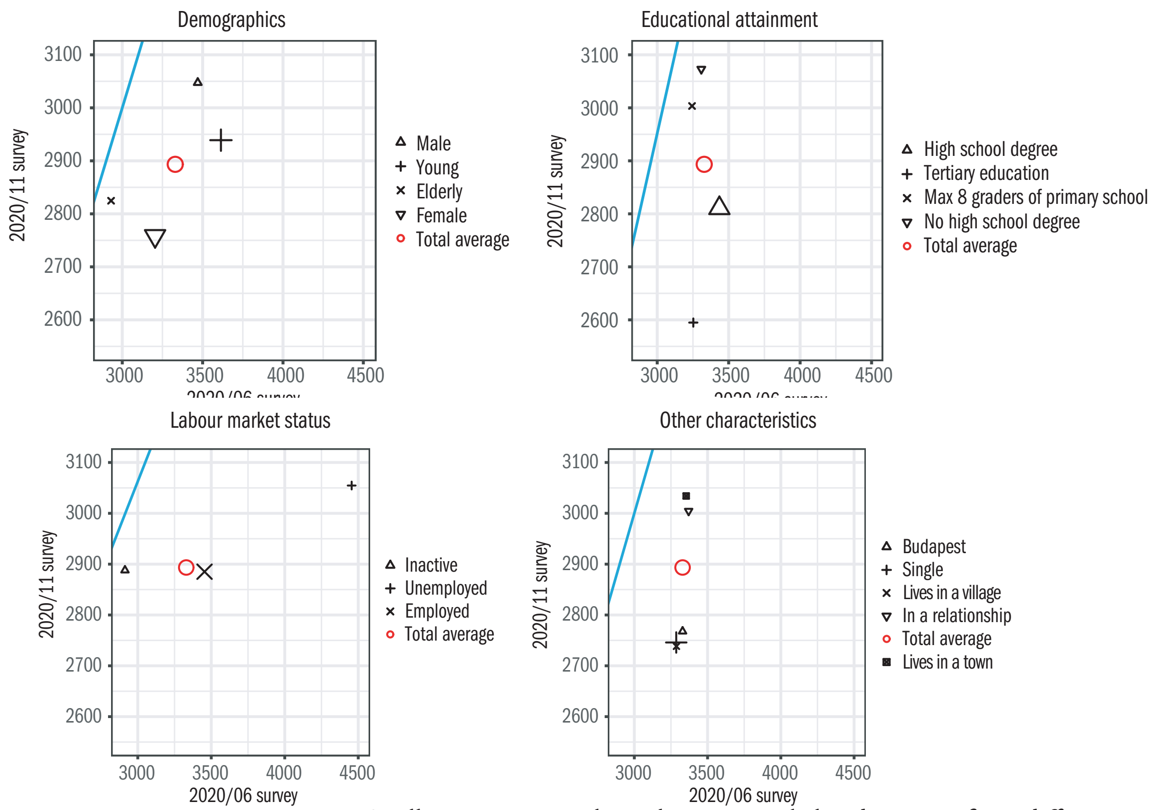
Note: Smaller amounts mean less risk. Larger symbols indicate significant differences at the 5 percent level.

Consistent with the results documented in the literature (see *Drucker et al.*, 2018), we found that women are more risk-averse than men, but that risk-taking decreases over time for both sexes. In turn, also with respect to age, *Figure 6.5.1* shows the literature's finding that willingness to take a risk declines with age (see *Schildberg-Hörisch*, 2018 and references therein). However, the 2020 data in *Figure 6.5.2* show that the differences between age groups disappear at the time of (and perhaps as a consequence of) the pandemic. Similar conclusions can be drawn for the settlement type.[2] Indeed, while in 2017, people living in larger towns and Budapest showed a significantly higher risk-taking willingness than people living in rural areas, this difference disappeared completely by June 2020. As for education, the willingness to take a risk is almost

2 The authors are not aware of any literature that studies the relationship between risk-taking and settlement type.

reversed: while in 2017 higher education was associated with higher risk-taking (in line with the literature, see *Dohmen et al.,* 2010), by the end of 2020, those with lower educational level were more willing to take risks in relation to the survey question (with a significantly smaller decrease in willingness to take a risk for those with lower education over the years).

Figure 6.5.2: Changes in the correlation between individual characteristics and risk-taking between June and November 2020



Note: Smaller amounts mean less risk. Larger symbols indicate significant differences at the 5 percent level.

Multivariate analysis

Table 6.5.2 shows the evolution of risk-taking characteristics over time in a regression framework, where the observable characteristics of respondents are taken into account gradually. Column (1) shows the average differences between the three surveys, without including any control variables. These estimates reproduce the results for the whole population in *Figures 6.5.1* and *6.5.2.* While in June 2020, people would have spent 531 forints less on a gamble out of their available 10,000 forints than at the beginning of 2017, by November

2020 this average amount decreased by another 436 forints. In other words, as shown above, the average willingness to take risks has decreased steadily and significantly over the course of our observations. The rates between years do not change significantly even when controlling for gender, age, place of residence, education (column 2), marital status, number of household members (column 3, 2), labour market status, sector of employment (column 4), or financial situation (column 5). This result suggests that, independently of individual observable characteristics, the willingness to take a risk of the Hungarian population has decreased due to some "external cause". It seems plausible that this external cause was the pandemic.

Table 6.5.2: Variation in risk-taking propensity between the three survey dates – linear regression model on weighted data

	Risk preference				
	(1)	(2)	(3)	(4)	(5)
2017 survey (reference: June 2020)	530.816***	535.265***	554.434***	560.801***	550.904***
	(155.175)	(154.226)	(157.058)	(158.503)	(160.349)
2020/11 survey (reference: June 2020)	–435.918***	–441.871***	–437.001***	–421.587**	–408.622**
	(166.407)	(165.264)	(166.028)	(167.434)	(169.146)
Gender: female (reference: male)		–440.018***	–433.035***	–432.970***	–422.105***
		(135.150)	(137.252)	(141.865)	(142.922)
Age		–18.650***	–17.766***	–23.059***	–23.303***
		(4.049)	(5.477)	(7.163)	(7.305)
Place of residence: village (reference: town)		–392.427***	–418.737***	–437.251***	–429.195***
		(151.857)	(152.689)	(153.714)	(155.462)
Place of residence: Budapest (reference: town)		–88.959	–86.888	–82.469	–49.039
		(180.571)	(182.087)	(183.820)	(188.414)
Education: maximum eight years of primary school (reference: tertiary education)		21.723	155.368	281.628	352.631
		(237.384)	(241.810)	(344.881)	(350.057)
Education: no high school degree (reference: tertiary education)		–29.293	15.801	26.585	82.927
		(197.371)	(197.640)	(308.018)	(311.795)
Education: high school degree (reference: tertiary education)		–39.243	21.716	18.370	55.433
		(194.953)	(195.372)	(283.300)	(285.150)
Family status[a]	–	–	+	+	+
Labour market situation[b]	–	–	–	+	+
Financial situation[c]	–	–	–	–	+
Constant	3,329.435***	4,606.035***	4,623.795***	4,709.604***	4,711.086***
	(110.907)	(274.335)	(435.630)	(536.501)	(551.563)
Number of observations	2,530	2,530	2,520	2,503	2,470
R^2	0.014	0.030	0.033	0.037	0.037

[a] Married, in partnership, divorced, single, widowed and number of persons living in the household.

[b] Employed, casual, self-employed, unemployed, retired, other and workplace economic sector.

[c] Good, average, poor (self-declaration) and whether they own their own home.

$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Conclusions

Even before the pandemic, Hungarians were among the most risk-averse nations in Europe (*Falk et al.*, 2018). Our analysis suggests that during the pandemic, people's risk-taking showed a steady downward trend. Compared to the "peace year" of 2017, people were willing to risk less and less during the first wave of the pandemic and less and less during the second wave of the pandemic compared to the first wave. An interesting question for future research would be where this decline will stop and stabilise, and when people's risk-taking will return to pre-pandemic levels – if at all.

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LABOUR MARKET POLICY INSTRUMENTS (JUNE 2020 – MAY 2021)

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1 INSTITUTIONAL CHANGES

This chapter summarises the main regulatory changes to labour market policy instruments between June 2020 and May 2021.[1]

1.1 Vocational training system

On 1 January 2020, Act LXXX of 2019 on Vocational Education and Training entered into force,[2] under which pupils entering vocational education and training in the academic year beginning on 1 September 2020 started their studies under the new regulations. The changes were introduced in a phasing out scheme from the 2020/2021 academic year. The four plus one-year structure of vocational secondary schools was replaced by a five-year – in some cases six-year – structure of technical schools (*technikum*), and vocational schools were transformed into three-year vocational training schools.

In the first period of training, pupils can learn the basic sectoral skills common to related professions. After the basic training – at the end of year 9 in vocational training schools and year 10 in technical schools – students take a basic sectoral exam and then choose from a range of related professions.

The three-year vocational training school is designed to prepare pupils for a trade. After the first year learning the basics of the trade, the basic sectoral examination, students spend two years in dual training at companies and entrepreneurs, where they acquire professional skills. At the end of their studies, students take a vocational examination and obtain a vocational qualification. After the apprenticeship exam, they can opt to have two additional years of evening classes to complete their school-leaving certificate.

The five- or six-year technical schools provides a technician qualification, which gives intermediate management skills. The general subjects are completed by a baccalaureate examination, and the fifth subject is the vocational examination, which is a higher-level subject examination. The technical school also provides apprenticeships, preferably at enterprises, in dual training. After completing five or six years, students receive both a school-leaving certificate and a technician certificate, and can benefit from a preferential admission to higher education in their field. After graduating from an upper secondary school, the technical school training lasts two years.

Adults who want to learn a trade can enrol in a two-year vocational training school or technical school – under the age of 25, even full-time in a student status or adult education status.

According to the new law, a vocational training employment contract comes to replace the former apprenticeship contract in the dual training of technical schools and vocational training schools. The fixed-term vocational training employment contract establishes an employment relationship between the

1 For policy instruments for the period January to May 2020, see last year's Labour Market Yearbook, pp. 37–46.

2 Act LXXX of 2019 on Vocational Education and Training.

apprentice and the dual training centre, subject to the Labour Code (with some exceptions). The apprentice is to be paid a wage instead of the former apprenticeship allowance. Vocational training employment contracts may be concluded not only with apprentices but also with adults in adult education.

VET students may receive various types of cash benefits during their studies, but they are only entitled to one benefit at a time. During their schooling, they may receive a scholarship depending on their academic performance, and in dual training, they may receive a wage and other benefits from the company providing the training as part of the vocational training employment contract. On successful completion of their studies, graduates can receive a one-off career start grant. From April 2022, student loans will also be available in vocational education and training and adult education, and, similarly to student loans for higher education, will be available to 18- to 55-year-olds without credit assessment and without loan guarantees.

The law replaces the National Qualification Register (OKJ) with the Register of Vocational Occupations, which lists 174 occupations in 25 sectors, the duration of training, the occupational pathways for each occupation that students can choose, the level of digital competence, and the interoperability between occupations within sectors. The basic occupations listed in the catalogue can only be studied within the school system, in vocational training schools or technical schools, with a student status. Partial qualifications and apprenticeships can be acquired in adult education institutions or vocational training schools under an adult education contract. Vocational training institutions provide participants with a nationally recognised vocational qualification upon completion of the basic occupation, while private adult education institutions issue a certificate to those who attend their vocational training courses, after which students can obtain a nationally recognised qualification at accredited examination centres.

The legal status of teachers has also changed: as employees of VET schools, they can now be employed on a contract instead of having a civil servant status, and their employment is now subject to the Labour Code.

Due to the Covid-19 pandemic, online education was introduced in VET schools from 8 March to 7 April 2021.[3] During this period, general and vocational education and training could only be delivered online. Depending on the type of profession and the tools required, apprentices completed their vocational training, including dual apprenticeships, either online or through project assignments.

1.2 The Operational Task Force for Economic Recovery

The government has set up an Operational Task Force for Economic Recovery to mitigate the adverse effects of the pandemic on the national economy.[4] Its task is to monitor the government's measures to restart economic activity and

3 Government Decree 104/2021 (5.III.) on the temporary tightening of security measures.

4 Government Decree 324/2021 (9.VI.) on the establishment and tasks of the Steering Committee for the Restart of the Economy.

to mitigate the economic damage caused by the pandemic. It also formulates recommendations to the government to examine and, if necessary, regulate the circumstances preventing economic recovery. In addition, the Operational Task Force for Economic Recovery delivers its opinion on initiatives relevant to the functioning of the economy and the situation of economic operators and formulates recommendations for government intervention.

2 SUBSIDIES

2.1 Unemployment benefits

With the increase in the minimum wage in 2021 (see 5.1), the maximum amount of the jobseeker's allowance was increased. Thus, from 1 February 2021, the maximum amount of the jobseeker's allowance is now HUF 167,400 per month and the maximum amount of the pre-retirement jobseeker's allowance is HUF 66,960 per month. Jobseekers in intensive training courses approved by the labour office receive an additional allowance of between HUF 100,440 and 167,400 per month.

2.2 Rehabilitation and disability care

The amount of rehabilitation and disability benefits increased by three percent in January 2021, with the base amount of HUF 107,540.

2.3 Childcare benefits

Due to the increase in the minimum wage in 2021 (see 5.1), the maximum amount of childcare allowance (GYED) also increased to HUF 234,360 per month (which is 70 percent of twice the minimum wage). The childcare allowance for graduates has risen to HUF 117,180 for people with education bachelor's degrees and HUF 153,300 for people with master's degrees.

As a result of the state of danger declared due to the coronavirus, eligibility to childcare allowance was extended during the period when kindergartens and schools were closed until their reopening.

3 SERVICES

3.1 Renewal of the Entrepreneurs Portal

From spring 2021, the Entrepreneurial Information Portal (https://www.vali.hu/) does not only lists loans, grants, calls for applications and training opportunities available to businesses, but also offer them directly, making it easier for businesses to receive information about the opportunities available to them. The portal identifies opportunities for businesses on the basis of publicly available company data, such as location, scope of activity and number of employees, most of which are supported by the state.

3.2 KarrierM

Since December 2020, jobseekers and businesses have been able to use the KarrierM portal (https://www.karrierm.hu/) free of charge to support their recruitment process. As well as advertising jobs, the website can also automatically pre-screen and contact candidates, helping users throughout the recruitment process. The site also provides advice over the phone or in person, and jobseeker and employer profiles uploaded to the site are checked by the job portal staff. KarrierM is operated by OFA Nonprofit Ltd.

3.3 Extension of the Student Loan Plus Scheme

The deadline for applying for the interest-free Student Loan Plus scheme was extended to 21 June 2021, which is open to all Hungarian citizens under 55 years of age with an active student status. The measure is intended to support students in financial difficulties due to the pandemic, who may be forced to suspend their studies because of their financial situation.

3.4 Night of Modern Factories virtual event

In November 2020, the Night of Modern Factories event was organised for the fourth time, this time online due to the pandemic, with 360-degree camera footage, factory demonstration videos and virtual tours available. In addition to boosting entrepreneurship, the presentations were also designed to help companies recruit new staff and transfer knowledge. 76 companies participated in 2020.

4 ACTIVE EMPLOYMENT POLICY INSTRUMENTS AND COMPLEX PROGRAMMES

The budget for public employment measures in 2021. In the 2021 budget, the government earmarked HUF 165 billion for the Start employment programmes and plans to spend HUF 120 billion on these programmes next year.[5]

Workers' Housing Programme. In November 2020, the fifth central labour market programme for workers' housing,[6] was launched to promote worker mobility. Support can be applied for the construction or renovation of a workers' accommodation for between 80 and 200 people. The programme has a budget of HUF 5 billion.

Support for complex investments in medium-sized food enterprises. The call for proposals *"GINOP-1.2.12-21 Support for complex investments in medium-sized food enterprises"* was launched in February 2021.[7] The aim of the programme is to ensure the development of medium-sized food processing enterprises, to strengthen their role in the economy and their market position, to support investments that will lead to job retention, to reduce regional disparities, to

5 See index.hu.
6 See NFSZ.
7 See palyazat.gov.hu.

mitigate regional disparities and to strengthen the local economy. The total cost of the programme is HUF 5.2 billion.

Modification of the duration of public worker status. A government decree was published in February 2021 to allow the re-employment of those who lost their public worker status due to the ten-year rule during the state of danger. This previous rule capped the maximum duration of participating in the public work scheme at ten years.[8]

Complex job placement support for long-term jobseekers. In March 2021, a complex job placement support programme for long-term jobseekers was introduced,[9] which aims to help severely disadvantaged workers find employment. A severely disadvantaged worker for the purposes of the support programme is a person who: a) has been a registered as a jobseeker for at least 24 months, or b) has been a registered jobseeker for at least 12 months and is aged between 15 and 24, or has completed only primary school, or is over 50, or is an adult living alone with one or more dependants. If a severely disadvantaged worker is employed, a wage subsidy and a wage supplement may be claimed: (1) wage subsidy: for the first four months, 50% of the worker's wage (up to 150% of the minimum wage), (2) wage supplement: for the first six months, 30% of the minimum wage.

Increase in the minimum wage for public workers. In March 2021, the minimum wage for full-time public workers increased to HUF 85,000 from HUF 81,530 (defined in 2016).[10]

"From public work to the private sector" programme. In order to achieve full employment, the *"From public employment to the private sector"* scheme was relaunched in April 2021,[11] under which public workers who find a job in the private sector can receive a job placement allowance of HUF 45,600 per month.

Summer student work programme. Launched in June 2021, the Summer Student Work Programme[12] *is a central labour market programme to help young people get a job from an early age, providing them with the opportunity to gain work experience and earn an income. The total cost of the programme is HUF 3.4 billion.*[13]

Job retention aid. The job retention aid is part of the *We Act Now* scheme – a scheme to help businesses in temporary difficulties to maintain their employment capacity.[14] The aim of the scheme is to maintain the employment capacity of businesses, prevent collective redundancies, help retain existing jobs, address employers' temporary operating problems, help them restructure their organisation and employment structures, and support the job retention of workers at risk of collective redundancies. *The programme has a budget of HUF 3.9 billion.*

Wage subsidies introduced in the context of the coronavirus pandemic. The second phase of the *job retention wage subsidy scheme*[15] was introduced from July 2020, during which the subsidy was only available to disadvantaged jobseek-

8 See hvg.hu.
9 See NFSZ.
10 See hvg.hu.
11 See NFSZ.
12 See NFSZ.
13 See kormanyhivatal.hu.
14 See OFA.
15 See NFSZ.

ers (while the first phase was targeted at registered jobseekers aged 25–64 and those seeking placement). The subsidy is 100 percent of the gross wage and social contribution tax payable by the employer, up to a maximum of HUF 200,000 per month.

Support for businesses to save jobs. The scheme was launched in October 2020, and employers can receive a non-refundable grant if they employ a jobseeker under 25 years of age or a jobseeker with low educational qualifications who is a registered jobseeker with a public employment service. The duration of the grant is fixed at five months. The amount of the subsidy is 50 percent of the labour costs (gross wage and social contribution tax) borne by the employer, but in the case of full-time employment, the maximum is HUF 100,000 per month. From June 2021, the *Business support to save jobs scheme* became more widely available, when it was extended to all jobseekers registered for at least a month. The level of support has remained unchanged from the previous phase, but employers can receive support for six months instead of five months.

The *sectoral wage subsidy schemes* were launched in November 2020 to help firms in the sectors hardest hit by the pandemic, particularly tourism and hospitality, to survive.[16] The scheme reimbursed half of the wages of the supported workers, up to one and a half times the current minimum wage, and also waived contributions. The subsidy has contributed more than 87 billion forints to safeguarding jobs. In March 2021, the scheme was extended and additional sectors were included.[17]

The Innovation Wage Subsidy for Researchers and Developers scheme[18] was relaunched in January 2021. The scheme provided employer support for a period of three months, up to a maximum of HUF 319,000 per person per month. The subsidy was also available for newly hired employees. In such cases, the company had to guarantee to increase its statistical headcount compared to 29 December 2020. The general obligation for employers is to keep the subsidised workers in employment for at least three months and to maintain their wages at the same level throughout the period of subsidy and continued employment. The objective of the scheme is to help adapt to structural changes, prevent redundancies and assist transitions within the labour market. The aim of the support is to help employers to manage redundancies and to retain staff in order to prevent unemployment. The target group of the application are R&D professionals affected by state of danger and their employers. The total budget of the call is HUF 34.4 billion.

Self-employed compensation support. The self-employed compensation support was announced in June 2021,[19] and was open to micro-enterprises and self-employed persons affected by the restrictions who were not eligible for sectoral wage subsidies due to lack of employees. The amount was HUF 219,000.

16 Government Decree 85/2020 (10.XI.) on certain economic protection measures during an emergency.

17 See NFSZ; Government Decree 105/2021 (5.III.) amending Government Decrees on certain economic protection measures during an emergency.

18 See NFSZ.

19 See NFSZ.

5 POLICY INSTRUMENTS WITH LABOUR MARKET IMPACT

5.1 Changes to the minimum wage and guaranteed minimum wage

The minimum wage for 2021 was agreed in January, thus, from 1 February 2021, the minimum wage for full-time employees increased from HUF 161 thousand to HUF 167 thousand, while the guaranteed minimum wage for full-time employees with at least secondary education or vocational qualifications increased from HUF 210,600 to HUF 219,000.[20]

5.2 Reforms to the tax and contribution system

Cafeteria system. As of 1 January, the upper limit for the amounts that can be granted as fringe benefits with the Széchenyi Recreation Card (SZÉP) was increased (to HUF 400,000 for the accommodation, HUF 265,000 for the catering and HUF 135,000 for recreation). Originally, the increased amounts could be granted by employers until 1 July 2021, however, the government decree 318/2021 (VI. 9). extended the increase of budget until December 2021 due to the continuation of the state of danger. SZÉP card benefits are also be exempt from social contribution tax for this period.

The range of tax-free benefits was also extended to include epidemiological screening tests from 1 January 2021 in response to the coronavirus situation.

The recreational allowance as fringe benefits was also temporarily increased from HUF 450,000 to HUF 800,000 in the private sector and from HUF 200,000 to HUF 400,000 for public sector workers. From 1 January 2021, the recreational allowance for employees of budgetary organisations was increased to HUF 450,000, regardless of the pandemic situation.

Other changes introduced in the context of the Covid pandemic. Under Government Decree 485/2020, employers in the most affected sectors listed in the decree are exempted from paying social contribution tax, vocational training contributions and rehabilitation contributions for their employees because of the state of danger.

According to Government Decree 487/2020, in the case of teleworking and remote working that qualifies as teleworking, in addition to the reimbursement of expenses specified in the Income Tax Act, employees may receive a tax-free allowance of up to 10% of the minimum wage during the state of danger. The tax-free allowance may not be used for rent, overheads or internet use if the employee already receives reimbursement for these expenses under the Income Tax Act, but it may be used, for example for the purchase of IT equipment.

Personal Income Tax allowance for disabled persons. As of 1 January, the Personal Income Tax allowance for severely disabled persons was converted into a tax base credit; the monthly amount of the tax base credit is now one third of the current minimum wage, rounded up to HUF 100. In 2021, the changes left the tax base credit unchanged.

20 Government Decree 20/2021.

Tax changes adopted for next year. The 2 percent reduction in social contribution tax foreseen for next year under Law LXIX of 2021, adopted in June 2021, will be achieved by abolishing the 1.5 percent vocational training contribution from 1 July 2022 and reducing the social contribution tax rate from 15.5 percent to 15 percent.

The scope of tax relief for social contribution tax is also extended: allowance is available for apprentices employed under a vocational employment contract and for students employed under a student employment contract.

Appendix

Table A1: Expenditure and revenue of the employment policy section of the central budget, 2015–2021 (HUF million)*

	2015	2016	2017	2018	2019	2019	2020	2021
Expenditures	Fact	Fact	Fact	Fact	Plan	Fact	Plan	Plan
Employment and training aid	12,302.4	27,503.9	27,238.9	35,000.0	35,000.0	21,297.1	21,000.0	18,000.0
EU co-financing of employability (and adaptability)	11,064.6	3,808.7						
8. Public work (Start work programme)	253,723.3	267,965.7	265,837.2	225,000.0	180,000.0	165,510.9	140,000.0	165,000.0
TÁMOP 1.1 Labour market services and support	12,305.1	79.5						
TÁMOP 1.2 Normative support for employment								
GINOP Employment Priority 5 – budget allocated for the year				7,800.0	28,000.0	17,500.0	23,000.0	15,870.0
GINOP Priority 6 Competitive workforce – budget for the year					9,770.0	12,601.0	22,561.0	
Of which VEKOP funds						1,989.0	1,298.0	
GINOP Plus 3. Sustainable labour market priority – budget for the year**								70,000.0
Pre-financing of the 2014–2020 labour market programmes	13,654.9	50,101.3	70,995.3	84,300.0	84,300.0	75,185.3	85,000.0	85,000.0,
2. Support for vocational training and adult education	30,084.7	27,872.0	29,919.4	29,930.0	31,694.8	31,691.3	25,000.0	30,400.0
Job search grants	49,657.7	53,454.1	59,674.0	55,000.0		83,118.7	83,000.0	108,500.0
Transfer to the Pension Insurance Fund	309.1							
5. Wage guarantee payments	3,790.7	3,994.3	3,341.2	4,000.0	4,500.0	2,263.0	4,500.0	4,000.0
6. Operational expenditure	2,816.0	2,899.3	2,785.6	2,900.0	4,310.0	2,675.8	1,200.0	1,200.0
7. Other budgetary payments					70,000.0	70,000.0	71,000.0	
15. Headline stability reserve		389.5						
17. Other expenditure								
Total expenditure	389,708.5	438,068.3	459,791.6	443,930.0	447,574.8	481,843.1	476,261.0	497,970.0

Revenues	2015 Fact	2016 Fact	2017 Fact	2018 Fact	2019 Plan	2019 Fact	2020 Plan	2021 Plan
25. Recovery of expenditure on pre-financed EU programmes***	22,466.1	46,365	64,512.6	70,400.0	70,000.0	71,522.8	70,000.0	70,000.0
Other revenues, regional	1,290.8	1,839.5	2,188.1	1,000.0	1,000.0	1,976.8	1,000.0	
Other revenues, central	901.5	1,745.6	2,013.8	1,000.0	1,000.0	2,854.9	1,200.0	3,000.0
Other revenue from vocational training and adult education	10,147.6	2,169.2	1,643.1	800.0	800.0	327.0	800.0	
31. Vocational training contribution	65,308.2	70,327.6	80,074.5	74,436.3	95,490.6	104,784.5	112,300.0	105,900.0
33. Redemption of wage guarantee subsidy	663.6	424.6	783.0	1,000.0	1,000.0	346.5	400.0	400.0
34. Debt management revenues (Technical)								
35. Share of health insurance and labour market contributions payable to the National Employment Fund****	144,953.2	155,369.2	176,338.0	194,169.2	216,621.9	220,422.3	237,400.0	249,600.0
36. Funding from the National Budget	8,449.0	31,023.3		25,000.0				
38. Share of social contribution tax payable to the National Employment Fund		68,605.5	194,435.5	0.0	68,001.0	64,562.3		
Contribution in relation to the Action Plan for Workplace Safety	100,541.7	52,884.9						
Total income	354,721.7	430,754.4	521,988.5	367,805.5	453,913.2	466,797.1	423,100.0	428,900.0
Pending items								
Change in deposits								
Total	354,721.7	430,754.4	521,988.5	367,805.5	453,913.2	466,797.1	423,100.0	428,900.0
2015 prices (deflated by the consumer price index)	355,076.8	429,467.7	508,231.7	348,358.1	415,776.6	427,150.4	387,552.2	379,934.2

* The ordinal numbers in the table correspond to the title numbers identifying the headlines of the national budget.

** The planned expenditure of the GINOP Plus programme (Economic Development OP), launched to a complement to the previous GINOP programmes in 2021, is funded by Government Decision No. 1300/2021 (21 May).

*** For 2015 and 2016, revenue from "Revenue from TAMOP measures" (Social Renewal OP) included here.

**** In the 2021 budget, it is included under the heading "Social security contribution to the Economic Re-employment Fund".

Source: The Act on the National Budget for the corresponding year (plan) and the Law on the Implementation of the Budget (fact); for the 2013 plan, 153,779.8 corrected by the provisions of Government Decisions 1507/2013 (VIII. 1.) and 1783/2013 (XI. 4.) (26,118 million HUF additional resources for public employment); for the 2014 plan, 183,805.3 corrected by the provisions of Government Decision 1361/2014. (For the 2017 plan, corrected by the provisions of Act LXXXVI of 2016 amending Act XC of 2016 on the 2017 Central Budget of Hungary. The source of GINOP expenditure is Government Decision 1006/2016 (I. 18.) on the annual development framework of the Economic Development and Innovation Operational Programme and subsequent government decisions amending it. For GINOP Plus, the Government Decision No 1300/2021 (V. 21.).

LABOUR MARKET MEASURES TO COUNTERACT THE CORONAVIRUS PANDEMIC IN EUROPE AFTER THE FIRST WAVE OF THE PANDEMIC

ÁGNES MAKÓ
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Measures of different types and levels were put in place in European countries to counteract the impact of the coronavirus pandemic on the labour market. While during the first wave of the pandemic the primary objective of these measures was to rapidly improve the liquidity of businesses and thus avoid massive job losses, as the pandemic situation has eased, supporting economic recovery and addressing post-crisis challenges has become increasingly important. In this paper, we review labour market measures introduced in Europe in the nearly one-year period since autumn 2020. The chapter will also cover the continuation and possible modifications of previous measures (see *Makó–Nábelek,* 2021) and the newly introduced instruments.

1 CONTINUATION OF THE WAGE SUBSIDY PROGRAMMES

Wage subsidy schemes have been among the most common crisis management tools: *Eurofound* (2020) summarises that all European countries except Norway introduced some form of such scheme during the first wave of the pandemic. With the subsequent waves, these programmes have usually been extended and the administrative process of applying for them has often been eased. However, in some countries, probably in preparation for the phasing out of the schemes, the conditions for claiming wage subsidies became stricter than in the relatively extensive initial programmes, and in several countries the amount of support was reduced by the second year of the crisis. In France, for example, the wage subsidy rate was reduced from 70 percent to 60 percent from June 2020, while the scheme was extended to the public sector and made available in several phases until September 2021. In Estonia, the subsidy was initially available for companies with a minimum of 30 percent reduction in their turnover, but in 2021, the threshold was raised to 50 percent and the amount of the subsidy was reduced from 70 to a maximum of 60 percent. In Bulgaria, the initial flat rate of 80 percent has been replaced by a maximum of 60 percent, depending on the extent of the loss of turnover. In Sweden, on the other hand, the wage subsidy scheme has been made permanent and has been available from September 2021 to any company in financial difficulty for reasons beyond its control and is forced to reduce working hours.

2 JOB CREATION GRANTS

In addition to job-retention wage subsidy schemes, several countries introduced wage subsidy schemes to restart the economy, usually for the creation of new jobs and the re-employment of those made redundant due to the pandemic. A common feature of these schemes is that any (re)hiring must result in a net staff increase compared to a previous period, and, in most cases, the enterprise has an obligation to maintain the employment for the period after the wage subsidy, and there must be no reduction in the firm's headcount compared to the subsidy period. The subsidies were introduced in most countries after the first wave of the pandemic, in the summer of 2020, but during the subsequent Covid waves and related lockdowns, they were extended in most cases until at least the first half of 2021, and in several countries until the end of 2021.

In Austria, under the "restart bonus" scheme,[1] a state wage subsidy was available for at least part-time re-employment of previously dismissed workers, at a rate that is based on the worker's previous salary, for up to 28 weeks. The scheme started in June 2020 but was later extended until the end of 2021. In Italy, so-called "re-employment contracts", under which companies are exempted from social security contributions for newly hired workers for six months, were available between July 2021 and the end of the year. At the end of the six-month probation period, the parties may decide to terminate the contract or convert it into an employment contract of indefinite period. Similar schemes were introduced in Norway, Hungary and Finland for hospitality workers. In Finland, however, employers recruiting before the end of 2020 were obliged to take back first those who had been made redundant due to capacity cuts related to the pandemic.

In Greece, starting in October 2020, the state has covered the social contributions of all newly hired workers for six months. If an employer hires a long-term unemployed person, the state provides an additional EUR 200 in wage subsidies. The scheme lasts until 100,000 new jobs have been created in the private sector. Similar wage subsidies for job creation purposes have been introduced in Denmark, Bulgaria, Cyprus, Hungary, Lithuania and Spain. In several of these countries, these wage subsidies tend to target specific groups, for example, in Denmark the wage subsidy is available after the long-term unemployed over 50 years of age. In Hungary, in the more recent phases of this kind of subsidy, the main target groups include young jobseekers and the unemployed with less than upper secondary education. In Bulgaria, the support is targeted at businesses in the hospitality sector, while in Lithuania at firms that had previously been forced to reduce their human capacity or close down completely due to the pandemic. In Spain, the wage subsidy scheme gives priority to full-time employment on indefinite contracts and to employment for people aged 55 and over.

2.1 Youth employment programmes[2]

In the context of job creation, several European countries give priority to forms of support to help young jobseekers find employment. In most cases,

1 The description of each job creation grant is based on data from *Eurofound* (2020–2021).

2 In addition to information on Italy, this section draws on the *OECD* (2021a) summary.

these incentives and wage subsidies are available to employers who hire young people on full-time or long-term contracts as new entrants. New forms of support have been introduced or extended in Belgium, France, Greece, Hungary, Ireland, Italy, Portugal, Sweden, Greece, Hungary, Italy, Portugal and the United Kingdom.

In Belgium, different forms of support have been put in place in each region during the pandemic. In Brussels, employers can apply for a wage subsidy of up to EUR 800 per month for up to six months when employing a jobseeker without tertiary education from any age group, and up to EUR 500 per month for a maximum of six months if they hire a jobseeker aged 18–30 with tertiary education. In the Flemish Region, employers can apply for a contribution exemption for up to two years if they employ a person under 25 with a low level of education. In Wallonia, jobseekers under 25 years of age can receive a wage subsidy for up to three years. In France, since August 2020, any company that newly employs a person under 26 for a period of at least three months can receive a subsidy of up to EUR 4,000. The amount available depends on the working hours and the length of employment. The grant was originally available until January 2021, but was then extended until May 2021.

In Greece, from July 2020, companies that employ young jobseekers aged 22–29 with tertiary education have been subsidised. The support to employers is up to 75% of the monthly salary and other labour costs, with a maximum monthly ceiling of EUR 750 for up to 10 months. In addition, the already available support for companies employing jobseekers aged 18–29 has been extended. In the past, the support covered up to 50 percent of labour costs with a monthly ceiling of EUR 500, but since July 2020 this has been increased to 75 percent of labour costs, up to a maximum of EUR 750 per month.

In Hungary, companies employing young people under 25 who had been looking for a job for at least six months could apply for subsidy from May to August 2020. A new support for companies employing young jobseekers with low level of education was introduced in October 2020. The subsidy covered up to 50% of wages and contributions, with a maximum monthly ceiling of HUF 100,000 for up to five months. From June 2021, the support was extended to jobseekers under 25 who had been registered as jobseekers for at least a month, and the eligible period was extended from five to six months.

In Ireland, the young jobseeker scheme was extended in August 2020, raising the upper age limit from 25 to 30. Companies that employ young people who had been unemployed for at least four months can receive a grant of between EUR 7,500 and EUR 10,000 over a two-year period.

In Italy[3] employers are fully exempt from contributions (with a cap of EUR 6,000 per year) if they take on a new employee under 36 on an indefinite contract or if they convert a fixed-term employment contract into an indefinite contract, provided that this is the employee's first indefinite contract.

3 See ILO.

In Portugal, employers who have been employing long-term unemployed people for at least 6 months, or 2 months in the case of young people, can apply for support. The grant can cover up to 50% of the wage, capped at the minimum wage.

In Sweden, employer contributions are reduced over the period 2021–2023 in the case of employees born between 1998 and 2002.

In the UK, employment of 16–24-year-olds at risk of long-term unemployment is supported. Employers can claim support (up to the minimum wage) for a maximum of 6 months when creating a new job for those starting work until December 2021, and an additional GBP 1,500 per person is also available to help young people improve their employability.

3 EXTENSION OF UNEMPLOYMENT BENEFITS

Unemployment benefits extended to self-employed workers have been continued in most countries in 2021. In Italy, an "indemnity" was introduced for self-employed workers whose income has fallen by at least 50 percent compared to the previous three years. In Slovakia, sole proprietorships that have suffered a drop in income of at least 20 percent receive a direct monthly subsidy, the amount of which depends on the extent of the loss of income. In Latvia, until 31 December 2021, both owners of micro-enterprises and sole proprietors were eligible for unemployment benefits. Portugal also introduced an unemployment allowance for self-employed workers and micro-enterprise owners in January 2021. In Italy, the unemployment benefit is normally automatically reduced every month after the first four months, but this mechanism was suspended until the end of 2021. In Slovakia, the duration of unemployment benefit was extended by two months until May 2021.[4]

4 TRAINING OF EMPLOYEES

While in the first wave of the pandemic, European economies focused mainly on supporting business liquidity to retain jobs, now, in many countries training and retraining of workers is becoming increasingly important in response to changing working conditions and rising unemployment, and in some sectors to the increasing demand for labour. In France, the wage subsidy scheme is complemented with training support, under which the state subsidises up to 100 percent of the wage of employees participating in training programmes. Furthermore, from 2021, the state has contributed to the costs of retraining workers to prevent layoffs. In the Netherlands, Spain and Italy, funding for training programmes for the unemployed has been increased. In Italy, the state compensates employers for the hours lost by workers in training. In Denmark, support for jobseekers participating in a training course has increased: from

4 During the first wave of the pandemic, some southern European countries introduced a moratorium on redundancies. These were lifted in all countries during 2021 (in Spain in June 2021 and in Italy and Greece in July).

March 2021, people in vocational training have been eligible to 110% of their unemployment benefit. Similarly, in Austria, a "Covid training bonus" is paid to jobseekers participating in a training course until 2022.

5 AID LINKED TO LOSS OF TURNOVER

In order to support companies hit by the pandemic in maintaining their liquidity, several governments introduced direct subsidies linked to loss of revenue or reduction of turnover.

In Germany[5] a total of EUR 25 billion was spent on a bridging aid instrument for small and medium-sized enterprises with annual turnover of up to EUR 500 million, introduced in summer 2020. It is available to companies whose turnover has fallen by at least 30 percent between April and August 2020 compared to the same period of 2019, or by at least 50 percent in two consecutive months between April and August 2020. The maximum amount of the support is EUR 200,000 per month. The state reimburses 40 percent of a company's fixed operating costs if the turnover has fallen by at least 30 percent, 60 percent of the fixed costs for those having lost between 50% and 70% of their turnover and 90 percent of the fixed costs for those having lost more than 70 percent. Reimbursement can also be claimed for 20 percent of average labour costs.

In Italy[6] equity recapitalisation measures have been introduced for companies that have suffered a drop in turnover of at least 33% in March-April 2020 due to the pandemic, compared to the same period of the previous year and have paid up their share capital between 19 May and 31 December 2020. One of the support instruments to SMEs is that the State underwrites bonds issued by small and medium-sized enterprises, with the resulting amount to be repaid in three to six years.

In the Netherlands[7] companies whose turnover has fallen by at least 20 percent in any three consecutive months between 1 March and 31 July 2020 compared to one fourth of the 2019 turnover were eligible for compensation under the job retention bridge aid instrument. Compensation covers labour costs for the period March to May 2020, up to 90 percent of labour costs, in proportion to the reduction in turnover. The second part of the instrument can be claimed for an additional four months to cover labour costs for the period June-September 2020. Companies receiving this compensation must undertake not to pay dividends or bonuses to their management for 2020 and not to buy back their own shares until shareholders approve the financial statements for 2020. In addition, the Netherlands has introduced an overhead (fixed costs) compensation facility for SMEs, which can be claimed tax-free for up to EUR 50,000 for four months if their turnover fell at least by 30%.

5 See KPMG.
6 See KPMG.
7 See KPMG.

In Belgium[8] companies whose turnover between 14 March and 30 April 2020 was at least 40 percent lower than in the same period of 2019 received a one-off compensation of EUR 3,000 (total budget was EUR 990 million). The scheme was first extended to the cultural sector in September 2020, and at the end of the year, it was extended further: companies are eligible for the support if their turnover at the time of application was at least 60 percent lower than in the same period of the previous year.

In France[9] a solidarity fund was set up for micro and small enterprises with an annual turnover of up to EUR 1 million and up to 10 employees, as well as for self-employed individuals. Firms whose turnover has fallen by at least 70 percent in March 2020 compared to March 2019, or which had to close temporarily due to the pandemic, could claim a tax-free allowance of up to EUR 1,500 from 31 March 2020. From 3 April 2020, this aid was extended to firms that had a drop in turnover of at least 50 percent. In addition, from 15 April 2020, the hardest-hit businesses could apply for an additional grant of EUR 2,000.

In Denmark[10] the state covers 25–80 percent of the fixed costs of companies that had a drop in turnover due to the pandemic (80 percent if the drop in turnover is between 80 and 100 percent, 80 percent if it is 60–80 percent, 60–80 percent if it is 60–80 percent, and 25 percent if it is 30–60 percent). All fixed costs of firms forced to close are borne by the State.

In Slovakia, a direct aid linked to a reduction in turnover was introduced in October 2020 for businesses in the tourism sector. The monthly support is available to businesses with a drop in revenue of at least 40% compared to the same month of 2019. Depending on the loss of revenue, the support amounts to between 4 and 10 percent of their turnover in 2019. Businesses may apply for the aid until the end of 2021.

6 TAX REFUNDS AND NEW TAX RELIEFS[11]

6.1 Personal income tax

Reducing personal income tax burdens has played an important role in mitigating the effects of the crisis in several European countries.

In Austria, the tax rate has been reduced for certain income categories and in Poland the low tax bracket for low-income earners has been widened. In Croatia, personal income tax exemption was introduced for aid received to mitigate the effects of the pandemic. Similarly, in Poland, all allowances received by employees for their increased overheads due to working from home are tax-free.

Several countries have introduced tax breaks for donations. In Italy, 30 percent of the amount donated is deductible from the tax base, which in the case

8 See Eurofound.
9 See Eurofound.
7 See KPMG.
11 In addition to information on Hungary, this sub-section draws on the summary of *KPMG* (2021).

of Slovenia is 100 percent. In Belgium, tax credits are also available for donors and investors in small and medium-sized enterprises.

In addition, Germany increased the reductions on sales tax for private individuals, the Netherlands has relaxed the conditions for tax relief for self-employed persons subject to social security contributions, Slovenia has made income from abroad tax-free, and Sweden has increased the tax distribution reserve to offset the possible future losses of self-employed persons.

6.2 Tax burden on employers

In many European countries, reducing the tax burden on employers is an important tool to combat the crisis.

The reduction in social security contributions was a typical government measure all across Europe. In Croatia, as part of a package of measures announced in April 2020, companies receiving job retention subsidies are exempt from contributions for subsidised salaries. In Poland, companies operating in the sectors most affected by the pandemic were granted a full exemption from employers' contributions for November 2020 and for the period from July to September 2020 if their turnover fell by at least 75 percent compared to the previous year. In Sweden, enterprises are exempt from paying all contributions other than pension contributions for the period March to June 2020, applicable for a maximum of 30 employees per company. Furthermore, for the whole of 2020, self-employed persons in Sweden also paid pension contributions only.

In Hungary[12] companies operating in the most vulnerable sectors (e.g. tourism, hospitality) received tax and contribution relief during the first wave of the pandemic, and only paid personal income tax and a maximum of HUF 7,710 health insurance contributions on their employees' wages. Self-employed small taxpayers in these sectors were granted tax exemptions for the months March–June 2020. On 11 November 2020, taxes and contributions after employees of companies operating in affected sectors were reduced again. For the month of November 2020, they did not have to pay social contribution tax, vocational training contributions or rehabilitation contributions for their employees, and small business taxpayers did not have to take into account staff costs when calculating their tax liability for the month of November 2020. Businesses in the hospitality and recreation sector, accommodation providers, tour operators and private bus companies were exempt from paying employer taxes and contributions from November 2020 until January 2021. The social contribution tax rate was reduced to 15.5 percent from July 2020 until the end of the year.

Companies that had to arrange remote working for their employees, were eligible for support in several countries. In Belgium and the United Kingdom, employees working from home can claim tax-free deductions for the extra expenses incurred due to working from home (e.g. office furniture, IT

12 See NAV.

equipment, internet subscriptions). In Ireland, remote workers receive a tax-free daily allowance to compensate for their additional costs.

In general, there is also a reduction in the tax burden on reimbursement of expenses and benefits in kind. In the Netherlands, the threshold for tax-free reimbursements to the employees was increased, while in Romania, benefits in kind are exempt from personal income tax and contributions for employees who are isolating as a precautionary measure. In Germany, allowances given by employers to their employees in connection with the pandemic in 2020 were exempt from income tax and social security contributions up to EUR 1,500. In the UK, companies that test their employees for Covid are exempt from tax on the tests (seen as a benefit in kind) between April 2021 and April 2022. There was a national budget allocation of GBP 105 million for this purpose.[13]

Furthermore, additional employer tax reliefs were introduced in many European countries. In Belgium, overtime in critical sectors is exempt from tax, and the employer's tax burden on wages is waived for companies that made use of the temporary unemployment facility. In Ireland, employers in sectors severely affected by Covid whose turnover fell by at least 30% received a weekly wage subsidy (the second phase of the package run between September 2020 and December 2021). In the Netherlands, the tax-free travel allowance was extended until October 2021 (which was also available if the employee works from home and thus, travel cost does not incur). In the UK, small and medium-sized enterprises can claim a government sick leave pay scheme for their employees suffering from Covid.

6.3 Other

EU countries have also introduced other tax-related measures to improve companies' liquidity. The process of tax refunds was expedited in Belgium, Denmark, France, Greece, Hungary, Ireland, Latvia, Ireland, Greece, Slovakia and Denmark. VAT reductions and corporate tax relief have been introduced in almost all Member States.

In Hungary[14] the maximum rate of local business tax was reduced to 1 percent in 2021 for some businesses (sole proprietors, smallholders, small and medium-sized enterprises with annual turnover of up to HUF 4 billion). The rate of small business tax was reduced from 12 to 11 percent, the revenue threshold for opting for small business tax was raised from one billion to three billion forints, and the revenue ceiling for remaining in the small business tax scheme was raised from three billion to six billion forints. VAT on sales of new residential properties was reduced to 5 percent.

13 See gov.uk.
14 See kormany.hu.

7 LENDING AND LOAN REPAYMENT MORATORIUM

7.1 Loan schemes

In 2020, following the example of the 2008 crisis, almost all European countries have introduced loan schemes to maintain liquidity of businesses or extended the loans already available to companies. In the first phase of the crisis, the primary aim of loan schemes was to provide companies with quick access to financing, while by 2021, instruments to help them "restart" their business were introduced.

Schemes introduced in the context of the pandemic typically offer state-subsidised loans with low interest rates (between 0 and 4 percent), which in most cases only have to be repaid after a grace period. Some of the loans are available directly through the state or through a public institution (e.g. in France, the Netherlands or Germany), but most often through the banking system.

In the latter case, in most countries, the state partly assumes the risk of lending from the financial sector by providing a loan guarantee, thus enabling business to access funds. The advantage of a loan guarantee is that, unlike direct financial support, it does not impose an immediate burden on the national budget and, if the pool of firms to which it is offered is well selected, there is also no budgetary impact later. However, there are several interrelated risks associated with this type of scheme (*Anderson et al.,* 2021). On the one hand, loan guarantee schemes aim to provide firms with financial resources quickly, which in many countries (e.g. Italy, France, Poland) is achieved by reducing the time and administrative burden of loan approval. However, if the conditions for access to loans become too relaxed, firms with a risk of default may be included in the eligible group, at a cost to both the banking sector and the budget. There is also a risk that the schemes will support businesses that are temporarily kept afloat by the loan but will not be able to recover in the longer term despite the support ("zombification"), leading to inefficiency and less viable firms taking resources away from more competitive ones. In the longer term, there may also be a risk of firms becoming indebted.

In spite of the risks described above, overly strict lending conditions and inadequate state guarantees may also lead to a too narrow range of beneficiaries. For this reason, policy makers have generally modified the schemes introduced during the first wave. In most European states, the beneficiaries have generally been small and medium-sized enterprises, but later in some countries (e.g. Italy, France) large enterprises were also included. State guarantee rates typically ranged between 50 and 100 percent, but several countries decided to increase the guarantee rate, for example from 65 percent to 80 percent in Croatia, and in the Netherlands, from 50 percent to 80 percent for large enterprises and to 90 percent for SMEs.

In order to filter out risky loans, several countries also imposed additional conditions for participation in the scheme. Germany, for example, offers a 100 percent state guarantee, but only firms that have been profitable since at least 2019 are offered the guaranteed loans, and the support cannot be used for debt management. In Austria, the amount of loan available is linked to past turnover, and firms are banned from paying dividends and executive bonuses for one year. In Portugal and Spain, the subsidised loans are available to companies in the most affected sectors, and in Sweden to firms that are otherwise competitive but suffered a verifiable loss due to the pandemic.

7.2 Loan repayment moratoria

In the field of lending, the loan repayment moratorium was also a tool to help businesses maintain liquidity, which was used in several European countries. Like other crisis management tools, the scope of beneficiaries of the loan repayment moratorium varies from one country to another. The two typical groups of solutions are the comprehensive approach, i.e. to offer the moratorium to all enterprises (e.g. Hungary, Serbia), and the limited scope of beneficiaries to certain groups of enterprises, such as micro-enterprises (Austria), small and medium-sized enterprises (e.g. Slovakia, Italy) and those with a loss of revenue due to the pandemic (France, Romania, the Netherlands). Eligibility also varied, with Hungary being the exception where eligibility to the moratorium was automatic, while in most countries an application for deferred loan payments was required. After the first wave, the duration of the moratoria was extended in most countries in response to subsequent waves, therefore, it was normally possible to benefit from the moratorium until the first half of 2021 at the latest, but in some countries, such as Malta, Portugal and Hungary, the moratorium was extended until autumn 2021.[15]

8 OUTLOOK: IMPACT OF GOVERNMENT MEASURES AND RISKS IN THE POST-PANDEMIC PERIOD

Although the effects of these measures can be better evaluated in the long term, recent literature suggests that the various government measures have, overall, been able to mitigate the negative economic effects of the pandemic and the related restrictions. The results of *Ozili–Arun* (2020) show that extended government-imposed lockdowns, monetary policy measures and international travel restrictions had a severe negative impact on the level of economic activity and on stock prices. Conversely, domestic travel tightening, and higher levels of fiscal policy spending had a positive impact on economic activity and equity prices. The authors argue that fiscal policy spending is a more effective crisis management tool than monetary policy actions, as more relaxed monetary policy measures (interest rate cuts) by central banks

15 The source of the data for each credit horizon is the *Eurofound* database (2020–2021).

may exacerbate inflationary pressures, which may worsen macroeconomic stability in the short run.

Sapir (2020) studied the impact of the pandemic on the economies of EU Member States. The negative effect on the economies caused by the pandemic was approximated by the changes in the European Commission's GDP growth rate forecast between February and July 2020. The results showed that stricter government measures (lockdowns) led to a larger economic downturn. Tourism as a share of GDP significantly increased the economic damage caused by the pandemic in the countries surveyed, while the quality of governance reduced it.

Ashraf (2020) examined the impact of government measures on stock market returns using data from 77 countries between January and April 2020. His results show that *social distancing* had a direct negative impact on stock market returns due to a decline in economic activity, but he also found an indirect positive impact through a reduction in the number of Covid cases. In addition, he found that *public awareness programmes,* government decisions on testing and quarantine, and income support measures generated positive market returns.

In addition to the positive assessments, analysts point to several labour market risks in the post-pandemic period linked to these subsidies.

One of the main risks associated with the measures presented is the budgetary impact. The restrictive measures introduced in response to the pandemic, the increase in expenditure linked to aid and the shortfall in revenues are causing budget deficits and public debt increase in most countries. Some analysts point out that, in some countries, the prolongation of the pandemic could lead to a rise in public debt similar to that experienced after the 2008 crisis (*OECD,* 2021b*, World Bank,* 2021).

As our review shows, in most European countries subsidies to various companies were phased out as the pandemic eased and vaccination programmes accelerated. However, some studies warn that too rapid a withdrawal of support schemes could put affected businesses in a difficult situation, especially as demand in many areas has not yet returned to pre-pandemic levels, which could hamper economic recovery. According to the European Central Bank the simultaneous withdrawal of several measures could generate a decrease the incomes of households and businesses in the five largest European economies, which could lead to an economic downturn. However, this may also depend on the extent of the measures in each country and the extent to which they rely on each instrument. From the phasing out perspective, the greatest risk could be the simultaneous removal of loan repayment moratorium, wage subsidy schemes and direct subsidies (*Rancoita et al.,* 2020).

The situation of SMEs, which were hit hardest by the crisis across Europe, but which also employ a significant proportion of workers, could be a particular concern. In parallel, the phenomenon of "zombification", as discussed in the context of loans, may also be an issue, i.e. that subsidies keep alive firms that were already uncompetitive before the crisis (*Bircan et al.,* 2020). Bruegel's analysis points out that the average number of start-ups and bankruptcies in the EU fell in 2020, but while the number of start-ups reached its previous levels by the third quarter of 2020, the number of bankruptcies was lower than in 2019, suggesting that subsidies have enabled companies to survive that would have gone bankrupt without them (*Anderson et al.,* 2021). This also suggests that bankruptcies are likely to increase once the pandemic subsides.

A further risk in the post-pandemic period is that, as in 2008, some groups of workers are more affected than others. The most vulnerable groups in terms of employment, (such as women, young people and people with low level of education) are overrepresented in sectors most impacted by Covid, while teleworking was easiest to arrange for jobs requiring skilled workers. This leads to widening labour market inequalities (*IMF,* 2020, *OECD,* 2021b), in response to which, as described above, some countries introduced instruments to support vulnerable groups, but the problem is likely to require long-term intervention. In this context, *OECD* (2021c) and *World Bank* (2021) analyses highlight that school closures and the switch to digital education due have also affected disadvantaged young people more severely, with potential future labour market effects.

Finally, an important issue in the post-pandemic period will be how businesses can adapt to potential future crises and to pre-existing processes that have accelerated due to the pandemic (*OECD* 2021b, *World Bank,* 2021), such as digitalisation and automation and related reshaping of jobs (*McKinsey,* 2020), increasing labour market inequalities, and global changes including slow economic growth and climate change.

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THE IMPACT OF THE CORONAVIRUS PANDEMIC ON THE OPERATION AND HUMAN RESOURCE MANAGEMENT OF COMPANIES

PERCEPTIONS, EXPECTATIONS AND THE CRISIS MANAGEMENT PROCESS

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INTRODUCTION

From the first half of 2020, since the outbreak of the coronavirus, the corporate research of the HCCI IEER has been focusing on the exposure of companies to the pandemic, and on mapping the possible responses and consequences. The quarterly and half-yearly business surveys and the *Short-term Labour Market Forecast,* carried out in autumn 2020 and spring 2021, were data collections conducted by contacting thousands of company managers. These data are used to examine the impact of the pandemic on company operations and workforce management at the level of firms and, in some cases, at the level of jobs and occupational groups. In *Chapter 1,* the impact and consequences of the pandemic on enterprises are reviewed, based on changes in capacity utilisation. In *Chapter 2,* the jobs most affected by the change in employment are identified and the concentration of these jobs in the types of enterprises are examined. In *Chapter 3,* the impact of the coronavirus pandemic on the employment flows of the main occupational groups most affected by the change in the number of employees are analysed (trade and services, industrial and construction occupations, machinists, assemblers, drivers and unskilled [simple] occupations).

1 The impact of the pandemic on companies' capacity utilisation

Based on our previous results, the exposure of Hungarian companies to the coronavirus can be described by the change in their capacity utilisation compared to the first quarter of 2020, i.e. the period before the pandemic crisis (*Bacsák–Horváth,* 2021a). In each of the past three semi-annual business cycle surveys of IEER, we received data on the current capacity utilisation and the capacity utilisation in the first quarter of 2020, which enabled us to observe changes over time. The usual data collection periods of April and October coincided with the first, second and third waves of the pandemic, so the extent to which the pandemic restrictions introduced during each wave affected the day-to-day operations of businesses can be analysed (*Table 1.1*).

Hungarian enterprises experienced the largest capacity utilisation losses in April 2020, with over half (54%) reporting a decline of at least 10 percentage points and one in six (16%) experiencing a decline of more than 50 percentage points. At the same time, only 6 percent of companies recorded an increase in capacity utilisation of 10 percentage points or more. The share of enterprises reporting a decrease in capacity utilisation of 10 percentage points or more decreased to 36 percent in October 2020 and to 35 percent in April 2021, while the share of companies with an increase in capacity utilisation of 10 percentage points or more increased to 14 percent and later to 19 percent, compared to the first quarter of 2020, the period immediately preceding the pandemic. It is therefore clear that, while the third wave of the pandemic had the most severe health consequences, economic operators were most affected by the restrictive measures introduced in spring 2020.

Table 1.1: Change in capacity utilisation of Hungarian enterprises compared to Q1 2020 (%)

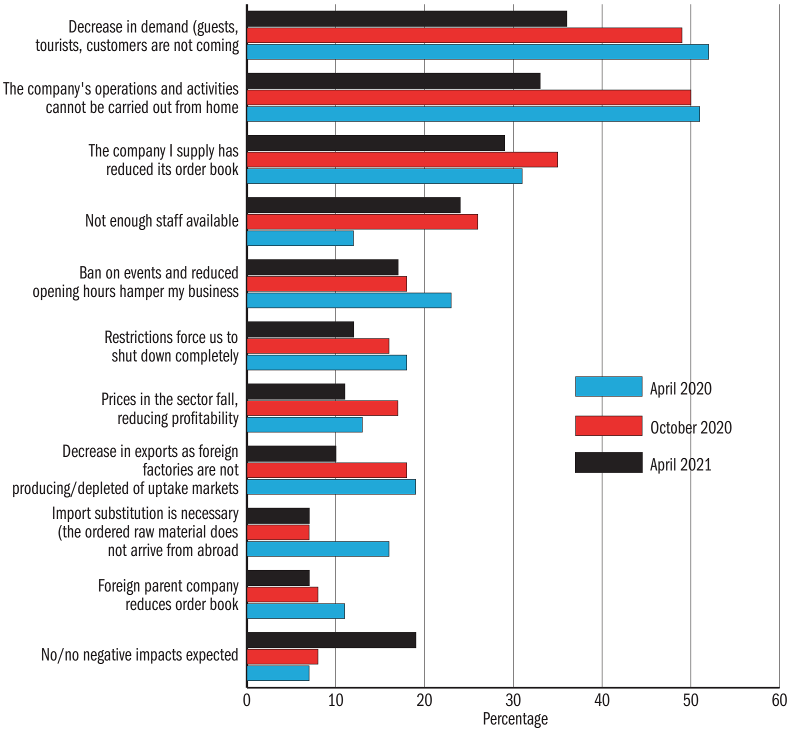
	April 2020 (N = 2,040)	October 2020 (N = 2,506)	April 2021 (N = 2,075)
A reduction of more than 50 percentage points	16	5	7
25–49 percentage points reduction	18	9	11
10–25 percentage points reduction	20	22	17
Unchanged capacity utilisation*	40	50	46
An increase of 10 percentage points or more	6	14	19
Total	100	100	100

* Capacity utilisation change between –9 percentage points and +9 percentage points.
Source: *IEER* 2020–2021 data.

When asked which factors (multiple answers were possible) had the most negative impact on Hungarian businesses, only 7% of the total sample of business leaders said they did not expect any negative impact in April 2020, compared to 8% in autumn 2020 and 19% in spring 2021 (*Figure 1.1*). In all three data collection periods, falling demand was the most common problem for businesses, but while initially more than half of managers reported this initially (52 percent), just over a third (36 percent) reported it most recently. Similar proportions and trends can be observed in connection with difficulties of working from home (down to 33 from 51 percent), while a drop in orders from suppliers affected around a third of companies in all three waves (29–35 percent). Prior to the pandemic, the lack of labour force was by far the most commonly-mentioned obstacle to business activity (*Bacsák–Horváth,* 2020), but due to restrictions (e.g. banning of events, shortened opening hours, complete shutdowns in certain sectors), this has not been on the top of the list of problems for businesses over the past year and a half (*Bacsák–Horváth,* 2021b). However, in parallel with the phasing out/mitigation of the restrictive measures having a negative effect, the proportion of enterprises complaining about labour shortages has risen again, with nearly a quarter of companies mentioning this as the most severe problem in October 2020 and 24–26% in April 2021.

The focus of this study is on the enterprises most and least affected by the economic consequences of the pandemic: first, as for the whole sample, the specific problems experienced by these groups were examined in the context of the pandemic, and also, logit models were used to show which company characteristics can be identified as the underlying factors for these groups. The most affected category includes companies whose capacity utilisation fell by at least 50 percentage points as a result of the pandemic, and the least affected group includes companies whose capacity utilisation remained unchanged (change rate between –9 and +9 percentage points) or increased by at least 10 percentage points compared to Q1 2020. The most affected category includes 378 firms in April 2020, 175 in October 2020 and 215 in April 2021, while the least affected categories include 897, 1,505 and 1,256 companies in the same time order.

Figure 1.1: Negative impact of the coronavirus pandemic on the operation of Hungarian businesses, $N_{April\ 2020}$ = 2,881, $N_{October\ 2020}$ = 2,625, $N_{April\ 2021}$ = 2,621



Source: *IEER* 2020–2021 data.

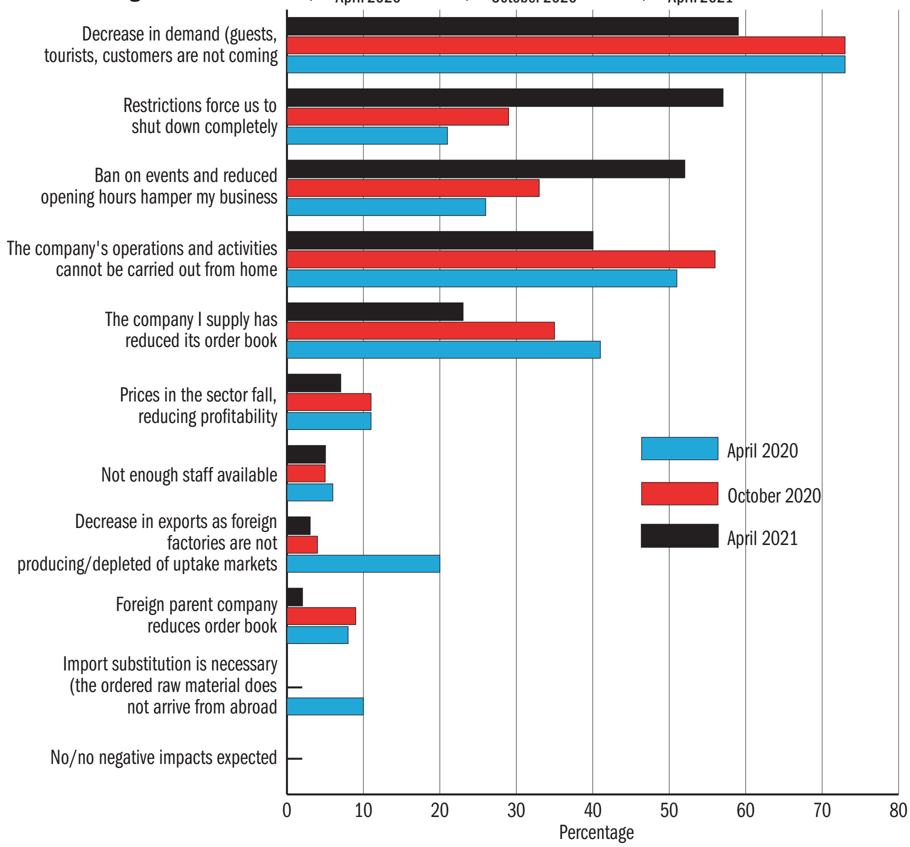
The pandemic exposure typology was also compared with the data from the IEER semi-annual business cycle index.[1] The average of the balance indicator for the whole sample was –25 points in April 2020, +14 points in October 2020 and +28 points in April 2021. For the companies least affected by the pandemic, the business cycle indicator increased from +8 points to +28 points and then to +41 points, while for the companies most affected by the crisis, the business cycle indicator was –56 points, –53 points and finally –18 points, i.e. a steady improvement but always in negative territory.

As shown in *Figure 1.2*, among the most affected enterprises, the most severe problem in the first two waves was caused by a particularly high proportion of reduced demand (73 percent), followed by difficulties in working from home (51–56 percent) and a reduction in supplier orders (35–41 percent), as in the overall sample. By the third wave, the problem landscape of the most

1 To calculate this indicator, we take into account the expected business environment, expectations for orders and the expected level of investment in machinery and construction. The detailed method of calculation of the business cycle indicator can be found in our April results paper (*MKIK GVI*, 2021).

affected businesses had changed significantly, with a complete shutdown due to regulations (57 percent) and a ban on events and shortened opening hours (52 percent) coming in second place in the ranking of problems, which may indicate that while in the early days of the pandemic, strict closures affected almost all sectors of the economy in the same way, by spring 2021, restrictions had become more differentiated. Compared to the overall sample, there is a striking difference in the shortage of labour (5–6 percent compared to 13–26 percent for the overall sample) and it is clear that the negative effects related to foreign trade (reduced exports, import substitution, reduction in foreign parent company orders) affected this group of companies less, especially in the second and third waves. This may be explained by the fact that, based on the logit models presented below, non-exporting companies, enterprises with 1–9 employees and firms providing services were clearly the most affected by the crisis in autumn 2020 and spring 2021.

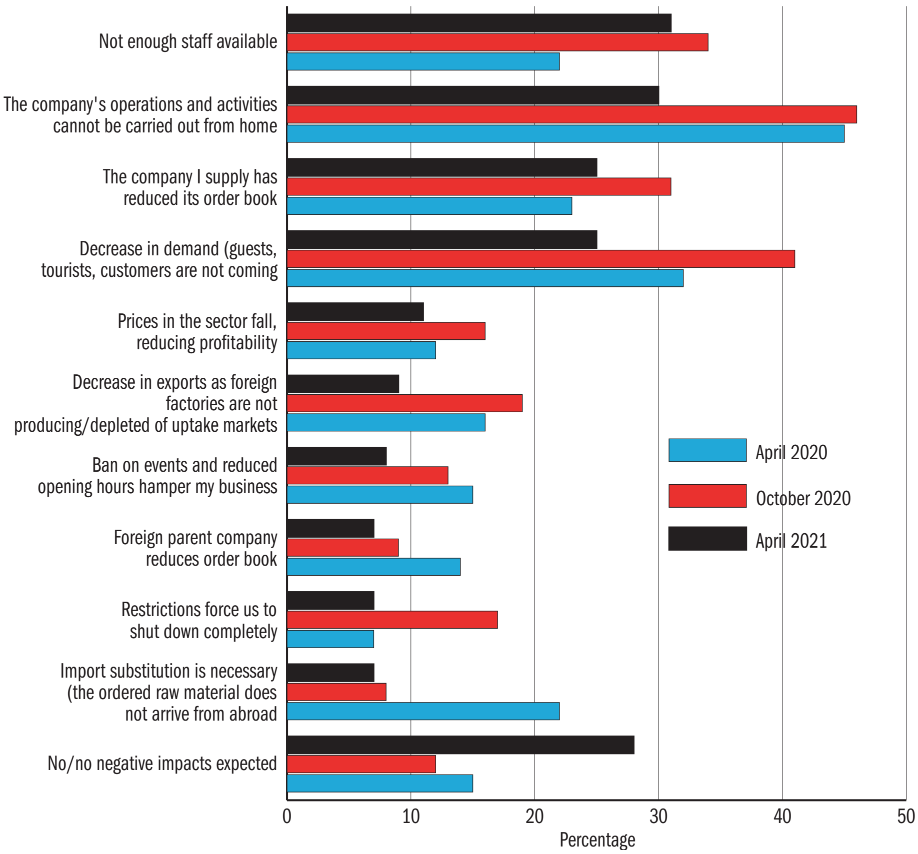
Figure 1.2: Negative impact of the coronavirus pandemic on the most affected Hungarian businesses, $N_{April\ 2020} = 378$, $N_{October\ 2020} = 153$, $N_{April\ 2021} = 209$



Source: *IEER* 2020–2021 data.

For the businesses least affected by the crisis, in the first two waves, the difficulty of working from home (45–46 percent) was ahead of the problem of falling demand (32–41 percent), while the lack of labour was higher than in the overall sample (22–34 percent compared to 13–26 percent in the overall sample) – the latter even becoming the most frequently mentioned negative effect in April 2021 (31 percent). At the same time, based on the logit models, the share of negative effects related to foreign trade was higher than the share of firms most affected by the crisis, enterprises with at least 50 employees and non-service providing companies (construction, industry, trade) were least affected by the crisis in autumn 2020 and spring 2021. (*Figure 1.3*).

Figure 1.3: Negative impact of the coronavirus pandemic among the least affected Hungarian enterprises, $N_{April\ 2020} = 892$, $N_{October\ 2020} = 1{,}212$, $N_{April\ 2021} = 1{,}192$



Source: *IEER* 2020–2021 data.

It is therefore clear that in the second and third waves of the pandemic, in autumn 2020 and spring 2021, there were more pronounced differences between the negative effects experienced by the least and most affected businesses. Based on the logit model estimates, this is due to the fact that in

April 2020 the impact typology was even less directly described by the main company demographic characteristics (number of employees, sector, exports, foreign ownership, region) than in the later periods of the crisis, when more pronounced effects started to emerge (*Table 1.2*).

Table 1.2: Impact of the coronavirus pandemic, logit estimation, average marginal effects, April 202, April 2021 (0: no, 1: yes)

	Least affected companies			Most affected companies		
	April 2020	October 2020	April 2021	April 2020	October 2020	April 2021
Staff category (reference category: companies with less than 10 employees)						
10–49 persons	0.013	0.019	0.005	0.042*	–0.030*	–0.010
50–249 persons	0.095**	0.128***	0.117***	–0.011	–0.052***	–0.062**
Over 250 people	0.133***	0.151***	0.117***	–0.010	–0.073***	–0.065***
Economic sector (reference category: other services – H, I, J, L, M, N, R, S Standard Sectoral Classification of Economic Activities [TEÁOR])						
Industry – B, C, D, E TEÁOR	0.073**	0.086**	0.074**	0.024	–0.035*	–0.103***
Construction – F TEÁOR	0.262***	0.166***	0.203***	–0.115***	–0.067***	–0.108***
Trade – G TEÁOR	0.108***	0.048*	–0.082**	–0.040**	–0.065***	–0.091***
Export activity (reference category: not exporting)						
Partly exporting (export turnover below 50 percent)	0.047*	0.072**	0.069**	–0.024	–0.050***	–0.059**
Exports predominantly (50–100 percent of export turnover)	0.087**	–0.041	–0.069*	0.011	–0.045**	–0.062**
Ownership structure (reference category: exclusively Hungarian ownership)						
Foreign (part) ownership	–0.017	0.087***	0.191***	–0.044**	0.135**	–0.045*
Region (reference category: Central Hungary)						
Central Transdanubia	–0.018	–0.010	0.061	0.057**	–0.059**	–0.032
Western Transdanubia	–0.031	0.044	0.085**	0.072**	–0.022	–0.063**
Southern Transdanubia	0.126**	–0.013	0.172***	–0.074**	–0.059**	–0.057*
North Hungary	0.043	0.034	0.011	–0.079***	–0.058**	–0.036
Northern Great Plain	0.066**	–0.058**	0.083*	–0.054**	–0.058**	0.002
Southern Great Plain	0.041	–0.013	0.090**	–0.025	–0.039	–0.017
Nagelkerke R^2	0.079	0.063	0.122	0.060	0.216	0.226
N	897	1,505	1,256	378	175	215

Significant at the ***1 percent, **5 percent, *10 percent level.
Source: *IEER* 2020–2021 data.

In April 2020, although the probability that a firm is in the least affected category in an epidemic situation has increased with increasing firm size and export activity – the difference between the two extreme categories is 13 percentage points and 9 percentage points respectively), and by sector, industrial (7 percentage points), commercial (11 percentage points) and construction (26 percentage points) firms were also more likely than service providers – to be in this category, no such clear correlations can be described for the most affected firms (except for the region) according to any of the background variables.

In a regional comparison, however, in the initial period of the pandemic, companies in Central and Western Transdanubia were more affected by the crisis than firms operating in Budapest and Pest County, while the Central Hungarian region was hit harder by the first wave compared to the less developed Eastern regions.

By contrast, in October 2020 and April 2021, the number of employees was already a key determinant of exposure, which decreased as numbers increased, and it was clear that construction enterprises were the most resilient and service companies the most vulnerable, whether we look at the least or most affected companies. By the third wave, foreign (part) ownership and location outside the Central Hungary region also reduced the likelihood of a negative impact. (Partly) foreign owned firms were then 19 percentage points more likely to be the least affected and 4 percentage points less likely to be the most affected than purely Hungarian firms. Furthermore, enterprises in Budapest and Pest County were less likely included in the least affected firms than in any other region and most likely (except in the Northern Great Plain) in the most affected companies, with a difference between the extremes was 17 and 6 percentage points respectively.

2 THE IMPACT OF THE CORONAVIRUS PANDEMIC ON COMPANIES BY JOB CATEGORY

In this subsection, impacts of the coronavirus pandemic by jobs and HSCO (Hungarian Standard Classification of Occupations) group are described, based on company data from the HCCI IEER *Short-Term Labour Market Forecast* (https://mmpp.hu/). The survey, which remained essentially unchanged from 2006, was carried out in September-October each year until 2020. In 2021, businesses with two or more employees were also surveyed in the spring, April–May, about their staff management and their assessment of the business environment. Our survey included the results of four waves of data collection (2018, 2019, 2020, spring 2021) to compare our observations from the period before the epidemic with our observations during. Usually around 6,000 or 7,000 companies completed our questionnaire in each of the surveys, and 5,500 in spring 2021. The results of the survey in autumn 2021 were not yet available for this analysis.

The data presented here attempts to capture the jobs most affected by redundancies and recruitment, based on various aspects. The starting point for the analysis is a set of questions asking whether the firm has made any redundancies or recruitments during the year and, if so, which are the three job categories (by HSCO classification) most affected by the change in their number of employees.

Table 2.1 shows the proportion of firms in the total sample affected by redundancies and recruitments (the prevalence rate is weighted so that the sample can be considered representative of the distribution of full-time employees by region, size category and sector).

Table 2.1: Redundancies and hiring in Hungarian enterprises, 2018–2021

	Autumn 2018	Autumn 2019	Autumn 2020	Spring 2021
Affected by redundancy				
Percentage of companies (%)	68	72	65	62
Unweighted number of cases	3,616	3,712	3,375	2,485
Total number of valid cases	6,241	6,265	6,029	4,932
Affected by hiring				
Percentage of companies (%)	77	77	67	72
Unweighted number of cases	4,179	4,076	3,367	2,946
Total number of valid cases	6,255	6,287	6,015	4,956

Note: Data refer normally to redundancies/hiring in a given year.
Source: *IEER:* Short-Term Labour Market Forecast (2018–2021).

The share of companies affected by recruitment is higher than the share of enterprises affected by redundancies at all four points of data collection. After the outbreak of the coronavirus, the number of companies dismissing or hiring became less overall, and in spring 2021 did not reach the level of the period immediately preceding the pandemic in 2018–2019. The declining involvement of companies in redundancies after the outbreak suggests that the effect of an even larger fall in the share of enterprises expanding their workforce relative to those making redundancies was a key factor behind the sharp rise in unemployment in spring 2020. (When interpreting the data, it should also be noted that the 2020 survey was conducted in September-October, but the major restrictive measures in response to the second wave of the pandemic were taken later, in November, the consequences of the first wave of the pandemic could be analysed from a few months' perspective, thus these data include the first corrections made after the shock of the first wave.) The closest difference between the incidence rates of enterprises affected by redundancies and those affected by recruitment was observed in autumn 2020, when the difference was only 2 percentage points, while spring 2021 showed the largest difference of the four observation points, with a difference of 10 percentage points.

A more important aspect is the evolution of the balance of redundancies and recruitments, and which types of jobs are most affected by the changes in staff numbers. *Table 2.2* shows the list of the 20 most affected jobs at the time of data collection. The list is based on the sum of the staff numbers in the three job categories considered most affected by dismissing/hiring. Looking at the lists, it is striking that the same job categories tend to be the most affected in terms of recruitment and dismissals, and that there is a solid pattern over time, with the same jobs generally topping the list between 2018 and 2021. This points to the frequent job changes and high turnover of workers in the given jobs, which seems to be typical both before and during the coronavirus pandemic. High levels of turnover are concentrated in jobs requiring lower levels of education (no university degree).

Table 2.2: Hungarian Standard Classification of Occupations (HSCO) codes of the most affected jobs in order of the number of staff affected

2018		2019		2020		2021	
Redundancy	Recruitment	Redundancy	Recruitment	Redundancy	Recruitment	Redundancy	Recruitment
9310	9310	9310	9310	9310	9310	9310	9310
8219	5113	8219	8219	9223	5113	8212	8219
8211	8219	5113	5113	8219	8417	5113	8212
5113	8211	8211	8212	8417	9223	8417	8417
9225	8418	8212	9223	5113	8219	8211	8211
8152	8152	9223	9225	9225	8212	8219	5113
8212	9225	8152	8211	8152	9225	7111	9225
9112	8212	9225	8417	7321	8211	9225	7111
8417	8417	8417	8152	9112	7111	9223	9223
9223	9223	9239	9112	8211	8152	9112	8152
5254	9112	9112	9239	9239	8190	8152	8190
8190	8136	8190	7111	9236	8135	9239	8135
8136	7321	8135	7321	8190	9112	8136	9239
9236	7325	7111	8135	7323	9239	8135	7321
8418	9236	7325	8425	8135	7321	8425	9112
7321	8190	7321	7325	9119	9119	7321	7325
7325	8135	8425	8418	8212	7325	5117	8136
9332	9239	9329	9329	7325	8136	7325	8425
9239	8123	8418	9236	8425	8418	8190	7323
8135	9329	7323	7323	5132	9236	7323	5117

Source: *IEER:* Short-Term Labour Market Forecast (2018–2021).

HSCO codes in this chapter

5113	Shop assistant
5117	Shop cashier, ticket clerk
5132	Waiter
5254	Security guard, bodyguard
7111	Butcher
7321	Locksmith
7323	Machining worker
7325	Welder, flame cutter
8123	Leather tanning and processing machine operator and production-line worker
8135	Plastic product manufacturing machine operator
8136	Rubber product manufacturing machine operator
8152	Metalworking, surface treatment machine operator
8190	Other manufacturing machine operators n.e.c.
8211	Mechanical machinery assembler
8212	Electrical equipment assembler
8219	Other product assemblers
8417	Truck driver, lorry driver
8418	Bus driver
8425	Forklift driver
9112	Cleaner and helper in offices, hotels and other establishments
9119	Other cleaners and helpers
9223	Freight handler
9225	Hand packer
9236	Kitchen helpers
9239	Other simple service and transport workers n.e.c.
9310	Simple industry occupations
9329	Other simple construction occupations
9332	Simple forestry, hunting and fishing labourer

Source: *Hungarian Standard Classification of Occupations* (HSCO).

Table 2.3 shows the aggregate supply-demand balances for the 20 job categories most affected by layoffs and hiring in spring 2021 (in 2021, these two lists are identical in content) among the companies participating in the *Short-Term Labour Market Forecast*. The table summarises the headcounts affected in terms of both layoffs and hires, given by the enterprises that ranked the job among the three most affected jobs, also indicating the difference between total recruitments and redundancies.

Table 2.3: Supply-demand balances of the jobs most affected by the change in the number of employees in 2021, retrospective for companies participating in the Short-Term Labour Market Forecast, Autumn 2018 – Spring 2021

HSCO-code	Autumn 2018	Autumn 2019	Autumn 2020	Spring 2021
9310 Simple industry occupations	2,433	644	880	–3,052
8212 Electrical equipment assembler	456	229	1,048	552
5113 Shop assistant	757	134	743	196
8417 Truck driver, lorry driver	336	86	279	532
8211 Mechanical machinery assembler	237	–275	565	410
8219 Other product assemblers	191	326	198	1,531
7111 Butcher	258	278	909	144
9225 Hand packer	170	312	447	433
9223 Freight handler	392	260	168	242
9112 Cleaner and helper in offices, hotels and other establishments	–443	54	–60	–82
8152 Metalworking, surface treatment machine operator	290	–175	–1	206
9239 Other simple service and transport occupation not elsewhere classified	–44	–162	93	–4
8136 Rubber product manufacturing machine operator	329	–113	347	–39
8135 Plastic product manufacturing machine operator	150	–23	211	172
8425 Forklift driver	123	122	–62	171
7321 Locksmith	260	111	–113	218
5117 Shop cashier, ticket clerk	26	55	–2	30
7325 Welder, flame cutter	260	–25	98	196
8190 Other manufacturing machine operators n.e.c	–177	–406	358	362
7323 Machining worker	152	12	–186	159
Total (TOP20)	6,156	1,444	5,920	2,377

Source: *IEER:* Short-Term Labour Market Forecast (2018–2021).

Overall, the balance for the 20 jobs most affected by staff changes in 2021 was largely positive over the period, i.e. labour demand was stronger than labour supply for the jobs most affected by staff changes among the surveyed firms. For the surveyed enterprises, there is no job category in the list with higher supply than demand in all four survey dates, and only two that was oversupplied in three data collection points. These are Cleaner and helper in offices, hotels and other establishments (9112) and Other service and transportation activities n.e.c. (9239). Also worthy of note is the Simple industrial occupation (9310), which, as shown in *Table 2.2,* was the most affected category in terms of turnover over the whole period under examination. This high turnover is also reflected in the balance for this job category, with a value of +2,433 in autumn 2018 and –3,052 in spring 2021.

The jobs that enterprises consider most affected in terms of redundancies and recruitment were also analysed by HSCO headings. Based on the number of persons affected as reported by the companies, the demand-supply balance for each major group was also estimated for each time point under consideration (*Table 2.4*).

Table 2.4: Demand-supply balances for HSCO headings among companies participating in the Short-Term Labour Market Forecast, based on the number of employees in the job categories most affected in terms of changes in headcount

	2018				2019			
	Redundancies	Recruitment	Balance	Number of employees (thousand)	Redundancies	Recruitment	Balance	Number of employees (thousand)
1. Managers	278	280	2	201.6	324	319	–5	201.6
2. Professionals	758	1382	624	724.5	754	1,263	509	797.8
3. Technicians and associate professionals	1,566	2129	563	745.7	1,579	1,741	162	734.4
4. Office and management (customer services) occupations	1,080	1425	345	337.0	1,169	1,413	244	331.6
5. Commercial and services occupations	7,405	7424	19	674.2	5,341	5,916	575	704.8
6. Agricultural and forestry occupations	1,160	990	–170	135.6	771	769	–2	122.8
7. Industry and construction industry occupations	7,964	10,060	2,096	640.9	7,714	8,363	649	651.5
8. Machine operators, assembly workers, drivers of vehicles	24,347	30,170	5,823	675.4	19,773	20,221	448	660.0
9 (Simple) occupations not requiring qualifications	21,526	24,485	2,959	458.7	18,566	20,121	1555	443.4
	2020				Spring 2021			
1. Managers	293	241	–52	172.2	169	140	–29	201.6
2. Professionals	764	1,107	343	892.8	657	1,521	864	893.4
3. Technicians and associate professionals	1,733	2,118	385	720.6	1147	2,045	898	735.3
4. Office and management (customer services) occupations	1,193	1,126	–67	314.7	737	1,284	547	324.7
5. Commercial and services occupations	3,452	4,115	663	670.2	2,854	3,160	306	630.6
6. Agricultural and forestry occupations	584	882	298	125.1	363	625	262	119.4
7. Industry and construction industry occupations	5,826	6,569	743	666.8	4,486	5,814	1,328	630.9
8. machine operators, assembly workers, drivers of vehicles	11,260	14,956	3,696	608.9	9,836	14,567	4,731	603.4
9 (Simple) occupations not requiring qualifications	13,412	15,415	2,003	411.5	14,106	11,407	–2,699	415.3

Source: *IEER:* Short-Term Labour Market Forecast (2018–2021); *HCSO.*

Overall, for the jobs that companies identified as most affected by the change in staffing levels, grouped by HSCO major categories, the balance was also largely positive over the period, i.e. labour demand was stronger than supply among the surveyed enterprises, also at the level of the occupational major categories. For three of the four main categories, the lowest levels of labour demand (2) and the highest levels of oversupply (1, 4) were recorded during the second wave of the pandemic, in the autumn 2020 survey, and the lowest levels of demand (3, 7, 8) during the period under review. For major categories 5 and 6, in the four periods surveyed, the lowest levels of demand and the highest levels of oversupply were recorded during the autumn 2018 survey. Major category No. 9 is the only one for which data showed significant oversupply among the surveyed firms in the spring of 2021. In general, across all the dates examined, the largest labour demand is observed for Major Categories 7, 8 and 9, except for the above-mentioned significant oversupply in Spring 2021 for Major Group 9. This can be explained in part by the fact that these are occupational major categories of a significant size in terms of the overall labour market, based on the employment data of the HCSO, however, the largest major categories are not these, but 2, 3 and 5, so that the differences in the level of demand cannot be attributed solely to differences in the employment levels of the major categories in the overall labour market.

Table 2.5 shows the types of jobs that were most exposed to turnovers during the pandemic and the types of companies where they are concentrated. To determine this, the starting point was the job-level exposure based on the total number of affected headcounts: we created indicator variables for the 10 jobs most affected by redundancies or recruitment in the enterprises participating in the *Short-Term Labour Market Forecast* in autumn 2020 and spring 2021. These indicated whether the company's human resource management included any of the 10 most affected categories in their three most affected job types in terms of redundancies/hiring. In the logit models presented below, the background of this indicator variable is explained in terms of company demographics and the firms' exposure to the pandemic (whether they experience any negative impact of the pandemic on their activity). The estimates are weighted by the distribution of full-time employees by region, headcount category and sector.

Being directly affected by the impact of the pandemic in autumn 2020 and spring 2021, for both layoffs and hiring, significantly increased the likelihood that a firm's human resource management would include one of the three jobs most affected by layoffs/hiring from the top ten jobs most affected overall. The larger the company, the greater the likelihood that the jobs most affected by changes in the number of employees in the firms were those most affected overall as indicated by the survey. The sectoral results show that the most affected jobs are concentrated in companies with industrial activities – this is also evident from our results detailed above, since the most affected jobs presented in *Table 2.2* are mainly related to industrial activities. (These results are also related to the fact that the share of those employed in the tourism sector, which was the most affected by the economic crisis resulting from the coronavirus pandemic, as a proportion of total employment, is only 4 percent over the period 2009–2020, while the share of those employed in the industrial sector ranged from 23 to 25 percent over this period.[2] Tourism-related occupations are therefore not represented among the most affected occupations because of their size.) In addition, there is also a high exposure of trade and logistics companies, which is also due to the fact that the jobs most affected by the change in the number of employees during the period under review include salespersons and truck drivers.

Table 2.5: Characteristics of companies that ranked the 10 jobs most affected job categories indicated by the Short-Term Labour Market Forecast in their companies as the most affected jobs as well, logit estimation, average marginal effects

	Autumn 2020		Spring 2021	
	Redundancies	Recruitment	Redundancies	Recruitment
Covid-19 exposure (reference category: not affected company)				
Affected company	0.095	0.047***	0.064***	0.036***
Number of employees (reference category: companies with less than 10 employees)				
10–19 persons	0.090	0.086***	0.027	0.058***
20–49 persons	0.196	0.195***	0.146***	0.152***
50–249 persons	0.298	0.236***	0.247***	0.257***
Over 250 persons	0.330	0.309***	0.335***	0.285***
Sector (reference category: industry)				
Agriculture	–0.203	–0.173***	–0.166***	–0.176***
Construction	–0.138	–0.103***	–0.072***	–0.095***
Trade, repair of transport equipment	–0.026	0.033**	0.006	0.038**
Hospitality and catering	–0.145	–0.178***	–0.146***	–0.165***
Transport, warehousing	–0.131	–0.099***	0.124***	0.115***
Financial and insurance activities	–0.248	–0.210***	–0.214***	–0.219***
Other business activities	–0.131	–0.145***	–0.123***	–0.175***
Export activity (reference category: not exporting)				
Export turnover below 50%	–0.002	0.013	0.052	0.097***
Export turnover ratio 50–100%	0.129	0.076***	0.031	0.124***
Ownership structure (reference category: exclusively Hungarian ownership)				
Foreign (partial) ownership	–0.034	–0.101***	0.019	0.001
Exclusively foreign ownership	–0.105	–0.034***	0.002	–0.024*
Nagelkerke R^2	0.197	0.201	0.216	0.268
N	5,434	5,455	4,420	4,479

Significant at the ***1 percent, **5 percent, *10 percent level.
Source: *IEER:* Short-Term Labour Market Forecast (2018–2021).

Overall export activity also increases the likelihood that a firm reported significant turnover for the job categories most affected overall. Ownership structure does not show a significant effect in several cases, especially for spring 2021. In autumn 2020, however, foreign-owned companies (relative to companies with only Hungarian ownership) were less likely to report significant staff changes and turnover for the jobs most affected overall.

2 HCSO STADAT tables.

3 THE IMPACT OF THE CORONAVIRUS PANDEMIC ON CHANGES IN THE HEADCOUNTS IN THE OCCUPATIONAL GROUPS MOST AFFECTED BY THE CHANGES

In the *Short-term Labour Market Forecast* surveys, companies also reported on planned and actual changes in the number of employees in different employment groups in the past and current years. These mostly concerned the groups of trade and services, industrial and construction occupations, machine operators, assemblers, drivers, and unskilled (simple) occupations,[3] as described in detail in the *Subchapter 2*. We examined the changes in the number of employees in these four main occupational categories, which revealed that, in addition to company demographic characteristics, the exposure of firms to the pandemic can also determine the evolution of layoffs and hiring.

In this analysis, we created indicators for the above-mentioned main categories at firm level, and then examined which firm characteristics increase the chances of them increasing or decreasing their number of employees for each main occupational category in 2020 and 2021. The logistic regression models show that companies that were affected by the coronavirus in both 2020 and 2021 were significantly more likely to have layoffs in trade and service occupations (*Table 3.1*). Also, in terms of the export share, in both years, the number of employees changed less frequently among exporting enterprises compared to those producing only for the Hungarian market (the exception to this is the frequency of job losses in 2020 among predominantly exporting companies, which is not significantly different from producers for the Hungarian market).

Regional differences were also evident in 2020 in terms of headcount growth, with the number of employees in trade and services increasing more frequently than in any other region compared to Central Hungary, while in 2021 there was no such clear difference (sector and headcount category are interpreted as control variables rather than explanatory variables in these models). In terms of ownership structure, mixed ownership (both Hungarian and foreign) increased the likelihood of a reduction in the number of employees in 2020, and the pure foreign ownership increased the likelihood of a reduction in the number of employees in the following year, while both the partially and purely foreign-owned group of firms was less likely to have a headcount reduction than the purely Hungarian enterprises.

For industrial and construction occupations, the reduction in the number of employees was also more frequent among enterprises affected by the coronavirus pandemic in 2020 and 2021 (*Table 3.2*). Moreover, this exposure had a negative impact on the chances of increasing the number of employees in the years under study, so that the pandemic had a negative impact on the situation of this occupational group in two respects.

3 HSCO major groups 5, 7, 8 and 9.

Table 3.1: Background of redundancies and recruitment in trade and service occupations, logit estimation, average marginal effects, 2020, 2021

	2020		2021	
	Reduction	Expansion	Reduction	Expansion
Pandemic exposure (reference category: not affected company)				
Affected company	0.036***	0.010	0.038***	−0.009
Number of employees (reference category: companies with less than 10 employees)				
10–19 persons	0.009	0.028**	0.004	0.032**
20–49 persons	0.016	0.032***	0.005	0.038***
50–249 persons	0.039***	0.065***	0.042***	0.072***
Over 250 people	0.021*	0.131***	0.069***	0.142***
Region (reference category: Central Hungary)				
Northern Great Plain	0.032**	0.042***	−0.002	0.034**
North Hungary	−0.005	0.038***	−0.009	0.030
Southern Great Plain	0.022	0.060***	0.010	0.031*
Southern Transdanubia	0.056***	0.046***	−0.014	−0.003
Central Transdanubia	0.003	0.039***	−0.015	−0.024**
Western Transdanubia	0.020	0.022*	−0.021**	−0.001
Sector (reference category: agriculture, forestry, fisheries)				
Industry	−0.007	0.014**	0.001	0.034***
Construction	−0.018*	0.006	0.008	0.012*
Trade, vehicle repair	0.086***	0.097***	0.056***	0.132***
Accommodation and food service activities	0.212***	0.113***	0.091***	0.239***
Transport, storage	0.000	0.021**	0.015	−0.003
Financial and insurance activities	−0.018*	0.023	−0.007	−0.003
Other business services	0.024*	0.041***	0.026***	0.040***
Export activity (reference category: not exporting)				
Export turnover below 50 percent	−0.021***	−0.038***	−0.017***	−0.044***
Export revenue share 50–100 percent	−0.012	−0.058***	−0.040***	−0.075***
Ownership structure (reference category: exclusively Hungarian ownership)				
Foreign (part) ownership	0.099***	−0.020*	−0.013	−0.065***
Exclusively foreign ownership	−0.006	0.012	0.026**	−0.025***
Nagelkerke R^2	0.358	0.314	0.344	0.339
N	5,186	5,186	4,266	4,266

Significant at the ***1 percent, **5 percent, *10 percent level.
Source: *IEER:* Short-Term Labour Market Forecast (2018–2021).

The regional differences were most noticeable in 2020 in terms of the probability of reducing headcounts: at that time, companies outside Central Hungary were significantly more likely to layoff than firms in the central region. There were also spatial differences in the incidence of companies reporting an increase in the number of employees in industrial and construction occupations, with the highest probability of finding such enterprises in the Northern Great Plain and Northern Hungary, and in Western Transdanubia in 2020. In 2021, downsizing was more common than average among firms in Western Transdanubia, while the share of firms expanding their workforce is higher than average in Southern Great Plain and lower in Central Transdanubia.

Table 3.2: Background of redundancies and recruitment for industrial and construction occupations, logit estimation, average marginal effects, 2020, 2021

	2020		2021	
	Staff cuts	Increase in staff	Staff cuts	Increase in staff
Covid-19 exposure (reference category: company not affected)				
Affected company	0.017*	–0.024**	0.031***	–0.022*
Number of employees (reference category: companies with less than 10 employees)				
10–19 persons	0.023	0.016	0.015	0.034*
20–49 persons	0.051***	0.043***	0.025	0.042**
50–249 persons	0.060***	0.080***	0.040***	0.097***
Over 250 people	0.054***	0.092***	0.073***	0.088***
Region (reference category: Central Hungary)				
Northern Great Plain	0.051***	0.041***	0.001	0.009
North Hungary	0.052***	0.035**	–0.012	0.020
Southern Great Plain	0.047***	0.013	–0.015	0.047**
Southern Transdanubia	0.072***	0.001	–0.003	0.035
Central Transdanubia	0.067***	0.007	0.001	–0.033**
Western Transdanubia	0.042***	0.031**	0.043**	–0.012
Sector (reference category: agriculture, forestry, fisheries)				
Industry	0.068***	0.092***	0.067***	0.150***
Construction	0.075***	0.128***	0.056**	0.163***
Trade, vehicle repair	0.017	0.027	0.006	0.037*
Hospitality and catering	–0.049***	–0.045***	–0.048**	–0.026
Transport, storage	–0.036*	0.033	–0.009	0.011
Financial and insurance activities	–0.061***	–0.048***	–0.054***	–0.053***
Other business services	–0.013	–0.014	–0.029	0.020
Export activity (reference category: not exporting)				
Export turnover below 50 percent	–0.014	–0.002	–0.024**	0.010
Export turnover 50–100 percent	0.022	0.046***	–0.020	0.057***
Ownership structure (reference category: exclusively Hungarian ownership)				
Foreign (part) ownership	0.001	–0.069***	–0.033**	–0.008
Exclusively foreign ownership	–0.011	–0.034***	–0.020**	–0.052***
Nagelkerke R^2	0.322	0.323	0.265	0.296
N	5,176	5,176	4,259	4,259

Significant at the ***1 percent, **5 percent, *10 percent level.
Source: *IEER:* Short-Term Labour Market Forecast (2018–2021).

In both 2020 and 2021, companies that predominantly exported were more likely to increase their industrial and construction workforce than enterprises that largely or exclusively produced for the Hungarian market, while reductions in this employment group were slightly less likely in 2021 for firms that exported less than in the other categories. (Partly) foreign-owned companies were less likely to increase their headcount in 2020 compared to exclusively Hungarian enterprises, but in 2021 foreign-owned companies were less likely to increase their headcount than average, while foreign ownership reduced job cuts in that year.

Laying off machine operators, assemblers and drivers was also more common among companies affected by the pandemic, while enterprises that increased the number of employees in these jobs were significantly less common in the group of companies affected by the pandemic in both years (*Table 3.3*).

Table 3.3: Background of redundancies and recruitment of operators, assemblers, drivers, logit estimation, average marginal effects, 2020, 2021

	2020		2021	
	Staff cuts	Increase in staff	Staff cuts	Increase in staff
Covid-19 exposure (reference category: not affected company)				
Affected company	0.039***	–0.017**	0.014***	–0.032***
Number of employees (reference category: companies with less than 10 employees)				
10–19 persons	0.033**	0.027***	0.023**	0.035***
20–49 persons	0.040***	0.072***	0.040***	0.084***
50–249 persons	0.077***	0.111***	0.049***	0.118***
Over 250 people	0.077***	0.165***	0.090***	0.162***
Region (reference category: Central Hungary)				
Northern Great Plain	0.050***	0.051***	0.016*	0.033**
North Hungary	0.051***	0.059***	0.020*	0.031**
Southern Great Plain	0.046***	0.046***	0.015	0.024*
Southern Transdanubia	0.038***	0.071***	0.009	0.022
Central Transdanubia	0.063***	0.063***	0.022**	0.049***
Western Transdanubia	0.039***	0.058***	0.017*	0.021*
Sector (reference category: agriculture, forestry, fisheries)				
Industry	–0.023	–0.033*	–0.035	0.014
Construction	–0.052**	–0.045**	–0.067***	–0.039
Trade, vehicle repair	–0.081***	–0.086***	–0.076***	–0.049**
Hospitality and catering	–0.111***	–0.111***	–0.087***	–0.067**
Transport, storage	0.029	0.151***	0.052*	0.158***
Financial and insurance activities	–0.113***	–0.111***	–0.089***	–0.101***
Other business services	–0.065***	–0.064***	–0.059**	–0.078***
Export activity (reference category: not exporting)				
Export turnover below 50 percent	–0.004	0.007	–0.011	0.014
Export turnover 50–100 percent	0.019*	–0.012	–0.004	0.035***
Ownership structure (reference category: exclusively Hungarian ownership)				
Foreign (part) ownership	0.021	0.019	0.052***	0.030
Exclusively foreign ownership	0.039***	0.056***	0.015*	0.041***
Nagelkerke R^2	0.433	0.417	0.376	0.457
N	5,179	5,179	4,267	4,267

Significant at the ***1 percent, **5 percent, *10 percent level.
Source: *IEER:* Short-Term Labour Market Forecast (2018–2021).

In 2020, there was also a strong difference between companies operating in Central Hungary and in other parts of the country for this employment group, with changes in the number of employees outside the central region being more frequent – both in terms of redundancies and recruitment. In 2021, headcount reductions were only common in the Northern Great Plain and Northern Hungary, and in Central and Western Transdanubia, while increases were more common in all other regions compared to Central Hungary and Southern Transdanubia.

Export activity affected the incidence of reducing the number of employees in 2020 and increasing it in 2021, in both years, the group of predominantly exporting firms was more affected by changes in the number of machine operators, assemblers and drivers. In terms of ownership structure, in 2020, exclusively foreign-owned companies were more likely to reduce or increase their workforce compared to at least partly Hungarian firms, while in 2021, mixed-owned companies were the most likely to reduce their workforce. Expansions were also more common than average in exclusively foreign-owned companies this year.

Companies that reduced their staff in unskilled occupations were also more common in the group of enterprises affected by the coronavirus, with the impact of the pandemic particularly evident in 2020 (*Table 3.4*).

Table 3.4: Background of redundancies and recruitment in unskilled (simple) occupations, logit estimation, average marginal effects, 2020, 2021

	2020		2021	
	Staff cuts	Increase in staff	Staff cuts	Increase in staff
Covid-19 exposure (reference category: not affected company)				
Affected company	0.062***	−0.013	0.019**	0.010
Staff category (reference category: companies with less than 10 employees)				
10–19 persons	0.077***	0.063***	0.006	0.029**
20–49 persons	0.131***	0.113***	0.078***	0.129***
50–249 persons	0.155***	0.172***	0.107***	0.178***
Over 250 people	0.153***	0.201***	0.184***	0.200***
Region (reference category: Central Hungary)				
Northern Great Plain	0.048***	0.077***	−0.020	0.046***
North Hungary	0.071***	0.061***	−0.003	0.013
Southern Great Plain	0.084***	0.077***	0.026	0.028*
Southern Transdanubia	0.090***	0.075***	−0.012	0.043**
Central Transdanubia	0.040***	0.030**	−0.049***	0.032**
Western Transdanubia	0.085***	0.014	−0.015	0.012
Sector (reference category: agriculture, forestry, fisheries)				
Industry	−0.081***	0.060***	−0.003	0.053***
Construction	−0.042	0.063***	0.003	0.044*
Trade, vehicle repair	−0.085***	0.044***	−0.019	0.032
Hospitality and catering	0.040	0.112***	0.043	0.136***
Transport, storage	−0.139***	0.015	−0.024	0.071***
Financial and insurance activities	−0.192***	−0.002	−0.089***	−0.059***
Other business services	−0.076***	0.115***	−0.022	0.023
Export activity (reference category: not exporting)				
Export turnover below 50 percent	−0.004	0.016	0.016	−0.004
Export revenue share 50–100 percent	0.045***	0.003	−0.016	0.002
Ownership structure (reference category: exclusively Hungarian ownership)				
Foreign (part) ownership	0.110***	−0.074***	0.012	−0.023
Exclusively foreign ownership	−0.037***	−0.027***	−0.017*	0.006
Nagelkerke R^2	0.301	0.306	0.263	0.296
N	5,181	5,181	4,258	4,258

Significant at the ***1 percent, **5 percent, *10 percent level.
Source: *IEER:* Short-Term Labour Market Forecast (2018–2021).

In 2020, redundancies were relatively common among companies outside the central region for this occupational group, as was recruiting, with the exception of enterprises in Western Transdanubia. In 2021, only companies in Northern and Southern Great Plain, Southern Transdanubia and Central Transdanubia were downsizing, and staff cuts in firms in Central Transdanubia were exceptionally rare.

In 2020, the export orientation of companies had a significant impact on the incidence of redundancies, which was most prevalent among producers mainly serving foreign markets. Foreign part-ownership also increased the likelihood of layoffs this year, while reductions in the number of employees in unskilled jobs were particularly rare in the group of purely foreign-owned companies. However, enterprises that were partly or fully foreign-owned were less likely to reduce their headcount than Hungarian companies in 2020. In 2021, exclusively foreign-owned firms continued to be less likely to reduce their number of unskilled jobs than Hungarian-owned companies.

Summary

From a health perspective, the third wave of the pandemic has clearly had the most severe consequences, while economic operators have been hit hardest by the restrictive measures introduced in spring 2020. At that time, more than half of enterprises reported a drop in capacity utilisation of at least 10 percentage points, and one in six enterprises experienced a drop of more than 50 percentage points, while the proportion of enterprises reporting a drop in capacity utilisation of at least 10 percentage points compared to the period before the outbreak (Q1 2020) fell to 36% in October 2020 and 35% in April 2021.

In all three business cycle data collection periods (April 2020, October 2020 and April 2021), falling demand was the most common problem for businesses, followed by difficulties working from home and a fall in supplier orders. Prior to the pandemic, the lack of the necessary workforce was consistently high on the list of most common barriers to doing business, but due to pandemic restrictions, this has fallen down the list of problems for businesses over the last year and a half.

We have focused on companies most and least affected by the economic consequences of the pandemic, in terms of changes in capacity utilisation. In the second and third waves of the pandemic, i.e. in autumn 2020 and spring 2021, more significant differences emerged between the negative effects experienced by the least and most affected enterprises. Based on the logit model estimates, this is due to the fact that in April 2020 the impact typology was even less clearly described by the main company demographic characteristics (number of employees, sector, exports, foreign ownership, region) than in the later periods of the crisis, when more pronounced effects started to emerge. By autumn 2020 and spring 2021, non-exporting companies, firms with 1–9 employees and service-providing companies were clearly the most affected by the crisis.

Based on our analysis of job categories, we concluded that the same job categories are typically the most affected in terms of recruiting and redundancies, with a stable pattern between 2018 and 2021 (i.e. both before and during the pandemic). This suggests frequent job changes and high turnover of workers in the affected job categories, which is a typical trend of the period before and during the pandemic. The high turnover is concentrated in jobs requiring lower educational qualifications (no university degree). The most affected jobs in terms of turnover are concentrated mainly in industrial companies, with high levels of exposure of trade and logistics enterprises. This is partly due to the fact that occupations in tourism, the sector most affected by the economic crisis caused by the pandemic, are not represented in the most affected occupations, due to their size in the overall employment market.

Looking at both survey dates, it can also be concluded that for all four main occupational groups – trade and services, industrial and construction occupations, machine operators, assemblers, drivers and unskilled (simple) occupations – the number of job cuts was higher in the four main occupational groups affected by the pandemic, while the likelihood of an increase in the number of employees was only reduced by the impact of the epidemic in industrial and construction occupations and in the category of machine operators, assemblers and drivers. In addition, except for trade and service occupations, there was a significant difference between the changes in the number of employees in Budapest and that of in rural areas in 2020: the number of employees in the other main categories surveyed fell significantly more outside the capital.

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STATISTICAL DATA

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Statistical tables on labour market trends that have been published in The Hungarian Labour Market Yearbook since 2000 can be downloaded in full from the website of the Research Centre for Economic and Regional Studies: https://adatbank.krtk.mta.hu/adatbazisok/elerheto-adatbazisok.

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DATA SOURCES

ITM	Ministry for Innovation and Technology [Innovációs és Technológiai Minisztérium]
KSH	Table compiled from regular Central Statistical Office publications [Központi Statisztikai Hivatal]
KSH IMS	CSO institution-based labour statistics [KSH intézményi munkaügyi statisztika]
KSH MEF	CSO Labour Force Survey [KSH Munkaerő-felmérés]
KSH MEM	CSO Labour Force Account [KSH Munkaerő-mérleg]
MÁK	Hungarian State Treasury [Magyar Államkincstár]
NAV	National Tax and Customs Administration [Nemzeti Adó- és Vámhivatal]
NFA	National Market Fund [Nemzeti Foglalkoztatási Alap]
NFSZ	National Employment Service [Nemzeti Foglalkoztatási Szolgálat]
NFSZ BT	National Employment Service Wage Survey [NFSZ Bértarifa-felvétel]
NFSZ IR	NFSZ integrated tracking system [NFSZ Integrált (nyilvántartási) Rendszer]
NFSZ PROG	National Employment Service Short-term Labour Market Projection Survey [NFSZ Rövid Távú Munkaerőpiaci Prognózis]
NFSZ REG	National Employment Service Unemployment Register [NFSZ regisztere]
NSZ	Population Census [Népszámlálás]
NYUFIG	Pension Administration [Nyugdíjfolyósító Igazgatóság]
PM	Ministry of Finance [Pénzügyminisztérium]
TB	Social Security Records [Társadalombiztosítás]

EXPLANATION OF SYMBOLS

(–)	Non-occurrence.
(..)	Not available.
(n.a.)	Not applicable.
(...)	Data cannot be given due to data privacy restrictions.

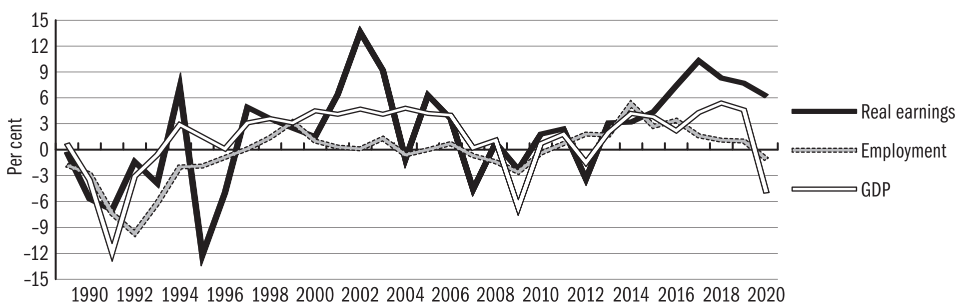
Table 1.1: Basic economic indicators

Year	GDP[a]	Industrial production[b]	Export[c]	Import[c]	Real earnings	Employment	Consumer price index	Unemploy-ment rate
2000	104.2	118.1	121.7	120.8	101.5	101.0	109.8	6.4
2001	104.1	103.7	107.7	104.0	106.4	100.3	109.2	5.7
2002	104.7	103.2	105.9	105.1	113.6	100.1	105.3	5.8
2003	104.1	106.9	109.1	110.1	109.2	101.3	104.7	5.9
2004	104.8	107.8	118.4	115.2	98.9	99.4	106.8	6.1
2005	104.2	106.8	111.5	106.1	106.3	100.0	103.6	7.2
2006	104.0	109.9	118.0	114.4	103.6	100.7	103.9	7.5
2007	100.2	107.9	115.8	112.0	95.4	99.3	108.0	7.4
2008	101.1	100.0	104.2	104.3	100.8	98.6	106.1	7.8
2009	93.3	82.2	87.3	82.9	97.7	97.4	104.2	10.0
2010	100.7	110.6	116.9	115.1	101.8	99.6	104.9	11.2
2011	101.8	105.6	109.9	106.7	102.4	100.7	103.9	11.0
2012	98.5	98.2	100.7	99.9	96.6	101.8	105.7	11.0
2013	102.0	101.1	104.2	105.0	103.1	101.7	101.7	10.2
2014	104.2	107.7	106.9	108.8	103.2	105.3	99.8	7.7
2015	103.8	107.4	107.8	106.3	104.4	102.7	99.9	6.8
2016	102.2	100.9	104.4	104.9	107.4	103.4	100.4	5.1
2017	104.3	104.6	105.9	108.3	110.3	101.6	102.4	4.2
2018	105.4	103.5	104.3	106.4	108.3	101.1	102.8	3.7
2019	104.6	105.6	104.4	106.4	107.7	101.0	103.4	3.4
2020	95.0	93.9	98.7	99.0	106.2	98.9	103.3	4.3

[a] The method of measurement changed in 2014 with the adoption of ESA2010 (European System of National and Regional Accounts). Unadjusted data. Previous year = 100.
[b] 2000: those with more than 5 employees, 2001–: excluding water and waste management, including businesses with fewer than 5 employees.
[c] Volume index.
Note: Previous year = 100, except for unemployment rate.
Source: GDP: *STADAT* (2021.04.06. version). Industrial production index: 2001–: *STADAT* (2021.04.06. version). Export and import: 2001–: *STADAT* (2021.04.06. version). Real earnings: 2000–: *STADAT* (2021.04.06. version). Employment: *KSH MEF* (2021.02.23. version). Consumer price index: *STADAT* (2021.01.14. version). Unemployment rate: *STADAT* (2021.02.23. version). Other data: *KSH*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent01_01

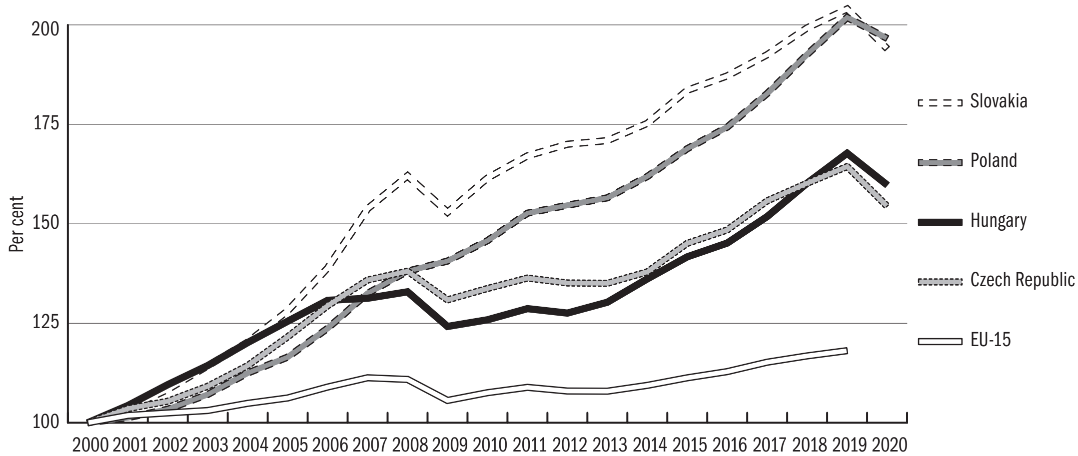
Figure 1.1: Annual changes of basic economic indicators



Source: *KSH*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena01_01

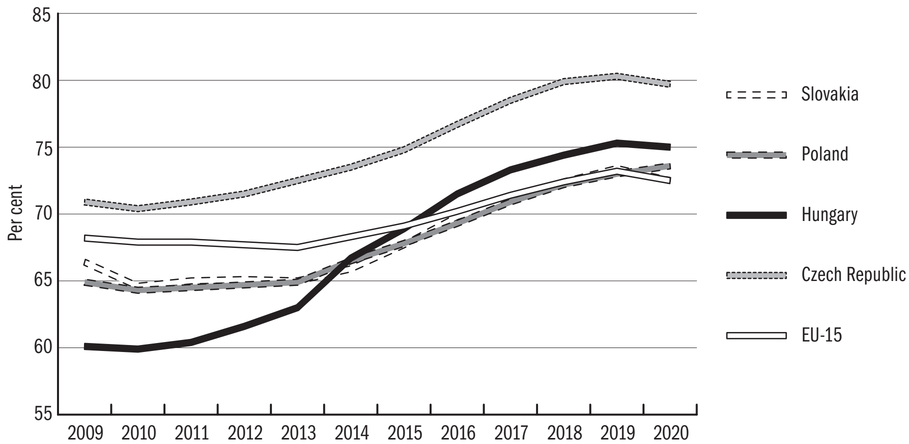
Figure 1.2: Annual GDP time series (2000 = 100%)



Source: *Eurostat*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena01_02

Figure 1.3: Employment rate of population aged 15–64



Source: *Eurostat*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena01_03

Table 2.1: Population[a]

Year	In thousands	1992 = 100	Annual changes	Population age 15–64, in thousands	Demographic dependency rate: Total population[b]	Demographic dependency rate: Old age[c]
2005	10,098	97.3	-0.2	6,940.3	0.45	0.23
2006	10,077	97.1	-0.2	6,931.8	0.45	0.23
2007	10,066	97.0	-0.1	6,932.4	0.45	0.23
2008	10,045	96.8	-0.2	6,912.7	0.45	0.24
2009	10,031	96.7	-0.1	6,898.1	0.45	0.24
2010	10,014	96.5	-0.1	6,874.0	0.46	0.24
2011	9,986	96.3	-0.2	6,857.4	0.46	0.24
2012	9,932	95.7	..	6,815.7	0.46	0.25
2013	9,909	95.5	-0.2	6,776.3	0.46	0.25
2014	9,877	95.2	-0.3	6,719.7	0.47	0.26
2015	9,856	95.0	-0.2	6,664.2	0.48	0.27
2016	9,830	94.7	-0.3	6,609.4	0.49	0.27
2017	9,798	94.4	-0.3	6,546.7	0.50	0.28
2018	9,778	94.2	-0.5	6,504.5	0.50	0.28
2019	9,773	94.2	-0.1	6,461.1	0.51	0.29
2020	9,770	94.1	0.0	6,405.9	0.52	0.30

[a] January 1st. The data for 2005–2011 are estimates based on the 2001 census and demographic data (reference date 2001.02.01.). Those for 2012–2019 are estimates based on the 2011 census (reference day 2011.10.01.) and demographic data.
[b] (population age 0–14 + 65 and above) / (population age 15–64)
[c] (population age 65 and above) / (population age 15–64)
Source: *KSH STADAT* (2020.07.15. version)

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent02_01

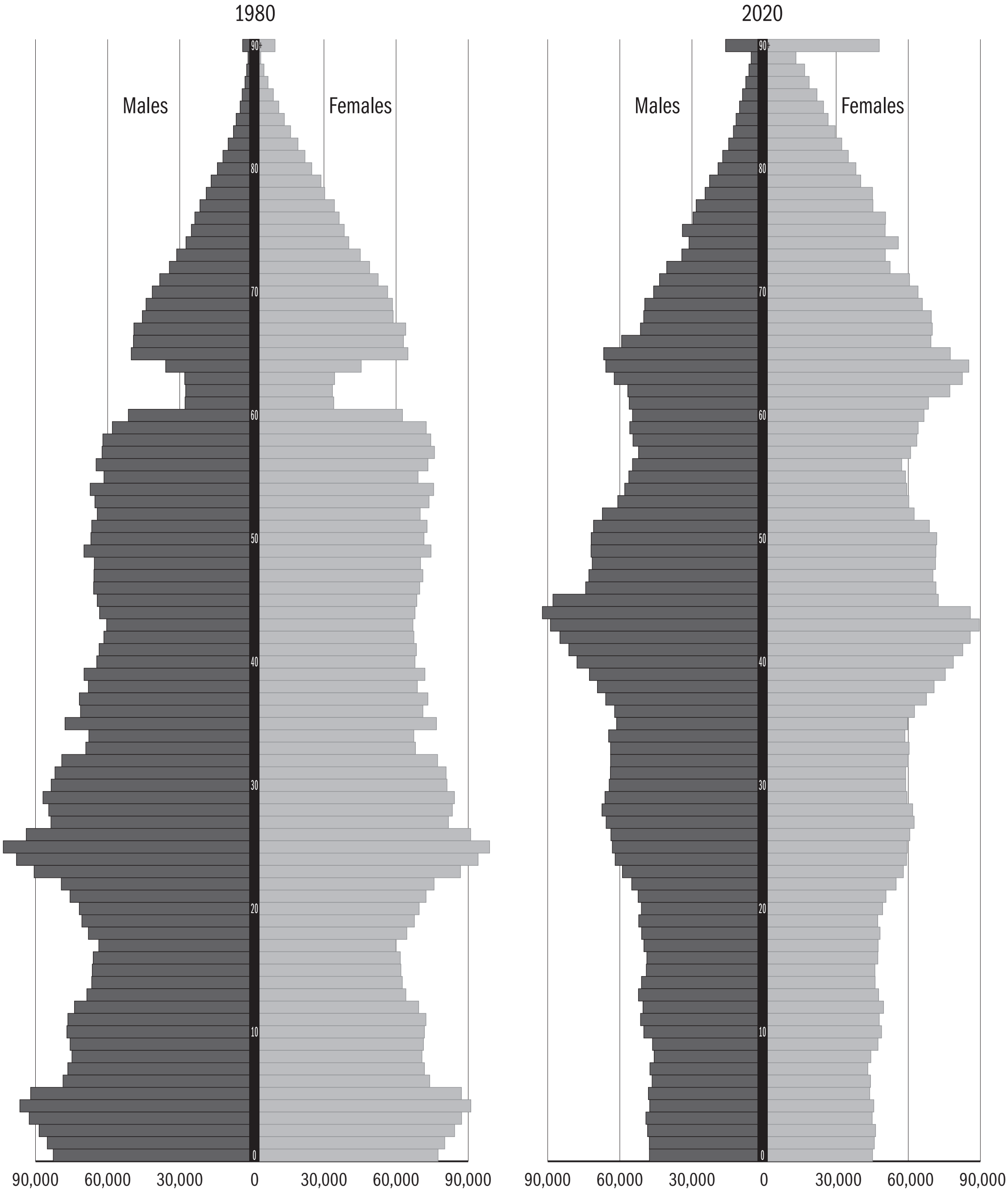
Table 2.2: Population by age groups, in thousands[a]

Year	0–14 years old	15–24 years old	25–54 years old	55–64 years old	65+ years old	Total
2005	1,579.7	1,322.0	4,409.1	1,209.2	1,577.6	10,097.6
2006	1,553.5	1,302.0	4,399.8	1,230.0	1,590.7	10,076.6
2007	1,529.7	1,285.9	4,393.9	1,251.5	1,605.1	10,066.1
2008	1,508.8	1,273.3	4,377.1	1,262.3	1,623.9	10,045.4
2009	1,492.6	1,259.9	4,346.1	1,292.0	1,640.3	10,030.9
2010	1,476.9	1,253.4	4,293.7	1,326.9	1,663.5	10,014.4
2011	1,457.2	1,231.7	4,257.7	1,367.8	1,671.3	9,985.7
2012	1,440.3	1,214.1	4,164.6	1,437.0	1,675.9	9,931.9
2013	1,430.9	1,196.4	4,144.8	1,435.0	1,701.7	9,908.8
2014	1,425.8	1,172.8	4,123.8	1,423.2	1,731.8	9,877.4
2015	1,427.2	1,147.1	4,112.6	1,404.5	1,764.2	9,855.6
2016	1,424.4	1,120.1	4,109.6	1,379.7	1,796.6	9,830.4
2017	1,422.9	1,089.7	4,105.3	1,351.4	1,828.3	9,797.6
2018	1,421.9	1,068.0	4,118.7	1,317.8	1,852.0	9,778.4
2019	1,421.8	1,048.8	4,136.8	1,275.4	1,890.0	9,772.8
2020	1,421.3	1,028.8	4,153.7	1,223.4	1,942.2	9,769.5

[a] January 1st. The data for 2005–2011 are estimates based on the 2001 census and demographic data (reference date 2001.02.01.). Those for 2012–2019 are estimates based on the 2011 census (reference day 2011.10.01.) and demographic data.
Source: *KSH STADAT* (2020.07.15. version)

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent02_02

Figure 2.1: Age structure of the Hungarian population, 1980, 2020



Source: *KSH*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena02_01

Table 2.3: Male population by age groups, in thousands[a]

Year	0–14	15–24	25–59	60–64	65+	Total
	years old					
2005	809.5	674.6	2,480.0	252.2	576.8	4,793.1
2006	796.7	664.0	2,493.7	249.3	580.9	4,784.6
2007	784.5	655.4	2,503.7	249.4	586.1	4,779.1
2008	773.9	649.2	2,501.3	252.5	592.8	4,769.6
2009	765.8	642.7	2,497.0	258.4	599.2	4,763.1
2010	757.7	640.4	2,488.8	261.7	608.3	4,756.9
2011	747.6	629.7	2,480.4	274.7	611.5	4,743.9
2012	739.5	623.1	2,449.9	294.1	617.9	4,724.6
2013	734.7	614.4	2,439.4	297.0	630.5	4,716.0
2014	732.2	602.1	2,419.1	305.3	644.7	4,703.4
2015	732.8	589.1	2,395.1	319.1	659.7	4,695.8
2016	731.3	575.8	2,379.0	327.1	675.3	4,688.5
2017	730.4	560.3	2,365.0	330.8	688.9	4,675.4
2018	730.0	549.2	2,365.5	327.0	699.9	4,671.6
2019	730.0	540.0	2,373.7	315.0	717.1	4,675.8
2020	729.9	530.1	2,383.8	295.6	741.4	4,680.8

[a] January 1st. The data for 2005–2011 are estimates based on the 2001 census and demographic data (reference date 2001.02.01.). Those for 2012–2019 are estimates based on the 2011 census (reference day 2011.10.01.) and demographic data.
Source: *KSH STADAT* (2020.07.15. version)

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent02_03

Table 2.4: Female population by age groups, in thousands[a]

Year	0–14	15–24	25–54	55–59	60+	Total
	years old					
2005	770.2	647.4	2,221.9	341.7	1,323.1	5,304.3
2006	756.8	638.6	2,213.0	356.6	1,327.0	5,292.0
2007	745.1	630.6	2,206.8	369.6	1,335.0	5,287.1
2008	734.9	624.1	2,194.5	373.2	1,349.1	5,275.8
2009	726.8	617.2	2,176.0	381.8	1,366.1	5,267.9
2010	719.2	613.1	2,145.5	396.8	1,382.8	5,257.4
2011	709.6	601.9	2,124.0	404.4	1,401.9	5,241.8
2012	700.8	590.9	2,079.5	416.2	1,419.9	5,207.3
2013	696.2	582.0	2,066.5	411.2	1,436.9	5,192.8
2014	693.6	570.7	2,052.7	395.5	1,461.5	5,174.0
2015	694.4	558.0	2,043.2	370.2	1,494.0	5,159.8
2016	693.1	544.3	2,037.9	347.4	1,519.2	5,142.0
2017	692.5	529.4	2,032.5	327.9	1,539.9	5,122.3
2018	691.9	518.8	2,035.0	314.1	1,547.0	5,106.8
2019	691.8	508.8	2,038.9	304.7	1,552.8	5,097.0
2020	691.5	498.7	2,043.4	298.5	1,556.6	5,088.7

[a] January 1st. The data for 2005–2011 are estimates based on the 2001 census and demographic data (reference date 2001.02.01.). Those for 2012–2019 are estimates based on the 2011 census (reference day 2011.10.01.) and demographic data.
Source: *KSH STADAT* (2020.07.15. version)

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent02_04

Table 3.1: Labour force participation of the population over 14 years, in thousands[a]

Year	Population of males 15–59 and females 15–54								Population of males over 59 and females over 54			
	Employed	Unemployed	Inactive					Total	Employed	Unemployed	Pensioner, other inactive	Total
			Pensioner	Full-time student	On child care leave	Other inactive	Inactive total					
1990	4,534.3	62.4	284.3	548.9	249.7	297.5	1,380.4	5,977.1	345.7	0.0	1,944.9	2,290.6
1991	4,270.5	253.3	335.6	578.2	259.8	317.1	1,490.7	6,014.5	249.5	0.0	2,045.2	2,294.7
1992	3,898.4	434.9	392.7	620.0	262.1	435.9	1,710.7	6,044.0	184.3	9.8	2,101.7	2,295.8
1993	3,689.5	502.6	437.5	683.9	270.5	480.1	1,872.0	6,064.1	137.5	16.3	2,141.2	2,295.0
1994	3,633.1	437.4	476.5	708.2	280.9	540.7	2,006.3	6,076.8	118.4	11.9	2,163.8	2,294.1
1995	3,571.3	410.0	495.2	723.4	285.3	596.1	2,100.0	6,081.3	107.5	6.4	2,180.6	2,294.5
1996	3,546.1	394.0	512.7	740.0	289.2	599.4	2,141.2	6,081.3	102.1	6.1	2,184.6	2,292.8
1997	3,549.5	342.5	542.9	752.0	289.0	599.9	2,183.8	6,075.8	96.9	6.3	2,189.0	2,292.2
1998	3,608.5	305.5	588.8	697.0	295.5	565.7	2,147.0	6,061.0	89.3	7.5	2,197.6	2,294.4
1999	3,701.0	283.3	534.7	675.6	295.3	549.8	2,055.4	6,039.6	110.4	1.4	2,185.2	2,297.0
2000	3,745.9	261.4	517.9	721.7	281.4	571.4	2,092.4	6,099.7	130.3	2.3	2,268.0	2,400.6
2001	3,742.6	231.7	516.3	717.9	286.6	601.6	2,122.4	6,096.7	140.7	2.4	2,271.8	2,414.9
2002	3,719.6	235.7	507.1	738.3	286.8	593.0	2,125.2	6,080.5	164.1	3.2	2,263.9	2,431.2
2003	3,719.0	239.6	485.0	730.7	286.9	595.0	2,097.6	6,056.2	202.9	4.9	2,245.6	2,453.4
2004	3,663.1	247.2	480.5	739.8	282.4	622.4	2,125.1	6,035.4	237.3	5.7	2,236.1	2,479.1
2005	3,653.9	296.0	449.7	740.8	278.6	590.3	2,059.4	6,009.3	247.6	7.9	2,258.3	2,513.8
2006	3,680.1	309.9	416.1	811.4	261.1	524.3	2,012.9	6,002.9	248.3	8.4	2,270.2	2,526.9
2007	3,649.5	303.7	413.2	822.7	273.9	519.7	2,029.5	5,982.7	252.5	8.4	2,292.9	2,553.8
2008	3,596.3	315.5	394.7	814.3	282.2	549.0	2,040.2	5,952.0	252.0	10.9	2,323.6	2,586.5
2009	3,480.9	403.0	360.3	805.7	282.0	578.4	2,026.4	5,910.3	266.9	14.8	2,345.7	2,627.4
2010	3,435.8	450.1	336.6	805.4	275.9	558.1	1,976.0	5,861.9	298.5	19.3	2,353.3	2,671.1
2011	3,430.1	440.9	296.4	783.8	280.7	557.9	1,932.0	5,789.8	328.9	25.1	2,366.3	2,720.3
2012	3,498.6	447.0	260.1	769.6	263.2	484.3	1,777.2	5,722.8	328.6	26.1	2,407.2	2,761.9
2013	3,551.1	415.7	247.6	737.3	255.4	466.4	1,706.7	5,673.5	341.6	25.2	2,424.5	2,791.3
2014	3,720.7	317.5	222.3	701.2	237.8	412.5	1,573.8	5,612.0	380.0	25.8	2,419.0	2,824.8
2015	3,782.1	281.3	197.3	688.8	240.0	368.1	1,494.2	5,557.6	428.4	26.5	2,400.8	2,855.7
2016	3,860.6	211.3	181.6	656.3	242.4	361.2	1,441.5	5,483.8	491.0	23.3	2,364.1	2,878.4
2017	3,909.9	172.2	164.1	636.5	233.1	362.0	1,362.5	5,444.7	511.4	19.6	2,356.7	2,887.7
2018	3,933.9	158.3	140.9	627.6	232.1	368.4	1,369.0	5,461.2	535.6	13.6	2,339.2	2,888.4
2019	3,953.0	148.3	147.3	618.4	226.2	365.6	1,357.5	5,458.8	559.1	11.4	2,320.4	2,890.9
2020	3,883.4	182.7	133.1	565.1	236.3	442.1	1,376.6	5,442.7	577.1	15.3	2,295.7	2,888.1

[a] Annual average figures.

Note: Up to the year 1999, weighting is based on the 1990 population census. From 2000 to 2011, weighting is based on the 2001 population census. From 2012 onwards population weights are based on the 2011 population census. To ensure comparability, the estimates for 2006–2011 have been modified by the new weighting scheme.

Data on 'employed' includes conscripts and those working while receiving pension or child support. The data on students for 1995–97 are estimates.

'Other inactive' is a residual category calculated by deducting the sum of the figures in the indicated categories from the mid-year population, so it includes the institutional population not observed by MEF. The population weights have been corrected using the 2011 Census data.

Source: Pensioners: 1990–91: *NYUFIG,* 1992–: *KSH MEF*. Child care recipients: up to the year 1997 *TB* and estimation, after 1997 *MEF*. Unemployment: 1990–91: *NFSZ REG,* 1992–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent03_01

Table 3.2: Labour force participation of the population over 14 years, males, in thousands[a]

Year	Population of males 15–59								Population of males 60 and over			
	Employed	Unem-ployed	Inactive					Total	Employed	Unem-ployed	Pensioner, other inactive	Total
			Pensioner	Full-time student	On child care leave	Other inactive	Inactive total					
1990	2,524.3	37.9	188.4	284.2	1.2	80.3	554.1	3,116.3	123.7	0.0	665.5	789.2
1991	2,351.6	150.3	218.7	296.5	1.5	115.0	631.7	3,133.6	90.4	0.0	700.7	791.1
1992	2,153.1	263.2	252.0	302.4	1.7	174.8	730.9	3,147.2	65.1	3.2	722.1	790.4
1993	2,029.1	311.5	263.2	346.9	2.0	203.3	815.4	3,156.0	47.9	4.5	735.7	788.1
1994	2,013.4	270.0	277.6	357.1	3.7	239.6	878.0	3,161.4	41.6	3.8	740.0	785.4
1995	2,012.5	259.3	282.2	367.4	4.9	237.8	892.3	3,164.1	37.1	2.1	742.6	781.8
1996	2,007.4	242.4	291.9	372.8	3.3	248.3	916.3	3,166.1	28.9	1.3	746.3	776.5
1997	2,018.0	212.2	306.0	377.6	1.5	251.6	936.7	3,166.9	25.5	1.9	743.5	770.9
1998	2,015.5	186.5	345.4	350.4	1.0	264.2	961.0	3,163.0	26.2	2.8	737.3	766.3
1999	2,068.4	170.3	312.7	338.8	4.2	261.5	917.2	3,155.9	34.7	0.4	727.2	762.3
2000	2,086.0	158.2	315.2	358.2	4.1	261.7	939.2	3,183.4	39.8	0.7	758.8	799.3
2001	2,087.6	141.6	311.0	353.4	4.3	283.2	951.9	3,181.1	41.1	0.9	763.0	805.0
2002	2,080.4	137.3	307.5	370.3	5.0	273.4	956.2	3,173.9	45.2	0.7	764.4	810.3
2003	2,073.5	137.6	293.6	367.9	4.3	288.1	953.9	3,165.0	53.0	0.9	762.5	816.4
2004	2,052.7	136.2	293.5	371.2	4.6	300.2	969.5	3,158.4	64.6	0.6	758.8	824.0
2005	2,050.7	158.2	278.8	375.4	5.8	288.8	948.8	3,157.7	65.4	0.9	763.9	830.2
2006	2,078.4	163.4	258.9	404.1	4.0	249.6	916.6	3,158.4	60.2	1.1	771.5	832.8
2007	2,067.4	162.5	261.8	410.2	4.1	248.8	924.9	3,154.8	61.9	1.0	777.5	840.4
2008	2,033.6	172.7	261.2	408.3	4.7	264.6	938.8	3,145.1	60.0	1.0	790.4	851.4
2009	1,961.9	230.3	240.1	409.0	4.4	288.7	942.2	3,134.4	63.1	1.6	798.9	863.6
2010	1,929.5	259.5	228.7	410.3	4.6	287.1	930.7	3,119.7	63.0	2.2	812.9	878.1
2011	1,950.9	248.7	203.7	397.9	3.6	286.8	892.0	3,091.6	70.1	2.9	826.2	899.2
2012	1,979.2	257.9	187.7	395.6	4.2	238.8	826.3	3,063.4	69.6	4.1	846.1	919.8
2013	2,022.2	234.4	169.5	375.6	3.8	232.0	780.9	3,037.5	81.5	4.8	852.4	938.7
2014	2,120.3	173.1	151.3	352.5	3.0	200.9	707.7	3,001.1	100.1	8.6	855.6	964.3
2015	2,152.1	152.1	133.7	345.1	3.1	181.4	663.3	2,967.5	131.4	9.8	849.3	990.5
2016	2,192.4	119.0	119.6	332.3	3.8	173.6	629.3	2,940.7	170.1	8.5	832.5	1,011.1
2017	2,228.9	89.8	107.3	322.9	1.9	169.2	601.2	2,920.0	188.4	6.0	828.8	1,023.2
2018	2,245.4	83.9	94.2	315.9	1.3	171.0	582.4	2,911.7	200.8	4.1	824.4	1,029.3
2019	2,259.2	81.7	94.3	308.2	1.4	169.3	573.2	2,914.0	220.5	4.4	809.6	1,034.5
2020	2,235.5	98.5	87.4	282.3	2.3	201.1	573.1	2,907.1	225.5	5.7	805.3	1,036.5

[a] Annual average figures.

Note: Up to the year 1999, weighting is based on the 1990 population census. From 2000 to 2011, weighting is based on the 2001 population census. From 2012 onwards population weights are based on the 2011 population census. To ensure comparability, the estimates for 2006–2011 have been modified by the new weighting scheme.

Data on 'employed' includes conscripts and those working while receiving pension or child support. The data on students for 1995–97 are estimates.

'Other inactive' is a residual category calculated by deducting the sum of the figures in the indicated categories from the mid-year population, so it includes the institutional population not observed by MEF. The population weights have been corrected using the 2011 Census data.

Source: Pensioners: 1990–91: *NYUFIG,* 1992–: *KSH MEF*. Child care recipients: up to the year 1997 *TB* and estimation, after 1997 *MEF*. Unemployment: 1990–91: *NFSZ REG,* 1992–: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent03_02

Table 3.3: Labour force participation of the population over 14 years, females, in thousands[a]

Year	Population of females 15-54								Population of females 55 and above			
	Employed	Unem-ployed	Inactive					Total	Employed	Unem-ployed	Pensioner, other inactive	Total
			Pensioner	Full-time student	On child care leave	Other inactive	Inactive total					
1990	2,010.0	24.5	95.8	264.7	248.5	217.3	826.3	2,860.8	222.0	0.0	1,279.4	1,501.4
1991	1,918.9	103.1	116.9	281.8	258.3	201.9	858.9	2,880.9	159.1	0.0	1,344.5	1,503.6
1992	1,745.3	171.7	140.8	317.6	260.4	261.1	979.9	2,896.9	119.2	6.6	1,379.6	1,505.4
1993	1,660.4	191.1	174.3	337.0	268.5	276.8	1,056.6	2,908.1	89.6	11.8	1,405.5	1,506.9
1994	1,619.7	167.4	198.9	351.1	277.2	301.1	1,128.3	2,915.4	76.8	8.1	1,423.8	1,508.7
1995	1,558.8	150.7	213.0	356.0	280.4	358.3	1,207.7	2,917.2	70.4	4.3	1,438.0	1,512.7
1996	1,538.7	151.6	220.7	367.2	285.9	351.1	1,224.9	2,915.2	73.2	4.8	1,438.3	1,516.3
1997	1,531.5	130.3	236.9	374.4	287.5	348.3	1,247.1	2,908.9	71.4	4.4	1,445.3	1,521.1
1998	1,593.0	119.0	243.4	346.6	294.5	301.5	1,186.0	2,898.0	63.1	4.7	1,460.3	1,528.1
1999	1,632.6	113.0	222.0	336.8	291.1	288.3	1,138.2	2,883.8	75.8	1.0	1,458.0	1,534.8
2000	1,659.9	103.2	202.7	363.5	277.3	309.7	1,153.2	2,916.3	90.5	1.6	1,509.2	1,601.3
2001	1,655.0	90.1	205.3	364.5	282.3	318.3	1,170.4	2,915.5	99.6	1.5	1,508.8	1,609.9
2002	1,639.2	98.4	199.6	368.0	281.8	319.6	1,169.0	2,906.6	118.9	2.5	1,499.5	1,620.9
2003	1,645.6	102.0	191.4	362.8	282.6	306.9	1,143.7	2,891.2	149.9	4.0	1,483.2	1,637.1
2004	1,610.2	111.0	186.8	368.6	277.8	322.2	1,155.4	2,876.6	172.8	5.1	1,477.3	1,655.2
2005	1,603.2	137.8	170.9	365.4	272.8	301.5	1,110.6	2,851.6	182.2	7.0	1,494.4	1,683.6
2006	1,601.7	146.5	157.2	407.3	257.1	274.7	1,096.3	2,844.5	188.1	7.3	1,498.7	1,694.1
2007	1,582.1	141.2	151.4	412.5	269.8	270.9	1,104.6	2,827.9	190.6	7.4	1,515.4	1,713.4
2008	1,562.7	142.8	133.5	406.0	277.5	284.4	1,101.4	2,806.9	192.0	9.9	1,533.2	1,735.1
2009	1,519.0	172.7	120.2	396.7	277.6	289.7	1,084.2	2,775.9	203.8	13.2	1,546.8	1,763.8
2010	1,506.3	190.6	107.9	395.1	271.3	271.0	1,045.3	2,742.2	235.5	17.1	1,540.4	1,793.0
2011	1,479.2	192.2	92.7	385.9	277.1	271.1	1,040.0	2,698.2	258.8	22.2	1,540.1	1,821.1
2012	1,519.4	189.1	72.4	374.0	259.0	245.5	950.9	2,659.4	259.0	22.0	1,561.1	1,842.1
2013	1,528.9	181.3	78.1	361.7	251.6	234.4	925.8	2,636.0	260.1	20.4	1,572.1	1,852.6
2014	1,600.4	144.4	71.0	348.7	234.8	211.6	866.1	2,610.9	279.9	17.2	1,563.4	1,860.5
2015	1,630.0	129.2	63.6	343.7	236.9	186.7	830.9	2,590.1	297.0	16.7	1,551.5	1,865.2
2016	1,668.2	92.3	62.0	324.0	238.6	187.6	812.2	2,543.1	320.9	14.8	1,531.6	1,867.3
2017	1,681.0	82.4	56.8	313.6	231.2	192.8	761.3	2,524.7	323.0	13.6	1,527.9	1,864.5
2018	1,688.5	74.4	46.8	311.7	230.7	197.4	786.6	2,549.5	334.8	9.5	1,514.8	1,859.1
2019	1,693.8	66.7	53.0	310.2	224.8	196.4	784.4	2,544.9	338.6	7.0	1,510.8	1,856.4
2020	1,647.9	84.2	45.7	282.8	234.0	241.1	803.6	2,535.7	351.6	9.6	1,490.4	1,851.6

[a] Annual average figures.

Note: Up to the year 1999, weighting is based on the 1990 population census. From 2000 to 2011, weighting is based on the 2001 population census. From 2012 onwards population weights are based on the 2011 population census. To ensure comparability, the estimates for 2006–2011 have been modified by the new weighting scheme.

Data on 'employed' includes conscripts and those working while receiving pension or child support. The data on students for 1995–97 are estimates.

'Other inactive' is a residual category calculated by deducting the sum of the figures in the indicated categories from the mid-year population, so it includes the institutional population not observed by MEF. The population weights have been corrected using the 2011 Census data.

Source: Pensioners: 1990–91: *NYUFIG,* 1992–: *KSH MEF*. Child care recipients: up to the year 1997 *TB* and estimation, after 1997 *MEF*. Unemployment: 1990–91: *NFSZ REG,* 1992–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent03_03

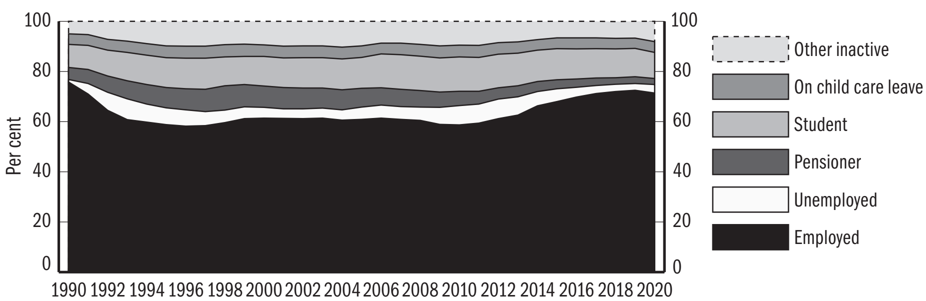
Table 3.4: Labour force participation of the population over 14 years, per cent

Year	Population of males 15–59 and females 15–54								Population of males over 59 and females over 54			
	Employed	Unem-ployed	Inactive					Total	Employed	Unem-ployed	Pensioner, other inactive	Total
			Pensioner	Full-time student	On child care leave	Other inactive	Inactive total					
1995	58.7	6.7	8.1	11.9	4.7	9.8	34.5	100.0	4.7	0.3	95.0	100.0
1996	58.3	6.5	8.4	12.2	4.8	9.9	35.2	100.0	4.5	0.3	95.3	100.0
1997	58.4	5.6	8.9	12.4	4.8	9.9	35.9	100.0	4.2	0.3	95.5	100.0
1998	59.5	5.0	9.7	11.5	4.9	9.3	35.4	100.0	3.9	0.3	95.8	100.0
1999	61.3	4.7	8.9	11.2	4.9	9.1	34.0	100.0	4.8	0.1	95.1	100.0
2000	61.4	4.3	8.5	11.8	4.6	9.4	34.3	100.0	5.4	0.1	94.5	100.0
2001	61.4	3.8	8.5	11.8	4.7	9.9	34.8	100.0	5.8	0.1	94.1	100.0
2002	61.2	3.9	8.3	12.1	4.7	9.8	35.0	100.0	6.7	0.1	93.1	100.0
2003	61.4	4.0	8.0	12.1	4.7	9.8	34.6	100.0	8.3	0.2	91.5	100.0
2004	60.7	4.1	8.0	12.3	4.7	10.3	35.2	100.0	9.6	0.2	90.2	100.0
2005	60.8	4.9	7.5	12.3	4.6	9.8	34.3	100.0	9.8	0.3	89.8	100.0
2006	61.3	5.2	6.9	13.5	4.3	8.7	33.5	100.0	9.8	0.3	89.8	100.0
2007	61.0	5.1	6.9	13.8	4.6	8.7	33.9	100.0	9.9	0.3	89.8	100.0
2008	60.4	5.3	6.6	13.7	4.7	9.2	34.3	100.0	9.7	0.4	89.8	100.0
2009	58.9	6.8	6.1	13.6	4.8	9.8	34.3	100.0	10.2	0.6	89.3	100.0
2010	58.6	7.7	5.7	13.7	4.7	9.5	33.7	100.0	11.2	0.7	88.1	100.0
2011	59.2	7.6	5.1	13.5	4.8	9.6	33.1	100.0	12.1	0.9	87.0	100.0
2012	61.1	7.8	4.5	13.4	4.6	8.5	31.1	100.0	11.9	0.9	87.2	100.0
2013	62.6	7.3	4.4	13.0	4.5	8.2	30.1	100.0	12.2	0.9	86.9	100.0
2014	66.3	5.7	4.0	12.5	4.2	7.3	28.0	100.0	13.5	0.9	85.6	100.0
2015	68.1	5.1	3.6	12.4	4.3	6.6	26.9	100.0	15.0	0.9	84.1	100.0
2016	70.4	3.9	3.3	12.0	4.4	6.6	26.3	100.0	17.1	0.8	82.1	100.0
2017	71.8	3.2	3.0	11.7	4.3	6.6	25.0	100.0	17.7	0.7	81.6	100.0
2018	72.0	2.9	2.6	11.5	4.2	6.7	25.1	100.0	18.5	0.5	81.0	100.0
2019	72.4	2.7	2.7	11.3	4.1	6.7	24.9	100.0	19.3	0.4	80.3	100.0
2020	71.4	3.4	2.4	10.4	4.3	8.1	25.2	100.0	20.0	0.5	79.5	100.0

Source: Pensioners: *KSH MEF*. Child care recipients: up to the year 1997 *TB* and estimation, after 1997 *KSH MEF*. Unemployment: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent03_04

Figure 3.1: Labour force participation of population for males 15–59 and females 15–54, total



Source: Pensioners: 1990–91: *NYUFIG*, 1992–: *KSH MEF*. Child care recipients: up to the year 1997 *TB* and estimation, after 1997 *MEF*. Unemployment: 1990–91: *NFSZ REG*, 1992–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2013hua03_01

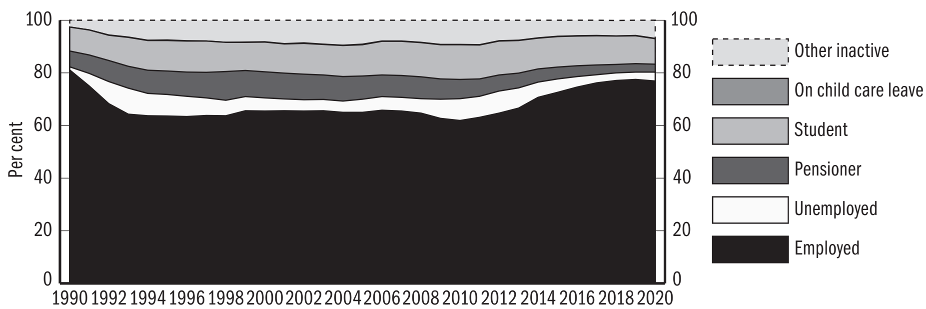
Table 3.5: Labour force participation of the population over 14 years, males, per cent

	Population of males 15–59								Population of males 60 and above			
			Inactive									
Year	Employed	Unem-ployed	Pensioner	Full-time student	On child care leave	Other inactive	Inactive total	Total	Employed	Unem-ployed	Pensioner, other inactive	Total
1990	81.0	1.2	6.0	9.1	0.0	2.6	17.8	100.0	15.7	0.0	84.3	100.0
1995	63.6	8.2	8.9	11.6	0.2	7.5	28.2	100.0	4.7	0.3	95.0	100.0
1996	63.4	7.7	9.2	11.8	0.1	7.8	28.9	100.0	3.7	0.2	96.1	100.0
1997	63.7	6.7	9.7	11.9	0.0	7.9	29.6	100.0	3.3	0.2	96.4	100.0
1998	63.7	5.9	10.9	11.1	0.0	8.4	30.4	100.0	3.4	0.4	96.2	100.0
1999	65.5	5.4	9.9	10.7	0.1	8.3	29.1	100.0	4.6	0.1	95.4	100.0
2000	65.5	5.0	9.9	11.3	0.1	8.2	29.5	100.0	5.0	0.1	94.9	100.0
2001	65.6	4.5	9.8	11.1	0.1	8.9	29.9	100.0	5.1	0.1	94.8	100.0
2002	65.5	4.3	9.7	11.7	0.2	8.6	30.1	100.0	5.6	0.1	94.3	100.0
2003	65.5	4.3	9.3	11.6	0.1	9.1	30.1	100.0	6.5	0.1	93.4	100.0
2004	65.0	4.3	9.3	11.8	0.1	9.5	30.7	100.0	7.8	0.1	92.1	100.0
2005	64.9	5.0	8.8	11.9	0.2	9.1	30.0	100.0	7.9	0.1	92.0	100.0
2006	65.8	5.2	8.2	12.8	0.1	7.9	29.0	100.0	7.2	0.1	92.6	100.0
2007	65.5	5.2	8.3	13.0	0.1	7.9	29.3	100.0	7.4	0.1	92.5	100.0
2008	64.7	5.5	8.3	13.0	0.1	8.4	29.8	100.0	7.0	0.1	92.8	100.0
2009	62.6	7.3	7.7	13.0	0.1	9.2	30.1	100.0	7.3	0.2	92.5	100.0
2010	61.8	8.3	7.3	13.2	0.1	9.2	29.8	100.0	7.2	0.3	92.6	100.0
2011	63.1	8.0	6.6	12.9	0.1	9.3	28.9	100.0	7.8	0.3	91.9	100.0
2012	64.6	8.4	6.1	12.9	0.1	7.8	27.0	100.0	7.6	0.4	92.0	100.0
2013	66.6	7.7	5.6	12.4	0.1	7.6	25.7	100.0	8.7	0.5	90.8	100.0
2014	70.7	5.8	5.0	11.7	0.1	6.7	23.6	100.0	10.4	0.9	88.7	100.0
2015	72.5	5.1	4.5	11.6	0.1	6.1	22.4	100.0	13.3	1.0	85.7	100.0
2016	74.6	4.0	4.1	11.3	0.1	5.9	21.4	100.0	16.8	0.8	82.3	100.0
2017	76.3	3.1	3.7	11.1	0.1	5.8	20.6	100.0	18.4	0.6	81.0	100.0
2018	77.1	2.9	3.2	10.8	0.0	5.9	20.0	100.0	19.5	0.4	80.1	100.0
2019	77.5	2.8	3.2	10.6	0.1	5.8	19.7	100.0	21.3	0.4	78.3	100.0
2020	76.9	3.4	3.0	9.7	0.1	6.9	19.7	100.0	21.8	0.5	77.7	100.0

Source: Pensioners: 1990: *NYUFIG,* 1995–: *KSH MEF*. Child care recipients: up to the year 1997 *TB* and estimation, after 1997 *MEF*. Unemployment: 1990: *NFSZ REG,* 1995–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent03_05

Figure 3.2: Labour force participation of population for males 15–59



Source: Pensioners: 1990–91: *NYUFIG,* 1992–: *KSH MEF*. Child care recipients: up to the year 1997 *TB* and estimation, after 1997 *MEF*. Unemployment: 1990–91: *NFSZ REG,* 1992–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena03_02

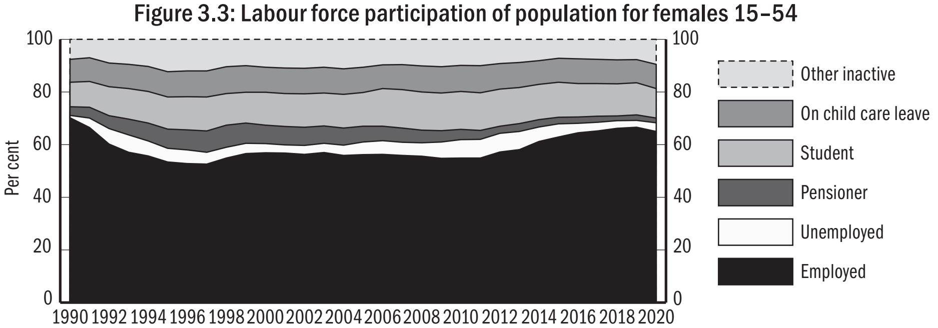
Table 3.6: Labour force participation of the population over 14 years, females, per cent

Year	Population of females 15-54								Population of females 55 and above			
	Employed	Unem-ployed	Inactive					Total	Employed	Unem-ployed	Pensioner, other inactive	Total
			Pensioner	Full-time student	On child care leave	Other inactive	Inactive total					
1990	70.3	0.9	3.3	9.3	8.7	7.6	28.9	100.0	14.8	0.0	85.2	100.0
1995	53.4	5.2	7.3	12.2	9.6	12.3	41.4	100.0	4.7	0.3	95.1	100.0
1996	52.8	5.2	7.6	12.6	9.8	12.0	42.0	100.0	4.8	0.3	94.9	100.0
1997	52.6	4.5	8.1	12.9	9.9	12.0	42.9	100.0	4.7	0.3	95.0	100.0
1998	55.0	4.1	8.4	12.0	10.2	10.4	40.9	100.0	4.1	0.3	95.6	100.0
1999	56.6	3.9	7.7	11.7	10.1	10.0	39.5	100.0	4.9	0.1	95.0	100.0
2000	56.9	3.5	7.0	12.5	9.5	10.6	39.5	100.0	5.7	0.1	94.2	100.0
2001	56.8	3.1	7.0	12.5	9.7	10.9	40.1	100.0	6.2	0.1	93.7	100.0
2002	56.4	3.4	6.9	12.7	9.7	11.0	40.2	100.0	7.3	0.2	92.5	100.0
2003	56.9	3.5	6.6	12.5	9.8	10.6	39.6	100.0	9.2	0.2	90.6	100.0
2004	56.0	3.9	6.5	12.8	9.7	11.2	40.2	100.0	10.4	0.3	89.3	100.0
2005	56.2	4.8	6.0	12.8	9.6	10.6	38.9	100.0	10.8	0.4	88.8	100.0
2006	56.3	5.2	5.5	14.3	9.0	9.7	38.5	100.0	11.1	0.4	88.5	100.0
2007	55.9	5.0	5.4	14.6	9.5	9.6	39.1	100.0	11.1	0.4	88.4	100.0
2008	55.7	5.1	4.8	14.5	9.9	10.1	39.2	100.0	11.1	0.6	88.4	100.0
2009	54.7	6.2	4.3	14.3	10.0	10.4	39.1	100.0	11.6	0.7	87.7	100.0
2010	54.9	7.0	3.9	14.4	9.9	9.9	38.1	100.0	13.1	1.0	85.9	100.0
2011	54.8	7.1	3.4	14.3	10.3	10.0	38.1	100.0	14.2	1.2	84.6	100.0
2012	57.1	7.1	2.7	14.1	9.7	9.2	36.0	100.0	14.1	1.2	84.7	100.0
2013	58.0	6.9	3.0	13.7	9.5	8.8	35.1	100.0	14.0	1.1	84.9	100.0
2014	61.3	5.5	2.8	13.4	9.0	8.1	33.2	100.0	15.0	0.9	84.0	100.0
2015	62.9	5.0	2.5	13.3	9.1	7.2	32.1	100.0	15.9	0.9	83.2	100.0
2016	65.6	3.6	2.4	12.7	9.4	7.4	31.9	100.0	17.2	0.8	82.0	100.0
2017	66.6	3.3	2.3	12.4	9.2	7.6	30.2	100.0	17.3	0.7	81.9	100.0
2018	66.2	2.9	1.8	12.2	9.1	7.7	30.9	100.0	18.0	0.5	81.5	100.0
2019	66.6	2.6	2.1	12.2	8.8	7.7	30.8	100.0	18.2	0.4	81.4	100.0
2020	65.0	3.3	1.8	11.2	9.2	9.5	31.7	100.0	19.0	0.5	80.5	100.0

Source: Pensioners: 1990: *NYUFIG,* 1995–: *KSH MEF*. Child care recipients: up to the year 1997 *TB* and estimation, after 1997 *MEF*. Unemployment: 1990: *NFSZ REG,* 1995–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent03_06

Figure 3.3: Labour force participation of population for females 15–54



Source: Pensioners: 1990–91: *NYUFIG,* 1992–: *KSH MEF*. Child care recipients: up to the year 1997 *TB* and estimation, after 1997 *MEF*. Unemployment: 1990–91: *NFSZ REG,* 1992–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena03_03

Table 3.7: Population aged 15–64 by labour market status (self-categorised), in thousands

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Together														
In work	3,831.6	3,769.3	3,681.5	3,660.3	3,690.1	3,748.4	3,824.5	4,039.5	4,159.5	4,298.5	4,366.9	4,401.6	4,421.4	4,365.3
Unemployed	450.2	476.7	591.3	670.7	675.8	700.4	666.5	538.8	454.6	366.3	314.0	284.1	284.8	340.3
Students, pupils	861.1	863.7	854.8	854.6	842.2	811.2	772.5	733.5	710.3	675.6	650.4	644.2	636.7	623.8
Pensioner	592.2	635.6	627.6	599.3	582.0	630.3	613.6	557.5	477.5	420.1	392.6	364.9	323.3	276.3
Disabled	554.4	525.8	498.9	488.4	455.1	356.7	335.7	317.7	318.0	303.1	285.7	253.4	243.4	213.8
On child care leave	286.2	295.0	293.0	289.3	290.2	265.0	259.1	237.0	236.9	236.4	227.5	228.6	221.3	229.6
Dependent	111.9	104.0	101.9	95.3	104.3	93.1	96.9	85.3	91.7	93.7	93.2	106.2	97.3	104.1
Out of work for other reasons	101.8	101.7	104.9	78.2	78.9	89.1	78.0	78.4	81.9	84.1	84.9	86.4	98.9	127.0
Total	6,789.4	6,771.6	6,753.8	6,736.0	6,718.5	6,694.1	6,646.8	6,587.7	6,530.4	6,477.9	6,415.2	6,369.5	6,327.1	6,280.3
Males														
In work	2,095.3	2,056.8	1,993.3	1,958.0	1,985.4	2,009.3	2,065.1	2,186.4	2,256.0	2,331.6	2,384.2	2,407.8	2,429.8	2,409.8
Unemployed	242.0	255.8	333.6	375.6	372.2	382.9	364.4	283.7	241.4	198.9	159.4	146.9	144.3	169.8
Students, pupils	428.4	431.7	430.6	432.7	427.2	416.1	393.4	366.9	354.3	338.2	329.1	322.6	315.4	310.3
Pensioner	217.4	243.4	246.2	245.6	243.7	254.9	236.7	209.7	167.1	133.1	118.3	109.4	88.2	67.6
Disabled	269.4	257.9	238.2	234.6	215.7	177.1	161.6	152.5	152.0	149.4	137.8	123.1	119.2	108.4
On child care leave	4.3	5.6	5.7	6.7	4.5	4.1	4.1	3.1	2.9	3.8	1.9	1.4	1.6	2.0
Dependent	6.3	6.8	6.8	9.6	10.0	7.0	9.8	8.3	9.4	8.9	7.8	9.9	7.8	8.8
Out of work for other reasons	51.8	51.6	49.8	36.1	35.8	40.8	37.1	36.0	39.8	39.2	38.4	40.1	43.5	58.1
Total	3,314.9	3,309.6	3,304.2	3,298.9	3,294.4	3,292.2	3,272.1	3,246.7	3,222.9	3,203.1	3,176.9	3,161.2	3,149.7	3,134.9
Females														
In work	1,736.3	1,712.4	1,688.2	1,702.2	1,704.7	1,739.1	1,759.4	1,853.1	1,903.6	1,967.0	1,982.7	1,993.9	1,991.5	1,955.5
Unemployed	208.3	220.9	257.6	295.1	303.6	317.5	302.1	255.0	213.2	167.4	154.5	137.2	140.5	170.5
Students, pupils	432.7	432.0	424.2	421.9	415.0	395.1	379.0	366.6	356.0	337.4	321.3	321.6	321.4	313.5
Pensioner	374.8	392.2	381.4	353.7	338.2	375.4	376.9	347.8	310.3	287.0	274.3	255.5	235.1	208.8
Disabled	285.0	267.9	260.7	253.8	239.5	179.6	174.1	165.2	166.0	153.7	147.9	130.3	124.2	105.4
On child care leave	281.9	289.4	287.3	282.6	285.7	260.9	255.0	233.8	233.9	232.6	225.6	227.2	219.8	227.6
Dependent	105.6	97.2	95.1	85.7	94.3	86.1	87.2	77.0	82.3	84.7	85.4	96.3	89.5	95.3
Out of work for other reasons	50.0	50.1	55.1	42.1	43.1	48.3	40.9	42.4	42.2	44.9	46.5	46.3	55.5	68.9
Total	3,474.5	3,462.1	3,449.6	3,437.1	3,424.1	3,401.9	3,374.7	3,341.1	3,307.5	3,274.8	3,238.2	3,208.3	3,177.4	3,145.4

Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent03_07

Table 3.8: Population aged 15–64 by labour market status (self-categorised), per cent

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Together														
In work	56.4	55.7	54.5	54.3	54.9	56.0	57.5	61.3	63.7	66.4	68.1	69.1	69.9	69.5
Unemployed	6.6	7.0	8.8	10.0	10.1	10.5	10.0	8.2	7.0	5.7	4.9	4.5	4.5	5.4
Students, pupils	12.7	12.8	12.7	12.7	12.5	12.1	11.6	11.1	10.9	10.4	10.1	10.1	10.1	9.9
Pensioner	8.7	9.4	9.3	8.9	8.7	9.4	9.2	8.5	7.3	6.5	6.1	5.7	5.1	4.4
Disabled	8.2	7.8	7.4	7.3	6.8	5.3	5.1	4.8	4.9	4.7	4.5	4.0	3.8	3.4
On child care leave	4.2	4.4	4.3	4.3	4.3	4.0	3.9	3.6	3.6	3.6	3.5	3.6	3.5	3.7
Dependent	1.6	1.5	1.5	1.4	1.6	1.4	1.5	1.3	1.4	1.4	1.5	1.7	1.5	1.7
Out of work for other reasons	1.5	1.5	1.6	1.2	1.2	1.3	1.2	1.2	1.3	1.3	1.3	1.4	1.6	2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Males														
In work	63.2	62.1	60.3	59.4	60.3	61.0	63.1	67.3	70.0	72.8	75.0	76.2	77.1	76.9
Unemployed	7.3	7.7	10.1	11.4	11.3	11.6	11.1	8.7	7.5	6.2	5.0	4.6	4.6	5.4
Students, pupils	12.9	13.0	13.0	13.1	13.0	12.6	12.0	11.3	11.0	10.6	10.4	10.2	10.0	9.9
Pensioner	6.6	7.4	7.4	7.4	7.4	7.7	7.2	6.5	5.2	4.2	3.7	3.5	2.8	2.2
Disabled	8.1	7.8	7.2	7.1	6.5	5.4	4.9	4.7	4.7	4.7	4.3	3.9	3.8	3.5
On child care leave	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1
Dependent	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.3
Out of work for other reasons	1.6	1.6	1.5	1.1	1.1	1.2	1.1	1.1	1.2	1.2	1.2	1.3	1.4	1.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Females														
In work	50.0	49.5	48.9	49.5	49.8	51.1	52.1	55.5	57.6	60.1	61.2	62.1	62.7	62.2
Unemployed	6.0	6.4	7.5	8.6	8.9	9.3	9.0	7.6	6.4	5.1	4.8	4.3	4.4	5.4
Students, pupils	12.5	12.5	12.3	12.3	12.1	11.6	11.2	11.0	10.8	10.3	9.9	10.0	10.1	10.0
Pensioner	10.8	11.3	11.1	10.3	9.9	11.0	11.2	10.4	9.4	8.8	8.5	8.0	7.4	6.6
Disabled	8.2	7.7	7.6	7.4	7.0	5.3	5.2	4.9	5.0	4.7	4.6	4.1	3.9	3.3
On child care leave	8.1	8.4	8.3	8.2	8.3	7.7	7.6	7.0	7.1	7.1	7.0	7.1	6.9	7.2
Dependent	3.0	2.8	2.8	2.5	2.8	2.5	2.6	2.3	2.5	2.6	2.6	3.0	2.8	3.0
Out of work for other reasons	1.4	1.4	1.6	1.2	1.3	1.4	1.2	1.3	1.3	1.4	1.4	1.4	1.7	2.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent03_08

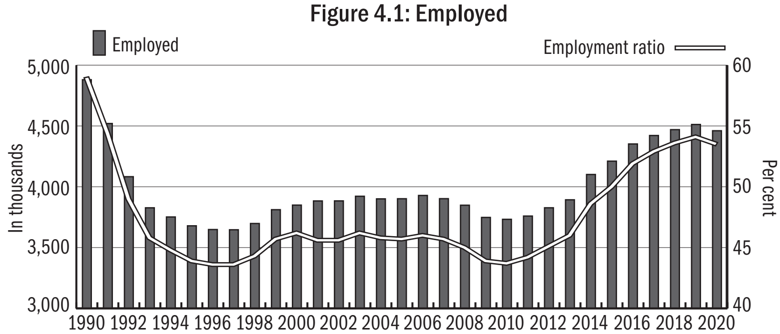
Table 4.1: Employment

Year	In thousands	1992 = 100	Annual changes	Employment ratio[a]
1990	4,880.0	119.5	..	59.0
1991	4,520.0	110.7	-7.4	54.4
1992	4,082.7	100.0	-9.7	49.0
1993	3,827.0	93.7	-6.2	45.8
1994	3,751.5	91.9	-2.0	44.8
1995	3,678.8	90.1	-1.9	43.9
1996	3,648.2	89.4	-0.9	43.6
1997	3,646.4	89.3	0.0	43.6
1998	3,697.8	90.6	1.4	44.3
1999	3,811.4	93.4	3.2	45.7
2000	3,849.1	94.3	1.0	46.2
2001	3,883.3	95.1	0.3	45.6
2002	3,883.7	95.1	0.0	45.6
2003	3,921.9	96.1	1.2	46.2
2004	3,900.4	95.5	-0.5	45.8
2005	3,901.5	95.6	0.0	45.7
2006	3,928.4	96.2	0.7	46.0
2007	3,902.0	95.6	-0.7	45.7
2008	3,848.3	94.3	-1.4	45.0
2009	3,747.8	91.8	-2.6	43.9
2010	3,732.4	91.4	-0.4	43.7
2011	3,759.0	92.1	0.7	44.2
2012	3,827.2	93.7	1.8	45.1
2013	3,892.8	95.3	1.7	46.0
2014	4,100.9	100.4	5.3	48.6
2015	4,210.5	103.1	2.7	50.0
2016	4,351.7	106.7	3.4	51.9
2017	4,421.4	108.3	1.6	52.9
2018	4,469.5	109.4	1.1	53.6
2019	4,512.1	110.4	1.0	54.1
2020	4,460.5	109.1	-1.1	53.5

[a] Per cent of the population over 14 years of age.
Source: 1990–91: *KSH MEM,* 1992–: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_01

Figure 4.1: Employed



Source: 1990–91: *KSH MEM*, 1992–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena04_01

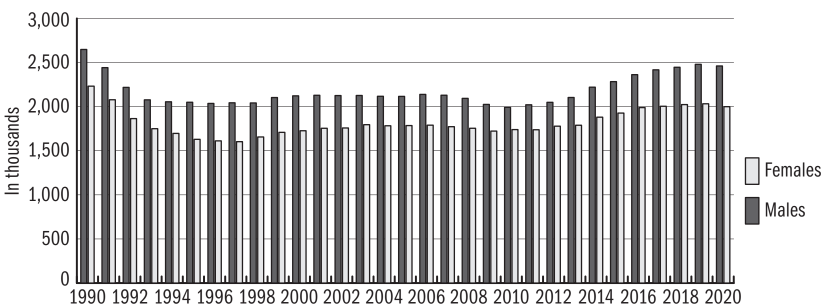
Table 4.2: Employment by gender

Year	Males		Females		Share of females (%)
	In thousands	1992 = 100	In thousands	1992 = 100	
1990	2,648.0	119.4	2,232.0	119.7	45.7
1991	2,442.0	110.1	2,078.0	111.5	46.0
1992	2,218.2	100.0	1,864.5	100.0	45.7
1993	2,077.0	93.6	1,750.0	93.9	45.7
1994	2,055.0	92.6	1,696.5	91.0	45.2
1995	2,049.6	92.4	1,629.2	87.4	44.3
1996	2,036.3	91.8	1,611.9	86.5	44.2
1997	2,043.5	92.1	1,602.9	86.0	44.0
1998	2,041.7	92.0	1,656.1	88.8	44.8
1999	2,103.1	94.8	1,708.4	91.6	44.8
2000	2,122.4	95.7	1,726.7	92.6	44.9
2001	2,128.7	96.0	1,754.6	94.1	45.2
2002	2,125.6	95.8	1,758.1	94.3	45.3
2003	2,126.5	95.6	1,795.4	96.2	45.8
2004	2,117.3	95.5	1,783.1	95.6	45.7
2005	2,116.1	95.4	1,785.4	95.8	45.8
2006	2,138.6	96.4	1,789.8	96.0	45.6
2007	2,129.3	96.0	1,772.7	95.1	45.4
2008	2,093.6	94.4	1,754.7	94.1	45.6
2009	2,025.1	91.3	1,722.8	92.4	46.0
2010	1,992.5	89.8	1,739.8	93.3	46.6
2011	2,021.0	91.1	1,738.0	93.2	46.2
2012	2,048.8	92.4	1,778.4	95.4	46.5
2013	2,103.7	94.8	1,789.0	96.0	46.0
2014	2,220.5	100.1	1,880.4	100.9	45.9
2015	2,283.5	103.0	1,927.0	103.4	45.8
2016	2,362.5	106.5	1,989.1	106.7	45.7
2017	2,417.3	109.0	2,004.1	107.5	45.3
2018	2,446.2	110.3	2,023.3	108.5	45.3
2019	2,479.7	111.8	2,032.4	109.0	45.0
2020	2,461.0	111.0	1,999.5	107.2	44.8

Source: 1990–91: *KSH MEM*, 1992–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_02

Figure 4.2: Employment by gender



Source: 1990–91: *KSH MEM*, 1992–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena04_02

Table 4.3: Composition of the employed by age groups, males, per cent

Year	15–19	20–24	25–49	50–54	55–59	60+	Total
	years old						
2001	1.2	10.4	68.6	11.1	6.7	2.0	100.0
2002	0.9	9.4	69.4	11.3	6.9	2.1	100.0
2003	0.7	8.6	69.1	11.8	7.3	2.5	100.0
2004	0.7	7.4	69.5	12.0	7.3	3.0	100.0
2005	0.6	6.8	68.9	12.7	7.9	3.1	100.0
2006	0.6	6.7	71.1	10.3	8.5	2.8	100.0
2007	0.5	6.7	71.3	10.2	8.4	2.9	100.0
2008	0.5	6.4	71.2	10.6	8.5	2.8	100.0
2009	0.4	5.7	70.6	10.9	9.3	3.1	100.0
2010	0.3	5.8	70.5	10.8	9.8	2.8	100.0
2011	0.3	5.5	69.8	10.9	10.0	3.5	100.0
2012	0.3	5.5	69.4	10.7	10.7	3.4	100.0
2013	0.4	6.1	68.6	10.3	10.7	3.9	100.0
2014	0.5	6.4	68.2	9.9	10.5	4.5	100.0
2015	0.7	6.3	67.3	10.0	10.1	5.8	100.0
2016	0.7	6.7	66.1	9.9	9.5	7.2	100.0
2017	0.6	6.6	65.6	10.4	9.0	7.8	100.0
2018	0.7	6.5	64.9	10.7	9.0	8.2	100.0
2019	0.8	6.1	64.1	11.4	8.7	8.9	100.0
2020	0.6	5.9	63.7	11.9	8.7	9.2	100.0

Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_03

Table 4.4: Composition of the employed by age groups, females, per cent

Year	15–19	20–24	25–49	50–54	55+	Total
	years old					
2001	1.1	9.6	70.5	13.1	5.7	100.0
2002	0.8	9.2	69.4	13.8	6.8	100.0
2003	0.5	8.2	68.8	14.0	8.5	100.0
2004	0.5	7.1	68.2	14.6	9.7	100.0
2005	0.4	6.3	67.7	15.4	10.2	100.0
2006	0.4	6.0	70.1	12.9	10.6	100.0
2007	0.3	5.8	70.0	13.1	10.8	100.0
2008	0.3	5.6	69.8	13.4	10.9	100.0
2009	0.2	5.4	69.1	13.5	11.8	100.0
2010	0.3	5.3	67.4	13.6	13.4	100.0
2011	0.2	5.1	66.4	13.4	14.9	100.0
2012	0.2	5.2	66.6	13.4	14.6	100.0
2013	0.3	5.1	67.1	13.1	14.4	100.0
2014	0.4	5.6	66.4	12.7	14.9	100.0
2015	0.4	6.1	65.6	12.5	15.4	100.0
2016	0.5	6.0	65.2	12.2	16.1	100.0
2017	0.5	5.8	65.4	12.2	16.1	100.0
2018	0.5	5.5	64.4	13.0	16.6	100.0
2019	0.5	5.3	64.3	13.2	16.7	100.0
2020	0.4	5.2	62.6	14.2	17.6	100.0

Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_04

Table 4.5: Composition of the employed by level of education, males, per cent

Year	8 grades of primary school or less	Vocational school	Secondary school	College, university	Total
2001	15.6	42.8	26.0	15.6	100.0
2002	14.6	43.2	26.4	15.8	100.0
2003	14.0	41.3	27.7	17.0	100.0
2004	13.0	40.4	28.0	18.6	100.0
2005	13.0	40.8	27.7	18.5	100.0
2006	12.3	41.0	28.2	18.5	100.0
2007	11.7	40.7	28.8	18.8	100.0
2008	11.7	39.4	29.1	19.8	100.0
2009	10.9	38.7	30.1	20.3	100.0
2010	10.6	38.3	30.6	20.5	100.0
2011	10.7	37.2	30.2	21.9	100.0
2012	10.6	36.8	30.1	22.5	100.0
2013	10.2	37.1	30.1	22.6	100.0
2014	11.1	35.8	30.6	22.5	100.0
2015	11.8	34.5	31.0	22.7	100.0
2016	11.9	34.6	31.6	21.9	100.0
2017	11.5	35.4	31.0	22.1	100.0
2018	11.4	35.6	30.4	22.6	100.0
2019	11.3	34.7	31.4	22.6	100.0
2020	10.7	33.8	31.3	24.2	100.0

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_05

Table 4.6: Composition of the employed by level of education, females, per cent

Year	8 grades of primary school or less	Vocational school	Secondary school	College, university	Total
2001	19.1	21.3	40.3	19.3	100.0
2002	18.5	21.5	40.2	19.8	100.0
2003	16.4	21.5	40.9	21.2	100.0
2004	15.9	20.5	40.2	23.4	100.0
2005	15.4	20.2	40.0	24.4	100.0
2006	14.2	20.7	40.0	25.1	100.0
2007	13.5	21.2	40.0	25.3	100.0
2008	13.3	20.3	39.2	27.2	100.0
2009	12.5	19.8	39.3	28.4	100.0
2010	12.3	20.3	38.8	28.6	100.0
2011	11.7	20.1	38.0	30.2	100.0
2012	11.0	19.5	38.4	31.1	100.0
2013	10.9	19.6	38.1	31.4	100.0
2014	11.4	19.4	37.8	31.5	100.0
2015	11.5	19.1	37.4	32.0	100.0
2016	12.0	18.4	38.3	31.3	100.0
2017	12.4	18.6	38.4	30.6	100.0
2018	11.5	19.0	37.5	32.0	100.0
2019	11.0	18.8	36.6	33.6	100.0
2020	10.5	17.9	36.7	34.9	100.0

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_06

Table 4.7: Employed by employment status, in thousands

Year	Employees	Member of cooperatives	Member of other partnerships	Self-employed and assisting family members	Total
2004	3,347.8	8.1	136.6	407.8	3,900.3
2005	3,367.3	5.8	146.7	381.7	3,901.5
2006	3,428.9	4.8	128.0	366.7	3,928.4
2007	3,415.5	4.7	123.9	357.9	3,902.0
2008	3,378.4	2.6	120.9	346.4	3,848.3
2009	3,274.9	2.5	131.7	338.7	3,747.8
2010	3,272.7	2.9	137.6	319.3	3,732.5
2011	3,302.5	2.0	133.3	321.2	3,759.0
2012	3,378.1	2.3	144.3	302.5	3,827.2
2013	3,453.9	3.3	156.6	279.0	3,892.8
2014	3,652.0	3.6	157.3	288.0	4,100.9
2015	3,753.8	1.7	150.3	304.7	4,210.5
2016	3,884.4	0.9	147.1	319.2	4,351.6
2017	3,964.4	0.4	156.4	300.2	4,421.4
2018	4,003.9	0.4	148.7	316.5	4,469.5
2019	4,023.6	0.3	164.5	323.8	4 512.1
2020	3,923.2	0.3	178.3	358.7	4,460.5

Note: Conscripts are excluded. The participants of winter-time training programs within the Public Works Program are counted as employees (contrary to the practice of STADAT). There are differences in data for 2014–2016.
Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_07

Table 4.8: Composition of the employed persons by employment status, per cent

Year	Employees	Member of cooperatives	Member of other partnerships	Self-employed and assisting family members	Total
2004	85.8	0.2	3.5	10.5	100.0
2005	86.3	0.1	3.8	9.8	100.0
2006	87.3	0.1	3.2	9.4	100.0
2007	87.6	0.1	3.1	9.2	100.0
2008	87.7	0.1	3.2	9.0	100.0
2009	87.5	0.1	3.6	8.8	100.0
2010	87.7	0.1	3.7	8.5	100.0
2011	87.9	0.0	3.5	8.5	100.0
2012	88.3	0.1	3.8	7.9	100.0
2013	88.9	0.1	4.0	7.0	100.0
2014	89.1	0.1	4.0	6.8	100.0
2015	89.1	0.0	3.6	7.3	100.0
2016	89.3	0.0	3.4	7.3	100.0
2017	89.7	0.0	3.5	6.8	100.0
2018	89.6	0.0	3.3	7.1	100.0
2019	89.2	0.0	3.6	7.2	100.0
2020	88.0	0.0	4.0	8.0	100.0

Note: Conscripts are excluded. The participants of winter-time training programs within the Public Works Program are counted as employees (contrary to the practice of STADAT). There are differences in data for 2014–2016.
Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_08

Table 4.9: Composition of employed persons by sector, by gender, per cent

	2015			2016			2017			2018			2019			2020		
	Males	Males	To-gether	Males	Fe-males	To-gether	Males	Fe-males	To-gether	Males	Fe-males	To-gether	Males	Fe-males	To-gether	Males	Fe-males	To-gether
Agriculture, forestry and fishing	5.3	1.9	3.7	5.4	1.9	3.8	5.5	1.8	3.8	5.1	1.9	3.6	4.9	2.0	3.6	5.2	2.1	3.7
Mining and quarrying	0.4	0.1	0.2	0.3	0.1	0.2	0.4	0.0	0.2	0.4	0.1	0.3	0.4	0.1	0.3	0.3	0.1	0.2
Manufacturing	27.4	18.0	23.0	27.5	18.1	23.1	28.4	18.6	23.8	28.8	18.7	24.1	28.5	18.5	23.9	27.9	18.2	23.4
Electricity, gas, steam and air conditioning supply	1.3	0.4	0.9	1.2	0.5	0.9	1.2	0.5	0.9	1.5	0.5	1.0	1.2	0.5	0.8	1.2	0.4	0.9
Water supply; sewerage, waste management and remediation activities	2.1	0.7	1.5	2.3	0.7	1.5	2.1	0.6	1.4	2.2	0.6	1.4	2.1	0.6	1.4	2.0	0.6	1.4
Construction	10.2	0.9	5.8	10.1	0.9	5.8	10.5	1.1	6.2	11.5	1.1	6.7	11.7	1.1	6.8	12.3	1.3	7.2
Wholesale and retail trade; repair of motor vehicles and motorcy-cles	9.6	15.2	12.3	9.7	14.6	12.0	9.9	14.5	12.0	9.3	14.9	11.9	10.2	14.8	12.3	10.7	14.5	12.4
Transportation and storage	9.0	3.7	6.5	9.4	3.5	6.6	9.6	3.7	6.9	9.4	3.7	6.8	10.0	3.7	7.1	9.0	3.4	6.4
Accommodation and food service activities	3.5	5.3	4.4	3.8	5.1	4.4	3.4	5.3	4.2	3.5	5.0	4.1	3.4	5.3	4.3	3.2	4.8	3.9
Information and com-munication	3.1	1.5	2.4	3.3	1.7	2.6	3.3	1.5	2.4	3.4	1.3	2.4	3.6	1.6	2.7	4.0	1.8	3.0
Financial and insurance activities	1.3	3.0	2.1	1.5	3.0	2.2	1.7	2.6	2.1	1.3	2.7	2.0	1.1	2.2	1.6	1.3	2.5	1.9
Real estate activities	0.5	0.4	0.4	0.4	0.5	0.5	0.4	0.6	0.5	0.4	0.6	0.5	0.4	0.5	0.5	0.5	0.5	0.5
Professional, scientific and technical activi-ties	1.9	3.5	2.7	1.8	3.3	2.5	1.8	3.5	2.6	1.8	3.5	2.6	2.1	3.7	2.8	2.8	3.8	3.3
Administrative and support service activi-ties	4.3	2.9	3.6	4.2	3.2	3.7	3.7	3.1	3.5	3.5	3.1	3.3	2.9	3.1	3.0	3.1	2.9	3.0
Public administration and defence; compul-sory social security	10.9	13.0	11.9	10.9	13.5	12.1	10.3	13.1	11.6	9.3	12.1	10.6	8.5	11.9	10.1	8.1	12.1	9.9
Education	3.6	13.6	8.3	3.2	13.7	8.1	3.5	13.4	8.0	3.6	13.9	8.4	3.6	13.7	8.2	3.4	13.6	8.1
Human health and social work activities	2.5	11.6	6.8	2.4	11.7	6.8	2.2	12.1	6.8	2.6	12.3	7.1	2.6	12.9	7.4	2.5	13.7	7.7
Arts, entertainment and recreation	1.7	2.0	1.8	1.4	2.1	1.7	1.4	1.8	1.6	1.4	2.0	1.7	1.7	1.7	1.7	1.6	1.6	1.6
Other services	1.2	2.3	1.7	1.2	2.1	1.6	1.1	2.1	1.5	1.1	2.2	1.6	1.1	2.2	1.6	1.0	2.0	1.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_09

Table 4.10: Employed in their present job for 0–6 months, per cent

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Hungary	7.2	6.3	6.6	7.2	6.8	7.0	6.8	7.5	7.6	7.4	7.9	7.3	8.4	9.1	8.9	8.4	7.5	7.7	8.1	7.2	8.3

Source: *KSH MEF*, IV. quarterly waves.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_10

Table 4.11: Distribution of employees in the competitive sector[a] by firm size, per cent

Year	Less than 20	20–49	50–249	250–999	1000 and more
	employees				
2002	21.6	14.0	21.5	20.1	22.9
2003	23.0	15.3	20.5	19.3	21.8
2004	23.6	14.8	21.3	18.3	22.0
2005	27.0	15.0	20.5	17.5	20.0
2006	15.7	10.7	25.7	24.3	23.6
2007	25.2	14.2	20.0	18.4	22.2
2008	26.0	15.7	20.7	18.9	18.6
2009	23.4	15.7	19.7	18.4	22.8
2010	23.5	15.7	18.6	18.0	24.2
2011	24.9	15.6	18.5	17.7	23.4
2012	24.2	14.7	18.3	18.6	24.1
2013	23.2	14.5	18.1	19.0	25.2
2014	23.8	15.0	18.4	19.2	23.5
2015	24.0	15.4	18.5	17.9	24.2
2016	24.9	15.9	18.0	16.9	24.3
2017	24.4	16.1	17.4	16.6	25.5
2018	24.9	16.6	15.4	16.4	26.7
	Less than 20	20–99	100–249	250–499	500 and more
	employees				
2019	25.8	31.3	11.5	7.7	23.8
2020	32.1	22.6	10.7	7.1	27.5

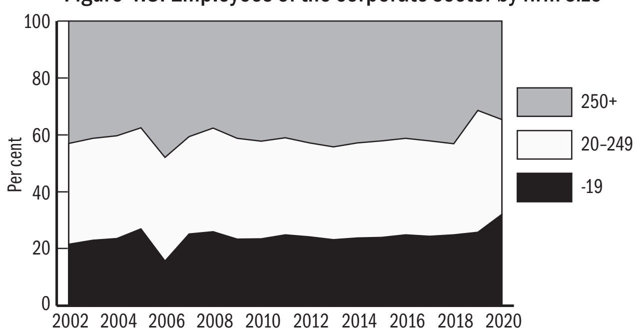
[a] Firms employing 5 or more workers.

Note: Since 2019 the NFSZ BT is conducted by KSH. The firm size categories differ from the earlier versions.

Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_11

Figure 4.3: Employees of the corporate sector by firm size



Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena04_03

Table 4.12: Employment rate of population aged 15–74 by age group, males, per cent

Year	15-19	20-24	25-49	50-54	55-59	60-64	65-74	Total
2000	8.4	58.9	80.9	69.6	49.6	11.8	3.8	56.8
2001	7.9	56.7	81.6	68.2	51.3	13.1	3.1	57.1
2002	5.6	53.1	81.9	68.6	52.8	14.4	3.4	57.1
2003	4.8	51.8	82.2	69.7	55.2	16.8	3.8	57.6
2004	4.5	46.5	82.7	69.7	54.0	20.1	4.3	57.5
2005	4.0	43.6	82.5	70.1	56.6	20.9	4.2	57.4
2006	4.1	44.0	83.1	70.7	58.5	18.9	4.2	58.0
2007	3.7	44.0	83.4	71.0	57.3	18.0	4.7	57.8
2008	3.5	42.0	82.9	71.6	54.5	16.5	4.8	56.9
2009	2.4	36.7	80.5	70.5	56.1	16.7	5.0	55.1
2010	2.2	36.7	79.6	69.0	56.3	16.5	4.7	54.2
2011	2.4	36.1	81.0	71.2	56.9	17.4	4.4	55.0
2012	2.2	35.9	81.5	73.1	61.2	17.0	5.2	55.7
2013	2.8	40.8	82.6	74.2	64.9	21.1	4.9	57.4
2014	3.8	45.6	86.6	76.9	70.6	26.9	4.4	60.8
2015	5.9	46.6	87.9	80.5	73.9	35.3	4.6	62.7
2016	6.2	52.7	89.0	83.0	76.2	44.7	5.9	65.0
2017	6.4	55.6	90.7	86.6	77.5	49.6	6.3	66.9
2018	6.9	56.6	91.0	87.1	80.6	52.5	7.8	67.9
2019	8.2	54.7	91.1	89.4	80.6	58.6	9.7	68.8
2020	6.1	54.4	90.0	88.9	80.5	63.3	9.7	68.2

Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_12

Table 4.13: Employment rate of population aged 15–74 by age group, females, per cent

Year	15-19	20-24	25-49	50-54	55-59	60-64	65-74	Total
2000	8.0	45.9	67.8	62.5	20.0	5.1	1.8	43.0
2001	6.3	44.2	68.0	62.1	23.2	5.5	1.3	43.1
2002	4.3	44.2	67.0	64.0	28.3	6.0	1.5	43.3
2003	3.1	41.9	67.8	65.8	35.1	7.3	2.0	44.3
2004	2.7	37.4	67.2	66.0	39.8	9.0	1.9	44.1
2005	2.6	34.7	67.4	66.6	41.7	9.6	1.5	44.2
2006	2.5	33.6	67.8	67.5	42.4	8.5	1.6	44.4
2007	2.0	32.4	67.8	68.1	40.0	9.4	2.2	44.1
2008	1.8	31.3	67.8	68.7	38.7	9.8	2.3	43.8
2009	1.5	30.0	66.7	68.3	40.7	9.7	2.2	43.1
2010	1.9	30.3	66.6	69.4	46.6	9.5	2.4	43.6
2011	1.5	30.0	66.2	68.8	49.9	11.0	2.6	43.7
2012	1.4	31.3	68.3	72.7	49.7	11.2	2.6	44.9
2013	1.7	30.5	69.3	74.0	51.4	11.1	2.4	45.4
2014	3.0	35.2	72.3	77.9	56.8	13.4	2.3	48.0
2015	2.9	39.9	73.4	80.3	60.0	17.3	2.6	49.5
2016	3.9	41.8	75.3	81.6	64.7	21.9	2.9	51.3
2017	4.3	42.2	76.5	81.1	66.1	23.3	3.3	52.1
2018	4.6	41.4	76.5	84.0	68.2	26.4	3.9	52.9
2019	4.3	41.7	77.1	82.4	68.7	27.8	5.0	53.3
2020	3.6	41.2	74.2	84.2	70.4	31.0	5.9	52.6

Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_13

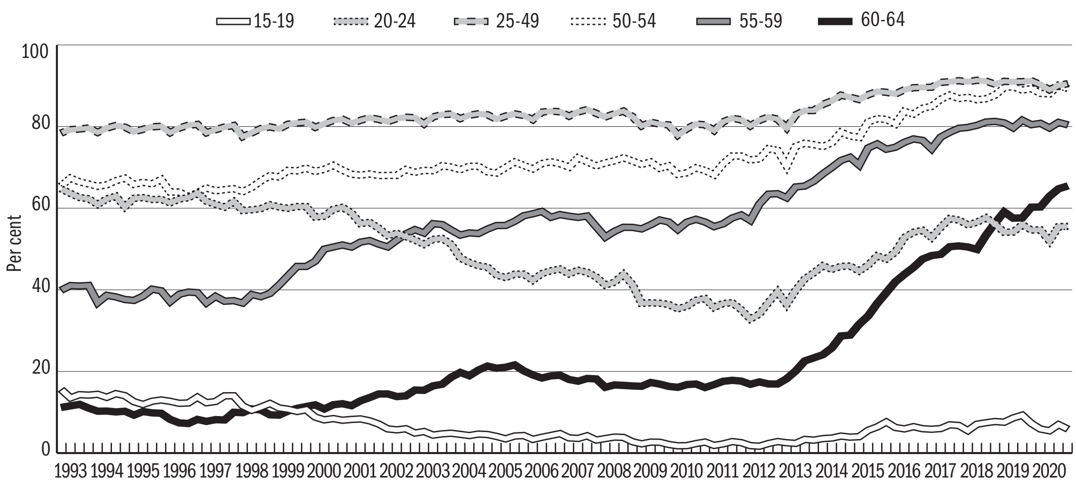
Table 4.14: Employment rate of population aged 15–64 by level of education, males, per cent

Year	8 grades of primary school or less	Vocational school	Secondary school	College, university	Total
2000	33.6	77.4	67.9	87.1	63.1
2001	33.0	77.6	67.3	87.4	62.9
2002	32.0	77.6	67.1	85.8	62.9
2003	32.4	76.5	67.8	86.4	63.4
2004	31.0	75.7	67.3	87.1	63.1
2005	31.6	74.7	66.9	86.9	63.1
2006	31.4	75.6	67.7	86.0	63.9
2007	31.0	74.4	67.3	85.6	63.7
2008	31.1	72.4	66.1	84.3	62.7
2009	28.8	69.5	64.6	82.8	60.7
2010	28.1	67.7	64.2	81.8	59.9
2011	29.0	68.0	64.5	83.7	60.7
2012	30.0	68.7	64.6	84.4	61.6
2013	30.8	70.9	67.1	85.3	63.7
2014	36.3	74.8	71.2	87.1	67.8
2015	39.9	77.1	73.2	88.6	70.3
2016	42.5	80.1	76.1	90.5	73.0
2017	44.2	82.6	77.8	91.6	75.2
2018	45.8	83.9	77.9	91.9	76.3
2019	46.0	85.2	79.2	93.0	77.3
2020	43.9	84.9	78.9	93.5	77.0

Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_14

Figure 4.4: Activity rate by age groups, males aged 15–64, quarterly



Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena04_04

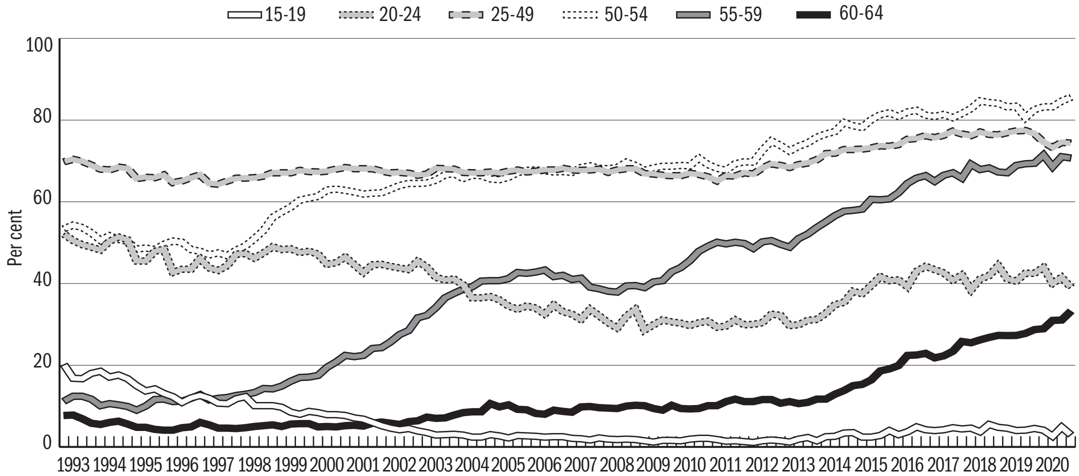
Table 4.15: Employment rate of population aged 15–64 by level of education, females, per cent

Year	8 grades of primary school or less	Vocational school	Secondary school	College, university	Total
2000	26.0	61.0	59.3	77.8	49.7
2001	26.1	60.8	59.2	77.8	49.8
2002	26.0	60.4	58.6	77.9	49.8
2003	25.3	59.7	59.5	78.3	50.9
2004	25.0	58.8	58.1	78.1	50.7
2005	25.1	57.6	57.9	78.9	51.0
2006	24.3	57.8	57.5	78.0	51.1
2007	23.6	57.2	57.2	75.5	50.7
2008	23.7	55.2	56.1	75.3	50.3
2009	22.7	54.0	54.6	74.2	49.6
2010	23.3	56.2	54.0	74.3	50.2
2011	22.5	56.1	53.9	74.6	50.3
2012	22.6	56.8	56.3	74.3	51.9
2013	23.7	57.1	56.6	74.2	52.6
2014	27.3	60.4	59.1	76.1	55.9
2015	28.7	62.3	61.3	77.3	57.8
2016	31.5	63.4	64.1	80.0	60.2
2017	33.7	64.6	65.2	78.9	61.3
2018	33.7	66.7	64.8	80.0	62.3
2019	33.4	68.0	65.2	79.8	63.0
2020	32.0	66.2	65.0	79.3	62.3

Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent04_15

Figure 4.5: Activity rate by age groups, females aged 15–64, quarterly



Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena04_05

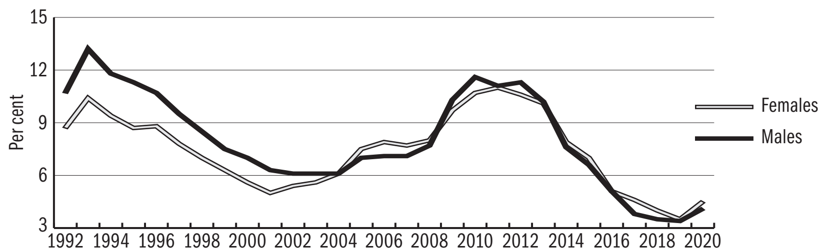
Table 5.1: Unemployment rate by gender and share of long term unemployed, per cent

Year	Unemployment rate			Share of long term unemployed[a]
	Males	Females	Total	
1992	10.7	8.7	9.8	..
1993	13.2	10.4	11.9	..
1994	11.8	9.4	10.7	43.2
1995	11.3	8.7	10.2	50.6
1996	10.7	8.8	9.9	54.4
1997	9.5	7.8	8.7	51.3
1998	8.5	7.0	7.8	48.8
1999	7.5	6.3	7.0	49.5
2000	7.0	5.6	6.4	49.1
2001	6.3	5.0	5.7	46.7
2002	6.1	5.4	5.8	44.9
2003	6.1	5.6	5.9	43.9
2004	6.1	6.1	6.1	45.0
2005	7.0	7.5	7.2	46.2
2006	7.1	7.9	7.5	46.9
2007	7.1	7.7	7.4	48.1
2008	7.7	8.0	7.8	48.1
2009	10.3	9.7	10.0	42.9
2010	11.6	10.7	11.2	50.6
2011	11.1	11.0	11.0	49.4
2012	11.3	10.6	11.0	47.0
2013	10.2	10.1	10.2	50.4
2014	7.6	7.9	7.7	49.5
2015	6.6	7.0	6.8	47.6
2016	5.1	5.1	5.1	48.4
2017	3.8	4.6	4.2	42.6
2018	3.5	4.0	3.7	41.0
2019	3.4	3.5	3.4	34.5
2020	4.1	4.5	4.3	28.1

[a] Long term unemployed are those who have been without work for 12 months or more, excluding those who start a new job within 90 days.
Note: Conscripted soldiers are included in the denominator.
Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_01

Figure 5.1: Unemployment rates by gender



Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena05_01

Table 5.2: Unemployment rate by level of education, males, per cent

Year	8 grades of primary school or less	Vocational school	Secondary school	College, university	Total
2001	13.6	6.4	4.3	1.2	6.3
2002	14.1	6.2	4.0	1.4	6.1
2003	13.6	6.6	3.9	1.6	6.1
2004	14.3	6.4	4.1	1.7	6.1
2005	15.6	7.4	4.9	2.3	7.0
2006	17.3	7.0	5.1	2.6	7.1
2007	18.7	6.8	5.1	2.4	7.1
2008	20.2	7.7	5.2	2.3	7.7
2009	24.6	10.7	7.6	3.6	10.3
2010	27.2	12.2	8.3	4.9	11.6
2011	25.5	12.1	8.3	4.1	11.1
2012	25.3	12.0	9.6	4.2	11.3
2013	24.5	10.8	8.4	3.4	10.2
2014	18.4	7.8	6.2	2.8	7.6
2015	16.7	6.7	5.3	2.2	6.6
2016	13.7	4.9	4.0	1.8	5.1
2017	11.0	3.6	2.8	1.4	3.8
2018	10.3	3.2	2.9	1.5	3.5
2019	9.5	3.1	2.6	1.5	3.4
2020	10.7	4.1	3.5	1.6	4.1

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_02

Table 5.3: Composition of the unemployed by level of education, males, per cent

Year	8 grades of primary school or less	Vocational school	Secondary school	College, university	Total
2001	36.5	43.2	17.5	2.8	100.0
2002	36.7	43.3	16.7	3.3	100.0
2003	34.0	44.7	17.2	4.1	100.0
2004	33.9	42.6	18.6	4.9	100.0
2005	32.1	43.1	19.0	5.8	100.0
2006	33.4	40.3	19.9	6.4	100.0
2007	35.1	38.6	20.4	5.9	100.0
2008	35.9	39.4	19.2	5.5	100.0
2009	31.2	40.5	21.7	6.6	100.0
2010	30.3	40.5	21.1	8.1	100.0
2011	29.4	41.1	21.9	7.6	100.0
2012	28.1	39.3	24.9	7.6	100.0
2013	29.2	39.3	24.4	7.1	100.0
2014	30.6	37.0	24.5	7.9	100.0
2015	33.4	34.9	24.5	7.2	100.0
2016	34.9	33.2	24.6	7.3	100.0
2017	35.7	33.7	22.5	8.1	100.0
2018	35.6	32.8	24.2	7.4	100.0
2019	33.9	32.2	24.2	9.6	100.0
2020	30.1	34.0	26.7	9.2	100.0

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_03

Table 5.4: Unemployment rate by level of education, females, per cent

Year	8 grades of primary school or less	Vocational school	Secondary school	College, university	Total
2001	8.4	6.4	4.0	1.6	5.0
2002	9.3	6.5	4.4	2.4	5.4
2003	10.5	7.2	4.4	1.9	5.6
2004	10.3	8.0	5.3	2.9	6.1
2005	13.0	9.8	6.7	3.1	7.5
2006	16.2	10.4	6.5	2.7	7.9
2007	16.3	9.7	6.2	3.2	7.7
2008	17.4	9.6	6.8	3.1	8.0
2009	21.6	12.6	7.8	4.1	9.7
2010	22.8	12.6	9.6	4.3	10.7
2011	24.5	12.9	9.9	4.4	11.0
2012	24.4	12.7	9.4	4.7	10.6
2013	22.7	12.8	9.0	4.3	10.1
2014	18.7	9.3	7.1	3.4	7.9
2015	18.1	8.7	5.9	2.6	7.0
2016	12.7	6.8	4.3	1.8	5.1
2017	11.3	5.4	4.0	1.8	4.6
2018	11.7	4.3	3.6	1.8	4.0
2019	10.2	3.7	3.0	1.6	3.5
2020	11.2	5.0	4.4	2.1	4.5

Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_04

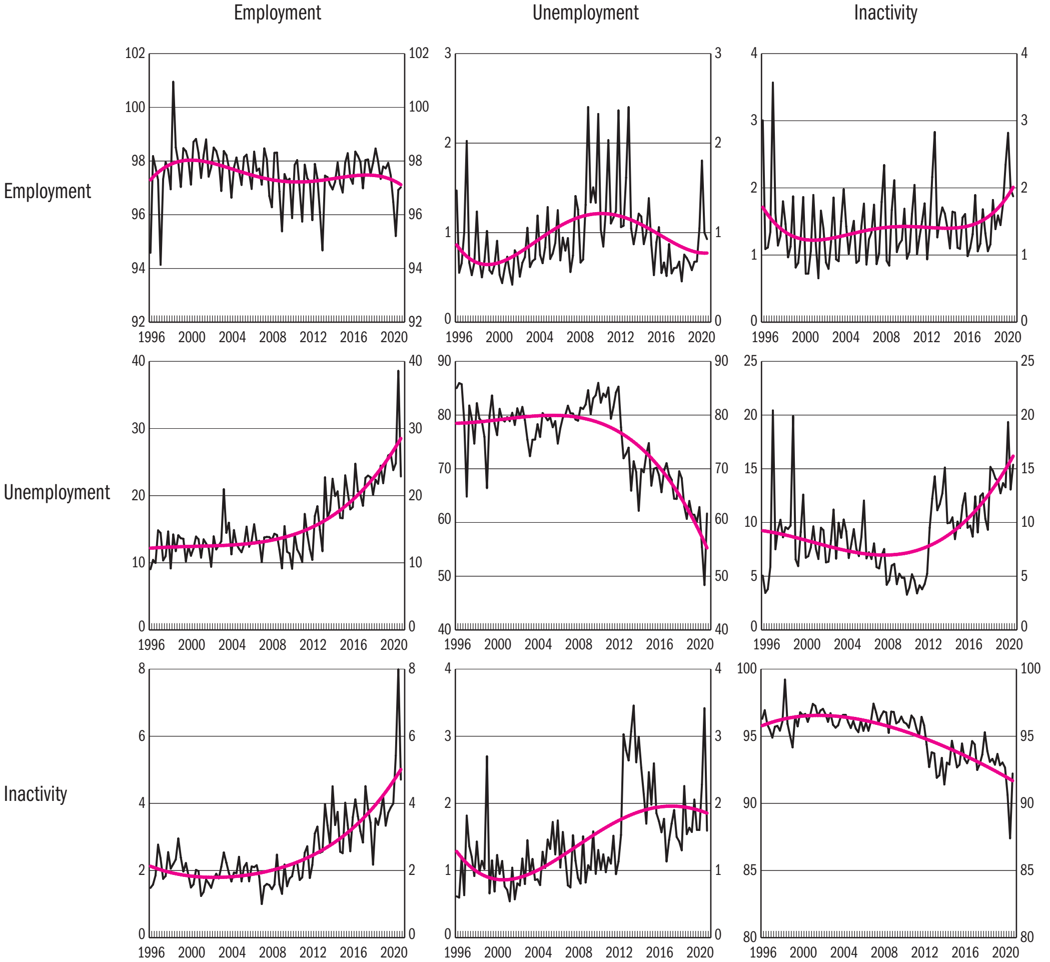
Table 5.5: Composition of the unemployed by level of education, females, per cent

Year	8 grades of primary school or less	Vocational school	Secondary school	College, university	Total
2001	33.7	28.0	32.2	6.1	100.0
2002	33.2	26.0	32.2	8.5	100.0
2003	32.7	28.3	32.0	7.0	100.0
2004	27.8	27.4	34.2	10.6	100.0
2005	28.2	27.1	35.2	9.5	100.0
2006	31.8	27.9	32.3	8.0	100.0
2007	31.3	27.2	31.6	9.9	100.0
2008	32.3	24.7	33.0	10.0	100.0
2009	31.8	26.4	30.6	11.2	100.0
2010	30.5	24.4	34.3	10.7	100.0
2011	30.8	24.1	33.9	11.2	100.0
2012	29.8	23.8	33.5	12.9	100.0
2013	28.5	25.6	33.4	12.5	100.0
2014	30.5	23.1	33.4	13.0	100.0
2015	33.5	24.1	31.2	11.3	100.0
2016	32.4	24.9	31.8	10.9	100.0
2017	33.0	22.2	33.1	11.7	100.0
2018	32.8	20.8	33.0	13.4	100.0
2019	34.3	19.9	30.9	14.9	100.0
2020	28.4	20.1	35.8	15.7	100.0

Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_05

Figure 5.2: Intensity of quarterly flows between labour market status, population between 15–64 years



Note: The calculations were carried out for the age group 15–64 years of age, based on KSH labour force survey microdata. The probability of transition is given by the number of people who transitioned from one status to the other in the quarter, divided by the initial size of the group in the previous quarter, which was then corrected to preserve the consistency of stock flows. The red curves show the trend smoothed using a 4th-degree polynomial.
Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena05_02

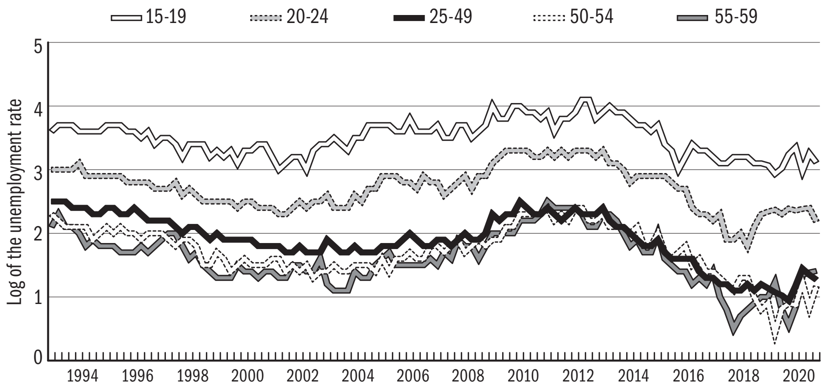
Table 5.6: The number of unemployed[a] by duration of job search, in thousands

Year	Length of job search, weeks [month]								Total
	1–4 [<1]	5–14 [1–3]	15–26 [4–6]	27–51 [7–11]	52 [12]	53–78 [13–18]	79–104 [19–24]	105– [>24]	
1992	43.9	90.9	96.4	110.7	10.6	41.7	38.4	n.a.	432.6
1993	36.2	74.8	87.9	120.5	14.7	75.1	83.7	n.a.	492.9
1994	30.5	56.5	65.0	91.9	8.4	63.0	73.8	40.4	429.5
1995	23.0	51.0	56.5	69.4	20.2	57.2	34.3	93.2	404.8
1996	19.9	46.4	49.3	61.5	18.2	56.1	37.1	100.2	388.7
1997	16.1	43.7	45.9	54.4	15.7	44.5	31.1	77.3	328.7
1998	12.9	44.2	44.5	45.7	16.0	39.0	27.6	63.5	293.4
1999	15.4	44.1	38.8	46.0	13.2	38.1	26.8	62.3	284.7
2000	16.7	38.5	35.1	42.8	12.7	36.9	23.6	55.4	261.3
2001	14.9	37.0	33.2	38.6	11.5	31.6	20.9	44.2	231.9
2002	15.5	39.4	34.8	40.7	11.6	32.7	19.8	42.5	237.0
2003	15.9	42.1	38.9	42.0	14.5	27.6	17.6	43.0	241.6
2004	13.0	42.0	39.9	41.8	13.5	33.4	19.6	47.2	250.4
2005	14.8	48.9	44.1	51.3	14.1	41.0	27.4	54.3	295.9
2006	13.2	51.1	48.5	52.0	17.9	41.1	26.6	59.7	310.0
2007	13.9	49.5	44.2	50.5	12.8	42.8	26.2	65.1	304.9
2008	13.5	50.3	47.9	53.4	13.5	39.1	26.3	74.0	317.9
2009	18.7	71.4	66.6	77.5	18.4	51.3	27.1	79.0	410.0
2010	16.9	65.4	62.5	83.5	23.2	74.7	42.6	93.7	462.5
2011	28.9	70.7	62.8	70.0	18.0	64.7	40.1	103.7	458.9
2012	39.2	64.0	63.1	80.5	22.2	59.5	36.6	100.9	466.0
2013	48.2	49.4	53.7	62.1	25.3	49.8	45.0	97.1	430.7
2014	36.5	41.5	44.9	46.3	19.0	35.1	29.2	82.7	335.3
2015	30.9	43.0	38.6	44.0	18.2	30.0	23.7	69.6	298.0
2016	28.9	29.8	29.3	29.4	12.2	24.1	20.4	52.8	226.9
2017	24.2	29.9	26.0	25.2	9.2	19.0	14.0	35.8	183.3
2018	22.5	26.7	24.7	21.6	9.5	14.7	11.7	30.7	162.1
2019	24.3	27.0	25.9	21.6	8.2	12.7	9.7	21.4	150.7
2020	39.2	36.7	30.1	27.7	10.5	13.4	11.2	17.3	186.0

[a] Not including those unemployed who will find a new job within 30 days; since 2003: within 90 days.
Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_06

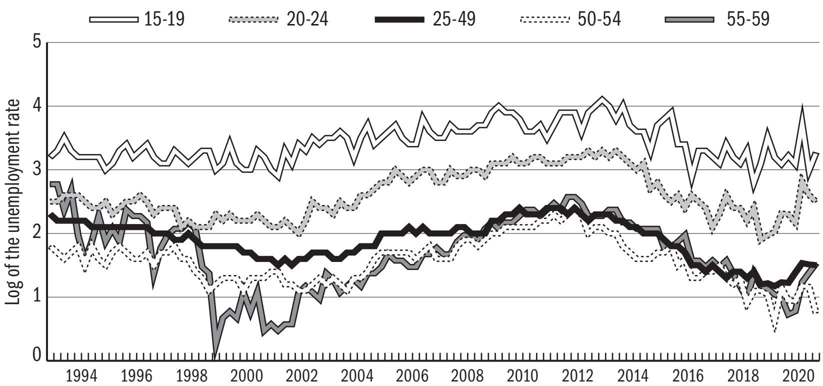
Figure 5.3: Unemployment rate by age groups, males aged 15–59, quarterly



Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena05_03

Figure 5.4: Unemployment rate by age groups, females aged 15–59, quarterly



Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena05_04

Table 5.7: Registered unemployed[a] and LFS unemployment

Year	Registered unemployed		LFS unemployed, total		LFS unemployed, age 15–24	
	In thousands	rate in %	In thousands	rate in %	In thousands	rate in %
1997	470.1	11.6	348.8	8.7	95.8	15.9
1998	423.1	10.5	313.0	7.8	87.6	13.4
1999	409.5	10.2	284.7	7.0	78.6	12.4
2000	390.5	9.6	262.5	6.4	70.7	12.1
2001	364.1	8.8	232.9	5.7	55.7	10.8
2002	344.7	8.3	238.8	5.8	56.5	12.3
2003	357.2	8.7	244.5	5.9	54.9	13.4
2004	375.9	9.1	252.9	6.1	55.9	15.5
2005	409.9	9.8	303.9	7.2	66.9	19.4
2006	393.5	9.4	318.2	7.5	64.1	19.1
2007	426.9	10.1	312.1	7.4	57.4	18.0
2008	442.3	10.4	326.3	7.8	60.0	19.5
2009	561.8	13.5	417.8	10.0	78.8	26.4
2010	582.7	14.0	469.4	11.2	78.3	26.4
2011	582.9	14.0	466.0	11.0	74.5	26.0
2012	559.1	13.3	473.2	11.0	84.6	28.2
2013	527.6	12.4	441.0	10.2	83.5	26.6
2014	422.4	9.8	343.3	7.7	67.6	20.4
2015	378.2	8.6	307.8	6.8	58.9	17.3
2016	313.8	7.0	234.6	5.1	44.7	12.9
2017	283.0	6.1	191.7	4.2	36.3	10.7
2018	255.3	5.5	172.1	3.7	33.6	10.2
2019	250.9	5.4	159.7	3.4	37.1	11.4
2020	316.1	6.8	198.0	4.3	39.6	12.8

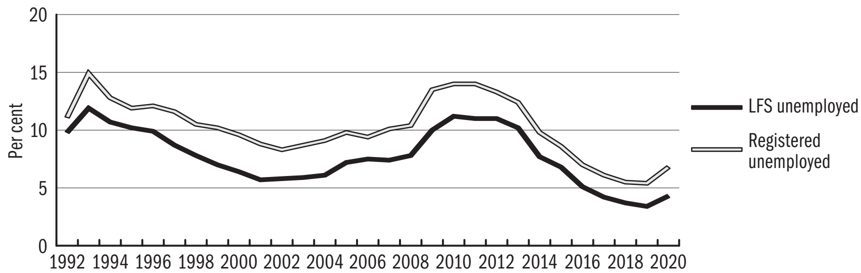
[a] Since the 1st of November, 2005: database of registered jobseekers. From the 1st of November, 2005 the Employment Act changed the definition of registered unemployed to registered jobseekers. After the termination of the compilation of Balance of Labour Force in 2016 the number of economically active population – that was the base of the registered unemployment rate – has been derived from the Labour Force Survey. At the same time data have been corrected retrospectively.

Note: the denominator of registered unemployment/jobseekers' rate in the economically active population on 1st January the previous year.

Source: Registered unemployment/jobseekers: *NFSZ;* LFS unemployment: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_07

Figure 5.5: Registered and LFS unemployment rates



Note: Since the 1st of November, 2005: database of registered jobseekers.

Source: Registered unemployment/jobseekers: *NFSZ*; LFS unemployment: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena05_05

Table 5.8: Composition of the registered unemployed[a] by educational attainment, yearly averages, per cent

Educational attainment	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
8 grades of primary school or less	42.3	41.9	42.0	42.4	43.3	40.1	39.3	40.3	40.3	40.5	41.0	42.4	42.2	43.4	43.7	43.2	39.0
Vocational school	32.3	32.4	32.1	31.5	30.9	32.5	31.4	29.8	29.2	29.0	28.3	27.1	27.0	26.2	25.6	25.2	25.8
Vocational secondary school	13.4	13.5	13.4	13.3	13.1	14.4	15.0	14.9	15.1	15.3	15.3	15.0	14.9	14.6	14.7	15.1	16.9
Grammar school	7.7	7.9	8.0	8.2	8.2	8.5	9.1	9.5	9.7	9.8	10.1	10.1	10.1	10.1	10.3	10.4	11.4
College	3.1	3.2	3.3	3.3	3.3	3.2	3.7	3.8	3.8	3.6	3.4	3.4	3.5	3.4	3.4	3.6	3.9
University	1.1	1.2	1.3	1.3	1.2	1.2	1.5	1.7	1.8	1.8	1.9	2.0	2.2	2.3	2.4	2.6	3.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[a] Since the 1st of November, 2005: registered jobseekers. From the 1st of November, 2005 the Employment Act changed the definition of registered unemployed to registered jobseekers.
Source: *NFSZ*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_08

Table 5.9: The distribution of registered unemployed school-leavers[a] by educational attainment, yearly averages, per cent

Educational attainment	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
8 grades of primary school or less	35.2	36.1	38.2	40.1	41.3	37.7	35.2	35.6	34.9	35.5	39.4	43.8	44.9	45.8	45.1	44.2	41.1
Vocational school	20.2	20.5	19.7	18.1	17.3	18.9	18.9	18.5	19.8	20.1	18.3	16.9	16.6	16.4	15.7	15.0	14.6
Vocational secondary school	22.1	21.5	20.3	20.7	21.2	23.1	23.9	23.6	23.7	23.1	21.7	19.8	18.9	18.3	19.0	20.4	22.1
Grammar school	10.7	10.8	11.7	12.8	13.3	13.7	14.3	15.0	14.9	14.9	15.0	14.7	14.6	15.0	16.0	16.4	17.0
College	8.1	7.8	6.9	5.8	4.9	4.5	4.8	4.2	3.6	3.4	2.8	2.3	2.2	1.8	1.6	1.4	1.7
University	3.6	3.4	3.0	2.5	2.0	2.1	2.8	3.1	3.0	3.0	2.7	2.5	2.8	2.7	2.6	2.7	3.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[a] Since the 1st of November, 2005: registered school-leaver jobseekers. From the 1st of November, 2005 the Employment Act changed the definition of registered unemployed to registered jobseekers.
Source: *NFSZ*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_09

Table 5.10: Registered unemployed by economic activity as observed in the LFS, per cent

Year	Employed	LFS-unem-ployed	Inactive	Total	Year	Employed	LFS-unem-ployed	Inactive	Total
2003	9.4	44.1	46.5	100.0	2012	3.4	64.9	31.7	100.0
2004	3.0	53.5	43.5	100.0	2013	4.9	61.6	33.4	100.0
2005	2.3	59.7	38.0	100.0	2014	6.2	60.5	33.2	100.0
2006	3,0	60.9	36.1	100.0	2015	3.9	67.1	29.0	100.0
2007	3.7	62.2	34.1	100.0	2016	4.9	61.7	33.4	100.0
2008	3.9	62.8	33.2	100.0	2017	6.7	57.8	35.5	100.0
2009	3.7	67.1	29.2	100.0	2018	6.6	55.0	38.4	100.0
2010	3.2	70.4	26.4	100.0	2019	6.9	50.0	43.0	100.0
2011	3.5	66.7	29.8	100.0	2020	5.5	51.3	43.2	100.0

Note: The data pertain to those who consider themselves registered jobseekers in the KSH MEF. From 1999 those who reported that their last contact with the employment centre was more than two months ago were filtered from among those who reported themselves as registered unemployed.
Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_10

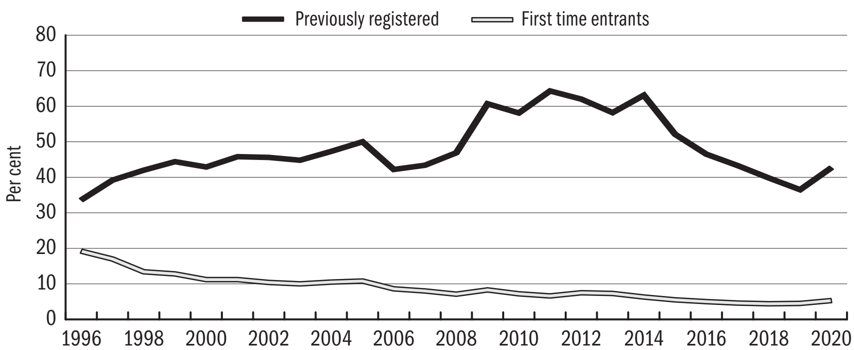
Table 5.11: Monthly entrants to the unemployment register[a], monthly averages, in thousands

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
First time entrants	10.4	10.0	10.5	10.8	8.6	8.0	7.1	8.3	7.2	6.6	7.5	7.3	6.3	5.5	5.0	4.6	4.4	4.5	5.3
Previously registered	45.6	44.8	47.3	50.0	42.2	43.4	46.9	60.7	58.1	64.3	62.0	58.2	63.1	52.1	46.5	43.3	39.8	36.5	42.7
Together	56.0	54.8	57.8	60.7	50.8	51.4	54.0	69.0	65.3	70.9	69.5	65.5	69.4	57.6	51.5	47.9	44.2	41.0	48.0

[a] Since the 1st of November, 2005: database of jobseekers. From the 1st of November, 2005 the Employment Act changed the definition of registered unemployed to registered jobseekers.
Source: *NFSZ REG*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_11

Figure 5.6: Entrants to the unemployment register, monthly averages, in thousands



Source: *NFSZ REG*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena05_06

Table 5.12: Selected time series of registered unemployment, monthly averages, in thousands and per cent

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Registered unemployment[a]	364.1	344.7	357.2	375.9	409.9	393.5	426.9	442.3	561.8	582.7
Of which: school-leavers	26.8	28.5	31.3	33.8	40.9	38.7	40.4	41.4	49.3	52.6
Non school-leavers	337.4	316.2	325.9	342.2	369.1	354.7	386.5	400.9	512.5	530.1
Male	196.4	184.6	188.0	193.3	210.4	200.9	219.9	228.3	297.9	305.0
Female	167.7	160.1	169.2	182.6	199.5	192.5	207.0	214.0	263.9	277.7
25 years old and younger	75.6	71.1	71.6	71.4	78.9	75.8	80.3	75.9	104.3	102.8
Manual workers	302.0	286.3	296.2	308.5	336.2	321.9	..	..	..	..
Non-manual workers	62.1	58.4	61.0	67.4	73.7	71.6	..	..	..	..
Unemployment benefit recipients[b]	119.2	114.9	120.0	124.0	134.4	151.5	134.6	136.5[e]	202.1	187.7
Unemployment assistance recipients[c]	131.2	113.4	116.2	120.4	133.4	121.8	133.0	147.5	156.0	167.8
Unemployment rate[d]	8.5	8.0	8.3	8.7	9.4	9.0	9.7	10.0	12.8	13.3
Shares within registered unemployed, %										
School-leavers	7.3	8.3	8.8	9.0	10.0	9.8	9.5	9.4	8.8	9.0
Male	53.9	53.5	52.6	51.4	51.3	51.1	51.5	51.6	53.0	52.3
25 years old and younger	20.8	20.6	20.0	19.0	19.2	16.5	18.8	17.2	18.6	17.6
Manual workers	82.9	83.1	82.9	82.1	82.0	81.8	..	..	..	..
Flows, in thousands										
Inflow to the Register	57.0	56.0	54.8	57.8	60.7	50.8	51.4	54.0	69.0	65.3
Of which: school-leavers	7.8	7.8	7.7	7.6	8.2	7.0	6.2	6.3	7.5	7.9
Outflow from the Register	59.4	55.8	53.5	54.4	59.8	51.4	48.4	51.3	58.4	66.4
Of which: school-leavers	7.7	7.5	7.6	7.1	7.9	7.1	6.0	6.2	6.7	7.5
	2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Registered unemployment[a]	582.9	559.1	527.6	422.4	378.2	313.8	283.0	255.3	250.9	316.1
Of which: school-leavers	52.9	61.5	66.0	54.6	47.0	35.8	29.6	24.8	22.6	24.6
Non school-leavers	529.9	497.6	461.6	367.8	331.2	278.0	253.4	230.5	228.3	291.4
Male	297.1	275.8	267.7	214.2	187.5	156.0	137.9	122.4	119.5	151.9
Female	285.8	283.3	259.9	208.2	190.7	157.8	145.1	132.9	131.4	164.2
25 years old and younger	102.3	101.1	97.8	78.2	68.8	56.0	49.8	43.6	41.4	51.1
Manual workers	..	..	..	..	..	..	..	..	..	..
Non manual workers	..	..	..	..	..	..	..	..	..	..
Unemployment benefit recipients[b]	159.9	71.1	61.2	56.4	57.1	60.2	63.1	64.0	69.1	91.4
Unemployment assistance recipients[c]	182.1	200.3	184.4	132.4	126.2	99.8	87.4	75.7	68.4	70.7
Unemployment rate[d]	13.2	12.6	11.9	9.5	8.5	6.9	6.1	5.5	5.4	6.8
Shares within registered unemployed, %										
School-leavers	9.1	11.0	12.5	12.9	12.4	11.4	10.5	11.0	9.0	7.8
Male	51.0	49.3	50.8	50.7	49.6	49.7	48.7	47.9	47.6	48.0
25 years old and younger	17.5	18.1	18.5	18.5	18.2	17.8	17.6	17.1	16.5	16.2
Manual workers	..	..	..	..	..	..	..	..	..	..
Flows, in thousands										
Inflow to the Register	70.9	69.5	65.5	69.4	57.6	51.5	47.9	44.2	41.0	48.0
Of which: school-leavers	8.2	10.0	10.8	11.2	9.0	7.7	6.7	5.9	4.9	4.4
Outflow from the Register	74.2	68.1	78.4	71.3	62.1	56.8	49.4	45.3	41.6	43.4
Of which: school-leavers	8.1	8.6	11.8	11.3	9.7	8.2	7.0	6.1	5.1	4.0

[a] Since the 1st of November, 2005: registered jobseekers. (The data concern the closing date of each month.) From the 1st of November, 2005 the Employment Act changed the definition of registered unemployed to registered jobseekers.

[b] Since the 1st of November, 2005: jobseeker benefit recipients. From 1st September , 2011, the system of jobseeking support changed.

[c] Only recipients who are in the NFSZ register. Those receiving the discontinued income support supplement were included in the number of those receiving income support supplement up to the year 2004, and in the number of those receiving regular social assistance from 2005 to 2008. From 2009, those receiving social assistance were included in a new support type, on-call support. This al-

lowance was replaced by the wage replacement support from 1st January, 2011, then from 1st September, 2011, the name was changed to employment substitution support.

[d] Relative index: the registered unemployment rate in the economically active population. From 1st of November, 2005, registered jobseekers' rate in the economically active population.

[e] The new IT system introduced at the NFSZ in 2008 made the methodological changes possible:

1) The filtering out of those returning after, or starting a break from, the number of those entering or leaving the different types of jobseeking support. The main reasons for a break are, short periods of work, receipt of child support (GYES) or TGYÁS, or involvement in training.

2) Taking into account in the previous period the number of those entrants, for whom the first accounting of the jobseeking support was delayed due to missing documentation.

2008 data, comparable to 2009: 141.5 thousand people.

Source: *NFSZ REG*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_12

Table 5.13: The number of registered unemployed[a] who became employed on subsidised and non-subsidised employment[b]

	2014		2015		2016		2017		2018		2019		2020	
	Persons	Per cent	Persons	Per cent	Persons	Per cent	Persons	Per cent	Persons	Per cent	Persons	Per cent	Persons	Per cent
Subsidised employment	351,550	63.2	278,875	61.0	237,986	60.0	180,630	54.8	149,481	51.4	119,506	47.1	120,718	41.0
Non-subsidised employment	204,887	36.8	177,960	39.0	158,391	40.0	149,244	45.2	141,214	48.6	134,201	52.9	173,947	59.0
Total	556,437	100.0	456,835	100.0	396,377	100.0	329,874	100.0	290,695	100.0	253,707	100.0	294,665	100.0

[a] Since the 1st of November, 2005: registered jobseekers. From the 1st of November, 2005 the Employment Act changed the definition of registered unemployed to registered jobseekers.

[b] Annual totals, the number of jobseekers over the year who were placed in work. It reflects the placements at the time of their exit from the registry.

Source: *NFSZ*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_13

Table 5.14: Benefit recipients and participation in active labour market programmes

Year		Unemploy-ment benefit[a]	Regular social assistance[b]	UA for school-leavers	Do not receive provision	Public work[c]	Retraining[c]	Wage subsidy[c]	Other programmes[c]	Total
2000	In thousands	117.0	139.7	0.0	106.5	26.7	25.3	27.5	73.5	516.2
	Per cent	22.7	27.1	0.0	20.6	5.2	4.9	5.3	14.2	100.0
2001	In thousands	111.8	113.2	0.0	105.2	29.0	30.0	25.8	37.2	452.2
	Per cent	24.7	25.0	0.0	23.3	6.4	6.6	5.7	8.2	100.0
2002	In thousands	104.8	107.6	–	115.3	21.6	23.5	21.2	32.8	426.8
	Per cent	24.6	25.2	–	27.0	5.1	5.5	5.0	7.7	100.0
2003	In thousands	105.1	109.5	–	125.0	21.2	22.5	20.1	36.6	440.0
	Per cent	23.9	24.9	–	28.4	4.8	5.1	4.6	8.3	100.0
2004	In thousands	117.4	118.4	–	132.3	16.8	12.6	16.8	28.5	442.8
	Per cent	26.5	26.7	–	29.9	3.8	2.8	3.8	6.4	100.0
2005	In thousands	125.6	127.8	–	140.2	21.5	14.7	20.8	31.0	481.6
	Per cent	26.1	26.5	–	29.1	4.5	3.1	4.3	6.4	100.0
2006	In thousands	117.7	112.9	–	146.4	16.6	12.3	14.6	13.8	434.3
	Per cent	27.1	26.0	–	33.7	3.8	2.8	3.4	3.2	100.0
2007	In thousands	128.0	133.1	–	151.8	19.3	14.6	23.4	6.8	477.0
	Per cent	27.6	28.7	–	32.7	2.7	2.3	3.7	2.3	100.0
2008	In thousands	120.7[d]	145.7	–	158.2	21.2	21.2	25.0	14.1	506.1
	Per cent	23.8	28.8	–	31.3	4.2	4.2	4.9	2.8	100.0
2009	In thousands	202.8	151.9	–	215.0	135.3	13.6	17.8	54.1	790.5
	Per cent	25.7	19.2	–	27.2	17.1	1.7	2.3	6.8	100.0
2010	In thousands	159.6	163.5	–	222.4	164.5	17.8	26.7	40.3	794.8
	Per cent	20.1	20.6	–	28.0	20.7	2.2	3.4	5.1	100.0
2011	In thousands	120.2	168.2	–	242.3	91.6	12.6	26.1	3.4	664.4
	Per cent	18.1	25.3	–	36.5	13.8	1.9	3.9	0.5	100.0
2012	In thousands	54.0	185.6	–	283.4	134.1	28.6	25.7	2.9	714.3
	Per cent	7.6	26.0	–	39.7	18.8	4.0	3.6	0.4	100.0
2013	In thousands	52.6	169.3	–	266.7	157.2	42.0[e]	31.7	3.9	723.4
	Per cent	7.3	23.4	–	36.9	21.7	5.8	4.4	0.5	100.0
2014	In thousands	55.3	123.4	–	216.5	170.3	24.6	17.7	2.7	610.5
	Per cent	9.1	20.2	–	35.5	27.9	4.0	2.9	0.4	100.0
2015	In thousands	55.0	110.6	–	168.7	224.9	11.0	9.1	2.1	581.4
	Per cent	9.5	19.0	–	29.0	38.7	1.9	1.6	0.4	100.0
2016	In thousands	56.8	85.0	–	136.0	219.6	17.9	21.1	3.0	539.4
	Per cent	10.5	15.8	–	25.2	40.7	3.3	3.9	0.6	100.0
2017	In thousands	59.5	80.8	–	120.0	171.0	17.2	30.9	4.2	483.6
	Per cent	12.3	16.7	–	24.8	35.4	3.6	6.4	0.9	100.0
2018	In thousands	64.1	70.4	–	109.7	123.9	13.2	40.5	6.0	427.8
	Per cent	15.0	16.5	–	25.6	29.0	3.1	9.5	1.4	100.0
2019	In thousands	67.7	62.3	–	109.5	105.1	11.3	39.6	7.4	402.9
	Per cent	16.8	15.5	–	27.2	26.1	2.8	9.8	1.8	100.0
2020	In thousands	91.4	70.7	–	154.0	92.8	7.7	37.8	5.7	460.0
	Per cent	19.9	15.4	–	33.5	20.2	1.7	8.2	1.2	100.0

[a] Since the 1st of November, 2005: jobseeker benefit recipients. From 1st September, 2011, the system of jobseeking support changed.

[b] Only recipients who are in the NFSZ register. Those receiving the discontinued income support supplement were included in the number of those receiving income support supplement up to the year 2004, and in the number of those receiving regular social assistance from 2005 to 2008. From 2009, those receiving social assistance were included in a new support type, the on-call support. This allowance was replaced by the wage replacement support from 1st January, 2011, then from 1st September, 2011, the name was changed to employment substitution support.

[c] Up to the year 2008 the number financed from the MPA Decentralized Base, since 2009 the number financed from MPA, TAMOP.

Public-type employment: community service, public service, public work programmes.
Wage subsidy: wage subsidy, wage-cost subsidy, work experience acquisition assistance to career-starters, support for employment of availability allowance recipients, part-time employment, wage support for those losing their job due to the crisis.
Other support: job preservation support, support to would-be entrepreneurs, contribution to costs related to commuting to work, job creation support, jobseeker's clubs.
[d] The new IT system introduced at the NFSZ in 2008 made the methodological changes possible:
1) The filtering out of those returning after a break or starting a break from the number of those entering or leaving the different types of jobseeking support. The main reasons for a break are short periods of work, receipt of child support (GYES) or TGYÁS, or involvement in training.
2) Taking into account in the previous period the number of those entrants, for whom the first accounting of the jobseeking support was delayed due to missing documentation.
2008 data, comparable to 2009: 134.1 thousand people.
[e] In 2013, 18.1 thousand trainees were simultaneously involved in public works programmes.
Note: The closing numbers from October of each year. For the percentage data, the sum of those registered and those taking part in labour market programmes ≈100.0.
Source: *NFSZ.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_14

Table 5.15: The ratio of those who are employed among the former participants of ALMPs[a], per cent

Active labour market programmes	2004[b]	2005[b]	2006[b]	2007[b]	2008[b]	2009[c]	2010[c]	2011[c]	2012[c]	2013[c]	2014[c]	2015[c]	2016[c]	2017[c]	2018[c]	2019[c]	2020[c]
Suggested training programmes[d]	45.5	43.8	41.1	37.5	42.2	40.4	49.4	42.6	44.9	55.1	61.4	54.8	47.8	48.2	44.2	41.6	36.0
Accepted training programmes[e]	45.6	51.4	50.9	47.6	48.0	41.9	48.8	41.6	56.7	65.9	58.8	63.4	55.7	44.9	48.7	43.5	29.8
Retraining of those who are employed[f]	92.1	90.4	..	92.3	93.9	..	59.9	75.0	65.7	72.7	61.4	87.7	41.7	92.2	93.8	93.6	94.6
Support for self-employment[g]	90.7	89.6	86.4	87.6	83.6	73.1	76.4	71.5	72.6	74.1	76.3	81.0	40.0	30.8	33.7	26.7	10.5
Wage subsidy programmes[h]	64.6	62.6	62.3	63.4	65.0	72.4	90.9	69.6	70.3	73.0	56.0	70.9	53.5	28.6	30.2	23.1	15.2
Work experience programmes[i]	66.5	66.8	66.6	66.3	74.6	..	..	72.0	69.9	68.5	–	–	–	–	–	–	–
Further employment programme[j]	71.5	70.9	65.0	77.5	–	–	–	–	–	–	–	–	–	–	–	–	–

[a] The data relate to people having completed their courses successfully.
[b] Three months after the end of programmes.
[c] Six months after the end of programmes.
[d] Suggested training: group training programmes for jobseekers organized by the NFSZ.
[e] Accepted training: participation in programmes initiated by the jobseekers and accepted by NFSZ for full or partial support.
[f] Training for employed persons: training for those whose jobs are at risk of termination, if new knowledge allows them to adapt to the new needs of the employer.
[g] Support to help entrepreneurship: support of jobseekers in the amount of the monthly minimum wage or maximum HUF 3 million lump sum support (to be repaid or not), aimed at helping them become individual entrepreneurs or self-employed.
[h] Wage support: aimed at helping the employment of disadvantaged persons, who would not be able to, or would have a harder time finding work without support. The data on wage subsidies and labour cost subsidies exclude the programs supporting job-seeking school leavers and student work during summer vacation.
[i] Work experience-gaining support: the support of new entrants with no work experience for 6–9 months, the amount of the support is equal to 50–80% of the wage costs. The instrument was discontinued after December 31, 2006. In 2009 they reintroduced the work experience gaining support for skilled new entrants, for employers who ensure employment of at least 4 hours a day and for 365 days. The amount of the support is 50–100% of the wage cost. Monitoring for the first exiters is available from 2011. The program supporting the school to work transition of skilled school leavers was abolished in 2014.
[j] Further employment programmes: to support the continued employment of new entrants under the age of 25 for 9 months. Discontinued from December 31, 2006.
Source: *NFSZ.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_15

Table 5.16: Distribution of registered unemployed[a], unemployment benefit recipients[b] and unemployment assistance recipients[c] by educational attainment

Educational attainment	2008	2008[e]	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Registered unemployed														
8 grades of primary school or less	43.8	–	40.0	39.2	39.9	40.1	40.1	42.4	42.4	41.2	43.4	43.5	43.4	36.7
Vocational school	30.7	–	33.1	31.4	29.8	29.1	28.9	27.6	27.1	27.3	26.2	25.8	25.2	26.5
Vocational secondary school	12.8	–	14.4	15.0	15.0	15.2	15.6	14.9	15.1	15.4	14.6	14.9	14.9	17.9
Grammar school	8.1	–	8.3	9.1	9.7	9.8	10.0	9.9	10.0	10.3	10.1	10.1	10.3	12.0
College	3.2	–	3.0	3.7	3.9	3.9	3.6	3.3	3.4	3.6	3.4	3.4	3.6	3.9
University	1.2	–	1.1	1.5	1.7	1.9	1.9	1.8	2.0	2.3	2.3	2.3	2.6	3.0
Total	100.0	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	415.6	–	549.0	546.0	553.3	524.4	497.0	438.6	366.9	291.6	283.0	240.7	248.2	376.3
Unemployment benefit recipients[d]														
8 grades of primary school or less	24.4	26.3	25.7	24.1	23.4	20.2	21.8	27.8	24.8	26.7	31.4	31.7	31.9	26.3
Vocational school	37.0	39.2	39.4	36.2	34.5	34.5	34.8	33.3	33.1	32.8	31.4	31.1	30.5	31.8
Vocational secondary school	19.3	18.3	18.5	19.7	20.1	21.2	21.2	19.0	20.0	19.5	17.6	17.8	17.4	20.8
Grammar school	11.0	10.6	10.1	11.6	12.3	12.7	12.0	10.9	11.8	11.3	10.8	10.8	10.6	12.8
College	6.0	5.7	4.5	5.8	6.7	7.6	6.7	5.7	6.4	5.9	5.2	5.1	5.5	4.9
University	2.3	2.1	1.7	2.6	3.1	3.8	3.6	3.3	3.9	3.8	3.6	3.6	4.2	3.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	92.5	126.9	200.5	165.8	145.9	53.1	53.0	60.0	50.0	53.8	63.1	57.4	66.0	125.5
Unemployment assistance recipients[c]														
8 grades of primary school or less	60.3	–	59.4	56.4	56.1	53.4	52.4	53.5	54.1	53.4	56.3	57.5	58.3	56.4
Vocational school	26.5	–	26.6	27.4	26.1	26.4	26.6	26.1	25.6	25.5	24.3	23.5	22.7	23.1
Vocational secondary school	6.8	–	7.5	8.6	9.0	10.3	10.9	10.5	10.4	10.7	9.8	9.4	9.4	10.2
Grammar school	4.7	–	4.8	5.6	6.3	7.1	7.3	7.2	7.3	7.6	7.1	7.1	7.1	7.6
College	1.2	–	1.2	1.5	1.8	2.1	2.0	1.8	1.8	1.9	1.7	1.6	1.7	1.7
University	0.4	–	0.4	0.5	0.6	0.8	0.8	0.8	0.8	0.9	0.9	0.8	0.9	1.0
Total	100.0	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	145.8	–	144.1	161.7	174.7	193.5	177.4	138.8	130.8	94.4	87.4	73.1	69.9	75.1

[a] Since the 1st of November, 2005: registered jobseekers. From the 1st of November, 2005 the Employment Act changed the definition of registered unemployed to registered jobseekers.

[b] Since the 1st of November, 2005: those receiving jobseeking support. From the 1st of September 2011, the system of jobseeking support changed.

[c] Only recipients who are in the NFSZ register. Those receiving the discontinued income support supplement were included in the number of those receiving income support supplement up to the year 2004, and in the number of those receiving regular social assistance from 2005 to 2008. From 2009, those receiving social assistance were included in a new support type, the on-call support. This allowance was replaced by the wage replacement support from 1st January, 2011, then from 1st September, 2011, the name was changed to employment substitution support.

[d] After 1st of November, 2005: jobseeking support. Does not contain those receiving unemployment aid prior to pension in 2004. From the 1st of September 2011, the system of jobseeking support changed.

[e] The new IT system introduced at the NFSZ in 2008 made the methodological changes possible:

1) The filtering out of those returning after or starting a break from the number of those entering or leaving the different types of jobseeking support. The main reasons for a break are, short periods of work, receipt of child support (GYES) or TGYÁS, or involvement in training.

2) Taking into account in the previous period the number of those entrants, for whom the first accounting of the jobseeking support was delayed due to missing documentation.

The right-hand column of 2008 contains the 2008 data in a form comparable to the 2009 data.

Note: Data from the closing date of June in each year.

Source: *NFSZ*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_16

Table 5.17: Outflow from the Register of Beneficiaries

Year	Total number of outflows	Of which: became employed, %	Of which: benefit period expired, %	Year	Total number of outflows	Of which: became employed, %	Of which: benefit period expired, %
2002	303,288	27.6	66.7	2011	329,728	39.2	55.7
2003	297,640	26.7	65.2	2012	368,803	21.9	77.8
2004	308,027	27.4	64.6	2013	328,508	21.3	75.6
2005	329,738	27.2	63.0	2014	300,516	27.0	67.4
2006	234,273	33.2	53.7	2015	296,171	32.5	63.4
2007	251,889	33.4	46.9	2016	287,062	35.9	60.5
2008	232,151	40.0	48.7	2017	284,284	34.9	61.4
2008[a]	261,573	43.4	48.9	2018	280,772	33.1	61.4
2009	345,216	37.9	56.0	2019	282,502	31.3	62.9
2010	352,535	38.9	55.8	2020	375,880	26.4	68.8

[a] The new IT system introduced at the NFSZ in 2008 made the methodological changes possible:
1) The filtering out of those returning after or starting a break from the number of those entering or leaving the different types of jobseeking support. The main reasons for a break are, work for short time periods, receipt of child support (GYES) or TGYÁS, or involvement in training.
2) Taking into account in the previous period the number of those entrants, for whom the first accounting of the jobseeking support was delayed due to missing documentation.

The row of 2008[a] contains the data from 2008 in the form comparable to the 2009 data.
Source: *NFSZ.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_17

Table 5.18: The distribution of the total number of labour market training participants[a]

Groups of training participants	2005	2006	2007	2008	2009	2010	2011	2012
Participants in suggested training	29,252	36,212	32,747	48,561	41,373	50,853	32,172	43,438
Participants in accepted training	9,620	7,327	5,766	4,939	8,241	6,853	2,495	2,446
One Step Forward (OFS) programme	–	–	270	59,347	11,169	2,316	–	–
Non-employed participants together	38,872	43,539	38,783	112,847	60,783	57,706	34,667	45,884
Of which: school-leavers	9,313	1,365	1,111	18,719	21,103	12,030	7,935	9,976
Employed participants	4,853	3,602	3,467	37,466	12,496	336	908	716
Total	43,725	47,141	42,250	150,313	73,279	60,358	35,575	46,600
	2013	2014	2015	2016	2017	2018	2019	2020
Participants in suggested training	22,574	10,900	330	50,953	68,125	61,451	37,825	19,962
Participants in accepted training	22,574	1,275	1,189	1,410	1,370	241	–	520
One Step Forward (OFS) programme	–	–	–	–	–	–	–	–
Non-employed participants together	132,587	200,466	61,127	53,153	69,495	61,692	37,825	20,482
Of which: school-leavers	106,333	31,083	3,981	12,318	14,984	12,924	7,748	4,178
Employed participants	631	827	14,389	2,493	3,002	3,214	3,717	2,599
Total	133,218	201,293	75,516	55,646	72,497	65,176	41,542	23,081
Of which: public works participants simultaneously involved in training	88,004	143,275	50,124	29,686	40,432	32,735	16,020	7,817

[a] The data contain the number of those financed from the NFA decentralized employment base, as well as those involved in training as a part of the HEFOP 1.1 and the TÁMOP 1.1.2 programmes.
Source: *NFSZ.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_18

Table 5.19: Employment ratio of participants ALMPs by gender, age group and educational attainment for the programmes finished in 2020[a], per cent

	Non-employed participants			Supported self-employment[b]	Wage subsidy programme
	suggested training	accepted training	total		
By gender					
Males	35.8	31.3	35.9	8.7	14.3
Females	34.3	24.5	34.4	11.6	13.6
By age group					
–20	26.1	42.9	26.2	15.4	5.9
20–24	32.3	36.4	32.3	10.8	18.0
25–29	36.7	28.6	36.8	10.8	23.5
–29 together	32.0	36.0	32.1	11.0	11.4
30–34	37.3	27.3	37.3	10.2	23.0
35–39	36.4	28.6	36.6	9.7	21.8
40–44	40.3	23.5	40.1	8.9	20.5
45–49	36.5	25.0	36.6	10.7	21.6
50–54	39.2	16.7	39.3	9.4	21.8
55+	31.5	..	31.8	9.8	18.5
By educational attainment					
Less than primary school	33.1	..	33.1	5.0	16.3
Primary school	32.4	31.8	32.5	9.9	9.8
Vocational school for skilled workers	38.4	27.3	36.9	10.7	18.2
Vocational school	34.1	50.0	34.3	10.5	17.9
Vocational secondary school	36.8	23.5	36.9	10.7	18.2
Technicians secondary school	39.4	33.3	39.1	10.2	20.8
Grammar school	35.8	27.3	35.9	10.6	11.7
College	37.5	..	37.1	16.4	23.2
University	38.4	..	37.9	12.3	14.8
Total	34.9	27.2	34.9	10.1	13.9

[a] Includes all kinds of wage subsidies except financial support for student work during vacation.
[b] Survival rate.
Note: 6 months after the end of each programme.
Source: *NFSZ*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_19

Table 5.20: Distribution of the average annual number of those with no employment status who participate in training categorised by the type of training, percentage

Types of training	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Approved qualification	75.1	72.9	71.5	69.0	65.8	63.6	65.2	68.6	71.6	50.2	53.3	59.4	56.4	65.7	76.8	75.7	73.3
Non-approved qualification	15.0	14.5	16.9	19.9	22.8	26.4	25.4	21.1	19.0	44.2	43.2	37.9	40.6	30.8	20.1	21.2	23.0
Foreign language learning	9.9	12.6	11.5	11.1	11.4	10.0	9.4	10.3	9.4	5.6	3.5	2.7	3.0	3.5	3.1	3.1	3.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: *NFSZ*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_20

Table 5.21: The distribution of those entering training programmes by age groups and educational level

	Training				Training for public works participants				Together			
	2017	2018	2019	2020	2017	2018	2019	2020	2017	2018	2019	2020
Total number of entrants	18,958	32,171	5,179	3,950	31,508	32,735	19,564	4,758	50,466	64,906	24,743	8,708
By age groups, %												
–20	7.5	7.4	21.0	8.9	6.3	5.5	3.4	7.2	6.7	6.4	7.1	8.0
20–24	17.7	16.4	38.9	19.2	10.7	9.0	5.5	14.6	13.3	12.7	12.5	16.7
25–44	51.4	52.2	24.9	47.6	47.1	47.8	57.4	48.4	48.7	50.0	50.6	48.0
45–49	10.4	10.8	5.7	10.0	12.9	13.1	13.2	11.0	12.0	12.0	11.7	10.5
50+	13.0	13.1	9.4	14.2	23.0	24.7	20.4	18.9	19.2	18.9	18.1	16.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
By level of education, %												
Less than primary school	2.2	2.2	2.8	0.9	16.0	16.3	7.4	8.0	10.8	9.3	6.4	4.8
Primary school	38.8	36.2	38.6	39.2	75.2	71.3	45.6	54.3	61.6	53.9	44.2	47.4
Vocational school	21.8	21.4	14.9	19.0	5.7	7.9	19.2	20.1	11.7	14.6	18.3	19.6
Vocational and technical secondary school	18.7	20.2	20.6	20.6	1.6	2.4	13.5	10.1	8.0	11.2	15.0	14.9
Grammar school	14.9	15.8	18.3	16.5	1.3	1.9	10.6	6.6	6.4	8.8	12.2	11.1
College, university	3.6	4.2	4.8	3.8	0.1	0.1	3.6	1.0	1.4	2.2	3.8	2.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: *NFSZ*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent05_21

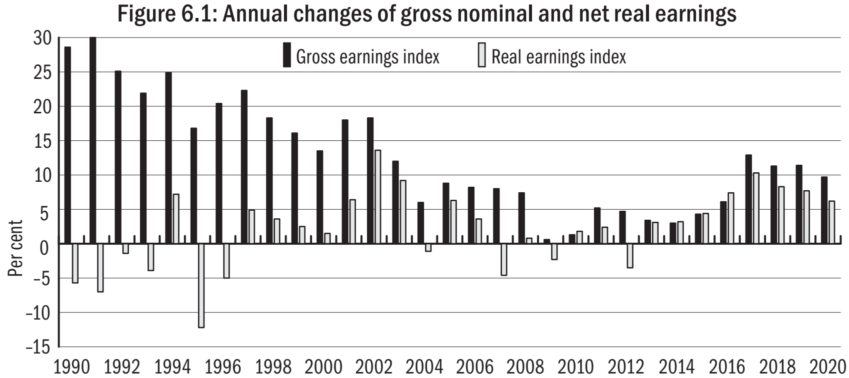
Table 6.1: Annual changes in gross and real earnings

	Gross earnings	Net earnings	Gross earnings index	Net earnings index	Consumer price index	Real earnings index
Year	HUF		previous year = 100			
1996	46,837	30,544	120.4	117.4	123.6	95.0
1997	57,270	38,145	122.3	124.1	118.3	104.9
1998	67,764	45,162	118.3	118.4	114.3	103.6
1999	77,187	50,076	116.1	112.7	110.0	102.5
2000	87,750	55,785	113.5	111.4	109.8	101.5
2001	103,554	64,913	118.0	116.2	109.2	106.4
2002	122,481	77,622	118.3	119.6	105.3	113.6
2003	137,193	88,753	112.0	114.3	104.7	109.2
2004	145,523	93,715	106.1	105.6	106.8	98.9
2005	158,343	103,149	108.8	110.1	103.6	106.3
2006	171,351	110,951	108.2	107.6	103.9	103.6
2007	185,018	114,282	108.0	103.0	108.0	95.4
2008	198,741	121,969	107.4	107.0	106.1	100.8
2009	199,837	124,116	100.6	101.8	104.2	97.7
2010	202,525	132,604	101.3	106.8	104.9	101.8
2011	213,094	141,151	105.2	106.4	103.9	102.4
2012	223,060	144,085	104.7	102.1	105.7	96.6
2013	230,714	151,118	103.4	104.9	101.7	103.1
2014	237,695	155,717	103.0	103.0	99.8	103.2
2015	247,924	162,400	104.3	104.3	99.9	104.4
2016	263,171	175,009	106.1	107.8	100.4	107.4
2017	297,017	197,516	112.9	112.9	102.4	110.3
2018	329,943	219,412	111.3	111.3	102.8	108.3
2019	367,833	244,609	111.4	111.4	103.4	107.7
2020	403,616	268,405	109.7	109.7	103.3	106.2

Note: Earnings data include payments to public works participants.
Source: *KSH IMS* (earnings) and *consumer price accounting*. Gross earnings, gross earnings index: 2000–: *STADAT* (2021.04.06. version). Net earnings, net earnings index: 2008–: *STADAT* (2021.04.06. version). Consumer price index: *STADAT* (2021.04.06. version). Real earnings index: *STADAT* (2021.04.06. version).

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent06_01

Figure 6.1: Annual changes of gross nominal and net real earnings



Note: Earnings data include payments to public works participants.
Source: *KSH IMS* (earnings) and *consumer price accounting STADAT* (2021. 04. 06. version).

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena06_01

Table 6.2.a: Gross earnings ratios in the economy, HUF/person/month

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Agriculture, forestry and fishing	133,570	137,101	143,861	153,301	164,136	171,921	180,251	189,136	204,385	230,638	255,664	293,207	320,186
Mining and quarrying	225,650	244,051	234,243	254,607	271,012	279,577	287,036	289,665	299,354	332,985	375,494	433,732	426,863
Manufacturing	183,081	190,331	200,692	213,281	230,877	241,170	253,162	263,877	279,336	311,879	344,495	391,907	424,297
Electricity, gas, steam and air conditioning supply	321,569	345,035	363,900	379,606	404,073	410,485	422,444	439,282	454,361	498,280	546,640	603,003	651,764
Water supply; sewerage, waste management and remediation activities	178,049	181,818	193,604	207,614	223,206	224,654	224,447	230,574	234,037	269,090	300,387	343,570	364,759
Construction	146,475	152,204	153,130	156,682	163,649	177,790	185,680	196,947	201,095	227,524	254,711	287,851	320,692
Wholesale and retail trade; repair of motor vehicles and motorcycles	171,780	175,207	185,812	196,942	212,521	218,936	223,882	230,036	243,716	273,810	304,112	342,830	378,735
Transportation and storage	186,376	196,350	200,129	210,146	217,794	223,410	230,138	239,147	247,562	279,507	310,196	345,091	379,890
Accommodation and food service activities	120,600	122,561	122,699	125,757	139,731	147,023	152,874	157,560	165,969	189,489	211,984	239,585	250,850
Information and communication	358,217	366,752	368,113	392,963	410,045	426,460	449,412	460,122	479,625	510,675	561,443	623,527	676,573
Financial and insurance activities	431,601	427,508	433,458	456,980	459,744	470,966	486,054	493,956	519,027	561,576	608,234	665,380	709,341
Real estate activities	169,845	177,747	182,903	184,829	219,287	212,391	214,163	221,125	239,317	281,502	316,079	312,371	339,113
Professional, scientific and technical activities	281,150	292,974	297,489	303,292	330,860	320,422	345,198	369,460	392,266	431,838	462,814	507,670	566,602
Administrative and support service activities	147,125	149,131	145,576	149,675	163,300	169,223	181,338	198,050	215,241	246,072	277,744	306,208	330,071
Public administration and defence; compulsory social security	267,657	234,696	242,958	252,848	247,139	258,803	262,055	282,194	313,084	358,569	392,840	442,437	467,331
Education	204,600	194,958	195,930	192,984	197,344	216,927	245,933	258,200	274,211	297,404	320,233	334,862	362,838
Human health and social work activities	169,977	161,265	142,282	153,832	151,446	151,287	143,047	146,700	154,443	185,037	218,184	247,211	296,212
Arts, entertainment and recreation	183,813	179,199	179,976	192,407	209,930	216,869	226,327	213,286	227,509	289,154	333,997	366,803	394,493
Other service activities	157,950	160,375	150,025	162,490	175,872	174,777	181,601	193,303	207,222	243,967	271,921	305,751	312,727
National economy, total	198,741	199,837	202,525	213,094	223,060	230,664	237,695	247,924	263,171	297,017	329,943	367,833	403,616
Of which:													
– Business sector	192,044	200,304	206,863	217,932	233,829	242,191	252,664	262,731	276,923	308,994	341,540	380,996	418,150
– Budgetary institutions	219,044	201,632	195,980	203,516	200,027	207,191	209,706	220,210	237,494	275,251	308,508	339,386	374,286

Note: The data are recalculated based on the industrial classification system in effect from 2008. Earnings data include payments to public works participants.

Source: *KSH* mid-year IMS. Gross earnings, gross earnings index: *STADAT* (2021.04.06. version). 2019–: NAV social security reports.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent06_02a

Table 6.2.b: Gross earnings ratios in the economy, per cent

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Agriculture, forestry and fishing	68.6	71.0	72.0	73.6	74.5	75.8	76.3	77.7	77.7	77.5	79.7	79.3
Mining and quarrying	122.1	115.5	119.5	120.9	121.2	120.7	116.8	113.7	112.1	113.8	117.9	105.8
Manufacturing	95.2	99.1	100.0	103.4	104.6	106.4	106.4	106.1	105.0	104.4	106.5	105.1
Electricity, gas, steam and air conditioning supply	172.7	179.6	178.2	181.1	178.0	177.8	177.2	172.6	167.8	165.7	163.9	161.5
Water supply; sewerage, waste management and remediation activities	91.0	95.6	97.4	100.0	97.4	94.7	93.2	88.9	90.6	91.0	93.4	90.4
Construction	76.2	75.5	73.5	73.4	77.1	78.0	79.4	76.4	76.6	77.2	78.3	79.5
Wholesale and retail trade; repair of motor vehicles and motorcycles	87.7	91.7	92.4	95.3	94.9	94.3	92.8	92.6	92.2	92.2	93.2	93.8
Transportation and storage	98.3	98.9	98.6	97.8	96.9	96.9	96.5	94.1	94.1	94.0	93.8	94.1
Accommodation and food service activities	61.3	60.6	59.0	62.7	63.7	64.4	63.6	63.1	63.8	64.2	65.1	62.2
Information and communication	183.5	181.7	184.4	183.9	184.9	189.0	185.6	182.2	171.9	170.2	169.5	167.6
Financial and insurance activities	213.9	214.0	214.5	206.2	204.2	204.1	199.2	197.2	189.1	184.3	180.9	175.7
Real estate activities	88.9	90.2	86.8	98.3	92.1	90.5	89.2	90.9	94.8	95.8	84.9	84.0
Professional, scientific and technical activities	146.6	146.9	142.4	148.4	138.9	145.1	149.0	149.1	145.4	140.3	138.0	140.4
Administrative and support service activities	74.6	71.9	70.3	73.3	73.4	77.3	79.9	81.8	82.8	84.2	83.2	81.8
Public administration and defence; compulsory social security	117.4	120.2	118.7	110.8	112.2	110.2	113.8	119.0	120.7	119.1	120.3	115.8
Education	97.6	96.7	90.6	88.5	94.0	103.4	104.1	104.2	100.1	97.1	91.0	89.9
Human health and social work activities	80.7	70.3	72.2	67.9	65.6	60.2	59.2	58.7	62.3	66.1	67.2	73.4
Arts, entertainment and recreation	89.7	88.8	90.3	94.1	94.0	95.0	86.0	86.4	97.4	101.2	99.7	97.7
Other service activities	80.3	74.1	76.1	78.9	75.8	76.1	78.0	78.7	82.1	82.4	83.1	77.5
National economy, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Of which:												
– Business sector	100.2	102.1	102.3	104.8	105.0	106.3	106.0	105.2	104.0	103.5	103.6	103.6
– Budgetary institutions	100.9	96.8	95.5	89.7	89.8	88.2	88.8	90.2	92.7	93.5	92.3	92.7

Note: The data are recalculated based on the industrial classification system in effect from 2008. Earnings data include payments to public works participants.

Source: *KSH* mid-year IMS. Gross earnings, gross earnings index: *STADAT* (2021.04.06. version). 2019–: NAV social security reports.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent06_02b

Table 6.3: Regression-adjusted earnings differentials

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Male	0.1360	0.1680	0.1670	0.1440	0.1500	0.1550	0.1500	0.1420	0.1320	0.1510	0.1410	0.1320	0.1360
Less than primary school	-0.3720	-0.4140	-0.3650	-0.5540	-0.4950	-0.5200	-0.4260	-0.4770	-0.4860	-0.5360	-0.5550	-0.4600	-0.4170
Primary school	-0.3520	-0.4010	-0.3910	-0.4330	-0.4040	-0.3990	-0.3840	-0.3620	-0.3520	-0.3760	-0.3630	-0.3950	-0.3980
Vocational school	-0.2710	-0.2750	-0.2690	-0.2860	-0.2660	-0.2470	-0.2490	-0.2000	-0.2020	-0.2170	-0.2070	-0.2200	-0.2240
College, university	0.5900	0.5670	0.5610	0.5970	0.6020	0.5970	0.5570	0.5700	0.6240	0.6000	0.5580	0.5070	0.4800
Estimated labour market experience	0.0233	0.0244	0.0237	0.0262	0.0267	0.0256	0.0238	0.0228	0.0211	0.0245	0.0240	0.0222	0.0216
Square of estimated labour market experience	-0.0003	-0.0004	-0.0004	-0.0004	-0.0004	-0.0004	-0.0004	-0.0004	-0.0003	-0.0004	-0.0004	-0.0004	-0.0004
Public sector	0.1530	0.0442	0.0500	-0.0665	-0.1060	-0.1240	-0.2480	-0.2010	-0.1180	-0.2030	-0.2560	-0.2050	-0.1850

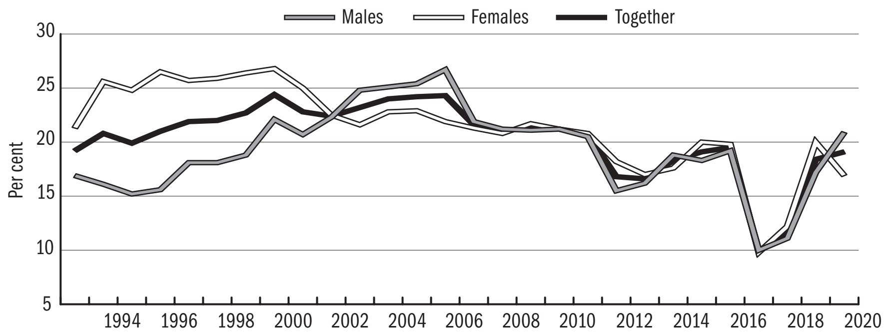
Note: the results indicate the earnings differentials of the various groups relative to the reference group in log points (approximately percentage points). All parameters are significant at the 0.01 level. The region parameters can be seen in Table 9.6.

Reference categories: female, with leaving certificate (general education certificate), not in the public sector, working in the Central-Transdanubia region.

Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent06_03

Figure 6.2: The percentage of low paid workers by gender, per cent



Note: Since 2019 the NFSZ BT is conducted by KSH.

Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena06_02

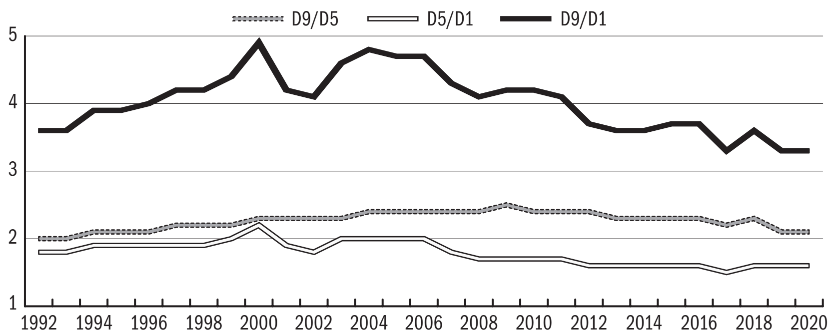
Table 6.4: Percentage of low paid workers[a] by gender, age groups, level of education and industries

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
By gender																				
Males	20.7	22.3	24.8	25.1	25.4	26.7	21.9	21.2	21.1	21.2	20.5	15.5	16.2	18.8	18.3	19.2	10.0	11.1	20.3	20.9
Females	25.0	22.5	21.6	22.8	22.9	21.9	21.3	20.8	21.7	21.2	20.8	18.2	17.0	17.6	20.0	19.8	9.8	12.2	16.8	16.9
By age groups																				
-24	35.5	37.6	39.9	43.9	44.2	46.3	40.1	34.6	38.9	38.2	36.6	26.4	30.9	29.7	31.2	31.7	16.4	16.4	25.8	26.6
25–54	21.9	21.8	22.3	23.6	24.0	24.2	21.4	20.6	21.0	20.9	20.4	16.3	16.3	18.0	18.5	19.0	9.3	10.6	17.7	17.9
55+	18.1	16.2	15.3	16.5	16.5	16.4	15.8	15.5	17.6	18.1	17.6	17.0	14.3	16.4	18.5	18.7	10.7	14.0	20.7	21.7
By level of education																				
8 grades of primary school or less	40.4	38.3	37.1	39.6	41.2	40.1	41.4	41.3	47.4	43.4	45.4	38.6	38.7	41.1	42.1	40.1	36.6	32.6	41.3	41.1
Vocational school	29.4	32.1	35.4	35.7	36.8	37.9	32.9	32.1	33.5	33.3	31.3	25.2	24.0	27.5	28.3	30.0	14.0	14.4	21.3	22.2
Secondary school	18.0	16.5	17.7	18.6	18.6	19.7	16.1	15.4	16.4	17.3	17.2	13.7	15.3	17.0	18.4	19.1	5.9	6.3	3.7	4.3
Higher education	4.7	3.6	3.5	3.9	3.8	4.3	2.5	2.4	2.3	2.9	2.7	2.0	2.5	3.0	2.9	3.9	0.9	1.4	0.6	1.1
By industries[b]																				
Agriculture, forestry, fishing	34.3	37.9	37.3	37.1	37.5	41.6	37.9	36.6	36.7	34.6	31.8	21.8	26.3	28.2	25.8	24.6	15.2	18.5	20.7	27.3
Manufacturing	19.1	19.4	25.4	24.7	22.1	24.1	20.8	23.5	23.0	20.5	19.4	13.7	14.1	16.7	15.1	15.9	10.9	9.8	14.0	14.9
Construction	41.7	44.8	49.8	51.2	50.2	55.2	43.1	37.5	38.1	43.0	41.9	31.8	35.9	43.8	41.0	44.7	22.8	24.0	44.0	44.8
Trade, repairing	41.3	44.0	49.0	49.3	51.5	49.4	40.9	35.9	35.2	36.4	35.2	24.2	27.3	28.9	31.3	31.8	13.5	12.2	31.9	32.5
Transport, storage, communication	10.6	10.5	13.6	12.6	13.8	15.1	13.2	14.6	11.2	13.3	13.1	10.1	11.6	14.9	13.8	13.6	8.7	10.5	18.2	18.8
Financial intermediation	22.6	20.7	23.1	23.9	24.6	26.2	20.9	20.0	20.5	20.7	19.6	15.0	16.6	19.0	16.5	18.7	9.8	9.2	17.4	17.9
Public administration and defence, compulsory social security	13.8	9.3	6.6	8.2	6.0	6.3	7.4	6.7	8.7	8.8	9.8	13.4	9.1	11.8	15.3	13.2	3.9	11.0	5.3	6.0
Education	22.6	16.0	4.8	6.9	8.8	6.1	9.0	7.2	11.9	10.6	11.2	16.3	14.9	10.2	15.7	13.8	3.1	12.7	9.7	9.7
Health and social work	19.9	16.1	6.3	8.4	10.3	8.6	12.6	11.1	14.5	13.8	14.3	18.2	13.6	9.2	14.6	14.8	8.0	11.3	11.0	7.8
Total	22.8	22.4	23.2	24.0	24.2	24.3	21.6	21.0	21.4	21.2	20.7	16.8	16.6	18.3	19.1	19.5	9.9	11.5	18.7	19.1

[a] Percentage of those who earn less than 2/3 of the median earning amount.
[b] 2001–2008: by TEÁOR'03, 2009–: by TEÁOR'08.
Note: Since 2019 the NFSZ BT is conducted by KSH.
Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent06_04

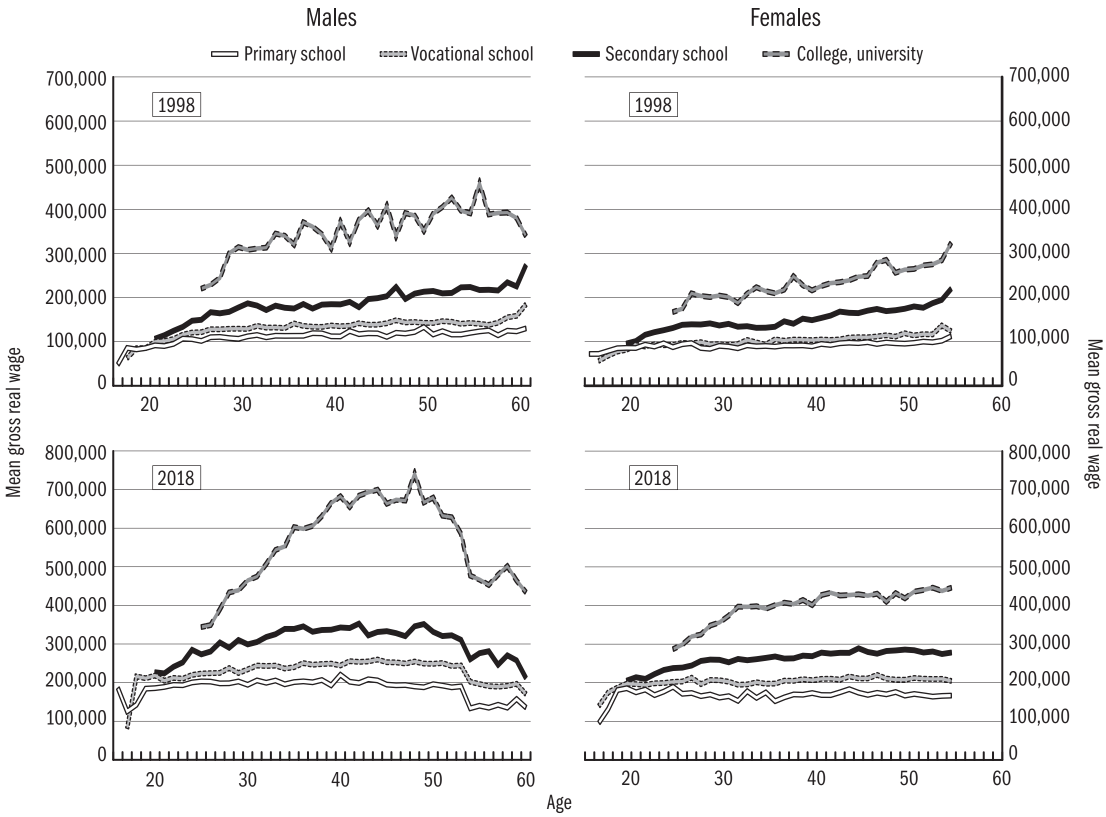
Figure 6.3: The dispersion of gross monthly earnings



Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena06_03

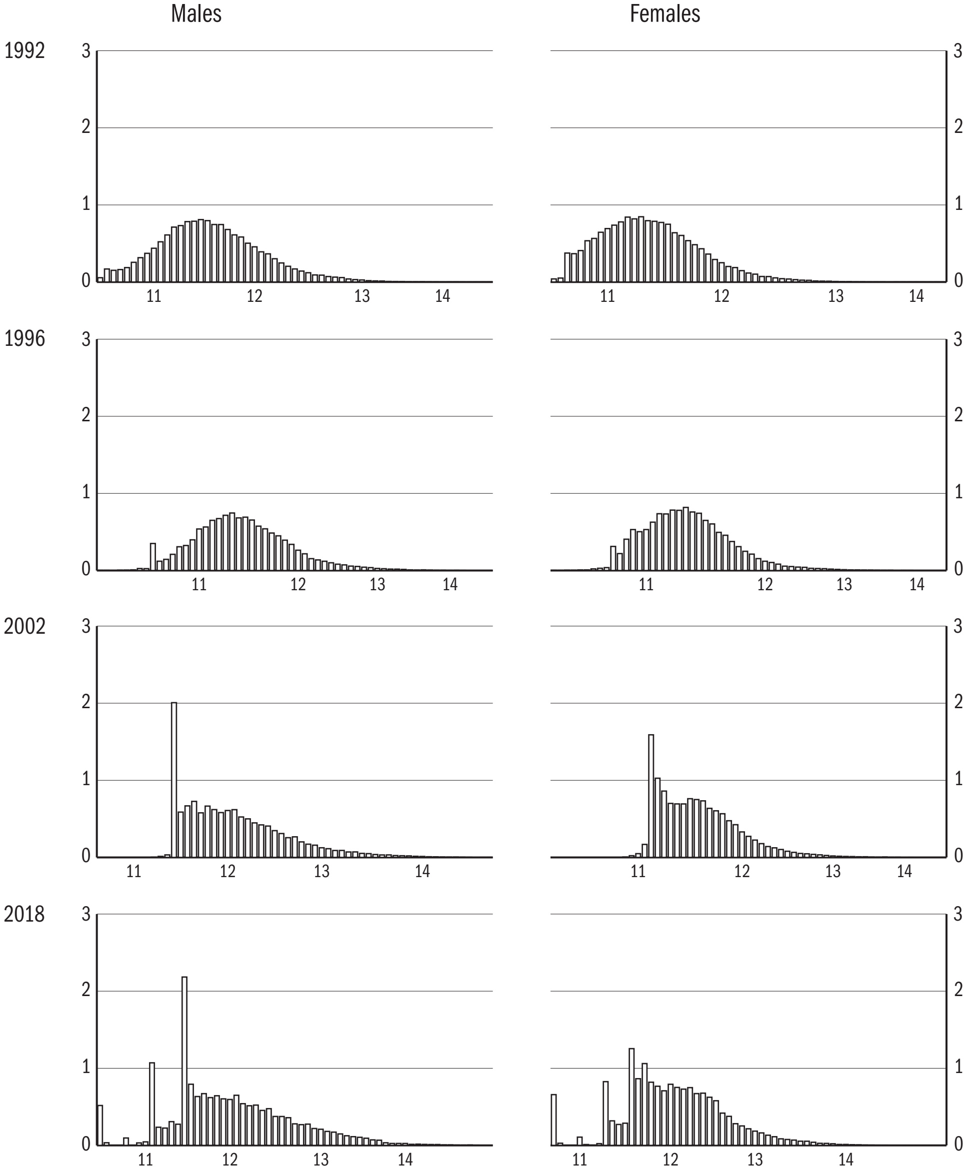
Figure 6.4: Age-income profiles by education level in 1998 and 2018, women and men



Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena06_04

Figure 6.5: The dispersion of the logarithm of gross real earnings (2018 = 100%)



Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena06_05

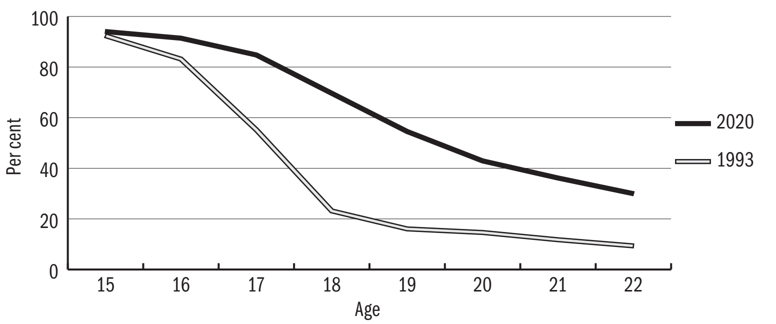
Table 7.1: Graduates in full-time education

Year	Students finished 8th grade	Students passed final examination at secondary level	Students passed vocational examination	Students graduated at tertiary education level
1990	169,059	53,039	61,099	15,963
1995	126,066	70,265	67,234	20,024
1996	124,115	73,413	65,022	22,147
1997	120,378	75,564	56,994	24,411
1998	117,190	77,660	54,115	25,338
1999	117,334	73,965	50,247	27,049
2000	121,100[a]	72,200[a]	..	29,843
2001	118,200	70,441	48,828	29,746
2002	118,038	69,612	56,235	30,785
2003	115,863	71,944	53,056	31,929
2004	117,093	76,669	54,912	31,633
2005	119,561	77,025	53,704	32,732
2006	118,223	76,895	51,040	29,871
2007	112,351	77,527	44,754	29,059
2008	109,680	68,453	44,831	28,957
2009	105,811	78,037	43,999	36,064
2010	106,626	77,957	45,437	38,456
2011	99,632	76,441	48,316	35,433
2012	94,852	73,845	56,404	36,262
2013	91,277	68,436	46,512	37,089
2014	89,176	69,176	43,498	39,226
2015	91,164	65,363	41,411	41,083
2016	89,786	62,099	40,772	39,962
2017	89,480	61,025	36,323	37,771
2018	88,719	61,815	38,117	37,878
2019	89,821	61,165	32,387	36,285
2020	92,403	62,285	32,862	37,606[a]

[a] Estimated data.
Source: *KSH STADAT* (Education – Time series of annual data).

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent07_01

Figure 7.1: Full-time students as a percentage of the different age groups



Source: *KSH STADAT* (Education – Time series of annual data).

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena07_01

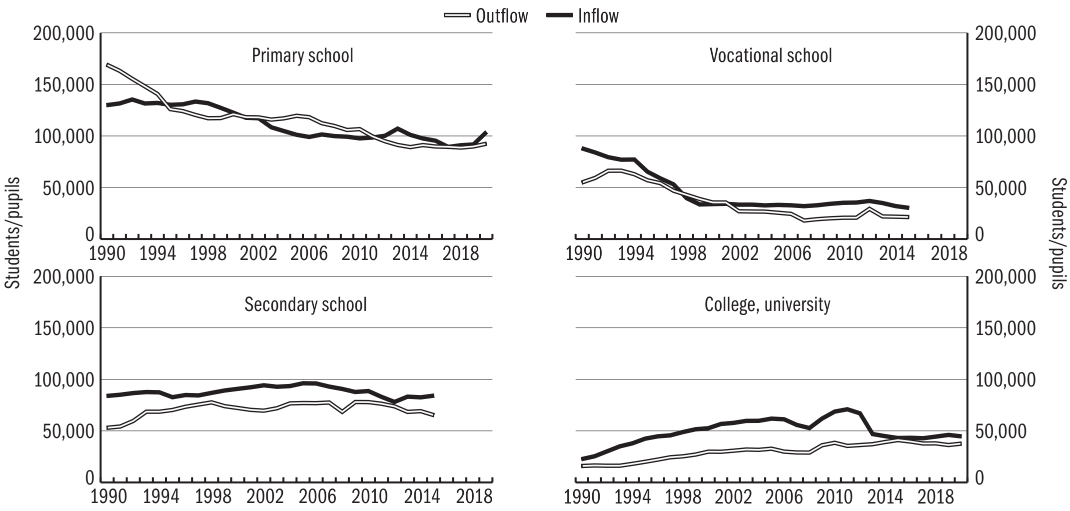
Table 7.2: Pupils/students entering the school system by level of education, full-time education

School year	Primary schools	Vocational schools and special skills development schools[a]	Secondary vocational schools[b]	Secondary general schools	Vocational grammar schools[c]	Tertiary undergraduate (BA/BSc) and postgraduate (MA/MSc) training[d]
2004/2005	104,757	2,560	32,823	44,097	49,422	59,783
2005/2006	101,157	2,684	33,276	46,252	49,979	61,898
2006/2007	99,025	2,795	32,780	45,711	50,328	61,231
2007/2008	101,447	2,809	32,012	43,796	49,212	55,789
2008/2009	99,871	2,907	32,852	43,150	47,571	52,755
2009/2010	99,270	2,935	34,270	41,398	46,371	61,948
2010/2011	97,664	2,780	35,386	42,464	46,223	68,715
2011/2012	98,462	2,637	35,507	40,819	42,255	70,954
2012/2013	100,183	2,555	37,033	38,665	39,504	67,014
2013/2014	107,108	2,320	35,015	41,650	41,624	46,931
2014/2015	101,070	3,562	32,068	42,744	39,825	44,867
2015/2016	97,553	3,617	30,400	44,803	39,351	43,080
2016/2017	95,391	3,593	30,265	47,326	38,157	43,292
2017/2018	89,343	3,497	28,046	48,608	36,582	42,856
2018/2019	90,990	3,576	26,358	48,140	37,520	44,449
2019/2020	91,747	3,423	25,019	48,753	38,261	46,082
2020/2021	103,475	3,195	21,595	48,903	40,016	44,720

[a] Till 2015/2016 school year students in special vocational schools.
[b] Till 2015/2016 school year students in vocational schools.
[c] Till 2015/2016 school year students in secondary vocational schools.
[d] Including students in university- and college-level education and undivided training.
Note: In secondary schools number of students in 9th grade. In tertiary education number of students in 1st grade, from 2013/2014 school year number of new entrants.
Source: *KSH STADAT* (Education – Time series of annual data).

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent07_02

Figure 7.2: Flows of the educational system by level



Source: *KSH STADAT* (Education – Time series of annual data).

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena07_02

Table 7.3: Students in full-time education

School year	Primary schools	Vocational schools and special skills development schools[a]	Secondary vocational schools[b]	Secondary general schools	Vocational grammar schools[c]	Tertiary undergraduate (BA/BSc) and postgraduate (MA/MSc) training[d]
2007/2008	809,160	9,773	123,192	200,026	242,016	227,118
2008/2009	788,639	9,785	123,865	203,602	236,518	224,894
2009/2010	773,706	9,968	128,674	201,208	242,004	222,564
2010/2011	756,569	9,816	129,421	198,700	240,364	218,057
2012/2013	742,931	9,134	117,543	189,526	224,214	214,320
2013/2014	747,746	8,344	105,122	185,440	203,515	209,208
2014/2015	748,486	7,496	92,536	182,228	188,762	203,576
2015/2016	745,323	7,146	80,493	180,966	182,529	195,419
2016/2017	741,427	7,108	78,231	181,782	167,574	190,098
2017/2018	732,491	7,169	74,104	184,525	162,216	187,084
2018/2019	726,266	7,159	68,863	187,599	152,793	185,278
2019/2020	720,329	7,004	65,771	188,970	149,090	186,797
2020/2021	725,768	6,948	54,272	191,526	152,610	187,237

[a] Till 2015/2016 school year students in special vocational schools.
[b] Till 2015/2016 school year students in vocational schools.
[c] Till 2015/2016 school year students in secondary vocational schools.
[d] Including students in university- and college-level education and undivided training.
Note: In secondary schools number of students in 9th grade. In tertiary education number of students in 1st grade, from 2013/2014 school year number of new entrants.
Source: *KSH STADAT* (Education – Time series of annual data).

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent07_03

Table 7.4: Students in part-time education

School year	Primary schools	Vocational schools and special skills development schools[a]	Secondary vocational schools[b]	Secondary general schools	Vocational grammar schools[c]	Tertiary undergraduate (BA/BSc) and postgraduate (MA/MSc) training[d]
2007/2008	2,245	–	5,874	43,126	39,882	132,273
2008/2009	2,083	24	4,983	39,175	34,833	115,957
2009/2010	2,035	49	6,594	38,784	31,340	105,511
2010/2011	1,997	35	8,068	43,172	33,232	99,962
2011/2012	2,264	13	10,383	41,538	32,666	98,081
2012/2013	2,127	–	12,776	38,789	34,019	85,316
2013/2014	2,587	–	12,140	35,032	35,556	73,088
2014/2015	2,548	–	9,946	34,140	32,382	67,904
2015/2016	2,293	3	9,685	32,103	31,242	64,110
2016/2017	2,410	1	27,511	32,682	37,488	60,609
2017/2018	2,405	18	27,584	31,537	34,348	59,924
2018/2019	2,440	29	25,016	28,046	31,766	60,486
2019/2020	3,211	25	25,453	28,185	32,008	61,907
2020/2021	3,532	14	15,803	30,224	25,619	61,931

[a] Till 2015/2016 school year students in special vocational schools.
[b] Till 2015/2016 school year students in vocational schools.
[c] Till 2015/2016 school year students in secondary vocational schools.
[d] Including students in university- and college-level education and undivided training.
Note: In secondary schools number of students in 9th grade. In tertiary education number of students in 1st grade, from 2013/2014 school year number of new entrants.
Source: *KSH STADAT* (Education – Time series of annual data).

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent07_04

Table 7.5: Number of applicants for full-time high school courses

Year	Applying	Admitted	Admitted as a percentage of applied	Applying as a percentage of the secondary school graduates in the given year	Admitted as a percentage of the secondary school graduates in the given year
1980	33,339	14,796	44.4	77.2	34.3
1989	44,138	15,420	34.9	84.0	29.3
1990	46,767	16,818	36.0	88.2	31.7
1991	48,911	20,338	41.6	90.2	37.5
1992	59,119	24,022	40.6	99.1	40.3
1993	71,741	28,217	39.3	104.6	41.1
1994	79,805	29,901	37.5	116.3	43.6
1995	86,548	35,081	40.5	123.2	49.9
1996	79,369	38,382	48.4	108.1	52.3
1997	81,924	40,355	49.3	108.4	53.4
1998	81,065	43,629	53.8	104.4	56.2
1999	82,815	44,538	53.8	112.0	60.2
2000	82,957	45,546	54.9	114.9	63.1
2001	84,499	50,515	59.8	120.0	71.7
2002	89,131	53,420	59.9	128.0	76.7
2003	87,110	52,703	60.5	121.1	73.3
2004	95,871	55,179	57.6	125.0	72.0
2005	91,677	52,957	57.8	119.0	68.8
2006	84,269	53,990	64.1	109.6	70.2
2007	74,849	50,941	68.1	96.5	65.7
2008	66,963	52,081	77.8	97.8	76.1
2009	90,878	61,262	67.4	116.5	78.5
2010	100,777	65,503	65.0	129.3	84.0
2011	101,835	66,810	65.6	133.2	87.4
2012	84,075	61,350	73.0	113.9	83.1
2013	75,392	56,927	75.5	110.2	83.2
2014	79,765	54,688	68.6	115.3	79.1
2015	79,255	53,069	67.0	121.3	81.2
2016	79,284	52,913	66.7	127.7	85.2
2017	74,806	51,487	68.8	122.6	84.4
2018	75,434	52,356	69.4	122.0	84.7
2019	79,138	55,076	69.6	129.4	90.0
2020	68,904	50,726	73.6	110.9	81.7

Note: Including students applying and admitted to BA/BSc, MA/MSc and undivided (joint bachelor and master courses) training. From 2008 students applying and admitted in repeated, spring and autumn admission procedures altogether.
Source: *KSH STADAT* (Education – Time series of annual data).

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent07_05

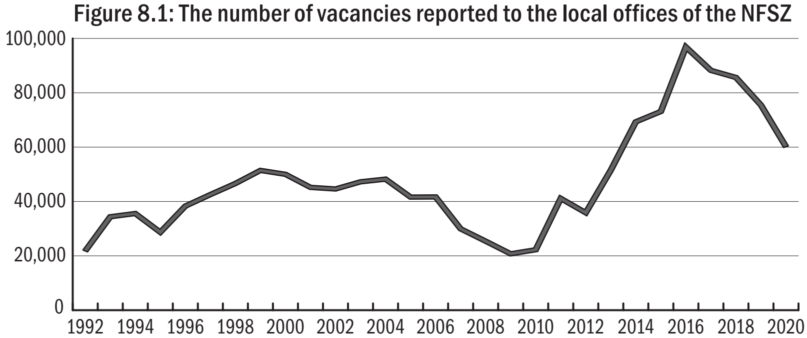
Table 8.1: The number of vacancies[a] reported to the local offices of the NFSZ

Year	Number of vacancies at closing date: Total	Number of vacancies at closing date: Of which: public works participants	Number of registered unemployed[b] at closing date	Vacancies per 100 registered unemployed[b]
1992	21,793	–	556,965	3.9
1993	34,375	–	671,745	5.1
1994	35,569	–	568,366	6.3
1995	28,680	–	507,695	5.6
1996	38,297	–	500,622	7.6
1997	42,544	–	470,112	9.0
1998	46,624	–	423,121	11.0
1999	51,438	–	409,519	12.6
2000	50,000	–	390,492	12.8
2001	45,194	–	364,140	12.4
2002	44,603	–	344,715	12.9
2003	47,239	–	357,212	13.2
2004	48,223	–	375,950	12.8
2005	41,615	–	409,929	10.2
2006	41,677	–	393,465	10.6
2007	29,933	–	426,915	7.0
2008	25,364	–	442,333	5.7
2009	20,739	–	561,768	3.7
2010	22,241	–	582,664	3.8
2011	41,123	–	582,868	7.1
2012	35,850	18,669	559,102	6.4
2013	51,524	27,028	527,624	9.8
2014	75,444	37,840	422,445	16.4
2015	73,122	34,591	378,181	19.3
2016	96,841	49,405	313,782	30.9
2017	88,243	43,659	282,970	31.2
2018	85,641	33,736	255,310	33.5
2019	75,474	25,563	250,947	30.1
2020	60,162	20,158	316,055	19.0

[a] Monthly average stock figures.
[b] Since the 1st of November, 2005: registered jobseekers.
Source: *NFSZ.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent08_01

Figure 8.1: The number of vacancies reported to the local offices of the NFSZ



Source: *NFSZ.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena08_01

Table 8.2: The number of vacancies[a] reported to the local offices of the NFSZ, by level of education

Year	Primary school	Vocational school	Secondary school	Secondary general school	College, university	Total
2008	15,039	7,046	1,020	1,259	1,000	25,364
2009	13,191	4,134	1,289	1,228	897	20,739
2010	13,359	5,289	1,281	1,388	924	22,241
2011	29,121	6,890	2,379	1,627	1,106	41,123
2012	21,227	8,005	2,732	1,945	1,941	35,850
2013	30,673	11,750	3,881	3,023	2,197	51,524
2014	45,555	16,440	7,216	3,329	2,904	75,444
2015	42,152	18,480	6,006	3,036	3,448	73,122
2016	58,781	22,184	8,840	4,085	2,951	96,841
2017	51,923	19,229	7,250	4,883	4,958	88,243
2018	52,690	18,124	6,872	4,754	3,200	85,641
2019	51,394	13,535	2,323	6,591	1,632	75,475
2020	40,494	11,635	1,502	5,010	1,522	60,162

[a] Monthly average stock figures.
Note: The data include vacancies posted in the Public Works program.
Source: NFSZ.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent08_02

Table 8.3: The number of vacancies

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Number of persons[a]	37,044	34,633	23,156	27,167	28,724	26,523	32,802	37,709	44,552	55,202	66,118	83,510	78,708	60,669
Per cent[b]	1.4	1.3	0.9	1.0	1.1	1.0	1.2	1.4	1.5	1.9	2.2	2.7	2.4	2.0

[a] Annual mean of the quarterly observations.
[b] Per cent of the filled and unfilled jobs.
Source: Eurostat. http://ec.europa.eu/eurostat/web/labour-market/job-vacancies/database (jvs_q_nace2: 2021.08.18. version, downloaded: 2021.08.31.)

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent08_03

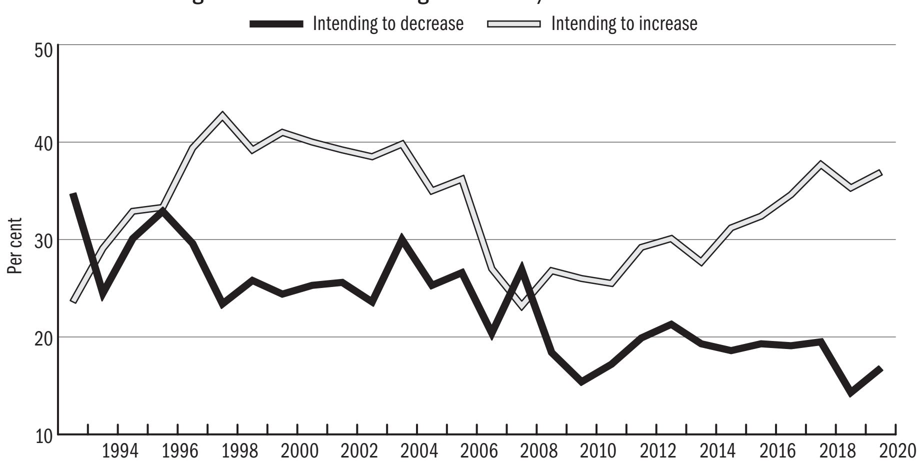
Table 8.4: Firms intending to increase/decrease their staff[a], per cent

Year		Intending to decrease	Intending to increase	Year	Intending to decrease	Intending to increase
1996	I.	32.9	33.3	2004	30.0	39.8
	II.	29.4	30.4	2005	25.3	35.0
1997	I.	29.6	39.4	2006	26.6	36.2
	II.	30.7	36.8	2007	20.4	27.0
1998	I.	23.4	42.7	2008	26.9	23.2
	II.	28.9	37.1	2009	18.4	26.8
1999	I.	25.8	39.2	2010	15.4	26.0
	II.	28.8	35.8	2011	17.2	25.5
2000	I.	24.4	41.0	2012	19.9	29.2
	II.	27.2	36.5	2013	21.3	30.1
2001	I.	25.3	40.0	2014	19.3	27.7
	II.	28.6	32.6	2015	18.6	31.2
2002	I.	25.6	39.2	2016	19.3	32.4
	II.	27.9	35.4	2017	19.1	34.6
2003	I.	23.6	38.5	2018	19.5	37.7
	II.	32.1	34.3	2019	14.3	35.3
				2020	16.8	36.9

[a] In the period of the next half year following the interview date, in the sample of NFSZ PROG, since 2004: 1 year later from the interview date.
Source: *NFSZ PROG.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent08_04

Figure 8.2: Firms intending to increase/decrease their staff



Source: *NFSZ PROG.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena08_02

Table 9.1: Regional inequalities: Employment rate[a]

Year	Budapest	Pest County	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
1997	57.8	54.7	53.6	59.8	50.0	45.7	45.2	53.6	52.5
1998	58.4	55.4	55.7	61.6	51.6	46.5	46.7	54.2	53.6
1999	60.2	57.7	58.2	63.1	52.7	48.3	48.8	55.2	55.4
2000	60.9	58.8	58.8	63.3	53.3	49.6	49.0	55.6	56.0
2001	61.3	59.4	59.3	63.1	52.3	49.7	49.5	55.8	56.2
2002	61.8	59.6	60.0	63.7	51.6	50.3	49.3	54.2	56.2
2003	63.3	59.3	62.3	61.9	53.4	51.2	51.6	53.2	57.0
2004	65.1	59.5	60.3	61.4	52.3	50.6	50.4	53.6	56.8
2005	65.3	60.2	60.2	62.1	53.4	49.5	50.2	53.8	56.9
2006	64.6	61.0	61.3	62.5	53.2	50.7	51.1	54.0	57.4
2007	64.1	61.2	61.4	62.8	51.0	50.4	50.3	54.5	57.0
2008	64.5	60.1	59.9	61.6	50.8	49.4	49.5	54.0	56.4
2009	63.1	58.8	57.3	59.2	51.7	48.2	48.0	52.9	55.0
2010	61.4	57.9	57.0	58.6	52.4	48.3	49.0	54.1	54.9
2011	61.7	58.2	59.1	59.9	51.1	48.4	49.9	54.1	55.4
2012	63.8	58.9	59.2	61.0	51.9	49.1	51.8	55.5	56.7
2013	64.2	60.6	60.7	61.8	54.8	51.6	53.2	56.3	58.1
2014	67.5	63.9	64.3	65.8	58.6	55.7	57.3	59.7	61.8
2015	69.2	65.4	67.9	67.5	60.2	59.0	58.9	62.2	63.9
2016	72.7	68.1	68.4	68.9	62.2	61.8	62.0	65.7	66.5
2017	74.0	69.2	70.5	71.0	63.0	63.5	64.4	67.4	68.2
2018	73.1	70.6	70.9	73.0	64.5	65.6	65.8	68.8	69.2
2019	74.0	72.0	71.8	73.8	65.4	66.1	66.4	69.6	70.1
2020	74.6	71.8	71.7	73.1	64.2	65.3	65.4	68.8	69.7

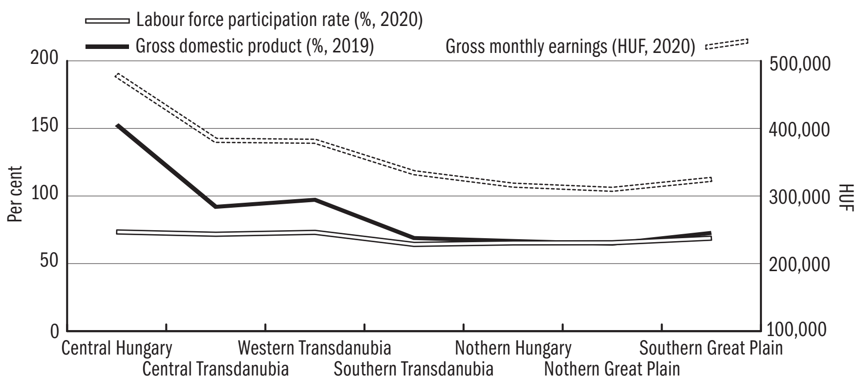
[a] Age: 15–64.

Note: The territorial code system was modified on 1 January 2018. The modification was justified by international and national legislative changes. Based on the changes, Budapest and Pest county are also planning and statistical regions, while Central Hungary became exclusively a statistical large region.

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent09_01

Figure 9.1: Regional inequalities: Labour force participation rates, gross monthly earnings and gross domestic product in NUTS-2 level regions



Source: Employment rate: *KSH MEF*; gross domestic product: *KSH*; earnings: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena09_01

Table 9.2: Regional inequalities: LFS-based unemployment rate[a]

Year	Budapest	Pest County	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
2000	5.2	5.1	4.9	4.2	7.8	10.1	9.3	5.1	6.4
2001	4.2	4.5	4.3	4.1	7.7	8.5	7.8	5.4	5.7
2002	3.7	4.3	5.0	4.0	7.9	8.8	7.8	6.2	5.8
2003	3.6	4.7	4.6	4.6	7.9	9.7	6.8	6.5	5.9
2004	4.4	4.7	5.6	4.6	7.3	9.7	7.2	6.3	6.1
2005	4.7	5.9	6.3	5.9	8.8	10.6	9.1	8.2	7.2
2006	4.9	5.5	6.0	5.8	9.2	10.9	10.9	8.0	7.5
2007	4.9	4.5	4.9	5.1	9.9	12.6	10.7	8.0	7.4
2008	4.2	5.0	5.8	5.0	10.3	13.3	12.1	8.7	7.8
2009	6.1	7.2	9.2	8.7	11.2	15.3	14.1	10.6	10.0
2010	9.0	8.8	10.0	9.3	12.4	16.2	14.4	10.4	11.2
2011	9.6	7.9	9.5	7.3	12.9	16.4	14.6	10.5	11.0
2012	9.6	9.3	9.9	7.5	12.1	16.1	13.9	10.3	11.0
2013	8.5	9.1	8.7	7.7	9.3	12.6	14.2	11.0	10.2
2014	6.0	6.5	5.6	4.6	7.8	10.4	11.8	9.0	7.7
2015	5.1	5.7	4.4	3.8	8.1	8.7	10.9	7.9	6.8
2016	4.3	3.1	3.0	2.7	6.2	6.3	9.3	5.6	5.1
2017	2.9	2.6	2.2	2.4	6.3	5.8	7.4	4.1	4.2
2018	3.1	2.2	2.2	2.0	5.6	4.7	6.6	3.3	3.7
2019	2.5	2.4	2.0	1.8	4.8	4.5	6.3	3.5	3.4
2020	3.3	3.3	2.8	2.4	5.3	5	7.3	4.7	4.3

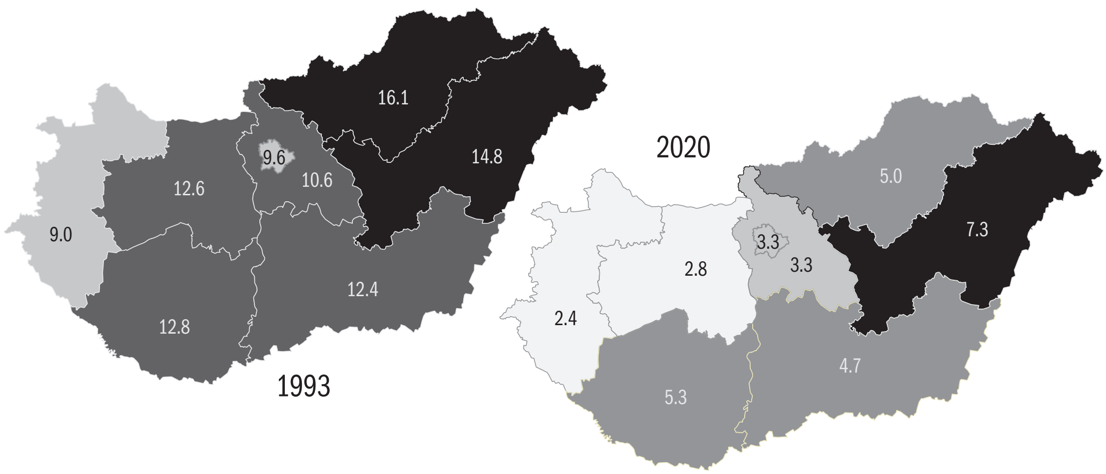
[a] Age: 15–74.

Note: The territorial code system was modified on 1st January 2018. The modification was justified by international and national legislative changes. Based on the changes, Budapest and Pest county are also planning and statistical regions, while Central Hungary became exclusively a statistical large region.

Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent09_02

Figure 9.2: Regional inequalities: LFS-based unemployment rates in NUTS-2 level regions



Source: *KSH MEF.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena09_02

Table 9.3: Regional differences: The share of registered unemployed[a] relative to the economically active population[b], per cent

Year	Central Hungary	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
2000	3.8	7.5	5.6	11.8	17.2	16.0	10.4	9.3
2001	3.2	6.7	5.0	11.2	16.0	14.5	9.7	8.5
2002	2.8	6.6	4.9	11.0	15.6	13.3	9.2	8.0
2003	2.8	6.7	5.2	11.7	16.2	14.1	9.7	8.3
2004	3.2	6.9	5.8	12.2	15.7	14.1	10.4	8.7
2005	3.4	7.4	6.9	13.4	16.5	15.1	11.2	9.4
2006	3.1	7.0	6.3	13.0	15.9	15.0	10.7	9.0
2007	3.5	6.9	6.3	13.6	17.6	16.6	11.7	9.7
2008	3.6	7.1	6.3	14.3	17.8	17.5	11.9	10.0
2009	5.4	11.5	9.5	17.8	20.9	20.2	14.4	12.8
2010	6.6	11.8	9.3	17.1	21.5	20.9	15.2	13.3
2011	6.8	10.9	8.0	16.6	21.5	22.0	14.5	13.2
2012	6.6	9.9	7.4	16.4	21.2	21.0	13.6	12.6
2013	6.4	9.5	7.4	15.4	19.5	19.4	19.0	13.0
2014	5.2	7.1	5.4	13.6	17.4	16.7	10.5	9.8
2015	4.6	6.1	4.4	11.8	15.4	14.2	8.9	8.5
2016	3.7	4.7	3.6	9.8	13.1	11.8	7.0	6.9
2017	2.9	4.1	3.2	9.1	12.2	10.7	6.1	6.2
2018	2.4	3.7	2.9	8.3	11.1	9.7	5.4	5.5
2019	2.2	3.8	2.8	8.3	11.3	9.4	5.3	5.4
2020	3.3	5.2	4.5	10.4	13.3	10.4	6.6	6.8

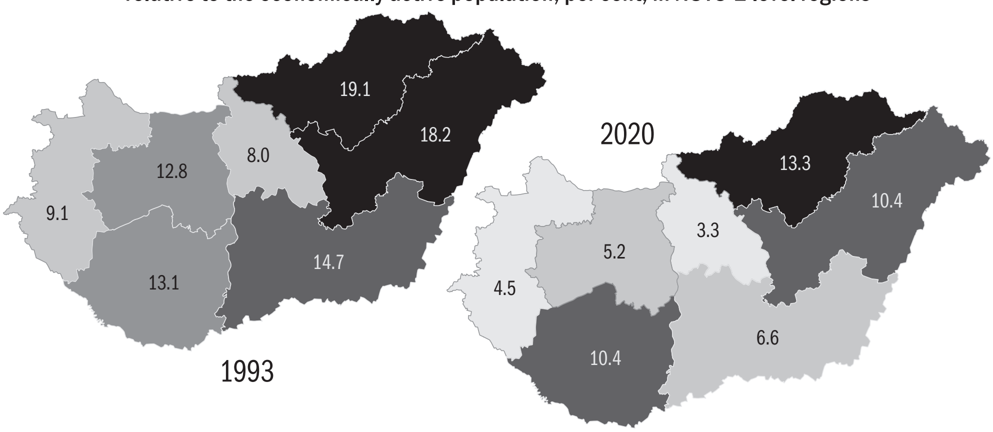
[a] Since the 1st of November, 2005: the ratio of registered jobseekers. From the 1st of November, 2005 the Employment Act changed the definition of registered unemployed to registered jobseekers.

[b] The denominator of the ratio is the economically active population on January 1st of the previous year.

Source: *NFSZ REG*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent09_03

Figure 9.3: Regional inequalities: The share of registered unemployed relative to the economically active population, per cent, in NUTS-2 level regions



Source: *NFSZ REG*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena09_03

Table 9.4: Annual average registered unemployment rate[a] by counties, per cent[b]

County	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Budapest	2.6	2.2	2.4	2.8	2.9	2.6	3.0	3.1	4.6	5.9	6.2	6.1	5.8	4.5	4.0	3.0	2.2	1.8	1.6	2.8
Baranya	11.1	11.2	11.9	11.6	13.4	13.3	12.9	13.6	14.7	17.1	16.6	16.4	15.0	9.1	11.6	9.6	6.3	8.1	8.2	10.3
Bács-Kiskun	9.3	8.8	9.4	9.9	10.4	10.2	11.4	12.0	17.9	15.6	14.8	13.7	13.3	15.8	9.7	7.3	8.6	5.5	5.3	6.6
Békés	11.9	11.2	11.5	12.0	13.0	13.5	15.0	14.8	17.3	18.1	17.8	15.8	14.8	12.0	9.6	8.2	7.6	7.0	7.2	9.0
Borsod-Abaúj-Zemplén	19.0	19.1	19.6	18.3	18.9	18.0	19.9	20.1	23.1	23.7	23.5	22.9	20.9	19.6	16.6	14.0	13.2	12.3	12.5	14.5
Csongrád	8.3	8.1	8.5	9.7	10.7	8.8	9.2	9.3	11.6	12.4	11.5	11.5	11.0	8.5	7.2	5.6	4.6	3.9	3.7	4.6
Fejér	6.4	6.4	7.1	7.3	7.4	7.3	7.1	7.5	11.5	12.4	12.1	10.8	10.1	7.6	6.6	5.1	4.5	4.0	4.0	5.2
Győr-Moson-Sopron	4.1	4.0	4.1	4.6	5.4	4.6	4.1	4.1	6.9	6.8	5.7	5.0	4.6	2.9	2.4	1.9	1.6	1.3	1.3	2.6
Hajdú-Bihar	13.6	12.8	13.1	12.9	14.0	13.9	15.6	16.5	19.1	20.3	20.7	19.9	18.6	16.1	14.1	11.5	10.3	9.4	8.9	9.9
Heves	10.6	9.8	10.0	10.6	11.3	11.1	12.2	12.7	15.8	16.1	16.1	15.7	15.0	11.9	11.5	9.8	9.0	7.9	8.0	10.2
Jász-Nagykun-Szolnok	11.5	10.2	10.7	11.2	12.0	11.4	11.8	12.2	15.5	16.4	18.1	16.8	15.4	13.4	12.0	10.3	9.2	8.1	8.2	9.9
Komárom-Esztergom	7.0	6.7	6.0	5.8	6.8	5.8	5.4	5.5	10.2	10.4	9.5	8.9	8.7	6.5	5.7	4.1	3.8	3.3	3.4	4.8
Nógrád	14.3	13.8	14.6	14.6	16.1	16.1	17.7	17.8	21.2	22.0	22.9	23.9	21.7	19.1	17.4	15.3	13.9	12.0	11.9	14.3
Pest	4.4	3.7	3.7	3.8	4.2	3.9	4.3	4.4	6.7	7.7	7.6	7.4	7.2	6.2	5.5	4.7	3.9	3.2	3.0	4.0
Somogy	11.6	11.5	12.2	13.4	14.5	14.6	16.2	16.9	19.4	18.9	18.3	18.2	17.1	16.1	13.8	11.6	11.2	10.3	9.8	12.3
Szabolcs-Szatmár-Bereg	17.8	16.7	17.7	17.5	18.6	18.8	21.0	22.4	24.7	24.8	26.0	25.0	23.0	19.5	16.0	13.0	12.0	11.0	10.5	11.2
Tolna	11.0	10.0	10.7	11.6	11.8	10.5	11.5	12.1	15.2	14.7	14.2	13.7	13.7	11.1	9.3	7.7	7.2	6.0	6.3	8.1
Vas	4.9	4.5	5.0	6.0	6.8	6.1	6.2	6.1	9.8	9.6	7.7	6.7	6.9	5.1	4.3	3.5	3.5	3.3	3.3	4.9
Veszprém	6.9	6.6	7.0	7.3	8.0	7.7	8.0	8.2	12.6	12.3	10.8	9.6	9.4	6.9	5.9	4.5	3.9	3.6	3.9	5.6
Zala	6.5	6.4	7.0	7.4	9.3	9.0	9.3	9.4	13.0	12.9	11.7	11.6	12.3	9.6	7.8	6.3	5.8	5.2	5.2	7.4
Total	8.5	8.0	8.3	8.7	9.4	9.0	9.7	10.0	12.8	13.3	13.2	12.6	11.9	9.8	8.5	6.9	6.2	5.5	5.4	6.8

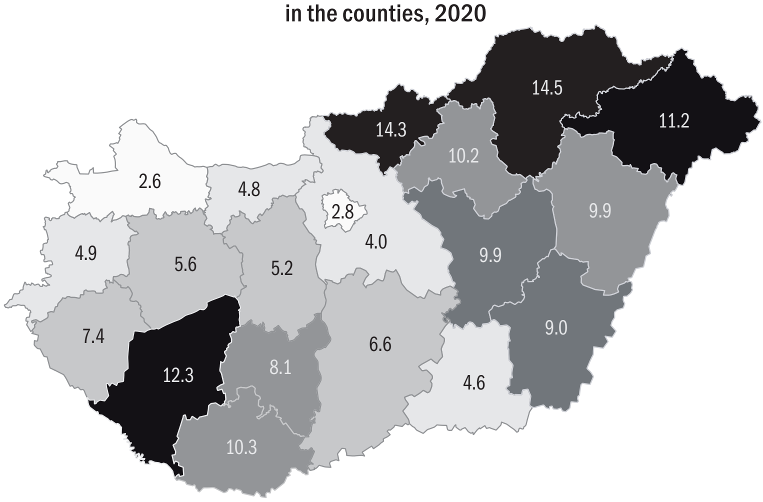
[a] Since the 1st of November, 2005: the ratio of registered jobseekers. From the 1st of November, 2005 the Emp loyment Act changed the definition of registered unemployed to registered jobseekers.

[b] The denominator of the ratio is the economically active population on January 1st of the previous year.

Source: *NFSZ REG.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent09_04

Figure 9.4: Regional inequalities: Means of registered unemployment rates in the counties, 2020



Source: *NFSZ REG.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena09_04

Table 9.5: Regional inequalities: Gross monthly earnings[a]

Year	Central Hungary	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
2003	170,280	127,819	121,464	117,149	117,847	115,278	113,532	135,472
2004	184,039	137,168	131,943	122,868	128,435	124,075	121,661	147,111
2005	192,962	147,646	145,771	136,276	139,761	131,098	130,406	157,770
2006	212,001	157,824	156,499	144,189	152,521	142,142	143,231	171,794
2007	229,897	173,937	164,378	156,678	159,921	153,241	153,050	186,229
2008	245,931	185,979	174,273	160,624	169,313	160,332	164,430	198,087
2009	254,471	187,352	182,855	169,615	169,333	160,688	164,638	203,859
2010	258,653	194,794	183,454	171,769	173,696	162,455	169,441	207,456
2011	264,495	197,774	184,311	181,500	185,036	173,243	177,021	214,540
2012	279,073	215,434	202,189	208,895	196,566	191,222	187,187	230,073
2013	290,115	220,495	209,418	190,126	188,635	178,499	187,762	230,018
2014	296,089	228,974	219,727	200,359	204,472	194,654	196,667	240,675
2015	306,890	234,443	230,142	205,020	200,174	191,973	203,280	245,210
2016	332,046	258,131	244,828	219,194	205,679	198,726	216,677	263,317
2017	375,349	286,126	279,518	250,879	240,210	232,855	249,125	300,232
2018	393,854	319,102	296,756	272,186	264,661	256,392	271,062	324,719
2019	406,566	342,960	340,467	300,059	294,333	274,125	280,613	350,909
2020	479,067	382,371	380,985	334,495	316,078	309,908	324,621	400,589

[a] Gross monthly earnings (HUF/person), May.
Note: The data refer to full-time employees in the budgetary sector and firms employing at least 5 workers, respectively. Since 2019 the NFSZ BT is conducted by KSH.
Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent09_05

Table 9.6: Regression-adjusted earnings differentials

Year	Central Hungary	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain
2003	0.0493	–0.0542	–0.1220	–0.1220	–0.1400	–0.1410
2004	0.0648	–0.0313	–0.1410	–0.0953	–0.1400	–0.1270
2005	0.0291	–0.0372	–0.1310	–0.1010	–0.1450	–0.1390
2006	0.0478	–0.0170	–0.1640	–0.0922	–0.1480	–0.1130
2007	0.0528	–0.0926	–0.1520	–0.1340	–0.1610	–0.1420
2008	0.0438	–0.0751	–0.1730	–0.1320	–0.1780	–0.1630
2009	0.0766	–0.0377	–0.1250	–0.1170	–0.1380	–0.1500
2010	0.0704	–0.0758	–0.1450	–0.1200	–0.1620	–0.1500
2011	0.0893	–0.0604	–0.1020	–0.0863	–0.1340	–0.1170
2012	0.0664	–0.0361	–0.0750	–0.0947	–0.1140	–0.1170
2013	0.0258	–0.0617	–0.1130	–0.1150	–0.1560	–0.1340
2014	0.0212	–0.0415	–0.1170	–0.1070	–0.1280	–0.1260
2015	0.0303	–0.0150	–0.0994	–0.0920	–0.1280	–0.1180
2016	0.0303	–0.0346	–0.1290	–0.1450	–0.1620	–0.1440
2017	0.0353	–0.0412	–0.1190	–0.1410	–0.1580	–0.1330

Note: the results indicate the earnings differentials of the various groups relative to the reference group in log points (approximately percentage points). All parameters are significant at the 0.01 level.
Reference category: women, with leaving certificate (general education certificate), not in the public sector, working in the Central-Transdanubia region.
Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent09_06

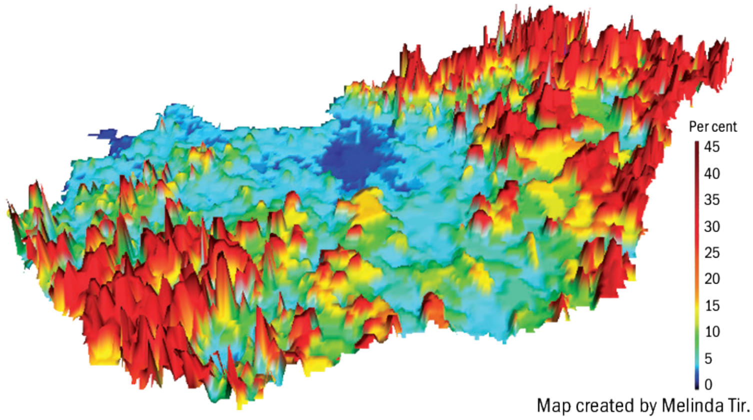
Table 9.7: Regional inequalities: Gross domestic product

Year	Central Hungary	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
Thousand HUF/person/month								
2004	3,318	1,973	2,186	1,464	1,329	1,391	1,477	2,085
2005	3,626	2,100	2,242	1,517	1,449	1,458	1,550	2,235
2006	3,947	2,202	2,490	1,609	1,533	1,554	1,652	2,414
2007	4,219	2,360	2,575	1,714	1,602	1,587	1,713	2,556
2008	4,463	2,469	2,707	1,834	1,654	1,692	1,847	2,711
2009	4,434	2,223	2,534	1,802	1,556	1,677	1,770	2,640
2010	4,476	2,365	2,790	1,836	1,625	1,732	1,813	2,727
2011	4,598	2,515	2,912	1,897	1,697	1,855	1,918	2,845
2012	4,717	2,544	2,965	1,976	1,714	1,881	2,004	2,908
2013	4,865	2,757	3,134	2,100	1,882	1,955	2,163	3,062
2014	5,207	2,999	3,516	2,194	2,081	2,125	2,356	3,319
2015	5,396	3,329	3,845	2,359	2,369	2,267	2,573	3,549
2016	5,583	3,508	4,008	2,469	2,450	2,327	2,645	3,685
2017	6,073	3,747	4,191	2,709	2,764	2,566	2,867	4,008
2018	6,681	4,134	4,512	3,066	3,060	2,882	3,237	4,434
2019	7,432	4,476	4,726	3,351	3,244	3,148	3,534	4,863
Per cent								
2004	159.1	94.6	104.8	70.2	63.7	66.7	70.8	100.0
2005	162.2	94.0	100.3	67.9	64.8	65.2	69.4	100.0
2006	163.5	91.2	103.1	66.7	63.5	64.4	68.4	100.0
2007	165.1	92.3	100.7	67.1	62.7	62.1	67.0	100.0
2008	164.6	91.1	99.9	67.7	61.0	62.4	68.1	100.0
2009	168.0	84.2	96.0	68.3	58.9	63.5	67.0	100.0
2010	164.1	86.7	102.3	67.3	59.6	63.5	66.5	100.0
2011	161.6	88.4	102.4	66.7	59.6	65.2	67.4	100.0
2012	162.2	87.5	102.0	68.0	58.9	64.7	68.9	100.0
2013	158.9	90.0	102.4	68.6	61.5	63.8	70.6	100.0
2014	156.9	90.4	106.0	66.0	62.7	64.1	71.0	100.0
2015	152.0	93.9	108.4	67.0	66.5	63.9	72.5	100.0
2016	151.5	95.2	108.8	66.9	66.6	63.1	71.8	100.0
2017	151.5	93.5	104.6	67.6	69.0	64.0	71.5	100.0
2018	150.7	93.2	101.8	69.1	69.0	65.0	73.0	100.0
2019	152.8	92.0	97.2	68.9	66.7	64.7	72.7	100.0

Note: The data have been retrospectively revised following ESA2010 standards (European System of National and Regional Accounts).
Source: *KSH STADAT* (2021.04.06. version).

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent09_07

Figure 9.5: The share of registered unemployed relative to the population aged 15–64, 1st quarter 2007, per cent

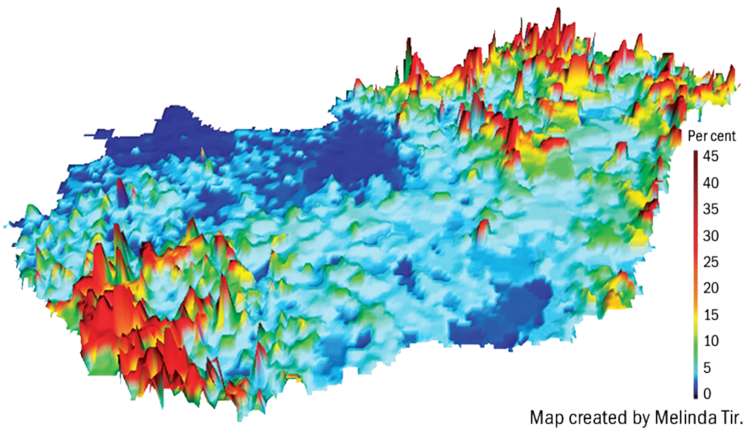


Note: The ratio of registered unemployed was calculated using the following method: the number of registered unemployed divided by the permanent population of age 15–64. The number of registered unemployed is a quarterly average. The permanent population data is annual.

Source: *Registered unemployed: NFSZ IR. Population: KSH T-Star.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena09_05

Figure 9.6: The share of registered unemployed relative to the population aged 15–64, 1st quarter 2020, per cent

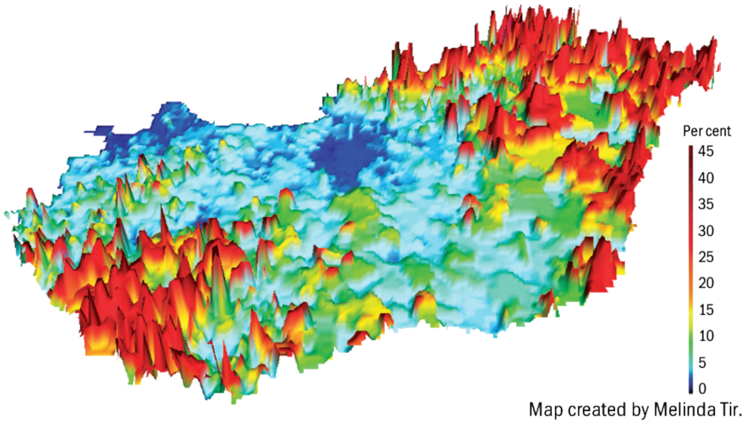


Note: The ratio of registered unemployed was calculated using the following method: the number of registered unemployed divided by the permanent population of age 15–64. The number of registered unemployed is a quarterly average. The permanent population data is annual.

Source: *Registered unemployed: NFSZ IR. Population: KSH T-Star.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena09_06

Figure 9.7: The share of registered unemployed relative to the population aged 15–64, 3rd quarter 2007, per cent

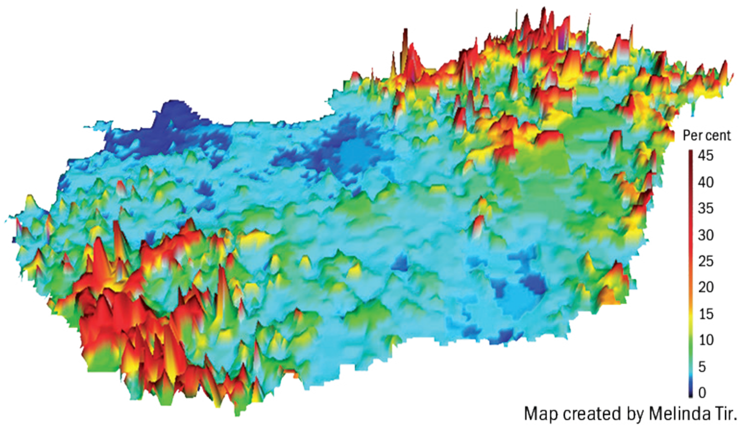


Note: The ratio of registered unemployed was calculated using the following method: the number of registered unemployed divided by the permanent population of age 15–64. The number of registered unemployed is a quarterly average. The permanent population data is annual.

Source: *Registered unemployed: NFSZ IR. Population: KSH T-Star.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena09_07

Figure 9.8: The share of registered unemployed relative to the population aged 15–64, 3rd quarter 2020, per cent



Note: The ratio of registered unemployed was calculated using the following method: the number of registered unemployed divided by the permanent population of age 15–64. The number of registered unemployed is a quarterly average. The permanent population data is annual.

Source: *Registered unemployed: NFSZ IR. Population: KSH T-Star.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ena09_08

Table 10.1: Strikes

Year	Number of strikes	Number of persons involved	Hours lost, in thousands
2002	4	4,573	9
2003	7	10,831	19
2004	8	6,276	116
2005	11	1,425	7
2006	16	24,665	52
2007	13	64,612	186
2008	8	8,633	..
2009	9	3,134	9
2010	7	3,263	133
2011	1	..	..
2012	3	1,885	5
2013	1	..	..
2014	0	0	0
2015	2	..	..
2016	7	39,101	271
2017	5	6,706	30
2018	6	15,535	289
2019	12	20,905	416
2020	2	..	..

Source: *KSH STADAT* strike statistics (2021.04.06. version).

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent10_01

Table 10.2: National agreements on wage increase recommendations[a]

	OÉT – from 2013 VKF – Recommendations			Actual indexes	
Year	Minimum	Average	Maximum	Budgetary sector	Competitive sector
2002	108.0	..	110.5	129.2	113.3
2003	..	4.5% real wage growth	..	117.5	108.9
2004	..	107.0–108.0	..	100.4	109.3
2005	..	106.0	..	112.8	106.9
2006	..	104.0–105.0	..	106.4	109.3
2007	..	105.5–108.0	..	106.4	109.1
2008	..	105.0–107.5	..	106.2	108.4
2009	..	103.0–105.0	..	92.1	104.3
2010	..	real wage preservation	..	100.5[b]	103.2
2011	..	104.0–106.0	..	99.3	105.3
2012	–	no wage recommendations	–	103.7	107.2
2013	..	real wage preservation	..	110.9	103.6
2014	..	103.5	..	105.9	104.2
2015	..	103.0–104.0	..	106.2	103.9
2016	..	verbal recommendation was issued and accepted	..	109.6	105.4
2017	..	recommendation wasn't accepted	..	113.0	111.6
2018	..	recommendation wasn't accepted	..	109.0	110.9
2019	..	recommendation wasn't accepted	..	107.9	111.6
2020	..	recommendation wasn't accepted	..	109.6	109.8

[a] Average increase rates of gross earnings from recommendations by the National Interest Reconciliation Council (OÉT) and the Permanent Consultation Forum of the Business Sector and the Government (VKF, from 2013 onwards). Previous year = 100.

[b] Mean real wage index.

Source: *KSH, ITM*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent10_02

Table 10.3: Single employer collective agreements in the business sector

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of agreements	1,027	962	966	959	942	951	951	950	994	995	999	1,011
Number of persons covered	467,964	432,086	448,138	448,980	442,723	448,087	443,543	458,668	463,823	386,947	388,996	397,650

Note: Due to ongoing data cleaning, the data for 2020 are not yet available.
Source: *ITM,* Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent10_03

Table 10.4: Single institution collective agreements in the public sector

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of agreements	1,710	1,737	1,751	1,744	1,735	1,736	1,734	798	800	804	819	820
Number of persons covered	222,547	225,434	224,651	222,136	261,401	260,388	259,797	301,430	312,055	270,583	167,583	193,695

Note: Due to ongoing data cleaning, the data for 2020 are not yet available.
Source: *ITM,* Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent10_04

Table 10.5: Multi-employer collective agreements in the business sector

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of agreements	78	80	82	81	81	83	83	83	84	84	83	84
Number of persons covered	80,506	222,236	221,627	202,005	204,585	173,614	219,050	299,487	313,044	266,212	230,938	229,477

Note: Due to ongoing data cleaning, the data for 2020 are not yet available.
Source: *ITM,* Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent10_05

Table 10.6: Multi-institution collective agreements in the public sector

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of agreements	1	1	1	1	0	0	0	0	0	0	1	1
Number of persons covered	..	..	..	320	0	0	0	0	0	0	55,979	56,612

Note: Due to ongoing data cleaning, the data for 2020 are not yet available.
Source: *ITM,* Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent10_06

Table 10.7: The number of firm wage agreements[a], the number of affected firms, and the number of employees covered

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of agreements	202	785	905	888	863	874	876	867	878	873	874	887
Number of persons covered	100,206	377,677	414,522	416,562	415,751	422,887	384,182	424,914	437,238	368,021	336,288	376,139

[a] Until 2008, the data relate to the number of 'wage agreements' concerning the next year's average wage increase, in the typical case. In and after 2009, the figures relate to resolutions within collective agreements, which affect the remuneration of workers (including long-term agreements on wage supplements, bonuses, premia, non-wage benefits and rights and responsibilities connected with wage payments).
Note: Due to ongoing data cleaning, the data for 2020 are not yet available.
Source: *ITM,* Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent10_07

Table 10.8: The number of multi-employer wage agreements[a], the number of affected firms, and the number of covered companies and employees

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of agreements	45	62	68	68	73	74	74	74	73	70	72	70
Number of companies	150	2,350	2,460	2,199	2,219	1,096	2,886	3,700	1,833	1,833	1,830	1,832
Number of persons covered	40,046	191,258	211,753	180,131	191,013	160,092	208,128	289,154	199,779	165,789	165,293	162,699

[a] Until 2008, the data relate to the number of 'wage agreements' concerning the next year's average wage increase, in the typical case. In and after 2009, the figures relate to resolutions within collective agreements, which affect the remuneration of workers (including long-term agreements on wage supplements, bonuses, premia, non-wage benefits and rights and responsibilities connected with wage payments).
Note: Due to ongoing data cleaning, the data for 2020 are not yet available.
Source: *ITM,* Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent10_08

Table 10.9: The share of employees covered by collective agreements, percent[a]

	Multi-employer collective agreements in the business sector[b]					Single employer collective agreements in the national economy				
Industries	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
Agriculture	21.12	40.83	36.90	35.88	37.33	9.87	21.81	15.77	14.34	14.99
Mining and quarrying	5.35	6.87	16.02	16.21	14.08	40.46	58.42	52.92	35.02	30.41
Manufacturing	11.94	10.82	11.15	8.96	8.73	25.86	27.28	27.14	21.61	21.16
Electricity, gas, steam and air conditioning supply	73.69	78.50	89.54	84.24	87.06	53.19	58.00	55.15	52.27	55.21
Water supply; sewerage, waste management and remediation activities	27.10	35.25	43.26	42.61	42.64	46.57	59.09	57.08	53.44	55.43
Construction	98.00	98.91	98.54	98.56	98.89	6.65	6.63	5.57	3.80	3.47
Wholesale and retail trade; repair of motor vehicles and motorcycles	6.88	7.56	6.65	5.84	5.54	7.71	7.34	6.81	5.03	4.57
Transportation and storage	37.38	42.22	50.17	57.91	33.59	54.40	59.69	61.93	69.12	66.06
Accommodation and food service activities	87.66	93.51	94.02	93.26	93.05	6.24	5.62	5.75	2.94	2.59
Information and communication	0.81	0.74	0.58	0.28	0.26	19.19	20.81	17.64	15.04	13.69
Financial and insurance activities	5.36	5.85	5.94	6.05	5.95	32.89	37.50	37.05	36.78	36.72
Real estate activities	17.36	16.77	16.81	1.38	1.39	26.14	26.82	29.89	5.68	5.79
Professional, scientific and technical activities	4.49	5.39	4.20	0.85	0.80	12.78	10.37	7.45	4.71	4.16
Administrative and support service activities	7.06	6.30	6.24	3.96	3.59	8.17	6.18	5.87	2.63	2.40
Public administration and defence; compulsory social security	..	..	..	0.00	0.00	15.55	7.27	9.75	3.82	12.62
Education	4.81	5.43	2.27	2.32	2.65	44.98	70.79	68.30	61.75	15.55
Human health and social work activities	..	..	..	0.00	0.00	36.38	26.50	27.36	24.35	26.79
Arts, entertainment and recreation	0.14	0.09	0.02	0.00	0.00	22.99	21.68	23.51	21.15	19.10
Other service activities	1.46	7.58	2.54	1.52	1.66	6.88	11.80	12.58	11.18	10.86
National economy, total	21.51	20.85	23.66	22.14	20.32	24.59	25.84	25.99	22.14	18.18

[a] Percentage share of employees covered by collective agreements.
[b] In the observed period, only a single multi-employer collective agreement was in effect in the public sector.
Note: Due to changes in the KSH's methodology, we cannot calculate the data for 2019.
Source: *ITM*, Employment Relations Information System, Register of Collective Agreements.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent10_09

Table 10.10: Single employer collective agreements in the national economy

Industries	Number of collective agreements						The number of employees covered by collective agreements					
	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
Agriculture	66	66	66	65	65	65	7,680	17,603	12,263	10,990	10,990	10,538
Mining and quarrying	9	9	9	9	9	9	1,498	2,057	1,751	1,136	1,136	1,209
Manufacturing	355	353	346	343	346	347	157,178	174,379	180,257	148,315	149,136	150,676
Electricity, gas, steam and air conditioning supply	44	43	45	44	44	49	12,414	13,450	13,210	12,410	12,524	14,555
Water supply; sewerage, waste management and remediation activities	68	69	59	56	63	62	19,010	25,021	25,796	23,283	24,316	24,252
Construction	46	47	45	46	45	45	7,488	7,540	6,358	4,511	4,510	3,487
Wholesale and retail trade; repair of motor vehicles and motorcycles	119	117	115	112	110	107	25,565	25,212	24,197	18,326	17,575	17,699
Transportation and storage	59	50	91	96	96	89	96,550	109,336	125,960	112,168	112,470	117,274
Accommodation and food service activities	35	34	36	36	37	38	4,986	4,969	5,127	2,805	2,699	3,577
Information and communication	15	15	16	16	16	16	13,727	15,514	13,954	12,255	12,255	11,663
Financial and insurance activities	26	26	27	29	29	29	20,892	22,476	22,882	22,285	22,672	22,320
Real estate activities	32	32	43	49	50	52	7,079	7,367	8,152	1,446	1,672	1,687
Professional, scientific and technical activities	54	57	55	53	53	67	10,047	9,534	7,432	4,981	4,791	6,064
Administrative and support service activities	24	24	23	25	25	26	11,080	10,238	9,589	4,270	4,263	4,372
Public administration and defence; compulsory social security	104	104	106	102	123	121	40,431	21,224	28,022	10,734	34,947	34,556
Education	1,292	352	355	354	354	356	114,377	176,637	177,956	175,162	45,072	46,890
Human health and social work activities	228	226	227	226	228	227	95,961	94,549	98,399	81,037	84,116	84,790
Arts, entertainment and recreation	91	92	96	96	97	98	7,592	9,341	9,955	8,181	8,181	8,431
Other service activities	18	19	21	20	22	22	1,474	2,283	2,552	2,311	2,330	2,537
National economy, total	2,685	1,735	1,781	1,777	1,812	1,825	655,029	748,730	773,812	656,606	555,655	566,577

Note: Due to ongoing data cleaning, the data for 2020 are not yet available.
Source: *ITM*, Employment Relations Information System, Register of Collective Agreements.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent10_10

Table 10.11: Multi-employer collective agreements in the business sector[a]

	The number of firms covered by the multi-employer[b] collective agreements						The number of employees covered by multi-employer collective agreements					
Industries	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
Agriculture	41	706	673	678	667	670	17,002	32,822	28,586	27,359	27,182	25,488
Mining and quarrying	4	4	6	6	6	6	195	242	530	526	526	583
Manufacturing	174	231	237	240	244	244	72,623	67,668	72,432	60,161	60,291	61,665
Electricity, gas, steam and air conditioning supply	35	34	40	39	37	38	17,142	17,962	21,151	19,720	19,440	17,272
Water supply; sewerage, waste management and remediation activities	28	28	32	33	31	30	9,283	11,450	14,039	13,053	12,990	12,771
Construction	510	555	558	549	558	556	110,173	112,034	112,352	116,659	128,317	109,154
Wholesale and retail trade; repair of motor vehicles and motorcycles	192	240	221	209	207	208	22,827	25,944	23,640	21,256	21,284	22,399
Transportation and storage	1,209	1,560	1,620	1,618	1,613	1,615	63,934	73,515	97,689	89,412	54,567	56,405
Accommodation and food service activities	37	35	39	39	40	39	63,526	73,759	75,848	79,360	86,972	71,865
Information and communication	12	11	9	9	9	9	597	550	461	231	231	201
Financial and insurance activities	9	12	12	13	12	12	3,269	3,499	3,662	3,652	3,652	3,714
Real estate activities	34	40	42	47	48	50	4,055	4,030	4,255	330	365	339
Professional, scientific and technical activities	45	58	56	57	58	58	3,326	4,368	3,783	815	843	953
Administrative and support service activities	104	111	104	105	105	105	10,013	9,310	9,433	6,007	6,009	5,218
Public administration and defence; compulsory social security	1	3	3	3	3	3	0	1,540	1,571	1,388	1,388	1,269
Education	24	26	25	25	24	25	172	189	134	122	122	115
Human health and social work activities	2	0	0	0	0	0	..	0	0	0	0	0
Arts, entertainment and recreation	4	2	1	0	0	0	13	10	2	0	0	0
Other service activities	2	13	9	9	9	9	204	1,125	381	236	236	221
National economy, total	2,467	3,669	3,687	3,679	3,671	3,677	398,354	440,017	469,949	440,287	424,415	389,632

[a] In the observed period, only a single multi-employer collective agreement was in effect in the public sector.
[b] Multi-employer collective agreements are those concluded and/or extended by several employers or employer organizations.
Note: Due to ongoing data cleaning, the data for 2020 are not yet available.
Source: *ITM*, Employment Relations Information System, Register of Collective Agreements.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent10_11

Table 11.1: Family benefits

	Family allowance[a]		Child-care benefit[a]		Child-rearing support[a]		Child-care allowance[a]		Infant-care benefit[b]
Year	Average monthly amount per family, HUF	Average number of recipient families	Average monthly amount, HUF	Average number of recipients	Average monthly amount per family, HUF	Average number of recipient families	Average monthly amount, HUF	Average number of recipients	Average number of recipients
2010	24,442	1,224,042	81,356	94,682	28,466	39,275	30,388	178,532	27,289
2011	24,528	1,190,707	83,959	87,717	28,993	37,829	30,929	169,721	24,769
2012	24,491	1,167,640	91,050	81,839	28,612	38,608	30,640	168,037	25,223
2013	24,257	1,149,796	96,661	81,234	28,530	37,411	30,687	161,274	24,230
2014	23,674	1,134,556	104,547	83,701	28,636	36,101	31,180	161,226	24,753
2015	23,902	1,108,302	110,896	85,970	28,615	34,587	31,883	163,376	25,886
2016	23,849	1,094,004	118,607	91,126	28,423	33,381	31,880	162,992	26,931
2017	23,678	1,090,651	130,087	97,470	28,164	32,941	31,278	164,297	27,989
2018	23,681	1,082,791	142,084	102,512	28,179	32,607	31,248	159,226	27,696
2019	23,636	1,077,010	157,265	104,440	28,167	32,698	31,179	155,954	28,066
2020	23,676	1,073,101	172,185	110,144	28,300	32,445	31,545	150,669	29,891

[a] Annual mean.

[b] Pregnancy and confinement benefit till 31st December 2014. Infant-care benefit is 70 per cent of the recipient's daily income. The amount is subject to personal income tax but exempt from health and pension contributions.

Note: Family tax allowance was introduced in 1999. In 2006, it became part of the family allowance. Parents with 3 or more children were entitled to a tax allowance of HUF 4,000 per child per month. In the period 2011–2016, the tax base reduction amounted to HUF 66 670 for one dependent, HUF 83 330 per child for two dependents, and HUF 206,250 per child for three or more dependents. (The respective figures for two children were HUF 100 000 in 2017, HUF 115 670 in 2018 and HUF 133 330 in 2019). Currently, the maximum monthly reduction is HUF 220 000 per child for three dependents. The child protection allowance existed from 1998 to 2015.

Source: *KSH STADAT.*

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent11_01

Table 11.2: Unemployment benefits and average earnings

	Insured unemployment benefit and other non-means-tested benefits[a]		Means-tested unemployment assistance[b]		Net monthly earnings, HUF[c]
Year	Average monthly amount, HUF	Average number of recipients	Average monthly amount, HUF	Average number of recipients	
2010	50,073	125,651	27,574	174,539	132,604
2011	52,107	110,803	25,139	209,918	141,151
2012	63,428	62,380	21,943	236,609	144,085
2013	68,730	48,019	22,781	212,699	151,118
2014	69,720	42,423	22,800	160,858	155,690
2015	72,562	40,576	22,787	158,141	162,391
2016	75,183	41,521	22,874	115,568	175,009
2017	82,912	42,344	22,868	99,783	197,516
2018	93,276	42,258	23,039	86,109	219,412
2019	107,836	44,306	23,049	79,344	244,609
2020	116,741	62,026	22,963	72,210	268,405

[a] Average headcount at the end of the month. Since the 1st of November, 2005 insurance-based unemployment benefits are officially called "jobseeker's allowance".

[b] Persons receiving social assistance: registered jobseekers of working age, classified as vulnerable by the PES. Since the 1st of January 2009, two types of social assistance have existed; group 1 receive social benefit, while group 2 receive 'availability assistance', conditional on acceptance of job offers provided by the PES. On the 1st of January 2011, the second type of benefit was renamed 'wage replacement allowance'. On the 1st of September 2011, the name changed again to 'non-employment subsidy'. These welfare payments are regulated in Law 1993. III.

[c] The average net wage refers to the entire economy, competitive sector: firms with at least 4 employees.

Source: *NFSZ*: *Labour Market Report, 2001*. *KSH*: *Welfare systems 2007, Welfare Statistics, Yearbook of Demographics. KSH Social Statistics Yearbooks. KSH STADAT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent11_02

Table 11.3: Number of those receiving pension[a], and the mean sum of the provisions they received in January of the given year

Type of benefit	2016 Number of recipients	2016 Average amount after increase (HUF/month)	2017 Number of recipients	2017 Average amount after increase (HUF/month)	2018 Number of recipients	2018 Average amount after increase (HUF/month)	2019 Number of recipients	2019 Average amount after increase (HUF/month)	2020 Number of recipients	2020 Average amount after increase (HUF/month)
Old age pension	2,014,666	121,041	2,045,738	123,725	2,027,256	129,637	2,031,674	134,947	2,053,600	142,114
Of which:										
Old age pension of persons above the mandatory retirement age[b]	1,870,457	120,930	1,901,565	123,799	1,876,148	129,801	1,872,451	134,985	1,906,306	141,894
Pension for women entitled to retire before the mandatory age after having accumulated at least 40 entitlement years	139,639	119,457	141,904	121,184	149,971	126,797	159,223	134,498	147,294	144,962
Old age pension of persons younger than the mandatory retirement age[c]	4,570	215,017	2,269	220,526	1,137	233,700	–	–	–	–

[a] Pension: Excludes survivors' pensions. From 2012 onwards, no old-age pension is granted to persons younger than the mandatory retirement age. Exceptions are pensions for women having accumulated 40 or more entitlement years.
[b] From 2012 onwards, the disability pensions of persons older than the mandatory retirement age are granted as old-age pensions.
[c] Data for 2011 apply the following benefits only: advanced pension, advanced pension with reduced amount, early retirement pension due to hazardous working conditions and pension for the professional members of the armed forces or the professional or contractual members of the Hungarian Army. Pensions for the professional members of the armed forces or the professional or contractual members of the Hungarian Army born before 1955 were only transformed into old-age pensions in 2012, hence data from this year apply to them.
Source: *MÁK*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent11_03

Table 11.4:Number of those receiving social annuities for people with damaged health, and the mean sum of the provisions they received after the increase, in January of the given year

Support for disabled persons	2016 Number of recipients	2016 Average amount after increase (HUF/month)	2017 Number of recipients	2017 Average amount after increase (HUF/month)	2018 Number of recipients	2018 Average amount after increase (HUF/month)	2019 Number of recipients	2019 Average amount after increase (HUF/month)	2020 Number of recipients	2020 Average amount after increase (HUF/month)
Support for disabled persons	357,979	69,399	355,188	70,127	338,906	72,762	314,570	75,049	293,755	78,162
Of which:										
Disability provision for persons older than the mandatory retirement age	52,215	78,425	62,518	80,833	51,965	84,885	55,713	87,810	49,495	91,759
Disability provision for persons younger than the mandatory retirement	228,730	73,215	249,909	71,199	250,062	73,696	228,929	75,096	220,350	78,024
Rehabilitation provision	92,951	54,282	40,741	45,604	34,955	46,292	28,128	47,292	22,222	46,704
Annuity for miners with damaged health	2,038	98,621	2,020	100,817	1,924	104,818	1,800	107,798	1,688	111,659

Disability pensions and temporary provisions for disability groups 1–2, granted prior to 2012, have been transformed into 'disability allotments'. The provisions for permanent social benefit recipients born before 1955 have also been transformed to 'disability allotments'. Disability pensions and permanent social benefits granted before 2012 to the members of disability group 3 have been transformed into 'rehabilitation allotment'. The conditions of these provisions will be set in the framework of a complex revision of entitlement and eligibility.
Source: *MÁK*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent11_04

Table 11.5: The mean age for retirement and the number of pensioners

	2011		2012		2013		2014		2015	
Pension	Age	Persons	Age	Persons	Age	Persons	Age	Persons	Age	Persons
Females										
Old age and similar pensions	58.6	85,503	59.3	53,659	59.6	40,775	59.7	39,425	60.1	42,199
Pension for women entitled to retire before the mandatory age after having accumulated at least 40 entitlement years	57.7	54,872	57.8	26,910	58.0	24,298	58.3	27,637	58.7	28,767
Disability and accident-related disability pension	50.7	9,040	–	–	–	–	–	–	–	–
Rehabilitation annuity	47.1	5,267	..	..	..	..	..	..	..	..
Total	57.2	99,810	..	..	..	..	..	..	..	..
Males										
Old age and similar	60.6	44,111	62.2	22,265	62.3	21,871	62.8	18,912	62.8	22,569
Disability and accident-related disability pension	52.0	11,106	–	–	–	–	–	–	–	–
Rehabilitation annuity	47.0	4,945	..	..	..	..	..	..	..	..
Total	57.9	60,162	..	..	..	..	..	..	..	..
Together										
Old age and similar pensions	59.2	129,614	60.2	75,924	60.6	62,646	60.7	58,337	61.0	64,768
Disability and accident-related disability pension	51.4	20,146	–	–	–	–	–	–	–	–
Rehabilitation annuity	47.1	10,212	..	..	..	..	..	..	..	..
Total	57.5	159,972	..	..	..	..	..	..	..	..
	2016		2017		2018		2019		2020	
Females										
Old age and similar pensions	61.1	55,882	61.0	47,091	61.3	50,102	62.1	61,724	61.6	42,792
Pension for women entitled to retire before the mandatory age after having accumulated at least 40 entitlement years	59.0	28,260	59.3	28,657	59.5	29,372	59.6	27,942	59.8	26,984
Disability and accident-related disability pension	–	–	–	–	–	–	–	–	–	–
Rehabilitation annuity	..	..	..	..	..	..	..	..	..	..
Total	..	..	..	..	..	..	..	..	..	..
Males										
Old age and similar pensions	63.1	50,386	63.6	32,520	63.7	35,639	64.1	59,619	64.5	29,582
Disability and accident-related disability pension	–	–	–	–	–	–	–	–	–	–
Rehabilitation annuity	..	..	..	..	..	..	..	..	..	..
Total	..	..	..	..	..	..	..	..	..	..
Together										
Old age and similar pensions	62.1	106,268	62.1	79,611	62.3	85,741	63.1	121,343	62.8	72,374
Disability and accident-related disability pension	–	–	–	–	–	–	–	–	–	–
Rehabilitation annuity	..	..	..	..	..	..	..	..	..	..
Total	..	..	..	..	..	..	..	..	..	..

Note: The source of these statistics is data from the pension determination system of the ONYF (NYUGDMEG), so these do not include the data for the armed forces and the police. Data on MÁV is included from 2008. 'Old age pensions' include some allowances of minor importance paid to recipients younger than the mandatory retirement age. The data from 2011 have been revised and may differ from those in earlier publications.

Source: *MÁK*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent11_05

Table 11.6: The number of those receiving a disability annuity and the mean sum of the provisions they received after the increase, in January of the given year

	Disability annuity			Disability annuity	
Year	Number of recipients	Average amount, HUF	Year	Number of recipients	Average amount, HUF
2005	28,738	27,257	2013	32,463	33,422
2006	29,443	28,720	2014	32,497	33,422
2007	30,039	30,219	2015	32,528	34,034
2008	30,677	32,709	2016	32,430	34,581
2009	31,263	33,434	2017	32,789	35,147
2010	31,815	33,429	2018	33,027	36,494
2011	32,314	33,429	2019	33,169	37,481
2012	32,560	33,426	2020	33,290	38,804

Source: *MÁK*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent11_06

Table 11.7: Newly determined disability pension claims and detailed data on the number of newly determined old-age pension claims

	Disability and accident-related disability pensions	Old-age and old-age type pensions[a]			From the total: at the age limit			From the total: under the age limit		
Year	Total	Male	Female	Together	Male	Female	Together	Male	Female	Together
2000	55,558	18,071	29,526	47,597	613	813	1,426	16,089	26,859	42,948
2001	54,645	28,759	14,267	43,026	2,200	4,882	7,082	25,175	7,396	32,571
2002	52,211	30,209	25,719	55,928	2,593	646	3,239	26,346	23,503	49,849
2003	48,078	32,574	13,574	46,148	3,058	5,098	8,156	28,064	6,537	34,601
2004	44,196	35,940	36,684	72,624	3,842	989	4,831	30,234	33,817	64,051
2005	41,057	33,175	48,771	81,946	4,035	6,721	10,756	27,719	40,142	67,861
2006	36,904	34,207	47,531	81,738	4,013	732	4,745	29,025	45,675	74,700
2007	34,991	51,037	62,168	113,205	3,722	6,660	10,382	45,731	54,177	99,908
2008	19,832	25,912	39,423	65,335	3,154	288	3,442	22,180	38,761	60,941
2009	21,681	37,468	15,468	52,936	4,193	6,692	10,885	32,452	8,289	40,741
2010	24,094	37,394	13,719	51,113	6,350	7,213	13,563	29,990	5,801	35,791
2011	20,146	44,111	85,503	129,614	8,708	7,882	16,590	33,013	76,386	109,399
2012	n.a.	22,265	53,659	75,924	10,905	9,367	20,272	8,668	42,677	51,345
2013	n.a.	21,871	40,775	62,646	18,825	13,290	32,115	576	25,907	26,483
2014	n.a.	18,912	39,425	58,337	14,725	8,830	23,555	995	28,554	29,549
2015	n.a.	22,569	42,199	64,768	17,808	10,619	28,427	1,364	29,333	30,697
2016	n.a.	50,386	55,882	106,268	46,091	25,057	71,148	1,658	28,974	30,632
2017	n.a.	32,520	47,091	79,611	26,183	15,162	41,345	2,144	29,246	31,390
2018	n.a.	35,639	50,102	85,741	28,410	16,552	44,962	2,027	29,893	31,920
2019	n.a.	59,619	61,724	121,343	54,242	30,668	84,910	2,025	28,419	30,444
2020	n.a.	29,582	42,792	72,374	23,024	12,250	35,274	2,302	27,314	29,616

[a] Before 2012 old-age type pensions included: old-age pensions given with a retirement age threshold allowance (early retirement), artists' pensions, pre-pension up until 1997, miners' pensions. From 2012 onwards the data include the recipients of allowances substituting (abolished) early retirement pensions.

Note: These statistics exclude data for the armed forces and police, and those for the State Railways (MÁV) until 2008. Pensions are disbursed in the given year (determined according to the given year's rules). The data for old age pensions include some items paid to people retiring before the mandatory age. The data from 2011 have been revised and may differ from those in earlier publications. The column 'of which in the year of reaching the mandatory age' excludes people who retired before reaching the mandatory age but are expected to reach it in the given calendar year.

Source: *MÁK*.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent11_07

Table 11.8: Retirement age threshold

Birth year	2009	2010	2011	2012	2013	2014 I.	2014 II.	2015 I.	2015 II.	2016	2017 I.	2017 II.	2018 I.	2018 II.	2019	2020 I.	2020 II.	2021 I.	2021 II.	2022	2023	2024
1948	61	62	63	64	65	66	66	67	67	68	69	69	70	70	71	72	72	73	73	74	75	76
1949	60	61	62	63	64	65	65	66	66	67	68	68	69	69	70	71	71	72	72	73	74	75
1950	59	60	61	62	63	64	64	65	65	66	67	67	68	68	69	70	70	71	71	72	73	74
1951	58	59	60	61	62	63	63	64	64	65	66	66	67	67	68	69	69	70	70	71	72	73
1952 I.	57	58	59	60	61	62	62,5	63	63,5	64	65	65,5	66	66,5	67	68	68,5	69	69,5	70	71	72
1952 II.	57	58	59	60	61	61,5	62	62,5	63	64	64,5	65	65,5	66	67	67,5	68	68,5	69	70	71	72
1953	56	57	58	59	60	61	61	62	62	63	64	64	65	65	66	67	67	68	68	69	70	71
1954 I.	55	56	57	58	59	60	60	61	61,5	62	63	63,5	64	64,5	65	66	66,5	67	67,5	68	69	70
1954 II.	55	56	57	58	59	59,5	60	60,5	61	62	62,5	63	63,5	64	65	65,5	66	66,5	67	68	69	70
1955	54	55	56	57	58	59	59	60	60	61	61	62	63	63	64	65	65	66	66	67	68	69
1956 I.	53	54	55	56	57	58	58,5	59	59,5	60	61	61,5	62	62,5	63	64	64,5	65	65,5	66	67	68
1956 II.	53	54	55	56	57	57,5	58	58,5	59	60	60,5	61	61,5	62	63	63,5	64	64,5	65	66	67	68
1957	52	53	54	55	56	57	57	58	58	59	60	60	61	61	62	63	63	64	64	65	66	67
1958	51	52	53	54	55	56	56	57	57	58	59	59	60	60	61	62	62	63	63	64	65	66
1959	50	51	52	53	54	55	55	56	56	57	58	58	59	59	60	61	61	62	62	63	64	65
1960	49	50	51	52	53	54	54	55	55	56	57	57	58	58	59	60	60	61	61	62	63	64

Those persons are entitled to receive an old-age pension who are at least at the age of the old-age pension threshold indicated in the legislature – marked grey in the table – relevant to them (uniform for men and women), who have fulfilled the required number of years of service. (Before 26th July 2018, only those persons were entitled who were not insured on the starting day of the new pension.) In the case of the old-age pension, the minimum service period is 15 years. The table displays the old-age pension age threshold in the case of a "representative person". The cells show the age, based on the calendar year, of a person born in the given year.

Women who have accumulated at least 40 entitlement years are entitled to a full-old age pension, regardless of their age. Following December 31, 2011 (legislature number CLXVII/2011) no pension can be granted before the old-age threshold. At the same time, the legislature continues to provide previously determined allowances under different legal titles (pre-retirement age provision, service salary, allotments for miners and ballet dancers).

Before 2012, early retirement pensions included the following allowances: early and reduced-amount early retirement pensions, pensions with age preference, miner's pension, artist's pension, pre-retirement age old-age pension of Hungarian and EU MPs and mayors, pre-pension, service pension of professional members of the armed forces.

Source: 1997. legislature number LXXXI.; 2011. legislature number CLXVII., http://www.ado.hu/rovatok/tb-nyugdij/nyudijkorhatar-elotti-ellatasok.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent11_08

Table 12.1: The mean, minimum, and maximum value of the personal income tax rate, per cent

Year	Mean tax burden, per cent	The personal income tax rate projected on the gross wage	
		minimum	maximum
1990	..	0	50
1991	..	0	50
1992	..	0	40
1993	..	0	40
1994	..	0	44
1995	..	0	44
1996	..	20	48
1997	..	20	42
1998	..	20	42
1999	..	20	40
2000	..	20	40
2001	..	20	40
2002	..	20	40
2003	..	20	40
2004	..	18	38
2005	18.89	18	38
2006	19.03	18	36
2007	18.63	18	36
2008	18.86	18	36
2009	18.10	18	36
2010[a]	16.34	21.59	40.64
2011[a]	13.78	20.32	20.32
2012[b]	14.90	16	20.32
2013	..	16	16
2014	..	16	16
2015	..	16	16
2016	..	15	15
2017	..	15	15
2018	..	15	15
2019	..	15	15
2020	..	15	15
2021	..	15	15

[a] In 2010 the nominal tax rate was 17% for annual incomes lower than 5,000,000 HUF. For incomes higher than 5,000,001 HUF it was 850,000 HUF plus 32% of the amount exceeding 5,000,000 HUF. In 2011, the nominal tax rate was 16%. The joint tax base is the amount of income appended with the tax base supplement (equal to 27%).

[b] In 2012 the nominal tax rate was 16%. The joint tax base is the amount of income appended with the tax base supplement.

The amount of the tax base supplement:

– does not need to be determined for the part of the income included in the joint tax base that does not surpass 2 million 424 thousand HUF,

– should be determined as 27% of the part of the income included in the joint tax base that is over 2 million 424 thousand HUF.

Source: Mean tax burden: http://nav.gov.hu/nav/szolgaltatasok/adostatisztikak/szemelyi_jovedelemado/szemelyijovedelemado_adostatiszika.html. Other data: http://nav.gov.hu/nav/szolgaltatasok/adokulcsok_jarulekmertekek/adotablak.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent12_01

Table 12.2: Changes in the magnitude of the tax wedge in the case of minimum wage and the temporary work booklet (AMK)

Year	Minimum wage				Total wage cost in the case of minimum wage		Minimum wage tax wedge, %	AMK public burden[a], HUF/day		Total wage cost[a], HUF/day		AMK tax wedge, %[a]	
	gross, HUF/ month	gross, HUF/day	net, HUF/ month	net, HUF/ day	HUF/month	HUF/day		general	registered unem-ployed	general	registered unem-ployed	general	registered unem-ployed
1997	17,000	783	15,045	693	26,450	1,196	43.1	500	500	1,193	1,193	41.9	41.9
1998	19,500	899	17,258	795	30,297	1,369	43.0	500	500	1,295	1,295	38.6	38.6
1999	22,500	1,037	18,188	838	34,538	1,546	47.3	500	500	1,338	1,338	37.4	37.4
2000	25,500	1,175	20,213	931	38,963	1,746	48.1	800	800	1,731	1,731	46.2	46.2
2001	40,000	1,843	30,000	1,382	58,400	2,638	48.6	1,600	1,600	2,982	2,982	53.6	53.6
2002	50,000	2,304	36,750	1,694	71,250	3,226	48.4	1,000	500	2,694	2,194	37.1	22.8
2003	50,000	2,304	42,750	1,970	70,200	3,191	39.1	1,000	500	2,970	2,470	33.7	20.2
2004	53,000	2,442	45,845	2,113	74,205	3,376	38.2	1,000	500	3,113	2,613	32.1	19.1
2005	57,000	2,627	49,305	2,272	79,295	3,572	37.8	700	500	2,972	2,772	23.6	18.0
2006	62,500	2,880	54,063	2,491	85,388	3,910	36.7	700	700	3,191	3,191	21.9	21.9
2007	65,500	3,018	53,915	2,485	89,393	4,095	39.7	700	700	3,185	3,185	22.0	22.0
2008	69,000	3,180	56,190	2,589	94,065	4,310	40.3	900	900	3,489	3,489	25.8	25.8
2009	71,500	3,295	57,815	2,664	97,403[b]	4,464	40.6	900	900	3,564	3,564	25.3	25.3
2010	73,500	3,387	60,236	2,776	94,448	4,352	36.2	900	900	3,676	3,676	24.5	24.5

	Minimum wage				Total wage cost in the case of minimum wage		Minimum wage tax wedge, %	Simplified employ-ment[c], Ft/day		Total wage cost, HUF/day		Tax wedge, simpli-fied employment, %	
	gross, HUF/ month	gross, HUF/day	net, HUF/ month	net, HUF/ day	HUF/month	HUF/day		temporary work	seasonal agricul-tural/ tourism work	temporary work	seasonal agricul-tural/ tourism work	temporary work	seasonal agricul-tural/ tourism work
2011	78,000	3,594	60,600	2,793	100,230	4,619	39.5	1,000	500	3,793	3,293	26.4	15.2
2012	93,000	4,280	60,915	2,803	119,505	5,500	49.0	1,000	500	3,383	2,883	29.6	17.3
2013	98,000	4,510	64,190	2,954	125,930	5,795	49.0	1,000	500	3,511	3,011	28.5	16.6
2014	101,500	4,670	66,483	3,059	130,428	6,001	49.0	1,000	500	3,600	3,100	27.8	16.1
2015	105,000	4,830	68,775	3,164	134,925	6,207	49.0	1,000	500	3,689	3,189	27.1	15.7
2016	111,000	5,110	73,815	3,398	142,635	6,566	48.2	1,000	500	3,888	3,388	25.7	14.8
2017	127,500	5,870	84,788	3,904	157,463	7,543	46.2	1,000	500	4,318	3,818	23.2	13.1
2018	138,000	6,603	91,770	4,391	167,670	8,022	45.3	1,000	500	4,732	4,232	21.1	11.8
2019	149,000	7,163	99,085	4,764	180,290	8,668	45.0	1,000	500	5,049	4,549	19.8	11.0
2020	161,000	7,740	107,065	5,147	191,590	9,211	44.1	1,000	500	5,375	4,875	18.6	10.3
2021	167,400	8,048	111,321	5,352	195,858	9,416	43.2	1,000	500	5,549	5,049	18.0	9.9

[a] Wage paid an amount in accordance with the gross daily minimum wage column and in the case of work performed with a temporary work booklet. The basis for the comparison with the minimum wage is the assumption that employers pay temporary workers the smallest possible amount.

[b] According to regulations pertaining to the first half of 2009.

[c] From April 1st, 2010. the temporary work booklets and the public contribution tickets were discontinued, these were replaced by simplified employment.

Note: The tax wedge is the quotient of the total public burden (tax and contribution) and the total wage cost, it is calculated as: tax wedge = (total wage cost – net wage)/ total wage cost.

Source: Minimum wage: 1990–91: http://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_qli041.html. Public contribution ticket: 1997. legislation number LXXIV. Simplified employment: 2010. legislation number LXXV. Data for 2014–2015: http://www.afsz.hu/engine.aspx?page=allaskeresoknek_ellatasok_osszegei_es_koz-terhei, http://officina.hu/gazdasag/93-minimalber-2015, http://nav.gov.hu. Based on calculations of Ágota Scharle.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent12_02

Table 12.3: The monthly amount of the minimum wage, the guaranteed wage minimum, and the minimum pension, in thousands of current-year HUF

Date	Monthly amount of the minimum wage, HUF	As a percentage of mean gross earnings	As a ratio of APW, %	Guaranteed skilled workers minimum wage, HUF	Minimum pension, HUF
1990. II. 1.	4,800	..	40.9	–	4,300
1991. IV.1.	7,000	..	..	–	5,200
1992. I. 1.	8,000	35.8	41.4	–	5,800
1993. II. 1.	9,000	33.1	39.7	–	6,400
1994. II. 1.	10,500	30.9	37.8	–	7,367
1995. III. 1.	12,200	31.4	37.0	–	8,400
1996. II. 1.	14,500	31.0	35.8	–	9,600
1997. I. 1.	17,000	29.7	35.1	–	11,500
1998. I. 1.	19,500	28.8	34.4	–	13,700
1999. I. 1.	22,500	29.1	34.6	–	15,350
2000. I. 1.	25,500	29.1	35.0	–	16,600
2001. I. 1.	40,000	38.6	48.3	–	18,310
2002. I. 1.	50,000	40.8	54.5	–	20,100
2003. I. 1.	50,000	36.4	51.5	–	21,800
2004. I. 1.	53,000	37.2	50.7	–	23,200
2005. I. 1.	57,000	33.6	49.2	–	24,700
2006. I. 1.	62,500	36.5	52.3	68,000	25,800
2007. I. 1.	65,500	35.4	49.3	75,400	27,130
2008. I. 1.	69,000	34.7	49.5	86,300	28,500
2009. I. 1.	71,500	35.8	50.0	87,500	28,500
2010. I. I.	73,500	36.3	48.6	89,500	28,500
2011. I. I.	78,000	36.6	49.8	94,000	28,500
2012. I. I.	93,000	41.7	54.3	108,000	28,500
2013. I. I.	98,000	42.5	55.1	114,000	28,500
2014. I. I.	101,500	42.7	56.9	118,000	28,500
2015. I. I.	105,000	42.4	54.0	122,000	28,500
2016. I. I.	111,000	42.2	53.5	129,000	28,500
2017. I. I.	127,500	42.9	54.5	161,000	28,500
2018. I. I.	138,000	41.8	53.9	180,500	28,500
2019. I. I.	149,000	40.5	..	195,000	28,500
2020. I. I.	161,000	39.9	..	210,600	28,500
2021. I. i.	167,400	..	..	219,000	28,500

Notes: Up to the year 1999, sectors employing unskilled labour usually received an extension of a few months for the introduction of the new minimum wage.

The guaranteed wage minimum applies to skilled employees, the minimum wage and the skilled workers' minimum wage are gross amounts.

The minimum wage is exempt from the personal income tax from September 2002. This policy resulted in a 15.9% increase in the net minimum wage.

APW: mean wage of workers in the processing industry, based on the NFSZ BT. In 1990, the data is the previous year's data, indexed (since there was no NFSZ BT conducted in 1990).

Source: Minimum wage: 1990–91: http://www.mszosz.hu/files/1/64/345.pdf, 1992–: CSO. Guaranteed wage minimum: http://www.nav.gov.hu/nav/szolgaltatasok/adokulcsok_jarulekmertekek/minimalber_garantalt. Minimum pension: http://www.ksh.hu/docs/hun/xtabla/nyugdij/tablny11_03.html. APW: NFSZ BT.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent12_03

Table 12.4: The tax burden on work as a ratio of tax revenue and earnings

Year	Tax burden on work as a ratio of tax revenue[a], %	Implicit tax rate[b]	Tax wedge on 67% level of mean earnings	Tax wedge on the minimum wage[c]
1990	..	..	..	38.2
1991	52.4	..	..	40.4
1992	54.8	..	..	40.9
1993	54.4	..	..	42.3
1994	53.7	..	..	41.2
1995	52.1	42.3	..	44.2
1996	52.5	42.1	..	41.8
1997	54.2	42.5	..	43.1
1998	53.1	41.8	..	43.0
1999	51.5	41.9	..	47.3
2000	48.7	41.4	51.4	48.1
2001	49.8	40.9	50.9	48.6
2002	50.3	41.2	48.2	48.4
2003	48.7	40.0	44.6	39.1
2004	47.5	39.1	44.8	38.2
2005	48.6	37.6	43.1	37.8
2006	48.6	38.3	43.3	36.7
2007	49.3	40.8	46.1	39.7
2008	50.9	42.3	46.8	40.3
2009	48.0	40.3	46.2	40.6[d]
2010	47.0	38.6	43.8	36.2
2011	46.9	38.3	45.2	39.5
2012	47.1	40.2	47.9	49.0
2013	46.7	40.1	49.0	49.0
2014	46.1	40.6	49.0	49.0
2015	45.7	41.4	49.0	49.0
2016	46.4	41.4	48.3	48.3
2017	46.0	39.6	46.2	46.2
2018	45.8	38.9	45.0	45.0
2019	45.7	39.4	45.0	45.0
2020	..	..	44.1	44.1
2021	..	..	43.2	43.2

[a] Tax burden on work and contributions as a ratio of tax revenue from all tax forms.
[b] The implicit tax rate is the quotient of the revenue from taxes and contributions pertaining to work and the income derived from work.
[c] The tax wedge is the quotient of the total public burden (tax and contribution) and the total wage cost, it is calculated as: tax wedge = (total wage cost – net wage)/total wage cost.
[d] The tax wedge of the minimum wage is the 2009 annual mean (the contributions decreased in June).

Source: 1991–1995: estimate of Ágota Scharle based on Ministry of Finance (PM) balance sheet data. 1996–2002: http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/index_en.htm. 2003–: https://ec.europa.eu/taxation_customs/business/economic-analysis-taxation/data-taxation_en, Eurostat online database. Implicit tax rate: Eurostat online database (gov_a_tax_itr). 2003–: https://ec.europa.eu/taxation_customs/business/economic-analysis-taxation/data-taxation_en. Tax wedge on the 67 percent level of the mean wage: OECD: Taxing wages 2010, Paris 2011, OECD Tax Statistics/ Taxing wages/ Comparative tables. Tax wedge at the level of the minimum wage: calculations of Ágota Scharle.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent12_04

Table 13.1: Employment rate of the population aged 20–64 and unemployment rate of the population aged 15–74 by gender in the EU, 2020

	Employment rate			Unemployment rate		
Country	males	females	together	males	females	together
Austria	79.5	71.5	75.5	5.5	5.2	5.4
Belgium	74.1	65.9	70.0	5.7	5.4	5.6
Bulgaria	77.8	68.9	73.4	5.4	4.8	5.1
Cyprus	81.1	69.1	74.9	7.6	7.6	7.6
Czech Republic	87.2	71.9	79.7	2.2	3.0	2.6
Denmark	81.3	74.3	77.8	5.3	6.0	5.6
Estonia	81.8	75.8	78.8	7.0	6.6	6.8
Finland	77.9	75.0	76.5	8.0	7.5	7.8
France	75.0	68.0	71.4	8.1	8.0	8.0
Greece	70.7	51.8	61.1	13.6	19.8	16.3
Netherlands	84.4	75.5	80.0	3.7	4.0	3.8
Croatia	72.5	61.3	66.9	7.5	7.6	7.5
Ireland	79.5	67.4	73.4	5.6	5.7	5.7
Poland	81.4	65.7	73.6	3.1	3.3	3.2
Latvia	79.0	75.2	77.0	9.1	7.1	8.1
Lithuania	77.5	75.8	76.7	9.3	7.7	8.5
Luxembourg	75.6	68.5	72.1	6.6	7.0	6.8
Hungary	83.1	67.0	75.0	4.1	4.5	4.3
Malta	85.7	68.0	77.4	4.2	4.4	4.3
Germany	83.1	76.8	80.0	4.2	3.4	3.8
Italy	72.6	52.7	62.6	8.4	10.2	9.2
Portugal	77.8	71.9	74.7	6.6	7.1	6.9
Romania	80.3	61.0	70.8	5.3	4.7	5.0
Spain	71.4	60.0	65.7	13.9	17.4	15.5
Sweden	83.2	78.3	80.8	8.3	8.3	8.3
Slovakia	78.7	66.1	72.5	6.4	7.1	6.7
Slovenia	78.6	72.4	75.6	4.4	5.6	5.0
EU-27	78.0	66.7	72.4	6.8	7.4	7.1

Source: *Eurostat*, http://epp.eurostat.ec.europa.eu.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent13_01

Table 13.2: Employment composition of the countries in the EU[a], 2020

Country	Self employed[b]	Part time	Fixed term contract	Agriculture	Industry	Market services	Non market services[c]
Austria	10.5	27.2	8.2	3.6	25.3	41.8	29.3
Belgium	13.4	24.4	10.1	0.8	20.5	40.3	38.4
Bulgaria	10.1	1.8	3.5	6.4	30.7	41.0	21.8
Cyprus	12.1	10.0	13.4	2.2	19.6	48.1	30.1
Czech Republic	15.8	5.7	7.0	2.6	37.7	34.6	25.2
Denmark	7.5	23.4	10.9	1.9	19.0	41.2	37.9
Estonia	10.5	12.3	2.8	2.9	29.7	39.9	27.5
Finland	11.8	14.8	14.6	3.2	22.1	39.9	34.7
France	11.6	17.0	15.3	2.3	20.2	40.2	37.4
Greece	27.9	8.6	10.1	10.0	15.1	46.0	28.9
Netherlands	15.8	50.8	18.0	2.0	16.1	45.9	36.1
Croatia	11.0	4.5	15.2	6.1	28.4	39.5	26.0
Ireland	12.3	18.2	9.0	3.6	19.1	46.1	31.2
Poland	17.9	5.9	18.4	9.5	32.0	35.0	23.5
Latvia	12.2	8.9	2.8	7.3	24.1	41.5	27.1
Lithuania	11.1	6.1	1.2	5.5	25.7	41.3	27.5
Luxembourg	7.8	18.0	7.7	0.7	10.3	47.1	41.9
Hungary	11.2	4.8	5.9	4.7	32.1	35.9	27.3
Malta	15.5	11.1	8.0	1.0	18.3	46.5	34.1
Germany	7.7	27.7	10.8	1.1	27.7	37.9	33.3
Italy	20.2	18.2	15.2	3.8	26.7	41.5	28.0
Portugal	13.4	7.5	17.8	3.2	25.7	39.1	32.0
Romania	15.1	5.9	1.2	18.5	30.5	33.5	17.5
Spain	15.3	13.9	24.2	3.9	20.6	45.1	30.3
Sweden	8.6	22.3	14.8	1.3	18.6	41.4	38.8
Slovakia	14.7	4.5	6.5	2.6	36.8	34.2	26.4
Slovenia	10.7	8.3	10.8	3.5	34.4	35.8	26.2
EU-27	13.4	18.2	13.5	4.1	25.3	39.8	30.9

[a] Per cent of employment, except for employees with fixed-term contracts: per cent of employees.
[b] Includes the members of cooperatives and business partnerships.
[c] One-digit industries O-U.
Source: *Eurostat* (Newcronos) Labour Force Survey.

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent13_02

Table 13.3: The ratio of vacancies[a], 2020

Country	Vacancy rate	Country	Vacancy rate
Bulgaria	0.80	Estonia	1.73
Portugal	0.88	Slovenia	2.18
Poland	0.95	Finland	2.18
Romania	1.00	Hungary	2.28
Slovakia	1.00	Sweden	2.35
Lithuania	1.30	Norway	2.43
Croatia	1.40	Latvia	2.83
North Macedonia	1.63	Netherlands	3.08
Luxembourg	1.65	Czechia	6.18

[a] Annual mean of the quarterly observations.
Source: *Eurostat*. http://ec.europa.eu/eurostat/web/labour-market/job-vacancies/database (jvs_q_nace2: 2021.08.18. version, donwnloaded: 2021.09.02.)

Online data source in xls format: http://www.bpdata.eu/mpt/2021ent13_03

DESCRIPTION OF THE MAIN DATA SOURCES

The data have two main sources in terms of which office gathered them: the regular institutional and population surveys of the Hungarian Central Statistical Office (CSO, in Hungarian: Központi Statisztikai Hivatal, KSH), and the register and surveys of the National Employment Service (in Hungarian: Nemzeti Foglalkoztatási Szolgálat, NFSZ).

MAIN DATA SOURCES OF THE KSH

Labour Force Survey – KSH MEF

The KSH has been conducting a new statistical survey since January 1992 to obtain ongoing information on the labour force status of the Hungarian population. The MEF is a household survey which provides quarterly information on the non-institutional population aged 15–74. The survey aims to observe employment and unemployment according to international statistical recommendations based on the concepts and definitions recommended by the International Labour Organization (ILO), independently from existing national labour regulations or their changes.

In international practice, the labour force survey is a widely used statistical tool to provide simultaneous, comprehensive, and systematic monitoring of employment, unemployment, and underemployment. The survey techniques minimise the subjective bias in classification (since people surveyed are classified by strict criteria), and provide freedom to also consider national characteristics.

In the MEF, the surveyed population is divided into two main groups according to the economic activity performed by them during the reference week (up to the year 2003, this was always on the week containing the 12th of the month): economically active persons (labour force), and economically inactive persons.

The group of economically active persons consists of those in the labour market either as employed or unemployed persons during the reference week.

The definitions used in the survey follow ILO recommendations. According to these, those designated employed are persons who, during the reference week worked one hour or more earning some form of income, or had a job from which they were only temporarily absent (on leave, illness, etc.).

Work providing income includes all activities that:
– result in monetary income, payment in kind, or
– that were carried out in the hopes of income realized in the future, or
– were performed without payment in a family business or on a farm (i.e. unpaid family workers).

From the survey's point of view the activities below are not considered to be work:
– work done without payment for another household or institution (voluntary work),
– building or renovating of an own house or flat, internships tied to education (not even if it is compensated),
– housework, including work in the garden. Work on a person's own land is only considered to generate income if the results are sold in the market, not produced for self-consumption.

Persons on child-care leave are classified – based on the 1995 ILO recommendations for transitional countries determined in Prague – according to their activity during the survey week.

Since, according to the system of national accounting, defence activity contributes to the national product, conscripts are generally considered economically active persons, any exceptions are marked in the footnotes of the table. The data regarding the number of conscripts come from administrative sources. (The retrospective time-series based on CSO data exclude conscripted soldiers. This adjustment affects the data until 2003, when military conscription was abolished.)

Unemployed persons are persons aged 15–74 who:
– were without work, i.e. neither had a job nor were at work (for one hour or more) in paid employment or self-employment during the reference week,
– had actively looked for work at any time in the four weeks up to the end of the reference week,
– were available for work within two weeks following the reference week if they found an appropriate job.

Those who do not have a job, but are waiting to start a new job within 30 days (since 2003 within 90 days) make up a special group of the unemployed.

Active job search includes: contacting a public or private employment office to find a job, applying to an employer directly, inserting, reading, answering advertisements, asking friends, relatives or other methods.

The labour force (i.e. economically active population) comprises employed and unemployed persons.

Persons are defined as economically inactive (i.e. not in the labour force) if they were neither employed in regular, income-earning jobs, nor searching for a job, or, if they had searched, had not yet started work. Passive unemployed are included here – those who would like a job but have given up any active search for work, because they do not believe that they have a chance of finding any.

The Labour Force Survey is based on a multi-stage stratified sample design. The sample design strata were defined in terms of geographic units, size categories of settlements and area types such as city centres, outskirts, etc. The sample has a simple rotation pattern: any household entering the sample at some time is expected to provide labour market information for six consecutive quarters, then leaves the sample forever. The quarterly sample is made up of three monthly sub-samples. In each sampled dwelling, labour market information is collected from each household and each person aged 15–74 living there. The number of addresses selected for the sample in a quarter is about 38 thousand.

Grossing up of LFS data has been carried out monthly based on the population figure of the last Census corrected with the extrapolated population numbers. Estimated totals or levels based on the LFS sample are computed by inflating and summing the observations by suitable sample weights. The weightings applied to the estimation are carried out in two steps. First, the primary weightings are calculated for the 275 strata of the sample, then these weightings need to be adjusted for non-response by updated census counts in cross-classes defined by age, sex and geographic units. In the correction procedure, the further-calculated population and dwelling numbers have a key role.

Since 2003, the weightings used to make the sample representative are based on the 2001 census population record base. At the same time, the 2001–2002 data was recalculated and replaced as well. The LFS-based time series published in this volume use the following weighting schemes: (i) in 1992–1997 the weightings are based on the 1990 Census (ii) in 1998–2001 the weightings based on the 1990 Census have been corrected using data of the 2001 Census (iii) in 2002–2005 the weightings are based on the 2001 Census (iv) from 2006 onwards the weightings based on the 2001 Census have been corrected using the 2011 Census. Due to correction, the LFS statistics published earlier were modified.

Institution-Based Labour Statistics – KSH IMS

Up to the year 2018, the source of the earnings data was the monthly (annual) institutional labour statistical survey. From 2019, the data collection system for earnings statistics was renewed. In connection with this, the source of monthly earnings and related headcount information has changed. The data are from the so-called tax returns received from the National Tax and Customs Administration, as well as from the administrative records of the Hungarian State Treasury. From 2019, working income, working hours and regular earnings data, like job vacancy data, are provided by quarterly data collection. The reference range for interim institutional employment data shall be unless otherwise stated, all enterprises with at least five employees, all budgetary organizations and non-profit institutions relevant for employment. From 2019 onwards, the reference scope used for monthly earnings and headcount statistics will be determined on the basis of the actual headcount of the organizations for that month. To ensure comparability, the indices are presented in a comparative structure, but due to changes in the source, the direct comparability of the basic data is limited.

The earnings data relate to the full-time employees on every occasion. The potential elements of the prevailing monthly average earnings are: base wage, allowances (including the miner's loyalty bonus, and the Széchenyi and Professor's scholarships), supplementary payments, bonuses, premiums, and wages and salaries for the 13th and further months.

Net average earnings are calculated by deducting from the institution's gross average earnings the employer's contributions and the personal income tax, according to the actual rates (i.e. taking into account the threshold concerning the social security contributions and employee deductions). The personal income tax is calculated based on the actual withholding rate applied by the employers when disbursing monthly earnings in the given year.

The size and direction of the difference between the gross and the net (after-tax) income indexes depend on actual annual changes in the tax table (tax brackets) and in the tax allowances. Thus the actual size of the differences is also influenced by the share of individuals at given firms that fall outside the bracket for employee allowances.

The indexes pertain to the comparable sample, taking into account changes in the definitions and the sample frame. The KSH traditionally publishes the main average index as the earnings growth measure. Thus the indicator of change in earnings reflects both the changes in the number of observations and the actual earnings changes simultaneously. The change in net real earnings is calculated from the ratio of the net income index and the consumer price index in the same period.

Non-manual workers are persons with occupations classified by the standardized occupational code (FEOR) in major groups 1–4., manual workers are persons with occupations classified in major groups 5–9.

KSH Job vacancy statistics

The Job Vacancies Survey is a firm-based survey of quarterly frequency. The survey covers all corporations with more than 49 employees. Businesses with 5–49 employees are randomly sampled. Budgetary institutions and non-profit ones with more than two employees are observed on a full-scope basis. In line with EU recommendations, newly created, unfilled positions are those which are unfilled or about to become vacant within 3 months, provided that the employer takes active steps to find a suitable candidate for the job, and is in the position to fill the job.

KSH Strike statistics

The CSO data cover strikes with at least 10 participants and token strikes lasting for at least 2 hours.

Labour Force Accounting Census – KSH MEM

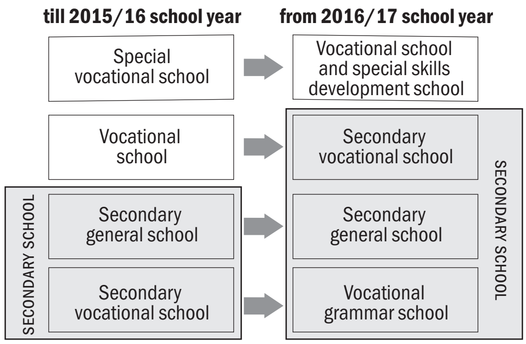
Before the publication of the MEF, the annual MEM gave an account of the total labour force in the period of time between the two censuses.

The MEM, as its name shows, is a balance-like account that compares the labour supply (human resources) to the labour demand at an ideal moment (1 January). Population is taken into account by economic activity, with differentiation between statistical data of those of working age and the population outside of the working age. Source of data: Annual labour survey on employment since 1992 of enterprises and all government institutions, labour force survey, census, national healthcare records, social security records, and company registry. Data on unemployment comes from the registration system of the NFSZ.

Source of educational data

Data on educational institutions are collected and processed by the Ministry of Human Capacities (or the at all times ministry responsible for education). Data surveys relating to education have undergone changes both in content and in methodology since the 2000/2001 school year (the paper-based questionnaires were replaced by the electronic data collection system, which in the year of transition temporarily has resulted in lower reliability data); they follow the structural and activity system laid down by Acts LXXIX. and LXXX. of 1993 on education. The observed units of the data survey are the educational institutions, and the activities and educational tasks within them. Since the 2000/2001 school year October 1st and October 15th of every year were designated as the nominal dates of the data survey (before 2000 it was a similar date, which nevertheless varied by school-type).

In the 2016/2017 school year significant transformations started in secondary education. In addition to changing the name of vocational institutions, the task they performed changed as well. Special vocational schools are now known as vocational schools and special skills development schools, the name of earlier vocational schools became secondary vocational school and that of earlier secondary vocational schools became vocational grammar school. In the new vocational schools, pupils with special educational needs who are unable to make progress with the other pupils are prepared for vocational examinations; the special skills development schools provide preparation for SEN students with moderate disability for commencing independent life or the learning of work processes requiring simple training, which enable employment. In the new system, secondary vocational schools students acquire a vocational qualification during the first 3 years, after which they have the opportunity to complete two further years preparing for a final examination at secondary level then they can pass a maturity examination. After completing the first four years of vocational grammar schools, students pass a vocational grammar school-leaving examination, during an additional year students prepare for the vocational examination. There was no change in the case of secondary general schools. The category of secondary school preparing students for final examinations at secondary level (maturity examination) has changed. Earlier, the secondary general school and the secondary vocational school belonged in this category. In the new system, it collectively refers to secondary vocational schools, secondary general schools and vocational grammar schools. As a result, some of the education time series can no longer be resumed in their earlier forms.



Former and current scheme of secondary education:

Other data sources

Census data were used for the estimation of the employment data in 1980 and 1990. The aggregate economic data are based on national account statistics, the consumer's and producer's price statistics and industrial surveys. A detailed description of the data sources can be found in the relevant publications of the KSH.

MAIN NFSZ DATA SOURCES

Unemployment (Jobseekers') Register Database – NFSZ-REG

The other main source of unemployment data in Hungary – and in most of the developed countries – is the huge database containing so-called administrative records which are collected monthly and include the individual data of the registered unemployed/jobseekers.

The register actually includes all jobseekers, but from these, at a given point of time, only those are regarded as registered unemployed/jobseekers, who:

– had themselves registered with a local office of the NFSZ as unemployed/jobseekers (i. e. he/she has no job but wishes to work, for which they seek assistance from the labour market organisation).
– at the time of the examination (on the final day of any month), the person is not a pensioner or a full-time student, does not receive any rehabilitation provision or benefit, and is ready to co-operate with the local employment office to become employed (i. e. he/she accepts the suitable job or training offered to him/her and keeps the appointments made with the local employment office's placement officer/counsellor/benefit administrator).

If a person included in the register is working under any subsidised employment programme on the closing day or is a participant in a labour market training programme, her/his unemployed/jobseeker status is suspended.

If the client is not willing to co-operate with the local office, he/she is removed from the register of the unemployed/ jobseekers.

The data – i. e. the administrative records of the register – allow not only for the identification of date-related stock data but also for monitoring flows, inflows as well as outflows, within a period.

The database contains the number of decrees pertaining to the removal or suspension of jobseeking benefits, the number of those receiving monetary support based on accounting items, support transactions, the exact date of entry and exit and the reason for the exit (for example, job placement, the end of entitlement, disqualification, entry into a subsidized employment programme, etc.), as well as the financial data of jobseeking benefits (for example, average monthly amount, average support paid for the number of participants on the closing date, for those who exited, and those who found placement).

The jobseeking benefit register can also monitor the average duration of the period of benefit allocation and the average monthly amount of the benefits allocated.

For the period between 1991 and 1996, the register also contains the stock and flow data of the recipients of new entrant's unemployment benefits. In the period 1997–2005, the system also contained the recipients of pre-retirement unemployment benefit.

Jobseeking allowance recipients: from 1st September, 2011, the conditions for determining and disbursing the jobseeking allowance changed. The two phases of the jobseeking allowance were discontinued and the period of entitlement decreased from 270 days to 90 days. Jobseekers needed to have at least 360 days of worktime counting towards entitlement in the 5 years prior to becoming a jobseeker (prior to 1st September , 2011, this was 365 days in the previous 4 years). Its amount is 60% of the allowance base, but the maximum is the amount of the smallest mandatory wage on the first day of the entitlement (allowance base: the monthly average amount from the four calendar quarters preceding the submission of the application).

Jobseeking assistance recipients: from 1st September, 2011 the conditions for determining and disbursing the jobseeking assistance changed. The "a" and "b" types of benefit were discontinued, jobseekers can still request the "c" type of benefit under the title of pre-retirement jobseeking benefit, but the period of entitlement (and depletion) of at least 140 days decreased to 90 days.

Regular social assistance recipients: those from among the regular registered jobseekers who are of active age and are in a disadvantaged labour market position, and who receive social assistance to complement or substitute their income. From January 1, 2009, those receiving regular social assistance were included in two categories: regular social assistance recipients, and recipients of on-call support. This support was replaced by a new type of assistance, the wage replacement support from January 1, 2011, then from 1st September, 2011, the name was changed to employment substitution support. (Legislation III. of 1993 pertaining to social management and social assistance).

Based on the records of labour demand needs reported to the NFSZ, the stock and flow data of vacancies are also processed and published for each month.

Furthermore, detailed monthly statistics of participation in the different active programmes, the number of participants, and their inflows and outflows are also prepared based on the assistance disbursed.

The very detailed monthly statistics – in a breakdown by country, region, county, local employment office service delivery area and community – build on the secondary processing of administrative records that are generated virtually as the rather important and useful "by-products" of the accomplishment of the NFSZ's main functions (such as placement services, payment of benefits, active programme support, etc.).

The NFSZ (and its predecessors, i. e. NMH, OMK – National Labour Centre, OMMK and OMKMK) has published the key figures of these statistics monthly since 1989. The denominators of the unemployment rates calculated for the registered unemployed/jobseekers are the economically active population data published by the KSH MEM.

The figures for the number of registered unemployed/jobseekers and the registered unemployment rate are clearly different from the figures based on the KSH MEF. It is mainly the different conceptual approaches, definitions, and the fundamentally different monitoring/measuring methods that account for this variance.

Short-Term Labour Market Projection Surveys – NFSZ PROG

At the initiative and under the coordination of the NFSZ (and its legal predecessors), the NFSZ PROG has been conducted since 1991, twice a year, in March and September, by interviewing over 7,500 employers. Since 2004 the survey is conducted once a year, in the month of September.

The interviews focus on the companies' projections of their material and financial processes, their development and human resource plans, and they are also asked about their concrete lay-off or recruitment plans, as well as their expected need for any active labour market programmes.

The surveys are processed from the bottom up, from the service delivery areas, through counties, to the whole country, providing useful information at all levels for the planning activities of the NFSZ.

The survey provides an opportunity and possibility for the regions, the counties and Budapest to analyse in greater depth (also using information from other sources) the major trends in their respective labour markets, to make preparations for tackling problems that are likely to occur in the short term, and to effectively meet the ever-changing needs of their clients.

The forecast is only one of the outputs of the survey. Further very important "by-products" include regular and personal liaison with companies, the upgraded skills of the placement officers and other administrative personnel, enhanced awareness of the local circumstances, and the adequate orientation of labour market training programmes, given the needs identified by the surveys.

The prognosis surveys are occasionally supplemented by supplementary questions and sets of questions to obtain some further useful information that can be used by researchers and the decision-makers of employment and education/ training policy.

Since 2005, the surveys have been conducted in cooperation with the Institute for Analyses of the Economy and Entrepreneurship of the Hungarian Chamber of Industry and Commerce (in Hungarian: Magyar Kereskedelmi és Iparkamara Gazdaság- és Vállalkozáskutató

Intézet, MKIK GVI), with one additional benefit being that with the help of the surveyors of the Institute, the sample size has increased to nearly 8,000.

Wage Survey Database – NFSZ BT

The ITM earlier the NFSZ (and its legal predecessors) has conducted since 1992, once a year, a representative survey with a huge sample size to investigate individual wages and earnings, at the request of the Ministry of National Economy (and its legal predecessors). Since 2019 the NFSZ BT is conducted by KSH.

The reference month of data collection is the month of May each year, but for the calculation of the monthly average of irregularly paid benefits (beyond the base wage/salary), 1/12th of the total amount of such benefits received during the previous year is used.

In the competitive sector, the data collection only covered initially companies of over 20 persons; it was incumbent on all companies to provide information, but the sample includes only employees born on certain dates in any month of any year.

Data collection has also covered companies of 10–19 since 1995, and companies of 5–9 have been covered since 2000, where the companies actually involved in data collection are selected at random (ca. 20 per cent), and the selected ones have to provide information about all of their full-time employees.

Data on basic wages and earnings structure can only be retrieved from these surveys in Hungary, thus it is, in practice, these huge, annually generated databases that can serve as the basis of the wage reconciliation negotiations conducted by the social partners.

In the budgetary sector, all budgetary institutions provide information, regardless of their size, in such a way that the decisive majority of the local budgetary institutions – the ones that are included in the TAKEH central payroll accounting system – provide fully comprehensive information, and the remaining budgetary institutions provide information only about their employees who were born on certain days (regarded as the sample).

Data has only been collected on the professional members of the armed forces since 1999.

Prior to 1992, such data collection took place every third year, thus we are in possession of an enormous database for the years 1983, 1986 and also 1989.

Of the employees included in the sample, the following data are available:

– The sector the employer operates in, headcount, employer's local unit, type of entity, ownership structure.
– Employee's wage category, job occupation, gender, age and educational background.

Based on the huge databases which include the data by individual, the data is analysed every year in the following ways:

– Standard data analysis, as agreed upon by the social partners, used for wage reconciliation negotiations (which is received by every confederation participating in the negotiations).
– Model calculations to determine the expected impact of the rise of the minimum wage.
– Analyses to meet the needs of the Wage Policy Department, Ministry of National Resources, for the analysis and presentation of wage ratios
– Analyses for the four-volume statistical yearbook (total national economy, competitive sector, budgetary sector, and regional volumes).

The entire database is adopted every year by the KSH, which enables the Office to also provide data for certain international organisations, (e. g. ILO and OECD). The ITM earlier the NMH also regularly provides special analyses for the OECD.

The database containing the data by individual allows for a) the analysis of data for groups of people determined by any combination of pre-set criteria, b) the comparison of basic wages and earnings, with special regard to the composition of the different groups analysed, as well as c) the analysis of the dispersion of the basic wages and earnings.

Since 2002, the survey of individual wages and earnings was substantially developed to fulfil all requirements of the EU, so from this time on it also serves the purposes of the Structure of Earnings Survey (SES), which is obligatory for each member state in every fourth year. One important element of the changes was the inclusion of part-time employees in the sample since 2002.

SES 2002 was the first, and recently the databases of SES 2006 and 2010 were also sent to Eurostat in anonymized form in accordance with EU regulations.

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FIGURES

HUNGARIAN LABOUR MARKET

IN FOCUS