THE HUNGARIAN LABOUR MARKET
2020

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Editors
KÁROLY FAZEKAS
PÉTER ELEK
TAMÁS HAJDU

CENTRE FOR ECONOMIC
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INSTITUTE OF ECONOMICS
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Mailing address: 4. Tóth Kálmán street, 1097 Budapest
Phone: (+36-1) 309 26 49
Fax: (+36-1) 319 31 36
E-mail: biblio@krtk.mta.hu
Web site: http://kti.krtk.hu

Translated by: Anna Adamecz-Völgyi (*In Focus: 8.2*); Anikó Bíró (*In Focus: K3.4, 5.2, 6.1*); Réka Branyiczki (*In Focus: 1*); Éva Czethoffer (*Statistical Data*); Márton Csillag (*In Focus: 3.4, K3.3, K5.1*); Péter Elek (*In Focus: Foreword, In Focus: 6.1*); Heléna Hönich (*Appendix – Admin3*); Anna Kiss (*Foreword, The Hungarian Labour Market in 2019-2020, In Focus: K2.1, 2.2, 2.3, K3.2, 4.1, 4.2, 8.1, K8.1*); Zsófia Kollányi (*In Focus: 1*); Krisztina Olasz (*Labour market policy tools, Labour market measures in Europe in reponse to the coronavirus pandemic, Corporate perceptions and expectations of the impacts of the Covid-19 pandemic and the crisis management steps taken, In Focus: K 3.1, 3.3, 5.1, 6.2, 7.1, K7.1, 7.2, K7.2, 9.2*); Dániel Prinz (*In Focus: 2.1 3.1, 3.2*); Balázs Váradi (*In Focus: 9.1*)
Revised by: Stuart Oldham

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AUTHORS

ANNA ADAMECZ-VÖLGYI – KRTK KTI, UCL SOCIAL RESEARCH INSTITUTE
DÁNIEL BACSÁK – INSTITUTE FOR ECONOMIC AND ENTERPRISE RESEARCH
PETRA BAJI – CORVINUS UNIVERSITY OF BUDAPEST
TAMÁS BAKÓ – KRTK KTI
BOLDMAA BAT-ERDENE – BUDAPEST INSTITUTE FOR POLICY ANALYSIS
ANIKÓ BÍRÓ – KRTK KTI
MÁRTA BISZTRAY – KRTK KTI, CORVINUS UNIVERSITY OF BUDAPEST, CERGE-EI FOUNDATION
RÉKA BRANYICZKI – CEU, TÁRKI SOCIAL RESEARCH INSTITUTE
ÉVA CZETHOFFER – KRTK
MÁRTON CSILLAG – KRTK KTI
PÉTER ELEK – KRTK KTI, CORVINUS UNIVERSITY OF BUDAPEST
TIBOR FADGYAS – THAKKURA KFT
PETRA FADGYAS-FREYLER – NATIONAL HEALTH INSURANCE FUND
KÁROLY FAZEKAS – KRTK KTI
GÁBOR HAJDU – CENTRE FOR SOCIAL SCIENCES, INSTITUTE FOR SOCIOLOGY
MIKLÓS HAJDU – CORVINUS UNIVERSITY OF BUDAPEST
TAMÁS HAJDU – KRTK KTI
ZOLTÁN HERMANN – KRTK KTI, CORVINUS UNIVERSITY OF BUDAPEST
DÁNIEL HORN – KRTK KTI, CORVINUS UNIVERSITY OF BUDAPEST
ÁGOSTON HORVÁTH – INSTITUTE FOR ECONOMIC AND ENTERPRISE RESEARCH
GÁBOR KERTESI – KRTK KTI
ZSÓFIA KOLLÁNYI – EÖTVÖS LORÁND UNIVERSITY FACULTY OF SOCIAL SCIENCES
JÁNOS KÖLLŐ – KRTK KTI
JUDIT KREKÓ – KRTK KTI, BUDAPEST INSTITUTE FOR POLICY ANALYSIS
JUDIT LAKATOS
ÁGNES MAKÓ – INSTITUTE FOR ECONOMIC AND ENTERPRISE RESEARCH
KINGA MARCZELL – EVIDERA, PPD
LILI MÁRK – KRTK KTI, CEU
BALÁZS MUNKÁCSY – BUDAPEST INSTITUTE FOR POLICY ANALYSIS
FRUZSINA NÁBELEK – INSTITUTE FOR ECONOMIC AND ENTERPRISE RESEARCH
ZSANNA NYÍRŐ – INSTITUTE FOR ECONOMIC AND ENTERPRISE RESEARCH
DÁNIEL PRINZ – INSTITUTE FOR FISCAL STUDIES
BALÁZS REIZER – KRTK KTI
ÁGOTA SCHARLE – BUDAPEST INSTITUTE FOR POLICY ANALYSIS
ANNA SEBŐK – KRTK KTI
ZSUZSANNA SINKA-GRÓSZ – KRTK
ÁGNES SZABÓ-MORVAI – KRTK KTI, UNIVERSITY OF DEBRECEN
JÓZSEF TAJTI – MINISTRY FOR INNOVATION AND TECHNOLOGY
MELINDA TIR – KRTK
ANNAMÁRIA UZZOLI – KRTK KTI
BALÁZS VÁRADI – BUDAPEST INSTITUTE FOR POLICY ANALYSIS,
EÖTVÖS LORÁND UNIVERSITY, FACULTY OF SOCIAL SCIENCES
JÚLIA VARGA – KRTK KTI

FOREWORD

The Hungarian Labour Market Yearbook series was launched in 2000 by the Institute of Economics of the Hungarian Academy of Sciences, with the support of the National Employment Foundation, in order to report on the processes and latest trends of the Hungarian labour market and employment policy, and provide an in-depth analysis of a particular subject each year. In compiling the content of each yearbook, the intention of the editorial board is to deliver relevant and useful information on the labour market trends and the legislative and institutional background of employment policy in Hungary, and on the latest findings of Hungarian and international research studies, to civil servants, municipalities, NGOs, public administration offices, education and research institutions, and members of the press. It was an important factor of consideration that the analyses and data published in the yearbook series should provide a solid source of knowledge for higher education as well, on different subjects in labour economics and human resources management.

Continuing our previous editorial practice, we have selected an area that we considered particularly important for understanding Hungarian labour market trends, and for the effectiveness of evidence-based employment policy. Based on the decision of the editorial board, this year's In Focus investigates the relationship between the state of health and the labour market. While working on the various chapters, we did our best to include the effects and consequences of the COVID-19 pandemic, wherever possible. The yearbook is divided into four main sections.

1 The Hungarian labour market in 2019–2020

The growth dynamics of the Hungarian economy in 2019 was similar to that of the preceding years; the GDP has grown by 4.9 percent, which has enabled the preservation of a worker-friendly labour market environment. 75.3 percent of the population aged 20–64 was considered employed, so the EU target for 2020 was already realised in 2019, and we made it into the middle-ranking group of member states with this figure. The employment indicator of 2019 was coupled by one of the lowest unemployment rates of the European Union: only 3 other member states had a lower rate than the Hungarian 3.4 percent.

The Hungarian labour supply – primarily for demographic and structural reasons – was only partially able to follow the growth of labour demand, thus, the employment of foreign workers was further expanded. Due to a tight labour

market, the bargaining power of workers has improved, and the dynamic growth of wages has continued. Workers' earnings have exceeded last year's by an average of 11.4 percent, and between 2017 and 2019, earnings have increased by a total of over 28 percent in real terms. It needs to be mentioned however that the favourable labour market conditions that characterised 2019 have deteriorated substantially since March 2020, due to the powerful economic downturn that occurred in the wake of the COVID-19 pandemic. In the second quarter of 2020, the full duration of which was affected by the pandemic, the number of those in employment was 103,000 less than during the same period of 2019 (*HCSO,* 2020).

2 The labour market policies of the government and of businesses during the COVID-19 pandemic

The first chapter of this section summarizes the main legislative changes in connection with labour market policies between June 2019 and May 2020, including the measures adopted in the first half of 2020 as a response to the COVID-19 pandemic. The most prominent change in terms of institutions was the adoption of the new vocational training law, which rearranges vocational grammar schools (*szakgimnázium*) into technical grammar schools (*technikum*) providing a secondary school diploma and a qualification as a technician, and vocational secondary schools (*szakközépiskola*) into vocational schools (*szakképző iskola*) providing vocational qualifications. In the first period of training, students are provided with sector-related baseline training, after which they can choose from the various related vocations. In dual vocational training, apprenticeship contracts will be replaced by employment contracts, and the National Training Register (OKJ) will be replaced by a Vocational Register, and basic vocations will be taught exclusively in a school system. Due to the COVID-19 pandemic, since March 2020, vocational training institutions have introduced a digital operation framework, and competency tests have been postponed.

In terms of labour market allowances, as the minimum wage was raised in 2020, the amounts of related allowances have also grown. Several labour market services have been introduced in order to counterbalance the economic effects of the COVID-19 pandemic, such as a loan covering nine months' worth of wage costs aimed at preserving jobs, with a 0.1 percent interest rate; "Student Loan Plus" – available for those in adult education and training; and a free online IT training.

The goals of active employment policy tools, similarly to the preceding year, were to reduce public employment, to encourage those raising young children to enter the labour market, to support the population in becoming entrepreneurs, and to increase labour market adaptability. However, as a result of the COVID-19 pandemic, the public employment budget originally allocated for 2020 was expanded, and several types of wage subsidy schemes were introduced

for the period of the state of emergency. The amounts of the minimum wage and the guaranteed wage minimum continued to increase in 2020.

The second chapter reviews the labour market related tools introduced across Europe. The spread of the COVID-19 pandemic caused a significant drop in labour demand in the most affected sectors, due to event cancellations, restrictive measures, and lockdowns. At the same time, decision makers and the affected businesses had to handle employees dropping out of work due to illness, caring for the ill, or homeschooling. European countries have introduced numerous measures of varying types and degrees in order to counterbalance these effects, and there have been certain tools that several countries have made use of to handle the crisis. Comparing the support available in Hungary to the measures introduced in Europe, what emerges is that the tools used in Hungary, for the most part, were various tools aimed at preserving jobs, while the support of the unemployed is not, and the support of those dropping out of work is only marginally covered by the provisions.

The third section of the chapter presents, on the basis of the 2020 spring term business economy survey of the Institute for Economic and Business Research of the Hungarian Chamber of Commerce and Industry, how Hungarian businesses have been affected by the COVID-19 pandemic, the responses given to the economic impacts of the pandemic, and the tools used for handling the crisis. The analysis has shown that there are significant differences between Hungarian businesses in the extent to which they were affected by the economic impacts of the COVID-19 pandemic. The businesses most affected were those that were directly (due to pandemic control measures) or indirectly (due to a decline in demand related to the restrictions) hindered in their business activities. Micro and small enterprises and businesses working in the services industries were the most severely impacted. According to the data, for a great deal of Hungarian businesses, remote work meant more of a constraint, and in many cases was coupled with a significant limitation of business activities. A survey carried out during the curfews shows that due to the crisis that ensued, nearly a third of businesses found themselves in a grave situation within a few weeks' time. They attempted to solve their difficulties through a significant reduction of their costs, which manifested both in redundancies and changes in wage policies.

3 In Focus

This year's In Focus investigates the relationships between the state of health, the use of healthcare services, and labour market situation (economic activity, employment, wages, labour market conditions). Chapter 1 and 2 provide a descriptive analysis on the correlations between the state of health and employment in Hungary, contrasting it to a broader European context, and analyse the labour market, territorial and socioeconomic inequalities of mortality and morbidity, of informal payments, and of the use of private healthcare. Later chapters present

the two-way relationship between work and health on the basis of different life situations. Chapter 3 describes the health of those in employment. The studies in this chapter analyse the differences in healthcare expenditure by wages, the correlations between business characteristics and the state of health, the occurrence rate of work accidents and the related differences between sectors, and the encouraging effects of the tightening of the rules of sick leave benefits effectuated in earlier years. Chapter 4 examines healthcare as an employer, through the state of health of healthcare workers and the out-migration of physicians abroad. Chapter 5 analyses the effect of unemployment on health. This chapter covers the consequences of economical crises and job loss, and specifically, the long-term health effects of the economic shocks that occurred in the wake of the Central Eastern European political transitions. Chapter 6 examines the two-way relationship between the state of health and old-age retirement, and presents the labour market correlations of the increased demand for palliative care at the end of life. Chapter 7 analyses the labour market situation of workers with a reduced functional capacity, and the effects of the changes in rehabilitation service regulations. Chapter 8 examines youth, and analyses the effect of health shocks on educational attainment, and the relationship between labour market situation and teenage parenthood.

In Focus was printed during the second wave of the COVID-19 pandemic, therefore, we were unable to carry out a comprehensive analysis of the healthcare, labour market, economic and education-related consequences of the pandemic. However, in Chapter 9, we attempted to provide a general account of the healthcare and labour market related decision dilemmas that have emerged during the pandemic, and we provide a short analysis of the labour market effects of the first wave, on the basis of the latest available data.

4 Statistical data

This chapter, in the same structure as in previous years, provides detailed information on the most important economic processes of the period since the political transition, on the characteristics of the population, of labour market participation, employment, unemployment, inactivity, wages, education, labour demand, regional imbalances, migration, labour relations and welfare benefits, and compares certain labour market indicators to the international context. The data presented in this section has two main sources: on the one hand, the regular labour-related institutional and population surveys of the Hungarian Central Statistical Office: the Labour Force Survey (LFS), institution-based labour statistics (ILS), and the labour force account (LFA). On the other hand, the register of the National Employment Services and its data collections: the database of registered jobseekers (NES REG), short-term labour market forecast (PROG), wage tariff surveys (WT) and the Labour Relations Information System of the Ministry for National Economy (LRIS). More detailed information

on these data sources is available at the end of the statistical section. In addition to the two main data providers, data on old age and invalidity pensions and allowances was provided by the Central Administration of National Pension Insurance. Finally, certain tables and figures are based on information from the online databases of the Central Statistical Office, the National Tax and Customs Administration and the Eurostat. Tables and figures can be downloaded in Excel format following the links provided. All tables with labour market data published in the Hungarian Labour Market Yearbook since 2000 are available at the following website: http://adatbank.krtk.mta.hu/tukor_kereso

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The editorial board would like to thank our colleagues at the *Centre for Economic and Regional Studies,* the *Ministry of Finance, the Central Statistical Office,* the *Hungarian State Treasury,* the *National Health Insurance Fund Administration,* the *Department of Education*, the *National Tax and Customs Administration,* the *Budapest Institute for Policy Analysis*, the *Institute for Economic and Business Research of the Hungarian Chamber of Commerce and Industry,* and members of the *Economics of Human Resources Committee of the Hungarian Academy of Sciences* for their work in collecting and reviewing the necessary data, and in editing, preparing, and discussing the materials included in this publication. This yearbook could not have been created without the dedicated and outstanding work of the staff of the *Databank of the KRTK.* We would like to thank the Eötvös Loránd Research Network for financial support for the publication.

THE HUNGARIAN LABOUR MARKET IN 2019–2020

TAMÁS BAKÓ & JUDIT LAKATOS

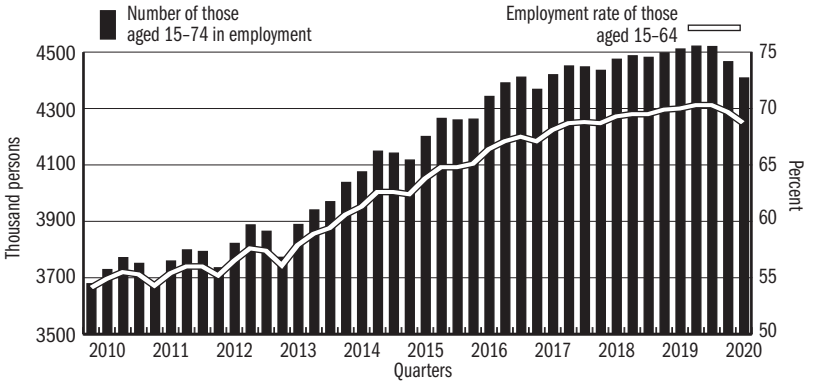
INTRODUCTION

The growth dynamics of the Hungarian economy in 2019 was similar to that of the preceding years; the GDP has grown by 4.9 percent, which has enabled the preservation of a worker-friendly labour market environment. The growth influenced the various sectors to differing extents. The volume increase was 21.7 percent in construction and 5.4 percent in industrial production, while the volume of agricultural production decreased by 0.3 percent compared to 2018. 75.3 percent of the population between the ages of 20–64 was considered employed, so the EU target for 2020 was already realised in 2019, and we made it into the middle-ranking group of member states with this figure. The employment indicator of 2019 was coupled by one of the lowest unemployment rates of the EU: only 3 other member states had a lower rate than the Hungarian 3.4 percent. The Hungarian labour supply – primarily for demographic and structural reasons – was only partially able to follow the growth of labour demand, thus, the employment of foreign workers was further expanded. Due to a tight labour market, the bargaining power of workers has improved, and the dynamic growth of earnings has continued. Workers' earnings have exceeded last year's by an average of 11.4 percent, and between 2017 and 2019, earnings have increased by a total of over 28 percent in real terms. It needs to be mentioned however that the favourable labour market conditions that characterised 2019 have deteriorated substantially since March 2020, due to the powerful economic downturn that occurred in the wake of the COVID-19 pandemic. In the second quarter (of 2020), the full duration of which was affected by the pandemic, the number of those in employment was 103,000 less than during the same period of 2019 (*HCSO,* 2020).

THE DEVELOPMENT OF EMPLOYMENT

In 2019, according to the labour force survey, the number of those in employment: 4,512,000, was approximately 1 percent (nearly 40,000) higher than the same figure of the preceding year. Within the year, the change in workers' numbers followed the usual pattern: the increase of the first three quarters was followed by stagnation in the fourth quarter. The limited amount of available additional labour force played a key role in the fact that the employment growth rate has been continuously decelerating since 2017, as employers' demand for additional labour force has not changed significantly and the number of positions to be filled remained high (*Figure 1*).

Figure 1: The number of those in employment between the ages of 15–74, and the employment rate of those between the ages of 15–64



Source: *HCSO* LFS.

The main reason behind the decline in labour supply is that the population numbers of the generations entering the labour market are substantially lower than the numbers of those exiting. While the number of those considered to be of working age (those between ages of 15–64) living in private households was 6,736,000 in 2010, this figure decreased to 6,369,000 in 2018, and then to even lower by 42,000 in 2019: 6,327,000. The shrinkage of the potential labour force, rooted in demographic reasons, can still be partially compensated for until 2021 by the gradual increase of the retirement age, although the effect of this is weakened by the circumstance that a growing number of females who have engaged in full-time tertiary education have also taken the opportunity to retire early.[1] The reason behind the different rules for the two sexes is that while the population of males aged 15–74 in employment increased by 1.4 percent, this increase was only 0.5 percent in the case of females in 2019. Another factor that contributed to the insufficiency of the Hungarian labour force was that since the 2010s, the number of those moving abroad for work has been gradually increasing, although this tendency seems to have stopped in the past two years. As there is no reliable data available on the number of Hungarians living and working abroad, the data regarding the number of working-age individuals who are effectively available for Hungarian employers is also somewhat uncertain.[2]

Several provisions have been put in place recently in order to mitigate the labour shortage and expand the labour force. On the basis of the model of student cooperatives that support the employment of full-time students, pensioners' cooperatives have been formed, and since 2019, the employment of pensioners has received even more support: neither they, nor their employers are required to pay any contributions on their earnings. Another provision is that mothers with young children may work even full-time while keeping their childcare allowance, and the government also intends to encourage their

1 A 40-year period of contribution to public pension funds was recognized in 2018 for those who had completed a 4-year study programme, and in 2019 for those who had completed a 5-year study programme.

2 One source of the uncertainty is the population number carried forward that serves as the basis for multiplication. When it is updated each year, the number of those – for example – residing temporarily abroad for work purposes cannot be established with certainty. More accurate data is available only on those who are surveyed in the labour force survey as a member of their Hungarian household. According to the CLFS (Community Labour Force Survey), in 2019, 360,000 individuals with Hungarian citizenship aged 20–64 were residing in an EU-EFTA country, and their 83.9 percent were in employment. The ratio of females and males was nearly equal, and presumably, the majority of them lived in households without a member who could have provided data about them in Hungary. Although in absolute terms, the number of surveyed Hungarians and their ratio relative to the appropriate population was low compared to most post-socialist countries, the dynamics of out-migration exceeded that of these countries between 2010 and 2015 and it decelerated only in recent years.

return to the labour market by continuing to expand the network of daycare centres. As a result of these provisions, the labour market presence of the above mentioned groups has increased.

According to the labour market survey, only 12,700 full-time students were in employment beside their studies, and in 2019, their number was 24,700. The growing employment of students was driven mostly by the increased wages brought about by an excess in labour demand. Although there is a substantially larger population behind the average, and based on the data provided by students' cooperatives, the number of students who do work but are invisible to the labour market survey is significant, working while studying is still less widespread than in most Northern and Western European countries.

The number of pensioners in employment has grown from 128,200 in 2014 to 187,800 in 2019. Their further, more substantial inclusion in the labour market may be limited by the rising retirement age and its consequences: a rise in the number of those struggling with health issues. The number of females working while receiving childcare allowance was 24,500 in 2019, which is 57 percent more than what it was in 2014. The opportunity to work while receiving childcare allowance was taken mostly by women with higher educational attainment and thus higher earnings. In 2019, nearly half of the women who were in employment while receiving childcare allowance had a tertiary educational attainment.

Although officially, mass in-migration is still not desirable, the need of the Hungarian economy for international labour force has been increasing in recent years. Although some workers do come from distant countries – mostly in an organised way – the primary target countries for recruitment are the neighbouring countries that are not a member of the EU – Ukraine and Serbia. Since July 2017, employment in Hungary has become significantly easier for the citizens of these two countries. Partly as a result of this, in 2019, enterprises with at least five employees have employed 52,000 international citizens, which is more than the double of the 2015 figure. Nearly one out of three international workers came from Ukraine. In 2019, 14,000 individuals were granted a work permit, while employers employed foreigners in 40,300 positions subject to a reporting obligation. 70 percent of the latter were Ukrainian or Serbian citizens. 41 percent of those granted an employment permit had an elementary educational attainment, while this rate was nearly 56 percent in the case of those employed with a reporting obligation; that is, foreign workers were typically employed in unskilled positions that could be filled after a short training.

The decrease of public employment quotas, and the fact that the rates of public employment wages (frozen since 2017) are increasingly unfavourable compared to the general minimum wage,[3] aid the transition of those affected to the primary labour market, and thus the mitigation of the la-

3 At its introduction in 2012, the gross public employment wage was 77.2 percent of the general minimum wage, which ratio, without considering the effect of the one-off payment in September, dropped to 54.1 percent by 2019.

bour shortage. This is because from the perspective of the primary labour market, public employees also constitute labour force. The purpose of the expansion of public employment in 2013 was to manage unemployment, but the government's ideological rejection of income gained without work (that is, unemployment benefits) presumably also played a role in it. At the same time as unemployment decreased and the labour shortage worsened, the number of workers in this form of employment also decreased, and by 2019, only those worked as public employees who were unable to find other kind of work due to labour market socialisation issues, the distance of potential workplaces or their age or lack of education.[4]

As *Table 1* shows, the annual average number of those working in the Hungarian primary labour market was 4,284,600 in 2019, which represents a growth by 68,000 compared to the preceding year, while the number of those considering themselves public employees decreased by 37,000, and the number of those indicating a foreign employer in the labour market survey grew by 11,000. This means that a total of nearly 700,000 new jobs have been created in the Hungarian primary labour market since 2010.

4 More details will be provided about the situation of public employment later on.

Table 1: Some of the more relevant details of the development of the number of public employees, 2017–2019

Title	Number of those in employment (thousands of persons)			Change 2019/2018	
	2017	2018	2019	thousands of persons	percent
Total	4421.4	4469.5	4512.1	42.6	101.0
Sex					
Male	2417.3	2446.2	2479.7	33.5	101.4
Female	2004.1	2023.3	2032.4	9.1	100.4
Type					
Hungarian primary labour market	4117.8	4216.6	4284.6	68.0	101.6
Public employment	194.0	148.2	111.5	-36.7	75.2
International location	109.6	104.7	116.1	11.4	110.9
Region					
Budapest	845.3	833.8	848.1	14.3	101.7
Pest	578.0	595.2	614.7	19.5	103.3
Central Transdanubia	498.7	499.1	505.6	6.5	101.3
Western Transdanubia	469.6	481.9	488.0	6.1	101.3
Southern Transdanubia	369.3	374.0	373.0	-1.0	99.7
Northern Hungary	474.8	485.3	481.7	-3.6	99.3
North of the Great Hungarian Plain	631.1	639.7	640.0	0.3	100.0
South of the Great Hungarian Plain	554.8	560.5	561.0	0.5	100.1
Status					
In employment	3964.4	4003.9	4024.8	20.9	100.5
Member of a joint entrepreneurship or cooperative	156.8	149.4	164.5	15.1	110.1
Entrepreneur, independent and supportive family member	300.2	316.2	322.8	6.6	102.1

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

The rate of males among those in employment kept increasing to some extent. In 2019, 83.1 percent of males aged 20–64 were in employment, in contrast with the female rate of 67.6. The first exceeded the average of the EU28 by 3.5 percentage points, while the latter fell behind by 0.6 percentage points. The substantially lower female employment rate is primarily rooted in the fact that they are the ones traditionally tasked with home duties such as taking care of children and the family, and as a result, it is females who, in most cases, leave the labour market either permanently or temporarily. The difference between the employment rates of the two sexes is largest in the 30–35 and the 60–65 age groups. In the first group, it is because this is typically the time when childcare allowance is requested, and even today, the majority of women spend its entire duration with their children. According to a second quarter HCSO survey,[5] only 6.5 percent of the women who requested some form of childcare allowance were in employment. Although life expectancy at birth increased, the number of years to be spent in good health did not increase proportionately, and as a result, an increasing number of families need to care for elderly relatives as well. In this survey, 277,000 gave the response that they have an (adult) relative that needs care, and three quarters of those affected cared for them in their own homes. The care of elderly, ill relatives is also one of the reasons why a non-negligible number of women choose retirement once they have completed 40 years of employment relationship.

There are still significant territorial differences in employment. In 2019, while the national average employment rate was 70.1 percent in the population aged 15–64, this rate was 74 percent in Budapest, and 73.8 percent in Western Transdanubia. In contrast, the worst employment rate was found in Southern Transdanubia, a region that is increasingly lagging behind the rest: it was only 65.4 percent there, followed by the second worst, Northern Hungary – which used to be last in line until 2017 – with 66.1 percent. The differences in employment rates are even larger by county. In 2019, among the population aged 15–64, 74.4 percent were in employment in Győr-Moson-Sopron county, 74.2 percent in Vas county, while only 62.9 in Somogy county. As it can be seen from the absolute figures of the changes in population numbers, in 2019, the majority of surplus labour was engaged by jobs in and around Budapest – in the central region, the number of those aged 15–64 in employment grew by nearly 34,000 in one year, that is, approximately three quarters of the increase in numbers was realised there.

While at the beginning of the 2010s the employment rate of those with elementary educational attainment at most was well behind the EU average, the situation is different now, partly due to the public employment programmes, and as for he past two years, also due to the chronic labour shortage (*Table 2*). In 2019, the employment rate of males aged 15–64 with elementary educational attainment at most reached the EU28 level, and the same rate of females

5 See more: HCSO (2020b).

of the same age and educational attainment has even slightly surpassed the EU average. Although educational attainment has remained a determining factor for employment, the differences caused by it have significantly decreased in recent years. The difference between the employment rate of males aged 15–64 with elementary educational attainment and the same age group with tertiary educational attainment has dropped from 39.2 percentage points in 2010 to 26 percentage points in 2019. The improvement was less spectacular in females, but it was still 9.5 percentage points.

Table 2: The employment rate of those aged 15–64, by educational attainment and sex

	2012		2016		2019	
Educational attainment	Hungary	EU28	Hungary	EU28	Hungary	EU28
Males						
Elementary (ISCED1–2)	45.0	61.8	61.4	63.6	67.0	67.0
Secondary (ISCED3–4)	67.9	75.3	79.2	77.2	83.5	79.7
Tertiary (ISCED5–8)	84.4	85.7	905.0	87.1	93.0	88.4
Total	67.3	74.5	78.6	76.8	83.1	79.6
Females						
Elementary (ISCED1–2)	30.7	42.7	42.1	43.4	46.3	45.6
Secondary (ISCED3–4)	57.7	63.5	65.0	65.7	67.5	67.7
Tertiary (ISCED5–8)	74.3	78.5	80.0	80.2	79.8	82.1
Total	56.2	62.4	64.4	65.3	67.6	68.2
Joint						
Elementary (ISCED1–2)	36.9	52.0	50.7	53.6	55.7	56.7
Secondary (ISCED3–4)	63.1	69.6	72.5	7.6	76.1	73.9
Tertiary (ISCED5–8)	78.5	81.9	84.4	83.4	85.2	85.0
Total	61.6	68.4	71.5	71.0	75.3	73.9

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

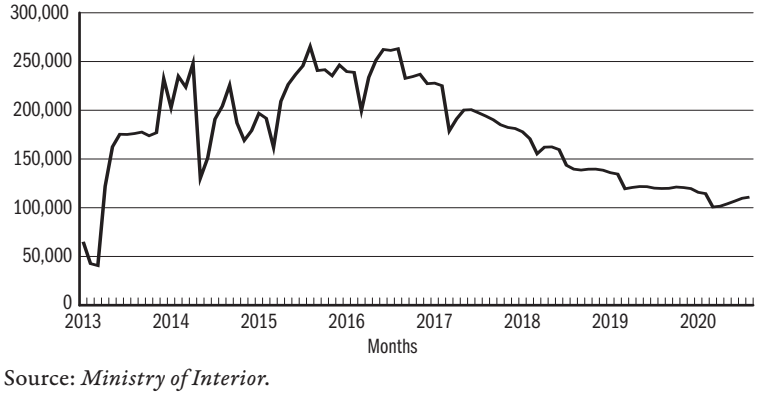
Sex and educational attainment together have a rather strong influence on labour market status. In 2019, 93 out of 100 males aged 20–64 with tertiary educational attainment did work, while only 46 percent of females of the same age group but with an elementary educational attainment at most were employed. Those with low educational attainment function as a kind of buffer for the economy: if labour demand is high, a lack of education is not necessarily a disadvantage for job-seeking, but during economic downturns, they may be the first ones to lose their jobs. This is another reason why it is unfortunate that this group is still being constantly replaced. In 2019, 11.8 percent of Hungarians aged 18–24 were considered so-called early school-leavers, which may be lower than the 17.3 rate of Spain at the "top" of the list, but is significantly higher than the best rate of 3 percent in Croatia, and is also higher than the average EU28 rate of 10.3.

Public employment is a unique form of employment that has engaged a considerable amount of people in recent years. Through raising public employ-

ment quotas, the government intended to create work opportunities during the period that followed the economic crisis in Hungary, for the populations who were unable to find jobs in the primary labour market due to their deficiencies in education or skill, a lack of jobs in their region of residence, or difficulties with labour market socialisation. Although shifting from public employment to the primary labour market is usually not easy, it has still become substantially easier in recent years. This is because due to the severe labour shortage, companies kept lowering their expectations towards applicants so that they could ensure the continuity of labour. As a result of this, the number of those in public employment, which was more than 200,000 in 2016, has dropped to its half by 2019.

According to the data of the Hungarian Ministry of Interior, which is responsible for public employment, the average annual number of public employees was 106,300 in 2019, which was 29,400 or 21.6 percent less than the same figure of the preceding year (*Figure 2*). The composition of public employees has also changed: the ratio of older individuals with less education has grown, and females have become the majority. At the end of 2019, three fifths of public employees were females, 11 percent did not even have an elementary educational attainment, and more than 50 percent has only completed elementary school. Males had better chances at entering the primary labour market than females even with an elementary educational attainment or less, and a significant portion of the undereducated male labour force was engaged by construction.

Figure 2: The development of the number of public employees, 2013–2020. Term II



Source: *Ministry of Interior.*

Territorial differences have also increased. In December 2019, out of 102,900 public employees, 20,700 worked in Szabolcs-Szatmár-Bereg county, 20,400 in Borsod-Abaúj-Zemplén county, and 9,800 in Hajdú-Bihar county. In these counties, the number of public employees decreased to a lesser extent than the national average (in Szabolcs-Szatmár-Bereg county, for example, by just

over 6 percent), while the extent of the decrease was approximately the double of the average in Győr-Moson-Sopron, Komárom-Esztergom, and Fejér counties, where a significant number of jobs were offered even to the undereducated. In December 2019 in Budapest, where the largest concentration of jobs can be found, only 5,200 individuals worked as public employees – 25 percent less than the preceding year, and less than a thousand of these individuals were Budapest residents.

Employment forms that are considered flexible – such as part-time employment (which may be better fitted to workers' individual life situations) and fixed-term contract employment (which makes it easier for employers to adapt to changing workloads) – are less widespread in Hungary compared to the whole of the European Union, but at the same time, the differences – in the prevalence of these forms – between the member states are also rather large, partly as a result of different labour market traditions (*Table 3*). In Hungary, in the fourth quarter of 2019, only 5.1 percent of those aged 15–74 responded that they were in part-time employment, compared the EU rate of 19.9, and the rate of those working in this type of employment remained largely unchanged throughout the past decade. (The rates of the European member states varied between 51.0 percent in the Netherlands and 1.9 percent in Bulgaria, and lower rates were usually typical of post-socialist countries.) The rate of Hungarian females working in part-time employment was the double of the same rate of males, but their rate was further away from the relevant EU average. Part-time employment is most prevalent in the 15–24 age group due to student labour, but it is still not more than 6.2 percent of the total employment rate of this age group, in contrast with the EU average of nearly 32.8 percent.

Table 3: The rates of those in part-time employment and fixed-term contract employment in 2019, by sex Quarter IV (percentage)

	Employed to part-time employed			Employed to employed on a fixed-term contract		
	male	female	joint	male	female	joint
Aged 15–24	3.4	10.2	6.2	12.1	12.2	12.2
Aged 25–49	1.7	5.6	3.5	4.9	6.3	5.5
Aged 50–64	3.2	8.2	3.5	6.2	6.3	6.2
Hungary total	3.1	7.5	5.1	5.8	6.7	6.2
EU28	9.7	31.8	19.9	13.1	14.0	13.5

Source: *Eurostat* database.

It is worth mentioning that full-time employment is usually procyclical, while part-time employment is countercyclical (that is, it expands during economic downturns and shrinks during periods of economic recovery). This would mean that the recruitment difficulties that accompany economic recovery decrease the likelihood of part-time employment. However, economic fluc-

tuations is not the only factor that influences part-time employment: the institutional environment and the labour supply are also relevant. During a recovery, growing wages may attract groups into the labour market that had been inactive and that primarily seek part-time employment (such as pensioners or mothers with young children). While companies would prefer to employ full-time workers, they are forced to employ part-time workers due to recruitment difficulties. The recruitment difficulties that occur during an economic recovery may decrease the number of already existing part-time jobs, but the number of part-time workers may still grow among the newly employed, if the majority of job-seekers prefer part-time employment.

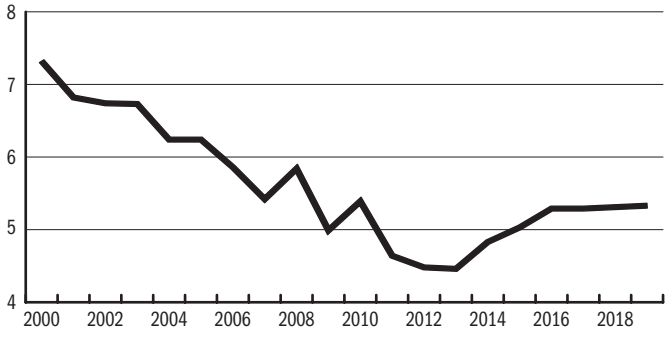
The rate of those employed on a fixed-term contract was 6.2 percent for the same period, which was less than half of the EU average. (There are substantial differences between the member states in this employment type, too. In Spain, which struggles with a high unemployment rate, this rate was 26.1, while in Lithuania, it was 1.1 percent, and lower rates are typical of post-socialist countries – excluding Poland – in this case, as well.) As for the frequency of the occurrence of fixed-term contracts, there is no significant difference between females and males, while younger age groups are overrepresented due to student labour and probationary work, which is more prevalent among them.

Despite the continually rising retirement age, Hungarians spend a shorter time working during their lifetime than the EU average. According to Eurostat data, the average length of the time spent working was 37.4 years for males, in contrast with the EU average of 38.7. For females, this was only 31.2 years due to time lost through childcare, lower employment rates, and differing pension regulations, while across the EU, females worked an average of 33.9 years. The rate of those working in non-ordinary work schedules is also relatively low. In 2019, 15.3 percent of males and 14.3 percent of females worked in "shift work" work schedules. The former is 4.1 percentage points, and the latter is 3 percentage points below the EU average. 9.5 percent of males and 7.4 percent of females worked on Saturdays, while 6.9 percent and 5.1 percent respectively worked on Sundays. In 2018, the HCSO published an analysis on how widespread remote work was and on the characteristics of those employed in this way (*KSH,* 2020c). According to this, 3.7 percent of those in employment, that is, 144,000 individuals worked within this employment form, with an approximately equal ratio of the two sexes. 69 percent had a tertiary educational attainment, and those living in Budapest and in other larger cities were significantly overrepresented.

At the same time, the dynamic expansion of employment in recent years has its downsides, too. The rate of work accidents, apart from a few recurrences of varying degrees, decreased continuously between 2000 and 2013, but with the expansion of employment, it started increasing again after 2014 (*Figure 3*). There are two main factors behind the rising number of work accidents.

On the one hand, employment showed a robust expansion mainly in sectors that are more prone to work accidents (such as manufacturing). On the other hand, the work supply was unable to keep up with the additional labour force demand, and a significant number of employers raised the number of hours worked (through ordering overtime and reducing part-time employment), which increases the likelihood of work accidents. *Lee–Lee* (2016) found evidence for this: through estimations carried out on South-Korean data, they found that one hour less of weekly working time decreases the number of work injuries by 8 percent.

Figure 3: The development of the number of work accidents per 1000 employees, 2000–2019

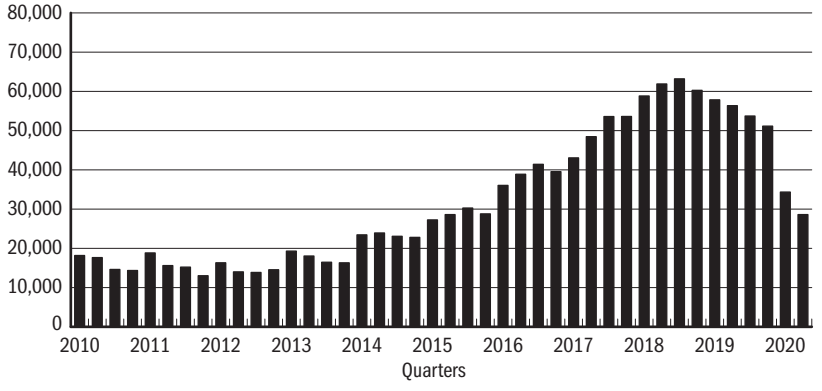


Source: *HSCO* data.

LABOUR MARKET DEMAND AND RESERVE

Labour shortage continued to be present in the economy in 2019, but the demand of employers for additional labour force decreased slightly. The staffing needs indicated by enterprises employing more than 5 employees, budgetary institutions, and nonprofit organisations (which are significant in terms of employment) was lower than that of the preceding year. In 2019, in annual average terms, according to the data provided by employers, the average number of vacant or soon-to-be-vacant positions was 79,000, in contrast with the preceding year's 84,000 (*Figure 4*). This reduction is partially related to the rise in the number of international workers, because typically, the number of vacant positions decreased in the sectors where the number of international workers increased. Enterprises constituted 70 percent of the vacant positions. Here, 55,000 additional employees would have been needed. Budgetary institutions (excluding the military) would have needed an additional 20,000, while nonprofit organisations would have needed an additional (approximately) 3,500 workers. A year earlier, the need of the private sector for additional labour force was even higher both in absolute terms and relative to the number of positions to be filled.

Figure 4: The number of vacant positions in the private sector, 2010–2020



Note: Enterprises employing at least five employees.
Source: *HCSO* quarterly labour market reports.

The ratio of vacant positions to all positions was the equivalent of 2.5 percent in 2019, which was 0.2 percentage points lower than the preceding year's, but overall, it still slightly exceeded the EU average.[6] This ratio was 2.4 in the private sector, 2.9 in the case of the budgetary institutions, and 2.0 percent in the nonprofit sector. The value of the indicator was higher than average in the economic activity branch of healthcare and social care, which continues to struggle with serious labour force issues (4.1 percent), and in two fields that are predominantly run by the private sector: administrative service (3.7 percent), and information and communication (3.3 percent). It needs to be mentioned that as a result of the economic downturn induced by the COVID-19 pandemic, there were half as many vacant positions in the second quarter of 2020 as there were in the same quarter of 2019.

The statistics of the National Employment Service (NFSZ), which was based on the labour demand reporting of employers, also indicated a decrease in the demand for additional labour force. In December 2019, a total of 24,000 new vacant positions were reported by employers – 13 percent less than in the same period of 2018, and in 2019, a monthly average of 39,000 vacancies were reported – 26 percent less than in the preceding year. On the closing day in December, the total number of reported vacant positions was approximately 56,000.

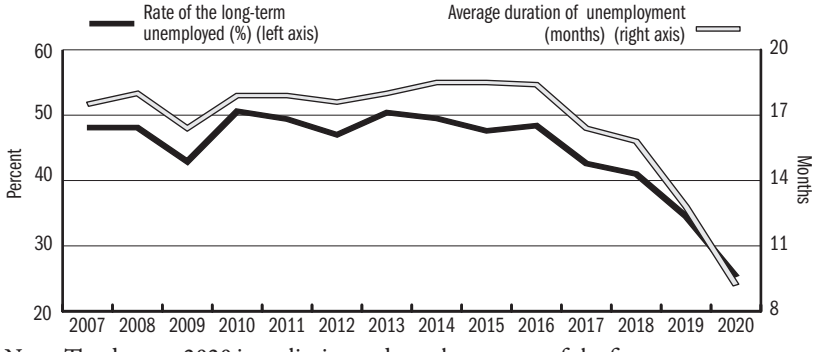
The base of the additional labour force is comprised of several groups that are at varying distances from the labour market. The closest are the unemployed, because all of the widely used definitions define them by their making certain steps towards becoming employed. The average headcount of the unemployed, as defined by the specialised labour organisation of the UN, the ILO (which definition[7] is also used in the labour force survey of the HCSO), reached a record low in 2019. Their annual average number was 160,000, which means a 3.4 percent unemployment rate. Thus, the headcount was 12,000 less and the unemployment rate was 0.3 percentage points lower than in the preced-

6 In the European Union, in the fourth quarter of 2019, there were 2.2 vacant positions per hundred positions.

7 Those who: are not engaged in any income-producing activity, are looking for a job, and are available.

ing year. The unemployment rate of females decreased somewhat more than that of males, and as a result, the unemployment rates of the two sexes were more or less the same in 2019 (3.4 percent for males and 3.5 percent for females). The average duration of job-seeking became substantially less, by nearly 3 months, which can be explained by the excess labour demand. It was 12.8 months in 2019, and the rate of long-term job-seekers was also significantly lower than in the preceding years (*Figure 5*). According to data on the first term of 2020, the COVID-19 pandemic did not affect either the rate of the long-term unemployed, nor the average duration of job-seeking, which has been in decline since 2016.

Figure 5: The average duration of job-seeking (months) and the rate of the long-term unemployed, 2004–2020. Term I (percentage)



Note: The data on 2020 is preliminary data: the average of the first two quarters.
Source: The labour market survey of the *HCSO*.

Despite the decline in unemployment, territorial differences have remained considerable. In 2019, similarly to preceding years, and relative to other regions, the unemployment rate of the 15–74 age group was lowest in Western and Central Transdanubia (1.8 and 2.0 percent). And even though the number of the unemployed did decrease somewhat even in the North of the Great Hungarian Plain, this region had the highest unemployment rate (6.3 percent). In the majority of the regions, there was no substantial change, apart from the improvement of 0.8 percentage points in Southern Transdanubia. Within the region, the rate of 6.6 percent of Baranya county is still salient, even if it is still more favourable than the rate of 8.2 percent of Szabolcs-Szatmár-Bereg county (despite the high volume of public employment there). The unemployment rate was lowest in Győr-Moson-Sopron county (1.2 percent) and Veszprém county (1.3 percent), and as a result, a factor of seven difference was observable between the counties with the most and the least favourable rates in 2019.

The number of job-seekers registered with the National Employment Service decreased to a lesser extent than the number of the unemployed based on the

definition used for the labour force survey of the HCSO: their number was 251,000 in 2019, which is only 5,000 less than the same rate of the preceding year (*Table 4*). Among registered job-seekers, the rate of those receiving unemployment benefits has grown, which is partly due to the fact that those nearing retirement, aware of the substantial age-related labour market discrimination, are often forced to make use of unemployment benefits, which may be a low amount compared to earnable wages, but is at least a secure financial resource. In 2019, only half of those receiving allowances received not more than the social allowance of HUF 22,800 per month, the amount of which has remained unchanged for several years. The number of fresh graduates, who are typically not eligible for support, has decreased to a somewhat greater extent than the number of all registered job-seekers.

Table 4: Registered job-seekers (thousands of persons)

Period	Number of registered job-seekers	Out of this:			
		fresh graduates	eligible for unemployment benefits	receiving social allowance	not receiving social allowance
2018	255.3	24.8	64.0	75.7	115.7
2019	250.9	22.6	69.1	68.4	113.5
Change relative to 2018 (percentage)	–1.7	–8.8	8.1	–9.7	–1.9

Source: The register of the *National Employment Service*.

In the labour force survey of the HCSO, 290,000 individuals indicated that they were unemployed, approximately as many as is the total number of those considered additional labour force within the ILO-defined unemployed and the inactive. The number of these amounted to 112,000, the same that it was in the preceding year.

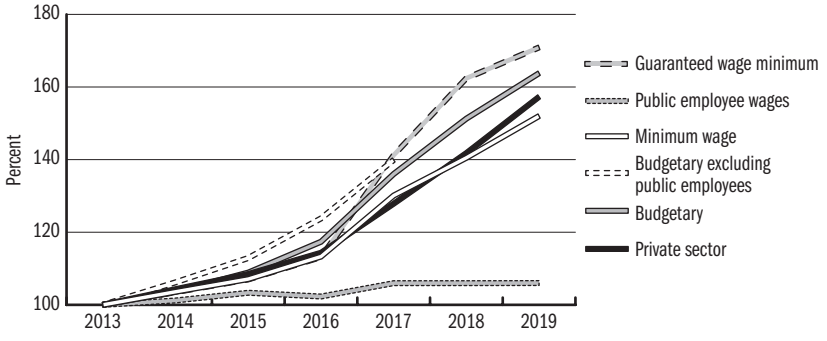
In 2019, the number of the working-age (aged 15–64) inactive continued to decline, which, due to the rising of the retirement age, affected the group of the retired the most. For demographic reasons, the number of students has also decreased, and additionally, more of them worked in 2019 than previously, and thus were reclassified into the category of those in employment. As the amount of the care allowance was settled to some extent in 2019, it is presumed that this caused a higher number of individuals (than in the preceding year) to stay away from the labour market on this basis.

EARNINGS, LABOUR INCOME, WAGE COSTS

The dynamic growth of earnings that characterised the preceding two years continued in 2019 (*Figure 6*). The average gross (as well as net) earnings exceeded the preceding year's by 11.4 percent. The average gross earnings of those employed full-time at enterprises employing more than 5 employees,

budgetary institutions, and nonprofit organisations (which are significant in terms of employment) grew from HUF 329,900 in 2018 to 367,800. The main reason behind the significant growth rate of earnings continued to be the intention of enterprises to keep and acquire labour force, which, in an environment characterised by labour shortage, could only be achieved through higher wages.

Figure 6: The growth rate of gross earnings (2013 = 100 percent)



Source: The institutional labour statistics of the *HCSO*.

The minimum wage and the guaranteed wage minimum was raised by 8 percent by the government in 2019 (as a result of negotiations aimed at reconciling interests), and as a consequence, the earnings of a considerable group of workers, those employed at the minimum wage, have fallen even further behind. The gap between the earnings of those working in the private and the budgetary sectors also widened even further, despite the fact that the decline in the number of public employees increased the wage dynamics observable for the latter sector. While the annual growth rate of the gross earnings of those working in enterprises was 11.6 percent (which meant average gross earnings of nearly HUF 381,000), the earnings of those working in the budgetary sector grew by 10 percent, but only by 7.9 percent excluding public employees. The latter meant average earnings of HUF 373,200, that is, the nominal earnings of those working in the public sector, calculated with the exclusion of public employees, fell behind the private sector, even though the rate of those working in intellectual jobs – and of those working in positions that require a tertiary educational attainment – is higher in the former sector. The gross earnings of the more than 150,000 workers working at nonprofit organisations who were not public employees exceeded last year's by 9.2 percent: it was HUF 347,000.

The wages established for public employees has been unchanged since 2017: it remained HUF 81,530 gross (or 54,217 net). Only a negligible number of public employees received higher wages: those who did work that corresponded to their qualifications, or worked as supervisors. In 2019 – presumably due

to the unfavourable ratio of public employment wages to living expenses – a certain group of public employees received a one-off allowance (equivalent to one month's wages, HUF 81,530 gross) in September, under a government decree, and as a result, the average earnings of those in this type of employment amounted to HUF 87,400, which was 6.2 percent higher than average of the preceding year (and that of two years earlier).

In 2019, in the majority of the economic activity branches (most of which belong to the private sector), the growth rate of earnings was higher than average. Calculated with the exclusion of public employees, the highest growth of earnings occurred in manufacturing at 12.9 percent, followed by a 12.8 percent growth of average gross earnings in construction and in trade and commerce, but the growth rate was above 12 percent in the economic activity branches of scientific and technical activities, and agriculture as well. However, the growth rate of wages in the economic activity branch of transportation and storage fell behind the average, as the wage development agreements of the numerous state-owned companies only covered the 2016–2018 period. Even in the financial and insurance activities economic activity branch, where the average earnings were the highest, the growth rate of earnings was relatively modest, presumably because labour shortage is still not a real issue here (*Table 5*).

From among the economic activity branches that predominantly belong to the public sector, the highest growth of earnings occurred in the public administration and compulsory social insurance branch: excluding public employees, it was 11.6 percent, which is mainly explained by that fact that the wages of those working in central public administration were raised – by an average of 30 percent – for the first time in ten years. However, the value of this improvement (for those affected) is significantly curbed by the fact that the funds for this raise were partially created by the preceding year's redundancies, and by the fact that the improvement in earnings was coupled with an increase in work hours and a fundamental restructuring of the former, more or less predictable advancement system.

On the basis of the new labour code, lunchtime no longer constitutes a part of the work hours, and the rules governing the allocation of the annual leave have also been fundamentally rearranged. Although the compensatory leave of those raising children has grown, the length of the base amount of employees' annual leave is now calculated not on the basis of the number of years spent in employment, but a performance-based classification system, and what's more, both the minimum and the maximum number of leave days have been reduced. According to the calculations of the workers' union, the average worker's additional work hours likely amounted to approximately a month's worth of work hours, while the workload increased due to redundancies.

Table 5: The average gross earnings of those in full-time employment, by economic activity branch, 2019

Economic activity branch	Average gross earnings (HUF/capita/month)		Index of average gross earnings (preceding year = 100 percent)	
	including public employees	excluding public employees	including public employees	excluding public employees
Agriculture	293,207	299,170	114.1	112.7
Mining	433,732	433,732	112.2	112.9
Manufacturing	391,907	391,924	112.9	112.9
Energy	603,003	603,406	108.5	108.4
Industry (excluding water and waste management)	399,270	399,295	112.6	112.6
Water and waste management	343,570	348,811	112.1	111.5
Industry total	396,079	396,457	112.6	112.6
Construction	287,851	290,161	113.0	112.8
Trade and commerce	342,830	342,838	112.8	112.8
Transportation and storage	345,091	346,344	109.9	109.7
Hospitality and catering	239,585	239,713	111.7	111.6
Information and communication	623,527	623,527	110.6	110.6
Financial services	665,380	665,442	107.5	107.5
Real estate	312,371	317,306	106.8	106.2
Scientific and technical activities	507,670	508,667	112.8	112.7
Administrative services	306,208	308,667	111.6	111.2
Public administration	442,437	454,891	112.6	111.6
Education	334,862	335,657	104.3	104.2
Healthcare, social care	247,211	314,746	112.4	107.9
Arts and leisure	366,803	371,772	111.9	110.2
Other services	305,759	311,356	113.8	109.1
Economic activity branches total	367,833	378,106	111.4	110.6

Source: *HCSO* and the *National Tax and Customs Administration* (NAV).

Within the healthcare and social care economic activity branch, the growth rate of healthcare workers' earnings – excluding public employees – was 7.7 percent, while that of those working in social care was 8.4 percent. The 8 percent wage raise of specialised healthcare workers, originally due in November 2019 (as the first step of a multi-step wage settlement process), was effectuated earlier, in July, due to the high rate of workers leaving the field. This provision affected 82,000 individuals, including 4,000 health visitors, who were reclassified into the specialised healthcare workers' effective from the same date. For those working in the social field, due to the low earnings, the raising of the minimum wage influenced the growth rate of earnings powerfully. From among public sector workers, the first to receive a substantial wage raise (in 2013) were educators working in public education, and then the earnings of several other worker groups working in the education economic activity branch (technical workers, teachers of universities and other higher education institutions) were also settled. However, these provisions had no effect on the growth rate of earnings in 2019, which was only 4.3 percent in

this economic activity branch. Thus, compared to the overall average across economic activity branches, the earnings of educators has fallen even further behind. This, and the fact that since 2015, the basis for the calculation of the wage grid of educators is not the minimum wage effective in the given year, has become the source of substantial discontent – which has manifested in demonstrations of various forms.

The difference between the earnings dynamics of the public and the private sectors, and the fact that fields that require low qualifications levels experienced a more pronounced labour shortage, resulted in a degree of convergence between the earnings of physical workers and intellectual workers. In 2019, the average earnings of physical workers were HUF 270,100, with a growth rate of 13.2 percent, while the average earnings of intellectual workers grew to HUF 471,000, with a significantly lower growth rate of 9.8 percent. The growth of earnings by main occupational categories had similar tendencies; the earnings of those with agricultural occupations exceeded the preceding year's by 15.8 percent, and the earnings of those working in unskilled occupations exceeded it by 15.4 percent. However, this growth was partially a result of the decline in the number of public employees, who are typically sorted into these two of the main occupational categories. They were followed by machine operators, assembly workers and drivers. Among intellectual workers, those doing office work and administrative (customer relationship) work experienced the highest growth in average gross earnings, by 12.9 percent. Thus, by main occupational categories, the earnings difference between those with the highest average gross earnings (HUF 711,000): economic, administrative and advocacy managers and legislators, and those with the lowest earnings (HUF 195,200): unskilled workers, was 3.6-fold. In 2019, the average gross earnings of males in full-time employment was 20 percent higher than that of females, and the gap between the sexes widened. This was also partially due to the lower growth rate of the public sector, where the ratio of females is high.

In 2019, in terms of earnings, the only substantial change in the tax and contribution system was that pensioners, whose numbers are not very high in full-time employment, ceased to be required to pay the solidarity contribution on their earnings.[8] As a result, the growth rate of net earnings was the same as that of gross earnings: 11.4 percent, which meant an average of HUF 244,600 for those in full-time employment. As consumer prices grew by 3.4 percent in the given period, earnings grew by an average of 7.7 percent in real terms.

In addition to the recently introduced employment allowance of pensioners, those in employment (and those with labour income in general) may be eligible for various rebates on taxes and contributions. Out of these, the family tax allowance affects the widest group of individuals, but the tax allowance for first marriages and for those suffering from particular diseases should also be mentioned here. In 2019, the average net earnings, calculated consider-

8 However, this means that the amount of the pension cannot be augmented through doing wage-earning work as a pensioner.

ing the allowances, is estimated at HUF 252,100 across economic activity branches, which means a growth of 11.5 percent relative to the preceding year. In 2019, the gross monthly labour income was HUF 383,400 on average. This includes the amount of fringe benefits: HUF 15,500 per capita, the largest item of which was cafeteria. The fact that tax allowances are offered only on a decreasing number of cafeteria items[9] explains why the weight of "additional labour income" items within the whole of the labour income has dropped in 2019. Within the vast majority of economic activity branches, this tendency has been prevalent, with the exception of only the energy industry (which generated substantial profits), and hospitality and catering. The per capita size of additional labour income differed significantly across the economic activity branches. The average monthly other labour income of those working in the energy industry was nearly HUF 36,000, while in construction, it was only HUF 5,000.

9 In 2019, the only item where the reduced tax rate of 34.5 percent was offered was the Széchenyi leisure card (SZÉP card), with a maximum allowance amount of HUF 450,000 (or HUF 200,000 for employees of budgetary institutions), more precisely, its three sub-accounts (an accommodation sub-account for up to HUF 225,000 annually, a catering sub-account for up to HUF 150,000 annually, and a leisure sub-account for up to HUF 75,000 annually). If the allowance exceeds the envelope, or if the employer transfers to the sub-accounts allowance amounts that are higher than the annual envelope, the tax burden on that will be the general 40.7 percent tax. In 2019, the reduced tax rate offered on the formerly popular monetary allowance was discontinued, but the tax exemption of entry tickets for sports events and of public transport passes was still available.

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LABOUR MARKET POLICIES

DÁNIEL BACSÁK
MIKLÓS HAJDU
ÁGOSTON HORVÁTH
ÁGNES MAKÓ
FRUZSINA NÁBELEK
ZSANNA NYÍRŐ

1 LABOUR MARKET POLICY TOOLS (JUNE 2019 – MAY 2020)

MIKLÓS HAJDU, ÁGNES MAKÓ, FRUZSINA NÁBELEK & ZSANNA NYÍRŐ

1.1 Institutional changes

The system of vocational education and training. Act LXXX of 2019 on Vocational Education and Training[1] took effect on 1 January 2020. Pupils entering vocational education and training on 1 September 2020 already commenced their studies in accordance with the new regulation. (The changes will be phased in starting from the school year 2020–2021.) The 4 + 1 year structure of secondary vocational schools will be replaced by a 5-year and in some cases even 6-year structure, while vocational schools will cover only three years.

The first phase of education will offer the shared sectoral basics of related occupations. Following this foundation phase, pupils sit for a sector-specific examination and then select one of the related occupations to study at the end of Grade 9 at a vocational school and after Grade 10 at a secondary vocational school.[2]

Vocational schools prepare pupils for an occupation. Following the first year providing sector-specific knowledge, that is after passing the sector-specific examination and choosing an occupation, pupils take part in dual training (apprenticeship) at enterprises or entrepreneurs, where they acquire profession-specific skills. At the end of their studies, pupils sit for a profession-specific examination and acquire a vocational qualification. After passing the examination, they may participate in a two-year part-time programme and obtain an upper-secondary qualification.

At the five- or six-grade secondary vocational schools it is possible to obtain a post-secondary qualification, which provides skills relevant to middle management roles. In general subjects, education ends in a school-leaving examination (Matura) and pupils take a profession-specific exam in a fifth subject, which qualifies as an advanced-level school leaving examination. Secondary vocational programmes also include practical, work-based training elements, ideally at enterprises, as dual training. Having completed the five or six grades, pupils obtain both a secondary school leaving certificate (Matura) and a post-secondary vocational certificate, and may be given preferential treatment when applying for a relevant higher education programme.

Under the new law, dual training provided by vocational and secondary vocational programmes will be governed by an apprenticeship contract in-

1 Act LXXX of 2019 on Vocational Education and Training (in Hungarian).
2 See PBKIK, Pécs.

stead of a training contract and will be subject to the Labour Code with certain exceptions.

Pupils in vocational education and training are entitled to various emoluments during their studies but only one at a time. They may be awarded a grant based on their school performance during their studies at school and are paid a salary and other emoluments by the enterprise providing the dual training (apprenticeship), based on their apprenticeship contract.

Under the new legislation, the National Qualifications Register is replaced by the Register of Professions, which contains 174 professions of 25 sectors, along with the length of training required, the specialisations belonging to each profession and the possibilities of transfer from one profession to another. Training for the so-called basic professions will only be provided by vocational schools and secondary vocational schools, within the education system.

The status of teachers in vocational and secondary vocational schools also changes: they are no longer employed as public servants but have an employment contract or agency contract governed by the Labour Code.

On 16 March 2020, e-learning was introduced, with a ministerial decree, for general knowledge and profession-specific theoretical subjects at vocational and secondary vocational schools due to the COVID-19 pandemic.[3] If a pupil did not possess the necessary devices and Internet access, the vocational training centre he/she attends provided for these and also for education in small groups of maximum five pupils in the school building. Depending on the nature of the profession and the equipment needed, apprenticeship training was also ideally provided as e-learning or individually, through project work. The year-end practical examinations were postponed and pupils were able to conclude an apprenticeship contract at the beginning of their dual training without passing the practical examination. If either the school or the practical training provider (the enterprise) deemed the practical training (apprenticeship) unfeasible, they decided together to postpone it or provide it as e-learning.

Economy Support Operational Board. In order to mitigate and prevent the detrimental impacts of the coronavirus pandemic, the Hungarian government has set up the Economy Support Operational Board,[4] which monitors the government measures taken to protect the Hungarian economy as well as their implementation, and makes recommendations for the government on abolishing factors and regulations that pose an obstacle for businesses to pursue their activities or make investments. The Economy Support Operational Board also makes proposals for the government on measures to ease the allocation of EU and national funding, gives its opinion on initiatives relevant to the protection of the Hungarian economy and makes proposals on government interventions.[5]

3 See nive.hu.
4 See source of law (in Hungarian).
5 See koronavirus.gov.hu.

1.2 Benefits

Unemployment benefit. As a result of raising the minimum wage in 2020[6] (see *Section 1.5*), the maximum amount of the unemployment benefit (so-called job-seekers' allowance) also increased. Thus the maximum of the job-seekers' monthly allowance has been HUF 161,000 since 1 January 2020, while the unemployment assistance granted before retirement has been HUF 64,400 a month. The so-called activity compensation of job seekers participating in intensive training acknowledged by job centres ranges between HUF 96,600–161,000 a month.

Rehabilitation and disability benefits. The amount of rehabilitation and disability benefits increased by 2.8% in January 2020 and in this way the base allowance is now at HUF 104,405.[7]

Child benefits. As a result of a raise in the minimum wage in 2020 (see *Section 1.5.*), the maximum amount of the parental leave benefit (which equals 70 per cent of double the amount of the minimum wage) increased to HUF 225,400 a month in 2020. The parental leave benefit for graduates otherwise not entitled to one increased to HUF 112,700 for Bachelor degree holders and HUF 147,420 for Master degree holders. From 2020 onwards, insured grandparents who are not yet pensioners are also entitled to the parental leave benefit if certain requirements are met.[8]

During the state of emergency declared because of the pandemic, entitlement to the parental leave benefit was extended for parents whose entitlement would have ceased on, or after, 11 March 2020[9] and this regulation expired on 17 June, when the state of emergency was repealed – implying that those whose entitlement to parental leave ceased after 17 June 2020 did not enjoy the prolonged entitlement.

1.3 Services

Job retention loan. Businesses are able to apply for the loan scheme launched in order to counteract the economic effects of the coronavirus pandemic if they are unable to finance the maintenance of their jobs. In this case they can take out a loan amounting to 9 months' salaries at an interest rate of 0.1 per cent, with a two-year maturity and with a pre-redemption period of maximum 9 months.[10] Borrowers must undertake to retain at least ninety per cent of their workforce during the maturity period.

Student Loan Extra. The interest-free Student Loan Extra was introduced in May 2020, amounting to a maximum of HUF 1.2 million if the borrower participates in adult training programmes specified by the Ministry for Innovation and Technology.[11] This general purpose loan primarily supports students who have lost their jobs or are considering a career change during their studies. Student Loan Extra may also be taken out by higher education students up to an amount of HUF 500 thousand.

6 See source of law (in Hungarian).
7 See kormanyhivatal.hu.
8 See kozlonyok.hu.
9 See koronavirus.gov.hu.
10 See kavosz.hu.
11 See kozlonyok.hu.

Information portal for entrepreneurs. The site supports entrepreneurs by collecting advice as well as information on programmes, loans and calls to tender, which may be useful during the pandemic and the ensuing economic crisis.[12] It also provides information on free or state-funded training, helpful for employees whose jobs are at risk.

"Redesign" campaign. As part of the economy support action plan, the government launched a free, online information technology training in May 2020.[13] Participants acquire basic computer literacy skills ranging from the usage of Windows to software development and website development. The eight-week course involves 2–6 hours of learning a day mainly based on video instructions. The course helps participants to assess how inclined they are towards information technology and whether they are interested in taking part in further training courses ending in a qualification.

1.4 Active labour market policies and comprehensive programmes

The public works budget in 2020. Prior to the coronavirus pandemic, the Hungarian government intended to downscale the public works programme and thus reduced the budget of the Start work programme from HUF 180 billion in 2019 to 140 billion in 2020.[14] However, the Government Resolution 1466/2020. (VII. 31.) on issues concerning public works[15] was published in June 2020 stating that the government provides an opportunity to work in the public works scheme for anyone requesting it. To this end, the budget of the Start work programme was increased by HUF 5 billion.

Public works and social welfare land programme. A public invitation was published by the Ministry of Agriculture and the National Land Centre in June 2019 for municipalities to tender for the free usage of 1,200 hectares of state-owned land.[16] The primary aim of the programme is to support Hungarian villages, extend the agro-economic opportunities available for them and assist disadvantaged people in rural areas. The call facilitates the extension of local public works projects and labour market opportunities and supports the production of locally produced agricultural products.

"Summer student work 2020" central labour market programme. This central labour market programme, launched in June 2019, facilitates the entrance of young people to the labour market by providing early work experience and income for students. The total budget of the programme is HUF 3.6 billion.[17]

Employment aid for public works participants. Government decree 203/2019 (VIII.23.)[18] was published on 23 August 2019, stipulating that public works participants are entitled to a one-off employment aid in addition to the public works wages. This one-off assistance contributes to the costs of job seeking with HUF 81,530 if the beneficiary was in public works for a minimum of 90 days between 1 January and 31 July and was not subject to exclusion from public works as defined in the Public Works Act.

12 See vali.ifka.hu.
13 See nive.hu.
14 See parlament.hu.
15 See kozlonyok.hu.
16 See kormany.hu.
17 See ado.hu.
18 See magyarkozlony.hu.

The programme was designed to stimulate employment in the country, expand land use opportunities for municipalities, support local agricultural production and increase the proportion of agricultural products produced locally.

New Internship Programme. The EDIOP-5.2.4-19 call titled New Internship Programme was published in November 2019 in order to assist disabled young people with upper-secondary qualifications with gaining work experience through internship and placement. The total budget of the programme is HUF 1.3 billion.

Providing grants for and supporting the training and employment of parents with young children. The EDIOP-5.3.13-20 call titled "Providing grants for and supporting the training and employment of parents with young children" was published in February 2020, which facilitates the participation of parents with young children in education and training, improves their employability, supports their return to employment and in this way activates the labour reserve. The total budget of the programme is HUF 3 billion.

Wage subsidies introduced due to the coronavirus pandemic. Government regulations adopted in order to alleviate the effects of the coronavirus pandemic introduced several wage subsidy schemes for the duration of the state of emergency.

The aim of supporting short-time working arrangements[19] was to encourage businesses affected by the pandemic to continue employing their workers in reduced working hours instead of downsizing. Under the regulation, part-time work of a maximum of four hours a day, amounting to at least half of the average working time of the three months preceding the state of emergency but not exceeding 70 per cent thereof qualifies as reduced working time. The regulation was later amended[20] to include working time of at least 25 per cent of, but not exceeding 80 per cent of, earlier working hours. The amendment also made it easier to apply for the subsidy. The first regulation required (in addition to operation for at least 6 months and employment since the announcement of the state of emergency or for a longer time) employers to prove that economic circumstances resulting in the short-time work arrangement are directly and closely related to the state of emergency, while the new regulation did not require a justification in order to apply for the subsidy.

A subsidy for employees in research and development was available under similar conditions.[21] Employers were entitled to a 3-month grant for the wages of employees in scientific research, development and innovation jobs. The grant was proportionate to gross wages and amounted to a maximum of HUF 319 thousand. When applying for the grant, employers undertook to retain the earlier average headcount, continue to employ the employee for a period equal to the period of the grant and did not reduce the wages of the employee during the period of the grant and during the continued employment.

19 See source of law (in Hungarian).
20 See source of law (in Hungarian).
21 See source of law (in Hungarian).

A wage subsidy for job creation was also introduced because of the pandemic,[22] which was possible to claim for the employment of registered job seekers. The employment of a registered job seeker had to result in a net increase in headcount compared to the one at the time of applying for the subsidy. The period subsidised was six months, followed by three months of mandatory continued employment. The subsidy covered 100 per cent of the gross wages and social security contribution, amounting to a maximum of HUF 200 thousand.

Changes to the public works regulations during the state of emergency. On 15 May 2020 Government resolution 1240/2020[23] was published, which expanded the range of those who can apply for public work.

Amendment to Act CVI of 2011 on Public Works and the Amendment of Related and Other Legislation. This amendment was adopted on 19 May 2020[24] and stipulates that job seekers are excluded from public works for three months if because of their disorderly living environment the competent authorities reported a risk to health or public safety or the municipal clerk reported in a final decision a non-compliance with an obligation specified in a municipal regulation.

Supporting the investment of micro-, small and medium-sized enterprises in adapting to current business and production challenges. "CCHOP-1.2.6-20 Supporting the investment of micro-, small and medium-sized enterprises in adapting to current business and production challenges" and "EDIOP-1.2.8-20 Supporting the investment of micro-, small and medium-sized enterprises in adapting to current business and production challenges" commenced in May 2020. Both programmes aim at alleviating the economic effects of the coronavirus pandemic by maximising the workforce retention of (primarily micro-) enterprises and investment implemented from grants available for the various SME and headcounts categories. Additionally, a primary objective of the programme is to improve the productivity of SMEs and support their technological renewal. The total budget of CCHOP-1.2.6-20 is HUF 18.8 billion and that of EDIOP-1.2.8-20 is HUF 33.3 billion.

Introducing a special form of employment in the army. In May 2020 the army introduced a Special Voluntary Reserve Military Service for Hungarian citizens who lost their jobs during the coronavirus pandemic. In this special employment form there is no obligatory duration of contracts: they may be terminated by mutual agreement at any time. Volunteers are paid a gross monthly salary of HUF 161 thousand over the six-month service as well as a mobility allowance and are provided a meal.

Development of competitive entrepreneurial attitudes and increasing the proportion of opportunity-oriented enterprises. "EDIOP-1.1.9-CCHOP-20 Development of competitive entrepreneurial attitudes and increasing the proportion of opportunity-oriented enterprises" was published in June 2020. It supports the survival and efficient operation of start-ups by creating a platform of 21st

22 See munka.hu.
23 See magyarkozlony.hu.
24 See magyarkozlony.hu.

century solutions, an information channel ensuring knowledge transfer and a "starter pack". The total budget of the programme is HUF 1.1 billion.

1.5 Policy tools affecting the labour market

Changes in the minimum wage and the guaranteed minimum wage

The minimum amount of the base salary of full-time employees increased from HUF 149 thousand to HUF 161 thousand gross on 1 January 2020, while the guaranteed minimum wage of full-time employees in jobs requiring at least an upper-secondary qualification and/or mid-level vocational qualification increased from HUF 195 thousand to HUF 210,600.[25]

Changes in the system of taxes and contributions

Social contribution tax. On 1 July 2019 the social contribution tax decreased from 19.5 per cent to 17.5 per cent[26] and on 1 July 2020, as an element of the package intended to reduce the effects of the coronavirus pandemic on the economy, it was reduced again by 2 percentage points.[27]

The Act on Social Contribution Tax was modified as a result of changes in the vocational education and training system. Similarly to employment contracts with higher education students, apprenticeship contracts are also exempt from tax, including social contribution tax.

Act on Beneficiaries of Social Security. The new legislation on beneficiaries of social security adopted in December 2019 took effect on 1 July 2020.[28] It includes several changes affecting employees. The new Act merged health insurance, monetary health insurance, labour market and pension contribution into a flat rate 18.5 percent social security contribution. However, certain employees are only liable to paying the 10 percent pension contribution.

The Act provides that the minimum amount of the contribution is linked to the minimum wage and the guaranteed minimum wage: it is at least 30 per cent of the minimum wage for employees. However, the lower end of the contribution is not applied to beneficiaries of parental leave benefits, full-time pupils, higher education students and participants of vocational education and training. Those pursuing an ancillary activity – for example pensioners with an employment contract – are exempt from paying social security contribution and social contribution tax.

Changes due to the coronavirus pandemic

In order to alleviate the effects of the pandemic on the economy, several labour market measures were introduced for the period of the state of emergency.

Tax relief in the most affected sectors. The tax relief measures granted exemption from tax and contributions for employers and entrepreneurs in the sectors specified in the regulation[29] as the most affected. This was for three months

25 See source of law (in Hungarian).
26 See source of law (in Hungarian).
27 See source of law (in Hungarian).
28 See source of law (in Hungarian).
29 See source of law (in Hungarian).

starting from March. Thus employers were exempt from social contribution tax payable on employees as well as the rehabilitation contribution and vocational training contribution. Small businesses active in the sectors concerned were exempt from paying the flat rate simplified tax of small taxpayers (so-called KATA) during this period. Additionally, businesses active in tourism were exempt from paying the tourism development contribution.

Healthcare for employees on unpaid leave. The regulation adopted[30] stipulates that employees on unpaid leave because of the state of emergency are entitled to healthcare. Employers are liable to paying the healthcare contribution on such employees; however, they may request to pay the contribution within two months following the end of the state of emergency.

Changes to the Széchenyi Leisure Card (*SZÉP Card*). The measures adopted also affect regulations on the cafeteria system.[31] The amount of the non-cash fringe benefit that may be given for employees on the SZÉP card increased: on the accommodation sub-account a maximum of HUF 400 thousand a year, on the hospitality sub-account a maximum of HUF 265 thousand a year, while on the leisure sub-account a maximum of HUF 135 thousand may be given. The fringe benefit provided on the SZÉP card until 30 June was exempt from the social contribution tax.

Measures related to the Labour Code. In order to ensure the opportunity for remote work, the Labour Code was temporarily amended during the state of emergency.[32] Employers were entitled to modify the work schedule and the ordering of employees to work in a home office during the state of emergency and the 30 days thereafter.

30 See source of law (in Hungarian).
31 See source of law (in Hungarian).
32 See source of law (in Hungarian).

Appendix

Table A1: Expenditures and revenues of the employment policy section of the national budget, 2013–2020 (million HUF)[a]

	2014	2015	2016	2017	2017	2018	2019[b]	2020
Expenditures	actual	actual	actual	plan	plan	plan	plan	plan
Employment and training subsidies	28,120.8	12,302.4	27,503.9	16,172.0	27,238.9	35,000.0	35,000.0	21,000.0
Co-financing EU-funded employability (and adaptability) projects	17,130.1	11,064.6	3,808.7				84,300.0	
8. Public works (START work programme)	225,471.1	253,723.3	267,965.7	325,000.0	265,837.2	225,000.0	180,000.0	140,000.0
SROP 1.1 Labour market services and support	35,790.1	12,305.1	79.5					
SROP 1.2 Normative support for promoting employment	1,080.1							
EDIOP 5 Employment priority – annually published budget,				81,600.0		7,800.0	28,000.0	23,000.0
Of which CCHOP funding				1,000.0				1,298.0
EDIOP 6 Competitive workforce priority – annually published budget				74,380.0			9,770.0	22,561.0
Reimbursement of social security contribution relief	551.5							
Pre-financing 2014–2020 labour market programmes	0	13,654.9	50,101.3	74,116.4	70,995.3	84,300.0		85,000.0
2. Vocational and adult training subsidies	24,725.9	30,084.7	27,872.0	20,000.0	29,919.4	29,930.0		25,000.0
Job seekers' allowance	49,235	49,657.7	53,454.1	47,000.0	59,674.0	55,000.0	75,000.0	83,000.0
Transfer to Pension Insurance Fund	451.6	309.1						
5. Payments from Wage Guarantee Fund	4,178.5	3,790.7	3,994.3	4,000.0	3,341.2	4,000.0	4,500.0	4,500.0
6. Operational Expenditures	2,418.3	2,816.0	2,899.3	3,500.0	2,785.6	2,900.0	4,310.0	1,200.0
7. Other budget contribution							70,000.0	71,000.0
15. Headline stability reserves			389.5					
Supplementary subsidies for employers								
16. Sectoral subsidy for minimum wage increase	9.1							
17. Other expenditures								
Total expenditures	389,162.1	389,708.5	438,068.3	645,768.4	459,791.6	443,930.0	522,574.8	476,261.0

Revenues	2014 actual	2015 actual	2016 actual	2017 plan	2017 plan	2018 plan	2019 plan	2020 plan
25. Revenues from SROP measures[c]	39,776.7	22,466.1	46,365	60,000.0	64,512.6	70,400.0	70,000.0	70,000.0
Other revenues, regional	1,507.8	1,290.8	1,839.5	1,000.0	2,188.1	1,000.0	1,000.0	1,000.0
Other revenues, national	2,537.1	901.5	1,745.6	1,000.0	2,013.8	1,000.0	1,000.0	1,200.0
Other revenues from vocational and adult training	216.8	10,147.6	2,169.2	800.0	1,643.1	800.0	800.0	800.0
31. Vocational training contribution	60,910.8	65,308.2	70,327.6	60,706.7	80,074.5	74,436.3	95,490.6	112,300.0
33. Redemption of wage guarantee subsidies	934.5	663.6	424.6	1,000.0	783.0	1,000.0	1,000.0	400.0
34. debt management revenues (technical)								
35. Part of health and labour market contributions payable to the National Employment Fund	135,819.4	144,953.2	155,369.2	165,801.9	176,338.0	194,169.2	216,621.9	237,400.0
36. Funding from the national budget		8,449.0	31,023.3			25,000.0		
38. Part of the social contribution tax payable to the National Employment Fund			68,605.5	217,539.6	194,435.5	0	68,001.0	
Contribution to the Job Protection Action Plan	95,936.7	100,541.7	52,884.9					
Total revenues	337,639.8	354,721.7	430,754.4	507,848.2	521,988.5	367,805.5	453,913.2	423,100.0
Pending items								
Changes in deposits								
Total	389,162.1	354,721.7	430,754.4	507,848.2	521,988.5	367,805.5	453,913.2	423,100.0
At 2014 prices (deflated by a consumer price index)	389,162.1	355,076.8	429,467.7	494,464.1	508,231.7	348,358.1	415,776.6	387,552.2

[a] The ordinal numbers in the table correspond to the title numbers identifying the headlines of the national budget.

[b] The Act on the Implementation of the 2019 Budget had not been adopted before the manuscript was closed.

[c] Regarding 2017, 2018 and 2019 it includes the revenue "Reimbursement of the expenditures of the pre-financed EU programmes".

Source: The act on the national budget of Hungary (plan) and the act on the implementation of the national budget of the given year (actual); regarding the plan of 2013, the figure of 153,779.8 was modified by Government Decisions No. 1507/2013 of 1st August and 1783/2013 of 4th November with an additional budget of 26,118 million HUF for public works; regarding the plan of 2014, the original figure of 183,805.3 was modified by Government Decision 1361/2014 of 30th June (allocating an additional budget of 47,300 million HUF to public works). Regarding the plan of 2017, the figure was modified by Act LXXXVI on the modification of Act XC of 2016 on the 2017 Central Budget of Hungary'. The source of the expenses of EDIOP is Government Resolution No. 1006/2016 of 18th January on the annual development budget of the Economic Development and Innovation Operational Programme and further Government Decisions on its modification.

2 LABOUR MARKET MEASURES IN EUROPE IN REPONSE TO THE CORONAVIRUS PANDEMIC

ÁGNES MAKÓ & FRUZSINA NÁBELEK

Depending on the seriousness of the epidemiological situation and the extent of measures introduced in response, the coronavirus epidemic placed a heavy burden on European economies. Cancellation of events, restrictive measures or shutdowns resulted in a considerable decrease in labour demand in the most affected sectors. Decision makers and the enterprises concerned also had to handle the large-scale absence of employees from work due to illness, nursing a family member or home-learning. In the course of tackling the crisis, most European governments considered it a priority to keep workers in employment and compensate those absent from work and they have adopted and adopt diverse measures to this end. This study provides an overview of the most typical measures with a direct impact on the labour market.

European countries introduced several measures of various types and extent in order to counteract the impacts of the coronavirus pandemic on the labour market. In this summary, we review the policies that have been included in the crisis management measures of several countries and we focus on describing the types of measures. Although there have been some common crisis management methods in Europe, individual measures and support programmes have been introduced differently, under different conditions and to varying degrees.

2.1 Assistance for those absent from work

One of the first direct economic impacts of the coronavirus pandemic was that some of the labour force had to take time off from work. Countries severely affected by the epidemic faced difficulties because of employees on sick leave, nursing family members or being in quarantine, but school closures also placed a significant burden on both employees and employers in less affected countries. Several European countries introduced measures to tackle absence from work.

One of the most typical measures is to increase the length of paid holiday available for parents of young children and in some countries – including Austria, Germany, Greece and Italy – wages for the extra days off were paid for by the government. In several countries, parents who were unable to work from home but had to stay at home because of school closures were entitled

to an emergency allowance (such measures were introduced by, for example, Poland, the Czech Republic and Malta).

Other measures concern employees on sick leave or in quarantine: in several countries where sick pay is provided by employers, governments took over the obligation to pay it. In the United Kingdom, employers were reimbursed for two-weeks' sick leave of employees quarantined. In Denmark, the benefit payable by employers for one month was taken over by the state in the case of coronavirus infection. In Germany, businesses are obliged to pay regular wages for the employees concerned for 6 weeks, which is, however, significantly subsidised by the government. Latvia provided a maximum of 700 EUR of subsidy for employers in the case of employees on sick leave.

In some countries, it was the sick or quarantined employees who were provided direct financial assistance or allowances by the state. They were compensated for 90 per cent of their wages in France and for 60 per cent in the Czech Republic. In Ireland employees on sick leave were entitled to a weekly allowance of 350 EUR at most.

2.2 Job retention measures

Another group of measures aim at retaining jobs. These include direct financial assistance for enterprises, improved access to loans as well as support related to taxes and contribution, which are designed to maintain the solvency and, in this way, prevent the bankruptcy of enterprises. They were adopted by all European countries in some form.

Economy support measures were adopted to provide direct financial assistance for enterprises that had incurred significant losses or loss of revenue in Austria, the Czech Republic, Denmark, France, Greece, Holland, Latvia, Luxembourg, Germany, Romania, Spain and Slovenia.

Government credit lines were established to ensure the liquidity of enterprises, retain jobs, mitigate damage and protect the market position of enterprises in the Czech Republic, Denmark, Ireland, Luxembourg, Hungary, Portugal, Romania, Sweden and Slovenia.

Government-subsidised soft loans are available for enterprises in most EU member states. These reduced-interest loans are available in Austria, Estonia, Holland, Croatia, Ireland, Latvia, Lithuania, Poland, Hungary, Germany, Italy and Slovakia. Interest free loans are available for enterprises affected by the crisis in the Czech Republic, France. Greece, Romania, Spain and Slovakia.

Additionally, state loan guarantees are available for loans taken out by enterprises affected by the coronavirus pandemic in most EU member states (Austria, the Czech Republic, Denmark, Estonia, France, Greece, Holland, Croatia, Latvia, Lithuania, Luxembourg, Germany, Italy, Portugal, Romania, Spain, Sweden, Slovakia and Slovenia).

Measures related to taxes and contributions have two major types in Europe. Several countries have decided to temporarily abolish or significantly reduce certain employment-related taxes and contributions (for example Belgium and Italy) or have it taken over by the state (for example Germany and Poland).

Another type of measures related to taxes and contributions include a suspension of the obligation to pay those charges: in that case the government does not waive taxes (that is does not forgo such revenues) but temporarily mitigates the loss of revenues of sectors shut down. Some countries adopted both types: in France, for example, tax and contributions were waived for the most affected enterprises on a case-by-case basis.

Taxes payable by enterprises were suspended in several countries without special requirements, that is payment deadlines were postponed in Finland, France, Holland, Germany, Italy, Romania, Slovakia and Slovenia. The suspension of payment obligation applied only to enterprises in the most affected sectors in Greece, Hungary and Malta. Obligation to pay corporation tax was suspended in Austria, Belgium, the Czech Republic, Holland, Croatia, Lithuania and Luxembourg, while VAT was suspended in Belgium, Holland and Italy.

The deadline for individuals for filing the tax returns was also postponed in Cyprus, the Czech Republic and Slovakia. The deadline for businesses for filing the tax returns was postponed in Belgium, Cyprus, the Czech Republic, France, Poland, Luxembourg, Hungary, Slovakia and Slovenia. Obligations to pay the personal income tax was postponed in Austria, Belgium, the Czech Republic, Holland, Croatia and Luxembourg.

VAT rates were reduced in Cyprus and Germany, while the obligation to pay VAT was suspended (the payment deadline was postponed) in Cyprus, Denmark, Croatia, Poland and Sweden.

Furthermore, conditions concerning contributions have also been relaxed across Europe. The obligation to pay social security contributions was suspended in Belgium, Luxembourg and Italy. In the Czech Republic, self-employed persons were exempt from paying social and healthcare contributions for several months. The payment deadline of labour market contributions was postponed by 4 months in Denmark. The contributions of enterprises in the most affected sectors (catering, theatres) were cancelled in France. In Croatia, enterprises incurring a loss of at least 20 per cent of their revenues were partly or fully exempt from corporate tax, personal income tax and social security contributions in April, May and June. Only businesses that retained their workers were eligible. In Poland, payment of social security contributions was waived for enterprises. Self-employed entrepreneurs and micro-enterprises who experienced a more than 50 percent drop in revenues in March compared to February as well as farmers were granted a three months' exemption from social contributions. Enterprises were also able to pay contributions intermittently. In Malta, the most affected enterprises were granted a 60-day

deferral of social security contribution payment. In Sweden, it was possible to defer social contribution payments by 12 months. Enterprises whose revenues dropped by at least 40 per cent were also entitled to a deferral of contributions in Slovakia.

In addition, other tax-related support measures have also been adopted. Enterprises in Belgium were entitled to support from tax authorities in relation to their tax liabilities (preparing a payment plan and exemption from interest on late payment and penalties for late payment). In Estonia, it was possible to reschedule the payment of liabilities at an interest rate lower than the one currently applicable. In Holland, tax deferrals were granted to a total amount of 26 billion EUR and a liquidity guarantee of 4.5 billion EUR was provided for enterprises. In France, tax relief was granted for the most seriously affected businesses. Current and late payment of taxes was deferred by up to three years in Latvia and businesses were entitled to paying by instalment without penalties. In Romania, enterprises which paid their income tax or flat-rate taxes by the deadline were offered a 10-percent tax relief. Tax inspections were postponed in France and Slovakia.

The most common job retention measures include wage subsidies introduced in various arrangements, the best-known of which is the German *Kurzarbeit*, a subsidised reduced working time (*Reuters,* 2020). The scheme introduced during the crisis in 2008 ensures that businesses not able to operate at full capacity and thus having less demand for labour do not respond with downsizing but reduce the working hours and wages of employees, while the loss in wages is compensated by the state. In addition to retaining the jobs, the measure offers another advantage: following the crisis enterprises are not forced to recruit and train new employees, which saves costs on employee training and facilitates easier recovery (*Cahuc,* 2019).

The scheme, present in Germany for years and financed from a dedicated fund, was expanded as a result of the crisis in 2020, while eligibility requirements were relaxed: wage subsidy is now possible to claim for temporary and fixed-term employment and for short-time arrangements involving at least 10 per cent of employees. This form of wage subsidy has also been adopted by other countries, although the extent of wages subsidised differs from country to country and eligibility criteria are also varied. Austria, similarly to Germany, decided to expand the scheme and since March the government has funded 80 per cent of the wages of employees of businesses operating at 30–80 per cent of working time. The subsidised period was initially three months, with a possibility for a three-month extension and in July it was prolonged until March the following year. In France, 70 per cent of gross wages and 100 per cent of the minimum wage at eligible businesses were covered by the government under a temporary unemployment scheme. Denmark determined the extent of subsidy based on the type of jobs con-

cerned: enterprises that would have been forced to lay off at least 30 per cent of their staff or at least 50 employees were eligible for a 75-percent subsidy on white-collar workers and a 90-percent subsidy on blue-collar workers. In Malta the extent of subsidy varies by sector: businesses in the most affected sectors, for example tourism, were entitled to 800 EUR per month per full-time employee and the subsidised period was extended, while businesses in less affected sectors were eligible for 160–480 EUR depending on the location and form of employment.

In several countries, including Belgium, the Czech Republic, France, Italy and Spain there are no eligibility criteria for claiming wage subsidies; any enterprises can claim support for retaining their employees on the grounds of the epidemic (*force majeure*). In other countries businesses had to prove that they had lost trade because of the pandemic: in Poland, similarly to Hungary, eligibility was determined on the basis of revenue lost and the extent of the subsidy was 50 per cent of the minimum wage in the case of total shutdown and 40 per cent of previous wages in the case of short-time working arrangements (SMEs were eligible for higher subsidy rates).

Wage subsidies often also promote job retention by imposing the requirement of retaining staff, that is employers have to guarantee not to dismiss staff for a specified time following the subsidised period. A long-term incentive is the so-called bonus, applied in Great Britain, received by employers for each employee still employed at the beginning of 2021.

In addition to the above countries, wage subsidies were also introduced in Bulgaria (in directly affected sectors, 60 per cent of wages at most), the Czech Republic (60 per cent of wages), Ireland (a maximum of 410 EUR for each employee), Italy (80 per cent of gross wages at most), Latvia (75 per cent of the average wages of the 6 months preceding the crisis), Lithuania (60 per cent of wages at most), Luxembourg (up to 80 per cent of wages), Estonia (70 per cent of the average wages of the past twelve months), Holland (1500 EUR at most), Croatia (a maximum of 2000 HRK per employee), Denmark (up to 75 per cent of wages), Spain, Slovakia and Slovenia (up to 80 per cent of wages in the last two countries) as well as Sweden (depending on the reduction of working hours, up to 52 per cent of wages).

Wage subsidies also applied to self-employed entrepreneurs and freelancers in several countries. Entrepreneurs working in sectors affected the most seriously by the lockdown were entitled to a subsidy in Slovenia (a base income of 700 EUR a month), Greece (530 EUR a month), Denmark, Malta (800 EUR a month), Poland, Italy (up to 500 EUR a month), Latvia (75 per cent of previous wages but not more than 700 EUR a month) and Lithuania (257 EUR a month).

2.3 Unemployment and direct aid

An important group of measures includes assistance to those who lost their jobs because of the pandemic. As a result of the pandemic, several countries decided to raise unemployment benefits or introduce extra benefits for those who became unemployed due to the pandemic. In Belgium, the unemployment benefit was increased by 5 per cent (from 65 per cent to 70 per cent) up to a ceiling of 2,754 EUR per month. In Poland it increased to 1300 PLN and those who lost their jobs due to the pandemic were disbursed a further 1200 PLN for three months. Lithuania increased the unemployment benefit payable to workers laid off and also extended the duration of eligibility. The eligibility period was increased by three months in Germany for job seekers whose 12-month eligibility period would have expired between 1 May 2020 and 31 December 2020.

In sectors shut down as a result of Covid, several countries introduced a temporary unemployment scheme providing assistance for employees whose contract was suspended or who were forced to take unpaid leave (for example France, Greece or Poland). In Belgium, temporary unemployment due to the pandemic was considered *force majeure* and the government provided a wage subsidy from 1 February to 30 June covering 70 per cent of wages and those who became unemployed due to the pandemic received a wage supplement of 5.63 EUR a day. Where teleworking was not feasible and employees became temporarily unemployed, employers were exempt from paying wages: the Belgian national employment service provided unemployment benefit for such employees. In Cyprus, enterprises were able to suspend their operation in March and April if their revenues decreased by at least 25 per cent. Employees affected by such suspension were eligible for an unemployment benefit up to 60 per cent of their wages. In Estonia, the Unemployment Insurance Fund provided 70 per cent of the average wages of the preceding 12 months but not more than 1,000 EUR for the period of 1 March to 31 May, which employers supplemented by at least 150 EUR. Both the Estonian Unemployment Insurance Fund and employers paid the related social tax and unemployment insurance fees. France introduced a temporary unemployment scheme in order to prevent mass redundancies. At businesses eligible for the temporary unemployment scheme, employees are paid 84 per cent of their net wages, while they are laid off. In Romania, employers were able to decide unilaterally to suspend employment contracts and thus their employees became technically unemployed. The government reimbursed businesses for 75 per cent of the technical unemployment benefits. Parents staying at home with their children were also entitled to technical unemployment benefit.

The entitlement conditions to unemployment benefits were eased in several countries or benefits were extended to also cover sole proprietors, freelancers and other categories of the self-employed. In Spain, entitlement to unemploy-

ment benefit was extended to include domestic workers and fixed-term workers otherwise not entitled to social assistance. In Belgium, temporary agency workers were provisionally entitled to unemployment benefit and firms forced to shut down were able to claim automatic unemployment benefit for their employees. In Finland, entrepreneurs and the self-employed provisionally became entitled to unemployment benefit. Sweden eased the entitlement conditions to, and increased the amount of, unemployment benefit. In Malta, a monthly 800 EUR was paid for two months for parents whose work was not feasible to carry out as telework but they were unable to work because of school closures. The same applied to people with reduced mobility and those advised to stay at home because of their age or chronic disease.

Several countries introduced an emergency unemployment benefit or a one-off cash benefit. In Greece, the emergency unemployment benefit amounts to 800 EUR and the country introduced a one-off long-term unemployment benefit of 400 EUR for the long-term unemployed. Employees whose jobs were suspended because of the emergency measures are granted a cash benefit. A ban on dismissals is also in place. In Ireland, employees and the self-employed out of work because of the pandemic are entitled to an emergency unemployment benefit of 350 EUR per week. In Malta, a temporary unemployment benefit is granted to those who lost their jobs due to measures related to the pandemic. Italy introduced the notion of emergency income, which is paid for three months to the amount of 400 EUR monthly or a maximum of 800 EUR monthly in the case of families. The self-employed were granted an allowance of 600 EUR in March and April and 1000 EUR in May. In France, over one-third of employees (8.7 million persons) were forced to take partial or full unpaid leave: they received an emergency unemployment benefit.

In the Flanders region of Belgium, the unemployed were granted an allowance for utility costs and the temporary unemployed received a 40-EUR flat-rate reduction on gas and energy bills.

In addition, some countries introduced a ban on dismissals in order to prevent unemployment (for example Greece and Italy), while others encouraged the reinstatement of dismissed employees by granting allowances on tax and contributions (for example Romania). Policies promoting re-employment also include government funding for retraining and training programmes. The French government finances the training costs of those who became partially unemployed due to the coronavirus pandemic. Lithuania provides a grant for the unemployed whose retraining is not feasible at present.

2.4 Supporting remote work

Support for remote work has been one of the measures adopted to contain the epidemic: it included relaxing the regulations regarding remote work and, in some countries, providing financial support. In Belgium, the government

requested employers to order their employees to work from home and where it was not feasible, employees became temporarily unemployed on account of *force majeure*. In Denmark, if job tasks permitted, remote work was compulsory for workers in the public sector, while in the private sector it was recommended to adopt it or other flexible employment forms. The government in Luxembourg also recommended firms to introduce remote work and they adopted a special leave for family reasons for employees. In Bulgaria, Poland and Hungary labour regulations were amended to enable employers to order their employees to work from home. In Portugal, remote work was obligatory in all cases where it was feasible. The Maltese government provides a grant of 2 million EUR for businesses that give preference to remote work over commuting to work. Firms making investments into remote work are granted 500 EUR per employee up to a total of 4000 EUR. Spain supported digitalisation and the development of telework-friendly conditions at SMEs by loans and other financial support instruments.

2.5 Measures adopted in Hungary

Compared to the measures adopted by other European countries, Hungarian measures were primarily related to various forms of job retention, while support for the unemployed was not included and support for absent workers was only included to a limited extent among the measures.[1]

Absent workers are mainly assisted through eligibility to sick pay and agreements between employers and employees are of primary importance. Employees who fall ill, are quarantined because of contact with an infected person or look after a sick child, qualify as incapacitated and are thus entitled to sick pay. In other cases, for example quarantine after a stay abroad or having to stay at home because of school closures, employers and employees can agree on taking a leave and then exemption from work (that is taking an unpaid leave) if the employee is unable to work from home. To assist with the latter, a measure was effective during the state of emergency, stipulating that workers on unpaid leave are entitled to healthcare.

However, measures in Hungary did not include unemployment assistance – neither the extent nor the coverage of the unemployment benefit. Furthermore, direct aid to employees was only introduced with a limited coverage (a one-off grant for healthcare workers and staff in retirement homes).

Similarly to other countries, the majority of Hungarian measures concerned various forms of job retention. The measures reviewed did not introduce direct aid for employers but offered soft loans with subsidised interest rates and a state guarantee, a loan for wages at an interest of 0.1 per cent as well as preferential loan products for SMEs. As for tax and contribution measures, in addition to the overall reduction of social contribution tax and the extension of deadlines for tax returns, the measures introduced primarily supported

1 For more details see the previous chapter.

the most affected sectors: for example a three-month tax and contribution exemption, a tax reduction on request or exemption from paying tourism development contribution.

Several types of wage subsidy were introduced in Hungary. A scheme similar to *Kurzarbeit* (short-time work scheme) compensated for up to 70 per cent of wages for lost working hours if working time did not exceed 80 (previously 70) per cent of earlier working time. Entitlement conditions were amended after the launch: the first call required employers to justify the necessity for the short-time work compensation, while there was no such requirement after the amendment. In addition to the wage subsidy in the short-time work scheme, a wage subsidy for employees working in research and development and a job creation wage subsidy were also available.

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3 CORPORATE PERCEPTIONS AND EXPECTATIONS OF THE IMPACTS OF THE COVID-19 PANDEMIC AND THE CRISIS MANAGEMENT STEPS TAKEN

DÁNIEL BACSÁK & ÁGOSTON HORVÁTH

Based on the spring 2020 Business Climate Survey of the Institute for Economic and Enterprise Research (IEER) of the Hungarian Chamber of Commerce and Industry (HCCI), the present analysis assesses the exposure of Hungarian businesses to the coronavirus pandemic, their responses to its economic effects as well as their crisis management policies. 2,891 Hungarian enterprises were queried either online or by telephone. The survey took place between 1 and 30 April, during the COVID-19-related lockdown. Thus first impressions of the pandemic and the ensuing economic disruptions had a profound impact on the results. IEER's Business Climate Survey aimed at mapping CEOs' short–term expectations based on their subjective judgement and information available to them at the time the survey was conducted (*Bacsák–Horváth,* 2020a, b).

First, the study presents the exposure of enterprises to the pandemic, relying on a typology developed for this purpose, which is based on classification by the CEOs and the extent of decrease in capacity utilisation between 1 March and the time of the survey. Then the factors behind the varying extent of exposure of enterprises are assessed. We will also describe what specific problems were experienced as a result of the coronavirus pandemic in the groups of enterprises of different exposure. In this respect, liquidity, changes in headcount management, work organisation and wages as well as crisis management policies adopted by enterprises are discussed in detail.[1]

3.1 Exposure of enterprises to the coronavirus pandemic

The experiences of Hungarian businesses regarding the coronavirus pandemic are strongly associated with the extent to which their capacity utilisation dropped between 1 March 2020 and the time of the survey in April.[2] The capacity utilisation of enterprises that perceived no or positive impacts of the pandemic decreased by only 1 percentage point on average between 1 March and the date of the survey, that is it remained virtually stable. Enterprises reporting minor disturbances and insignificant impacts experienced an 8 percent, enterprises reporting major disturbances and moderate impacts experienced a 20 percent and enterprises reporting severe disturbances and significant impacts experienced a 46 percent drop on average.

Based on changes in capacity utilisation and subjective impressions of the COVID-19 pandemic, we have developed a typology of 6 categories, presented in *Table 3.1*.[3]

1 When analysing exposure, liquidity (reserves enabling firms to meet their financial obligations), usage of crisis management policies as well as wages, we applied weighting so that the sample of responding enterprises be representative of regions and the number of employees, in terms of their contribution to the Gross Value Added. When analysing reserves enabling firms to retain staff as well as changes in and expectations concerning headcounts, weighting was applied to ensure that the sample is representative of the number of employees broken down by headcount categories and sectors. The analysis contains the unweighted number of items.

2 When performing a correlation analysis of the 4-category variable for experiencing the effects of the pandemic and the 4-category variable for the changes in capacity utilisation, Cramer's V is 0.375 (the p-value of the χ^2 test is 0.000). If the decrease in capacity utilisation in the various categories of experience is treated as a continuous variable, the value for η^2 is 0.331 (the p-value of the F-test is 0.000).

3 In some cases in this paper, rounding of data causes the rows and columns of the tables not to completely add up to total values because each cell contain already rounded values.

Table 3.1: Enterprise typology based on economic perceptions of the coronavirus pandemic and the decrease in capacity utilisation

	Positive /no impact	Minor disturbances, limited impact	Major disturbances, moderate impact	Severe disturbances, major impact	Total, in terms of capacity utilisation
Decrease in capacity utilisation (percentage)					
50 percentage points or more	0	1	3	20	24
Less than 50 percentage points	1	14	12	11	38
Unchanged capacity utilisation	9	13	5	5	31
Increased capacity utilisation	2	3	1	1	7
Total, in terms of experiences	13	30	21	37	100

	Unweighted cases	Average of the business climate indicator, April 2020
Economic perceptions of the pandemic		
No/positive impact, unchanged/increased capacity utilisation	290	37
Minor disturbances, less than 50-percentage-point drop in or unchanged/increased capacity utilisation	545	9
Major disturbances, unchanged/decreased capacity utilisation	539	–37
Severe disturbances, decreasing capacity utilisation	1157	–68
Minor disturbances, decreasing capacity utilisation	59	21
Severe disturbances, unchanged/increased capacity utilisation	297	–63
Total	2887	–25

Source: *IEER* (2020).

The typology of exposure to the pandemic was collated with data from the half-yearly Business Climate Index of IEER.[4] The typology rating showed a strong correlation with the Business Climate Index: 42 per cent of standard deviation of the index is due to exposure to the pandemic. The average of the index for the total sample was –25. Among businesses which did not perceive an impact of the pandemic or experienced positive changes and their capacity utilisation did not fall, the Business Climate Index reached +37 points. Among businesses reporting slight disturbances but decreasing capacity utilisation the Index was +21, among businesses facing slight disturbances and a decline of less than 50 percentage points it was +9, among businesses experiencing major disturbances and unchanged or decreasing capacity utilisation it was –37, among businesses reporting severe disturbances but unchanged or increasing capacity utilisation it was –63 and among businesses facing severe disturbances and decreasing capacity utilisation the Business Climate Index was –68 points.

Hereafter we focus on enterprises the most and least affected based on the above results: similarly to the total sample, the problems of these groups resulting from the pandemic were analysed and logit models were applied to identify corporate characteristics in these groups. The "most affected" category contains 681 businesses, whose capacity utilisation dropped by at least 50 percentage points as a result of the pandemic and they also reported severe disturbances and significant stoppages. The group of least affected businesses

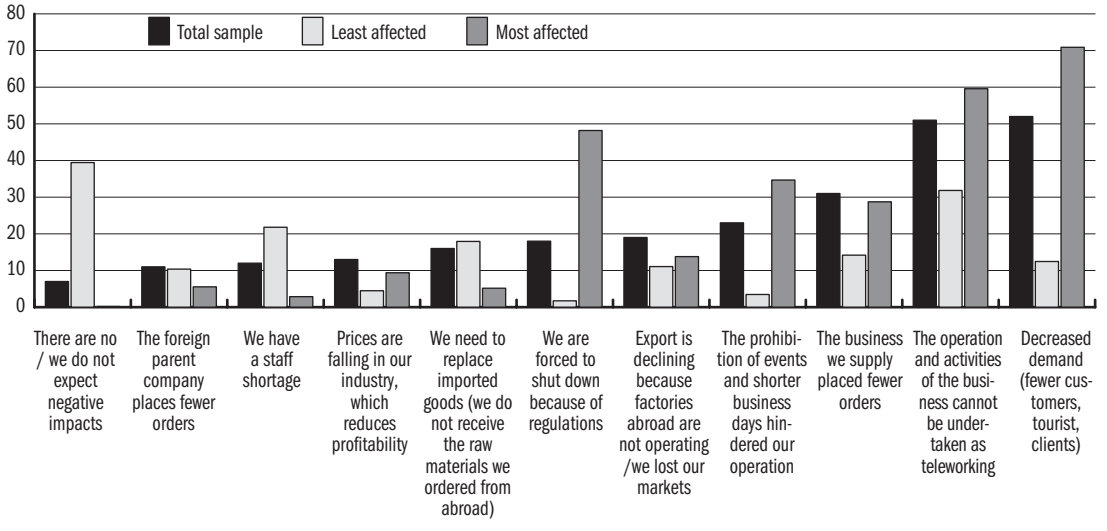
4 The indicator includes business outlook, expectations for orders as well as the expected level of investment in machinery and buildings. The detailed method of calculating the Business Climate Index is described in our study presenting the results from April (*IEER of HCCI*, 2020).

contains 273, whose capacity utilisation either did not change or increased between 1 March and the date of the survey in April and they reported that the pandemic had no or a positive impact on them.

Concerning the question of which factors of the coronavirus pandemic affect Hungarian enterprises the most adversely, only 7 per cent of the total sample responded that they do not expect negative impacts at all, 93 per cent identified at least one negative factor (it was possible to select more than one answer). More than half of the CEOs reported decreased demand (52 per cent) or that their activities cannot be undertaken as teleworking (51 per cent), and every third respondent reported that the clients they supplied placed fewer orders (31 per cent). About a quarter of respondents cited the prohibition of events and shortened business days (23 per cent) and one-fifth cited decreased export (19 per cent) as an adverse effect. Among the most affected enterprises, the most severe problem also was the decrease in demand (71 per cent) and difficulties with working from home (60 per cent) and a remarkably high share of CEOs (48 per cent) reported to be forced to shut down because of the regulations. For 35 per cent of the most affected businesses, the prohibition of events and shortened business days posed obstacles and 29 per cent claimed that the businesses they supply placed fewer orders. 39 per cent of the least affected enterprises did not experience any adverse effects. However, teleworking also caused difficulties for 32 per cent of these businesses, 22 per cent claimed they did not have enough staff at their disposal and 18 per cent had to replace imported goods because of disturbances in supply chains (*Figure 3.1*).

Based on the estimates from the logit model, it is evident that with increased company size and exports, there is decreased odds of enterprises to belong to the 'most affected' category during the pandemic. Considering sectors, construction firms were the least affected, while enterprises active in 'other business services' were the most affected (the difference between the two categories at the opposite end of the spectrum is 26 percentage points). The findings reveal that the negative impacts of the pandemic affected trading companies to a larger extent than manufacturing firms. Concerning ownership structure, partly or wholly foreign-owned firms were 13 percentage points more likely to be in the 'most affected' category than wholly Hungarian-owned ones. Generally, there was no significant difference between businesses located in Budapest or Pest County and other counties. However, Western Transdanubian enterprises were 7 percentage points more likely to be in the 'most affected' category, while enterprises located in South Transdanubia and the Northern Great Plain were 10 per cent less likely to belong to this group. At the same time, a 5 percentage point higher share of Western Transdanubian enterprises belonged to the 'least affected' category, compared to enterprises from Central Hungary. The same is true for businesses located in the Southern Great Plain and Southern Transdanubia, with a difference of 6 and 18 percentage points respectively (*Table 3.2*).

Figure 3.1: The negative effects of the coronavirus pandemic on the operations of Hungarian enterprises, N = 2881



Source: *IEER* (2020).

Table 3.2: The context of exposure to the coronavirus pandemic, logit estimation, average marginal effects

	Most affected firms 0 – no, 1 – yes	Least affected firms 0 – no, 1 – yes
Headcount (reference category: fewer than 10 employees)		
10–49 employees	–0.031	0.004
50–249 employees	–0.083***	0.068***
Over 250 employees	–0.128***	0.015
Economic sector (reference category: other services – categories H, I, J, L, M, N, R, S in the TEÁOR classification of economic activities)		
Manufacturing – categories B, C, D, E	–0.110***	0.047**
Construction – category F	–0.263***	0.177***
Trade – category G	–0.102***	0.026
Production for export (reference category: no export sales)		
Partly exporting (share of export sales below 50%)	–0.075***	–0.018
Primarily exporting (share of export sales 50–100%)	–0.164***	0.012
Ownership structure (reference category: wholly Hungarian-owned)		
Partly or wholly foreign-owned	0.125***	0.029
Region (reference category: Central Hungary)		
Central Transdanubia	0.046	0.003
Western Transdanubia	0.074**	0.050***
Southern Transdanubia	–0.102***	0.179***
Northern Hungary	–0.059	–0.011
Northern Great Plain	–0.100***	0.021
Southern Great Plain	–0.022	0.064***
Nagelkerke's R^2	0.156	0.102
N	2698	2698

*** significant at a 1 percent level, ** 5 percent level and * 10 percent level.
Source: *IEER* (2020).

3.2 Liquidity

Taking into account the level of capacity utilisation reported for April 2020, 7 per cent of businesses expected that their reserves enable them to meet their financial obligations for less than a month. 14 per cent were able to meet obligations for a month, 24 per cent for one to two months, 18 per cent for three months, 26 per cent for six to twelve months and 11 per cent for over a year, at the level of capacity utilisation recorded in April. Consequently, nearly half of Hungarian enterprises had reserves for meeting financial obligations outstanding during the emergency measures in April for up to two months and nearly two-thirds of them for a maximum of three months. Their assessment of their reserves necessary for paying their dues is associated with their exposure to the pandemic. Apparently, the more severe impacts and capacity utilisation cuts a firm has to face, the shorter period they expect their reserves to cover. While 70 per cent of businesses experiencing mild or positive exposure assessed their reserves to be sufficient for at least three months even if their capacity utilisation decreased, only 40 per cent of businesses facing serious disturbances did so.

Taking into account the level of capacity utilisation reported for April 2020, 9 per cent of businesses expected their reserves to be sufficient for retaining all employees for less than a month. 14 per cent expected them to be sufficient for a month, 25 per cent for one to two months, 19 for three months, 23 per cent for six to twelve months and 10 per cent for over a year, at the level of capacity utilisation recorded in April. Thus nearly half of Hungarian enterprises had sufficient reserves for up to two months and two-thirds of them for up to three months for retaining all of their employees during the emergency measures in April. As for retaining employees, the association between judging the sufficiency of reserves and exposure to the pandemic was even stronger. 75 per cent of businesses experiencing positive or neutral impacts, with unchanged or increased capacity utilisation between 1 March and the date of the survey in April, assessed their reserves to be sufficient for maintaining employee numbers for at least three months. By contrast, only 35 per cent of companies experiencing serious disturbances and decreasing capacity utilisation reported the same (*Table 3.3*).

3.3 Changes in headcounts and organisation of work

The survey also asked enterprises how many employees they had in various employee categories at the time of the survey. These categories concerned employees' experience, part or full-time work arrangement, educational attainment and the nature of work carried out. It was also assessed if there were dismissals or staff increases after 1 March in the various categories, and, if there were, how many people they involved. The database was narrowed down to enterprises with at least two employees, thus this Subchapter presents findings related to this group of enterprises.

Table 3.3: Ability to meet financial obligations and maintaining headcount without using supplementary external resources, at April 2020 capacity levels, $N_{financial\ obligations}$ = 2541, $N_{maintaining\ headcount}$ = 2342 (per cent)

Description		Less than one month	One month	One–two months	Three months	Six–twelve months	More than a year	Total
No/positive impact, unchanged/ increasing capacity utilisation	Financial obligations	2	9	20	11	36	22	100
	Maintaining headcount	2	15	8	14	34	26	100
Minor disturbance, less than 50-percentage-point drop in or unchanged/ increasing capacity utilisation	Financial obligations	5	11	14	16	36	18	100
	Maintaining headcount	3	9	19	19	33	18	100
Major disturbance, unchanged/ decreasing capacity utilisation	Financial obligations	6	12	25	20	29	7	100
	Maintaining headcount	11	11	26	24	25	3	100
Severe disturbance, decreasing capacity utilisation	Financial obligations	12	18	32	18	16	4	100
	Maintaining headcount	15	19	31	17	14	3	100
Minor disturbances, decreasing capacity utilisation	Financial obligations	0	4	22	17	33	24	100
	Maintaining headcount	0	7	35	11	33	15	100
Severe disturbances, unchanged/ increasing capacity utilisation	Financial obligations	10	19	29	29	9	4	100
	Maintaining headcount	12	20	30	26	10	2	100
Total sample	Financial obligations	7	14	24	18	26	11	100
	Maintaining headcount	9	14	25	19	23	10	100

Source: *IEER* (2020).

Based on information about dismissals and staff increases in the various categories, indicators were created to show what share of businesses experienced staff turnover between 1 March and the survey in April. On the whole, 36 per cent of enterprises employing a minimum of two people dismissed at least one employee between 1 March 2020 and the survey in April and 24 per cent of them reported hiring at least one employee in the same period.

The context of dismissals and staff increases was also analysed using the logit models. The findings showed that the extent of exposure to the pandemic determined headcount management during the lockdown period. Compared to the reference category of enterprises reporting severe disturbances and decreasing capacity utilisation, enterprises in the other categories were less likely to dismiss staff between 1 March and the date of the survey. Businesses

reporting a positive or neutral impact and unchanged or increasing capacity utilisation were the least likely to dismiss employees. The difference between the least and most exposed businesses was 32 percentage points in this respect.

Based on the results, the odds of hiring new staff is inversely associated with exposure to the pandemic. The less exposed an enterprise was, the more likely it was to hire employees between 1 March and the survey in April. The difference between the two extremes is 22 percentage points in this case. With increasing company size, both the odds of dismissals and staff increases were greater, that is larger businesses faced higher turnover at the beginning of the pandemic. The odds of dismissals were not sector-dependent; however, staff increases were 8 per cent more likely in construction than in the service sector. Production for export only had an effect on the probability of dismissals (the proportion of businesses dismissing staff was 6 percentage points lower among businesses partly exporting and 5 percentage points lower among primarily exporting businesses during the period considered). The effect of ownership structure was only significant for recruitment: it was reported to a 6 percentage points greater extent among partly or wholly foreign-owned businesses (*Table 3.4*).

Table 3.4: The context of dismissals and staff increases, logit estimation, average marginal effects

	Dismissal 0 – no, 1 – yes	Staff increases 0 – no, 1 – yes
Typology of exposure to the coronavirus pandemic (reference category: severe disturbances, decreasing capacity utilisation)		
No/positive impact, unchanged/increasing capacity utilisation	–0.320***	0.219***
Minor disturbances, less than 50 percentage-point drop in, or unchanged/increasing, capacity utilisation	–0.281***	0.152***
Major disturbances, unchanged/decreasing capacity utilisation	–0.178***	0.038**
Minor disturbances, decreasing capacity utilisation	–0.265***	0.118**
Severe disturbances, unchanged/increasing capacity utilisation	–0.136***	0.057*
Headcount (reference category: fewer than 10 employees)		
10–49 employees	0.143***	0.129***
50–249 employees	0.230***	0.169***
Over 250 employees	0.398***	0.210***
Economic sector (reference category: other services – categories H, I, J, L, M, N, R, S in the TEÁOR classification of economic activities)		
Manufacturing – categories B, C, D, E	–0.050*	–0.001
Construction – category F	–0.014	0.078**
Trade – category G	–0.003	0.000
Production for export (reference category: no export sales)		
Partly exporting (share of export sales below 50%)	–0.061**	–0.009
Primarily exporting (share of export sales 50–100%)	–0.053*	–0.025
Ownership structure (reference category: wholly Hungarian-owned)		
Partly or wholly foreign-owned	0.012	0.064**
Nagelkerke's R^2	0.181	0.174
N	1799	1694

*** significant at a 1 percent level, ** 5 percent level, * 10 percent level.
Source: *IEER* (2020).

The initial headcount on 1 March was identified for each employee category (if the headcount at the time of the survey and the number of employees dismissed and hired between 1 March and the time of the survey were available) and regarded as the condition preceding the pandemic. Then headcounts at the businesses on 1 March and at the time of the survey were compared in each category. Overall, total headcounts were lower in April 2020 than on 1 March, except for one category (white-collar graduate jobs, where there was a 1 percent increase in headcounts). The biggest decrease took place in the headcounts of interns over the period under consideration (by 6 per cent), while headcounts in unskilled manual jobs fell by 3 per cent and those in skilled manual jobs, part-time jobs and senior positions fell by 2 per cent.

These trends in employee categories were similar within the enterprise categories based on exposure to the pandemic. However, there is a marked difference between the enterprise categories: while businesses reporting neutral or positive experiences and unchanged/increasing capacity utilisation and those facing minor disturbances and a less than 50 percentage point drop in capacity utilisation only experienced a fall in the headcounts of interns between 1 March and the date of the survey in April, businesses reporting major, severe disturbances faced a fall in headcounts in nearly all employee categories. The largest decrease was seen in the group of the most exposed enterprises, experiencing severe disturbances and decreasing capacity utilisation, except for the three categories of unskilled manual, non-graduate white-collar and graduate white-collar workers (*Table 3.5*).

Table 3.5: Changes in the total headcounts of employee categories between 1 March and April 2020 among Hungarian businesses with at least 2 employees (percentage)

	Total sample	No/positive impact, unchanged/ increasing capacity utilisation	Minor disturbances, less than 50 percentage point drop in or unchanged/increasing capacity utilisation	Major disturbances, unchanged / decreasing capacity utilisation	Severe disturbances, decreasing capacity utilisation	Minor disturbances, decreasing capacity utilisation	Severe disturbances, unchanged/ increasing capacity utilisation
Senior employees (*N* = 1335)	–2	1	1	1	–9	0	–1
Junior employees (*N* = 1027)	–1	13	5	–5	–11	0	–2
Students (e.g. interns) (*N* = 957)	–6	–5	–2	–2	–10	0	–8
Part-time workers (*N* = 1065)	–2	0	0	–1	–8	–1	–3
Full-time workers (*N* = 1168)	–1	1	1	–3	–6	0	–2
Unskilled manual (*N* = 1015)	–3	5	0	–7	–6	0	–3
Skilled manual (*N* = 1069)	–2	1	0	–1	–8	0	0
Non-graduate white-collar (*N* = 1068)	–1	0	1	0	–4	0	–7
Graduate white-collar (*N* = 1106)	1	1	2	–2	–1	0	0

Source: *IEER* (2020).

The vast majority of employees (92 per cent) at Hungarian enterprises worked full-time, solely at the workplace, on the premises of the enterprise on 1 March (*Table 3.6*). As a result of the lockdown introduced because of the Covid-19 pandemic, this proportion had fallen to 67 per cent by 1 April. The share of employees working full-time from home increased significantly, by 10 percentage points, between the two dates (to 11 per cent on 1 April) and also of those on paid holiday (also to 11 per cent on 1 April). Additionally, the proportion of full-time employees working partly from home increased from 2 per cent on 1 March to 5 per cent on 1 April. When assessing the typology categories of exposure, a strong association is seen between the extent of changes to work organisation and the impact of the pandemic on enterprises. While 85 per cent of employees of businesses reporting decreasing capacity utilisation and minor disturbances and 80 per cent of employees of businesses reporting positive or neutral experiences and unchanged or increasing capacity utilisation worked entirely on the premises of the enterprise on 1 April, only 40 per cent of employees did so at enterprises reporting severe disturbances and decreasing capacity utilisation. In this category, the proportion of employees on paid holiday on 1 April was particularly high (39 per cent).

Table 3.6: Employees of Hungarian businesses employing at least 2 persons broken down by work arrangement on 1 March and 1 April 2020, percentage, N_{March} = 1706, N_{April} = 1559 (percentage)

	Total sample		No/positive effect, unchanged/ increasing capacity utilisation		Minor disturbances, less than 50 percentage point drop in or unchanged/ increasing capacity utilisation		Major disturbances, unchanged/ decreasing capacity utilisation		Severe disturbances, decreasing capacity utilisation		Minor disturbances, decreasing capacity utilisation		Severe disturbances, unchanged/ increasing capacity utilisation	
	1 March	1 April	1 March	1 April	1 March	1 April	1 March	1 April	1 March	1 April	1 March	1 April	1 March	1 April
Full-time														
Worked solely at the place of work	92	67	93	80	91	73	94	67	91	40	96	85	96	75
Worked partly at the place of work and partly from home	2	5	1	8	4	4	1	3	3	8	0	10	0	8
Worked solely from home	0	11	0	3	0	18	0	8	1	5	0	0	0	16
Part-time, short-time work														
Worked solely at the place of work	2	3	2	2	2	1	2	7	3	4	3	4	3	0
Worked partly at the place of work and partly from home	0	1	0	0	0	0	0	1	0	0	0	0	0	0
Worked solely from home	0	1	0	0	0	1	0	0	0	1	0	0	0	0
Absence														
Were on paid leave	1	11	2	4	1	1	2	11	1	39	0	1	1	0
Were on unpaid leave	0	1	0	0	0	0	0	1	0	1	0	0	0	0
Were on sick leave	2	2	2	2	2	2	1	2	2	2	0	0	0	0
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: *IEER* (2020).

Working entirely from home was significant primarily at businesses reporting minor disturbances and a maximum of 50 percent drop in capacity utilisation (18 per cent) and at businesses experiencing severe disturbances but unchanged or increasing capacity utilisation (16 per cent).

3.4 Adopting crisis management measures – the responses of businesses to the economic effects of the coronavirus pandemic

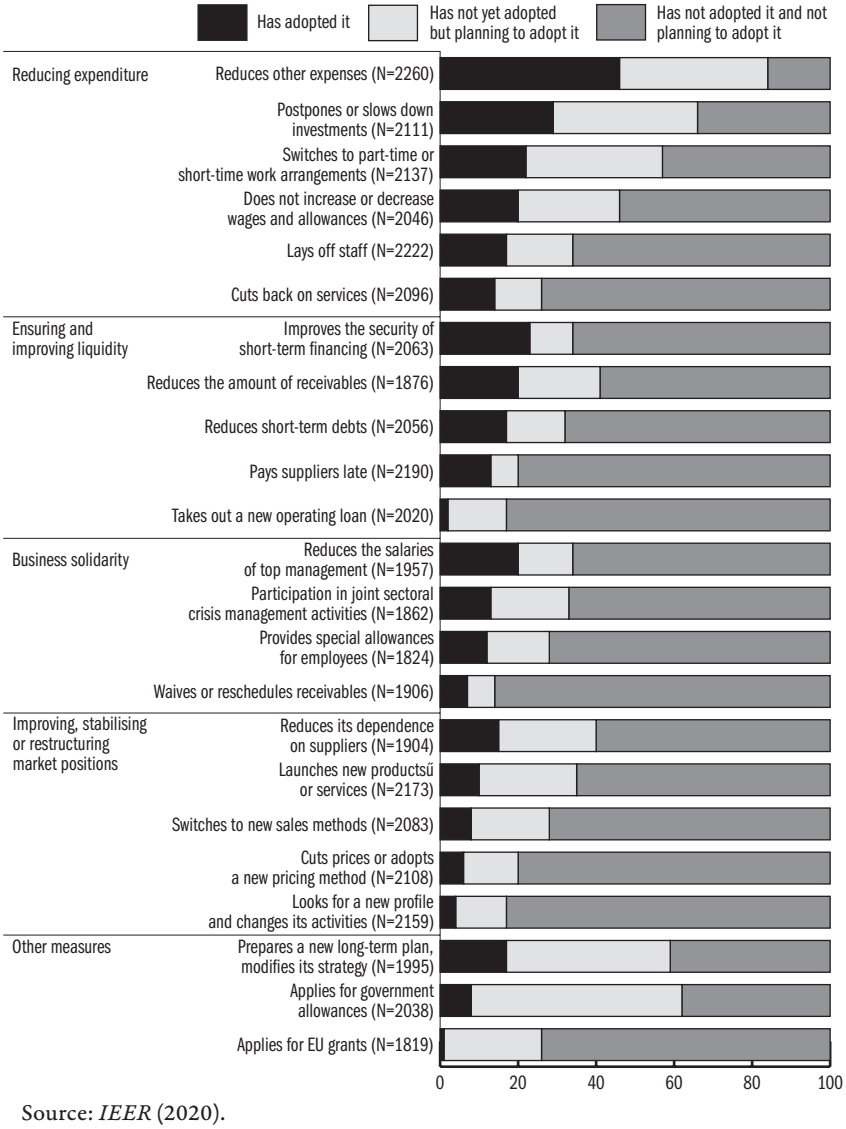
It was also assessed what crisis management tools CEOs were applying at the time of the survey and what tools they were planning and what tools not being planned to apply in the future. The 29 crisis management tools included were grouped for the purpose of clarity: the groups include measures for improving liquidity, reducing expenditure, stabilising, improving or restructuring market positions, business solidarity as well as other adaptive measures. Firstly, the findings show that the abovementioned groups are arranged similarly on the mental maps of respondents, since there is a distinct ranking. The most prominent crisis management tool is the reduction of expenditure, followed by improving liquidity, business solidarity as well as stabilising, improving or restructuring market positions, clearly indicating that businesses opted for quick fixes and measures promising quick results (*Figure 3.2*).

The five most widespread measures that enterprises had already applied include reducing other expenses (46 per cent), postponing and slowing down investments (29 per cent), introducing part-time or short-time work arrangements (22 per cent), improving the security of short-term financing by, for example, prolonging bank loans or making use of the loan repayment moratorium (23 per cent) as well as postponing pay rises or even reducing wages (20 per cent). The importance of these crisis management measures is also indicated by the high proportion of respondents who had not yet adopted them at the time of the survey but were planning to adopt/introduce them (except for 'improving the security of short-term financing') in the future (26–38 per cent).

The July 2020 Business Climate Survey of IEER assessed 407 businesses employing at least 20 persons on the same topics. In order to ensure comparability, only enterprises with at least 20 employees were included from the survey in April. The findings show that until the middle of summer, a further significant number of more businesses adopted the five crisis management measures used the most frequently in April: reducing other expenses (from 46 percent to 70 per cent), postponing and slowing down investments (from 25 per cent to 43 per cent), introducing part-time or short-time work arrangements (from 19 per cent to 52 per cent), improving the security of short-term financing (from 26 per cent to 34 per cent), postponing increases in pay and allowances (from 21 per cent to 35 per cent). Furthermore, there was a considerable increase in the proportion of businesses preparing a long-term strategy (from 15 per cent

to 34 per cent) and applying for government allowances (from 7 per cent to 43 per cent). Additionally, a minimum of 10 percentage-point increase was seen in cutting prices (from 5 per cent to 17 per cent), reducing dependence on suppliers (from 7 per cent to 26 per cent) and reducing top management salaries (from 15 per cent to 25 per cent).

Figure 3.2: Adoption of crisis management measures by Hungarian businesses to deal with the economic effects of the coronavirus pandemic (percentage)



Source: *IEER* (2020).

Differences are also seen when applying the typology of exposure to businesses. Special allowances for employees were frequently provided by businesses

that were not, or were only slightly, affected by the economic effects of the coronavirus pandemic and consequently only suffered a small decrease in capacity utilisation or were even able to increase their performance (no/positive impact, unchanged/increasing capacity utilisation; minor disturbances, a less than 50 percentage drop; minor disturbances, decreasing capacity utilisation). However, a large proportion of businesses reporting major or severe disturbances switched to part-time work arrangements, regardless of changes in capacity utilisation, while decreases in top management salaries, wage cuts and staff dismissal were also seen in the last two categories (*Figure 3.3*).

Figure 3.3: Adoption of crisis management measures by Hungarian businesses to deal with the economic effects of the coronavirus pandemic, broken down by exposure

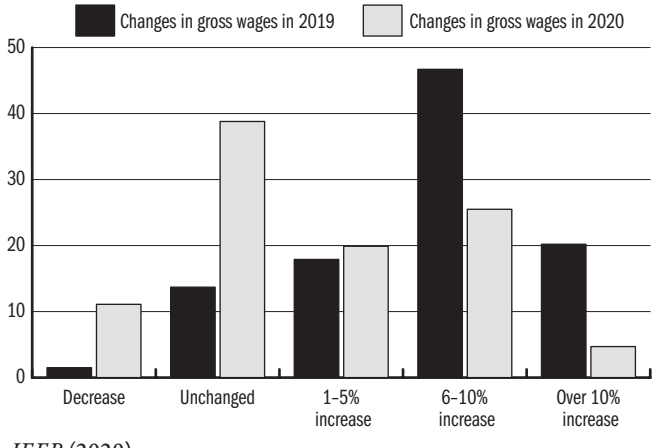
No/positive impact, unchanged/increasing capacity utilisation (N=215–238)
1. reducing other expenses (25%)
2. reducing dependence on suppliers (20%)
3. participation in joint sectoral crisis management activities (14%)
4. providing special allowances for employees (14%)
5. postponing or slowing down investments (12%)
Minor disturbances, less than 50 percentage point drop in or unchanged/increasing capacity utilisation (N=398–427)
1. reducing other expenses (31%)
2. providing special allowances for employees (20%)
3. postponing or slowing down investments (19%)
4. reducing the amount of receivables (16%)
5. improving the security of short-term financing (13%)
Major disturbances, unchanged/decreasing capacity utilisation (N=410–442)
1. reducing other expenses (47%)
2. improving the security of short-term financing (33%)
3. postponing or slowing down investments (29%)
4. reducing short-term debts (26%)
5. introducing part-time or short-time work arrangements (25%)
Severe disturbances, decreasing capacity utilisation (N=731–908)
1. reducing other expenses (68%)
2. postponing or slowing down investments (49%)
3. introducing part-time or short-time work arrangements (43%)
4. reducing top management salaries (42%)
5. freezing or cutting wages and allowances (39%)
Minor disturbances, decreasing capacity utilisation (N=40–47)
1. reducing other expenses (28%)
2. improving the security of short-term financing (26%)
3. reducing the amount of receivables (23%)
4. participation in joint sectoral crisis management activities (17%)
5. providing special allowances for employees (10%)
Severe disturbances, unchanged/increasing capacity utilisation (N=157–202)
1. reducing other expenses (63%)
2. introducing part-time or short-time work arrangements (34%)
3. laying off staff (28%)
4. postponing or slowing down investments (27%)
5. reducing top management salaries (26%)

Source: *IEER* (2020).

3.5 Changes in gross wages in 2019 and 2020

Business leaders were also asked by what percentage gross wages had changed in 2019 at their businesses and to what extent they were foreseen to change in 2020. Obviously, a significantly lower proportion of enterprises were planning to raise gross wages in 2020 (51 per cent), than in 2019 (85 per cent). Furthermore, the extent of anticipated wage increases also declined: only the increase similar to the inflation rate (1–5 per cent) was reported by a similar proportion of enterprises (18 and 20 per cent). While in 2019 only 2 per cent of enterprises cut wages, this proportion is foreseen to be 11 per cent in 2020, based on data from April, and whereas the largest proportion of businesses (47 per cent) raised wages by 6–10 per cent last year, this year the most popular strategy is to freeze wages (39 per cent) (*Figure 3.4*).

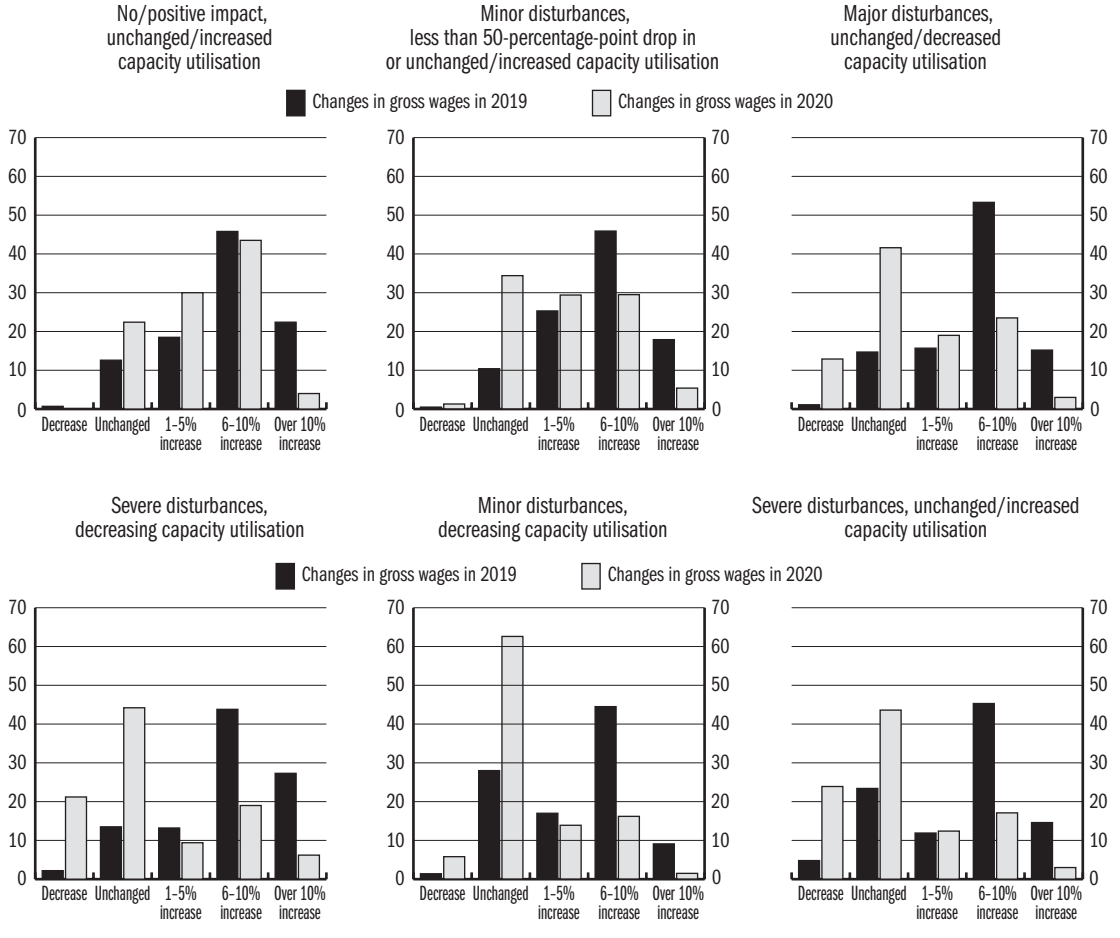
Figure 3.4: Changes in gross wages in 2019 and 2020, percentage, N_{2019} = 2698, N_{2020} = 2606 (percentage)



Source: *IEER* (2020).

A negligible proportion of businesses reporting minor disturbances at most (no/positive impact, unchanged/increasing capacity utilisation; minor disturbances, a less than 50 percentage point drop) were forced to cut salaries (0 and 1 per cent) and although the proportion of those freezing wages also significantly increased among them (22 and 34 per cent), the majority (77 and 59 per cent) scheduled a 1–10 percent wage increase this year. By contrast, among businesses facing major disturbances (from 1 per cent to 13 per cent) and severe disturbances (from 2 per cent to 21 per cent) as well as those experiencing severe disturbances in spite of increasing/unchanged capacity utilisation (from 5 per cent to 24 per cent) the proportion of those forced to cut wages significantly increased compared to 2019 – as seen in the section on crisis management measures –, while only less than half of them are planning to raise salaries (32–46 per cent) (*Figure 3.5*).

Figure 3.5: Changes in gross wages in 2019 and 2020, broken down by exposure



Note: No/positive impact, unchanged/increasing capacity utilisation ($N = 269–275$); minor disturbances, a less than 50 percentage point drop in or unchanged/increasing capacity utilisation ($N = 510–529$); major disturbances, unchanged/decreasing capacity utilisation ($N = 496–508$); severe disturbances, decreasing capacity utilisation ($N = 1023–1062$); minor disturbances, decreasing capacity utilisation ($N = 55–58$); severe disturbances, unchanged/increasing capacity utilisation ($N = 251–266$)
Source: *IEER* (2020).

3.6 Summary

The findings of our study indicate that there are significant differences between businesses based in Hungary in the extent of exposure to the economic impacts of the Covid-19 pandemic. The typology showing the extent of exposure is relevant to all of the topics discussed and fundamentally determines the current behaviour, strategy and headcount management of enterprises.

It is mainly businesses facing major direct (emergency measures) or indirect (fall in demand due to the lockdown) obstacles that were in distress. Micro and small enterprises as well as service providers were affected by the most severe impacts. The findings show that working from home was a pressure for the majority of Hungarian businesses and it often entailed a considerable limitation on their activities. The survey, conducted during the lockdown, indicates that at the time of the emerging crisis nearly one-third of businesses ran into a serious difficulty within a few weeks. They were primarily trying to overcome their problems by significantly reducing their expenses, which was reflected in both changes in headcounts and wage policies.

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IN FOCUS

LABOUR MARKET AND HEALTH

Edited by
PÉTER ELEK & TAMÁS HAJDU

INTRODUCTION

PÉTER ELEK & TAMÁS HAJDU

The chapters of *In Focus* examine the relationship between health status, access to health care and the labor market situation (economic activity, employment, earnings, labour market conditions) in Hungary. This relationship is complex: health status affects individual productivity and expected earnings on the one hand, and work-related disutility on the other. Thus, in line with classical labour economic theory, health shocks have a measurable effect on an individual's labour market position. (In fact, not only adult health shocks but also the health status in early childhood has a consequential impact, see, e.g. the summary of *Almond et al.,* 2018). In the other direction, the labour market situation and working conditions have direct (e.g. through accidents at work) and indirect (e.g. through the access to health care) effects on health. The regulatory environment, the level of welfare benefits, and the quality of the health care system all influence both directions of this relationship.

An extensive international literature exists on the topic (see, for example, the summary articles of *Barnay,* 2016*, Currie–Madrian,* 1999*, Prinz et al.,* 2018), and the novelty of the studies of *In Focus* lies in the related analyses on Hungary. These are largely based on a uniquely rich administrative database compiled by the Databank of the Centre for Economic and Regional Studies [CERS (KRTK)], which contains anonymized labour market and health data on a random sample of half of the Hungarian population (*Sebők,* 2019). The Admin3 database (supplemented with other administrative data) provides an opportunity to examine questions that could not be properly answered previously for Hungary. The chapters of *In Focus* are not intended to explore every detail of the complex relationship between health and the labour market, but they do provide insight into some elements of the two-way relationship and also emphasize the role of the regulatory environment.

Chapter 1 of *In Focus* examines the extent to which the worse health status of the Hungarian population may explain the lower employment compared to the European average, and also provides a descriptive analysis of the relationship between health status and employment in Hungary. The studies in Chapter 2 explore labour-market-related, regional, and socioeconomic inequalities in mortality and morbidity (and myocardial infarction as a special case), informal payments, and private health care use, and some of their possible causes.

The further chapters of *In Focus* discuss the two-way relationship between work and health in different life situations. Chapter 3 deals with the health of the employed population. Subchapters 3.1 and 3.2 examine the differences in

health expenditure by labour income and by the ownership of the firm of the employee (domestic/foreign). Subchapter 3.3 analyses the most direct indicator of the impact of the workplace conditions on health, the frequency of accidents at work across industries, types of companies and occupational groups. Related to this, a box illustrates how differences in accident probabilities can be used to estimate the statistical value of life. Another box provides an additional example of the health impact of workplace conditions by showing that the smoking ban in hospitality venues has measurably improved the health of newborns of pregnant women employed there. Subchapter 3.4 deals with the incentive effects of the tightening of the sickness benefit system during the previous years. In addition, separate boxes address two specific topics: the impact of developments of the health care system on workers, and the health of migrants. The two studies of Chapter 4 analyse the health status of health care workers and the out-migration of physicians from Hungary.

The topic of Chapter 5 is the impact of unemployment on health. Subchapter 5.1 examines the health consequences of economic crises and job losses; 5.2 deals specifically with the long-term health effects of economic shocks following the transition in Central and Eastern Europe, and a separate box analyses the health expenditure of public works employees. Of the studies in Chapter 6, Subchapter 6.1 presents the two-way relationship between health care use and old-age retirement, while Subchapter 6.2 investigates the labour market implications of the increase in demand for end-of-life palliative care.

The first study in Chapter 7 discusses the employment of people with disabilities in Hungary in a European comparison (a box covers related measurement problems) and then reviews the demand-side policy instruments to increase employment (detailing the impact of the rehabilitation contribution in a separate box). The second study analyses the supply side and in particular the effects of changes in the regulation of disability and rehabilitation benefits.

The topic of Chapter 8 is the young age group. The administrative data in Hungary do not yet make it possible to measure the effects of childhood health shocks on subsequent labour market performance, but the related international literature is presented in a box. Based on Hungarian data, Subchapter 8.1 shows how children's time spent in hospital affects their later school performance – which in turn is likely to influence their subsequent success in the labour market. Subchapter 8.2 illustrates the impact of young people's labour market conditions on health by estimating the relationship between settlement-level labour market conditions and adolescent pregnancies.

The manuscript was finalised during the second wave of the coronavirus pandemic in Hungary, so we could not yet undertake a full analysis of its health, labour market, economic and educational consequences. The first study in Chapter 9 provides a general overview of the health-economic trade-offs in decision-making that have arisen during the pandemic and briefly evaluates

the public policy measures applied in Hungary during the first half of the year. The second study, based on the latest available data, reviews the effects on the labour market so far, also addressing heterogeneity across social groups.

We hope that the studies of *In Focus* provide interesting results from a policy point of view and point to a number of questions on which further research might be conducted in the future.

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1 HEALTH AND LABOUR FORCE STATUS IN HUNGARY AND EUROPE

ANIKÓ BÍRÓ, RÉKA BRANYICZKI & ZSÓFIA KOLLÁNYI

In this subchapter, we provide an overview on how the population health in Hungary compares to the European Union average and how strong the relation is between labour force status and health in Hungary and in other European countries. We base the analysis both on survey and administrative data. The topics discussed in this subchapter are covered in more details in later subchapters of the volume.

Health status in Hungary in a European comparison

The average health status of the Hungarian population is not good in a European comparison. In terms of life expectancy at birth, only Latvian, Lithuanian, Bulgarian and Romanian men are in a worse state than Hungarian men, and only Romanian and Bulgarian women than Hungarian women. Hungarian men lag 8.5 years behind Italy, the EU member state with the highest LE, while Hungarian women lag 6.5 years behind the best performing Spanish women.[1] The situation is somewhat better in terms of healthy life expectancy: Hungarian men are ahead of one third of the European countries, and women are in the middle of the range. However, on average, Hungarian men can expect good health only until the age of 60, and Hungarian women until the age of 62, both before the retirement age, as opposed to, for example, the Irish, Maltese and Swedish populations, where on average both men and women can enjoy good health till the age of 70 or even more.

> Differences in total and healthy life expectancy between countries draw attention to the methodological characteristics of the measure of healthy life years. This indicator is based on subjective self-assessment and can therefore be influenced by a number of external factors, such as the health status of reference groups, or knowledge about health itself. This may explain the quite large differences between countries in terms of the "non-healthy" life years, which is only 7–8 in Sweden and Bulgaria, and more than 22 in Austria. These differences may be rooted in objective differences in health status but can also be caused by differences in the perception and evaluation of health.

The population-level health status indicators (such as average life expectancy for all males and females), however, mask the inequal distribution of health status across different groups in a society, although there are significant differences between European countries in this respect. In Hungary, as in all Visegrad countries, there are enormous differences between the health status of different social groups, while in the Scandinavian or Mediterranean countries

1 Life expectancy at birth data are based on the Eurostat [demo_mlexpec] data set, healthy life expectancy data are based on the Eurostat [hlth_hlye] data set. Both refer to 2018 (downloaded: July 2020).

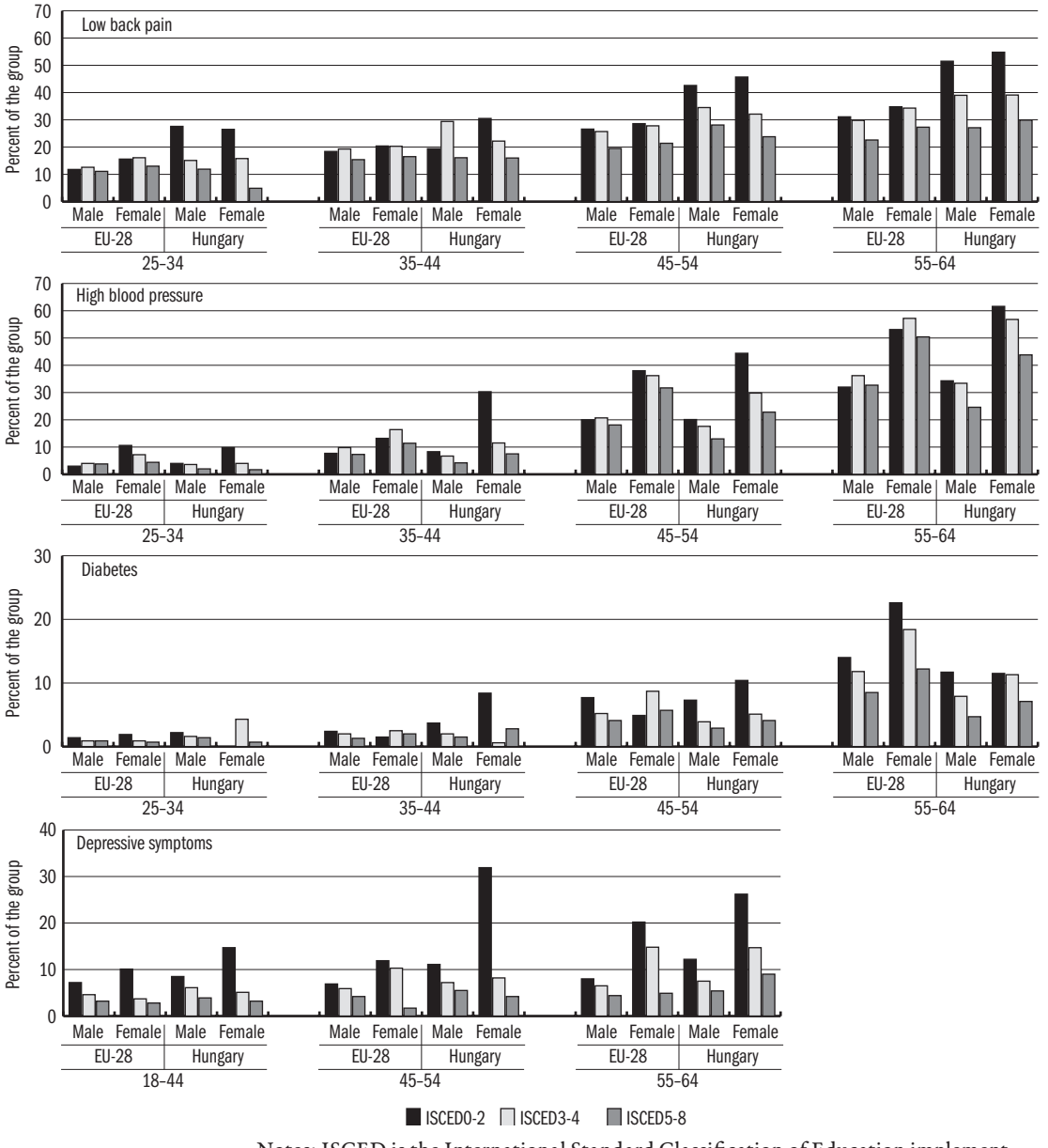
these differences are particularly low (*Orosz–Kollányi*, 2016). This means that Hungary's disadvantage in terms of average health status presented above does not stem from an overall poorer health of everyone in the society, but specifically from the severe disadvantages of those with lower socioeconomic status (SES). While Hungarian men with tertiary education as the highest level of educational attainment are, for example, only 4–5 years behind Swedish or Italian men with the same educational attainment; in the case of poorly educated Hungarian men (with lower-secondary education at most) this disadvantage is twofold, 11–12 years. Accordingly, in Hungary, the difference between those with low and high educational attainment is much larger. In Italy, a man with tertiary education can expect 4, in Sweden, 4.5 years longer life than a man with lower-secondary education at most: in Hungary, this difference is 11 years.[2]

Below, we present the incidence of three chronic physical health problems (low back pain, diabetes, hypertension) and one mental condition (depressive symptoms) by education and age, based on data from the 2014 wave of the European Health Interview Survey (EHIS) for the adult population. Diabetes and hypertension are the most common non-communicable diseases, and are major risk factors for or closely related to leading causes of death; low back pain, on the other hand, does not appear directly in mortality data, but can significantly impair quality of life and one's labor supply. All these measures are based on self-reported indicators. In the case of physical illnesses, respondents were asked directly if they have the illness/symptoms in question, while in the case of depressive symptoms, they were asked various indirect questions regarding their mood and well-being. This makes a significant difference between the two types of indicators: a person to be able to report a pronounced chronic illness either has to have a medical diagnosis, or has to have sufficient information and knowledge regarding both their own health and the condition in question. Because those with higher socioeconomic status are typically in a better position in terms of both access to health care and knowledge about health (*White et al*, 2009), we can assume that regarding diabetes and high blood pressure the indicator is more accurate among those with higher social status, and underestimates the frequency of actual illness in those with lower SES. In the case of low back pain and depressive symptoms, we should expect less of such a distortion.

Figure 1.1 clearly shows that for both sexes, in all three educational groups and in all age groups, almost without exception, these diseases are more common in Hungary than in the EU28 average. This means not only that more people fall ill, but also that these diseases appear in Hungary at a typically younger age. For example, in the EU28, prevalence of high blood pressure in men in all three education groups reaches a frequency of 30% only among those aged 55–64 years, while in Hungary a 30% prevalence appears ten years earlier, in the age group of 45–54 years.

2 The data are from Eurostat's "Life expectancy by age, sex and educational attainment level" [demo_mlexpecedu] data set and refer to 2017.

Figure 1.1: Prevalence of certain physical conditions and depressive symptoms by country group, sex, age group and educational attainment level, 2014



Notes: ISCED is the International Standard Classification of Education implemented by Eurostat. ISCED0–2 level refers to those with lower-secondary education at most (eg. vocational training with no high school diploma); ISCED3–4 level refers to those with upper-secondary and post-secondary non-tertiary education; while ISCED 3–5 level refers to different levels of tertiary education.

Data sources: *Eurostat* [hlth_ehis_cd1e] and [hlth_ehis_mh1e] datasets; aggregated data from *European Health Interview Survey*.

At the same time, significant social inequalities can be detected in Hungary, for example, in relation to diabetes and low back pain. Among lowly-educated men, the proportion of those living with diabetes in the age group of 55–64 is almost twice as high as among those with tertiary education in the same age group, while there is no such difference detectable in the EU28 average: the prevalence of diabetes in these two educational groups is almost the same. The pattern of low back pain in the EU28 average is very similar in all education groups, with some gender differences; in Hungary, this complaint appears in a much younger age, and is more widespread among the uneducated (30% of 25–34 year old, female and male, report low back pain, while this proportion is only 5–10% among graduates in this age group). However, in terms of high blood pressure no such difference can be detected in the youngest examined age group in Hungary either.

The pattern of depressive symptoms among those under 45 and those aged 55–64 is similar in the two country groups, except that differences in education and gender are much more pronounced in Hungary. At the same time, the outstanding values of low-skilled Hungarian women in general, and especially in the age groups of 45–54 years deserve closer attention. In this group, the incidence of depressive symptoms is three times as prevalent as either among EU28 women with similar educational attainment, or as among low-skilled Hungarian men. When speaking of health status, we mostly think of physical rather than mental health, which is sadly consistent both with the perception and attitudes of the Hungarian population towards mental illness (*Sztancsik*, 2017) and with the quality of the Hungarian health care system's capacity to treat mental illness (*Turnpenny et al*, 2017). However, as can be clearly seen on *Figure 1.1,* and as will be outlined later in this subchapter, mental health is a crucial element of the complex system surrounding health status, both in terms of the socioeconomic determinants and the socioeconomic effects of health.

Employment and health among older adults in a European comparison

The SHARE[3] (*Survey of Health, Ageing and Retirement in Europe*) is a rich data source about the health and labour market participation of people above age 50. SHARE provides internationally harmonized, multidisciplinary panel data about the health, employment, and socio-economic status of the European Union's member states' population above age 50, which are collected bi-annually and are available free of charge. We compare the health of working and non-working older adults using SHARE data.

Hungary joined the SHARE project in 2011 (wave 4) and the next data collection took place in 2017 (wave 7), when from the 3000 original respondents approximately 1500 once again participated.[4] As the Hungarian sample

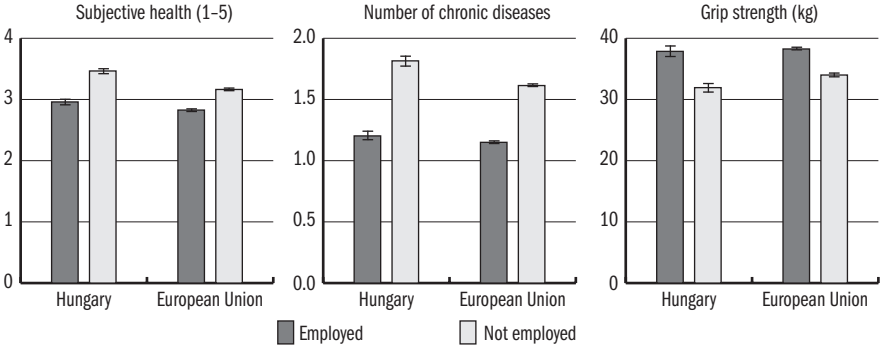
3 We use data from SHARE waves 1, 2, 3, 4, 5, 6 and 7, see *Börsch-Supan et al* (2013) for methodological details. The SHARE data collection has been primarily funded by the European Commission through FP5 (QLK6-CT-2001-00360), FP6 (SHARE-I3: RII-CT-2006-062193, COMPARE: CIT5-CT-2005-028857, SHARE-LIFE: CIT4-CT-2006-028812) and FP7 (SHARE-PREP: N°211909, SHARE-LEAP: N°227822, SHARE M4: N°261982). Additional funding from the German Ministry of Education and Research, the Max Planck Society for the Advancement of Science, the 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) and from various national funding sources is gratefully acknowledged (see www.share-project.org).

4 Countries covered by wave 7 of SHARE: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Greece, Netherlands, Croatia, Ireland, Poland, Latvia, Lithuania, Luxembourg, Hungary, Malta, Germany, Italy, Portugal, Romania, Spain, Switzerland, Sweden, Slovakia, Slovenia. (Israel also participated, however it is not included in our analysis as it is outside Europe.)

from 2017 only includes panel respondents from 2011, we cover the population above age 57; there are 453 respondents who are active-aged, that is below 65, 267 women and 186 men. In the following paragraphs we compare the health of the older but active-aged group between age 57 and 64, based on their employment status. Employed people were defined as those who reported to be working (as an employee or self-employed), while the category 'not employed' included old-age pensioners, the unemployed and homemakers. The long-term sick and the disabled were not included in our analysis. Our Hungarian sample contains 170 employed individuals and 230 individuals who are not employed.[5]

The SHARE database includes several health-related indicators: self-reported general health of respondents, number of chronic diseases, and occurrence of various diseases. Results from a grip strength test are also available, which are related to the general physical condition of older adults. *Figures 1.2* and *1.3* show the average value of these indicators among the old yet active-aged population in Hungary and in the other European countries, separately for the employed and not employed groups. We see that older adults who are employed are healthier on average both in Europe and in Hungary. We also observe that Hungarians' health tends to be worse than the European average, especially among the non-employed.

Figure 1.2: Subjective health, number of chronic diseases and grip strength by employment status



Note: Average self-reported subjective health ranging from 1 (excellent) to 5 (poor), average number of chronic diseases, and average grip strength (kilogram) among the population aged 57–64. For each indicator, the 95 percent confidence interval of the mean is presented.
Source: *SHARE* Wave 7.

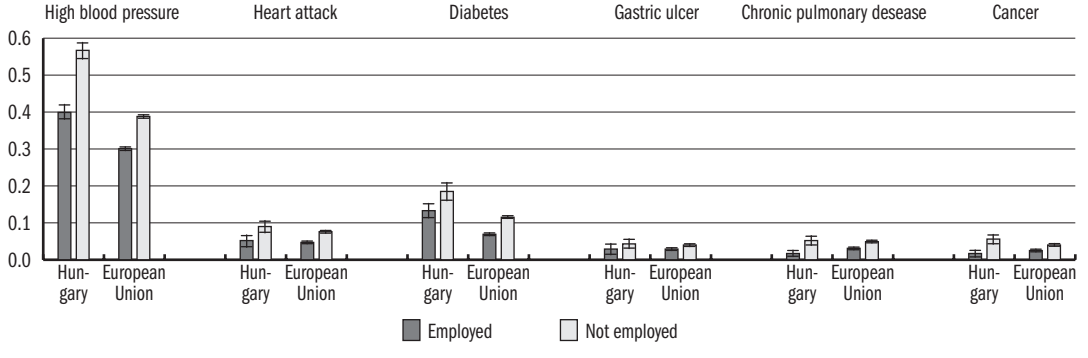
Figure 1.2 indicates that in Hungary the older middle aged who are employed perceive their health as good on average, while subjective health is only between good and fair among the non-employed. The European averages are higher by only a one-tenth of a category in the case of the employed and ap-

5 In a similar study *Bíró et al.* (2019) analyzed women aged 50–59. Here the reported indicators are similar but the results are based on the more recent data of 2017 and refer to the older age group of 57–64, including both men and women.

proximately by a third of a category among the non-employed. In Hungary, the non-employed suffer from close to two chronic diseases on average, while the employed fight only around one disease. The European average is similar to the Hungarian for the employed group, but it is significantly lower among the non-employed. The grip strength test shows that – in line with our expectations – the grip is weaker of the non-employed. We also see that the gap between the Hungarian and European working elderly is negligible, while our lag from the European average is significant, when comparing the non-working groups.

According to *Figure 1.3* a strikingly high share (57%) of the non-working older middle-aged population suffer from high blood pressure in Hungary (compared to the European average of 39%), and in this case the difference is also notable between the non-working groups in Hungary and Europe (40% vs. 30%). The prevalence of heart attack, diabetes and chronic lung disease is higher among the non-employed than among the employed, though the difference is significant only on the larger European sample and not in Hungary. Except for chronic lung disease and cancer, which are exceedingly rare (and significantly rarer) among the working group, in Hungary as well (*Figure 1.3*).

Figure 1.3: Prevalence of diseases by employment status



Note: The average rate of prevalence of diseases among the population aged 57–64. The 95 percent confidence interval of the mean is presented.
Source: *SHARE* Wave 7.

Based on the earlier SHARE sample from 2011, *Kézdi–Divényi* (2012) found that the employability of individuals with the best health and cognitive skills in the 50–59 age group in Hungary is similar to the European average, while the employability of those in a worse condition is lagging behind. They showed that the gap between the Hungarian and German employment rate decreases once we control for cognitive skills and health next to demographic indicators. Partly reproducing these linear models (where the dependent variable is employment of the individual) on the same data, we found that the 20 percentage points difference between the employment of women aged 50–59 in

Hungary and Germany would decrease to 12 percentage points if both the demographic composition and the health of the population were to correspond to the German average (*Bíró et al*, 2018). Using the more recent data from 2017 and studying both men and women of age 57–64, we again find that the Hungarian employment is 20 percentage points lower than the German, and in this case the difference would be 15 percentage points if the two groups' demographics and health status were to be similar (*Table 1.1*).

Table 1.1: Differences in employment rates between countries, controlling for age, qualification, and the distribution of health, among individuals aged 57–64

	(1)	(2)	(3)
Hungary	−0.200***	−0.165***	−0.152***
	(0.0258)	(0.0254)	(0.0249)
Country dummies (reference: Germany)	yes	yes	yes
Sex and age variables	yes	yes	yes
Educational attainment	–	yes	yes
Indicators of health status	–	–	yes
Number of observations	17,003	17,003	17,003

Note: Robust standard errors in parentheses.
Age variables: age in years and age squared, educational attainment based on ISCED, indicators of health status: number of chronic diseases, grip strength, subjective health.
*** $p < 0{,}01$, ** $p < 0{,}05$, * $p < 0{,}1$.
Source: Authors' compilation based on data from *SHARE* Wave 7.

Employment and health based on administrative data from Hungary

We analyse the relationship between labour force status and health in Hungary, using the administrative dataset (Admin3) of the Centre for Economic and Regional Studies (CERS). The Admin3 includes labour and health related indicators for a 50 percentage element of the Hungarian population. The data was processed by the Databank of CERS and is available for research purposes.[6] We use monthly data between years 2009–2016 and restrict the sample to people aged 20–60. We capture the health status with the help of quarterly indicators of the consumption of drug categories (did the individual purchase any drugs in the given category), where the categories are defined based on the *Anatomical Therapeutical Category* (*ATC*) system. We focus on seven drug categories, capturing various physical and mental health problems: 1) antidiabetics (ATC A10); 2) antihypertensives (ATC C02-09); 3) antibiotics (ATC J01); 4) musculo-skeletal system (ATC M); 5) psycholeptics (including tranquillizers, ATC N05); 6) psychoanaleptics (including antidepressants, ATC N06); 7) drugs for obstructive airway diseases (ATC R03). We also analyse three-year mortality rate. Using linear regressions, we net out gender specific age effects and calendar year effects.

6 A brief overview of the data is provided in the Appendix, a longer description is given by *Sebők* (2019).

It is important to note the following. Firstly, drug consumption has limitations in capturing health status due to differences in health behaviours, in access to care and the imperfections of drug consumption as a health measure.[7] Secondly, our analysis is of descriptive and not causal nature because there are two-way causal relations. Labour force status affects health, while health might also have an impact on labour force status. Further subchapters of this volume provide results related to the mechanisms underlying our findings.

Employment and health

We first analyse, what is the relation between employment and the consumption of the selected drug categories.[8]

The results reported in *Table 1.2* indicate that the relation between employment and health is stronger for mental health than for physical health. Looking at the physical health indicators, diabetes and obstructive airway diseases as indicated by drug consumption imply 6–9 percentage points lower employment rate. We do not see such differences in the case of the consumption of antihypertensives, drugs of the musculo-skeletal system and antibiotics. As for antibiotics, the observed relation is the opposite, the employment rate is 9 percentage points among those who take antibiotics, which might be because those who are employed are more willing to visit a physician so as to maintain their working capacities (and thus take antibiotics).

Table 1.2: Employment rate by drug consumption and three-year mortality (net out gender, age and calendar year effects, percentage)

	Employment rate		Consumption rate in the sample
	consumes	does not consume	
By consumption of antidiabetics (ATC A10)	45.0	51.2	3.1
By consumption of antihypertensives (ATC C02–09)	53.5	50.5	17.0
By consumption of antibiotics (ATC J01)	58.6	50.1	10.9
By consumption of musculo-skeletal system drugs (ATC M)	49.9	51.1	8.3
By consumption of psycholeptics (ATC N05)	20.7	52.0	3.2
By consumption of psychoanaleptics (ATC N06)	35.2	51.5	3.4
By consumption of obstructive airway diseases drugs (ATC R03)	42.6	51.2	2.4
	Employment rate		Three-year mortality rate in the sample
	deceased (3 years)	alive (3 years)	
By three-year mortality	20.6	51.7	1.40

Source: Own calculations based on Admin3 data (2009–2016).

7 For instance, the diagnosis of diabetes varies across groups within the society. Also, the consumption of antidiabetics is not a perfect indicator of diabetes, since antidiabetics can be prescribed for other diseases, as well (such as PCOS).

8 We measure employment with a binary indicator which equals 1 in the case of any kind of employment (including self-employment), conditional on non-zero recorded earnings in the given quarter of the year.

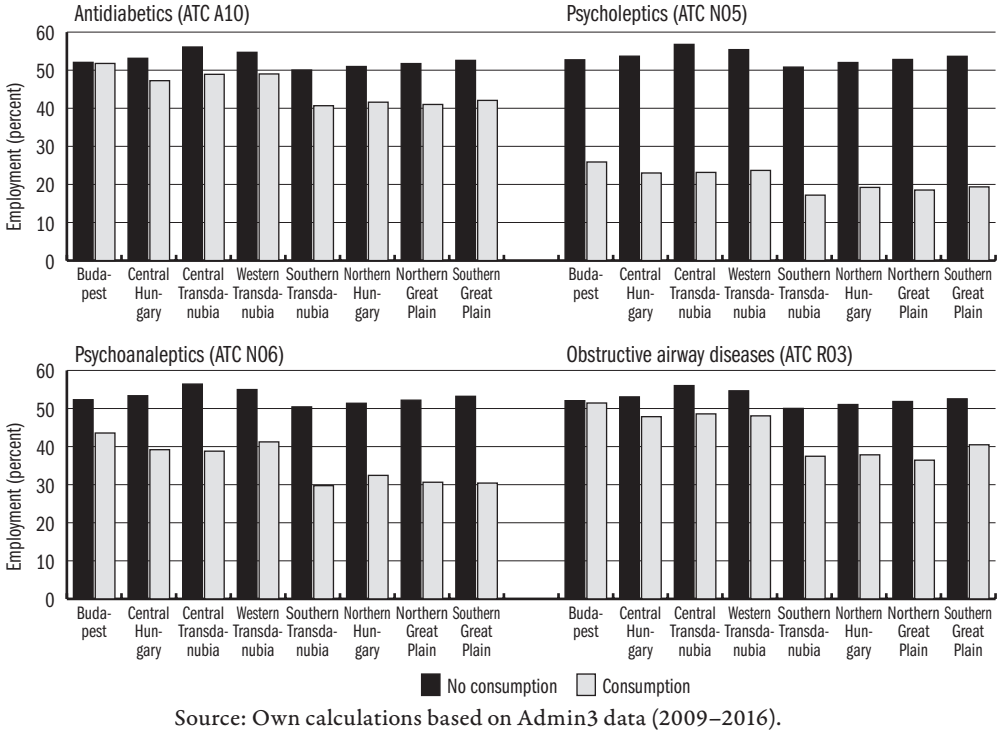
We also see that employment rate is more than 30 percentage points lower among those who died within three years; thus those whose health is the worst.

Heterogeneity by regions

Next, we analyse, if there are regional differences in the relation between employment and drug consumption. We focus on the consumption of those four categories of drugs for which we observed non-negligible differences by employment on the country level.

The results of *Figure 1.4* show that the differences in employment by drug consumption are much higher in Eastern Hungary than in North-West and Central Hungary. The patterns are strikingly different between Budapest and the Eastern regions. Among the healthy individuals (those who do not consume a specific drug), the differences in employment rates among regions are around 1–4 percentage points. On the other hand, among the sick individuals (those who do consume a specific drug), these differences are much higher, comparing Budapest and the Northern Great Plain, the differences are between 7–15 percentage points.

Figure 1.4: Employment rate by drug consumption and regions



Source: Own calculations based on Admin3 data (2009–2016).

Conclusions

In this subchapter, we found, based on European comparisons, that the health of the population of Hungary lags behind the European Union average especially among the less educated and those who are not working. We also found that among the 57–64 year old individuals, the lower employment rate as compared to Germany can be explained only to a small extent by worse health status, while among the 50–59 year-old individuals (based on earlier data), the role of worse health status was much higher in explaining employment differences.

Using administrative data from Hungary, we showed that among those who have physical diseases or mental illnesses (as captured by drug consumption), the rate of employment is substantially lower. These differences are stronger in the case of mental diseases than physical diseases. Finally, we found that in the poorer regions of Hungary, there are stronger differences in employment by health status (as captured by drug consumption).

Overall, it is essential to improve the health of the individuals who are in a worse socio-economic status, in order to decrease the health gap compared to Western Europe, and also to increase the rate of employment.

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2 INCOME, LABOR MARKET AND REGIONAL INEQUALITIES

2.1 INEQUALITY OF MORTALITY AND MORBIDITY BY INCOME

ANIKÓ BÍRÓ, PÉTER ELEK, TAMÁS HAJDU, GÁBOR KERTESI & DÁNIEL PRINZ

Individuals of lower socio-economic status (less educated, lower-income individuals) have higher mortality rates and lower life expectancy than individuals of higher socio-economic status. Since mortality data has been collected for a long time in all countries, this robust relationship can be observed in data from many different countries.[1] This relationship is usually strong, though changes in its strength over time are informative about social processes and the situation of various groups. Life expectancy is one of the most important social indicators.

In this subchapter we use the comprehensive national individual-level mortality registers of the Hungarian Central Statistical Office (HCSO), the "admin3" administrative database of the Centre for Economic and Regional Studies (CERS), and settlement-level and microregion-level administrative data on population characteristics and income to examine inequalities in Hungary during the 2011–2016 period in mortality rates, life expectancy, and morbidity. We focus on life expectancy and morbidity inequalities among individuals aged 45 or older (middle-aged and older). Hungary is a high-income country[2] and as such it has successfully decreased mortality and morbidity among younger age groups, which remain problems in lower-income countries.

We are not the first ones to examine these questions. A series of demographic studies has examined the evolution of mortality and differences by socio-economic status (typically proxying with level of education) in the 2000s.[3] We contribute to this literature in several ways. First, we measure inequality using average income, a measure that is relatively universal in space and time. Second, we demonstrate that a large share of inequality by income can be attributed to avoidable (amenable and preventable) causes. This highlights that appropriately targeted health policy interventions could potentially decrease socio-economic inequality in mortality. Third, we show that there are substantial inequalities in income in a number of important health indicators that describe health behavior, access to care, and healthcare use. These differences are strongly associated with life expectancy inequality.

1 See for example *Chetty et al.* (2016), *Marmot* (2005), *Mackenbach et al.* (2018, 2019).

2 See: World Bank.

3 *Bálint–Németh* (2018), *Klinger* (2001), (2003) *Kovács–Bálint* (2014), (2018).

Mortality and life expectancy

Our study is based on the national mortality register of the HCSO. The mortality register contains the gender, age, settlement and cause of death for

each death in Hungary. Based on the cause of death and the age of the deceased, we can identify avoidable (amenable and preventable) and unavoidable deaths (*ONS,* 2011).

The source of settlement-level gender- and age-specific population data is the TSTAR database of the HCSO. We approximate the average income of each settlement using data on per capita domestic income. We view this as a proxy of per capita household income of the residents of the settlement. We calculate mortality rates, life expectancy and per capita income averaged over the 2011–2016 period in order to reduce noise in the data. Based on settlement-level average income, we form 20 ventiles, each of them containing approximately 5% of the population of Hungary. This means that the bottom ventile contains the poorest 5% of the population (by settlement-level income) and the top ventile contains the richest 5% of the population (by settlement-level income).

For each ventile, we first calculate the gender- and age-specific mortality rates based on averaged mortality and population data for the 2011–2016 period. Then we calculate life expectancy using a standard procedure (see *Arias et al*., 2019). To examine the role of avoidable (preventable and amenable) deaths in life expectancy differences across income groups, we calculate an adjusted version of life expectancy. In this exercise, we assume that the avoidable mortality rate of each income ventile is equal to the avoidable mortality rate observed in the richest income ventile, whereas the non-avoidable mortality rate is unchanged. We then recalculate life expectancy. Thus the adjusted life expectancy reflects a counterfactual state where we have removed for differences in age-specific avoidable mortality rates. For more details on life expectancy calculations, see *Bíró et al*. (2020). When calculating mortality rates and life expectancy, we focus on individuals 45 and older.

Figure 2.1.1 shows age-specific mortality rates by income ventile. There are large differences between poorer and richer settlements, among both women and men and in all age groups. At the same time, inequalities are substantially larger among men, both in absolute and relative terms. For example, in the oldest age group (75 and older) the mortality rate of those living in the poorest settlements is 35 percent higher among men than the mortality rate of those living in the richest settlements. The same difference is 18 percent among women. Moreover, for both genders, the income gradient of mortality is larger in younger age groups. In the 45–54 age group, the mortality rate of the poorest and wealthiest settlements differs by a factor of 2.5, in the 55–64 age group it differs by a factor of approximately 2. The difference narrows further in older age groups.

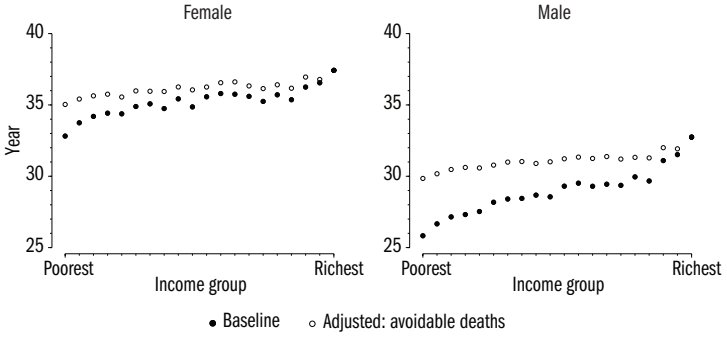
A simple summary of mortality rate inequalities is life expectancy at 45 (*Figure 2.1.2*). Like mortality inequality, life expectancy inequality is also larger among men than among women. Among women, the difference between the

top and bottom income groups is 4.6 years (37.4 years vs 32.8 years) or 14 percent. Among men the difference is 6.9 years (32.7 years vs 25.8 years) or 27 percent. Notably, in the middle of the distribution (between the 5th and the 15th ventiles) life expectancy does not change much: the difference is 0.8 years for women and 1.8 years among men.

Figure 2.1.1: Age-specific mortality rates by settlement-level income

Note: Mortality rates are deaths per 100,000.
Source: Authors' calculation based on *HCSO* mortality register and *TSTAR* database.

Figure 2.1.2: Life expectancy difference at age 45 by settlement-level income



Note: Adjusted life expectancy reflects a counterfactual state where age-specific avoidable death rates in each income ventile are set to the rates observed in the top income ventile. The remaining differences in life expectancy reflect differences in non-avoidable mortality.
Source: *Bíró et al.* (2020).

We examine the role of avoidable deaths with the adjusted life expectancy measure discussed above. If we remove life expectancy differences between the bottom and top income groups caused by avoidable causes of death, the difference decreases from 4.6 years to 2.4 years among women and from 6.9

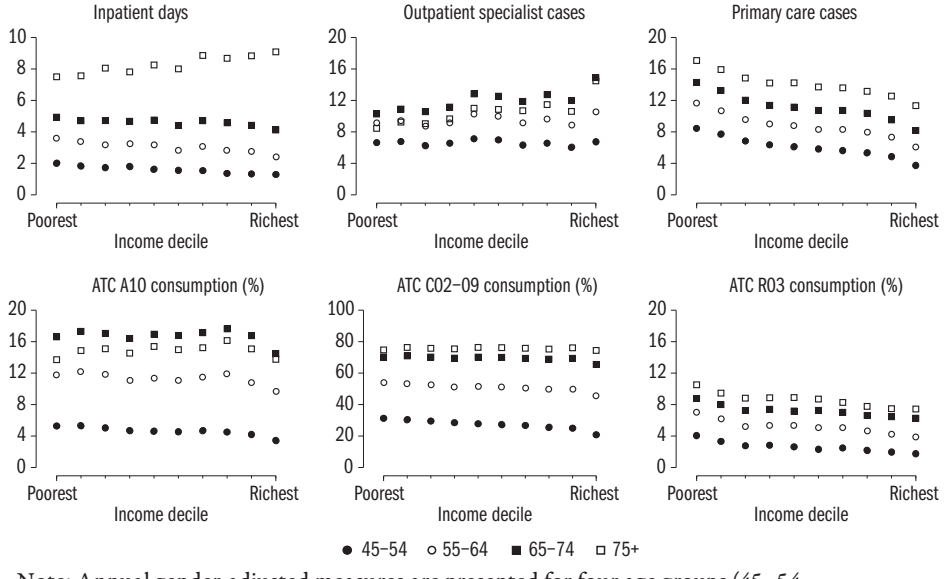
years to 2.9 years among men. This suggests that higher rates of mortality from avoidable causes among lower-income individuals can explain about half of life expectancy differences at age 45. Consequently, health and social policy may have substantial scope to decrease these inequalities.

Healthcare use and morbidity

We examine differences in healthcare use and prevalence of chronic conditions using administrative panel data produced by the CERS Databank ("admin3"). This database contains a quasi-random 50% sample of the Hungarian population.[4] Since this database does not contain settlement-level information, we carry out this analysis at the microregion level. We divide microregions into income deciles using per capita domestic income from the HCSO TSTAR database (each decile contains approximately 10% of the population), and examine inpatient days, outpatient specialist and primary care use, and prescription drug use (focusing on three important groups: insulins and other antidiabetics used to treat diabetes, blood pressure medications, and medications for obstructive pulmonary diseases) by decile.

4 For a short description of the database, see the Appendix of the *In Focus* section. For more details, see *Sebők* (2019).

Figure 2.1.3: Differences in healthcare use and prescription drug consumption by microregion-level income



Note: Annual gender-adjusted measures are presented for four age groups (45–54, 55–64, 65–74, and 75+) averaged over the 2011–2016 period. The bottom panels show the share of individuals who consume at least one prescription in at least three months in the medication group.
ATC groups: A10 – insulins and oral antidiabetics, C02-09: anti-hypertension medications, R03: obstructive pulmonary disease medications.
Source: Authors' calculations based on the admin3 and HCSO TSTAR databases.

The top panels of *Figure 2.1.3* show that primary care use decreases in each age group with increasing income, while outpatient specialist use shows a weakly increasing trend, suggesting that access may play an important role. Inpatient use shows an interesting relationship with income: while between ages 45 and 74 there is a clear negative relationship with the average income of the microregion, above age 75 this relationship is reversed. We observe a similar relationship for blood pressure medications (ATC C02-09 categories): the negative relationship for ages 45 to 64 disappears in the 65–74, and especially the 75+ age group. This may be explained by the finding above that in poorer microregions, mortality is much higher in the 45–64 age groups and the prevalence of chronic diseases (e.g., hypertension) is higher. A similar, though somewhat weaker, relationship can be observed in the consumption of antidiabetic medications (a proxy for the prevalence of diabetes diagnoses). At the same time, consumption of medications for obstructive pulmonary diseases shows a negative relationship with income in all age groups.

Health behaviors and access to care

Finally, we examine several measures of health behaviors, access to care and participation in preventive care to assess the role of these factors in mortality and morbidity inequalities. Our goal is not to uncover causal relationships but to examine the distribution of a large number of indicators by income in a unified framework. We would like to illustrate the scope of health and social policy to decrease inequalities. We examine income-related inequality using the same methods we used for mortality and life expectancy and divide settlements into 20 ventiles. *Table 2.1.1* shows the list and source of the indicators used.

Figure 2.1.4 shows for each indicator the difference between the top and bottom income ventile, standardized by the mean. The two health behavior indicators which exhibit the largest difference are heating with solid fuel only and time spent with sport. The former suggests that air pollution from heating poses a problem for individuals living in poorer settlements. The latter suggests that individuals living in wealthier settlements spend more time with sports than those living in poorer settlements. All other indicators also suggest that individuals in the bottom income ventile are more likely to engage in behaviors that are negatively associated with health (e.g., smoking, consumption of sugary drinks) and less likely to engage in behaviors that are positively associated with health (e.g., consumption of fish and vegetables).

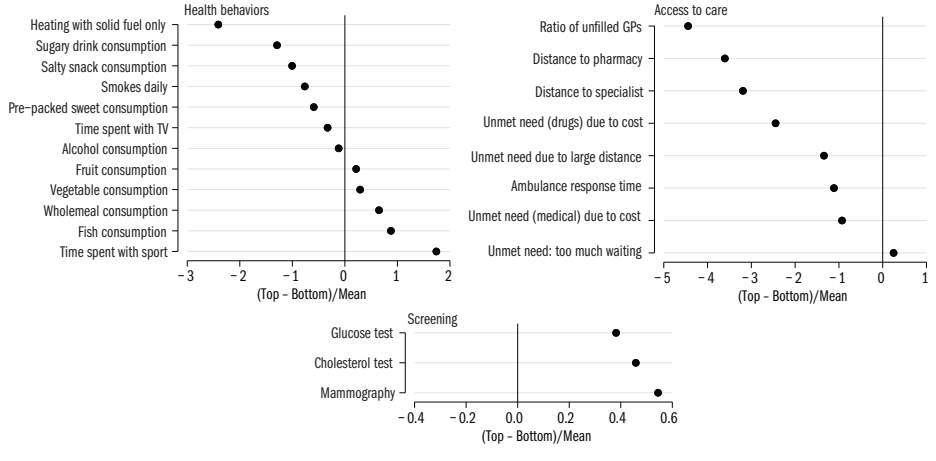
Indicators that characterize healthcare access also show substantial inequality between individuals living in poorer and wealthier settlements. In the settlements in the bottom ventile, unfilled general practices are more widespread, distance to pharmacies and specialist outpatient care units is larger, and wait time for ambulances are longer. Overall, nearly all indicators show that individuals living in poorer settlements have worse access to care.

Table 2.1.1: Indicators of health behavior and healthcare access

Indicator	Note	Data source
Using Solid Fuel	Measured at the household level	2011 Census
Average Daily Amount of Time Spent Watching TV	Measured in minutes among 25 and older	2009/2010 Time Use Survey
Average Daily Amount of Time Spend With Sports	Measured in minutes	2009/2010 Time Use Survey
Consumption of Fish*	Data from 2014 Consumed at least once a week	European Health Interview Survey
Consumption of Prepackaged Sweets*	Data from 2014 Consumed at least daily or almost daily	European Health Interview Survey
Consumption of Sugary Drinks*	Data from 2014 Consumed at least daily or almost daily	European Health Interview Survey
Consumption of Savory Snacks*	Data from 2014 Consumed at least daily or almost daily	European Health Interview Survey
Consumption of Wholemeal*	Data from 2014 Consumed at least daily or almost daily	European Health Interview Survey
Consumption of Vegetables*	Data from 2014 Consumed at least daily or almost daily	European Health Interview Survey
Consumption of Fruits*	Data from 2014 Consumed at least daily or almost daily	European Health Interview Survey
Consumption of Alcohol*	Data from 2014 Medium or high risk category	European Health Interview Survey
Smoking*	Data from 2014 Daily	European Health Interview Survey
Share of General Practices Unfilled	Data from 2016	European Health Interview Survey
Distance from Pharmacy	Data from 2014	T-STAR
Distance from Specialist Clinic	Data from 2014	T-STAR
Ambulance Response Time	Data from 2009 Measured in minutes	*Kemkers et al.,* (2010)
Unmet Need for Medical Care Due to Wait	Data from 2014	European Health Interview Survey
Unmet Need for Medical Care Due to Distance	Data from 2014	European Health Interview Survey
Unmet Need for Medical Care Due to Cost	Data from 2014	European Health Interview Survey
Unmeet Need for Drugs Due to Cost	Data from 2014	European Health Interview Survey
Mammography*	Data from 2014	European Health Interview Survey
Cholesterol Test*	Data from 2014	European Health Interview Survey
Glucose Test*	Data from 2014	European Health Interview Survey

* Data for population aged 25 and above.
For more details, see *Bíró et al.* (2020).

Figure 2.1.4: Inequalities in health behaviors and health care access



Source: *Bíró et al.* (2020).
Values of each indicator by income ventile are presented in *Bíró et al.* (2020).

We examined participation in preventive care using three indicators. For all three indicators, participation in preventive care is higher in the top income ventile. These indicators are co-determined by individual health behaviors and healthcare access.

Summary

This subchapter documented substantial inequalities in mortality rates and life expectancy by income in Hungary. We also showed that about half of this inequality is caused by avoidable causes of death. We found large inequalities in access to care, healthcare use, as well as health behaviors. These inequalities, combined with the role of avoidable deaths suggest that there is substantial scope to decrease these inequalities through health policy interventions. Other subchapters in the *In Focus* section examine further mechanisms that could explain the inequalities reported in this subchapter. Specifically, *Subchapter 2.2* examines morbidity and healthcare spending inequalities by labor market status, *Subchapter K2.1* examines the inequalities in the incidence and treatment of heart failure, and *Subchapter 3.2* examines inequalities by labor income.

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K2.1 Disparities in the occurrence and care of myocardial infarction in the light of labour market correlations*

ANNAMÁRIA UZZOLI

There are an average of 15,000 myocardial infarction cases registered annually in Hungary, and the disease causes the death of about 40 percent of the cases, that is, six thousand individuals. According to the data of the National Myocardial Infarction System, approximately a third of patients are under the age of 60; there are 20–25 percent more males among the sufferers than females; and it causes the death of 1.5 times more males than females. Premature mortality due to infarction mostly affects middle-aged males, while females are mostly affected by the disease in an older age (*Jánosi,* 2019). Thus, infarction affects the working-age population substantially, and the local Hungarian disparities in disease occurrence and mortality have serious labour market implications as well.

Improving access, decreasing mortality, increasing territorial differences

The development of up-to-date care for myocardial infarction: the development of the cardiac catheter intervention began in the mid-2000s in Hungary, due to which the mortality rate has dropped by 50 percent. Even though care conditions and access have improved, a controversial situation has come about. The occurrence rate of the disease is still high in European standards, and although the majority of lives are saved, the long-term survival rate has slightly decreased (*Uzzoli,* 2020).

The disparities in the occurrence and care of infarction are observable by location, sex, and the different stages of infarction care. Territorial differences are big within the country: the infarction-related mortality rate of females has increased after the 2008/2009 crisis (*Tóth et al.,* 2018). Higher mortality rates are mainly linked to locations that lie further away from hospitals, such as the regions in the northeast and the southeast, or the regions along the southwest border (*Figure K2.1.1*).

The agglomeration of Budapest is also divided, because the mortality rate can be up to five times higher in the northern and southern areas than in the western parts of the agglomeration. Since the mid-2000s, with the widespread application of the cardiac catheter intervention, the mortality rate has dropped by 50 percent across the country, but this was visible mainly in short-term survival rates while long-term survival rates actually decreased.

At the same time, improved access did not go hand-in-hand with a more substantial decrease in the occurrence of the disease; on the contrary, by the mid-2010s, the occurrence rate of infarction in males slightly increased. Additionally, the occurrence rate of the disease slightly increased among younger age groups as well (those between 40–60) (*Uzzoli et al.,* 2019). Only less than 40 percent of patients participate in rehabilitation, even though it would be essential for the restoration of physical activity and the improvement of survival chances (*Mérték,* 2017).

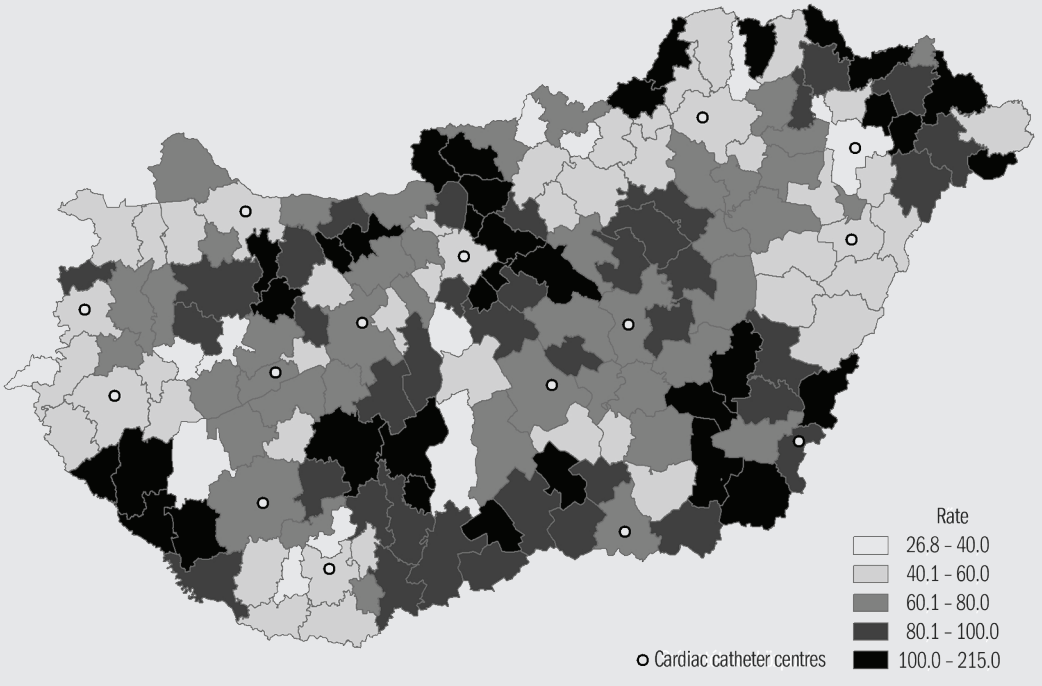
What is the reason behind the fact that an improved access to cardiac catheter interventions did not have an equal effect on all patients? In order to find answers to this question, interviews have been conducted with the key actors of cardiac care (ambulance staff, physicians, nurses, dieteticians, physiotherapists, etc.) and with the patients themselves.

Labour market correlations

The processing of the content of the interviews has contributed numerous factors to the understanding of the correlations between the infarction situation and labour market effects in Hungary. Saving patients under the age of 60 (that is, those of working-age), and then restoring their ability to work,

* The research that forms the basis of this study was conducted with the help of project number K 119574, which was funded by the Hungarian National Research, Development, and Innovation Fund (https://egeszsegugyihozzaferhetoseg.wordpress.com/).

Figure K2.1.1: The standardised mortality rates of acute myocardial infarction in the various districts in 2015 (case/100,000 inhabitants)



Data source: ksh.hu, nefi.hu.

is of national economic interest, as well. There may be a factor of three difference between districts in the occurrence rate of infarction within this age group. The territorial concentration of working-age patients is salient in the border regions of Northeastern and Southeastern Hungary.

According to the unanimous opinion of the healthcare workers and patients who participated in the interviews, the following conditions are relevant, from a labour market perspective, for the occurrence of the disease and the access to cardiac care:

1. Work-related stress: among the risk factors of the disease (such as tobacco use, an unhealthy lifestyle), stress is an essential factor and its root causes can be linked to the workplace to a substantial extent.

"Not only did I fulfill my duties at the workplace, afterwards I had to run to my second job, so that we can make ends meet." (Male patient, 53).

2. Loss of income: frequently, working-age patients do not undertake inpatient rehabilitation (which takes several weeks) so that they can go back to work as soon as possible, decreasing their chances of restoring the quality of life they had prior to the disease.

"Not many are able to carry out a complete lifestyle change, or switch to a different attitude to work, ... because they are worried about their jobs, their livelihoods." (Cardiac nurse with tertiary educational attainment.)

3. Reduction in functional capacity: if the patient does not receive or does not undertake rehabilitation, and does not go through a lifestyle change, the

chances of another infarction and of severe complications are higher. In the short run, these can lead to a reduction of the patient's functional capacity and to a deteriorated labour market status in most cases.

"If it [the rehabilitation] is over, I will start the incapacity process. And then I'll have to look for something. If I won't find the kind of work that they allow, I will still need money... I do not want to neglect myself, at 44, I don't want to spend my life at home." (Female patient, 44.)

A common observation is that the improvement of access to cardiac catheter interventions has brought with it a loss of an individual sense of responsibility. Due to the fast and effective intervention, some patients do not, or barely develop a sense of being ill, which prevents them from following physicians' instructions conscientiously, and is an impediment to a successful cooperation between physician and patient, and to participation in rehabilitation (*Uzzoli et al.* 2019).

Recommendations

Some of the policies that are based on research findings try to draw decision makers' attention to the fact that the further reduction of the occurrence of infarction and of the related mortality has direct, beneficial labour market effects. In the future, working-age patients need to be engaged in rehabilitation programmes at higher rates – possibly through an outpatient structure – as it plays a key role in the prevention of further infarctions, the restoration of working capacity, ensuring a good quality of life, and ultimately, in increasing the chances of survival. Besides, through the development of infarction-related health education, various strategies for coping with work-related stress need to be highlighted. The role of occupational physicians in the maintenance of a stable condition based on a lifestyle change and on the appropriate type and level of physical activity also needs to be strengthened.

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2.2 THE CORRELATIONS OF LABOUR MARKET STATUS, THE PREVALENCE OF CERTAIN CHRONIC DISEASES AND HEALTHCARE EXPENDITURE

PETRA FADGYAS-FREYLER & TIBOR FADGYAS

In this subchapter we examine the correlations between labour market status, the prevalence of the most common chronic diseases, and healthcare expenditure, on the basis of the 2019 healthcare data reported to the National Health Insurance Fund Administration (NEAK, formerly OEP).[1] We present the rates at which economically active groups are being treated for chronic diseases, the rates of specialised health service utilisation, and the amount the social health insurance fund spends on patients annually.

Data

The persons examined are those of the age group of 20–65, who either have an insured status due to private employment on the basis of the Social Insurance Law (section 5 of the old Tbj. – Act LXXX of 1997 on the eligibility for social insurance benefits and private pensions and the funding for these services), or, having no insurance obligation, have gained eligibility for social insurance benefits by paying a so-called health service contribution (a monthly fee of HUF 7,500, around 20€).

Our investigation focuses on the type of employment (and entitlement) and on educational attainment. We have divided our subjects (a total of 4,469,926 persons)[2] into a total of five groups on the basis of their typical entitlement[3] reported to NEAK: 1) private employment (2,838,212 persons), 2) unemployed or public works employees (129,430 persons) (see subchapter K5.1), 3) individual or joint entrepreneurship (536,628 persons), 4) public service type work, public servants, government officials, law enforcement workers (547,466), 5) those paying a health service contribution (318,190). To this latter group belong those who are not officially employed and have no other status (such as childcare, invalidity, social circumstances, etc.) that would grant them access to the healthcare system. 1,549,226 persons were excluded from the working age population of over six million due to different statuses, such as university students, those on parental leave, those receiving invalidity benefits, the homeless, etc., and those who died during the year.

Complementing this, we have assigned those working within private employment (group 1) and public sector workers (group 4) to three further strata, based on their educational attainment (on the basis of the HSCO code – Hungarian Standard Classification of Occupations – recorded in the declaration): 1) undereducated (HSCO codes starting with 9 or 03; 610,329 per-

1 The Hungarian health care system is based on a compulsory social insurance system with the single payer NEAK providing health insurance coverage for nearly all 10 milion people residing in the country.

2 Due to the impact on healthcare expenditure (*Koczor-Keul,* 2017 and *Fadgyas-Freyler,* 2019) we have narrowed down the study in two ways: on the one hand, we have excluded those who died in the given year, and on the other hand, we have excluded the extremely high expenditures related to blood disorders and hematopoietic diseases, or endocrine and metabolic – rare – diseases.

3 There are altogether approx. 120 different entitlement categories under which access to social insurance services is granted. Even those engaged in gainful activity are classified into different groups by employer. Those who are not working may gain entitlement to healthcare services in other ways. Certain groups are granted access to healthcare via legislation (such as minors, those on maternity leave, pensioners, those in detention facilities), while others are required to pay a certain amount also determined by legislation (a so-called health service contribution) in order to be able to use the services of healthcare service providers without having to pay various fees for them. And those who do not belong to any of the entitlement categories and do not pay their due contribution, either, have a so-called "red flag" status, which service providers are informed of.

sons) 2) secondary educational attainment (HSCO codes starting with 3–8 or 02; 2,196,038 persons), and 3) tertiary educational attainment (HSCO codes starting with 1, 2 or 01; 1,007,930 persons). Finally, we control for the following factors in each analysis: age (by age groups with 5-year differences), sex, and the development/deprivation level of the place of residence,[4] as these factors have an impact on health status and on service utilisation (see *OECD*, 2019; and for the development level of the place of residence, see *Subchapter 2.1*).

Methods

Due to the fact that age, sex and the development level of the place of residence vary significantly within the various entitlement and educational attainment groups, and as these characteristics are known for having a strong impact on service utilisation, we neutralise their impacts through standardisation. To this end, the elements in the various groups are duplicated through random selection in such a way that each entitlement and educational attainment group have the same proportions in terms of age, sex and the development level of the place of residence. We analyse the prevalence rate of diseases, the rate of healthcare utilisation, and the average expenditure per patient in this standardised stock.

First, we scrutinise the rate of morbidity, based on the categorisation used in the general practitioners' indicator system of the Health Insurance Fund (*NEAK,* 2019). We examine the number of known heart disease patients,[5] the number of patients treated for high blood pressure, diabetes, or chronic obstructive pulmonary disease (most prevalent among smokers). We pay special attention to so-called multimorbidity, that is, we examine the number of persons affected by more than one of the above-mentioned diseases. We would like to emphasise that the number of those receiving care is not necessarily the same as the number of ill persons. The number of persons suffering from a given disease (but not receiving regular care) may be substantially higher. The difference between the number of ill persons and of those receiving care can be explained by, among other causes, individual health behaviour (see *Subchapter 2.1,* for example) or unmet healthcare needs (see *Subchapter 2.3,* for example).

Second, we examine how frequently patients use three typical segments of the publicly funded healthcare system: outpatient care, inpatient care, and the supply of medications and medical aids and devices (service utilisation rate).[6] The utilisation rate is influenced both by the health status of the given persons, and by the availability of the publicly funded and the private healthcare systems – the latter may decrease the utilisation of the publicly funded healthcare system, either through medical savings accounts (in certain cases), or through company-financed private health insurance. (Regarding private healthcare, see *Subchapter 2.3.*) We have put special focus on two forms of care: dentistry, and the supply of itemised medications. These, even though they

4 For the development level of the place of residence, we used the composite indicator of the HCSO created for the level of development of municipalities (*HCSO*, 2016), in a total of four categories (those under the age of 40, those between 41–60, those between 61–80, those above the age of 80).

5 Heart disease patient: patients who have had an infarction and/or coronary bypass surgery (CABG) and/or percutaneous transluminal coronary angioplasty (PTCA).

6 The outpatient segment includes specialised outpatient care and laboratory testing, high value diagnostic scans (CT, MRI), dialysis treatments, dentistry, and the transportation of patients. Inpatient care includes any type of hospital stays and related treatments, as well as specialised home care and hospice service. The supply of medications and medical aids and devices includes all prescription therapies (medications, medical aids and devices, health spa services) as well as itemised medications, given to patients as part of their stay at an institution. We do not examine general practitioner care, as the utilisation of that does not generate any additional expenses.

are a part of the above-mentioned larger groups, represent the two extremes of the Hungarian healthcare system: the coverage provided for dental care by the social health insurance fund to the working-age population is extremely limited, resulting in a very high rate of private care utilisation (*Babarczy et al.,* 2016), while the supply of high cost (so-called itemised) medications is a field where care is almost exclusively publicly financed.

Third, we seek to determine the amount the social insurance fund spends on those actually accessing a given segment of the publicly funded healthcare system (insurance fund's expenditure). The amount spent on the population examined is HUF 368.3 billion, which is exactly a quarter of the total patient-related annual expenditure of the Hungarian single payer NEAK.

Results

Morbidity indicators

Table 2.2.1 shows the morbidity indicators by disease groups.

Table 2.2.1: Differences in the morbidity rates of disease groups in the age group of 20–65, by entitlement and educational attainment, 2019

	Hyper-tension	Diabetes	Heart disease	Chronic obstructive pulmonary disease (COPD)	Multi-morbidity
Morbidity per 100 people	17.50	3.20	0.80	0.90	3.10
Divergence of morbidity rates relative to the average of those working within private employment, by entitlement category (percentage)*					
Private employment	0.00	0.00	0.00	0.00	0.00
Public works employee, unemployed	–6.34	–2.67	–3.46	+91.75	+11.28
Entrepreneur	–14.10	–7.00	–3.44	–31.66	–13.86
Public sector	+5.24	–1.74	–6.09	–21.98	–4.93
Those paying a health service contribution	–27.61	–14.60	+7.71	–12.85	–16.15
Divergence of morbidity rates relative to the average of those working within private employment with secondary educational attainment (percentage)*					
Private employment, tertiary educational attainment	–20.14	–22.77	–20.27	–47.63	–30.30
Private employment, secondary educational attainment	0.00	0.00	0.00	0.00	0.00
Private employment, undereducated	–0.13	–3.66	+26.48	+88.90	+14.16
Public sector, tertiary educational attainment	–5.21	–14.01	–13.54	–38.59	–19.40
Public sector, secondary educational attainment	+0.31	–6.64	–5.72	–11.35	–7.19
Public sector, undereducated	+35.96	+30.67	+51.91	+80.76	+50.05

* Based on a database standardised for age, sex and the development level of the place of residence.

Source: Authors' own calculations on the basis of the 2019 data of the *National Health Insurance Fund Administration* (NEAK).

The first row of *Table 2.2.1* shows the real, population-based average prevalence rates of various diseases. By far the most common of these is hypertension – nearly one in five persons was receiving treatment for this disease.

Over a third of our subjects have diabetes, and the rate of those who have at least two of the four diseases in question (multimorbid patients) was found to be the same. Approximately one percent of the group suffers from a severe pulmonary or heart disease. These figures are especially alarming considering that this is the segment of the working age population that is supposed to be healthy and able to work.

The upper part of *Table 2.2.1* shows, relative to the largest group (those working within private employment), the differences in morbidity rates among the various entitlement categories, standardised for age, sex and the development level of the place of residence. Public works employees and the unemployed seem to be the most unhealthy, as their multimorbidity rate is higher by more than 11 percent. This is brought about mostly by the dramatic rate of COPD, as the other (treated) diseases have a lower prevalence rate in this group compared to those working within private employment. This raises fundamental questions regarding health behaviour, health education and access to the healthcare system. The lowest morbidity rates are observed in entrepreneurs, followed by those paying a health service contribution. There is only one disease where contribution payers have higher prevalence, which is heart disease. We have to emphasise that the prevalence of heart disease is registered on the basis of previous heart attacks or serious heart surgeries and not on the basis of appropriate care (regular intake of pharmaceuticals). This raises serious doubts whether the other – seemingly favourable – values could be a sign of an unmet need (untreated disease). Hypertension occurs at higher rates among public sector workers, however, they are less affected by other diseases.

The lower part of *Table 2.2.1* shows the differences in morbidity by educational attainment in the two biggest groups: those working within private employment, and public sector workers.[7] The data suggest that educational attainment is a key factor. In the case of the undereducated, this can be observed mainly in the increased prevalence of smoking-related COPD, heart disease, and multimorbidity (in the case of COPD, this means a prevalence rate of +90 percent relative to those with secondary educational attainment in both entitlement categories); the undereducated workers of the public sector have a much lower health status. The disease rates of those with tertiary educational attainment are lower everywhere compared to those with secondary educational attainment, and the difference is more substantial in the case of those working within private employment. The indicator values of public sector workers with secondary educational attainment are generally lower than the values of those with secondary educational attainment working within private employment.

7 Public sector workers have a higher average educational attainment than those working within private employment.

Health service utilisation rates

Table 2.2.2 shows health service utilisation rates by type of care.

Table 2.2.2: Differences in the rates of specialised health service utilisation in the age group of 20–65, by entitlement type and educational attainment, 2019

	Inpatient care	Outpatient care	Medications and medical aids and devices	Dentistry	Supply of itemised medications	Any type of care
Rate of service utilisation per 100 people	10.30	70.00	67.00	17.40	0.28	81.30
Divergence of service utilisation rates relative to the average of those working within private employment, by entitlement category (percentage)*						
Private employment	0.00	0.00	0.00	0.00	0.00	0.00
Public works employee, unemployed	+3.04	–4.16	–6.33	+2.39	–46.15	–4.22
Entrepreneur	–4.46	–3.57	–3.41	–13.39	+11.54	–2.46
Public sector	+8.32	+18.68	+9.50	+38.30	+19.23	+11.35
Those paying a health service contribution	–1.12	–18.15	–20.90	–21.13	0.00	–17.19
Divergence of service utilisation rates relative to the average of those with secondary educational attainment working within private employment, by educational attainment and entitlement category (percentage)*						
Private employment, tertiary educational attainment	–9.16	–5.63	–1.02	–30.44	+19.23	–1.39
Private employment, secondary educational attainment	0.00	0.00	0.00	0.00	0.00	0.00
Private employment, undereducated	+2.29	–6.14	–8.64	–3.13	–11.54	–7.00
Public sector, tertiary educational attainment	+6.08	+10.38	+6.59	+4.70	+26.92	+6.69
Public sector, secondary educational attainment	+6.37	+20.39	+7.43	+51.16	+11.54	+11.46
Public sector, undereducated	+11.55	+12.72	+5.80	+25.47	+23.08	+7.06

* Based on a database standardised for age, sex and the development level of the place of residence.

Source: Authors' own calculations on the basis of the 2019 data of the *National Health Insurance Fund Administration* (NEAK).

According to the upper half of *Table 2.2.2*, more than four-fifths of the persons examined used some type of publicly funded healthcare within the given year. Approximately 10 percent could be found in inpatient care, 67 percent purchased some type of medication or medical aid, and 70 percent appeared in outpatient care. As for dental care, which is unique in terms of access, 17.4 percent of the population could be seen, and 0.28 percent of patients used some kind of itemised medication.

In terms of service utilisation, public sector workers and those paying a health service contribution represent two extremes (see the lower half of *Table 2.2.2*). Public sector workers turn to the public healthcare system at a much higher rate (+11.3 percent) than the average worker that works within private employment. The largest difference can be observed in dentistry (+38.3 percent), followed by the fund for itemised medications (+19.2 percent). Those paying a health service contribution use the public healthcare system at a rate that is well under the utilisation rate of those working within private employment. The largest difference (in a negative direction! a value of

approx. –20 percent) can be observed in the utilisation of dentistry, again, but it is also similar by medications. At the same time, it is quite unexpected that the utilisation of itemised medications by those paying a health service contribution is as high as in the case of those working within private employment. However, utilisation rates are extremely low among public work employees and the unemployed, which is slightly surprising, since they appear in inpatient care at a much higher rate. We should also not forget that according to the findings presented in the previous chapter, their health status is the most unfavourable among all the various entitlement categories.

Analysing the utilisation rates by educational attainment (the lower part of *Table 2.2.2*), what emerges is that the dividing line (unlike in the case of morbidity) is the employment category. Public sector workers use the public healthcare system at a substantially higher rate than those working within private employment, regardless of their educational attainment. The role of educational attainment is not negligible, either: for example, those with tertiary educational attainment get itemised medications at a salient rate, regardless of employment type.

Healthcare expenditure per patient

Our last focus of enquiry was the amount spent on each person by the social health insurance fund. We would like to emphasise that in our calculations we are not using the average annual expenditure per person, but we are dividing the annual total expenditure per fund by the number of patients (service users) that actually use certain types of care (expenditure per actual service user). The difference is shown in the first two rows of *Table 2.2.3*.

In 2019, the health insurance fund spent an average of HUF 82,000 per person on the examined population,[8] which is 56 percent of the average spending (HUF 146,000 per person) calculated for the entire population. The largest share of the expenditure per person is used in the inpatient sector and medications (HUF 31,000 each), but as for the expenditure per patient, it was highest by itemised medications (more than HUF 2 million) and inpatient care (HUF 308,000).

In the case of the expenditure per patient, we have found a rather mixed pattern; no clear trend line can be drawn on the basis of the usual factors (entitlement, educational attainment). The upper part of *Table 2.2.3* shows the impact of the entitlement category on healthcare expenditures. They are not negligible, but the differences are smaller than by utilisation. And also, the pattern differs greatly from that of utilisation. We wish to emphasise that the health insurance fund spends the highest amount (+26 percent) on the very group whose utilisation rate was the lowest (those paying a health service contribution). This may indicate that higher costs are a consequence of previously missed health maintenance and prevention (unmet healthcare need),

8 As a reminder: we have excluded diseases that are extremely rare and have rather high treatment costs from the scope of expenditures to be examined.

but it may also indicate that this group – in case of minor health problems – might rather turn to a private healthcare provider. The expenditure per patient of the unemployed and public work employee group was either similar to those working within private employment (except for itemised medications) or lower. Spending on the outpatient care and medications of public sector workers was higher compared to those working within private employment (and their service utilisation rate was higher, as well). The case of dentistry is different: we see many users from the public sector, but their per capita expenditure is relatively lower.

Table 2.2.3: Differences in the expenditure rates per patient in the age group of 20–65, by entitlement type and educational attainment, 2019

	Inpatient care	Outpatient care	Medications and medical aids and devices	Dentistry	Supply of itemised medications	Any type of care
Expenditure per person (HUF)	31,613	18,452	31,053	1,585	5,690	81,117
Expenditure per patient (HUF)	308,203	26,331	46,370	9,118	2,029,433	99,722
Divergence of the expenditure per patient relative to the average of those working within private employment, by entitlement category (percentage)*						
Private employment	0.00	0.00	0.00	0.00	0.00	0.00
Public works employee, unemployed	–1.80	+2.60	–9.02	–7.17	+19.29	–1.45
Entrepreneur	+1.57	+0.33	–0.02	–2.77	–2.19	–0.79
Public sector	–3.31	+9.05	+6.53	–10.72	+7.46	+3.15
Those paying a health service contribution	+17.50	+10.78	+25.97	–3.55	+7.85	+25.70
Divergence of the expenditure per patient relative to the average of those with secondary educational attainment and working within private employment, by educational attainment and entitlement category (percentage)*						
Private employment, tertiary educational attainment	+1.09	+1.14	+16.66	+1.30	+9.35	+2.94
Private employment, secondary educational attainment	0.00	0.00	0.00	0.00	0.00	0.00
Private employment, undereducated	+8.01	+9.71	+16.10	–5.62	+1.05	+15.14
Public sector, tertiary educational attainment	–1.47	+12.82	+22.71	–3.40	+13.92	+11.50
Public sector, secondary educational attainment	–2.45	+9.43	+1.63	–17.80	+5.28	+0.69
Public sector, undereducated	+5.68	+12.18	+37.05	–4.43	+16.93	+21.43

* Based on a database standardised for age, sex and the development level of the place of residence.

Source: Authors' own calculations on the basis of the 2019 data of the *National Health Insurance Fund Administration* (NEAK).

Usually, these differences remain even after controlling for the educational attainment of workers (the lower part of *Table 2.2.3*). Finally, it has also emerged that the expenditure per patient of the undereducated and of those with tertiary educational attainment is higher than that of those with secondary educational attainment.

Summary

In this subchapter we have presented the correlations of labour market status (entitlement) and educational attainment with 1) the prevalence of certain chronic diseases, 2) utilisation of the publicly financed healthcare system, and 3) the expenditure of the social health insurance fund spent on patients.

Three percent of the active, working-age population has at least two chronic diseases. More than 16 percent of this group take medications regularly for hypertension, and 3 percent do for diabetes, as well. Nearly one in 100 of this group received treatment for a severe pulmonary disease. The unemployed and public works employees seem to have a particularly poor health status. As for chronic diseases, educational attainment has the highest impact. We shall not forget that we only see patients in care, but if we were able to estimate those who are in need but not receiving care, these differences would be even more significant.

Analyzing utilisation rates, entitlement has proved to be the most significant influencing factor. Public sector workers turn to the publicly financed healthcare system much more often. Other labour market groups use dentistry and outpatient care to a much lower extent. This is probably attributable to the unknown utilisation rates of private service providers. Public work employees and the unemployed have less access to itemised medications despite the fact that they probably have the worst health status.

We have not found significant differences in the expenditures per patients. Although those paying their own health service contribution use the healthcare system less frequently, when they do, their care is much more expensive.

Significant differences (that are not being discussed here) can be observed between the data of men and women as well, based on all of the examined factors.

Beyond labour market status, there might be other reasons behind the phenomena presented in our analysis. The capacity for self-advocacy, the accessibility of the healthcare system and cultural norms linked to men's and women's roles may be such influencing factors. Presumably, there are people who "land" in the healthcare system late, when their care is much more expensive.

Based on what has been presented, especially in light of the current amendments to the social insurance act of Hungary, further analyses are needed so that we can understand the characteristics of health service contribution payers. It can also be concluded that both primary healthcare and occupational healthcare play important roles in access, coordination of treatments, and in an early enough start to health education.

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2.3 THE DISTRIBUTION OF INFORMAL PAYMENTS, OF THE USE OF PRIVATE HEALTH CARE AND OF UNMET HEALTHCARE NEEDS ALONG THE AXIS OF SOCIO-ECONOMIC STATUS

PETRA BAJI

The majority of the subchapters of *In Focus* examines the distribution of the state of health and the use of health care services along the axis of labour market status and socioeconomic status using administrative data. However, this naturally results in less attention on informal payments, on the use of private health care and on unmet health care needs – to name a few examples – which do not appear in the databases used. The following is a short summary of the results – related to inequalities based on social and economic status – of a few studies that explore these subjects.

According to an earlier, representative survey (*Baji et al,* 2014), nearly 80 percent of respondents visited a doctor during the year preceding the survey, and 21 percent of them made informal payments. 21 percent of respondents stayed in a hospital, and nearly half of them (44 percent) made such a payment. Controlling for the number of visits to the doctor and for the state of health – in the case of visits to the doctor – the elderly, those living in the capital, and those with a higher income were more likely to make informal payments, while those with a bigger household were significantly less likely to do so. In the case of hospital stays, income status and the size of the household had a significant effect on whether informal payments were made.

Informal payments are the most prevalent in obstetrics. Here we found that it was primarily the fact of having a doctor of choice that had an influence on the paying of an informal payment, and not the quality of the service (*Baji et al,* 2017). In a representative sample of 600, two-thirds of the women had a doctor of choice, and 79 of those did make informal payments; in contrast to only 17 percent of those without a doctor of choice. Having a doctor of choice was more frequent among older mothers and mothers with higher educational attainment, but controlling for the fact of having a doctor of choice, socio-demographic variables did not have a significant effect on the occurrence of informal payments. At the same time, those with a higher income, those living in Budapest, and those living in a marriage or partner relationship paid significantly higher amounts of informal payment. An important finding is that the quality of care was different for those with, and without a doctor of choice: medical interventions (Cesarean sections, induction of labour) were more frequent among those with a doctor of choice, but these mothers were also treated with more respect.

In one of our related studies (*Baji et al,* 2012) we examined the regressivity of household healthcare expenditure in the period between 2005–2008 (which is comprised of the expenditures (own contribution) spent on medications and medical aids, usage fees and informal payments). Informal payments totalled only 4–9 percent of healthcare-related expenditure in the period examined, which was approximately 0.2–0.3 percent of the total income of households. (In comparison: households spent the largest amount on medications and medical aids; these comprised 78–85 percent of the healthcare-related expenditure of households.) The annual informal payment expenditure was regressive, that is, poorer households belonging to the bottom income fifths spent a higher percentage of their income on informal payments than did wealthier households belonging to the top income fifth. Consequently, informal payments meant a greater burden for poorer households. However, it also emerged that in 2007, through the (temporary) introduction of the "visit fee", informal payments became proportionate to the income. This may have been for two reasons: poorer households either paid less informal payments, or did not even visit doctors.

Examining the healthcare-related expenditure of households, another detail that becomes clear is that the (official) expenditures of households spent on healthcare service fees comprised 11–15 percent of the total healthcare-related expenditure of the household, and 0.5–0.6 percent of the household income between 2005–2008. These expenditures were proportionate to the income (*Baji et al,* 2012), that is, households belonging to the top income fifths spent more money on usage fees in real terms. This can be explained mainly by the more frequent use of private healthcare services. According to the data of a representative survey we conducted in 2019 (*Lucevic et al,* 2019; *Zrubka et al,* 2020), 11 percent of the latest visits to doctors occurred at private healthcare providers during the year preceding the survey (*Zrubka et al,* 2020). In the age group of 25–44, among those with a paid job and among those with higher education as their attainment level, having had the latest visit to the doctor at a private healthcare provider was a more frequent occurrence.

Another frequent phenomenon is that the population chooses rather not to use the healthcare treatment otherwise needed, due to its cost or due to travel inconvenience. According to our representative survey conducted in 2019, 27 percent of respondents had postponed a visit to the doctor due to travel inconvenience; at the same time, 24 percent did not purchase the medication prescribed, 21 percent postponed a visit to the doctor, and 17 percent postponed a diagnostic test or a prescribed medical treatment due to costs, during the year preceding the survey (*Lucevic et al,* 2019). Regression analyses showed that women, younger individuals, and those with a lower income (1st and 2nd income fifths) gave the response that they had some kind of unmet healthcare need a significantly higher number of times. Those with a lower

educational attainment level (those who had the completion of elementary or secondary school as their educational attainment level) were more likely not to purchase the medications prescribed, and to postpone medical care due to travel inconvenience. At the same time, labour market status did not have a significant influence on the results. These results regarding unmet healthcare needs correspond, to the most part, to the statistics published by the Eurostat broken down by educational attainment level and income fifths, based on the EU-SILC survey.

Overall, it can be said that informal payments, the use of private healthcare services, and the presence of unmet healthcare needs are closely correlated to income status, which may compromise equal access to healthcare services.

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3 EMPLOYEE HEALTH

3.1 LABOR INCOME, HEALTH STATUS, AND HEALTHCARE SPENDING

ANIKÓ BÍRÓ & DÁNIEL PRINZ

Introduction

Hungary, like other developed countries gives nominally equal access to necessary healthcare and prescription drugs to everyone. Patients can use inpatient and outpatient care free of charge, while prescription drugs are subsidized to varying degrees. At the same time, the literature documents substantial barriers to access (*Lucevic et al*., 2019), as well as regional differences in spending (*Orosz*, 1990, *Nagy* 2010, *Fadgyas-Freyler–Korponai*, 2016, as well as *Subchapter 2.1* in this book). In this subchapter, we examine geographic and income-related inequalities and the relationship between these two dimensions of inequality using the "admin3" database of the Centre for Economic and Regional Studies Databank.[1]

The database contains monthly employment and income data for the period 2003–2017 and healthcare spending data for the period 2009–2017 for a quasi-random 50% sample of the Hungarian population.[2] Our sample includes 18–60-year-olds with full-year, full-time employment. We link year t income with year $t + 1$ healthcare spending (and 3-year mortality rates measured in year $t + 1$) in order to limit the influence of health on income. We adjust healthcare indicators and mortality for age, gender, and calendar year. The outcomes examined include mortality rates, inpatient spending, specialty outpatient spending, and prescription drug spending. In the latter category, we use the sum of social security spending and patient spending. We examine healthcare spending inequality by region[3] and the relationship between spending and income dividing income into ventiles (20 equal-sized groups).

We document four patterns: 1) substantial heterogeneity in healthcare spending across regions; 2) positive association between labor income and public healthcare spending; 3) geographic variation in the strength of the association between labor income and healthcare spending; and 4) negative association between labor income and mortality. Based on these, we conclude that in Hungary higher-income workers are healthier than lower-income workers, while social security spending on higher-income workers is also higher than spending on lower-income workers.

Geographic inequality in healthcare spending

Figure 3.1.1 shows inpatient spending, specialist outpatient spending, and prescription drug spending by region. In line with the previous literature, there

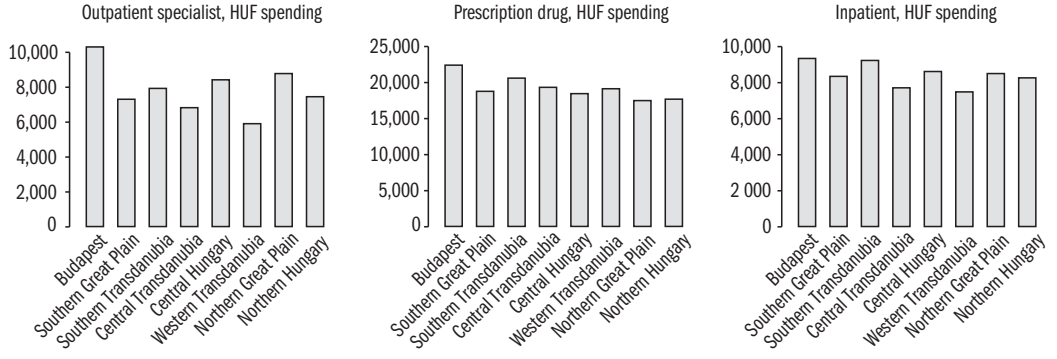
1 For a short description of the database, see the Appendix of the *In Focus* section. For more details, see *Sebők* (2019).

2 *Bíró–Prinz* (2020) examined healthcare spending inequality for the 2003–2011 period using an earlier version of the administrative database.

3 Budapest, Central Hungary outside Budapest, Central Transdanubia, Western Transdanubia, Southern Transdanubia, Northern Hungary, Northern Great Plain, Southern Great Plain.

are substantial inequalities across regions which are not explained by demographic differences (e.g., age structure). Differences are the largest for specialist outpatient care and prescription drug spending. Outpatient spending is highest in Budapest, 74% higher than in the lowest-spending region (Western Transdanubia). We also find the highest prescription drug spending in Budapest, 28% higher than in the lowest-spending region (Northern Great Plain). Differences are somewhat smaller for inpatient spending, which are 25% higher in Budapest than in the lowest-spending region (Western Transdanubia).

Figure 3.1.1: Regional differences in annual healthcare spending (adjusted for age, gender, and calendar year)



Source: Authors' calculation based on "admin3" data for 2009–2017.

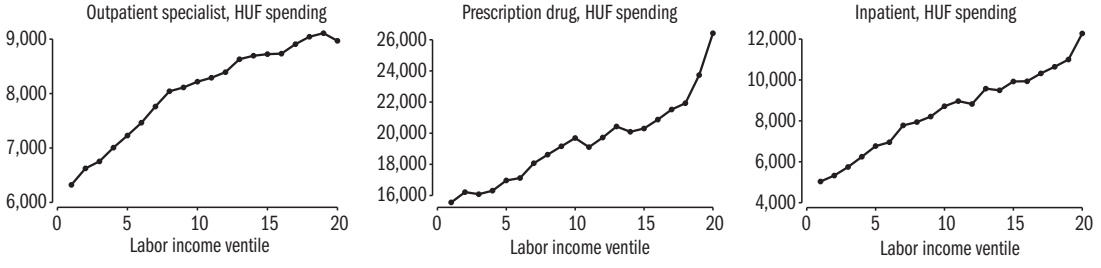
Association of healthcare spending and labor income

Figure 3.1.2 shows the relationship between labor income and healthcare spending. In each category, there is a positive relationship between spending and labor income. In the top ventile (workers with the highest 5% of annual labor income), outpatient spending is 42%, prescription drug spending is 70%, and inpatient spending is more than 100% higher than in the bottom ventile (workers with the lowest 5% of annual labor income).

Figure 3.1.3 shows the inequality by labor income separately for prescription drug spending categories (ATC – Anatomical Therapeutic Chemical). It is apparent that higher-income workers have higher spending in each category, but the strength of the spending-income relationship varies across categories. Inequality is largest in both absolute and relative terms for Antiinfectives for systemic use (ATC J, e.g., antibiotics) and for Antineoplastic and immunomodulating agents (ATC L). We find substantial inequality for Alimentary tract and metabolism (ATC A, mostly prescription drugs used to treat diabetes) and for Cardiovascular system medications (ATC C, mostly anti-hypertension and cholesterol medications). We find moderate inequality in both absolute and relative terms for Musculo-skeletal system (ATC M), Nervous

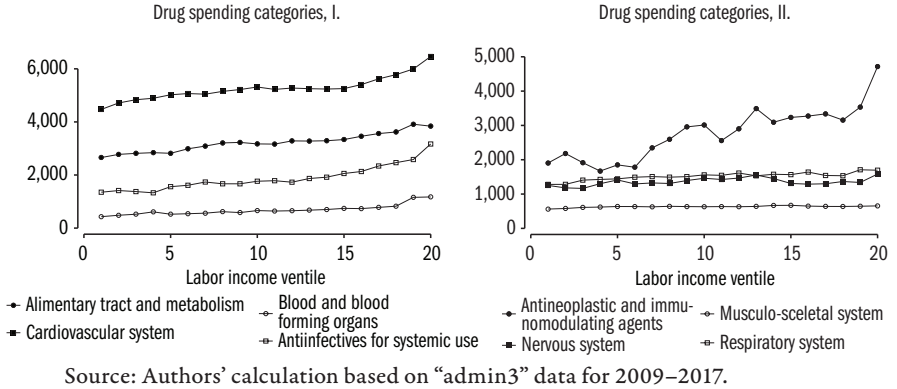
system (ATC N, including antidepressants and anxioliytics) and respiratory system (ATC R) drugs. Spending on Blood and blood forming organs medications (ATC B) is relatively low but the difference between the bottom and top ventiles is more than two-fold.

Figure 3.1.2: Annual indicators by ventile of labor income (adjusted for age, gender, and calendar year)



Source: Authors' calculation based on "admin3" data for 2009–2017.

Figure 3.1.3: Annual prescription drug spending by labor income ventile and therapeutic group (adjusted for age, gender, and calendar year)



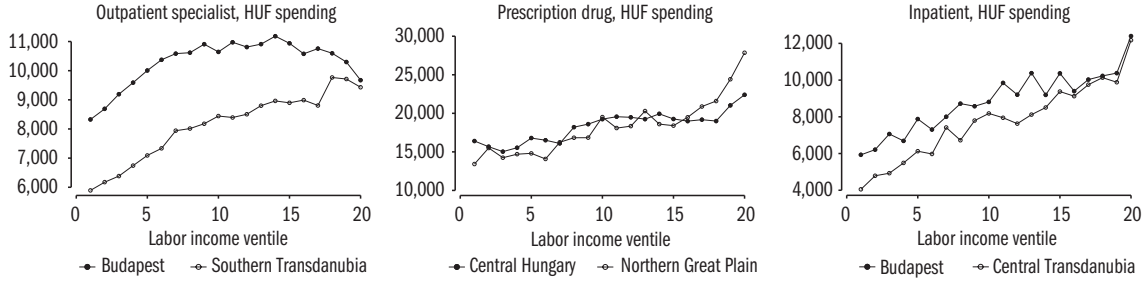
Source: Authors' calculation based on "admin3" data for 2009–2017.

Further calculations also show that inequality by income is not only present for prescription drug spending but also for the likelihood of having any spending, though this inequality also varies across therapeutic groups. When examining the likelihood of taking any prescriptions, we use a binary indicator for whether individuals falling in a particular income ventile used any drug in a therapeutic group (yes/no). For example, for cardiovascular drugs there is a 3% (0.1 percentage point) difference in the likelihood of taking any drugs between the bottom and top income ventile, while for alimentary tract and metabolism medications the difference is 18% (2.6 percentage points), and for respiratory system drugs it is 60% (6.2 percentage points). Overall, we find a positive relationship between income and both the likelihood of taking any drugs and drug spending.

Geographic dimensions of healthcare spending inequality

So far we have demonstrated that among workers, there is substantial geographic and income-related inequality in healthcare spending. One can also examine whether inequality by income is different across different geographic regions. *Figure 3.1.4* shows the relationship between healthcare spending and labor income in different regions. In each figure we show the most and least equal region for the particular indicator, defining income ventiles at the national level. The figure suggests that there is substantial within-region inequality in healthcare spending by labor income and that the degree of inequality varies across regions. For specialist outpatient care, the national difference is 42% between the lowest and highest income ventiles; in the most equal – Budapest –, the difference is 16%, while in the least equal – Southern Transdanubia –, it is 60%. For prescription drugs, the national difference is 70%; in the most equal – Central Hungary –, the difference is 36%, while in the least equal – Northern Great Plain –, it is 107%. For inpatient spending, the national difference is 244%; in the most equal – Budapest – the difference is two-fold, while in the least equal – Central Transdanubia –, it is three-fold.

Figure 3.1.4: Inequality by labor income in different regions (adjusted for age, gender, and calendar year)



Source: Authors' calculation based on "admin3" data for 2009–2017.

Association of health status and labor income

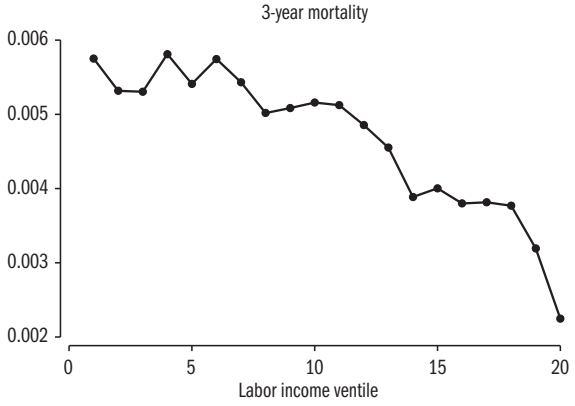
It is difficult to analyze the true health status of workers using our administrative data. Perhaps the easiest-to-examine and most reliable measure is mortality. *Figure 3.1.5* shows 3-year mortality by ventile of labor income. It suggests that higher-income individuals have lower mortality, and consequently they are likely to be healthier – the difference between the top and the bottom ventiles is almost three-fold.

Conclusion

Our analysis suggests that although in Hungary everyone has nominal access to social security-funded healthcare, regardless of income or geographic location, there are substantial inequalities in healthcare use between geographic regions and income groups. Among the working population, higher-income

groups use more care: they have higher inpatient spending, specialist outpatient spending, and prescription drug spending. The degree of inequality by income differs across regions. We also find that that while higher-income individuals use more care they are also healthier; for example, their mortality is lower. In this subchapter, we did not directly examine access to care, though it is likely that inequalities in healthcare spending are related to inequalities in access to care, as *Subchapter 2.1* discusses in more detail.

Figure 3.1.5: 3-year mortality by labor income ventile



Source: Authors' calculation based on "admin3" data for 2009–2017.

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3.2 FIRM CHARACTERISTICS AND HEALTH

MÁRTA BISZTRAY, ANIKÓ BÍRÓ & DÁNIEL PRINZ

In this subchapter we examine the relationship of health and firm characteristics, primarily ownership. The administrative labor market and health data prepared by the Databank of the Centre for Economic and Regional Studies make this analysis possible for the first time in Hungary. This data contains health indicators, employment history, and information on employers and firms.[1] The relationship between firm characteristics and health status runs both ways: individuals' health status influences their type of employment (*Madden,* 2004, *Pelkowski–Berger,* 2004), while the characteristics of employers and employment conditions influence health (*Fletcher et al.*, 2011). We focus on associations, rather than identifying causal relationships, our analysis is primarily descriptive. In the second part of the subchapter, we move towards a more causal analysis, examining the consequences of health shocks by firm characteristics.

Health indicators at domestic and foreign companies

We divide firms into two groups based on foreign ownership share: we categorize firms with less than 50% foreign ownership as *domestic firms* and firms with more than 50% foreign ownership as *foreign firms*. Our results are based on data for years 2009–2017.

Our sample contains workers between ages 20 and 60 who were employed for at least 6 months in a year at the same firm, limiting to firms with at least 10 workers.[2] We adjust health indicators for year fixed effects. In addition, we report results that are also adjusted for age and gender.[3]

Prescription drug spending and inpatient hospital days

We first examine annual prescription drug spending (sum of social security and out-of-pocket spending) and annual inpatient hospital days.[4]

The left panel of *Figure 3.2.1* shows that the average prescription drug spending of workers of foreign firms is 20% lower than that of workers of domestic firms. This difference decreases considerably once we adjust for age and gender, with age playing a larger role. The right panel of *Figure 3.2.1* reveals a similar pattern for inpatient hospital days. For this category the relative difference between the workers of foreign and domestic firms persists after adjusting for age and gender. Inpatient hospital days likely capture more serious illness. Overall, we see that foreign firms employ younger and healthier workers.

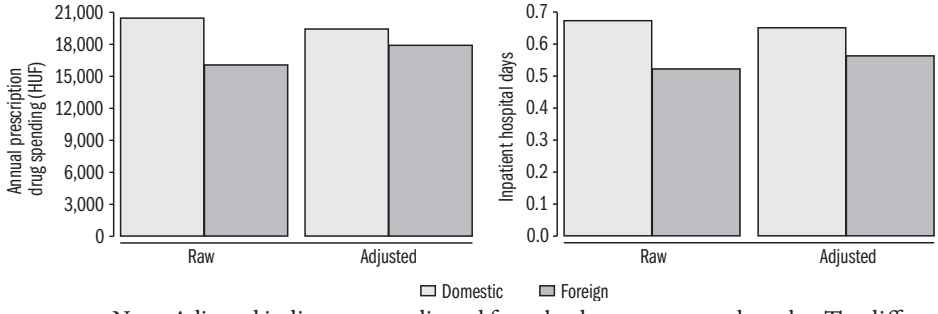
1 For a short description of the database, see the Appendix of the *In Focus* section. For more details, see *Sebők* (2019).

2 We exclude women receiving maternity payments, including the period during which they receive payments and the 12 months prior (approximately the period of pregnancy). We exclude companies where the majority of employees are categorized as public employees and also companies where there were more than 10 public employees in any year. Our goal with this exclusion is to focus on firms in the private sector that have at least 10 employees.

3 The key results are robust if in addition to calendar year, age, and gender we also adjust for industry (one-digit NACE code), firm size (in six bins), and occupation (one-digit ISCO code).

4 *Bíró–Elek* (2018) find that among healthcare spending categories, prescription drug spending is the most predictive of mortality. At the same time, among individuals with lower levels of prescription drug spending undiagnosed health problems can also occur, and these may be correlated with lower income.

Figure 3.2.1: Annual prescription drug spending and inpatient hospital days by firm ownership



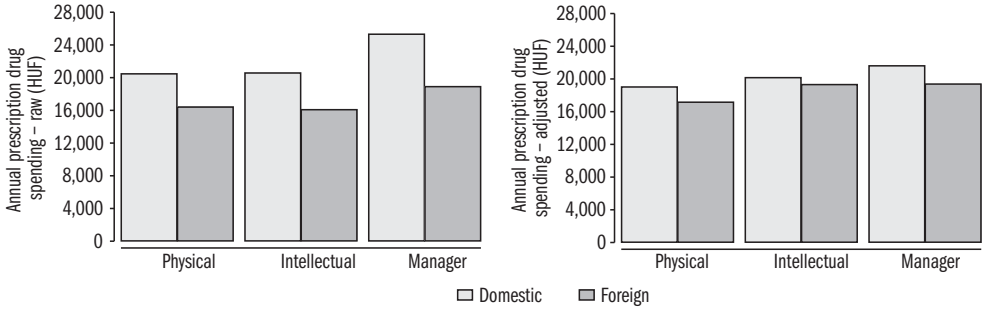
Note: Adjusted indicators are adjusted for calendar year, age, and gender. The differences between foreign and domestic companies are always significant at 99% level.
Source: Authors' calculation based on Admin3 data.

Prescription drug spending by occupation

Based on ISCO codes, we divide workers into two groups: physical and intellectual workers. Among intellectual workers, we separately examine managers.[5] *Figure 3.2.2* shows that average prescription drug spending is highest among managers in both domestic and foreign companies, even after adjusting for age and gender. Differences between intellectual and physical workers only emerge after adjustment, suggesting that age and gender composition is important. The difference between managers and other intellectual workers is larger at domestic companies than at foreign companies. It is important to emphasize that these patterns could mean that the health status of managers is worse or that for a given health status they are more likely to use prescription drugs – due to better access and stronger incentives to preserve their working capacity. This should be recognized when we interpret differences in prescription drug spending.

5 We categorize ISCO 1–4 as intellectual work and ISCO 5–9 as physical work. We categorize ISCO 1 as managers.

Figure 3.2.2: Annual prescription drug spending by ownership and occupation



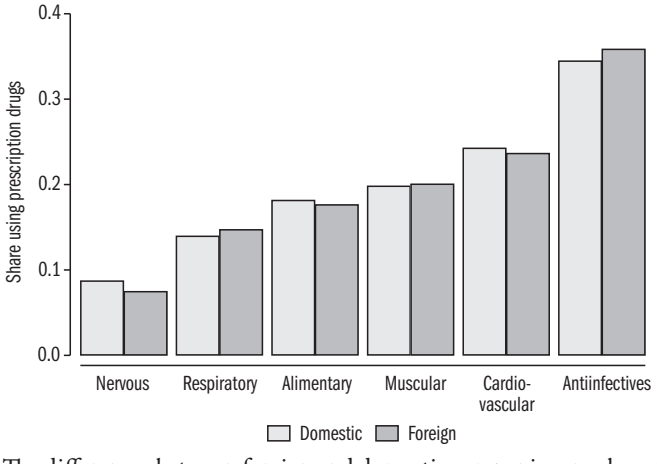
Note: Adjusted indicators are adjusted for calendar year, age, and gender. The differences between foreign and domestic companies are always significant at 99% level.
Source: Authors' calculation based on Admin3 data.

Figure 3.2.2 also shows that while using raw data, prescription drug spending is lower among the workers of a foreign firm in all three occupational groups, using adjusted indicators this difference substantially decreases, remaining the largest (10%) among physical workers. If we assume that access to care and health preferences are similar among workers of foreign and domestic companies, this result suggests that at foreign companies, physical workers are of better health. Further research is needed to understand whether this is a consequence of selection or of different working conditions.

Prescription drug spending by therapeutic categories

We examine six therapeutic categories based on the active ingredients of prescription drugs consumed. We categorize an individual as a user of a particular therapeutic category if they had any prescriptions in that category in a given year. The six categories examined are Alimentary Tract and Metabolism (ATC A, mostly antidiabetic drugs), Cardiovascular System (ATC C, mostly anti-hypertensives and cholesterol-lowering medications), Antiinfectives for Systemic Use (ATC J, mostly antibiotics), Musculo-skeletal System (ATC M), Nervous System (ATC N, including antidepressants and tranquilizers), and Respiratory System (ATC R) diseases. *Figure 3.2.3* shows the share of workers using drugs from each group, adjusting for calendar year, age, and gender.

Figure 3.2.3: Share using prescription drugs by category and firm ownership, adjusted for calendar year, age, and gender



Note: The differences between foreign and domestic companies are always significant at 99% level.
Source: Authors' calculation based on Admin3 data.

In line with *Figure 3.2.1* this figure also shows that adjusted indicators show only small differences between firm types. Prescription drug use in the Nervous System category is 6% lower at foreign firms. For Anti-infectives for Systemic Use and Respiratory System drugs this pattern is reversed, after adjust-

ment they are 3% and 7% more likely to be used at foreign firms, though the absolute difference is small, below 1 percentage point.[6] The latter categories contain drugs that are typically prescribed for infectious diseases, suggesting that these patterns are consistent with the hypothesis that conditional on being sick, workers of foreign companies are more likely to use prescription drugs.

Consequences of health shocks

Finally, we examine the probability of remaining in the workforce and remaining at the same firm in the year following a health shock. We define health shock as having prescription drug spending in the top decile of the distribution in a given year, such that in the preceding two year period it was lower than the top quartile. We categorize individuals as remaining in the workforce if they are employed for at least one month in the calendar year following the health shock. We categorize an individual as remaining at the same firm if they work at the same firm in the year preceding and following the health shock and as not remaining at the firm if they were working during the year preceding the health shock but not working in the year following the health shock or work at a different firm. We estimate fixed effects regressions, where the dependent variable is either working in the year following the health shock or working at the same firm in the year following a health shock, the main explanatory variable is the interaction of the presence of a health shock and firm type, and control variables include age, calendar year, and individual fixed effects.

Table 3.2.1 suggests that among those who worked at a domestic firm in the year before the health shock, the health shock decreases the probability of remaining in the workforce by 5.1 percentage points. Among workers of foreign firms this negative effect is 2 percentage points lower at 3.1 percentage points.

Table 3.2.1: The impact of health shocks on employment by firm type (linear probability model with fixed effects)

	Working	Working at the same firm
Firm type (reference group: domestic)		
Foreign	–0.0008	0.0815***
	(0.0007)	(0.0011)
Health shock	–0.0512***	–0.0338***
	(0.0020)	(0.0031)
Health shock × foreign firm	0.0200***	0.0265***
	(0.0033)	(0.0056)
Age, year, and individual fixed effect	yes	yes
Observations	5,870,079	5,870,079
Individuals	1,573,657	1,573,657

Note: Robust standard errors in parentheses. Sample average share remaining in the workforce 92%, sample average share remaining at the same firm 57%.
*** 1 percent, ** 5 percent, * 10 percent level significance.
Source: Authors' calculation based on Admin3 data.

6 Differences by ownership disappear completely for Respiratory System and Antiinfectives for Systemic Use drugs, and reverse for Musculo-skeletal System drugs if in addition to calendar year, age, and gender, we also adjust for occupation (one-digit ISCO), industry (one-digit NACE), and firm size.

The second column of the table shows that health shocks decrease the probability of remaining at the same firm by 3.4 percentage points at domestic firms, partly due to becoming unemployed or inactive, partly due to changing employers (moving to a company more accommodating of sickness). This estimate is lower – by less than 1 percentage point – among workers of foreign firms. Further calculations show that if we include additional interactions between health shocks with gender, age (as a continuous variable), and occupation (physical or intellectual) then the sign of the foreign firm coefficient remains the same but its size decreases. In this model, working at a foreign company decreases the impact of a health shock on remaining in the workforce by 1 percentage point (p-value 0.006). The impact of a health shock on remaining at the same firm is decreased by 1.3 percentage point (p-value 0.056) at foreign firms. It is possible that the difference between foreign and domestic firms is caused by higher average wage or better working conditions, but further research is needed to understand these explanations more precisely.

These results are robust under alternative definitions of health shocks: if we define health shocks requiring healthcare spending to be below the top decile (instead of top quartile) in the preceding year or if we only count two years in the top decile as a shock. It is important to emphasize, that our results count someone as working if they are on extended sick leave, and our interpretation assumes that there are no important differences in the types of health shocks experienced by workers at different types of firms.

Conclusion

Matched employer-employee (admin3) data shows that in the 2009–2017 period we can observe systematic differences in the health indicators of workers at domestic and foreign firms. The workers of foreign firms are on average healthier based on prescription drug spending and inpatient hospital days, but a large share of these differences is explained by compositional differences, in particular the employment of younger workers by foreign firms. Examining types of prescription drugs, controlling for compositional differences by age and gender, we uncover some evidence of the selection of healthier workers by foreign firms, although we see results reverse for Anti-infectives for Systemic Use and Respiratory System drugs. Finally, our regression analysis shows that following a health shock workers of foreign firms are more likely to continue working and remain at the same firm.

Our results suggest that health status is associated with type of employment. Healthier (and younger) individuals work at firms offering higher pay and better working conditions, contributing to health inequality by income. At the same time, we also see that following the deterioration of health, remaining in the workforce and at the same firm is more common at foreign firms, sug-

gesting that the impact of health status on joining a company is larger than the impact of remaining at a firm.

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3.3 ACCIDENTS AT WORK

JÁNOS KÖLLŐ & ZSUZSANNA SINKA-GRÓSZ

The European Commission estimates that someone dies in every three and a half minutes for work-related reasons in the European Union and more than three million suffer a serious injury at work – resulting in at least four days of absence from work (*EB,* 2008). In Hungary, there were two fatal accidents and 640 serious accidents per one-hundred thousand employees in 2017, as shown in the last row of *Table 3.3.1*.

Table 3.3.1: Work accident rates per one-hundred thousand employees in the EU, 2017

	Fatal		Non-fatal, serious[a]	
The highest	4.49	Romania	3,396	France
The second highest	3.40	Bulgaria	2,848	Portugal
...	...	...	...	...
The second lowest	0.54	Cyprus	84	Romania
The lowest	0.45	Malta	82	Bulgaria
EU27 average	1.79		1,704	
Hungary	2.01		640	

[a] Accident resulting in at least four days of absence from work.
Source: *Eurostat* (2019).

Table 3.3.1 also highlights that it is impossible to give a precise picture of incidence rates across countries. Fatal accidents in the highest-ranking Romania are over ten times more likely and in Bulgaria nine times more likely to occur than in the seemingly safest Malta. However, the incidence of serious, non-fatal accidents is the lowest in Romania and Bulgaria: only two to three per cent (!) of the incidence rate in the highest-ranking France.

Differences in the *actual* incidence rates of accident at work between countries depend on several factors: the type of work and technology, the sectoral composition of the economy, the stringency of accident prevention regulations and compliance monitoring as well as the compliant or negligent behaviour of employees and employers. In terms of *observed* incidence rates, the proportion of accidents reported (strongly depending on the balance of power) and how victims are compensated by the welfare system are just as important. In countries with high non-fatal incidence rates, victims are offered a significant compensation at the expense of a specific work accident insurance (*insurance based accident reporting systems*). In other countries, including most of Eastern Europe, victims are covered by the general social security system (*legal obligation systems*) and may claim compensation from their employer, which strongly reduces the willingness of enterprises and institutions to report accidents (*Eurostat,* 2019). The strikingly different ranking of Bulgaria and Romania

in the statistics of non-fatal and fatal accidents, which are more difficult to avoid reporting, is probably due to this.

In view of the above, it is more relevant to compare workplace accidents over time within a country. As seen in *Table 3.2.2*, in Hungary there were 50–100 fatal and 14–22 thousand non-fatal accidents reported annually over the period. Data for the former displayed a significant decrease over 2009–2013, followed by a slight increase. (Chance may have been a significant factor in that because of the low number of accidents). After 2014, the number of reported cases stabilised at about 70–80 annually. The number of non-fatal accidents reported increased from 14–17 thousand a year to 20–22 thousand a year over 2015–2018.

Table 3.3.2: Work accident rates per one-hundred thousand employees in Hungary, 2009–2018

Year	Fatal	Non-fatal, serious[a]	Year	Fatal	Non-fatal, serious[a]
2009	91	15,326	2014	74	15,918
2010	89	16,326	2015	81	17,013
2011	75	14,277	2016	75	22,429
2012	60	16,717	2017	76	20,858
2013	50	15,401	2018	71	19,580

[a] Accident resulting in at least four days of absence from work.
Source: *Eurostat* (2019).

The differences between incidence rates in Hungarian sectors and types of businesses are also distorted by differences in willingness to report, similarly to international comparison. As shown in *Table 3.3.3*, the *construction sector* accounts for more than one-quarter of fatal accidents; however, its share in the total number of accidents is less than four per cent. A similar imbalance is seen in *agriculture* and to some extent *transport,* while the opposite is seen in manufacturing which accounts for 40 per cent of all reported accidents and only 15 per cent of fatal accidents in the period 2011–2017. Similarly, while the share of *enterprises with a headcount of less than ten* report more than 40 per cent of fatal accidents, they only account for 9 per cent of all reported accidents.

The data reveal that the likelihood of reporting non-fatal accidents is considerably below the average in construction, agriculture, transport and in general at small enterprises and that this has a major impact on the total incident rate at national level. Economy-wide risk cannot be judged and the differences in risks across sectors or occupations may only be inferred from the incidence rates of fatal accidents.

The ESAW (*European Statistics on Accidents at Work*) database we used – the microdata of which is collected by the Department of Occupational Safety of the Ministry for Innovation and Technology and was made available for us by the Central Statistical Office (CSO) with the permission of the Ministry – only includes accidents and not the number of cases per person or per hours worked in the various sectors or occupations. Therefore we calculated the number of

working days in occupations, sectors and size of enterprise from the 2011–2017 data of the Admin3 database[1] compiled by the Centre for Economic and Regional Studies (CERS) and expressed the number of fatal accidents in these categories in relation to that.[2] The rates are shown in the three parts of *Figure 3.3.1*.

1 The brief description of the database is included in the Annex of *In Focus* and in more detail in *Sebők* (2019).

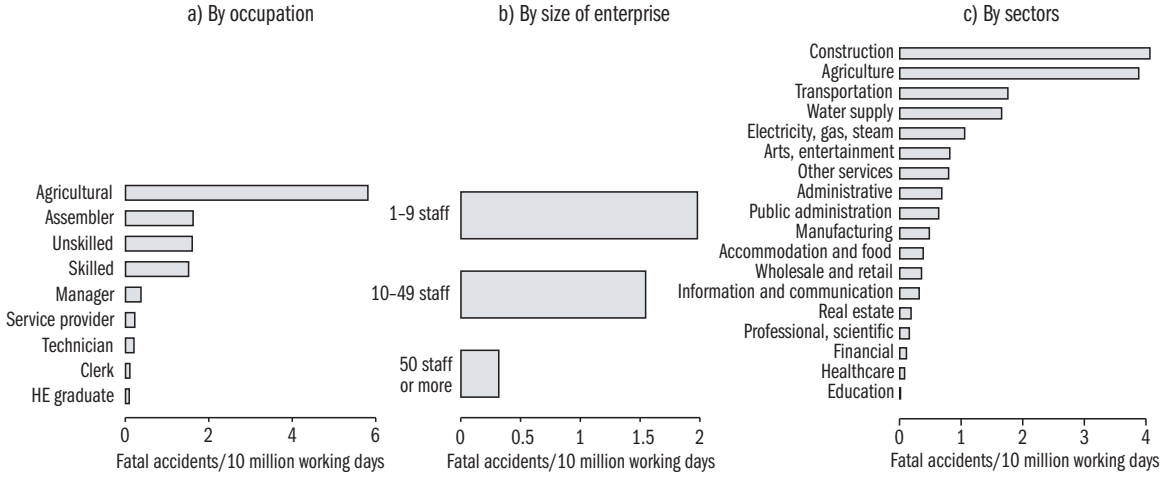
2 The calculations were made in the CSO–CERS research lab.

Table 3.3.3: The share of sectors and size of enterprises in total and fatal accidents, 2011–2017

	Share (percentage)	
	in fatal accidents	in total accidents
Sectors		
Construction	25.4	3.9
Transportation and storage	16.4	12.9
Manufacturing	15.1	37.2
Agriculture and fishing	14.4	3.5
Trade	6.6	11.8
Other sectors	22.1	30.7
Total	100.0	100.0
Enterprises with a headcount of		
1–9	40.6	9.0
10–49	32.8	24.7
50–249	15.9	33.5
250–499	4.0	11.4
500 or more	6.4	21.3
Unknown	0.3	0.1
Total	100.0	100.0

Number of cases: 161,659 accidents, of which 603 fatal
Source: *ESAW* database.

Figure 3.3.1: Incidence of fatal accidents in 2011–2017, per 10 million working days



Source: Authors' calculations based on the *ESAW* and Admin3 databases.

As for the victims of fatal accidents, 95 per cent of them are male and 41 per cent of them are older than fifty, while only slightly more than a quarter of employees fall into this category according to the Labour Force Survey of the CSO.[3] 69 per cent of victims had the accident at a temporary place of work (i.e. not in a familiar work environment) and 40 per cent of them had it on the way (but only 11 per cent on road). The latter reveals that an unknown and changeable environment is a significant risk factor.

The time of absence from work resulting from accidents reported may only roughly be calculated (and obviously underestimated) "on the back of an envelope". Supposing that the same proportion of absence that started in year $t - 1$ extends into year t as that of year t into year $t + 1$ implying a kind of steady-state, calculations based on ESAW data from 2016 may be made as follows.

We assumed that all accidents occur on 1 January. The number of fatal accidents were known: they were included with an absence of 365 days. In the case of absences of more than six months we assumed a six-month duration as the low-end estimate and a 12-month duration as a high-end estimate, while absences with unknown duration were included as the average of those with a known duration. The total number of insured days were assumed to be 4.2 million times 365 days. Based on this calculation, the rate of working days lost due to accidents at work is between 0.12 and 0.16 per cent and is definitely lower than 1 per cent even if accounting for latency. These figures are not high: the sad significance of workplace accidents lies not in direct financial loss but in the trauma suffered by victims and their families and the possible long-term health damage (of unknown duration).

3 In Q3 2018 it was for example 28.5 per cent.

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K3.1 Accident risk and wages – theoretical considerations

JÁNOS KÖLLŐ

Most people would offer all their possessions to avoid an *almost certain* death. We would also spend a lot of money and time to prevent a *highly likely* accident. However, in our everyday decisions, when these risks seem smaller and more distant, we tend to take risks that we would be able to mitigate or effectively prevent at some financial expense. When we make financial sacrifices to preserve our health or accept financial advantages in exchange for minor or major health or death risks, we implicitly put a price on our life and health whether admitting it or not. (For a more detailed and comprehensive description of this trade-off, see for example *Ashenfelter–Greenstone,* 2004b).

Take two firms, both with a thousand employees who have identical characteristics and do the same job. At firm *A* the probability of a fatal accident within a year is nearly zero ($p \gg 0$), while at firm *B* it is $p + 0{,}001$. The employees of firm *B* accept this additional risk for higher wages: whereas employees of firm *A* earn HUF *w* annually, employees at firm *B* earn HUF $w + 6600$. In other words, workers at firm *B* accept the one-thousandth higher risk in exchange for a premium of HUF 6600 – for the fact that one of them almost certainly dies each year. In total, the one thousand employees accept HUF 6.6 million for an annual fatality: according to their not necessarily conscious judgement reflected in their choice this is the value of a life. It is highly likely that the employees of firm *B* would not give this as an answer for the question "How much do you think a life is worth?" if they talked to you at all after hearing such a question. However, this is the judgement reflected in the preferences revealed by their decision, under certain circumstances.[1]

What are the circumstances? "Compensatory wage differences", reflecting differences in accident risks, can only evolve if workers are aware of the existence and extent of workplace risks (for example 60–70 years ago they knew very little about the carcinogenic effect of asbestos or petroleum). It is equally important that employees can choose from low- and high-risk but otherwise similar workplaces freely, aware of health risks and based on their risk preferences.[2] Another prerequisite is that the staff or institution deciding about wages appropriately assess the risk preferences of the typical member of the targeted segment of the labour force. It is disputed and needs thorough analysis to what extent these conditions exist in the various labour markets.

In a purely competitive economy, with well-informed and freely deciding actors, a specific balance is established between accident risk and wages. Individuals are different in assessing risk and wages and firms differ as to what costs they incur to reduce accident risks. Where these costs are high, it is worthwhile for firms to offer well-paid but high-risk jobs and where they are low, the offer of less risky but worse-paying firms is more competitive. The balance implies that risk averse employees find worse-paying but less risky vacancies more attractive and these are offered by firms that can mitigate risks at a low cost. Less risk averse employees prefer well-paid but high-risk jobs and these are offered by firms that would only be able to mitigate accident risks at very high costs. Ideally, a "wage–risk balance price curve" develops, which provides a range of equally favourable and feasible salary offers for heterogeneous employers and employees.

1 The labour economics textbook by *Borjas* (2009) uses a similar example to illustrate the notion of "statistical value of a life" *Borjas* (2009).

2 The time of learning about the risks is not crucial for *the development of compensatory wage differences*. The decrease in the number of applicants or the increasing number of those quitting may also force an employer to raise wages if staff turnover is costly for them. Obviously, from the point of view of individuals it is quite a difference whether they are informed about the risks before or after joining the firm.

The empirical analysis of these associations is particularly difficult (*Ashenfelter–Greenstone,* 2004a). It must be guaranteed that jobs differing in the extent of accident risk but similar in all other respects are compared and that the impact of workplace characteristics *generally considered* advantageous or disadvantageous on wages is included.[3] Consequently, it was only at the end of the twentieth century that significant research has started, when large and rich databases became accessible.

Several empirical studies have been conducted on the trade-off between accident risk and time saving valued at an average hourly wage (see *Bellavance et al,* 2009). The pioneering research of *Ashenfelter–Greenstone* (2004b), which explored the consequences of raising the speed limit in the United States, is a good example of the logic of this method. In the late 80's speed limit was raised for rural interstate roads in 38 states. The raise increased fatality rates per passenger-kilometre by 35 per cent but considerably reduced journey times. Based on the relationship of the two and traffic data, it was possible to estimate that every additional fatality saved 125,000 hours of journey time. Using the 12-dollar average hourly wage of the time, savings were estimated to be 1.5 million dollars per fatality: this is considered the value of a *statistical* life in the decision concerned.[4]

Estimates adopting similar logic have also been undertaken in Hungary about the trade-off between workplace accident risks and wages by *Adorján* (2001) and *Kaderják et al* (2005). The latter study included estimation based on 456 fatal and 90,673 non-fatal workplace accidents from the period 1994–1996. The time and location of the accidents, broken down by sector, occupation and firm, was also known. The authors estimated wage equations using explanatory variables measuring risk among others and found that a one-thousandth higher risk of fatality resulted in 20–25-months' and a one-thousandth higher risk of non-fatal accident in 1 months' of additional lifetime earnings. According to this estimate, the value of a statistical life was equal to HUF 13–44 million (HUF 78–264 million at current prices), while the price of preventing an accident was HUF 540–640 thousand (HUF 3.2–3.8 million at current prices). (More recent assessment of workplace accidents broken down by occupation, size of employer and sector is presented in *Subchapter 3.3.*)

Handling the Covid-19 pandemic, rampant both in Hungary and abroad at the time of writing the Subchapter, is a good example of a similar logic behind government decisions. Hungary restrained the number of serious cases within hospital capacities at great economic costs in the first wave. In the second wave, until the submission of this manuscript, the government refused to adopt measures which are significantly detrimental to economic performance, consciously acknowledging that it results in numerous fatalities avoidable at greater economic costs.

3 The importance of workplace attributes is subjective: for example some like to work indoors, at a permanent location, while others prefer to work outdoors and constantly on the move.

4 Adopting the difference-in-differences method, authors compared data from before and after the introduction of the measure in states raising and those not raising the speed limit.

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K3.2 The effect of the smoking ban on the newborns of women working in the hospitality sector

TAMÁS HAJDU & GÁBOR HAJDU

Numerous diseases and a significant proportion of avoidable deaths can be linked to smoking, both globally (*GBD 2015 Tobacco Collaborators*, 2017) and in Hungary (*Wéber*, 2016). This creates a notable level of healthcare expenditure (*Gresz et al*, 2012). Thus, among the public policy measures intending to promote a healthier lifestyle, the measures aimed at discouraging smoking are of highlighted importance. In this piece we are presenting an example of the possibility that public policy measures pertaining to the workplace environment and regulating smoking may have a sizeable positive impact on health.

In Hungary, as a result of the tightening of Act XLII of 1999 on the protection of non-smokers that came into effect in 2012, smoking was banned in workplaces, public institutions, and public means of transportation, among others. The biggest changes occurred in catering establishments and pubs, which formerly, in the absence of considerable statutory restrictions, enjoyed a rare exemption from the smoking ban (*Tárnoki et al*, 2009).

Using micro data sets of the HCSO on live births, fetal losses, and infant deaths, we examined how the smoking ban influenced the health of the newborns of women working in restaurants and drinking establishments (*Hajdu–Hajdu*, 2018). We used the difference in differences method for the analysis. We compared the changes in the health indicators of the newborns of women working either as waitresses or servers that occurred between the periods prior to and following the tightening of the law (a two-year period in total) to the similar data of a control group. The control group was comprised of the newborns of women working in the commercial and service sectors (such as shop attendants, cashiers, hairdressers, beauticians). In the latter group, mothers had typically worked in smoke-free workplace environments during their pregnancies already before the change in legislation, and not only after it, but they did not differ significantly from the women working in catering establishments in their other characteristics.

According to our findings, the smoking ban caused a significant improvement in the health of the newborns of women working at catering establishments. As a result of the change in legislation, the average birth weight increased (by 55 grams), and the rates of low birth weight newborns (under 2500 grams) and premature births decreased (by approximately 2 percentage points each). Favourable changes can be seen in other health indicators as well. The estimated effects are similar to the effects of restrictive measures on smoking measured in other countries (see *Bharadwaj et al*, 2014).

The introduction of the smoking ban may improve newborn health by way of two main mechanisms. On the one hand, it may motivate women smokers to quit smoking. On the other hand, the workplace environment becomes smoke-free as a result of the ban, and thus, passive smoking is decreased. The databases used do not contain any information about smoking habits, therefore we were unable to investigate the significance of these two factors directly, but we found bigger effects for the newborns of women who had no secondary school diploma – who, according to surveys, are smokers in higher proportions. (*Tombor et al*, 2011). These facts indicate that the ban may have caused an improvement in indicators of health at birth by way of causing a change in the smoking habits of the women in question.

In conclusion, our findings show that the smoking ban introduced in catering establishments and pubs had a favourable effect on the indicators of health at birth of the newborns of women working at such locations.

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3.4 THE INCENTIVE EFFECTS OF SICKNESS ABSENCE COMPENSATION

MÁRTON CSILLAG, KINGA MARCZELL & LILI MÁRK

While labour economists have studied the behavioural effects of unemployment insurance benefits in depth, research on the labour market effects of insurance-based monetary compensation for (long-term) ill health (such as long-term sickness absence compensation or temporary disability benefits) only started 20 years ago. During the same period, the take-up of, and public spending on, such benefits have increased significantly, and the total spending on such benefits regularly exceeds the outlay on unemployment benefits.[1] Simultaneously, in a number of countries the behavioural requirements for UI benefits have been made stricter, and in many cases sickness absence compensation is significantly higher than unemployment benefits. Hence, the question is to what extent is the use of sickness absence compensation unwarranted, and how can those individuals affected be incentivised to return to work as quickly as possible after their health has recovered?

Changes in sickness absence compensation and the number of days spent on long-term sickness leave (2015–2019)

The role of sickness absence on the labour market in Hungary is more limited, and since the second half of the 1990s the proportion of eligible workers on sickness leave, and the total number of days on (long-term) sickness benefit was relatively low, and hence the public spending on this benefit amounted to roughly 0.4 percent of the GDP. Despite these low numbers, and largely for budgetary reasons, the generosity of (long-term) sickness benefits was cut in several steps and in different ways between 2009 and 2011.[2] As a result, Hungary is among the least generous among the EU member states (*Spasova et al*, 2016).

These changes in rules governing sickness absence compensations made it possible for researchers to study the incentive effect of the design of benefits. The changes affected three key parameters. First, starting in 2009 the *replacement rate* of the sickness benefit was reduced to 60 percent from the prior 70 percent of earnings. Second, a *maximum* for (daily) sickness benefits was introduced in May 2009 (this amounted to four times the daily minimum wages), and in May of 2011 this upper threshold was cut to half its previous value. Third, the length of '*passive sickness benefits*' – which is a sickness compensation a person could receive even after their insurance (employment spell) has ended (in the event that they applied for sickness benefit within 3 days following the end of the employment relationship) – was shortened in several

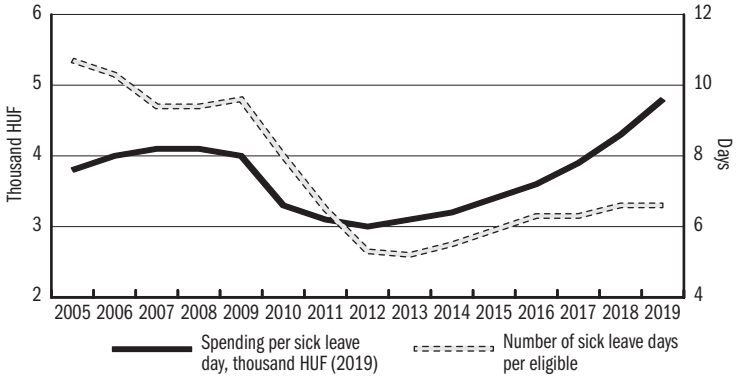
1 The prime example for this is Norway where the spending on sickness-related benefits amounts to 2.5 percent of GDP (which is more than triple the spending on unemployment-related benefits), but – for instance – in Germany and the Netherlands spending on sickness benefits is around 1.5 percent of GDP. Source: Eurostat [spr_exp_fsi].

2 For more details, see: KSH (2014).

steps. Until 2009,[3] the maximum duration of the benefits was 90 days, which was cut to 45 days in 2007, to 30 days in 2009, and finally, 'passive sickness benefits' were abolished in 2011.[4]

It is likely that the aggregate number of days spent on sick leave and the total compensation was primarily driven by these changes in regulations. As can be easily seen in *Figure 3.4.1,* following the curbing of the generosity of benefits between 2009–2011, the number of days spent on sick leave dropped (by more than 40 percent), and the spending per sick day also decreased (by close to 25 percent).[5] Besides these factors, it is clear that spending per sick day is driven by changes in real wages; while the number of days spent on sick leave is influenced by the economic cycle, it follows a pro-cyclical pattern.

Figure 3.4.1: Number of sick leave days per eligible person (right scale) and costs per sick leave days (left scale)



Source: *KSH* Stadat, 2.5.19. Health insurance, sick leave.

The incentive effect of sick pay

Csillag (2019) analysed whether the cuts in long-term sick pay incentivised sick workers to return to work quickly.[6] The main issue is that the income while on sick leave (the sick pay) and the financial payoff to returning to work (wages) are highly positively correlated, since sick pay is typically equal to a fixed proportion of labour income. Thus, *Csillag* (2019) uses the drastic cut of the maximum sickness benefit as a natural experiment. He compares the evolution of sick leave days of persons who had earnings slightly lower than the 2011 maximum sick pay with two groups: 1) those who had earnings higher than the 2011 maximum sick pay, but lower than the 2009 threshold; and 2) those with the highest earnings, who were already affected by the 2009 maximum threshold.[7] While the 2011 legislation left the replacement rate of the sick pay in the first (control) group unchanged between 2010 and 2011; the (average) replacement rate fell from 60 to 30 percent in the second group; and it was cut in half (from 42 to 21 percent) in the highest earnings group.

3 Earlier, between 1997 – 2003 the maximum duration of passive sickness benefits was 180 days, it was decreased to 90 days in 2004.

4 In most EU member states the insured unemployed are eligible for some kind of sickness benefits (*Spasova et al.,* 2016).

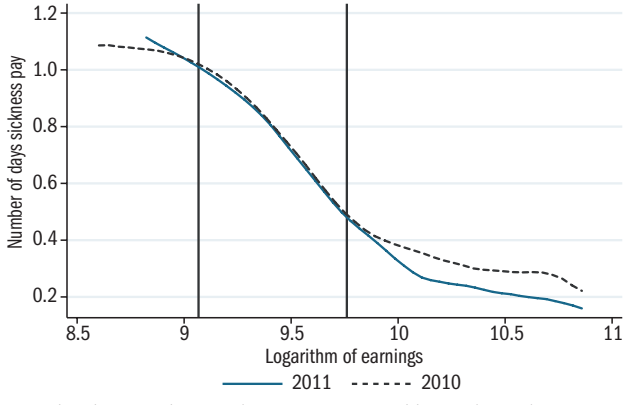
5 As a result of these changes, while in 2009 spending on sickness benefits amounted to 0.38 percent of GDP, in 2012 spending was ony 0.19 percent of GDP.

6 While it seems straightforward that sick pay influences the length of sickness leave spells, there is a large range of results in the empirical literature. While *Böckermann et al*. (2019) find that in Finland, a 10 percent decrease in sick pay decreases the duration of sickness leave by about 10 percent, neither *Ziebarth* (2013) for Germany, nor *Bryso–Dale-Olsen* (2019) for Norway found any effect.

7 These values were the following (expressed in gross earnings in 2010): the maximum in 2009 was 520 thousand HUF, while the 2011 maximum was half of this. This threshold potentially affected only the highest earning 6 percent of male (full-time) employees, the 2011 maximum affected 23 percent.

The basic results of the analysis[8] can clearly be seen in *Figure 3.4.2:* while the number of sick leave days significantly decreased between 2010 and 2011 in the highest earnings group, in the medium and lower earnings group there was no change. The regression results confirm that the number of days spent on sick leave fell to half its value in the high earnings group; and the estimated elasticity of the number of days of sick leave to the sick pay is 0.45. In other words, if the sick pay is reduced by 10 percent, the number of days spent on sick leave is reduced by 4.5 percent.

Figure 3.4.2: The number of days spent on sick leave as a function of previous earnings, 2010, 2011



Note: Local polinomial smoothing. The vertical lines show the maximum benefit thresholds for 2009 and 2011.
Source: *Csillag* (2019).

The finding that sick workers do react to financial incentives leads to further questions. To what extent did sick workers remain on sickness benefit longer than which their health status strictly required prior to the sick pay cuts? Or is it the case that due to the sick pay cuts they return to work before full recovery, and as a result their own health deteriorates in the long term or they possibly infect their co-workers?[9] *Marczell* (2018) sought to answer these questions by estimating the effect of the decrease in sick leave days brought about by the sick pay cuts on health expenditures. Her hypothesis is that if the health expenditures of the sick workers (or their colleagues') increases due to the decrease in sick leave days, this is a sign that sick workers returned 'too early' to work. However in her empirical analysis, *Marczell* (2018) does not find a statistically significant relationship between the number of days spent on sick leave and (later) health expenditures.

The role of managers in sick leave take-up

Naturally, the number of days spent on sick leave is influenced not only by financial incentives, but also by corporate culture. *Marczell* (2018) found em-

8 *Csillag* (2019) used a sample of male employees between age 25–54, restricting the sample to those with a stable employment history and who were in the top 35 percentiles of the earnings distribution. The sample was bassed on the CERS Databank 'admin2' database, specifically using data from the second semester of 2010 and 2011.

9 *Csillag* (2019) only showed that those are the most sensitive to financial incentives who, in all likelihood, are not chronically ill.

pirical evidence supporting this hypothesis in the case of pregnant women. What influences sick leave in this group is a very important question, since the typical pregnant woman in Hungary spent 16 weeks on sickness leave between 2003–2011 (due to the pregnancy being considered 'high risk');[10] and spending extended periods out of work negatively affects later employment status of women according to the international literature. *Marczell* (2018) puts forward the hypothesis that managers who recently gave birth can induce pregnant employees to spend less time on sickness leave, likely by creating a more inclusive workplace. According to the author's results, pregnant employees spend on average 1.5 weeks less on sickness leave when working with such managers. It seems that 1) this is not simply due to having female managers; 2) it is not due to the sorting of women who are in better health working in more inclusive workplaces, and 3) there is no (long-term) adverse health effect of working longer for these women.[11]

Long-term sickness benefits or unemployment insurance benefit following job-loss?

Márk–Csillag (2020) analysed the outcomes of those sick employees who lost their jobs and were eligible for the 'passive sickness benefits'.[12] First, they looked at the role of financial incentives in claiming passive sickness benefits. They find that not only are variables proxying individuals' health (health spending in the recent past) correlated with the decision to claim passive sickness benefits, but also those with higher earnings (and working in the public sector) had a higher propensity to take up passive sickness benefits following job-loss. They find that those who got significantly higher monetary benefits from claiming passive sickness benefits rather than UI benefits (which was maximised at a relatively low value) had a 1 percentage point higher probability to take up the first type of benefit.

The authors' second question is: if a portion of eligible persons indeed used passive sickness benefits as a substitute for UI benefits, then did the radical cuts to the maximum length of the claiming period speed up return to work for sick jobseekers?[13] Looking at the labour market history of those claiming passive sickness benefits before and after the 2007 legislation change, *Márk–Csillag* (2020) found no statistically significant difference. More precisely, those workers who had low health spending prior to job-loss (who are likely to be healthier) had a higher probability to be re-employed immediately after the expiration of the claimed passive sickness benefits (after 45 days), but this difference between the claimants before and after the policy change disappeared by 90 days following job-loss. By contrast, the legislative change had no effect on the re-employment behaviour of those who are likely to be chronically ill. In other words, while it is true that some employees who lost their jobs claimed passive benefit due to financial (rather than health-related)

10 This finding relates to those employees who had stable employment patterns. The sample was composed of those eligible for maternity benefits, meaning that they worked at least 180 days in the two years prior to giving birth, and from May 1st 2010 they had to work at least 365 days out of the last two years. The analysis was based on the CERS Databank 'admin2' database.

11 *Marczell* (2018) had no data on the health of the newborn.

12 They used males aged 25–54, who worked as employees at firms with at least 100 employees. In their sample, roughly 3 percent of all job endings result in 'passive sickness benefit'.

13 The literature on the maximum duration of UI benefits clearly shows that longer potential duration leads to longer non-employment spells.

reasons, shortening the benefit duration did not lead to significantly quicker job finding on average. This is in line with the early literature on the effect of cutting the maximum duration of unemployment insurance benefits (see *Galasi–Nagy*, 2002).

Summary

The legislative changes concerning long-term sickness benefits in the past fifteen years led to a significant cut in its generosity. The papers analysing claiming behaviour of long-term sickness benefits all came to the conclusion that not only the person's health condition, but also financial incentives played a role. This was the case both for the number of days spent on long-term sickness benefits and the take-up of passive sickness benefits. The crucial question in future research projects ought to be whether sickness benefits are at such a low level that many people return to work before full recovery, or rather that the decrease in generosity led to the curbing of fraudulent claiming behaviour.

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K3.3 The effect of the development of outpatient health care services on workers – the example of a social infrastructure development project

MÁRTON CSILLAG & PÉTER ELEK

Investment in health care services can have indirect labour market effects, as the health status of local residents might improve leading to higher employability, as well as by decreasing the time spent on sick leave for those employed. We aim to measure these potential effects in the case of a development project funded by the European Union (Social Infrastructure Operative Project 2.1.2), whereby local outpatient units were established between 2010 and 2012 in twenty micro-regions which did not have such specialised services previously.[1] In previous papers (*Elek et al.*, 2015, 2019) we showed that, thanks to these investments, an additional 310 thousand persons could access outpatient care with a car ride of no more than 20 minutes, and as a result, the number of outpatient care visits increased by 19 percent. We also found results which point to positive health effects: the number of impatient stays decreased by 1.6 percent and potentially avoidable hospitalisation (PAH) decreased even more, by 5 percent. In this short piece, we look at the distribution of these effects across groups of the working age population defined by labour income; as well as estimating the effect of the investment on the number of days spent on long-term sick pay and on the employment probability. Similarly to our earlier papers, we compare the outcomes of individuals in the twenty micro regions affected by the development with those of control micro-regions which were matched on the basis of pre-treatment characteristics using propensity score matching.

We use the Admin3 database provided by the Databank of the Centre for Economic and Regional Studies [CERS (KRTK)], which contains labour market data for the years 2003–2017 and health care data for the years 2009–2017 for a 50 percent random sample of the Hungarian adult population.[2] In *Table K3.3.1*, we show the effect of the development for all persons aged 25–59, as well as effects separately for four groups of roughly equal size defined based on their average labour market incomes between 2007–2009. As a result of the investment, the number of outpatient care visits increased by 18–23 percent for the working age population, irrespective of labour incomes. By contrast, the increase in spending (in HUF) on outpatient care was more than 50 percent higher for individuals with no labour market income than for persons in the highest income category, which is due to the fact that the first group is in worse health, hence health spending in the baseline period was already much higher for them. We can observe some substitution between inpatient and outpatient services, as the probability of hospitalisation (more precisely: the odds of hospitalisation) decreased by 3 percent. The number of drug prescriptions and the number of visits to GPs also increased by a few percent, primarily for the groups with low labour income.

Our hypothesis is that if quality health care becomes accessible in a micro-region, then the health status of residents will improve and hence they will be out of work due to illness less (among those employed). We measured this by the number of days on long-term sick leave,[3] but we found no effects (see *Table K3.3.2*). We also estimated the potential effect on employment rate, which is relevant for three reasons. First: due to improvement in health condition, more persons can work. Second, if more persons work, then the pool of employed persons is less positively selected based on health status, hence estimated effects on sickness absence can be biased.

(*continued on page 134.*)

1 At the time of the infrastructural development, the 'subregion' administrative system was in place, this was changed to the 'district' system in 2012. We use the latter coding system, due to data availability.

2 See the Appendix to the 'In Focus' section for a detailed description of the database.

3 We only included individuals who worked at least three months in a given year in the sample.

Table K3.3.1: The effect of the establishment of new outpatient care units on different health care utilisation variables, by labour market income groups

	All age 25–59	Average monthly labour income in 2007–2009 (thousand HUF)			
		0	1–600	600–1320	1320+
Yearly totals (logarithm)					
Number of outpatient care visits	0.217***	0.231***	0.228***	0.221***	0.183***
	(0.0060)	(0.011)	(0.012)	(0.012)	(0.012)
Inpatient stay odds	-0.034**	-0.047*	-0.048*	0.018	-0.047
	(0.013)	(0.025)	(0.025)	(0.027)	(0.030)
Number of drug prescriptions	0.033***	0.037***	0.041***	0.031***	0.017*
	(0.0047)	(0.0083)	(0.0106)	(0.0093)	(0.0091)
Number of GP visits	0.025***	0.021***	0.041***	0.030***	0.0032
	(0.0035)	(0.0071)	(0.0074)	(0.0069)	(0.0068)
Yearly total spending (HUF)					
Outpatient spending	2433***	3165***	2361***	2305***	1905***
	(80)	(179)	(150)	(148)	(163)
Inpatient spending	-849	-2160	-1369	-768	716
	(604)	(1395)	(1,326)	(981)	(1117)
Spending on medications	-392	-944	385	-1408	552
	(690)	(1725)	(1165)	(1342)	(1257)
Number of observations	1,403,478	346,804	372,952	358,657	325,065
Number of individuals	249,358	68,510	68,235	59,201	53,412

Notes: Standard errors clustered at the individual level (except logit models).
Estimated models were fixed-effect Poisson for number of visits, fixed effects logit for probability of hospitalisation, fixed effects linear models for spending. Control variables: cubic function of age; calendar year, individual fixed effect. Sample: individuals aged 25–59 living in micro-regions with outpatient unit development and control micro-regions. Sample period: 2009–2015.
Significant at the *** 1 percent, ** 5 percent, * 10 percent levels.
Source: Own estimation based on the Admin3 database.

Table K3.3.2: The effect of the establishment of new outpatient care units on employment outcomes

	Number of days on long-term sick pay (log effect)	Employed for at least 3 months (log odds)	Number of days in insured employment (linear effect)
After the establishment	0.0059	-0.0189*	0.502
	(0.0205)	(0.0108)	(0.517)
Number of observations	508,531	372,952	1,820,493
Number of individuals	76,664	68,235	267,919

Notes: Standard errors clustered at the individual level (except logit models).
Estimated models were fixed-effect Poisson for number of days on sick leave, fixed effects logit for probability of employment, fixed effects linear model for number of days employed. Control variables: cubic function of age; calendar year, individual fixed effect. Sample: individuals aged 25–59 living in micro-regions with outpatient unit development and control micro-regions. The estimation for number of long-term sickness pay days was done on a sample which included those who were insured for at least 3 months in a given year. The number of observations differ across estimations since the logit model does not use those individuals whose outcome did not.
Sample period: 2009–2015.
Source: Own estimation based on the Admin3 database.

Third, the investment in health care infrastructure can lead to an increase in employment (irrespective of the population's health outcomes). We examine effects on two outcomes: the probability that a person worked for at least 3 months, and the total number of days in (insured) employment in a given year. We find no statistically significant effect on employment (see *Table K3.3.2*). In future work, we plan on estimating effects on employability for persons suffering from specific long-term health conditions.

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K3.4 Health of Central and Eastern European Migrants*

ANIKÓ BÍRÓ

I analysed the health level of migrants from Central and Eastern Europe and Turkey (CEE, broadly defined) living in Germany, and how their health changes during the years spent in Germany. On average, population health in CEE is worse than in Germany. After moving to Germany, the health behaviours and healthcare use of the migrants might change, possibly affecting their health status.

The data used in my analysis originate from the German Socio-economic Panel (SOEP) database. The German SOEP is an annual panel survey of a representative sample of households living in Germany. I used data from years 1984–2013. The data cover lots of different topics, including demographic, socio-economic and health indicators, the country of origin and the integration to the host country. The first SOEP sample oversampled households with a Turkish, Greek, Yugoslavian, Spanish or Italian household head, which then constituted the main groups of foreigners in Germany. The first wave included 1,393 immigrant households and 4,528 native households. An immigrant sample was added to the SOEP in 1994–1995. This additional sample of 531 households consisted of households in which at least one household member had moved from abroad to West Germany after 1984. Finally, in year 2013, a migration sample of around 2,700 households was added, each household containing at least one person who had either immigrated to Germany since 1994 or whose parents had done so.

First, I conducted a descriptive analysis of the differences in health status in 2013 by the country of origin. On average, except for Turkish migrants and except for the indicators related to being overweight, the migrants with origins in CEE have better health than the native population. The better health of the immigrants can be due to the so-called *healthy migrant effect*, which is widely documented in the related literature (*Antecol–Bedard*, 2006, *Janevic et al.,* 2011). According to the healthy migrant effect, healthy individuals are more likely to migrate from a sending country, thus the immigrants in the host country have typically above average health status.

Next, I analysed with the help of regression models, how the estimated relation between the country of origin and health changes if individual level factors are netted out (age, gender, marital status, education level, labour force status, earnings, German language skills). The health differences remain even

* This chapter summarises the main results of *Bíró* (2018).

after netting out the influence of these individual level factors (*Table K3.4.1*). For instance, someone originating from an "other CEE country" (which group includes Hungary) is on average 8.7 percentage points more likely to report better health than a native German respondent in 2013, controlling for the other individual characteristics.

Table K3.4.1: Health differences between migrant and native groups in 2013

	Health satisfaction (0 to 10)	Good health (0/1)
Country of origin	(1)	(2)
Turkey	0.412***	0.0676**
	(0.158)	(0.0315)
Ex-Yugoslavia	0.870***	0.105***
	(0.143)	(0.235)
Russia, Ukraine, Belarus	0.742***	0.0511*
	(0.126)	(0.0267)
Other CEE	0.698***	0.0872***
	(0.119)	(0.0250)
Individual level controls	yes	yes
Number of observations	19,384	19,395

Notes: Robust standard errors in parentheses. Column (1) shows linear regression model results, column (2) shows average marginal effects from probit regression. *** 1 percent, ** 5 percent, * 10 percent significance levels.
Source: *Bíró* (2018).

I did not find evidence that the health of the immigrant population would deteriorate faster than the health of the native German population.

Further results show that the health advantage of the CEE migrants can be observed primarily among those who found employment in Germany. The lack of integration (reporting disadvantages due to origin) and limited German knowledge eliminate the health benefit. Thus, in order for a migrant from CEE to report good well-being, it is necessary to be sufficiently integrated in German society.

Overall, my analysis shows that typically the healthier individuals migrate from the CEE countries to Germany. If migrants can achieve good socio-economic conditions in terms of employment, earnings, and lack of isolation, then they are unlikely to impose additional burden on the health system of the host country.

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4 THE HEALTHCARE SYSTEM AS EMPLOYER

4.1 THE HEALTH OF HEALTHCARE WORKERS

JÚLIA VARGA

There have been relatively few studies conducted on the state of health and health behaviour of healthcare workers in Hungary. The existing analyses are usually based on data from survey-based data collection (see, for example, *Rurik–Kalabay,* 2009, *Győrffy et al.,* 2012, *Terebessy et al.,* 2016). In this subchapter, we provide a descriptive analysis of the development between 2009 and 2017 of some of the indicators that demonstrate the health behaviour and state of health of physicians and nurses,[1] using the data of the Admin3 dataset compiled by the databank of the Centre for Economic and Regional Studies (KRTK).[2]

The upper part of *Table 4.1.1* shows the frequency of use of various healthcare services (general practitioner, outpatient care, laboratory testing), as well as the number of days spent in inpatient care by the members of the observed groups. The lower part of the table attempts to grasp the occurrence of certain chronic illnesses. It shows, by various groups, the rate of these groups that take medications belonging to certain medication categories on a regular basis, that is, what is the rate of those among them who purchase these medications at least four times per year. The data is presented by the following groups: the adult population of at least 24 years of age; those working in professions requiring a tertiary educational attainment;[3] physicians who are actively working, that is, those who were working as physicians at the time of the observation; the group of former physicians, who worked as physicians for at least a month during the observed period, but no longer work as such, either due to a career change or because they chose to become inactive; finally, the group of nurses and specialised healthcare workers.

The separate examination of active and former physicians aims to uncover the differences that may be observable between those who are still working in healthcare and thus are able to access the services more easily, and those who had left healthcare. The group of former physicians is rather heterogeneous: it includes those who are working in other careers in Hungary, those who are temporarily inactive (on parental leave, for example), and retired physicians as well. However, the shared characteristic of the members of this group is that they used to work as physicians, but are no longer in direct connection to healthcare. This may affect their state of health or health behaviour.

In order to remove the effect of a few observed factors on the frequency of healthcare service use, and on the occurrence likelihood of certain diseases, we have estimated regression models. We compared the adult population and specialised healthcare workers using the subsample of the population of 24 years

1 Those belonging to the following FEOR codes were classified here: nurse, specialist nurse, midwife, general health assistant, health documentary, medical imaging diagnostic and therapeutic equipment manager, medical laboratory assistant, dental assistant, physiotherapy assistant.

2 For a brief description of the database, see the Appendix of In Focus. A more detailed description see *Sebők* (2019).

3 As there is no data available on educational attainment, we have considered those working in professions requiring a tertiary educational attainment (main FEOR groups 1, 2 and 3) as possessing such educational attainment. The group of those with a tertiary educational attainment does not include active and former physicians and specialised healthcare workers.

of age or older. We have examined active and former physicians and those with other tertiary educational attainment in separate models, using a subsample of data narrowed down to these three groups. We have examined the annual frequency of the use of the various healthcare services through OLS regressions, and we examined the likelihood of certain chronic and acute diseases through binary outcome probit models. The dependent variables in these models showed whether the individual suffers from the observed chronic illness (that is, whether they have purchased medications belonging to the medication group that is used for treating the given disease at least four times per year). Additionally, we have also run a model that examined the likelihood of whether the individual had a myocardial infarction during the period examined.

Table 4.1.1: The annual average healthcare service use rates of physicians, specialised healthcare workers, those with a tertiary educational attainment, and the adult population, between 2009 and 2017

	24-year-old or older population	Those with a tertiary educational attainment[a]	Active physicians	Former physicians	Nurses and specialised healthcare workers
A) Healthcare service use					
General practitioner (piece)	6.9	4.3	3.1	2.7	5.0
Outpatient care (piece)[b]	7.3	5.8	8.8	7.5	10.2
Laboratory testing (piece)	1.6	1.3	2.1	1.8	2.0
Inpatient care[c] (days)	2.4	0.62	0.85	0.82	0.78
B) The number of those regularly taking certain medications (percentage)[d]					
Insulin preparations and oral antidiabetics	6.3	2.3	3.0	2.9	2.2
Medications for hypertension (ATC C02 and C09)	30.1	15.0	20.6	18.4	16.1
Medications for psychotic disorders (ATC N05 and N06)	2.2	2.4	3.6	2.4	3.9
Medications for obstructive airway disease (ATC R03)	1.0	1.0	1.7	1.2	1.4
Antibiotics (ATC J01)	1.7	1.5	8.2	6.3	3.0

[a] Excluding physicians and specialised healthcare workers.
[b] Excluding laboratory testing.
[c] Days spent in inpatient care.
[d] At least four purchases per year.
Source: Authors' own calculations based on the Admin3 database.

Explanatory variables included the individual's sex, age, the logarithm of the total of their monthly wages, the logarithm of the total of the time they spent in employment (across all jobs), and year fixed effects. Additionally, in the models examining the behaviour of specialised healthcare workers, a binary variable showed whether the individual was working as a specialised healthcare worker. In the models comparing physicians and those with other tertiary

educational attainment, binary variables showed whether the individual was an active or former physician.

The results of the OLS models that describe the frequency of service use and the estimated coefficients are presented in *Tables 4.1.2* and *4.1.3,* while the results of the probit models and the marginal effects are shown in *Tables 4.1.4* and *4.1.5.*

Nurses and specialised healthcare workers visit their general practitioners less frequently than the rest of the adult population. While active and former physicians visit their general practitioners much less frequently than those with other tertiary educational attainment. Nurses and specialised healthcare workers, as well as active and former physicians use the outpatient care and laboratory testing more frequently than the reference groups used for comparison. Physicians also spend somewhat longer periods in inpatient care than those with other tertiary educational attainment. The reason behind the lower use rate of general practitioner care is presumably the fact that in the case of minor symptoms, both physicians and specialised healthcare workers are capable of establishing a diagnosis and determining the necessary treatment. The difference in outpatient care, laboratory testing and the days spent in inpatient care could be explained by their worse state of health, but also by their behaviour being more health-conscious compared to the other groups.

Table 4.1.2: The use of various healthcare services among specialised healthcare workers, relative to the adult population of at least 24 years of age (excluding physicians)

	Number of visits to the general practitioner (annually)	Number of times outpatient care was used (annually)	Number of times laboratory testing was used (annually)	Days spent in inpatient care (annually)
Specialised healthcare worker, nurse	–0.53***	3.88***	0.74***	–0.04
	(0.04)	(0.06)	(0.02)	(0.03)
Number of cases	672,742	672,742	672,742	672,742

Note: OLS regressions. Control variables: sex, age, total of monthly wages (logarithm), total of the time spent in employment, across all jobs (logarithm), year fixed effects. Robust standard errors in brackets.
Significant at the *** 1 percent, ** 5 percent, * 10 percent levels.
Source: Authors' own calculations based on the Admin3 database.

Compared to the total adult population, nurses and specialised healthcare workers are more likely to be taking medications used to treat diabetes and hypertension, as well as antibiotics, and are less likely to be taking medications used to treat psychotic disorders, than the total adult population (*Table 4.1.4*). Active and former physicians are significantly less likely to be regularly taking medications used to treat diabetes and hypertension, compared to those with other tertiary educational attainment who have similar characteristics. Active physicians are more likely to be taking medications used to treat obstructive airway diseases (*Table 4.1.5*).

Table 4.1.3: The use of various healthcare services among active and former physicians, relative to the adult population with tertiary educational attainment

	Number of visits to the general practitioner (annually)	Number of times outpatient care was used (annually)	Number of times laboratory testing was used (annually)	Days spent in inpatient care (annually)
Active physician	–2.26***	3.16***	0.93***	0.12***
	(0.04)	(0.10)	(0.03)	(0.04)
Former physician	–2.70***	1.57***	0.51***	0.11*
	(0.06)	(0.15)	(0.04)	(0.06)
Number of cases	412,754	412,754	412,754	412,754

Note: OLS regressions Control variables: sex, age, total of monthly wages (logarithm), total of the time spent in employment, across all jobs (logarithm), year fixed effects. Robust standard errors in brackets.
Significant at the *** 1 percent, ** 5 percent, * 10 percent levels.
Source: Authors' own calculations based on the Admin3 database.

Table 4.1.4: The likelihood of the occurrence of certain chronic and acute diseases and of taking antibiotics on a regular basis, relative to the adult population of at least 24 years of age (excluding physicians)

	Myocardial infarction	Diabetes	Hypertension	Psychotic disorders	Obstructive airway diseases	Antibiotics
Specialised healthcare worker	0.000	0.002**	0.005***	–0.001**	0.000	0.012***
	(0.000)	(0.001)	(0.002)	(0.000)	(0.001)	(0.001)
Number of cases	672,742	672,742	672,742	672,742	672,742	672,742

Note: Binary outcome probit estimates, marginal effects (*dy/dx*). Chronic diseases defined on the basis of medication use. Control variables: sex, age, total of monthly wages (logarithm), total of the time spent in employment, across all jobs (logarithm), year fixed effects. Standard errors in brackets.
Significant at the *** 1 percent, ** 5 percent, * 10 percent levels.
Source: Authors' own calculations based on the Admin3 database.

Table 4.1.5: The likelihood of the occurrence of certain chronic and acute diseases and of taking antibiotics on a regular basis, among active and former physicians, relative to those with a tertiary educational attainment who are in employment

	Myocardial infarction	Diabetes	Hypertension	Psychotic disorders	Obstructive airway diseases	Antibiotics
Active physician	0.000	–0.005***	–0.023***	0.001	0.003***	0.059***
	(0.000)	(0.001)	(0.003)	(0.000)	(0.001)	(0.003)
Former physician	0.000	–0.007***	–0.040***	0.000	–0.001	0.033**
	(0.000)	(0.001)	(0.004)	(0.001)	(0.003)	(0.004)
Number of cases	412,754	412,754	412,754	412,754	412,754	412,754

Note: Binary outcome probit estimates, marginal effects (*dy/dx*). Chronic diseases defined on the basis of medication use. Control variables: sex, age, total of monthly wages (logarithm), total of the time spent in employment, across all jobs (logarithm), year fixed effects. Standard errors in brackets.
Significant at the *** 1 percent, ** 5 percent, * 10 percent levels.
Source: Authors' own calculations based on the Admin3 database.

There was no significant difference between the three groups regarding the likelihood of a myocardial infarction. Whether these differences are explained by differences in the likelihood of disease, the likelihood of the recognition of disease, or the likelihood of following treatment instructions, is yet to be determined through further research.

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4.2 THE OUT-MIGRATION OF PHYSICIANS BETWEEN 2009–2017

JÚLIA VARGA

In this subchapter, we present the development of the likelihood of the out-migration of physicians abroad between 2009 and 2017. This analysis repeats, using more recent data, the calculations of an earlier study (*Varga,* 2017) that examined the same question regarding the 2003–2011 period, in order to see whether changes can be observed in the likelihood of the out-migration of physicians. The earlier study found that beside the out-migration of physicians abroad, a domestic tendency of changing careers was also substantial between 2003 and 2011, and the rate of those going into inactivity temporarily or permanently was also rather high (by the end of this period, the rate of those leaving their careers as physicians due to the causes mentioned above was 12, 16 and 14 percent respectively between 2003 and 2011). Out-migration abroad accelerated particularly after employment restrictions were lifted in Germany and Austria.

The analysis uses the Admin3 database compiled by the databank of the Centre for Economic and Regional Studies (KRTK) as its baseline database, from which we have created a sample of physicians.[1] In the sample of physicians, it can be followed month by month, for nine years (between 2009 and 2017), whether the observed individual worked; if they did, in what positions, employment relationships, and for which employers; and if they did not, whether they received any social allowances,[2] and whether they were studying. We have chosen this period because the previous study also analysed the out-migration of physicians throughout a nine-year period, and in this way, findings can be compared. We included every individual in the sample who had worked as a physician between January 2009 and December 2017 *for at least one month,* that is, had a FEOR code as a general physician,[3] specialist physician or dental practitioner at least for one month during this period. 12,892 individuals were selected for the sample of physicians, whose status changes were followed month by month.[4]

In the category of those working abroad, we have included not only those who have officially signed out of Hungarian administration,[5] but we also tried to identify those who have retained a Hungarian address but are working abroad indefinitely. The same method was used for identifying this latter group of those working abroad that was used in the previous study.[6]

We examined the changes in physicians' likelihood of moving abroad for work through event history analysis. Since those who had changed careers did so due to different, mutually exclusive causes (moving abroad, starting a new career in a different profession but domestically, their status becoming inac-

1 You can find a brief description of the database in the Appendix of *In Focus*, and more details in the study of *Sebők* (2019).

2 Parental leave (GYES and GYED), pension, unemployment benefits, etc.

3 The FEOR group of general physicians includes general practitioners, occupational physicians and residents.

4 We have created five consolidated status categories: 1. is working as a physician, 2. is probably residing abroad, 3. is working within Hungary but in a different career (not as a physician), 4. is inactive or unemployed, 5. has deceased.

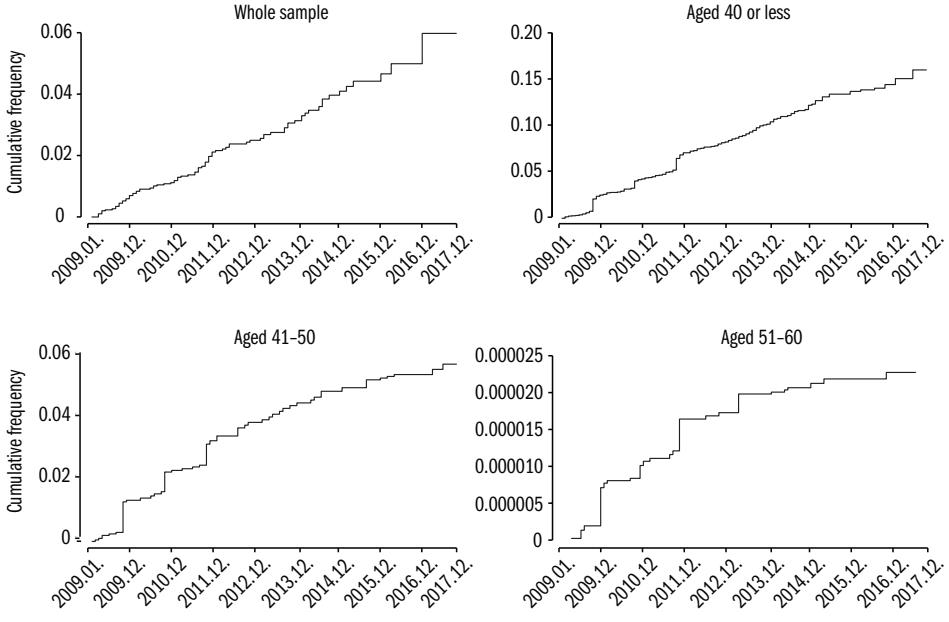
5 Those who have returned their official address card and have declared that they had settled abroad.

6 For a detailed description of the method, see: *Varga* (2017).

tive, or passing away), we have estimated competing risk models (*Fine–Gray,* 1999). This model calculates sub-hazards for the various competing outcomes, which show the momentary risk of someone changing careers due to one of the presented causes, if they were still working as physicians in the given month. We have completed the analysis for all of the competing outcomes, but here, only the results that pertain to moving abroad are presented.

Figure 4.2.1 shows the cause-specific cumulative incidence functions of *moving abroad* calculated for the whole sample and for the age group samples. The cause-specific cumulative frequency function shows the rate of doctors in month *t* who have, until month *t*, left their careers as physicians due to the given *cause* (in our case, moving abroad), considering that physicians may change careers not only due to moving abroad, but possibly other causes as well (changing careers within Hungary, becoming inactive or unemployed, death).

Figure 4.2.1: Cumulative incidence functions – moves abroad

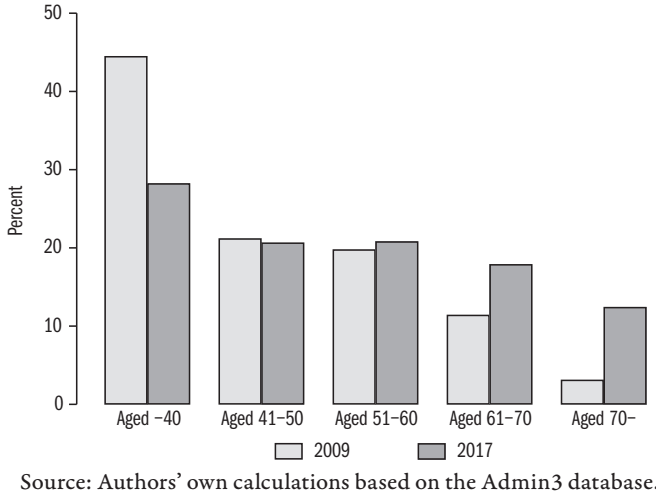


Source: Authors' own calculations based on the Admin3 database.

Approximately 6 percent of the whole sample left Hungary between January 2009 and December 2017. More than 16 percent of young physicians (under 40), 6 percent of those between the ages of 41–50, and a negligible fraction of physicians above the age of 50 moved abroad. Relative to the data of the 2003–2011 period, across all physicians, the rate of out-migration has become somewhat lower. At that time, 12 percent of all physicians left Hungary during that nine-year period. Examining the differences by age groups, what emerges is that among those under the age of 40, the rate of out-migration was higher

in the 2009–2017 period than during the preceding nine-year timeframe (16 percent *versus* 14 percent). The out-migration rate of those between the ages of 41–50 was the same in both periods, but the out-migration rate of physicians above the age of 50 decreased. Thus, the lower overall out-migration rate of the whole sample was a result of the lower out-migration rate of older physicians, as well as the fact that the rate of older physicians among all physicians grew substantially between 2009–2017 (*Figure 4.2.2*).

Figure 4.2.2: The distribution of physicians by age groups, in 2009 and in 2017



Source: Authors' own calculations based on the Admin3 database.

Table 4.2.1 presents the results pertaining to moving abroad of the competing risk models, for the whole sample and for the various age-based subsamples. The table shows the sub-hazard rates. In the case of a sub-hazard rate value that is higher than one, the likelihood of career change grows alongside the growth of the value of the variable; in the case of a value that is lower than one, the likelihood of career change decreases.

The results of the estimations made using the whole sample show that age is a determining factor in out-migration: younger physicians, as well as those whose peers from the same employer also left in the preceding 3 months of the observation, are more likely to go abroad. (As the age group-based results show, this effect is only significant in the age group of older physicians between the ages of 51–60.) Among young physicians not older than 40, and thus within the whole sample, females are more likely to move abroad for work. Among physicians between the ages of 40–50, the out-migration of males is more prevalent. Among young physicians not older than 40, the physicians that are more likely to move abroad for work are those whose relative wages (relative to the wages of those of the same age and same sex) are lower. Among physicians between the ages of 41–50 however, those that are more

likely move abroad for work are those with higher relative wages, which means that in the 41–50 age group, more successful physicians seem to be the ones that decide to make the move. (This result may be distorted by possible (not admitted) informal payments.)

Table 4.2.1: Moves abroad for work – sub-hazard rates

Variable	Whole sample	Those under the age of 40	Aged 41–50	Aged 51–60
Age	0.94***	–	–	–
	(0.004)			
Male	0.82*	0.52*	1.65**	1.41
	(0.084)	(0.071)	(0.356)	(0.435)
Dental practitioner	0.926	0.85	0.66	0.54
	(0.148)	(0.167)	(0.260)	(0.422)
Specialist physician	1.12	0.89	0.81	0.85
	(0.146)	(0.134)	(0.235)	(0.334)
Relative wages	0.97	0.78*	1.52***	1.31
	(0.113)	(0.1187)	(0.207)	(0.255)
Others from the same employer have also moved abroad in the preceding three months	1.24*	1.14	1.09	2.73*
	(0.112)	(0.169)	(0.251)	(0.387)
Others from the same employer have also changed careers in the preceding three months	0.99	1.15	0.97	1.07)
	(0.112)	(0.169)	(0.251)	(0.387)
Region	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Number of observed events	379,061	107,479	93,997	113,032
Number of observed individuals	12,892	5,423	4,381	4,874

Note: Competing risk models. Competing risks: Works in Hungary in a profession other than physician, is inactive or unemployed, deceased. Reference category: female, general physician.
Significant at the *** 1 percent, ** 5 percent, * 10 percent levels.

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5 UNEMPLOYMENT AND HEALTH

5.1 THE IMPACT OF THE ECONOMIC CRISIS AND JOB LOSS ON HEALTH

PÉTER ELEK, JUDIT KREKÓ & BALÁZS MUNKÁCSY

The impact of economic crises, including that of losing a job, on health indicators is an important subject of the economic literature. The cyclical fluctuations of the economy affect health through several direct and indirect, often conflicting, channels.

The cumulative effect of economic crises – channels and empirical findings

One of the most important channels is unemployment and, in general, the effects of income loss and labour market uncertainty on health. Declining standards of living may directly contribute to deteriorating health, since in poor financial circumstances there are fewer opportunities to live a healthy lifestyle. However, based on the literature, the mental health effects of unemployment and related uncertainties, the so-called "diseases of despair" (*Case–Deaton,* 2020) are likely to be more important than the direct effect of the deterioration of financial standing. Uncertainty about the future, lack of purpose and feelings of futility lead to mental health problems, which may manifest in drug abuse, suicide or alcohol-related liver diseases. *Schwandt–Wachter* (2020) found that cohorts entering the labour market in times of crisis have worse mortality rates even when middle-aged than those entering the labour market during an economic recovery, with diseases of despair playing a key role. *Bíró–Branyiczki* (2020), reviewed in *Subchapter 5.2*, report that the economic transition in Eastern-Europe and the related psycho-social shocks had long-term negative effects on the health of the local populations.

Nevertheless, reductions in economic activity may also improve health. At times of economic downturns, the number of road and occupational accidents and of the resulting deaths declines and health risks related to air pollution also decrease. At times of crisis it is easier to find staff for elderly care, which improves the mortality rate of the elderly. Less work-related stress also boosts health.

What does empirical research say about the overall effect? Aggregate analyses of the year 2008 and earlier economic crises suggest that total mortality is not strongly associated with the economic climate and is rather procyclical (that is, the number of deaths tends to decrease during economic downturns), although the effect strongly depends on the specificities of the crisis. Death rate from accidents is procyclical, while the number of suicides is con-

tracyclical and, among broader health indicators, primarily the deterioration of mental health is found as the result of economic crises.[1] Using Hungarian time series data, *Fountoulakis et al* (2014) found that an increase in unemployment is followed by the increase in suicides in 3–5 years.

Detailed analysis indicates that the slightly procyclical nature of total mortality is primarily due to the death rate of the elderly rather than the death rate of the working age population, implying that it is driven by effects beyond direct labour market factors. These may include a reduction in air pollution during crises or the worsening staff conditions of elderly care during economic recovery (see for example *Stevens et al,* 2015).

The impact of job loss on health

Indeed, the international literature specifically examining the impact of job loss on health mainly finds the increase of mortality and the deterioration of health. Since there may be a two-way causal relationship between changes in health and job loss (on the one hand, deteriorating health may accelerate job loss, on the other hand, job loss itself may impair health), therefore studies on the subject tend to focus on job loss due to plant closures and mass layoffs rather than job loss in general in order to reduce health-related selection (for example *Browning–Heinesen,* 2012). In the basic setup, dismissed workers are matched, using propensity score matching, with employed workers who have similar health and labour market history and then the two groups (treated and control) are followed to compare their mortality and other health indicators. Such analyses confirm the effect of job loss on mental health (for example *Kuhn et al,* 2009, *Schaller–Stevens,* 2015). Analysis of US data typically reveal greater effects than European data (for example *Riumallo-Herl et al,* 2014), which may be due to the fact that job loss in the United States often entails the loss of health insurance.[2]

Hungarian findings

Effect on claiming disability pension. Based on anonymised, linked health and labour market data from 2003–2011 of a 50 percent random sample of the Hungarian population (Admin2), available at the Databank of the Centre for Economic and Regional Studies [CERS (KRTK)], *Bíró–Elek* (2020) used mass layoffs in Hungary to investigate the impact of job loss on mortality and claiming disability pension. In accordance with the international literature, the study found that the mortality rate of those who have lost their jobs in mass layoffs is higher than the mortality rate of the control group, which had similar labour market and health history prior to the time of the job loss. Consequently, this estimate measures solely the impact of job loss on health. Similarly, the probability of claiming disability pension in four years is 1.5 times higher than that of the control group (4.3 per cent versus

1 See for example *Stuckler et al.* (2009), based on data of European countries from the period 1970–2007, the meta-analysis of *Parmar et al.* (2016) on studies exploring the impact of the 2008 crisis in Europe and *Ruhm* (2016), using US data, and the references therein.

2 For example *Schaller–Stevens* (2015) confirmed a reduction in the use of healthcare services among patients with a chronic disease whose employment used to be the primary form of health insurance in the United States.

2.9 per cent). At the time of claiming disability pension, individual inpatient, outpatient and pharmaceutical expenditures nearly triple, then start to diminish but still stay higher than prior to disability retirement. Detailed health data indicate that increased healthcare expenditure is due to the deterioration of physical health, to more frequent diagnoses of chronic diseases (for example hypertension and diabetes) and to the deterioration of mental health (measured by the consumption of medicines of the nervous system, including antidepressants).

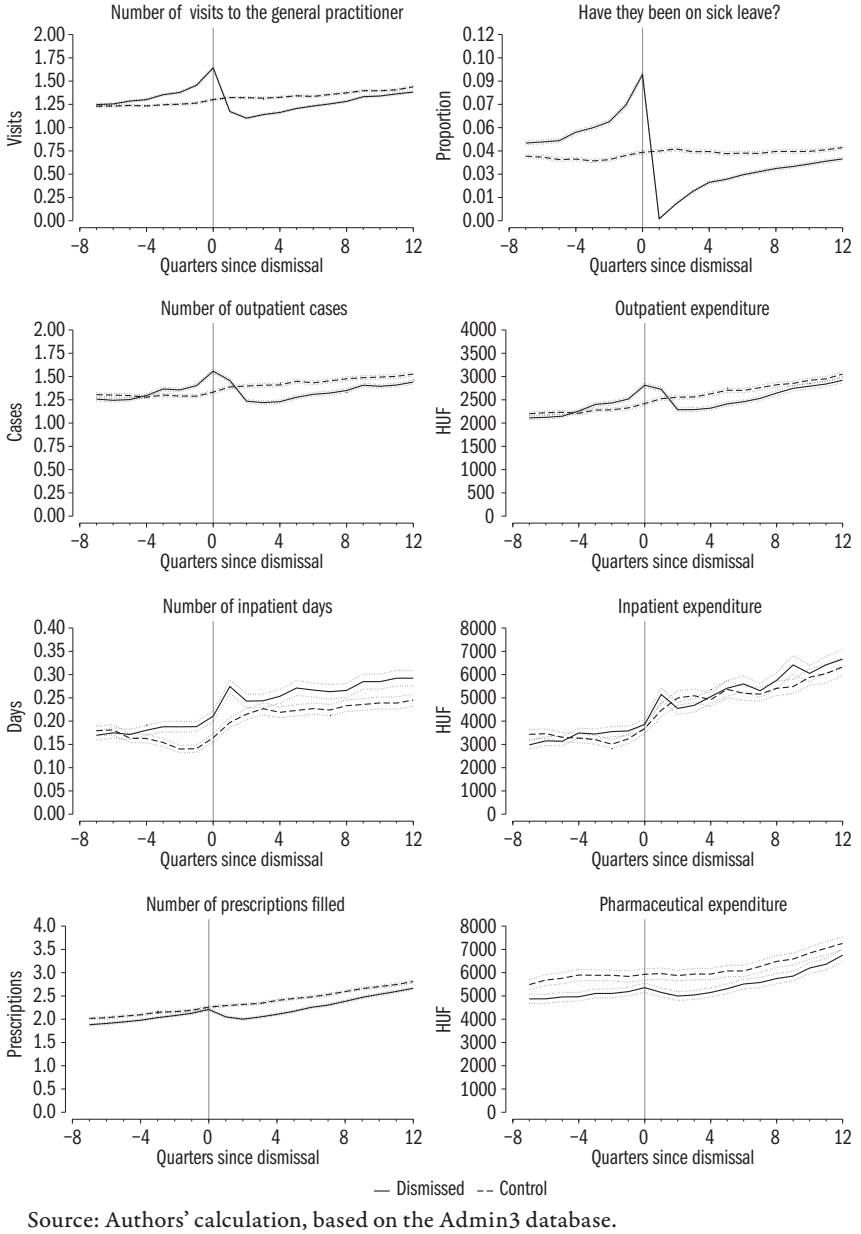
Changes in the health of dismissed workers. The subject of the following analysis is not mass layoffs but individual dismissals, i.e. workers whose employment was terminated during 2011–2014 after a minimum of six months' of continuous employment and who did not start a new job for at least two months but were registered at the local job centre.[3] [We used individual-level labour market and health data from 2009–2017 of the Admin3 database compiled by the CERS (KRTK) Databank.][4] The propensity-matched control group included individuals of the same gender, similar age and employment history (occupational category, size of employer, number of months worked during the past two years and wages). Changes in the health indicators of the two groups over the two preceding years and the next three years were compared. *Figure 5.1.1* presents quarterly usage of the various levels of the healthcare system and the probability of claiming sick pay, *Figure 5.1.2* shows the quarterly proportions of users of four important medicine categories [antihypertensives (medicine for high blood pressure), antidiabetics, psycholeptics (including tranquilizers), psychoanaleptics (including antidepressants)] and *Figure 5.1.3* displays cumulative mortality of the two groups. It must be noted that the majority of dismissed workers find a new job relatively soon: 59 per cent of them are in employment a year later and 75 per cent of them three years later (this proportion is constantly over 90 per cent in the control group).

The Figures show that two years prior to the job loss, dismissed workers are not sicker than the control group: the health indicators of the two groups are similar. Pharmaceutical expenditures (covered by social security and the patients) and the consumption of antihypertensives are lower, while the consumption of psycholeptics and psychoanaleptics is slightly higher among them. Approaching the time of job loss, the number of visits to general practitioners starts to rise steeply (it is 15 per cent higher in the year preceding the job loss than one year prior), the number of workers on sick leave also grows (still only 9 per cent of dismissed workers are on sick leave in the quarter of the job loss) and the use of specialist outpatient care slightly increases. However, those healthcare use variables that better predict health conditions (inpatient and pharmaceutical expenditures) do not change significantly: only the number of days spent in hospital and the consumption of medicines for mental illness increases compared to the control group.

3 The sample excludes those who received old-age or disability pension, parental leave benefit, disability benefit or carer's allowance within two months of dismissal. The age group studied is the 35–54 year-olds, therefore old-age retirement does not play a role in the results.

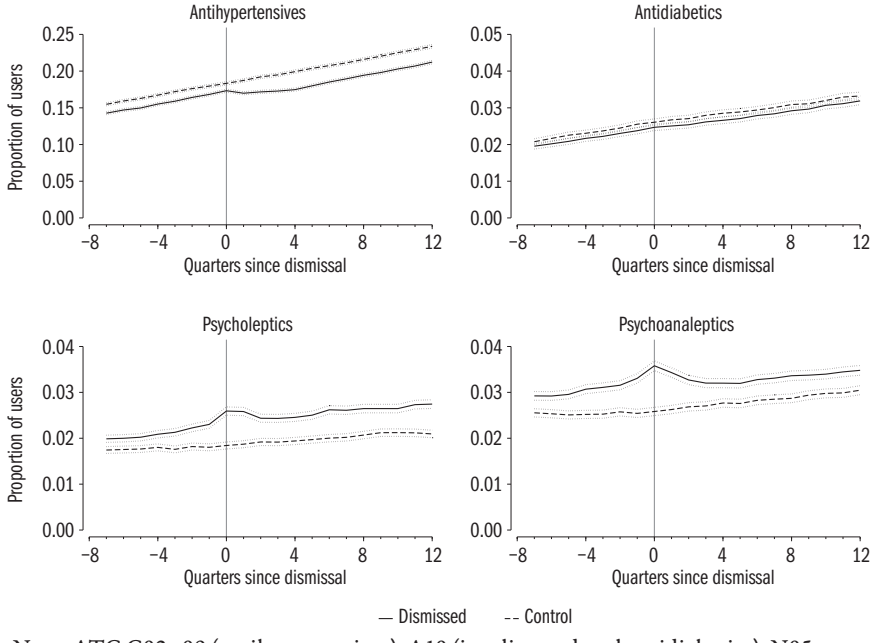
4 For the brief description of the database, see the Annex of *In Focus*, and see *Sebők* (2019) for more detail.

Figure 5.1.1: Quarterly health indicators in the dismissed and the control groups (with 95 percent confidence intervals)



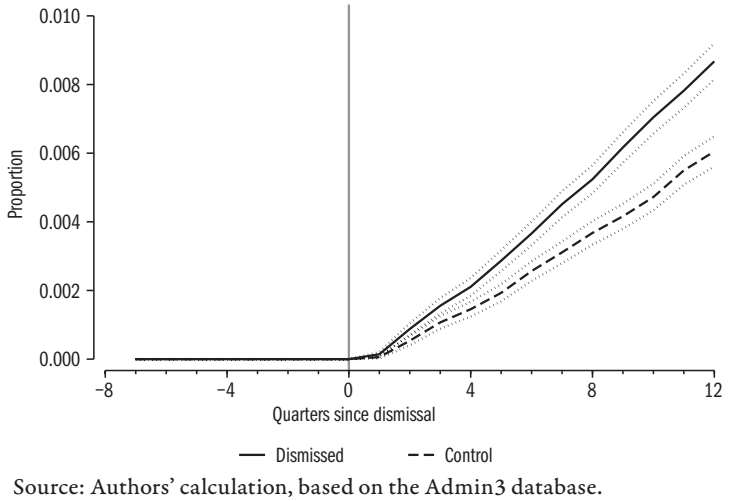
Source: Authors' calculation, based on the Admin3 database.

Figure 5.1.2: Quarterly proportions of users of four medicine categories in the dismissed and control groups (with 95 percent confidence intervals)



Note: ATC C02–09 (antihypertensives), A10 (insulins and oral antidiabetics), N05 (psycholeptics, including tranquilizers), N06 (psychoanaleptics, including antidepressants).
Source: Authors' calculation, based on the Admin3 database.

Figure 5.1.3: Quarterly cumulative mortality rates in the dismissed and the control groups (with 95 percent confidence intervals)



Source: Authors' calculation, based on the Admin3 database.

After job loss, visits to general practitioners and outpatient care as well as pharmaceutical consumption drop. The consumption of antihypertensives decreases permanently by one percentage point and more detailed data (not presented herein) indicate that both the share of newly diagnosed patients starting antihypertensives and the share of those continuing their antihypertensive treatment decline compared to the control group. There is no such drop in the consumption of antidiabetics, which in the age group of 35–54 year-olds are mostly used for type 1 diabetes requiring an extremely precise therapy. At the same time, the consumption of psycholeptics (including tranquilizers) remains permanently higher by 0.3 percentage point. *Figure 5.1.3* shows that at the end of the third year the cumulative mortality of dismissed workers is 1.4 times that of the control group but is still relatively low, below 1 per cent. In accordance with the relevant literature, the differing dynamics of the consumption of various types of medication suggest that unemployment affects health and the use of healthcare through various, sometimes divergent, channels. The increasing consumption of psycholeptics and psychoanaleptics may reflect the negative effect of unemployment on mental health.

Our analysis does not necessarily estimate the pure causal effect of job loss on health because it is possible that some of the dismissed workers, defined above, left employment for health reasons, as opposed to those dismissed in mass layoffs. Nevertheless, the advantage of the approach adopted here is that we were able to investigate the potential selection of dismissed workers based on their health conditions by analysing their health indicators before the job loss. Increases in the visits to general practitioners, sick pay and medication for mental illness prior to unemployment may have several reasons. It is possible that the job loss is anticipated and the fear of dismissal has a detrimental impact on health, especially mental health. Increases in sick leave may be due to the regulation that the notice period of staff on sick leave commences after the end of the sick leave but not later than one year after the first 15 days of the sick leave period. It is also possible that employers are more likely to dismiss workers who take sick leave frequently.

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K5.1 Health care use following public works participation

MÁRTON CSILLAG & BALÁZS REIZER

In this note, we study the effect of public works participation on the usage of public health care, which is an important issue for two main reasons. First, public works is the largest active labour market policy (ALMP) in Hungary, with over 300 thousand participants at its peak. Second, predicting the potential effect size and its sign is not straightforward. A wealth of previous studies have estimated a negative effect of (long-term) unemployment on health. While ALMPs might have positive effects on health, there is very scarce empirical literature on this issue. The public works programme is special from this perspective. First: it guarantees an income higher than the employment substitution subsidy,[1] thus financially enabling access to public health care. Second, participants need to perform work, which through regular activity and access to social relations can have a positive effect on mental health. Third, as the work performed is usually low skilled, and the public works income is lower than the minimum wage, some participants could consider participation as compulsion and hence participation could lead to consumption behaviour that is ultimately detrimental for health.

Disentangling the effect of public works is complicated by the fact that inflows to (and outflows from) the programme is not random. *Cseres-Gergely* (2014) showed that those living in small villages, those with low qualifications and the long-term unemployed have a much higher probability to participate. We can also hypothesize that the persons who remain in the public works programme have both lower observable and unobservable productivity in the primary labour market.

In this study we use the 'Admin3' database provided by the Databank of the Centre for Economic and Regional Studies;[2] thus we have access to detailed data on individuals' labour market histories and their use of public health care, enabling us to take into account a host of variables influencing public works participation.

In our analysis, we focus on those registered unemployed (inflows between 2012 and 2016) who were entitled to 90 days UI benefits, and lived in settlements with populations lower than 10 thousand persons. We only keep those who exhausted their UI benefits, and did not find work on the primary labour market within 15 days following benefit exhaustion.[3] Thus, on the one hand, we use a sample which is relatively homogeneous in terms of labour market history; but on the other hand, we focus on a small and atypical group of public works participants (only 15 percent of new public works spells started following UI benefit exhaustion). We consider those as public workers, who entered the programme within 3 months following benefit exhaustion. We compared them to those registered jobseekers who did not enter a public works programme in the 3-month window after their UI benefit ran out.

Finally, we used matching based on their observable characteristics to ensure comparability of the two groups.[4] In our analysis, we use two one-year periods: the year prior to inflow to UI benefits (which is typically the year before job-loss), and the year after the exhaustion of benefits, We examined five different outcomes: 1) the number of GP visits; 2) whether the individual had positive spending on medication; 3) whether the person had any spending in the public healthcare system (including in-

1 This is the main means-tested welfare benefit for the long-term unemployed in Hungary.

2 See the Appendix to the 'In Focus' section for a detailed description of the database.

3 These employees had a stable employment relationship, more precisely they worked at least 30 months out of the 36 months before applying for UI benefits.

4 We used the following variables when estimating the propensity score: gender, educational attainment, age, health care spending from the previous year, and micro-region fixed effects. In the matching procedure, we used one-to-one nearest neighbour matching (no replacement), within a given inflow semester.

and outpatient spending and medications); 4) the natural logarithm of spending on medications; and 5) the natural logarithm of total public healthcare spending. (The last two only contain observations with positive health care spending.)

In *Table K5.1.1* below, we present the results of regression analyses, where we include individual fixed effects. We show the coefficient estimates on two key variables: how the usage of the public health care changed between the year before job-loss and the year after the exhaustion of UI benefits in the control group; while the coefficient on public works participation shows how this differed for public works participants.[5]

Table K5.1.1: The use of public health care following entry into public works

	GP visits	Positive health spending	Positive medication spending	All medication spending (log)	All health care spending (log)
Public works entry	0.7239***	0.02863**	0.02839***	-0.02258	0.02530
	(0.1682)	(0.01144)	(0.009998)	(0.03410)	(0.09430)
After benefit exhaustion	-1.8287***	-0.06014***	-0.06206***	0.007596	-0.1530**
	(0.1197)	(0.008127)	(0.007313)	(0.02434)	(0.06667)
Number of observations	16,631	16,631	16,631	11,484	13,657
Number of individuals	8,316	8,316	8,316	6,882	7,703

Notes: Standard errors clustered at the levelof individuals are in brackets.
Significance levels: *** 1 percent, ** 5 percent, * 10 percent.
Source: Own calculations based on the Admin3 database.

Our results are similar for all outcomes. The use of public health care decreased following UI benefit exhaustion, and public works participation moderated this effect. For GP visits, this means that long-term unemployed decreased visits by almost 2 occasions (relative to when they were still employed), while this decrease was only 1 visit per year for public works participants. Similarly, the decrease in the probability of positive medication or overall medical spending is 3 percentage points higher among public works participants relative to the long-term unemployed. By contrast, among those with positive medication or medical spending, we found no differences across the two groups in the amount of spending.

In this short research project we could not disentangle (as we have no data proxying objective health status, such as biomarkers), whether the estimated differences were thanks to the positive income (or behavioural) effect of public works participation or rather due to a deterioration of public workers' health.

5 Thus, we used a difference-in-difference type estimation strategy.

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5.2 THE LONG RUN HEALTH CONSEQUENCES OF THE ECONOMIC TRANSITION

ANIKÓ BÍRÓ & RÉKA BRANYICZKI

Based on our study published at the BMC Public Health journal (*Bíró–Branyiczki,* 2020), using data from the Survey of Health, Ageing and Retirement in Europe (SHARE), we analyse the link between the economic transition in Central and Eastern Europe (CEE) and population health two-three decades later. Health of the population of post-socialist CEE countries lags behind the European Union average. The aim of our research was to investigate whether experienced psychosocial stress as an adult around the transition period had adverse health implications observable at older ages in the life course.

The SHARE is a freely available, cross-national, bi-annual, multidisciplinary panel database of micro data on health, labour force status and socio-economic status of individuals aged 50 or older.[1] The third and seventh SHARE waves (from 2009 and 2017) included retrospective questions about respondents' life history, such as employment history, periods of stress and financial difficulties, and health at younger ages. Based on these data, we observe if respondents had stressful periods, financial difficulties or lost their jobs between 1987–1993, that is around the transition. We investigate the relationship between these indicators of difficulties and subjective and objective health, as measured in 2017. We compared these relationships across three CEE country groups (Visegrád fours, Baltics, South-East Europe) and Western Europe. We also compared the health implications of difficulties occurring around the transition to difficulties occurring before or after the transition.

We found that stressful periods, financial difficulties and job loss around the period of transition are generally associated with worse health at older ages in all groups of CEE countries. This relation holds even after netting out the effect of childhood health and demographic factors. The three types of difficulties have similar relation to health at older ages (*Table 5.2.1*). Our results indicate that the implications of the difficulties around transition accumulate over the life course, resulting in worse health at older ages. For example, looking at subjective health, we found that people who experienced some difficulties around the transition report 50–100 percentage higher odds of fair or poor health in 2017 (as opposed to excellent, very good or good health).

The SHARE data also show that the health of the older population is worse in CEE than in the West, for instance, most chronic diseases and obesity are more prevalent. We also see that compared to the West, a higher ratio of CEE respondents report difficulties around the years of transition (*Figure 5.2.1*). However, when we analysed the health implications of similar difficulties in Western Europe, we found similar results as in CEE. The health implications

1 This paper uses data from SHARE waves 1–7, see *Bergmann et al.* (2019) and *Börsch-Supan et al.* (2013) for methodological details. The SHARE data collection has been primarily funded by 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) and FP7 (SHARE-PREP: N°211,909, SHARE-LEAP: N°227,822, SHARE M4: N°261,982). Additional funding from the German Ministry of Education and Research, the Max Planck Society for the Advancement of Science, the 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) and from various national funding sources is gratefully acknowledged (see www. share-project.org).

of difficulties experienced at other periods (before or after the transition) are also similar. Thus, we conclude that the consequences of hardships due to the transition are not specific, health implications of these difficulties seem to be similar to the implications of other shocks possibly unrelated to the transition. Thus, not the transition-specific nature of the difficulties, but the higher fraction of individuals experiencing them around the transition contributed to the current health disadvantage in CEE.

Table 5.2.1: Health measures regressed on experienced difficulties occurring in 1987–1993 in CEE (logit odds ratios)

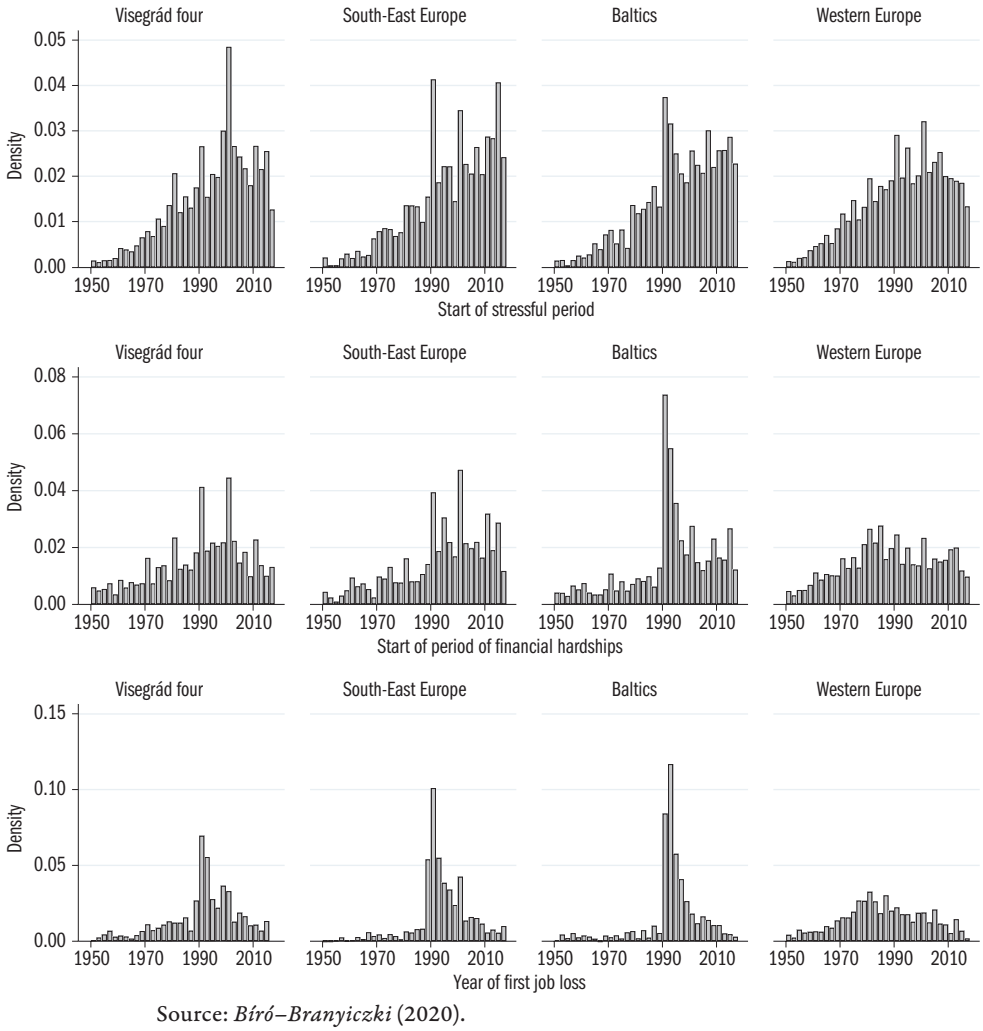
	Fair or poor health	Long-term illness
Stress × Visegrád fours	1.728***	2.610***
	(1.502–1.988)	(2.243–3.037)
Stress × South-East Europe	2.042***	2.236***
	(1.607–2.596)	(2.052–2.438)
Stress × Baltics	1.592**	1.724***
	(1.112–2.280)	(1.222–2.434)
Number of observations	17,452	17,452
Wald-test *p*-value	0.425	0.034
Financial difficulties × Visegrád fours	1.923***	2.112***
	(1.211–3.054)	(1.676–2.663)
Financial difficulties × South-East Europe	1.771***	1.549***
	(1.263–2.484)	(1.111–2.159)
Financial difficulties × Baltics	1.175***	1.522***
	(1.111–1.243)	(1.208–1.917)
Number of observations	20,503	20,503
Wald-test *p*-value	0.007	0.121
Job loss × Visegrád fours	1.502***	1.419***
	(1.355–1.665)	(1.331–1.514)
Job loss × South-East Europe	1.599***	1.343***
	(1.430–1.788)	(1.222–1.476)
Job loss × Baltics	1.967***	1.707***
	(1.585–2.442)	(1.502–1.940)
Number of observations	20,524	20,525
Wald-test *p*-value	0.081	0.008

Notes: Individual characteristics and country effects are controlled for. We show logit odds rations with 95 confidence intervals. The Wald test tests the equality of the coefficients of the interaction terms.
$^{***}p < 0{,}01$, $^{**}p < 0{,}05$, $^{*}p < 0{,}1$.
Source: *Bíró–Branyiczki* (2020).

Our heterogeneity analysis revealed that the health implications of difficulties around the transition were stronger among males and the younger.

Overall, we found evidence that stressful periods, financial difficulties and job loss around the period of transition increased the health disadvantage of the population of CEE countries. Our results draw the attention to the long-lasting impacts of psychosocial stress during adulthood on later health.

Figure 5.2.1: Starting year of difficulties by regions



Source: *Bíró–Branyiczki* (2020).

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6 AGEING AND THE LABOUR MARKET

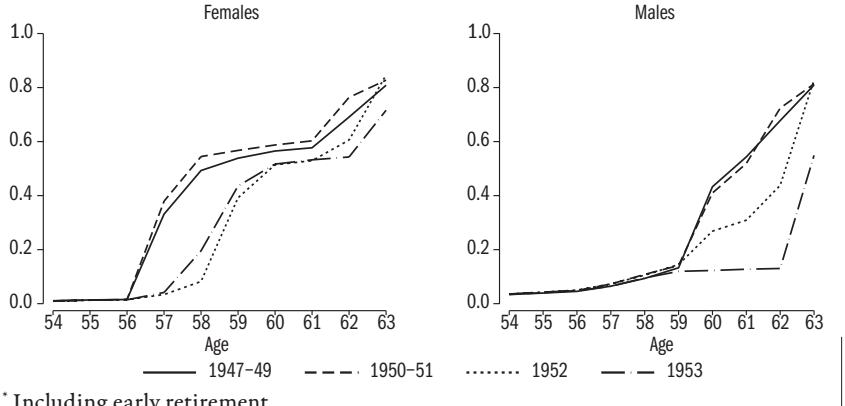
6.1 OLD-AGE RETIREMENT AND HEALTH

ANIKÓ BÍRÓ & PÉTER ELEK

The ratio of the older population (aged above 65) is expected to increase relative to the active-age population (age 15–64) over the coming decades in Hungary. While this ratio was 0.24 in 2011, it will increase to 0.6 by 2060 according to baseline demographic projections. Thus, there will be less than two active aged people for each retirement aged person in forty years from today (*Földházi,* 2015). For the sake of the sustainability of the pension system, the employment rate at older ages should increase, and increasing the old-age retirement age is a basic policy tool for achieving this aim.

Since the middle of the 2000s, the statutory retirement age has significantly increased in Hungary. The early retirement age of females increased in 2009 from age 57 to 59. As a result, the ratio of pensioners at ages 57–58 decreased considerably among the cohorts born after 1951. The growth of the retirement age of females halted with the introduction of the so-called Women40 programme in 2011.[1] The early retirement age of males born between 1946–1951 was age 60. However, early retirement was abolished starting from 2012, hence younger male cohorts could retire only when reaching the statutory old-age retirement age (which was age 62.5 for the 1952 cohort and increases by a half year annually, reaching age 65 for the 1957 cohort). This also decreased considerably the rate of pensioners at ages 59–62 (*Figure 6.1.1*).

Figure 6.1.1: The ratio of old-age pensioners* in the population by age and year of birth



* Including early retirement.
Source: Own calculation based on CERS Admin3 data.

Considering the major changes in retirement age, it is important to understand how health status affects the retirement decision and how retirement

1 Based on the Women40 programme, females who were employed at least for 40 years could retire before reaching the statutory retirement age without a reduction in their pension benefit (*Simonovits–Tir,* 2018).

(and the increasing statutory retirement age) affects health. The first line of causation is that employees in worse or deteriorating health are less likely to remain employed and more likely to retire at a given age. This is because the productivity deteriorates and the disutility of labour increases with worsening health, hence, the utility derived from leisure increases.[2] The second line of causation is that retirement itself may influence health. Increasing leisure time may improve health but, on the other hand, the loss of social status and social network derived from employment may have negative health effects (for instance, on mental health). In addition, as income decreases with retirement, it might reduce the demand for healthcare services, also, after retirement, there are no incentives to maintain the capacity to work, thus health may deteriorate. Altogether, the majority of the related international empirical literature concludes that the health effects of retirement are generally positive.[3]

The role of health status in old-age employment

We use data from years 2009–2017 of the administrative dataset (Admin3) processed by the Databank of the Centre for Economic and Regional Studies (CERS), which includes linked labour market and health indicators of a random 50 percent of the Hungarian population.[4] We first analyse the relationship between health status and the probability of continued work at older ages. We look at two age groups, to examine the continued work before and after the statutory retirement age separately.

1) What is the probability that a person who is working at 54 is still working four years later (at age 58), *before* the statutory retirement age? Due to the time coverage of the data, we look at people born between 1955–1958. For these cohorts, the early retirement possibility at age 57 was no longer available, not even for females.

2) What is the probability that a man aged 59 or a woman aged 58, who is employed at this age (i.e., before the statutory retirement age) is still working four years later, thus *after* the statutory retirement age? We look at men born in 1950–1951 and women born in 1952–1954, due to the time coverage of the data and changes in the statutory retirement age.

We investigate with linear regression models (OLS regressions) the relationship between health at earlier ages and employment at later ages. We capture health status with the following indicators of healthcare use: whether the person was in hospital in the quarter of reaching the analysed age; and whether the number of his/her primary care visits, outpatient specialist care visits and spending on prescription drugs in the given quarter was in the top quartile of the age and gender specific distribution. As control variables we use the year of birth, region, one-digit occupation (ISCO) code, quarterly logarithmic earnings and the first level economic activity (NACE) code of the employer.

2 See *Cai* (2010) and *Disney et al.* (2006) for international empirical evidence.

3 The systematic review of *Van der Heide et al.* (2013) clearly shows this relation for mental health. For the recent literature, see the positive findings of *Grøtting–Lillebø* (2020), *Kolodziej–García-Gómez* (2019), *Rose* (2020). The impact of changing retirement age is ambigous (see for example, *Hagen,* 2018).

4 See the Appendix for a short introduction of the database and *Sebők* (2019) for further details.

According to the results presented in *Table 6.1.1,* higher usage of healthcare services (hence, supposedly worse health status) decreases the probability of continued work. This relationship is clearer and stronger before the statutory retirement age (first two numerical columns of the table) than after the retirement age (second two numerical columns). The probability that a 54-year-old employee still works four years later (before the retirement age) is, separately, 1–2 percentage points lower if the indicators of primary care use, outpatient specialist use and drug spending are in the top quartile. Having been in hospital decreases the probability by 4–7 percentage points. Continued work after the statutory retirement age is the most affected by primary care use (with a negative effect of 2–4 percentage points).

Table 6.1.1: Effect of health status on continued work

	Probability of continued work four years later			
	Before retirement age (54 years old employees)		After retirement age (58/59 years old employees)	
	males	females	males	females
Hospital stay	-0.066***	-0.042***	-0.033**	-0.015
	(0.0080)	(0.0076)	(0.015)	(0.011)
Outpatient specialist care visits in top quartile	-0.014***	-0.0055	0.015*	0.001
	(0.0033)	(0.0036)	(0.0076)	(0.0051)
Primary care visits in top quartile	-0.020***	-0.022***	-0.044***	-0.021***
	(0.0036)	(0.0038)	(0.0080)	(0.0052)
Drug spending in top quartile	-0.017***	-0.023***	0.018***	-0.011**
	(0.0030)	(0.0040)	(0.0069)	(0.0050)
Number of observations	88,932	103,017	29,768	62,439
Ratio of continued work	0.876	0.751	0.396	0.434

Notes: Linear probability model coefficients, robust standard errors in parentheses. Quarterly data.
Control variables: year of birth, region, one-digit occupation (ISCO) code, quarterly logarithmic earnings and the first level economic activity (NACE) code of the employer.
Sample: people reaching the analysed age in the given quarter.
Significant at the *** 1 percent, ** 5 percent, * 10 percent level.
Source: Own calculation based on Admin3 data.

Effect of continued work/retirement on health status

We have seen that poorer health (as measured by greater use of health services) reduces the likelihood of continued work. As a next step, we examine the other direction of the two-way relationship, i.e., the impact of continued work (or, conversely, of retirement) on health indicators. To this end, we have two increases in the retirement age (raising the early retirement age for women from 57 to 59 in 2009 and abolishing the 60-year early retirement age for men in 2012), which can be used as "exogenous shocks" to estimate the causal impact of retirement on health indicators. As *Figure 6.1.1* has already shown, cohorts with close birth years faced markedly different effective re-

tirement ages and therefore had different retirement patterns. By comparing health indicators from these very similar cohorts, we can estimate the causal impact of retirement in the short to medium term.

Formally, we estimate fixed-effects instrumental variable panel regression models in which the dependent variable is an individual's health indicator, the main explanatory variable is the dummy variable of being retired at a given time, and we control for age, calendar year, and individual fixed effects. Due to the two-way relationship between health status and retirement, the retirement variable is endogenous, so we use the dummy variable of whether the individual is above the (early) retirement age at a given time as an instrument.[5]

In our earlier paper (*Bíró–Elek,* 2018) we examined the year 2009 increase of the retirement age for women based on the Admin2 dataset, which was compiled by the CERS Databank, and contains individual-level labour market data as well as the annual outpatient, inpatient and prescription drug expenditures for a 50% random sample of the Hungarian population for years 2003–2011. *Table 6.1.2* shows that retirement reduces the probability that an individual uses the outpatient, inpatient and (prescribed) pharmaceutical care system at least once in a given year by 1.3–3.0 percentage points. Meanwhile, retirement typically does not have a significant effect on the size of (positive) expenditures provided that the patient used the given segment of the healthcare system. The heterogeneity analyses reported in the article also showed that the effects are stronger among those who are relatively healthy, among those who have previously been on sick pay and among the less educated.

Table 6.1.2: Effect of old-age retirement on annual health expenditure, females

	Outpatient		Inpatient		Drug	
	ratio	logarithm	ratio	logarithm	ratio	logarithm
Dependent variable	of positive expenditure		of positive expenditure		of positive expenditure	
Effect of old-age retirement	-0.030***	-0.027	-0.014**	-0.074	-0.013**	-0.035*
	(0.006)	(0.026)	(0.007)	(0.094)	(0.006)	(0.019)
Number of observations	186,296	157,637	186,296	8,789	186,296	159,248

Notes: Robust standard errors clustered on the individual level in parentheses.
Instrumental variable: being above the early retirement age.
Controls: individual fixed effects, age and its square, calendar year dummies.
Sample: women born in 1949–1953, aged 56–59 years and working at age 54.
Significant at the *** 1 percent, ** 5 percent, * 10 percent level.
Source: *Bíró–Elek* (2018), based on Admin2 data for years 2003–2011.

Based on the quarterly Admin3 dataset that contains more detailed health indicators for 2009–2017, and using the increase in the retirement age for men in 2012, we can gain more insight into why healthcare use decreases after retirement. *Table 6.1.3* shows the effect of retirement on more detailed case- and prescription-level indicators for men. The reduction of the use of outpatient specialist care, general practitioner care and pharmaceutical con-

5 For more details see *Bíró–Elek* (2018).

sumption can be seen here as well after retirement (the effect on hospital stay is not significant). Examining the consumption of different pharmaceutical ATC categories in more detail, the proportion of users of systemic antiinfectives (including antibiotics) and musculoskeletal, respiratory and nervous system agents (including antidepressants) is significantly reduced as a result of retirement.

Table 6.1.3: Effect of old-age retirement on quarterly health indicators, males

	Number of outpatient care visits	Number of GP visits	Number of inpatient days	Number of filled prescriptions
Old-age retirement	−0.177***	−0.343***	0.036	−0.130***
	(0.038)	(0.018)	(0.037)	(0.045)
Mean of dependent var.	1.98	1.95	0.567	6.03
	Probability of consumption of the given pharmaceutical (ATC) category			
	A	B	C	J
Old-age retirement	0.00096	0.00201	0.00122	−0.00560*
	(0.00276)	(0.00245)	(0.00280)	(0.00298)
Mean of dependent var.	0.259	0.176	0.551	0.104
	L	M	N	R
Old-age retirement	0.00121*	−0.0168***	−0.00337*	−0.00459**
	(0.000682)	(0.00285)	(0.00191)	(0.00203)
Mean of dependent var.	0.008	0.159	0.080	0.072
	antidiabetics	antihypertensives	psycholeptics	psychoanaleptics
Old-age retirement	0.00132	−0.00179	−0.00080	−0.00277**
	(0.00150)	(0.00274)	(0.00088)	(0.00119)
Mean of dependent var.	0.127	0.516	0.018	0.032

Notes: Robust standard errors clustered on the individual level in parentheses.
Instrumental variable: being above the early retirement age.
Controls: individual fixed effects, age and its square, calendar year effects.
Sample: men born in 1950–1954, aged 59–63 years and working at age 58. Period: 2009–2016.
Number of observations: 1,664,234, number of individuals: 92,973.
ATC drug categories: A – Alimentary tract and metabolism; B – Blood and blood forming organs; C – Cardiovascular system; J – Antiinfectives for systemic use; L – Antineoplastic and immunomodulating agents; M – Musculo-skeletal system; N – Nervous system; R – Respiratory system.
A10 – Drugs used in diabetes; C02–09 – Antihypertensives; N05 – Psycholeptics (including tranquilizers); N06 – Psychoanaleptics (including antidepressants).
Significant at the *** 1 percent, ** 5 percent, * 10 percent level.
Source: Own calculations based on Admin3 data.

Conclusions

In this subchapter we found that, after controlling for a number of other factors, workers with a high health expenditure at age 54 are significantly less likely to work four years later – but still before retirement age – than their counterparts with lower health expenditure. In the other direction, our results examining the health effects of retirement are largely in line with the interna-

tional literature by showing that retirement reduces the use of the healthcare system. There are partly institutional reasons for this: as long as the individual is employed, he or she has to go to the GP in order to receive sick pay, which can generate additional doctor visits and medication use (such as of antibiotics). The decline in the use of musculoskeletal drugs after retirement suggests that individuals are less interested in maintaining the health status they previously needed for work, while the reduction in the use of psychoanaleptics (including antidepressants) suggests an improvement in mental health. In addition to these, due to the limitations of the administrative data, our results provide little evidence of the net health impact of retirement in Hungary.

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6.2 THE LABOUR MARKET CONTEXT OF THE INCREASING DEMAND FOR PALLIATIVE CARE*

KÁROLY FAZEKAS & MELINDA TIR

Rise in the proportion and number of patients with serious health-related suffering (SHS)

Average life expectancy at birth increased from 42 years in 1900 to 76 years in 2000 in Hungary and at the same time the structure of the most common diseases leading to death transformed completely. In the last decades, the rise in average life expectancy has been caused by the increase in the life expectancy of the population over 65 rather than the decrease in infant mortality. This contributes to the increase in the number and proportion of the elderly. The proportion of the population over 60 rose from 7.5 per cent to 23.5 per cent between 1900 and 2011. The share of those older than 65 was 20 per cent in 2018, which is foreseen to reach 30–35 per cent in 2050.

At present, one does not tend to die of a contagious disease or in accidents any longer but of chronic diseases such as cancer, cardiovascular or respiratory diseases, stroke, dementia and neuro-organic diseases. The increasing number and proportion of deaths caused by chronic diseases is common knowledge. However, it is less well-known that the number and proportion of deaths due to diseases involving serious (physical and mental) health-related suffering (SHS)[1] has also risen. This has been accompanied by a surge in the *number* of patients needing *palliative care* (which aims at mitigating suffering rather than treating diseases) and the *duration* of end-of-life palliative or hospice care. In the end stage of a terminal illness it is no longer possible to cure the disease. The aim is to alleviate or relieve suffering and support patients in reaching their end-of-life goals (*Hegedűs,* 2006). The average duration of the end-of-life stage was a few weeks in 1900. In just over 100 years, this period expanded to two to two and a half years on average.

The shift in public opinion and policy debate on the end-of-life stage substantially contributed to the increase in the demand for palliative care. The modern hospice movement, which started in the sixties of the previous century, changed the expectations and possibilities of an increasing proportion of patients, healthcare workers and geriatric nurses on the end-of-life stage globally (see for example *IAHPC*, 2019).

The Lancet report published in 2018 (*Knaul et al*, 2018) was a major milestone in assessing demand for palliative care and designing programmes to meet this demand. The working group "Lancet Commission on Global Access to Palliative Care and Pain Control"[2] organised by the project "Harvard Equity Initiative"[3] in 2017 at Harvard University had developed a method

* We would like to thank *Ágnes Ruzsa* (Hungarian Hospice Palliative Association) for her expert guidance and help with writing the Chapter.

1 See: pallipedia.org.

2 See: Harvard University.

3 Ibid.

for estimating the annual number of SHS-related deaths globally and, based on the experience of several hundreds of specialist doctors, also the average duration of nursing tasks characteristic of the end-of-life stage in the various groups of diseases. Relying on health economists, they then prepared pilot case studies to estimate the costs that low- and middle-income countries selected from various regions would incur if they integrated palliative care according to Western-European standards in the system of primary healthcare. According to estimates of the Lancet report there were 56.2 million deaths globally in 2015. Nearly half of those who died had suffered from a condition involving SHS for an indeterminate period and leading to death.[4] The report states that there is an enormous gap between high-income and low-income countries especially as regards relieving the pain associated with illness. Nevertheless, estimates indicated that the costs of a universal palliative basic care package are possible to be financed from only 0.03–0.25 per cent of the GDP in the countries considered (Ruanda, Vietnam and Mexico) (*Knaul et al,* 2018, p. 1421.).

Based on indicators of the quality of palliative care, Hungary is in the bottom end of the mid-range in Europe. In spite of significant improvements in the institutional and regulatory environment in recent years (*Csikós et al,* 2018, *Benyó–Lukács,* 2017), the country's position in international ranking is deteriorating. It is because several countries, including Eastern-European ones, have made more rapid progress than Hungary. It is particularly worrying that (similarly to the majority of Eastern-European countries) the increasing demand for palliative care will be accompanied by low capacities (*EIU,* 2015, p. 52.).

The quality of palliative care is determined more by the lack or spread of the palliative approach than the size of the GDP. The surveys and position papers of Hungarian[5] and European[6] hospice/palliative associations, foundations and universities play a crucial role in shaping attitudes about palliative care in Hungary (*Hegedűs–Farkas,* 2019, *Hegedűs–Munk,* 2018, *Arias-Casais et al,* 2019). European trends revealed by surveys in 2019 and prior were recently outlined by *Arias-Casais et al,* (2020). The results indicate that Hungary belongs to the group of countries which lag behind the targets for all three forms of care set by the WHO, in spite of their growth.

In order to have a more precise overview of the challenges facing Hungarian society, we estimated the changes in the demand for palliative care in Hungary between 1970 and 2018, using the mortality database of the Central Statistical Office[7] and the methodology of the researchers at Harvard. Based on the estimates, the proportion of those in the annual mortality figures who died of diseases requiring palliative care increased from 38.7 to 46.9 per cent over this period (*Figure 6.2.1*). While the number of annual deaths rose by 9 per cent, the number of deaths associated with diseases requiring palliative care rose by 32.3 per cent over the same period.

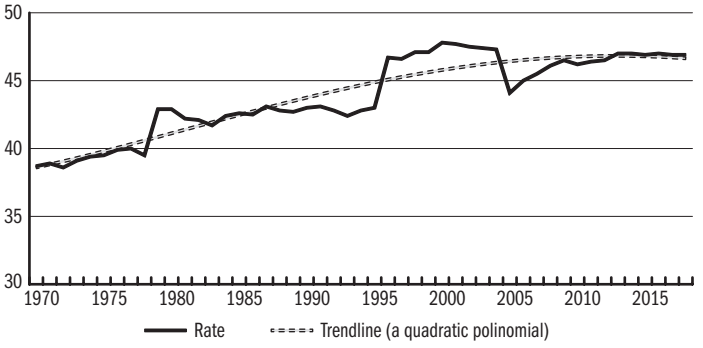
4 The International Association for Hospice & Palliative Care created an interactive website based on the results of the project, which also provides a breakdown of estimates by country. Global Data Platform to Calculate SHS and Palliative Care Need.

5 Hungarian Hospice Palliative Association.

6 European Association of Palliative Care.

7 See: KSH.

Figure 6.2.1: Changes in the estimated proportion of patients needing palliative care within the number of deaths in Hungary annually, 1970–2018



Note: In 1976, 1995 and 2004 there were modifications to the International Classification of Diseases (ICD) and their impacts were not possible to eliminate entirely during transcoding.
Source: *CERS* Databank, *CSO* mortality data base, authors' calculation.

Changes in the composition of the most frequent diseases leading to death are presented in *Table 6.2.1,* which includes the ten most frequent disease groups involving SHS in 1970 and 2018. It is seen that malignant tumours and cardiovascular diseases occupy the first three places in both years. By 2018, injuries, poisoning, tuberculosis and birth defects had no longer been a leading cause of death. However, neuro-organic diseases common in old age (such as dementia, Parkinson's and Alzheimer's disease) and, to a large extent due to increasing alcohol consumption, liver diseases, have now been included.

Table 6.2.1: The ten most frequent disease groups with SHS leading to death in Hungary

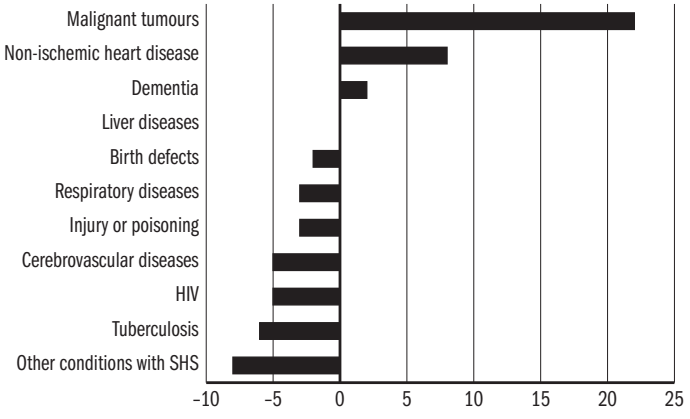
1970	2018
1. Malignant tumours	1. Malignant tumours
2. Cerebrovascular diseases	2. Cardiomyopathy and heart failure
3. Cardiomyopathy and heart failure	3. Cerebrovascular diseases
4. Atherosclerosis	4. Respiratory diseases
5. Respiratory diseases	*5. Dementia* ∧
6. Injury or poisoning ∨	*6. Liver diseases* ∧
7. Tuberculosis ∨	7. Chronic ischemic heart disease
8. Birth defects ∨	8. Atherosclerosis
9. Chronic ischemic heart disease	9. Leukemia
10. Leukemia	*10. Neuro-organic diseases* ∧

Note: Disease groups that were excluded or newly included in the ten most frequent disease groups involving SHS between 1970 and 2018 are in italics.
Source: *CSO* mortality database, authors' calculation.

The proportion of patients in need of palliative care is not significantly different from the average of countries included in the Lancet report. The estimated share of people who died of diseases requiring palliative care was 47

per cent in Hungary in 2016, whereas it was 45 per cent in the countries of the Lancet report. However, there was a significant difference in the *composition* of diseases leading to death in palliative care. The share of those who died of malignant tumours, chronic heart diseases and dementia is higher in Hungary than the average of the countries included in the Lancet report (*Figure 6.2.2*).

Figure 6.2.2: Difference between the proportions of patients who died with SHS in Hungary and the Lancet countries, 2016 (percentage points)



Source: Authors' calculations, based on *CERS* Databank, *CSO* mortality figures and *Knaul et al.* (2018).

Relying on the methodology of the Lancet report, it was possible to estimate the optimum duration, in nursing days, of palliative care of those who died in a given year. The estimated demand for care increased by nearly 50 per cent over the period concerned, since the proportion of conditions requiring lengthy palliative care increased among the causes of death. The number of deaths from SHS conditions increased by 132 per cent, the estimated duration of the cumulative demand for palliative care rose by 147 per cent and the maximum duration of palliative care increased by 153 per cent.[8]

Changes in the composition of diseases leading to death also had an impact on the structure of tasks in palliative care. In Hungary, nursing tasks related to pain relief, breathing difficulties and physical or mental fatigue expanded the most during the period considered.

These changes are in line with tendencies resulting from the shifts in the composition of diseases leading to death. However, most of the increase in the demand for palliative care is caused not by these but from the development of palliative care and the awareness and recognition of the right to palliative care. It is now acknowledged that the role of the healthcare system is not merely to cure but also to support patients during their end-of-life stage to reach their end-of-life goals and die with dignity. Society must not toler-

8 The duration of the *cumulative palliative care* is not equal to the actual duration of palliative care but to the sum of the estimated duration of the various forms of care. Since some forms of care are provided in parallel, this indicator is longer than the actual duration of the need for care. Its use is justified on the grounds that it illustrates the extent of the burden on the healthcare system. The duration of *maximum palliative care* is equal to the duration of the longest form of care multiplied by the number of deaths in a disease category. This is closer to the actual duration of care but is somewhat shorter (*Knaul et al.*, 2018).

ate patients and their families living the final stages of their lives (or a relative's life) in physical and mental agony. It is now also recognised that society is able to create the necessary institutional, human and financial conditions so that they are not forced to do that.

The labour market context of the increasing demand for palliative care

The expansion of palliative care presupposes that in the end-of-life stage the emphasis is shifted from treating the disease to achieving the palliative goals. This shift not only improves the quality of life of patients but, according to studies, it increases life expectancy and reduces the costs of care (*Higginson et al*, 2003, *Gardiner et al,* 2016). The spread of palliative care provided at home or in hospices eases the burden on the most expensive and labour intensive services of healthcare systems (*Dózsa et al,* 2013). In the following, two elements of the process are highlighted, which are especially important for matching labour market supply and demand.

Improving the key competences of workers in palliative care

Acquiring and developing the key competences of palliative care also require non-cognitive skills that are indispensable for achieving the goals of palliative care. These include conscientiousness, agreeableness, emotional stability, openness and extroversion (*Roberts et al,* 2015). Some of them are innate but can be continuously developed. Others are consolidated through parenting and formal education. Therefore the role of school education is not only to raise awareness of the palliative approach among youth but also to reinforce the non-cognitive skills needed for the effectiveness of palliative care.

Developing palliative care starts with raising awareness of the palliative approach and increasing its acceptance. Core values associated with palliative care include autonomy, dignity, quality of life and a holistic approach to life and death. In recent years, the WHO as well as international and European palliative associations prepared detailed analyses and guidelines to summarise key competences needed by staff working in the various fields of palliative care (*Ryan et al,* 2014). We herein focus on cooperation and communication skills, which are needed for teamwork.

Palliative care is a complex, multiprofessional task, which calls for close cooperation between family members participating in nursing, various professionals providing care and the patient. Several analyses found that the coordinated work of palliative teams belonging to different professions is considerably more efficient than traditional nursing based on separate care providers (*Higginson et al,* 2003). In recent years, the WHO compiled detailed handbooks with the aim of integrating the development of key palliative competences in education systems (*Radbruch et al,* 2010).

Setting up a decentralised institutional system that matches the needs of palliative care

Criteria of access to palliative care are crucial in the development of the system of institutions of palliative care. Only an institutional system with most of its elements regionally decentralised is able to attain the primary goals of palliative care. Patients prefer to spend the end-of-life stage of their life with their family or in a hospice (*Arnold et al,* 2013). Yet today they spend most of this period in hospital. This is, on the one hand, because there is a high share of elderly living in nursing homes or alone among those needing palliative care and, on the other hand, because family members do not have the skills and knowledge necessary for providing palliative care and they lack professional and financial support. In countries with a high proportion of patients who spend the end-of-life stage in their families, a carefully designed and decentralised system of institutions supports families in carrying out this task. This support also enables family members to find full-time or part-time employment (*Guerrierea et al,* 2015).

Therefore the development of the institutional system of palliative care has to be aligned with the regional characteristics of access and demand. The palliative care system has to have a structure that supports patients' home-based or hospice-based care in accordance with their disease and family conditions. This requires knowing the geographical distribution of patients needing palliative care and the transport conditions of regions as well as determining the appropriate geographical distribution of general and special palliative care institutions in order to provide for the conditions of home-based palliative care, where possible.[9]

The two-volume white paper of the European Association of Palliative Care on the standards of palliative care contains recommendations for European countries concerning the number and headcount of various levels of palliative services (palliative care wards, hospices or hospice wards, mobile palliative teams of hospitals, home-based palliative teams) proportional to the population as well as their geographical and temporal availability (*Radbruch et al,* 2010). In spite of recent developments, Hungarian palliative care institutions are not yet able to follow these recommendations (*Hegedűs–Farkas,* 2019).

9 The study "Access to palliative care in Hungary", launched in 2020 in the Institute of Economics of CERS, aims at assessing the geographical and social characteristics of patients in need of palliative care.

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7 REDUCED CAPACITY TO WORK, DISABILITY, REHABILITATION

7.1 EMPLOYMENT OF THE DISABLED POPULATION AND DEMAND-SIDE POLICY MEASURES*

JUDIT KREKÓ & ÁGOTA SCHARLE

The employment of the disabled population

Internationally, there is a growing recognition that a large proportion of people with reduced work capacity may be integrated into the labour market through appropriate support and this is beneficial to everyone. Employment may improve the physical and mental health of those involved, reduces the risk of poverty, eases the budgetary burden associated with the allowances provided for them and is conducive to economic growth through higher employment rates (*OECD,* 2010).

The below average employment of working age people with disabilities (i.e. with reduced work capacity) depends on supply and demand factors. In the standard labour economics model, individuals basically decide on taking up employment based on the value of leasure and consumption.[1] This simplified decision is also influenced by personal preferences, the available wage levels, commuting costs, welfare benefits as well as the preferences of family members. In the case of people with reduced work capacity, these factors usually work against taking up employment, since their expected wages are lower, commuting costs are often higher, they may need more rest because of their age or disability and many of them receive some kind of disability benefit. Welfare benefits reduce the supply of labour (since they make minimum consumption levels attainable); they have an even more negative effect if disabled people lose their eligibility after taking up employment (for example *Bound–Burkhauser,* 1999). In this case they have to give up both their free time and welfare benefits (which represent a stable income).

It should be taken into account that work, as a source of self-expression and social contacts, may also give pleasure, therefore the time spent working reduces utility in proportion to the free time lost but not at a one-to-one rate. This may affect the decisions of people with disabilities in two opposing ways: if the workplace is inclusive and tolerant, the relationships established may be more important for them than to their non-disabled colleagues (especially if they live in isolation because of their disability); and conversely, if the workplace is (seemingly) not inclusive, it may discourage taking up employment.

Labour demand primarily depends on what price a firm is able to sell its products for, how high the wages are and how productive the employees are.[2] However, employers are not always able to measure labour productivity and

* This subchapter was prepared using datasets from the Labour Force Survey of the Central Statistical Office. The calculations and their outcomes are the intellectual products owned by the authors Judit Krekó and Ágota Scharle exclusively.

1 If they work, they will have less free time but they can spend the wages received in exchange for work on consumption: according to the model, every employee considers this; however, individuals vary in their preferences for free time and consumption (*Ehrenberg–Smith,* 2017).

2 For the derivation of the labour demand curve see for example *Ehrenberg–Smith* (2017).

they often assume that the productivity of employees with disabilities is lower than that of their non-disabled colleagues: for example they work more slowly, make more mistakes or are on sick leave more often. This assumption is sometimes based on earlier experience but may also be based on prejudice.[3] Another factor may reduce demand: when the costs of hiring (for example due to a need to improve accessibility or reallocate tasks across positions) or working (for example support staff is needed) are higher. Prejudices attributed to colleagues or clients may also lead to discrimination (*Lovász–Telegdy,* 2010).

The supportive and encouraging interventions of governments are especially justified in the employment of people with reduced work capacity. On the one hand, the government is responsible for appropriately regulating access to cash benefits, in a way to avoid disincentives to labour supply. On the other hand, neither rehabilitation services, nor anti-discrimination can be entrusted to market players partly because of limited information and partly due to the welfare benefits that go beyond individual interests (*OECD,* 2010).

The evaluation of the employment of people with reduced work capacity is encumbered by the lack of a common definition and clearly defined measurement methods and thus the comparability of data from various surveys is limited (for more details see *Box K7.2*).

In the following, we mainly rely on data from the Labour Force Survey (LFS) of the Central Statistical Office (CSO) to assess the employment of the population with disabilities. Based on the definition of the LFS, a person with a disability is someone who has suffered a long-term health or mental problem for at least six months that restricts him or her in an aspect of work (duration or nature of work or commuting). It is important to note that the LFS is based on the self-assessment of respondents and it does not mean that their disability (reduced work capacity) has been officially confirmed.

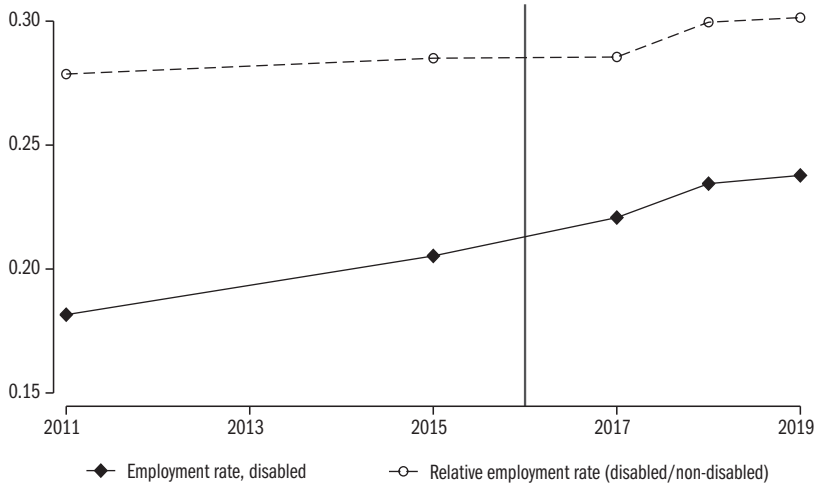
Since the question in the LFS concerning health condition was altered in 2017, compared to the surveys conducted in 2011 and 2015, the share of those with disabilities is not comparable to data from 2017–2019.[4] Based on the above definition, 8 per cent of the population aged 19–64 may be regarded as disabled in the LFS in 2019: because of the change in the definition, this proportion is considerably lower than the 11.2 per cent observed in 2011.

The employment situation of the population with reduced work capacity is described by the absolute and relative employment rates. The latter measures the employment rate of the population with disabilities relative to the employment rate of the non-disabled population. *Figure 7.1.1* shows that only less than a quarter of the population with disabilities (23 per cent) worked in 2019, which is barely a third of the employment rate of the non-disabled population. This relative indicator hardly changed between 2011 and 2015 as employment also grew speedily in the entire population. However, between 2017 and 2019 both the relative and the absolute employment rates increased slowly.

3 Nearly two-thirds of employees with reduced work capacity have already experienced discrimination during job search (*CSO,* 2015).

4 In the 2011 and 2015 surveys, the question "Have you got a long-term health problem?" was followed by the list of potential conditions and there was also an "other" category for respondents. However, since 2017 only yes/no answers are possible to give, therefore it is possible that respondents do not think of a health problem which would be on the list. Someone can only be regarded as a person with reduced work capacity if they gave an affirmative response to this question and their long-term illness poses an obstacle to employment.

Figure 7.1.1: The absolute and relative employment rates of the population with reduced work capacity aged 19–64



Note: The vertical line indicates the change in the question about reduced work capacity in the LFS survey.
Source: LFS, *CSO*.

In the following we will explore what role the different composition of the population with reduced work capacity plays in the employment gap. As seen in *Figure 7.1.2*, the average age of this group (also within the age group 19–64) is considerably higher than that of the healthy population, since a large proportion of long-term health problems are diseases developed over one's life. In addition, the average educational attainment of the group with reduced work capacity is substantially lower, for several reasons. On the one hand, disabilities present or acquired in childhood reduce the chances of school attendance and further studies (see *Subchapter 8.1.* and *Box K8.1*). On the other hand, those with low educational attainment are more likely to work in manual jobs, which involves a higher risk of deterioration of work capacity (see *Subchapter 3.3*).

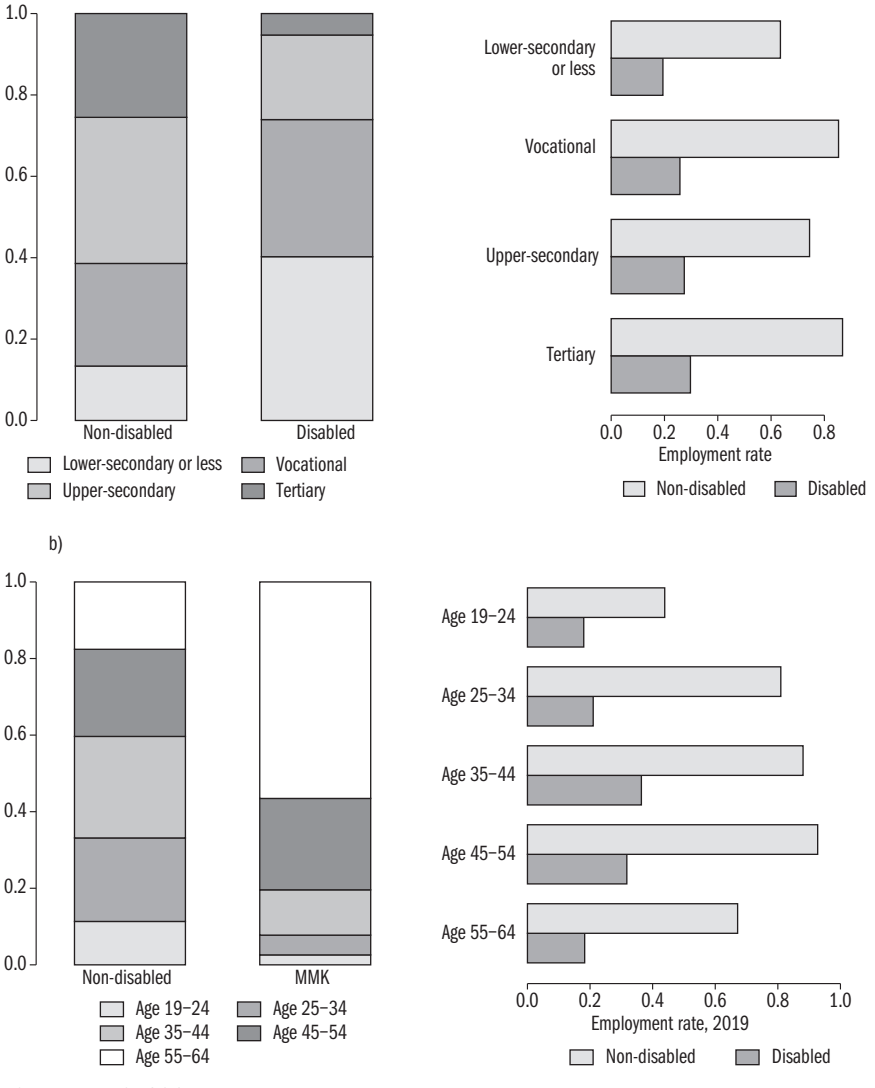
However, the figures also reveal that among those over 55 and those with a lower-secondary qualification the employment rate of the healthy population is also lower.[5] In order to assess the effect of the different composition, the Oaxaca–Blinder decomposition method was used: we divided the difference (in percentage points) between the employment rate of the healthy and reduced work capacity population aged 19–64. The results are summarised in *Table 7.1.1.* The composition effect indicates to what extent the dissimilar characteristics of the two groups (educational attainment, age, gender, regional distribution and urban or rural residence) explain the difference in employment rates.[6] The parameter effect shows the effect of disability, while the (negligible) interaction component describes that the same

5 The distribution of the population with reduced work capacity by age and educational attainment is similar during the years between 2011 and 2018.

6 The role of age was assessed based on the following categories: 19–24, 25–34, 35–44, 45–54, 55–64. Educational attainment was broken down by the four categories of lower-secondary, vocational school, upper-secondary ending in a Matura and tertiary education qualification.

characteristics differently affect the employment chances of the two groups. The results indicate that the dissimilar composition of the population with disabilities explains less than one-fifth of the differences in employment; the majority of the employment gap (about 46 percentage points) is due to reduced work capacity.

Figure 7.1.2: The educational attainment and employment rate of the population with and without disabilities in 2019, broken down by educational attainment (a) and age (b)



Source: *LFS, CSO*.

Table 7.1.1: Difference between the employment rates of populations with and without disabilities aged 19–64, broken down by factors, 2017–2019

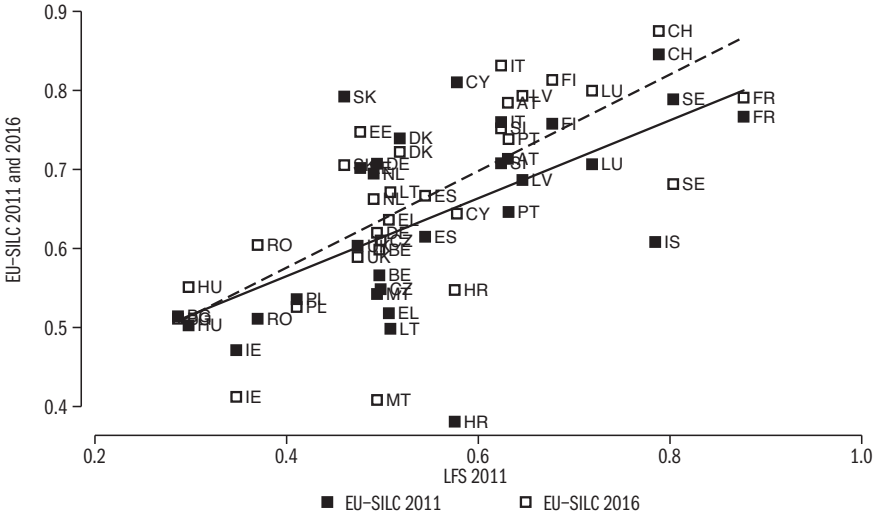
	2017	2018	2019
Non-disabled	0.773	0.783	0.789
Disabled	0.221	0.234	0.238
Total difference	0.552***	0.548***	0.551***
Composition effect	0.105***	0.098***	0.062***
Parameter effect	0.460***	0.463***	0.472***
Interaction	–0.012	–0.013	0.017

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Authors' calculation, based on *LFS* data from 2017–2019, using the Oaxaca–Blinder decomposition method.

The labour market situation of the Hungarian population with reduced work capacity does not compare favourably internationally either. The Labour Force Survey (LFS), covering all the countries of the European Union last included a question about disability in 2011. According to this survey, Hungary is at the back of the pack of European countries: the relative employment rate (30 per cent) hardly exceeded one half of the EU average (56 per cent) and the indicator was lower only in Bulgaria (*Figure 7.1.3*).

Figure 7.1.3: The relative employment rate in the LFS and the EU–SILC surveys



Country codes: AT – Austria, BE – Belgium, CH – Switzerland, CY – Cyprus, CZ – Czech Republic, DK – Denmark, DE – Germany, EE – Estonia, EL – Greece, ES – Spain, FI – Finland, FR – France, HR – Croatia, IE – Ireland, IS – Iceland, IT – Italy, LT – Lithuania, LU – Luxembourg, LV – Latvia, HU – Hungary, NL – Netherlands, PL – Poland, PT – Portugal, RO – Romania, SI – Slovenia, SK – Slovakia, SE – Sweden, UK – United Kingdom.

Note: The calculations and the figure was prepared by *Boldmaa Bat-Erdene*. The relative employment rate is the ratio of the employment rates of the reduced work capacity and the healthy populations aged 15–64.

Source: *Eurostat* (EU-SILC and LFS).

The relative employment rate is also low by international comparison according to another European questionnaire survey, EU–SILC, which relies on a broader definition. It reveals that although the employment gap of the population with reduced work capacity compared to the EU average has decreased since 2011, in 2016 it was still significant (see *Box K7.2* for more details about the comparison of EU–SILC and LFS).

Policy measures

On the demand side of the labour market, the most important financial incentives for employing people with reduced work capacity include wage subsidies, tax allowances, obligatory employment quotas and grants for improving the accessibility of workplaces. What these measures have in common is the reduction of the relative costs of employing disabled workers relative to non-disabled workers and in this way diverting demand in their direction in the open labour market. Based on international experience, these financial incentives have a positive but typically modest impact (for example *Datta Gupta et al,* 2015, *Scharle–Csillag,* 2016). In addition to financial incentives, awareness-raising campaigns and training that reduce discrimination and improve their inclusion also boost demand for employees with reduced work capacity (*Phillips et al,* 2015, *McDonnall–Antonelli,* 2020).

In Hungary, demand-side measures strongly encourage employers to employ disabled individuals. One of the most important measures boosting labour demand for people with reduced work capacity is the obligatory employment quota, widely used across countries, which requires the employment of a certain number of workers with disabilities or, failing that, the payment of a punitive tax. In Hungary, all employers with over 25 employees (including public sector and non-profit organisations) have to pay a so called 'rehabilitation contribution' if the share of employees with disabilities does not reach the obligatory employment rate, which is 5 per cent of the headcount. The contribution is significant: it was HUF 1,449 thousand/per person in 2020, which is 63 per cent of the annual amount of the minimum wage and the related contributions or nine times the monthly amount of the minimum wage. The obligatory employment rate can only include employees confirmed as individuals with reduced work capacity by the complex assessment of a rehabilitation committee and who at the same work at least four hours a day.[7] The obligatory employment quota of employees with reduced work capacity is widely adopted in other countries; however, the associated rehabilitation contribution (a punitive tax) is high in Hungary by international comparison (*OECD,* 2010, *Lalive et al,* 2013). (Regarding its impact see *Box K7.1*).

The significant tax allowance offered for employers when employing disabled people may also increase demand: employers are entirely exempt from paying social contribution tax on wages amounting up to twice the minimum wage,[8]

7 See Act CXCI of 2011 on the benefits provided for persons with reduced work capacity and on the amendment of certain acts.

8 The allowance was introduced on 1 January 2019 (Act LII of 2018). It replaced the rehabilitation card, which was possible to claim by people with reduced work capacity and which also provided substantial allowances.

and for firms with fewer than 20 employees the wages of employees with reduced work capacity (up to the minimum wage) are deductible from the corporate tax base.[9] Nevertheless, disabled employees are entitled to additional five days annual paid leave, which increases labour costs. Besides incentives for employment in the open labour market, substantial government funding is granted for accredited employers, who provide secure (sheltered) but segregated jobs for 30 thousand persons. According to international experience, this is considerably less efficient in terms of rehabilitation than support granted for employment in the open labour market (see for example *Scharle–Csillag,* 2016).[10]

On the supply side, the extent and accessibility of cash benefits as well as rehabilitation services for restoring work capacity (assessment of existing skills, motivating, reskilling, coaching) and job placement are the most significant policy measures (for more details see *Subchapter 7.2*).

As shown in *Box K7.1* in more detail, the rehabilitation contribution demonstrably increases the employment of people with disabilities in the open labour market. However, the low uptake of the quota, which has not been improving over recent years, and the considerable employment gap of the population with disabilities indicates that the substantial financial incentives alone are not sufficient to integrate people with disabilities in the labour market.

9 See Act LXXXI of 1996. The maximum company size was not raised in line with the increase in the minimum company size pertaining to rehabilitation contribution from 20 to 25, therefore firms with employee numbers between 20 and 25 are not subject to either the corporate tax relief or the quota.

10 In principle, rehabilitation also takes place at these workplaces: about one-fourth of employees with reduced work capacity are in transitional employment, which means that they are supposed to find employment in the open labour market in three years with the help of their employers. However, we were unable to obtain information on the actual compliance with this regulation.

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K7.1 The disability employment quota and the rehabilitation contribution

JUDIT KREKÓ & ÁGOTA SCHARLE

We assess the impact of the obligatory disability employment quota on the employment rate of the population with disabilities using the raise of the rehabilitation contribution in 2010, when the amount of the rehabilitation contribution increased significantly, more than fivefold for firms employing at least 20 workers.[1] The horizontal axis of part a) of *Figure K.7.1.1* indicates company size and the vertical axis indicates the average number of workers with disabilities in the particular group of employers. The comparison of years preceding and following the raise shows that the business sector responded vigorously to the raise: the quota considerably increased the employment rate of disabled people in the open labour market. There is no significant break in the number of disabled employees in 2008, when the amount of the rehabilitation contribution was significantly lower, one-fifth of the current amount. However, after the raise, firms with slightly over 20 employees (the size threshold effective at the time), employed 0.28 more disabled employees than prior to the raise, which is equal to 28 per cent of the quota in their case.

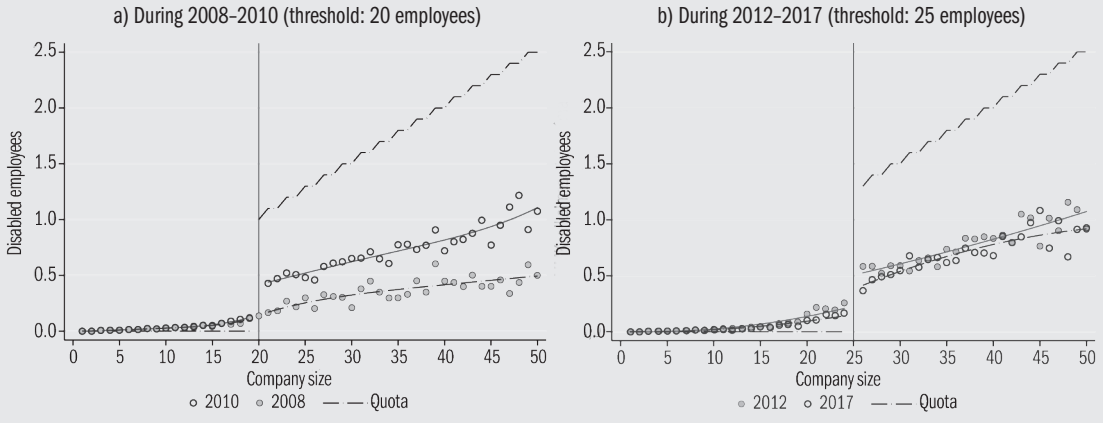
The discontinuity in 2010 unequivocally shows the impact of the raise of the rehabilitation contribution, which is confirmed by the fact that the break in the average number of disabled workers moved to the new minimum company size after this threshold was raised from 20 employees to 25 employees in 2012. Part b) of Figure *K7.1.1* presents the average number of disabled workers in 2012 and in 2017 at firms with different headcounts below and above the new threshold of 25 specified in the law. Firms with headcounts just over the threshold of 25 had considerably more disabled workers (about 0.6) on average than those below it (about 0.3) in 2012.[2] Despite the significant impact, the number of disabled employees is far below the obligatory employment quota even at firms above the threshold (1.3 at firms with 25 employees), and the situation did not change significantly in 2017 either, even though the regulation includes a very strong financial incentive. The amount of the rehabilitation contribution is higher than the monthly wage costs and contributions of a part-time employee on minimum wage. Consequently, if an employer recruits a disabled person to work part-time for about the minimum wage, they have lower costs even if the work delivered by the person has no added value. In addition to saving the cost of the rehabilitation contribution, in most cases the employer is also entitled to a substantial tax benefit, which results in further savings.

How does all this translate to the number of jobs? Extrapolating the impact estimated for firms around the threshold and applying it to 2018, we estimate that the rehabilitation contribution generated about 20–25 thousand jobs for disabled employees. However, recent data of revenue from rehabilitation contribution suggest that the majority of the quota, about 65–70 per cent, is still unfilled. This means that in 2018 the number of disabled employees was about 75 thousand short of fulfilling the quota. Employers paid a huge amount, about 102 billion HUF in rehabilitation contributions into the national budget in 2019 because of failing to fill the quota.

1 From HUF 174 thousand annually to HUF 946 thousand annually per employee missing from the obligatory employment level.

2 We estimated the impact of the rehabilitation contribution using regression discontinuity design. It was accounted for that firms may adapt their headcounts to the regulation. As for headcount distribution across firms, there is aggregation below the minimum company size, suggesting that some firms choose to stay below the minimum company size in order to avoid paying rehabilitation contribution. After the adjustment of raw results, taking into account distortions due to this manipulation, it is still seen that the quota substantially increases the employment rate of disabled workers.

Figure K7.1.1: The average number of disabled employees by company size



Source: Authors' estimation based on the company tax return database of the tax authority. The dots represent the average number of disabled employees and the lines are quadratic polynomials fitted to the dots. Firms with a share of disabled employees over 40 per cent are excluded because they are assumed to offer sheltered (segregated) employment.

7.2 CHANGES IN DISABILITY BENEFITS AND THEIR IMPACTS

JUDIT KREKÓ & ÁGOTA SCHARLE

Since the regime change, the system of disability and rehabilitation benefits has undergone profound transformations. During the recession following the regime change, the number of beneficiaries doubled between 1990 and 2003 as a result of lenient regulation and by 2003 it had exceeded 713 thousand persons, which amounts to 12 per cent of the working-age population.[1]

Following the cautious and largely ineffective attempts to tighten up legislation starting in the late 1990s, the first noteworthy reform took place in 2008, which introduced assessment based on remaining work capacity and legislation to encourage rehabilitation and which also extended rehabilitation services (*Scharle,* 2008b). The next reform, in 2012, took a different approach to cutting the costs of the system: it focused on restricting access and reducing benefit levels (*Kovács,* 2019, *Nagy,* 2014).

The number of those receiving benefits based on their reduced work capacity (disability) fell dramatically, by over 60 per cent, to 290 thousand persons, that is below 5 per cent of the working age population, between 2003 and 2019. By international comparison, the proportion of beneficiaries of disability benefit relative to the active age population dropped from the top of the OECD ranking to its lower half (*OECD,* 2010, 2016). In terms of expenses as a share of the GDP, Hungary moved from the mid-range of the EU to the group of member states spending the least: expenses have halved since 2007 and fell to 1 per cent of the GDP, one of the lowest in the EU.

What is behind this profound change? The number of beneficiaries is mainly influenced by regulating the access to, and extent of, benefits as well as the demographic composition and the health of the population. In the following, first we provide a brief overview of the measures introduced in 2008 and 2012. (Changes in the most important disability cash benefits are summarised in *Table 7.2.1.*) Then, based on an analysis of administrative data, we present the trends in inflows and outflows of disability and rehabilitation benefits as well as the amount thereof.

We do not undertake to assess changes in the general health condition of the population. However, we calculate changes in the health indicators of new beneficiaries compared to those of the total population to show the evolution of targeting and rigour of disability benefits. Additionally, we also investigate the impact of demographic changes on inflows into benefits.

Cash benefits have to fulfil several, partly opposing objectives. The primary function of disability benefits is to provide a livelihood for those who have

1 *Köllő–Nacsa* (2004) and *Scharle* (2008a) report that the share of receiving disability pension is higher in regions where labour market conditions are unfavourable. *Bíró–Elek* (2020) shows that job loss significantly increases the probability of disability retirement, probably partly due to the impact of job loss on health and partly due to disability retirement being an alternative to unemployment.

partly or completely lost their income from work because of their health conditions. Nevertheless, benefits should also encourage beneficiaries to return to the labour market as soon as possible, using their remaining work capacity. In addition to cash benefits, rehabilitation services play a key role in this process, since they may support the restoration of work capacity, the finding of a job suitable for the health condition and preparation for this job.

Regulation faces a serious dilemma: several empirical studies (for example *Bound,* 1989, *Autor–Duggan,* 2003, *Scharle,* 2008b) report that low barriers to entry and excessive benefits significantly reduce labour supply, while an overly restrictive system is not able to fulfil its primary role of income support. When presenting the changes to the benefit system, this subchapter will also address the above aspects.

Reforms of the system of disability benefits in 2008

The stated purpose of reforming cash benefits in 2008 was, in line with international trends, to promote rehabilitation, the restoration of work capacity and exploiting the remaining work capacity to the fullest extent possible instead of focusing on disability, and also to encourage the labour market integration of recipients by strengthening the system of rehabilitation services (*OECD,* 2010, *Csillag–Scharle,* 2016).

A new, complex appraisal system was introduced on 1 January 2008, which is still in place (see *Box K7.2*). The new system has linked eligibility to the extent of total damage to health (instead of the reduction in work capacity), and assigned new thresholds to levels of severity. This did not necessarily imply tightening: assessment now focused on skills that can be developed, changes in occupational work capacity and the chances of rehabilitation. Accordingly, the other key element of the reform was the introduction of a rehabilitation benefit granted for up to three years, which considerably restricted the probability of becoming immediately eligible for a permanent disability benefit. Those with health damage of at least 50 per cent and assessed as rehabilitable were eligible for a rehabilitation benefit. They were also offered employment rehabilitation services and the law even stipulated that beneficiaries were to cooperate with the Public Employment Service (PES) although it did not specify any sanctions. Rehabilitation services were provided by the PES and non-profit service providers under contract within an EU-funded programme, at a larger scale than previously (*Adamecz-Völgyi et al,* 2018). The reform also maximised wages received for working in addition to receiving regular social benefits at 80 per cent of the minimum wage as opposed to the previous 80 per cent of earlier wages.

Reforms of disability and rehabilitation benefits in 2012

Reforms in 2012[2] profoundly transformed the system of cash benefits (*Table 7.2.1*). Disability and rehabilitation benefits were removed from the pension

2 Act CXCI of 2011 on the Benefits for Persons with Reduced Work Capacity.

system, while former benefit types (disability pension, accident disability pension, regular social benefit and bridging allowance as well as rehabilitation allowance) were replaced by the newly introduced disability and rehabilitation benefits. Recipients of former benefits, except for beneficiaries of rehabilitation benefits, were automatically transferred on 1 January 2012 to one of the new benefit types, while those aged over 62 were reclassified as old-age pensioners.

The stated objectives of the reforms in 2012 included giving more focus to rehabilitation and social welfare aspects in addition to medical assessment and to encouraging those able to return to the labour market to do so. Accordingly, those with a health condition of 31–60 per cent and employability that may be restored through rehabilitation (or who are able to work assisted by occupational rehabilitation) are granted a rehabilitation benefit for a maximum of three years. The amount of the rehabilitation benefit is substantially lower (up to HUF 50.3 thousand in 2020) than the rehabilitation allowance it replaced. Disability pension is only granted to those whose rehabilitation is not recommended.

In principle, all beneficiaries who may be rehabilitated are entitled to services enhancing their employability and supporting job search; however, access to and the quality of these services did not improve during the years following the reforms (and in some regions they may have even deteriorated). Rehabilitation services were provided by the National Office for Rehabilitation and Social Affairs between 2012 and 2015 and then, since its dissolution, they have been provided by three different types of institutions: Human Resource Development OP or Competitive Central Hungary OP offices in two or three cities in each county (49 offices altogether, whereas the Public Employment Service has 170 offices throughout the country), one or two rehabilitation counsellors of the Public Employment Service in each county and NGOs. NGOs tend to offer more personalised and more diverse services[3] but their funding is more uncertain: application requirements change annually and state subsidies are often disbursed after several months of delay (*Scharle,* 2016). They also have restricted capacities: for example in the project titled 'Rehabilitation – Value – Change' (Hungarian abbreviation: RÉV), implemented between 2014 and 2017, NGOs assisted a total of 3,500 persons to return to the labour market.

Employment rehabilitation is also provided by accredited employers; however, the subsidies granted for this (called transitional employment by the legislation) do not encourage either real rehabilitation or finding employment in the open labour market.[4]

As opposed to earlier reforms (and reforms introduced by other countries), reforms in 2012 both changed the requirements of claiming the new benefits and called for a revision of earlier benefits. The extent of health damage and entitlement to benefits were assessed through a complex appraisal in the case of disability pensioners below age 57 with health damage of less than 79 per cent (or a less than 100 percent reduction in work capacity according to cat-

3 NGOs provide various services that help job seekers and employers find one another and reduce the costs and prejudices of employers. They assess existing skills and motivations, prepare individual action plans, provide training or preparation for obtaining employment if needed, search for an appropriate job, provide initial training or sensitisation for future colleagues and assist with the difficulties after starting a new job.

4 Workers in transitional employment may stay up to three years in supported employment and then they have to find a job in the open labour market with the help of their employers within three years. However, failure to do this is not sanctioned by the law.

egories prior to 2008) and the recipients of regular social benefit below age 57. Beneficiaries had to declare until 31 March 2012 whether they wished to undergo the appraisal: if they failed to make a declaration or they did not request the appraisal, they lost their entitlement in May 2012. Based on data from CERS Admin3 database (see below), this obligation concerned about 200 thousand beneficiaries.

Table 7.2.1: The main insured[a] cash benefits for persons with reduced work capacity[b]

Benefit	Extent of health damage	Other entitlement conditions	Amount	Earnings limit[d]
1 January 2008 – 31 December 2011				
Disability pension, Group I	Over 79 per cent and needs assistance	Length of service (dependent on age)	Comparable to pension[c]	None
Disability pension, Group II	Over 79 per cent but needs no assistance	Length of service (dependent on age)	Comparable to pension[c]	None
Disability pension, Group III	50–79 per cent and is not possible to rehabilitate	Length of service (dependent on age)	Comparable to pension[c]	On net average wages: 90 per cent of the monthly average wage, which is the basis for disability pension, duly updated with pension increases (the average of six consecutive months); On gross average wages since January 2009: twice the amount of disability pension (the average of six consecutive months)
Regular social benefit	Min. 40 per cent	Half of the length of service required for disability pension	Fixed amount (HUF 27 thousand in 2011)	80 per cent of the minimum wage (the average of six consecutive months)
Bridging allowance	Min. 40 per cent	Half of the length of service required for disability pension; Maximum 5 years left until retirement age	75 per cent of old-age pension at the time of entitlement	80 per cent of the minimum wage (the average of six consecutive months)
Rehabilitation allowance	50–79 per cent	May be rehabilitated Min. 30 per cent reduction of wages Payable for a maximum of 3 years	120 per cent of disability pension in Group III	The allowance is reduced by 50 per cent if the wage reaches 90 per cent of the former average wage
Since 1 January 2012				
Disability benefit	Maximum 60 percent health condition[e]	Length of service; Rehabilitation not recommended	Dependent on former wages, length of service, health	150 per cent of the minimum wage (2012–2013: the average of three consecutive months, since 2014: over three consecutive months)
Rehabilitation benefit	Maximum 60 percent health condition	Length of service; Employability may be restored by rehabilitation	Dependent on former wages, length of service, health (HUF 30,470–50,780 in 2020)	2012: the cash benefit is suspended during gainful employment, 1 January 2013 – 30 April 2016: 20 hours weekly, without an earnings limit, Since 1 May 2016: 150 per cent of the minimum wage (over three consecutive months)

[a] The two most important non-insured benefits are the disability allowance and invalidity allowance. Persons with severe disabilities over 18 are entitled to the disability allowance, which has been HUF 20,982–25,825 since 2017. Persons with a permanent health damage of at least 70 per cent, incurred before the age of 25, who do not receive disability or rehabilitation benefits, are entitled to invalidity allowance. It is a flat rate benefit (HUF 38,670 since 1 January 2020).

[b] Prior to 1 January 2008, all of these benefits were available except for the rehabilitation allowance. Entitlement was linked to the extent of loss of work capacity and earning limits varied by benefit type. The table does not include the insured health damage benefit of miners, introduced in 1991, for persons with a health damage of at least 29 per cent incurred because of their work as miners.

[c] The amount depends on prior wages, length of service and the extent of reduction in work capacity and it is higher than the pension available in the case of identical length of service and former wages.

[d] It concerns gainful employment undertaken during the disbursement of the benefit and new beneficiaries. Beneficiaries who had already been entitled to it prior to the reforms, were typically subject to transitional or earlier legislation.

[e] Since 2012, health condition has been determined as a percentage of health instead of the extent of health damage. The minimum of 40 percent health damage, assessed prior to 2012, corresponds to a maximum of 60 percent health condition after 2012.

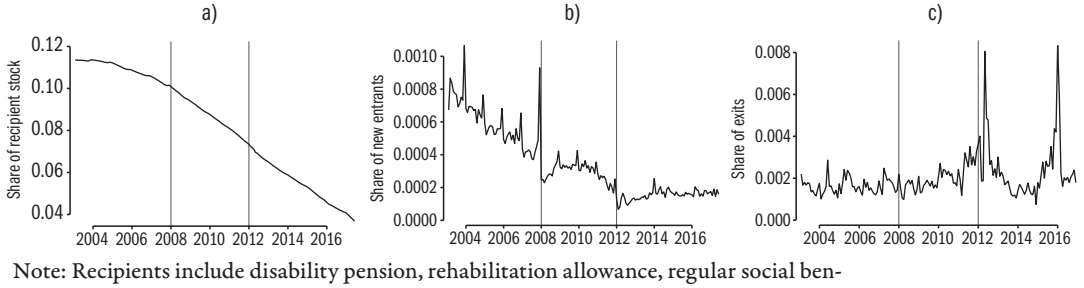
Changes in the share of benefit recipients among persons with reduced work capacity

In this section we describe the accessibility of cash benefits for persons with reduced work capacity (RWC) using the Admin3 database, compiled by the Databank of the Centre for Economic and Regional Studies (CERS), which contains anonymised, individual-level data of 50 per cent of the Hungarian population between 2003 and 2017.[5] Data on entry into disability and rehabilitation benefits are available until June 2017 for the age group 20–60.

Figure 7.2.1 presents the share of the age group 20–60 receiving or entering benefits for reduced work capacity as well as the share of those exiting the benefits (the number of benefits terminated in a given month relative to the number of beneficiaries of the previous month). The vertical lines mark the reforms in 2008 and 2012. The analysis only includes insured disability and rehabilitation benefits.

5 A brief description of the database is provided in the Annex of this *In Focus* volume, for more detail see *Sebők* (2019).

Figure 7.2.1: Recipients of insurance based disability benefits a) stock b) inflow c) outflow



Note: Recipients include disability pension, rehabilitation allowance, regular social benefit, bridging allowance and the health damage benefit of miners until December 2011 and disability and rehabilitation benefits as well as the phasing out of rehabilitation allowance from 2012 onwards. The stock and inflow are shown relative to the population of age 20–60, while the outflow is shown as a share of the previous month's beneficiaries.
Source: Authors' calculation based on Admin3.

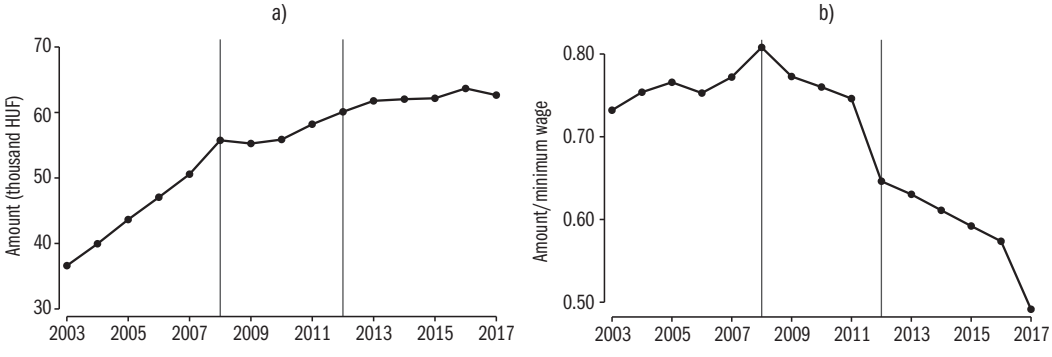
In the period between 2003 and 2017, the share of beneficiaries fell steadily. In the period until 2008, inflow gradually declined primarily because of

a drop in the inflow into regular social benefit. It is also discernible that before the 2008 reform, expecting a tightening of the assessment system, many brought forward and submitted their claims for disability pension before the amendment.

The reform in 2008 primarily caused a sharp decrease in the number of entrants, while the number of exits did not change significantly. As a result of the reform in 2012, the number of entrants diminished substantially and the number of exits surged, therefore the number of beneficiaries dropped considerably. The number of exiters was especially high in May 2012, when beneficiaries not requesting the complex assessment lost their entitlement. A similarly massive wave of exit happened in 2016: the entitlement of many beneficiaries who were granted a rehabilitation benefit for three years expired in that year.

After the reform in 2008 the average amount of benefits (relative to the effective minimum wage) did not change substantially (*Figure 7.2.2*). Abolishing the 13th pension in 2009 resulted in a drop in disability pension levels. Following the 2012 reform, several factors contributed to the decrease in benefits relative to the minimum wage. On the one hand, rehabilitation benefit as opposed to rehabilitation allowance prior to 2012 was particularly low. On the other hand, the amount of benefits followed neither the 20 percent increase in the minimum wage in 2012, nor the increases of the following years.

Figure 7.2.2: The average amount of benefits in HUF (a) and relative to the minimum wage (b)



Note: The figure presents the annual averages of benefits.
Source: Authors' calculation based on Admin3.

Health indicators of new entrants to disability and rehabilitation benefits relative to the total population

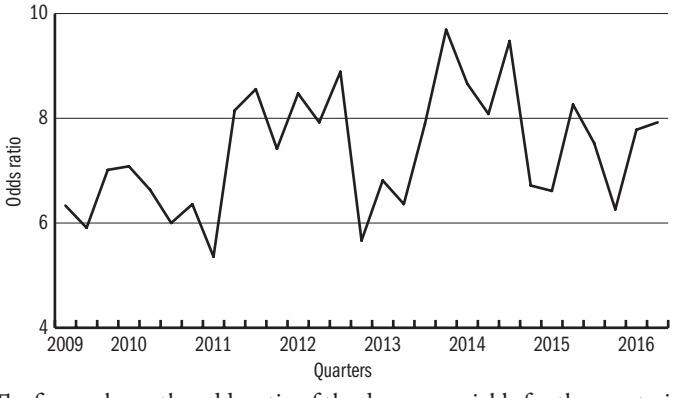
In the following, we will compare the health condition of working age new beneficiaries to the similar age group of the active population. The relative health condition of entrants provides information on the targeting of benefits and also on what role the changing regulation had in decreasing the share of beneficiaries.

The following figures indicate changes in the health indicators of entrants to disability or rehabilitation benefits of those aged 20–60 compared with the total population aged 20–60. The following health indicators are included: expenditure on prescription-only medicines (both own spending and social security subsidies), number of outpatient and inpatient visits financed by social security as well as visits to the general practitioner over the 12 months preceding entry. (Visits to the general practitioner exclude the month immediately preceding the entry to disability benefit so that the administrative visits related to the complex assessment procedure do not distort results.) In addition, the death rate in the first year after entry was also included. Although this indicator may also be affected by the period of receiving the benefit, we considered it to be mainly determined by the health condition prior to entry to the benefit.

Since healthcare data are available from Admin3 from 2009 onwards, comparison was only possible to undertake for the period between January 2010 and June 2017, which primarily reveals how the reform in 2012 influenced the relative health condition of entrants.

Figure 7.2.3. shows the odds ratio of death of entrants within a year after entry, controlled for gender and age, in the population aged 20–60 during the period 2009–2016. Entrants to the benefit are 6–10 times more likely to die within a year than persons of the same age and gender not entering the benefit scheme, and their relative mortality has slightly increased since 2009.

Figure 7.2.3: Mortality of entrants to disability benefits, controlled for gender and age relative to the total population aged 20–60 (at 12 months after entry), 2009–2016

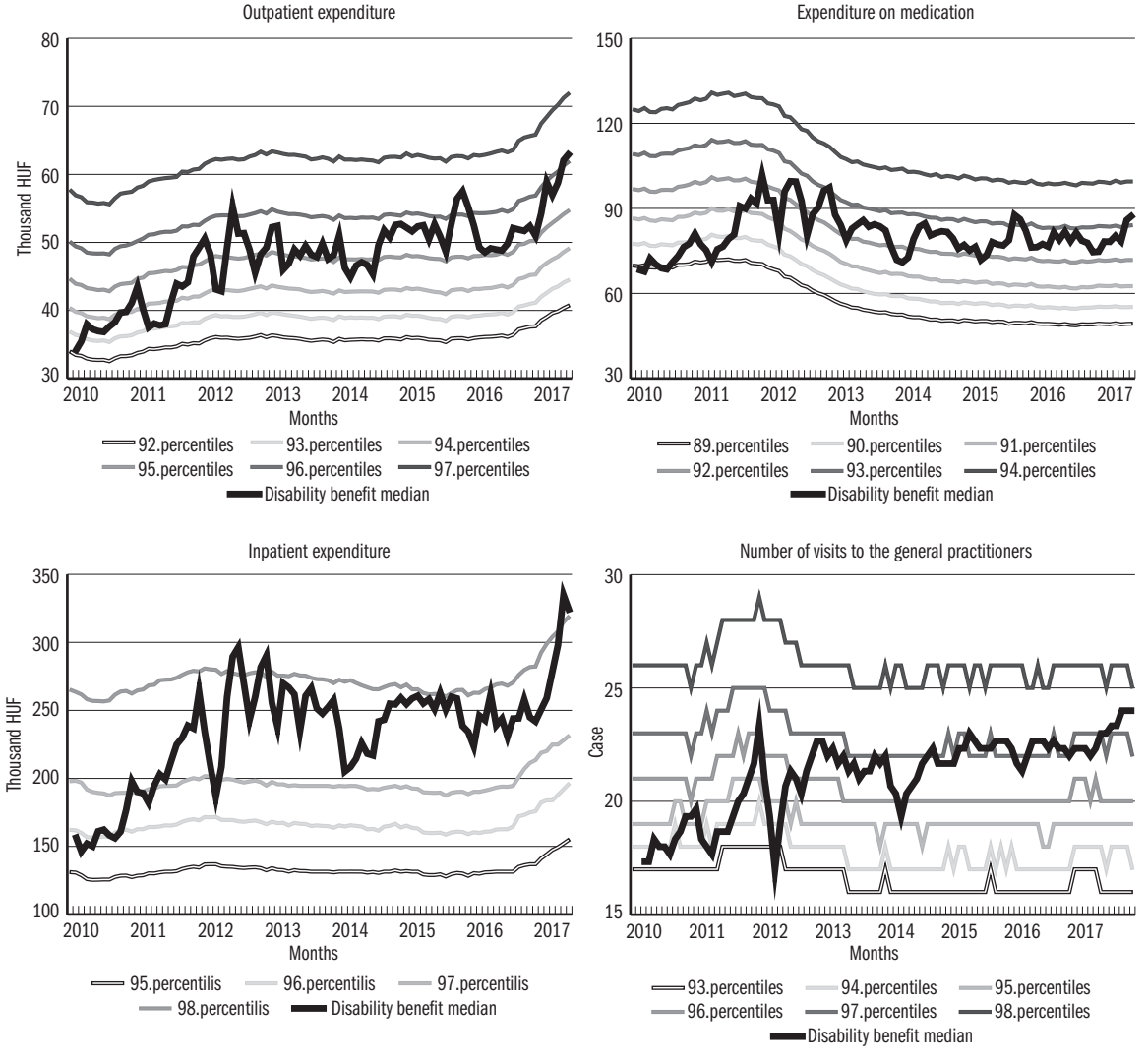


Note: The figure shows the odds ratio of the dummy variable for those entering the benefit, from a logit model on mortality with a one-year lag in the population aged 20–60. The logit model includes those aged between 20–60 years broken down by 10-year age groups and gender as an explanatory variable.
Source: Authors' calculation based on Admin3.

Figure 7.2.4 reveals that entrants to the disability benefit are in the top 5–10 percentile in terms of health indicators. There is a slow deterioration between 2010 and 2016, while most of the increases took place before 2012. All this

suggests that benefits became more targeted: the decreasing share of recipients of rehabilitation and disability benefits is partly due to the reforms in 2008 and 2012, which granted benefit access to those of relatively poorer health.

Figure 7.2.4.: Median healthcare expenditure of disability benefit entrants over the past 12 months relative to the percentiles of the total population aged 20–60



Note: Changes in the age and gender composition of entrants were controlled for. The raw figures are very similar to the figures above.
Source: Authors' calculation based on Admin3.

Essentially there may be two factors behind the deterioration of the relative health of beneficiaries, which cannot be disentangled on the basis of available

data. One explanation may be that the appraisal has become stricter, that is the minimum damage to health required for granting the benefit has been raised. In addition to stricter appraisal, declining demand may also have contributed to a reduced inflow. The decrease in the rate of benefits to wages (the replacement ratio) may have discouraged many potential applicants from claiming a benefit. In addition to the lower amount of the benefit, one factor which may have also contributed to the drop in claims is that the limit on earnings from employment in addition to receiving a benefit was lowered for those with high prior wages.[6]

In order to assess the impact of demographic changes on inflows, the population aged 20–60 was divided into five-year age groups. We assessed how high the inflow would be in 2016 if the odds of entry in 2016, broken down by age groups, were calculated based on the age composition of 2003. The results indicate that with the age composition of 2003 of the population aged 20–60 the number of new entrants in 2016 would be 4 per cent higher, revealing that demographic changes had a marginal impact on the drop in the inflow between 2003 and 2016.

Employability of beneficiaries of disability and rehabilitation benefits

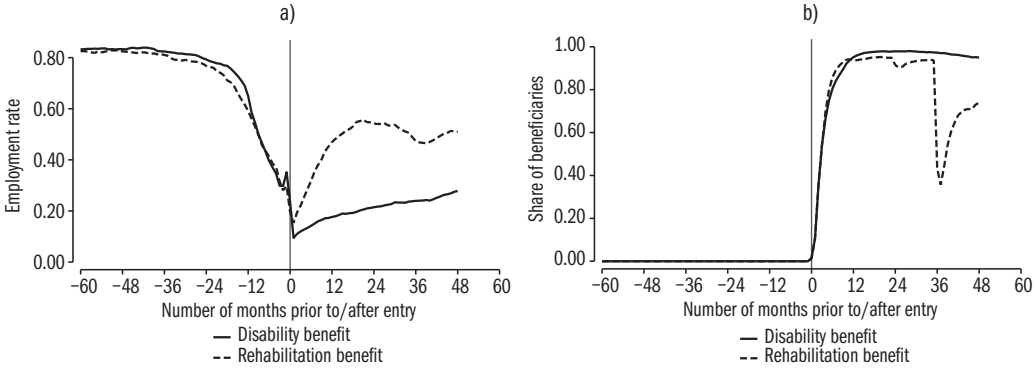
In the following, the employment probabilities of recipients of disability and rehabilitation benefits are discussed. Those entering rehabilitation benefit between 2012 and 2014 returned to the labour market sooner than those entering disability benefit (*Figure 7.2.5*). However, the share of employees is still only about 50 per cent among them three years after entry, even though the stated objective of the rehabilitation benefit is to reintegrate beneficiaries into the labour market within three years. However, the right-hand panel of the figure reveals that a large proportion of those entering the benefit still receive disability or rehabilitation benefits, either because they were transferred to disability benefit or because they were repeatedly granted rehabilitation benefit. On the whole, the proportion of entrants to rehabilitation benefit is small and has been decreasing: between 2012 and 2017 the share of entrants to rehabilitation benefits among beneficiaries fell from about 25 per cent to 15 per cent.

The left-hand side of *Figure 7.2.6* shows that proportionately more of those entering the benefit after the reforms in 2012 are in employment than those entering in 2008. However, trends in the employment rate relative to the population aged 20–60 show that the employment lag of entrants to disability and rehabilitation benefits did not decrease significantly after the reforms in 2012 (part b) of *Figure 7.2.6*).[7]

6 For those entering disability benefit after 1 January 2012 the limit has been 150 per cent of the minimum wage, while until 2012 it was dependent on prior wages.

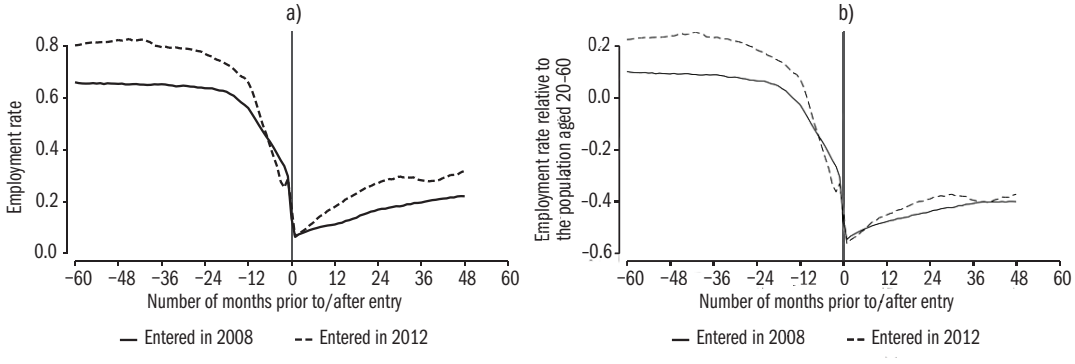
7 Examined by regression analysis, the probability of employment 12, 24 and 36 months after entry is not significantly different for those entering in 2008 and in 2012, even when controlling for gender, age and region.

Figure 7.2.5: The employment rate (a) and the share of beneficiaries (b) among those entering rehabilitation and disability benefit during 2012–2013 over time following entry



Note: Those with a gross wage over HUF 10,000 in the given month qualify as employees. On the horizontal axis, entry indicates the start of entitlement, which does not necessarily coincide with the start of disbursement.
Source: Authors' calculation based on Admin3.

Figure 7.2.6: Employment of those entering the disability and rehabilitation benefits in 2008 and 2012 among recipients (a) relative to the population aged 20–60 (b)



Note: Those with a gross wage over HUF 10,000 in the given month qualify as employees. On the horizontal axis, entry indicates the start of entitlement, which does not necessarily coincide with the start of disbursement. The right-hand panel shows the difference from the employment rate of the population aged 20–60.
Source: Authors' calculation based on Admin3.

Summary

While the Hungarian system of disability and rehabilitation benefits was one of the most generous in Europe in the early 2000's, today it has one of the lowest expenditures; the share of beneficiaries in the working age population is less than half of the figure in the early 2000's. The stricter assessment and the lower replacement rate of benefits reduced inflows through both the demand and supply side and the reform in 2012 terminated the entitlement of numerous beneficiaries. The targeting of the benefits increased, while the abuse of

the benefit system and the impact of disability benefits reducing labour supply probably declined considerably. However, it is unclear as to what extent the system guarantees decent living conditions during rehabilitation and to what extent it is able to support the use of remaining work capacity, rehabilitation and return to the labour market. Only a small proportion of beneficiaries are found rehabilitable in the complex assessment and the activating, rehabilitating elements of the system have not been appropriately expanded.

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K7.2 Assessing work capacity and measuring the size of the disabled population

BOLDMAA BAT-ERDENE, JUDIT KREKÓ & ÁGOTA SCHARLE

The appraisal of work capacity depends on objective and subjective factors, which may also be related to the institutional environment, thus it is impossible to determine the number of people with reduced work capacity (disabilities) unequivocally.

In *household surveys* it is usually the self-declaration of respondents that determine who has reduced work capacity. However, a clear division between fully and partly reduced work capacity is impossible to establish: it differs from one person and culture to another and it also changes over time as to which category one assigns a condition (*Kreider–Pepper,* 2007). The way of formulating the question may also influence the answer: precisely what and how much detail has to be provided in the answer or if there is a reference given compared to which respondents have to evaluate their condition. For example according to *Kapteyn et al* (2007), when responding to general questions, the proportion of the disabled within the total population is higher in the Netherlands than in the United States but the difference is considerably smaller if respondents have to assess themselves in relation to particular conditions.

It is also of significance whether respondents receive a benefit based on their condition: recipients tend to exaggerate their condition in order to justify their entitlement to the benefit. Consequently, entitlement conditions may also affect self-assessment on reduced work capacity (*Banks et al*, 2004).

Finally, some studies report that people not in employment are more likely to assess themselves as having a long-term illness, in this way providing an explanation for the lack of a job – this is termed justification bias (*Black et al,* 2017).

Administrative databases usually only provide information either on the work capacity assessed when granting entitlement or on the type of benefit granted. Both data are subject to regulations, therefore changes in the regulations may cause a break in time series statistics on people with disabilities.

Due to the above factors, even the results of surveys using identical approaches or administrative data can only be compared to a limited degree across countries. Cultural differences and dissimilarities between disability benefits may cause differences in both data sources, which distort comparison. Cross-country differences in the prevalence of reduced work capacity may of course be due to intrinsic reasons as well: better healthcare and stricter occupational safety regulations may reduce the risks of disability, while better integration and rehabilitation policies can help improve work capacity even for those with serious health impairment.

The importance of the assessment method is well illustrated by the two best known European harmonised household surveys, which also assess reduced work capacity: the Labour Force Survey (LFS) of 2011 of the European Union and the annual EU–SILC. The former asks about health problems that limit *work capacity*, whereas the latter asks more generally about being limited in their *everyday activities* by a permanent health problem. Statistics based on SILC present the population with reduced work capacity as larger and also report their employment rate higher, since it also includes those restricted by their health condition in everyday activities but not constrained in their job (*Geiger et al,* 2017).

In Hungary, one of the requirements of entitlement to disability benefits, allowances linked to employment (for example social contribution tax allowance) and exemption from paying the rehabilitation contribution is an official appraisal issued by a rehabilitation committee (currently the departments of rehabilitation and medical examiners of local government offices). Since 1 January 2012 one has been entitled to disability benefits if their health status is of 60 per cent or below according to the complex appraisal of a rehabilitation committee.[1] Health status is determined by the reha-

1 For the official definition of reduced work capacity see Act CXCI of 2011 on the Benefits for Disabled Persons and on the Amendment of Certain Other Acts.

bilitation committee, which includes at least two medical examiners, at least one rehabilitation expert and at least one social welfare expert, in this way in addition to medical considerations they also take into account to what extent the health status is compatible with the former job and qualifications of the claimant and their chances of employment rehabilitation. Another requirement of receiving disability and rehabilitation benefits is sufficient length of service.[2]

In terms of the rehabilitation contribution a person is considered disabled (i.e. with reduced work capacity) if their state of health is of 60 per cent or below, based on the complex appraisal of the rehabilitation committee,[3] or if they receive a non-insured benefit, disability allowance or the personal annuity of the blind.

Measuring the level of employment in the disabled population is complicated by the lack of publicly accessible data on the number of people qualifying as such on the basis of an official appraisal. The Hungarian State Treasury publishes data on the number of recipients of invalidity allowance and rehabilitation benefit. However, there is no data available about the current number of disabled workers who are not granted a benefit due to the lack of sufficient length of service or because of wages higher than the upper limit. In addition, there may be those who would qualify as disabled based on their health but who do not apply for the complex appraisal. This might be because someone receives another allowance, for example parental leave benefit or is in employment and would not be entitled to disability benefits due to the wage limit and he or she is not aware of the labour market advantages of being qualified as a worker with reduced work capacity. Another reason may be the wish to avoid possible stigmatisation resulting from reduced work capacity or if (perceived) discrimination against disabled workers is stronger than the labour market advantages arising from the status. Data from the Labour Force Survey of the Central Statistical Office indicate that about 50–65 per cent of working age disabled people receive some kind of disability benefit.

2 Between 2008 and 2011, regulations determined the extent of health impairment instead of the remaining state of health and defined reduced work capacity as a minimum of 40 per cent health damage. Preceding 2008, the indicator was the reduction in work capacity and a reduced work capacity status entailed a minimum of 50 per cent reduction in work capacity.

3 Or their health damage is over 40 per cent based on an expert opinion, opinion of a competent medical authority, official certificate issued when the certification procedure was in effect (if their health damage was assessed during 2008–2011); or the reduction in their work capacity is of 50–100 per cent and was assessed during the effectiveness of the related expert opinion (if their health damage was assessed during 2008–2011).

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8 HEALTH SHOCKS IN CHILDHOOD AND YOUTH AND EDUCATIONAL ATTAINMENT

8.1 THE EFFECT OF HOSPITALISATION ON THE SCHOOL PERFORMANCE OF CHILDREN

ZOLTÁN HERMANN & DÁNIEL HORN

There is a close correlation between the state of health and educational attainment. The two factors have a mutual effect on each other. Individuals with more human capital and a higher educational attainment are usually healthier, and healthier individuals usually perform better in school, have better results, and are able to collect more human capital. The two factors have a two-way relationship, which is well documented; both have an effect on the other. See the summaries of *Currie* (2009) and *Eide–Showalter* (2011).

In this subchapter, our aim is not to uncover the entirety of the causal link between the two, but rather, to document how negative health shocks occurring in school-age children in Hungary are related to subsequent school performance. More specifically, our focus of analysis is how hospitalisation during the 7th and 8th grades of lower secondary education affects mathematics and reading literacy test scores at the end of 8th grade, early school leaving, and the chances for further, upper-secondary education.

Since we observe the indicator of the state of health in the available data before the competency tests are taken, our analysis is rather more focused on the impact of health on human capital than on the reverse. But since these two factors change continually, and interact throughout the career path, our findings cannot rule out a reverse causal link, either.

In the literature, most studies examine the long-term, and not the short-term effect of health on education (see the summary of C*urrie–Almond,* 2011, and *framed piece K8.1*), as it is more useful from a public policy perspective, and in the case of early shocks, it also makes interventions possible. According to the unanimous conclusion of studies, early negative health shocks have an important and measurable negative effect on subsequent educational attainment and other adulthood outcomes. Unfortunately, the data currently available to us does not yet enable us to analyse the long-term effects; however, we are able to examine the short-term effect of school-age health shocks on school performance. Considering that school results are closely correlated to further education and labour market outcomes (*Hermann et al.,* 2019), the examined health shocks are expected to also have a longer-term effect on students' school performance and labour market outcomes.

The analysis is based on the Admin3 linked public administration panel database compiled by the databank of the Centre for Economic and Regional

Studies (KRTK).[1] The database contains individual anonymised administrative data on the basis of a 50 percent sample of the population of Hungary of 2003, for the period between 2003–2017. The data of the competency test are available from 2008, and the data regarding healthcare service use are available from 2009.

We measure the educational outcomes through various indicators. The first one is the score achieved on the National Assessment of Basic Competencies (NABC) in 8th grade in mathematics and reading literacy, controlling for the levels of the 6th grade mathematics and reading literacy tests. This "value-added" type measurement method brings us closer to a causal understanding of the results, since we can control for health shocks that occurred before 6th grade, and for other factors that may influence the test scores. Thus, we see the effect of 7th or 8th grade hospitalisation only on the test score changes that occurred between 6th and 8th grade.

The second indicator measures early school leaving. We examine whether a student appears in the Public Education Information System (KIR) at the end of 9th grade. If we cannot find a student's data in the KIR, we consider them an early school leaver. Those who appear in the data at the end of 9th grade are given a value of 1, and those who do not, are given a value of 0.

Finally, we measure the chances for further education among those who are not early school leavers. We analyse first the chance of gaining admission into a general secondary school (the academic track), then the overall chance for studying in a general secondary or in a vocational secondary school (the two tracks offering a secondary school diploma). We observe the secondary school type in 10th grade. For the analysis, we use the data of the 8th grade NABC cohorts from 2012–2015. Our estimates regarding test score value added and early school leaving apply to the 2012–2015 cohort, and our estimates regarding school type apply to 8th grade students who graduated in 2012 or 2013.

In our analysis, we measure the state of health through the number of days spent in hospital. Since our goal is to observe health shocks, we have adjusted the values of the variable so that we can observe high and very high values. We have aggregated the data to an annual level for the 12 months preceding the competency tests (from June to May of the following year), and we have created a three-tier variable where 0 is the reference category, 1 represents a high value, and 2 represents a very high value. The distribution of the variables is rather skewed, as the vast majority of students did not spend any time in hospital. A hospital stay of 1–3 days was considered a high value, and a hospital stay of at least four days a very high value.[2]

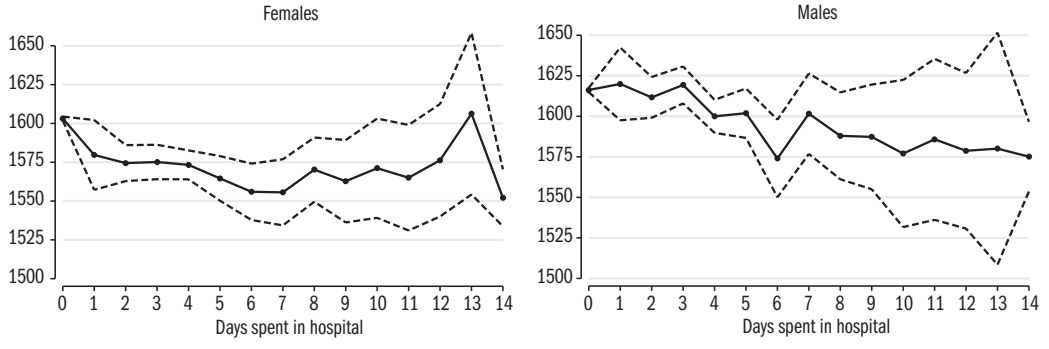
Figure 8.1.1 shows very clearly that the number of days spent in hospital in the 8th grade are negatively correlated with the end of year mathematics test scores. Females who spent any number of days in hospital have achieved substantially lower test scores than those who were not hospitalised in the given

1 You can find a brief description of the database in the Appendix of *In Focus*, and more details in the study of *Sebők* (2019).

2 The three categories constitute 92.5, 2.8 and 4.7 percent of the 8th grade sample, respectively.

year. Although the sign of correlation seems to reverse in the case of students who were hospitalised for more than a week, at this point, the accuracy of the estimate is actually very low, as there were very few such students (less than 1 percent of the population spent more than a week in hospital). For males, the negative correlation becomes visible only at more than three days. That is, the performance of those who were hospitalised for only a few days, was not worse than that of those who were not hospitalised.

Figure 8.1.1: Mathematics test scores and the number of days spent in hospital in the 8th grade, by gender



Note: Students who spent more than 14 days in hospital were sorted into the group 14. The dashed curves represent the 95 percent confidence interval.
Source: Authors' own calculations based on the Admin3 database.

In order to remove the effect of the most important confounding variables (that are presumably correlated with the state of health as well as test scores), linear regressions were estimated. In the estimations, we have, in each case, controlled for the educational attainment of the student's parents, the number of books available in the home, age at the start of school, the sex of the student, the year the NABC test was carried out, and the school of the student (fixed effect).

In the estimations, in addition to these, we have considered not only the health shocks of the given year, but also of the previous year (7th grade). That is, the 8th grade coefficients can be interpreted in the following way: to what extent did the results of the students who experienced a health shock only in the given year differ from those who did not experience such a shock. Similarly, the 7th grade coefficients can be interpreted in the following way: to what extent was the performance of the students who were hospitalised during the year preceding the observation worse than the performance of their peers.

Our findings suggest that hospitalisation significantly lowers end-of-8th-grade test scores (*Table 8.1.1*). If a student was hospitalised in a given year or in the preceding year, even for 1 day only, their scores were expected to be 4–8 points less than the scores of students with otherwise similar characteristics who were not hospitalised. As a comparison, in the estimations below,

the children of parents with a secondary school diploma scored an average of 67 points higher than the children of parents who did not have a secondary school diploma. Thus, the effect of about a tenth of this difference is not large, but not negligible, either.

Table 8.1.1: The effect of the time spent in hospital on outcomes

			Further education		
Time spent in hospital (school type in 10th grade)	Added value: mathematics	Added value: reading	still in school at the end of 9th grade	general secondary school	general or vocational secondary school
	(1)	(2)	(3)	(4)	(5)
High (1–3 days, 8th grade)	-6.556***	-7.451***	-0.00503	-0.00534	0.00751
	(2.002)	(1.863)	(0.00316)	(0.0108)	(0.00826)
Very high (more than four days, 8th grade)	-6.562***	-4.736***	-0.00824***	-0.0163**	-0.00870
	(1.602)	(1.474)	(0.00251)	(0.00819)	(0.00707)
High (1–3 days, 7th grade)	-3.924*	-0.912	-0.00238	0.0165	0.00534
	(2.077)	(1.930)	(0.00322)	(0.0114)	(0.00907)
Very high (more than four days, 7th grade)	-4.477***	-4.484***	-0.00788***	-0.0194**	-0.0134*
	(1.636)	(1.517)	(0.00264)	(0.00824)	(0.00719)
Number of observations	154,159	154,261	163,583	64,921	64,921
R^2	0.660	0.702	0.073	0.365	0.361

Note: Robust, standard errors clustered on the location level in brackets.
$^{***}p < 0{,}01$, $^{**}p < 0{,}05$, $^{*}p < 0{,}1$.
Source: Authors' own calculations based on the Admin3 database.

Very high values of the main independent variable have a significant effect on early school leaving in 9th grade, both in the case of 8th grade and 7th grade hospitalisation. This effect is rather small, under 1 percentage point, but since only 3.7 percent of the students in the sample leave school early after 9th grade, it is far from negligible.

Similarly, to early school leaving, the chances for further education were also affected by longer hospital stays only. Students who spent at least four days in hospital in 8th or 7th grade have 1.5–2 percentage points smaller chance of further education in a general secondary school. This effect is not negligible, as an average of 39 percent of the students in the sample continue their education in general grammar schools after the 8th grade. The same coefficients were not, or were only marginally significant for the general or vocational secondary school outcome.

Table 8.1.2 shows the coefficients of the above estimation for mathematics added value and for early school leaving, by the educational attainment of the mother. In the case of mathematics test scores, hospitalisation has a significant negative effect at low and high educational attainment levels alike, but it is particularly significant in the case of mothers with a high (secondary school diploma or tertiary) educational attainment level: for such students, any length of hospitalisation significantly reduces the expected end-of-year 8th grade test scores, by 6–9 points.

Table 8.1.2: The effect of the length of the hospital stay on the mathematics added value, by the attainment level of the mother

	Elementary school at most	Vocational school	Secondary school diploma	Tertiary
Added value: mathematics				
High (1–3 days, 8th grade)	-8.426	-3.345	-6.230*	-8.814**
	(5.826)	(4.228)	(3.737)	(3.796)
Very high (more than four days, 8th grade)	-1.038	-0.608	-8.776***	-7.627**
	(4.490)	(3.090)	(2.918)	(3.308)
High (1–3 days, 7th grade)	-14.93**	3.326	-7.367*	-3.599
	(6.529)	(4.094)	(3.835)	(4.301)
Very high (more than 4 days, 7th grade)	-4.681	-3.627	-4.092	-3.461
	(4.870)	(3.150)	(2.888)	(3.581)
Number of observations	24,670	40,202	46,213	37,485
R^2	0.525	0.589	0.634	0.677
Early school leaving: still in school at the end of 9th grade				
High (1–3 days, 8th grade)	-0.0365***	-0.00523	0.00122	0.00635
	(0.0129)	(0.00650)	(0.00478)	(0.00407)
Very high (more than four days, 8th grade)	-0.0254***	-0.00887*	-0.00162	-0.00289
	(0.00883)	(0.00481)	(0.00397)	(0.00426)
High (1–3 days, 7th grade)	-0.0128	-0.000344	0.000619	0.00642
	(0.0140)	(0.00685)	(0.00517)	(0.00418)
Very high (more than 4 days, 7th grade)	-0.0166*	-0.00883*	-0.00879**	-0.00205
	(0.00979)	(0.00491)	(0.00440)	(0.00421)
Number of observations	26,919	42,168	48,233	39,201
R^2	0.151	0.099	0.091	0.115

Note: Robust, standard errors clustered on the location level in brackets. Average early school leaving rates by the mother's educational attainment: elementary school at most: 8.4 percent, vocational school: 3.4 percent, secondary school diploma: 2.3 percent, tertiary: 1.9 percent.

$^{***}p < 0{,}01$, $^{**}p < 0{,}05$, $^{*}p < 0{,}1$.

Source: Authors' own calculations based on the Admin3 database.

Unlike with test scores, in the case of early school leaving, hospitalisation has a larger effect on the children of mothers with a lower educational attainment level; but significantly negative coefficients can be found in the case of higher educational attainment levels as well. The children of mothers with at most elementary school, have a 2.5–3.5 percentage points higher chance of leaving school early in 9th grade if they were hospitalised in 8th grade. This can be considered large relative to the average 8.4 percent early school leaving rate within the given group. The 0.8 percentage points higher early school leaving rate of the children of mothers with vocational school (in the case of a 'very high' length of hospitalisation) is of a similar magnitude, relative to the average 3.4 percent early school leaving rate of the group.

Conclusions

Overall, hospitalisation has a significant and not negligible effect on the educational outcomes of students. Students who were hospitalised scored 4–8 points less at mathematics and reading literacy tests at the end of 8th grade. This effect size is not large, but not negligible, either, and most prevalent in the case of the children of mothers with a high educational attainment level (secondary school diploma or tertiary). We find similar effects in the case of early school leaving in 9th grade, where, in the case of students who had spent at least four days in hospital, we found an effect that is smaller than 1 percentage point but still highly significant. This average effect stems from the results of children of mothers with a low educational attainment level: elementary school at most or vocational school. For the children of mothers with elementary school, hospitalisation may increase the chance of early school leaving by 2.5–3.5 percentage points, and for the children of mothers with vocational school, it may increase it by 0.8 percentage points, which can be considered quite large, compared to the average 8.3 and 3.4 percent respective early school leaving rates within their groups. Hospitalisation also has an effect on the chances of further education in a general secondary school. Students who spent at least four days in hospital have 1.5–2 percentage points smaller chance of further education in a general grammar school. Hospitalisation has no effect on further education in other school types offering a secondary school diploma.

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K8.1 An overview of the literature on the subsequent impacts of childhood shocks

ÁGNES SZABÓ-MORVAI

Health is best thought of as an element of human capital that is tightly connected to the other two elements: cognitive (thinking) abilities and non-cognitive characteristics (personality, values, etc.). The three elements develop in interaction with and complementing one another. For example, a better state of health measured in the preceding period, *ceteris paribus*, is linked to higher cognitive abilities in the following period (*Heckman,* 2007). At the same time, human capital is connected to the environment that surrounds the individual, and defines the individual's academic and economic performance and decisions; and vice versa. The earlier in life any positive or negative environmental impacts or interventions occur, the greater impact they will have on human capital. The economic literature examining these interactions and correlations has grown rather large in the past twenty years (*Currie,* 2009, *Almond et al,* 2018, *Currie–Almond,* 2011).

According to the fetal programming hypothesis, environmental impacts start influencing the development of human capital at conception, and the fetal period has a fundamental impact on the future human capital (*Almond–Currie,* 2011). The tobacco consumption and stress levels of the mother, nutrient intake, and any adverse environmental factors (water and air pollution) have long-term effects on the postnatal development of the child. An insufficient nutrient intake suffered during this period may cause obesity, cardiovascular issues or diabetes in adulthood (*Ibid*). Increased maternal stress may have a detrimental effect on the child's cognitive abilities and academic achievements (*Aizer et al,* 2016). External detrimental factors suffered during the fetal period – as has become clear after the examination of those who were in their fetal period during the Spanish flu or the Chernobyl disaster – may cause significant disadvantages to individuals in terms of educational attainment and the labour market (*Almond,* 2006, *Almond et al,* 2009).

As the impacts of the fetal period influence the health characteristics measured at birth (such as birth weight) to a great extent, many studies use these as condensed indicators of the fetal state of health. The state of health at birth, measured by the birth weight, fundamentally impacts the state of health, educational attainment and economic situation of the individual in adulthood. A low birth weight lowers academic achievements and the probability of employment, and increases the body mass index and the likelihood of coronary heart disease in adulthood (*Behrman–Rosenzweig,* 2004, *Heckman,* 2007).

Further detrimental environmental factors suffered as a young child also impact the entire lifespan of the individual. The development of cognitive abilities is mostly completed by the age of 10 (*McLeod–Kaiser,* 2004), and the cognitive, emotional and health characteristics established by the age of 10 provide more than half of the reasons for differences in weight gain and health issues that can be observed in adulthood (*Conti–Heckman,* 2010). The family environment is a central childhood influence. It includes parenting style, bedtime stories, talking to the child, emotional richness or the lack of emotions, and the physical environment. Among the influences of the family environment, emotional safety is a pivotal one that plays a key role in the development of the child's brain (*Shonkoff,* 2010). The mental health or drug use of the mother have a major influence on the mental development of the child and on the probability of future behavioural issues (*Frank–Meara,* 2009). Beyond these, the other factors most commonly investigated by the literature are the impacts of pollution, infections and nutrition. Air pollution suffered in early childhood, for example, has a substantial detrimental effect on the results of school tests and on labour market income (*Isen et al,* 2017, *Lavy et al,* 2014).

The extremely rich web of correlations that surrounds an individual's human capital becomes evident even through the few examples presented here. This summary highlights how public policy decisions that influence vastly different fields are

connected to one another through human capital. For example, through the literature presented here, an insight can be gained into how an environmental scheme that results in cleaner air may influence economic growth substantially through a strengthened human capital stock.

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8.2 TEENAGE MOTHERHOOD AND THE LABOUR MARKET

ANNA ADAMECZ-VÖLGYI

Teenage motherhood is a crucial channel of the intergenerational transmission of poverty (*Bonell,* 2004). Mothers having their first child below age 20 reach lower educational attainment, are less likely to be employed and earn less throughout their life course, and have poorer health even in old age than those delaying motherhood beyond age 20. Education decreases the prevalence of teenage motherhood. *Adamecz-Völgyi–Scharle* (2020), for example, found that increasing the school leaving age from 16 to 18 in Hungary decreased the probability of teenage motherhood among Roma women. While the literature documents the relationship between education and teenage motherhood, we know much less about how labour market conditions affect adolescent childbearing.

Teenage motherhood and unemployment

In human capital theory (*Becker,* 1960), the costs and benefits of childbearing would drive whether and when women decide to have children. Among others, one substantial cost of teenage motherhood is its negative effect on a mothers' future labour market possibilities. The magnitude of this alternative cost is different for everybody and might also change depending on the actual state of the labour market. When the labour market is in good shape, for example, in an economic boom, this alternative cost is higher as women would have more to lose. Besides alternative costs, however, labour market conditions might also influence childbearing through the income effect (*Kearney–Levine,* 2012). Favourable labour market conditions might increase income and make childbearing more affordable.

This subsection looks at how labour market conditions affect teenage motherhood in Hungary. We are interested in whether high unemployment would be accompanied by a high prevalence of teenage motherhood due to decreasing the alternative costs of childbearing, or the other way round, whether high unemployment would go together with a low prevalence of teenage motherhood due to the income (or in other words, the budget constraint) channel. We are also looking at whether this relationship is heterogeneous by regional development (income).

The existing literature on the relationship between unemployment and teenage motherhood is inconclusive and is limited to the United States. *Colen et al.* (2006) support the alternative cost hypothesis by finding that the economic boom of the 1990s was responsible for the sharp drop in teenage motherhood among Afro-American women. On the contrary, *Kearney–Levine* (2012) and

Bullinger (2017) concluded that higher unemployment would decrease teenage motherhood and hence supported the income effect theory.

As we will show, there is a positive correlation between teenage motherhood and local unemployment rate: the prevalence of adolescent childbearing is higher in regions characterized by high unemployment than in regions having low unemployment. This correlation might show the effect of unemployment on teenage childbearing, but it might also be due to a selection mechanism. Regions suffering from high unemployment differ from those with low unemployment over several other domains besides the unemployment rate, such as demographics, education levels and others, and these characteristics might also affect teenage childbearing.

Methods and data

This article aims at separating the effect of unemployment from the selection mechanism by controlling for regional differences. I use region (*kistérség*) – level data from Hungary. I construct data on the regional prevalence of giving birth among women aged 15–19 from vital statistics microdata and create regional unemployment rates (registered unemployed women as the share of working-age women) using municipality level data on unemployment (T-STAR) and regional data on demographics. Alongside region fixed effect (FE) panel models, I also estimate hybrid panel models (*Schunck,* 2013). Hybrid models allow to deconstruct the variation in the prevalence of teenage motherhood to a first part that comes from changes in the unemployment rate within regions over time (*within effects*), and, to a second part that is due to inherent, time-invariant differences in unemployment rates across regions (*between effects*).

Results and conclusions

Table 8.2.1 shows the effect of unemployment on teenage motherhood. As mentioned above, there is a positive correlation between teenage motherhood and unemployment (Model 1). The effect of unemployment on teenage childbearing within regions is close to zero when we are controlling for time-invariant differences across regions (Model 2). However, between-region differences have a large effect on the prevalence of teenage motherhood: if the average unemployment rate goes up by 1 percentage point in a region, the number of live births per a thousand women aged 15–19 increases by 4.42 (Model 3).

In model 4, we are also controlling for between-region time-invariant differences, as well as the economic development of regions (captured by the average income tax base per a working-age inhabitant in 1995–2015 as a proxy for long-term income). In this case, the between-region relationship prevails (2.93^{***}) but the within-region relationship turns to negative (-0.38^{*}). These results suggest that the income effect of unemployment is more important

than its impact on the alternative costs of childbearing, as higher unemployment decreases the probability of teenage motherhood. This is especially true in less-developed regions. We split the sample into two subsamples: regions where the average income tax base is below average (Model 4a) and where it is above average (Model 4b). We only find a significant negative relationship (-0.57^{**}) between the unemployment rate and teenage motherhood on the subsample of less-developed regions, where the income tax base is below average, while among more-developed regions, the relationship disappears.

Table 8.2.1: The effect of unemployment on teenage motherhood

	Model 1	Model 2	Model 3	Model 4	Model 4a	Model 4b
The interpretation of the models	Correlation	Within effects	Within and between effects			
Model	Linear model	Fixed effect panel model	Hybrid panel models			
Sample of regions	All regions				Income tax base	
					lower 50%	upper 50%
Estimated coefficients						
Unemployment rate (β_1)	3.74^{***}	0.04	0.04	-0.38^{*}	-0.57^{**}	0.10
	(0.230)	(0.144)	(0.144)	(0.213)	(0.276)	(0.327)
Average regional unemployment rate in 1995–2015 (β_2)			4.42^{***}	2.93^{***}	3.36^{***}	1.22^{**}
			(0.269)	(0.403)	(0.567)	(0.477)
No. of observations	3675	3675	3675	3675	2016	1659
Control variables and region effects						
Region fixed effects (FE)		yes				
Region random effects (RE)			yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes	yes
Other control variables				yes	yes	yes

Robust clustered standard errors in parenthesis. Significance on *** 1%, ** 5%, * 10% levels.

Unemployment rate: the share of registered unemployed women among working-age women. Hybrid panel model: $y_{it} = \beta_0 + \beta_1(x_{it} - \bar{x}_i) + \beta_2\bar{x}_i + \beta_3\bar{c}_i + \beta_4 d_{it} + u_i + h_t + \varepsilon_{it}$, where y_{it} is the number of live births per a thousand women aged 15–19, x_{it} is the unemployment rate, $\bar{c}_i$ is a vector of time-invariant regional characteristics, $d_{i,t}$ is a vector of time-variant regional characteristics, u_i region random effect (RE), h_t year fixed effect, and ε_{it} is a usual error term. Interpretation of the estimated β_1 coefficients: how a 1-percentage point change in the local unemployment rate decreases the number of live births per a thousand women aged 15–19. Other time-variant control variables in Model 4, 4a and 4b: population, the share of those above 64 in the population, live birth rate among women ages 20–45, abortion rates, regional linear time trend. Other time-invariant control variables in Model 4, 4a and 4b: average income tax base per a working-age inhabitant.

Source: Own estimation using vital statistics, population statistics and municipal level (T-STAR) data from 1995–2015, on region-level aggregates.

These findings show that teenage motherhood is a long-term problem; it is less responsive to short-term labour market processes. We find no evidence for high unemployment to increase the prevalence of teenage motherhood through its effects on alternative costs; on the contrary, it seems to decrease

adolescent childbearing through its income channel, especially in less-developed regions.

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9 THE FIRST WAVE OF THE CORONAVIRUS PANDEMIC

9.1 POLICY RESPONSES TO THE CORONAVIRUS PANDEMIC IN HUNGARY DURING THE FIRST HALF OF 2020

BALÁZS VÁRADI

From the early spring of 2020,[1] the Covid-19 epidemic and its consequences made policy-designers and decision-makers face a 1) *unique* and 2) *huge* challenge world- and Europe-wide.

1) The challenge was *unique* in the sense that, despite their advanced public health institutions and plans,[2] developed nations and especially European ones, including Hungary, have not had to face major epidemics of this kind for decades. While HIV has been and is a public health concern, it spreads more slowly and in a different way than Covid-19. To find an epidemic comparable in its health effects, nature and speed of spreading, we have to go back as far as the 1918 Spanish influenza (*Petersen et al.,* 2020). Thus, preparations notwithstanding, nobody could know for certain what such a plague entails in the social, economic, technological setting of the 21st century and what the adequate response in terms of a mix of policy measures should be.

2) As declared by prime ministers and heads of state in February and March in emotive speeches,[3] the challenge looked (and, indeed, culminated) in being *huge*. Based on early epidemiological estimates, on March the 11th the German chancellor, Angela Merkel talked about 60–70% of the population of her country catching the disease[4] and, based on the first Chinese data a case-fatality rate exceeding 1% looked quite possible.[5] Multiplying the two numbers resulted in an estimate of millions of people dying of the disease Europe-wide: an obviously politically not acceptable prediction that necessitated resolute measures to limit the incidence of the epidemic. Thus, in addition to health effects, far-reaching, draconian policy measures were also looming on the horizon. These were expected to have huge human-social effects as regards the necessary healthcare and other social capacities, but also as regards the economic downturn which would ensue. It was impossible to know beforehand to what extent this downturn would be an outcome of the pandemic itself (the number of those diseased, and the behavioral reaction of the public including a drop in aggregate demand), to what extent the outcome of the measures to curb and mitigate it (e.g. school closures, lock-down) and to what extent the outcome of the propagating changes in the world economy, including a drop in the demand for exports and tourism as well as breakdowns in the international supply chains.

1 Chinese authorities first reported the outbreak to the World Health Organization on the 31st of December; the new virus was named on the 11th of February; the disease was declared to be a pandemic on the 11th of March by the WHO; the first case in Hungary was reported on March 4th.

2 In the most recent, 2019 ranking of readiness of different countries to tackle a pandemic (the Global Health Security Index) all the EU Member States except Romania and Bulgaria ranked in the top quintile; the U.K. was the second best worldwide; Hungary ranked 35th.

3 Emmanuel Macron on March 16th, Angela Merkel on March 19th, Boris Johnson on March 23rd.

4 See: New York Times.

5 See: Nature.

All we can undertake in this short chapter, one that is necessarily closer in its genre to an essay than to a research paper, is that, limiting our scope to the first half of 2020, we enumerate the most important policy measures formulated in response to the epidemic in Hungary. We look at ones in the fields of public health, economic policy and the realm of the regulative-political respectively. Next we compare them with those introduced by other European governments. Finally, since we have no chance yet to produce any quantitative impact assessment, we formulate some tentative recommendations about what (labor) economists can do to help.

Policy responses to Covid-19 in Hungary

In order to slow down the spread of a pandemic that threatened an exponential take-off, the Hungarian government and Parliament passed a host of *public health measures*. These were meant to curb the contagion (whose nature was not yet perfectly known) and, since there was no way yet to cure the sick, to at least treat the symptoms of the disease. Some of these measures had been hardly ever applied on this scale before.

What were these measures? They included, from mid-March onwards: banning immigration and international travel, banning mass events, limiting access to restauration and entertainment; the production, purchase, and redirection of capacity and equipment necessary for urgent, ambulatory and inpatient care of patients; school closures, extra disinfection, protocols and regulations concerning staying-at-home quarantine of those suspected to be vectors of the virus, testing and the wearing of masks for potential carriers of the disease, and temporary rules concerning parking. At the end of March more general stay-at-home rules and age-specific time-slots for shopping were added, in addition to a campaign to inform the public. Many of these measures were revoked in April/May; in turn, for the summer, a framework for dynamically scoring the dangers of destinations/countries of origin for international travel was set up with matching testing and stay-at-home rules.[6]

Economic Policy measures. The government and Parliament introduced a widespread debt freeze, a rent and interest ceiling, a relief concerning taxes, contributions and administrative burdens for companies, targeted by size and industry; subsidies and deadlines were extended and a wage support scheme launched. The budget was re-written and, by direct and indirect means, certain local taxes were also left with the citizens. A report by the State Audit office tallies that HUF600 billion[7] was expended on outlays directly linked to the pandemic between the 11th of March and the 4th of May; ultimately the first "economic rescue package" announced on the 18th of March and the "action plan" announced on the 7th of April 2020 together redirected 18–20% of GDP (the latter, though, also included measures that have little to do with combatting Covid-19). Of this, 0.6% of GDP was directly spent on strength-

6 The up-to-date list of measures is to be found on this government webpage.

7 Approximately EUR 1.67 Billion.

ening healthcare.[8] Calculations by the Bruegel Institute though, suggest that most of this vast expenditure had nothing to do with the epidemic.[9]

These fiscal measures were complemented by steps taken by the National Bank of Hungary concerning access to cash, additional credit freezes and extensions and further measures concerning bank regulations and monetary policy meant to stimulate economic activity.[10]

Finally, Hungarian Covid policy included a *legal-political* dimension that enabled and complemented the measures already enumerated, as well as measures of vertical fiscal redistribution within the state. These are an important part of the picture. (*Greer et al.,* 2020). The keystone of this dimension of policy was the Act of Parliament that enabled the government to govern to a large extent by decree and limited the freedom of speech with regards to the spread of false information in connection with the epidemic.[11] While most of the Act lapsed after June the 18th, certain parts remained in force (*Halmai et al.,* 2020). 18 EU Member States published a press release implicitly criticizing the Act as too sweeping in scope.[12] A set of measures to the detriment of political parties and local governments are also easier to interpret as political rather than as anti-epidemic in purpose.[13]

Policy design and decision making. What was the process of designing and adopting this rapid sequence of measures? Alas, it is too early to attempt an analysis of how much these measures were designed and chosen based on foreign examples, how much they were based on (changing) scientific evidence, how much based on recommendations by the World Health Organization and other similar bodies, how much they were recommended by domestic experts,[14] and to what extent they reflected the limitations and opportunities offered by institutional, economic and social endowments unique to Hungary. Neither can we say how much meaningful consultation with stakeholders took place[15] or to what extent at least some of these measures were guided by direct political considerations.

Hungarian measures in an International/European comparative context

To what extent were the Hungarian anti-Covid measures different from how comparable countries tackled the crisis caused by the pandemic?

At this point, in addition to news articles, blog entries and the first papers hastily written and with a narrow focus, published online, our attempt at a preliminary answer is based on four public policy databases. These are the following: the cross-country data about pandemic response published by the IMF,[16] the OECD[17] and Oxford University,[18] as well as the collection of some European fiscal responses tabulated by the Bruegel Institute.[19] An important limitation of all of these is that they are based on announced or codified norms, not their real-life implementation. The difference need not be innocuous: the

8 See: ÁSZ and IMF.
9 See: bruegel.org.
10 See: MNB.
11 Act XII of 2020 on defence against the Coronavirus.
12 See: government.nl.
13 See: Hungarian koronavirus site.
14 According to the Hungarian press they were recruited from among experts working for the National Center for Public Health as well as several Hungarian universities.
15 Building, e.g. on the proposals of the Chamber of Commerce.
16 See: IMF.
17 See: OECD.
18 See: bsg.ox.ac.uk.
19 See: bruegel.org.

quality of contact tracing, sanctions, or the true use of fiscal resources can be quite different from what can be parsed from the text of decrees.

Albeit differences of a few days in the timing of measures in March may have looked crucial (indeed days can have mattered in slowing down the spread),[20] by mid-April Oxford University's comparative composite indices (a *health containment index* and a *stringency index*) of country *public health* responses were no different from what other EU Member States were doing (with the notable exception of Sweden).[21] On April 15th, Hungary's *health containment index* was the EU median, and her *stringency index* was within 3 points of the median (on a 0–100 scale).[22]

The press highlighted particular measures introduced in many other countries but not in Hungary, such as for example the release/amnesty of as many at-risk prison inmates as possible.[23] But that does not change this big picture: Hungary chose public health measures of the kind and severity in line with the mainstream of its European peers. As mentioned above, the quality of the implementation of those measures we cannot yet compare.

As far as the *economic policy* measures, and especially as far as fiscal measures are concerned, the comparison is less straightforward. If we disregard the items of the April 2020 action plan that are very hard to link to Covid (such as additional expenditure on the building of the Paks nuclear power plant or railway development), the nature of the interventions is not that far from what other European governments did. The Bruegel Institute puts crisis fiscal measures into three bins: *immediate fiscal impulse*, *deferrals* that bring expenditure forward or put revenues off, and other *liquidity provisions and guarantees.* Under the latter the measures of the National Bank of Hungary were not accounted for, so let us disregard that category. As far as the first two are concerned though, they found that out of the 11 European countries under scrutiny[24] (plus the U.S.), Hungary spent the least on immediate fiscal impulse, a mere 0.4% of GDP. On the other hand, in terms of deferred fiscal measures, Hungary allocated 8.3% of GDP, being the fourth most generous in their sample.

The most important explanation for the low level of immediate budgetary expenditure in Hungary is that the government avoided any universal, non-conditional or automatic non-employment-related aid to individuals or families in need. Such measures were widespread worldwide; a version, raising the universal child allowance, was also proposed by independent economists for Hungary, to no avail.[25] This deficiency is the explanation as to why the value of the *economic support* index of the Oxford database for Hungary on April 15th was among the lowest (only Poland and Denmark obtaining even lower scores).

To compare the *legal-political* dimension of the Hungarian policy response to the epidemic to other European countries at this point would be rather hard and would require a legal studies / political science analysis beyond

20 Cf. the comparisons published by Politico at the end of March.

21 The time series of the indices by country are downloadable.

22 The ranking does not contain Malta but it does contain the United Kingdom. Own calculations based on the database referenced.

23 See: g7.hu.

24 Belgium, Denmark, France, Germany, Greece, Hungary, Italy, Holland, Portugal, Spain, UK.

25 See: valsagkezeles.blog.hu.

our scope here. All we can mention here is that in the *pandemic violations* index league table of the V-Dem Institute, measuring how much democracy was compromised during the epidemic, while the controversial empowering Act was in force, Hungary reached the worse value within the EU (0.3). Let us note though that this size of democratic backsliding during the crisis was certainly not the greatest if we also consider the wider world outside the EU (Belarus: 0.35; Serbia: 0.5).[26]

An OECD report finds that *policy design and decision making* was put under enormous pressure everywhere by the stakes, the uniqueness of the challenge as well as the timeline, including countries where policy making is traditionally more likely to be based on evidence than in Hungary. The response in this domain all over the developed world included: forming new, *ad hoc* policy units, the temporary/partial dropping, simplifying or digitalizing of preliminary impact assessment and stakeholder consultation and, in general, the relaxation of procedural requirements concerning the early phases of the policy cycle.[27]

Outcomes and causal mechanisms

Based on the public health outcomes (case numbers and Covid-related mortality in proportion to the population), on the 1st of July, 2020, with only 586 deaths caused by Covid-19, Hungary (population: just shy of ten million) was, along with the other three Visegrád nations, among the countries least ravaged by the first wave of the epidemic. 60 fatalities per million inhabitants was a bit above the same index for Czechia, Poland and Slovakia, but lower than Austria (78), let alone the EU as a whole (299). It is way too early to take stock of the indirect health effects (e.g. treatments deferred to free up healthcare capacities to fight Covid-19), let alone the psychological, social and economic effects of the pandemic and the countermeasures, the human capital and equity effects of closing down schools, including some positive side effects as well (a drop in the number of traffic accidents and burglaries) and compare them with the putative effects/of those policy measures in curbing the spread of the disease.[28] Of all these a few administrative input/output measures are there for us to reliably observe.[29]

As far as the short-run effects on the economy as a whole, those are reviewed by *Palócz–Matheika* (2020); the effects on the labor market are surveyed in *Subchapter 9.2.* of this volume.

The next step would indeed be to ask: what outcomes were caused by what exogeneous circumstance and especially which policy measure (or lack thereof)? If Hungary weathered the first wave relatively well, why exactly? Economists all over the world have already started to ask and answer questions like that – it is worth mentioning a promising recent paper in that vein (co-authored by the Hungarian *Dániel Prinz*), which used Google-search patterns as dependent

26 See: v-dem.net. The value of the index was less extreme from July on (0.1), but still remained the worst in the EU (tied with Bulgaria).

27 See: OECD.

28 Subchapter 5.1. covers the health effects of economic downturns, concentrating on the 2008 one, but those findings do not necessarily apply to what is a slump caused by very different shocks.

29 For example, the sum total of administrative indicators that can serve as a proxy for case numbers in non-Covid inpatient care dropped in March and April to almost half of the February level to rise back up to values similar to earlier years by August.

variable and different policy measures across U.S. states and explanatory variables to identify labor market effects of different policy interventions (*Kong–Prinz,* 2020). On the whole, though, it is way too early to expect to be able to optimize the mix of anti-Covid policy measures based on peer-reviewed econometric evidence of all relevant causal effects. This does not mean that health economics calculations cannot help the policy maker at all. They can be especially useful in judging the extremes: showing that certain measures are clearly too costly or, to the contrary, obviously worthwhile. Let me mention two papers serving those respective purposes as illustration. *Miles et al.* (2020) find that the *Quality-Adjusted Life Year gains that can be expected from* universal stay-at-home orders cost seven times as much as the threshold normally used to decide whether a medical treatment is cost-effective enough even under the scenario where stay-at-home is assumed the most efficacious intervention in slowing the spread. On the other end of the spectrum, *Martineau et al.* (2020) in their editorial article make a convincing case that compensating for vitamin D deficiency is a public health measure that is to be widely recommended, because even if it the treatment ultimately does not prove to be effective to help avoid or treat Covid-19 (randomized trials are ongoing), it is simple, cheap and has been proven to have plenty of other positive health effects.

But we have to face the fact that we do not yet have the data and not enough time has elapsed so far to carry out similar empirical work concerning the epidemic in Hungary.

Summary and a few closing thoughts

Our short survey showed that during the first half year of 2020 the policy response of the Hungarian government to the pandemic in comparison to other European states was mixed.

The picture consists of mostly timely *public health measures* generally in line with those adopted by other EU member states; a relatively frugal *economic policy response* that avoided unconditional aid to citizens and preferred measures of deferral to ones that increase long run public debt; and *political elements* that may look problematic to some.

The pandemic is not over yet by far though. When finishing this subchapter, the contours of a fall-winter second wave, exceeding the spring one in severity, can already be seen. Let us finish by considering this question: what can Hungarian economists do to assist the public policy making process of their country to best combat the second onslaught of this deadly, debilitating and socially costly disease in the next few months? Let me submit that there are at least three ways in which we can help.

First, economists can remind policy makers of the truisms that their profession has to offer that might be lost in the hasty process (consider the effects of a recent government decision to set a price ceiling for private Covid-testing).

Second, they can swiftly review and sift through the emerging empirical research done elsewhere concerning the effects of different policy measures, produced with more resources and from better data than available in Hungary and adapt, interpret and synthetize the best papers to contribute to better, more evidence-informed policy in Hungary.

Third, even if it is too early to build and test robust causal models, economists should describe and interpret the changing landscape of the Hungarian economy under the pandemic as it emerges – as they do in this book.

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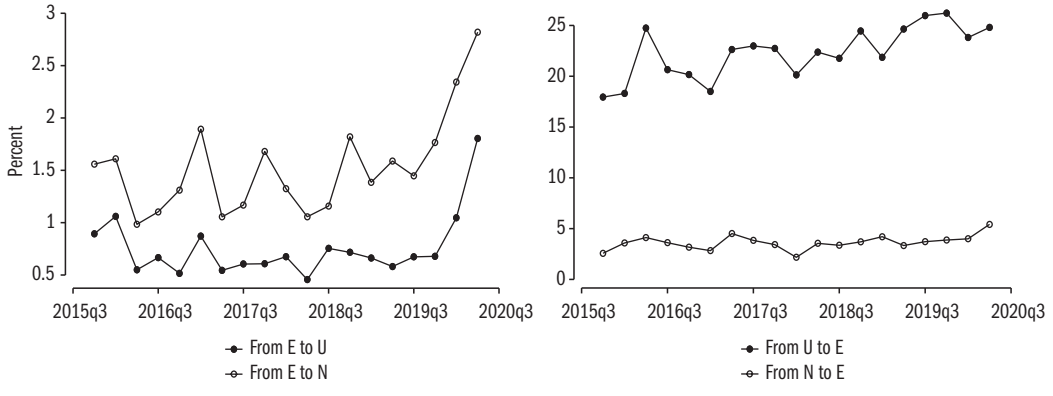
9.2 EMPLOYMENT DURING THE FIRST WAVE OF COVID-19

JÁNOS KÖLLŐ

In the spring of 2020, the Covid-19 epidemic reached Hungary and there had already before then been disruptions in international trade at the end of winter. Even though restrictions were only introduced in the second half of March, labour market data for the whole of the first quarter were alarming: the share of workers becoming unemployed or economically inactive rose substantially as seen in the left panel of *Figure 9.2.1*.

Figure 9.2.1: Flows between employment, unemployment, and inactivity, Q4 2015 – Q2 2020 (estimates of flows as a percentage of the base period stock)



E=employment, U=Unemployment, N=Inactivity.

Note: The initial value of the upper curve of the left-hand side figure shows that about 1.5 per cent of persons reported to be in employment in Q3 2015 were reported to be inactive in Q4 2015. The rest of the data should be interpreted similarly. The estimates of flows, harmonised with changes in stocks, were prepared by Zsombor Cseres-Gergely, using the method of raking, for which I sincerely thank him. For the detailed description of the method and its adoption for the Labour Force Survey of the Central Statistical Office, see *Cseres-Gergely* (2011).

Source: Labour Force Survey of the *Central Statistical Office*. Version maintained by the CERS Databank.

Outflows from employment continued to increase in the second quarter (April–June): the share of those who became inactive was nearly double the level recorded in the previous years, while the share of those who became unemployed more than doubled. These flows were not offset by inflows into employment, which remained in the range of fluctuation seen in the previous period (right-hand side of the figure).[1] Although the figure in itself provides a worrying picture, the more thorough analysis of data calls attention to changes even more pronounced than the one presented here.

1 I greatly appreciate that the Central Statistical Office, continuing a nearly 30-year-long practice, provided access to the relatively recent data of the Labour Force Survey. I also wish to thank Mónika Bálint for making the databases suitable for analysis and Zsombor Cseres-Gergely and György Molnár for their helpful advice. I assume full responsibility for the content.

Methodology

Before describing the consequences of the epidemic, some technical issues must be discussed. According to the Labour Force Survey (LFS) of the Central Statistical Office (CSO) *employees* are persons who, during the week prior to the survey, a) undertook at least one hour of gainful work or b) did not undertake an hour of work but were only temporarily away from their job. The latter has no importance in Hungary in "peacetime" but during the pandemic there may have been numerous people who were unable to work even though their employment relationship was maintained.[2] Therefore we also pay attention to the number of persons regarded as employees by the LFS who did not work at all during the week prior to the survey.

Persons without a job, who actively looked for a job during the month prior to the survey and would be able to enter a job in two weeks are regarded as *unemployed* by the LFS. This internationally accepted definition (in line with ILO and OECD guidance) also seems too strict during an epidemic, when many lose their jobs temporarily and, hoping to return, do not start searching for another job. Data on the *registered unemployed* included in the LFS also underestimate the severity of the problem because many of the unemployed hoping to return to their job and not entitled to benefits probably do not register themselves at the job centre. Thus, we also rely on broader definitions of unemployment.

The LFS also measures the number of hours worked during the reference week as well as usual weekly hours. The fact that a lot of people have to work less than usual during the pandemic cannot be ignored: this is taken into account by estimating full-time equivalent employment (FTE).[3] When evaluating changes, we also take into consideration that the number of public holidays per working days is different in some months of the first and second quarter and consequently it is appropriate to adjust the number of hours worked for calendar effect.

The LFS is a *rotating panel* with each selected household participating in the survey for six consecutive quarters and then replaced by a randomly selected new cohort. We make use of this characteristic of the data (as we did in *Figure 9.2.1*), provided that the major labour market indicators are similar to data from the cross-sectional survey in each period of the panel (see Annex *9.2*).

The survey covers 40–50 thousand persons quarterly. Representativity is ensured by weighting. The weights may even change in the case of a given person (household) depending on the composition of the incoming and outgoing cohorts, on how the population aged 15–74 or 15–64 years (included in the estimation of economic activity) is changing, and on panel attrition – see *Mihályffy* (1995), *Molnár* (2005) and *Cseres-Gergely* (2011).[4]

Consideration should also be given to the *periods* compared. As seen in *Figure 9.2.1* about flows, the labour market situation already deteriorated in the

2 The proportion of employees based on definition b) is considerably higher in Western-Europe than in Eastern- or Southern-Europe. See *Bajnai et al.* (2008).

3 If in a micro-economy two out of four people work, one of them 40 hours a week and the other 20 hours a week, the employment rate is 50 per cent but FTE equals only to 1.5/4 = 37.5 per cent.

4 For example, weights used in the two quarters were identical only for four per cent of respondents interviewed both in the first and second quarter of 2020, which is probably because of the worsening difficulties of interviewing during the pandemic.

first quarter, probably strongly affected by the figures of the last two weeks of the quarter (the lockdown period). Therefore, in the following, the periods of *January–February*, *March* and *April–June* will be compared. March cannot be merged with the second quarter because using differing weights would cause major complications.

For the number of observations in the three periods, see *Table A9.2.1* of *Annex 9.2*. The figures suggest that the sample suitable for analysing labour market developments (working-age persons except full-time students) is not large, especially not in March, thus this month is excluded from tables presenting group breakdowns.

One may wonder, since the LFS only becomes representative when the entire quarterly sample is queried, whether the timing of interviews could affect results when comparing the periods January–February, March and April–June. If, for example, the inhabitants of an extraordinarily underperforming county or small villages were always included in the third month of a quarter (which is not the case), their absence in the first and presence in the second period would distort comparison over time and would paint a bleaker picture of employment than it actually is. Therefore, the comparison of entire quarters is also provided in footnotes.

Finally, when evaluating the figures, it must be taken into account that because of the limited size of the LFS the sampling error is rather large and values at the level of small groups are uncertain. We will only attach importance to substantial changes.

Employment

Employment based on the ILO–OECD definition decreased by 2.8 percentage points in April–June, compared to January–February (*Table 9.2.1*). The share of those who undertook at least an hour of actual work during the reference week fell even more sharply, by 5.7 percentage points (7.6 per cent). These figures reveal an even greater shock than the one in 2008–2010.[5]

Average working hours also fell by 3.5 hours a week. This was substantial even if the varying number of public holidays per weekdays is accounted for (by that measure weekly working time fell by 2.1 hours). After March, the proportion of employees who worked less than usual increased dramatically, from below ten per cent to over thirty per cent.

Full-time equivalent employment plummeted by 9.3 percentage points if calculated using raw data and by 6.6 percentage points (9 per cent!) if estimated using data adjusted for calendar effects.[6]

Table 9.2.1 ignores the effect of seasonality. This, we believe, is appropriate because since 1992 (the launch of the LFS) employment in the second quarter has always been higher than in the first quarter. If accounting for seasonality, the decrease in employment would appear to be even greater.

5 In the first four months of that crisis (between October 2008 and February 2009) the employment rate decreased by 2.2 percentage points, and the share of those who worked at least one hour fell by 2.6 percentage points (author's calculation based on the LFS.

6 The FTE adjusted for calendar effect fell by 5.5 percentage points (7.7 per cent) if entire quarters are compared. This is, however, distorted because the labour market situation had already deteriorated in March due to the lockdown introduced, therefore the whole of the first quarter cannot be regarded as a pre-pandemic period.

Table 9.2.1: Employment – Selected indicators
Population aged 15–64, not in education

	January–February	March	April–June
Employment			
Employed (percentage)	77.6	76.1	74.8
Worked at least one hour (percentage)	75.0	70.1	69.3
Hours worked			
Raw	37.6	36.5	34.1
Adjusted for calendar effect[a]	37.6	35.7	35.5
Worked less than usual (percentage)[b]	9.0	10.1	31.2
Full-time equivalent employment (FTE)			
Using raw work hours data	73.0	68.5	63.7
Using adjusted work hours data	73.0	67.9	66.4

[a] Considering that the monthly working time was 21.5 days on average in January–February, 22 days in March, and 20.67 days in April–June.
[b] Among employees as per the LFS definition, excluding the 3–4 per cent of employees with "highly variable" work hours.
Note: Observations were weighted by the appropriate quarterly weights.
Source: LFS. Version maintained by the *CERS* Databank.

Unemployment

Table 9.2.2 presents the proportion of the unemployed within the population included in the survey. It must be noted that it is not the standard unemployment rate but the unemployed to population ratio.[7] The unemployment rate as defined by ILO–OECD was 0.6 percentage point higher in the second quarter than in January–February, and although this is equal to a 20 percent rise, concerning the total population it is not a dramatic increase.

Table 9.2.2: The share of the unemployed by various indicators
Population aged 15–64, not in education = 100

	January–February	March	April–June
Actively looks for a job and would be able to start	3.1	2.9	3.7
Is not looking for a job but would like to work	3.8	4.8	5.1
Unemployed based on self-assessment	5.1	6.1	6.7
At least one of the above criteria applies	8.1	9.0	10.0
Registered unemployed	3.3	3.8	4.3
Registered unemployed or public works participant	5.2	5.5	5.7
Did not work for an hour or more during the week prior to the interview	25.0	29.9	30.7

Note: Observations were weighted by the appropriate quarterly weights.
Source: Version of the Labour Force Survey of the *Central Statistical Office* maintained by the CERS Databank.

When other unemployment definitions are applied, the increases in the ratios are larger: 1.3 percentage points for the passive unemployed (who are not looking for a job but wish to gain employment) and 1.6 percentage points for the self-identified unemployed. If including those unemployed according to

7 If P is the population, U is the number of the unemployed and E is the number of employees, the ratio used for the present analysis is U/P, while the unemployment rate is $U/(E + U)$. The indicator has been selected for an easier comparison of indicators based on varying definitions.

at least one of the first three criteria, there is an increase of 1.9 percentage points and by using this permissive definition the proportion reaches 10 per cent in the second quarter. LFS data show that there was only a slight change in the number of the registered unemployed and public works participants.

If, in the broadest sense, people who did not work at least one hour during the reference week are regarded as unemployed (either because they did not have a job or they had one but were unable to carry out work) a significant, 5-percentage-point (22.8 percent) increase is seen.[8]

Home office

The negative impact of the lockdown was mitigated by the possibility of working from home via the Internet. The LFS has been assessing the prevalence of telework on the basis of the following definition: a teleworker is someone who regularly or occasionally carries out his/her work at a location other than his/her workplace, using ICT tools (*CSO,* 2018). Trends in the share of workers performing telework in the four weeks preceding the survey are presented in *Table 9.2.3*. Whereas in January–February 2.5 per cent of employees worked remotely, their proportion rose to 16.5 per cent by the second quarter.

Table 9.2.3: The share of those working remotely during the four weeks preceding the survey (aged 15–64, not in education, working at least an hour during the reference week = 100)

	January–February	March	April–June
Regularly	1.0	1.5	6.9
Occasionally	1.5	4.1	9.6
Total	2.5	5.6	16.5

Note: Observations were weighted by the appropriate quarterly weights.
Source: Version of the LFS of the *Central Statistical Office* maintained by the CERS Databank.

Differences by groups

Table 9.2.4 summarises changes in employment based on the "one-hour work" criterion in major groups of society within the population aged 15–64 years and not in full-time education. Data from January–February and April–June is compared. Please note that paid leave had been fully used up by the middle of the second quarter at the latest and therefore it did not significantly affect the number of employees working zero hours.

The employment rate of women declined slightly more than that of men. Job loss monotonically decreased with age. Among teenage youth not in full-time education there was a 20 percent decrease in employment.[9] There are two educational attainment groups that stand out: among those with a general upper-secondary qualification but not in full time higher education there is a decrease considerably greater than the average, while among university graduates the

8 This figure is the complement of the employment rate included in the second line of figures in *Table 9.2.1* and only provides new information for readers unversed in subtraction. Here it is only included because of its relationship with various employment rates.

9 The second quarter figure, although low, is based on a sufficient number of observations (722).

decrease is much smaller than the average. Interestingly, there is no considerable difference between men (–10.1 percentage points) and women (–13.5 percentage points) with a Matura from general upper-secondary education.

Table 9.2.4: Changes in the employment rate by groups[a]
Population aged 15–64, not in education = 100

	January–February	April–June	Extent of change (percentage point)
	(per cent)		
Male	83.0	77.7	–5.3
Female	67.1	60.8	–6.3
15–19-year old	33.5	13.6	–19.9
20–29-year old	75.2	66.0	–9.2
30–39-year old	78.3	72.8	–5.5
40–49-year old	84.9	80.6	–4.3
50–59-year old	78.5	74.4	–4.1
60–64-year old	41.1	39.9	–1.2
Grade 0–7	29.7	24.4	–5.3
Completed 8 grades	54.3	46.7	–7.6
Vocational school[b]	76.4	71.2	–5.2
Gymnasium (upper-secondary)	76.6	64.7	–11.9
Vocational upper-secondary[c]	79.5	73.5	–6.0
College	82.0	77.6	–4.4
University	85.9	84.0	–1.9
School leavers[d]	57.7	25.3	–32.4
Roma[e]	45.6	43.8	–1.8
Roma, excluding public works	39.2	38.7	–0.5
Budapest	81.8	73.8	–8.0
Countryside	73.6	68.3	–5.3
Female with children aged 0–6	39.1	37.1	–2.0
Female without children aged 0–6	73.8	66.3	–7.5
Female with children aged 7–18	72.7	65.7	–7.0
Female without children aged 7–18	65.0	58.9	–6.1
Total sample	75.0	69.3	–5.7

[a] Employed: worked at least an hour during the week preceding the survey.
[b] Vocational education not ending in a Matura (secondary school leaving examination).
[c] Vocational education ending in a Matura (secondary school leaving examination).
[d] Were in full time education one year prior to the survey.
[e] Respondent identifying themselves as Roma primarily or secondly.
Note: Observations were weighted by the appropriate quarterly weights.
Source: LFS, Version maintanined by the *CERS* Databank.

The bottom half of *Table 9.2.4* presents data for groups in a critical situation or generally assumed to be in a critical situation. As for school leavers (who were in full-time education one year prior to the survey but not anymore at the time of the survey), a dramatic decline of 32.4 percentage points is reported.[10]

The two periods of the LFS analysed herein includes 674 and 656 cases of persons identifying primarily or secondly as Roma. Their overall employ-

10 There is a relatively large number of observations also in this case (976).

ment barely decreased, and their market-based employment (excluding public works) remained essentially stable, probably due to the relative lack of exposure of the civil engineering sector.

Budapest was more affected by the crisis than the rest of the country, even though the occupational and educational preconditions for introducing teleworking are more favourable here. These seem to have been counteracted by the prevalence of some strongly affected sectors, such as tourism, catering, non-food retail as well as personal and cultural services.

Table 9.2.4 also presents changes in the situation of women with young children: surprisingly, the employment of women with children younger than six years dropped only by two percentage points. It must be noted, however, that only 40 per cent of them are in employment, probably those who were able to secure childcare before and during the pandemic. The employment of women with school-age children or without children declined by around 7 percentage points.

Job loss by employer and occupational characteristics

The extent of job loss and the reduction of actual working time to zero, broken down by employer and occupational characteristics, can only be analysed in a panel settings. Our sample includes persons who were in employment in the base period and were also included in the survey in the following quarter. Due to panel attrition and changes in the number of respondents belonging to the relevant age range, data from these panels is not necessarily consistent with the cross-sectional findings. Weighting is also crucial, since the weights pertaining to individual participants of the panel are usually different in the reference and current period. For more details see *Table A9.2.2* of *Annex 9.2.* and the accompanying text.

A further dilemma is that the probability of job loss is also different in 'peacetime' across occupations, sectors, and company size: it is always higher for unskilled workers or project-based activities such as construction. For convenience, in this report data from 2020 are compared with corresponding data from 2019.

The aim is to see *how likely it was for those in employment in January–February and working at least one hour to drop from this category* in the second quarter. This is, in essence, estimating the odds of job loss within three months because those queried in January were included next in April and those queried February were included next in May in both years. Again, January and February 2020 are regarded as the last months of "peacetime" and job loss is determined on the basis of April–May observations.[11]

Based on the last but one line of the third column of figures in *Table 9.2.5,* the job loss rate, as defined above, was *five times as high* in 2020 than in 2019.

11 There are limitations to using LFS for reconstructing developments taking place over the period between two waves. Even if someone was in employment during waves t and $t + 1$, they may have been unemployed between the two interviews and if they became unemployed or changed jobs more than once, it is impossible to determine the length of unemployment. If only once, then it is possible to estimate based on the starting date of their employment ongoing in quarter $t + 1$. However, the number of status changes is not known.

Table 9.2.5: Odds of losing employment between January-February and April-May in 2019 and 2020[a]

Status in January–February	Probability of job loss[b] (percentage)		2020/2019 ratio
	2019	2020	
Occupation			
Management, small business owner	0.5	6.1	12.2
Graduate occupation	1.4	8.1	5.8
Technician, assistant	2.5	12.3	4.9
Office or administrative staff	2.4	11.1	4.6
Trade or service occupation	3.7	21.2	5.7
Skilled agricultural	2.5	8.4	3.4
Skilled worker	2.8	13.8	4.9
Operator, assembler	2.3	16.8	7.3
Elementary manual occupation	6.3	19.4	3.1
Sector			
Agriculture	2.5	6.8	2.7
Vehicle manufacturing	2.2	27.1	12.3
Other industry, energy	3.1	12.7	4.1
Municipal services	2.3	8.0	3.4
Construction	3.3	13.1	4.0
Trade	2.9	13.8	4.8
Transportation	2.4	11.4	4.8
Services	2.5	19.8	7.9
Public administration	4.1	10.0	2.4
Education	1.9	8.9	4.7
Healthcare	2.1	12.8	6.1
Company size			
1–10 employees or does not know but below 10	3.2	16.3	5.1
11–19 employees	3.4	17.1	5.0
20–49 employees	1.8	13.0	7.2
50–299 employees	2.1	10.2	4.9
300–499 employees	3.0	12.9	4.3
500–999 employees	2.1	10.9	4.8
1000 employees or more	2.4	13.3	5.5
Does not know but over 10 employees	4.6	16.3	3.5
Ownership			
Public	2.5	9.8	3.9
Municipal	3.9	14.9	3.8
Private	2.7	15.1	5.6
Other (co-operative, mixed, does not know)	4.3	16.3	3.8
Total sample	2.8	14.0	5.0
Number of persons observed	11,168	11,328	–

[a] Sample: was in employment at the time of the January–February survey and worked at least one hour.

[b] Job loss: was out of employment or did not work an hour at the time of the April–May survey.

Note: Observations were weighted by the weights of the reference period.

Source: LFS. Version maintained by the *CERS* Databank.

An even more dramatic deterioration was seen among workers in senior management positions (most of whom are self-employed and small business owners), motor industry, services, and machine operators, while a less significant deterioration was reported in agricultural occupations and in agriculture in general as well as among unskilled workers, municipal services and public administration. The deterioration was smaller in the public than in the private sector. In other sectors the increase ranged from four to six-fold, with no significant differences within the range.[12]

Differences in home office

Job loss due to the lockdown would probably have been more prevalent (and the spread of the pandemic much faster) if in certain occupations and sectors workers had not been able to transition to remote work (home office in most cases). Its share increased by 13.9 percentage points between January–February and April–June (*Table 9.2.6, see next page*).

Blue collars experienced a less than one percentage-point rise on average. However, 9–10 per cent of employees with a secondary school leaving certificate (Matura), 37.4 per cent of college graduates and half (52.9 per cent) of university graduates worked from home. There is a similar pattern according to occupations: more than half of workers in graduate jobs and one-fifth of managers, assistants, technicians and office staff worked from home, while only 1.7 per cent of manual workers were able to make use of that facility. Youth below twenty years of age but not in education as well as construction and manufacturing workers did not tend to work from home either. Transition to home office was of above average for women, residents of Budapest and those working in the public sector. Workers in services, especially in education, switched to remote work in far greater than average numbers, while in "material sectors" and healthcare they did so in numbers far below the average. These differences came as no surprise.

The level of remote work in the second quarter was estimated using multivariate regression, controlling for gender, age, educational attainment, sector, ownership and a binary variable for the size of the business site.[13] At one point, this produced a result which diverges from the picture provided by raw averages: private and mixed ownership firms were significantly more likely to provide for remote work for their employees (*ceteris paribus,* by 5 per cent and 6 per cent respectively) than state-owned and municipal institutions.

Summary and conclusion

The lockdown measures introduced during the first wave of the Covid-19 pandemic as well as supply and demand side disturbances affected the labour market even more seriously than the 2008–2010 crisis. As a result of dismissals and reduction in working hours, in the second quarter the number of employees

12 Please note that the odds of losing employment was one of the highest for unskilled workers among all occupations in 2020 but it was the same in 2019 (and probably in every year). Their labour market situation did not *deteriorate* as much as that of other occupations. Similarly, a higher-than-average ratio of jobs disappeared at small firms and in trade and catering during the first wave of the pandemic but the rate did not increase more than the average.

13 The results are available upon request.

Table 9.2.6: Fraction working at home occasionally or regularly[a]
Employed persons = 100

	January–February	April–June	Change (percentage points)
	(percentage)		
Gender			
Male	2.7	13.6	10.9
Female	2.5	20.2	17.7
Age			
15–19 years	0.0	3.4	3.4
20–29 years	1.5	15.1	13.6
30–39 years	3.7	19.9	16.2
40–49 years	2.5	17.2	14.7
50–59 years	2.7	14.0	11.3
60–64 years	1.9	13.4	11.5
Educational attainment			
Grade 0–7	0.0	0.0	0.0
Completed 8 grades	0.0	1.0	1.0
Vocational school[b]	0.1	1.2	1.1
Gymnasium (upper-secondary)	2.3	10.4	8.1
Vocational upper-secondary[c]	2.2	9.3	7.1
College	5.8	37.4	31.6
University	7.5	49.6	42.1
Occupation			
Manager	4.5	22.3	17.8
Graduate job	8.2	52.9	44.7
Technician, assistant	4.0	19.7	15.7
Office or administrative	3.0	21.0	18.0
Manual worker	0.4	1.7	1.3
Ownership			
Public	2.0	23.3	21.3
Municipal	0.2	13.8	13.6
Private	3.0	13.9	10.9
Other (co-operative, mixed, does not know)	3.1	21.0	17.9
Size of business site			
1–10 employees	3.2	14.0	10.8
Larger	2.4	17.3	14.9
Sector			
Agriculture	0.8	3.1	2.3
Motor industry	1.1	7.6	6.5
Other industry, energy	1.7	7.8	6.1
Municipal services	0.0	15.9	15.9
Construction	0.9	5.5	4.6
Trade	2.0	9.6	7.6
Transportation	1.6	8.4	6.8
Services	7.0	31.5	24.5
Public administration	1.1	14.6	13.5
Education	1.3	50.3	49.0
Healthcare	1.0	6.8	5.8
Settlement type			
Budapest	6.8	36.3	29.5
Countryside	1.6	11.9	10.3
Total sample	2.6	16.5	13.9

[a] Employee: worked at least one hour during the week preceding the survey.

[b] Vocational education not ending in a Matura (secondary school leaving examination).

[c] Vocational education ending in a Matura (secondary school leaving examination).

Note: Observations were weighted by the appropriate quarterly weights.

Source: LFS. Version maintained by the *CERS* Databank.

working at least one hour dropped by 7.6 per cent and full-time equivalent employment decreased by 9 per cent compared with January–February.

The usual labour market indicators (employment and unemployment rates) regularly published in the media underestimate the extent of the shock because of disregarding the nearly 6 percent decline in working time and because many dismissed workers may have hoped the lockdown would end, which reduced their willingness to look for a job or register as unemployed. The government failed to relax the ungenerous unemployment benefit regulations nearly unparalleled in the developed world (with a maximum duration of three months but much shorter on average), which may have contributed to an underestimation of joblesness. In addition, in some of the most affected sectors, for example in catering, culture and trade, workers are often employed informally and thus they are not entitled to benefits.

The crisis affected school leavers and working teenagers the most seriously. A far greater than average decrease was seen in the population with general upper-secondary (Gymnasium) qualification but not attending full-time higher education, while a much smaller than average decrease was reported for university graduates. The employment rate of the Roma hardly declined and their employment in the open labour market essentially remained the same. The crises had a stronger effect on Budapest than the rest of the country. Despite the closure of kindergartens and schools, the employment levels of women with and without school-age children were similar and that of women with children aged below six years dropped by a mere two percentage points.

The job loss rate was *five times as high* in 2020 than in 2019. A particularly sharp decline was reported for small business owners as well as in vehicle industry, services and among machine operators and a slighter drop was seen in agriculture, among unskilled workers, in municipal services and public administration.

The job loss rate was mitigated by the spread of telework: in January–February only 2.6 per cent of employees worked remotely but their share increased to 16.5 by the second quarter. It was primarily higher education graduates who were able to take advantage of this opportunity: in the second quarter, half of university graduates and those in professinal jobs, more than one-third of graduates from colleges worked from home, while only one-tenth of employees with an upper-secondary qualification and less than two per cent of manual workers did so. The opportunity of switching to remote work protected highly qualified white-collar workers both from job loss and from becoming infected, which (although resilience of the "elite" is desirable in itself), further aggravated social disparities.

Estimates presented in the Subchapter had to be made in a very brief time, since the data became available only a few days before the volume had to be submitted. It is impossible to exploit the extremely rich wealth of LFS data

or build and estimate a refined model within a few days. The Subchapter is to be regarded more as a "statistical flash report". There are several problems that cannot be investigated using the available data, for example it is not possible to determine what impact the tax benefits and reliefs granted by the government had on employment. To be able to do that, enterprise level or ideally linked employer-employee data would be needed, which we were unable to obtain in time. Additionally, dividing samples and analysing smaller groups were restricted by the limited size of the survey.

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Annex 9.2

Table A9.2.1: Observations in the LFS, 2020 (number of persons)

	January–February	March	April–June
Total	34,065	14,157	42,813
14–74 years	24,639	10,698	32,481
15–64 years	20,500	8,552	25,981
15–64 years, not in education[a]	18,353	7,755	23,870

[a] Not in full-time education.

Source: Version of the Labour Force Survey of the *Central Statistical Office* maintained by the CERS Databank.

Table A9.2.2 presents the employment rate of the population aged 15–64 years in samples from the first and second quarters of 2019 and 2020 as well as in the panels developed from them. In order to be able to compare the findings obtained from the samples available with data published by the Central Statistical Office, students are not excluded this time, the quarters are not split

and working time is not taken into account. It is evident that, except for one case, data estimated using the quarterly wave are not fully consistent with CSO published data. We are not aware of the source of the differences: they might be due to subsequent adjustment. (We also downloaded retrospective data in mid-October 2020.) The employment rates of panel participants are in each case lower than rates calculated from cross-sectional data, by one percentage point in 2019 and by a 0.3 percentage point in 2020. Nevertheless, changes between the first and second quarters are identical based on both cross-sectional data and panels. Finally, employment levels in the current period, estimated using current and base period weights, are identical or differ only to a very small extent. Allowing for these minor distortions, the panels are deemed suitable for use. The analysis relies on base period weights.

Table A9.2.2: The employment rate of the population aged 15–64 years in various samples[a]

	Quarterly waves	Panels		CSO-Stadat
		Base period weights	Reference period weights	
2019				
January–March	70.9	69.9	69.9	69.9
April–June	71.0	70.0	70.0	70.0
2020				
January–March	69.7	69.4	69.4	70.3
April–June	68.7	68.4	68.0	68.7

[a] For comparison with published data, samples now also include students.
Source: LFS. Version maintained by the *CERS* Databank and *HCSO*.

APPENDIX
ADMIN3 – PANEL OF LINKED ADMINISTRATIVE DATA

ANNA SEBŐK

In the summer of 2019, The Databank of the Centre for Economic and Regional Studies (KRTK) established Admin3, the third round of the Panel of Administrative Data. Admin3 was made by linking individual-level as well as firm-level data provided by the National Insurance Fund Administration, the Hungarian State Treasury, the Educational Authority, the Ministry of Finance, and the National Tax and Customs Administration. The dataset is a 50% random sample of the Hungarian population, containing health, education, labour market and unemployment data as well as numerous characteristics of Hungarian firms. The Admin3 is an anonymized dataset covering multiple years.

Admin3 (covering data from 2003 to 2017) has been created using a data-integrational method. First, a 50% sample was drawn from the people who held a Social Security Number in 2003 using the National Insurance Fund Administration's registry which virtually covers the entire Hungarian population. The result of this process is a list consisting of the Social Security Numbers and the Employment Tax Numbers. Then these two identifiers were hashed using an algorithm created specifically for the purpose of the actual data linking process by the National Infocommunications Services Company (NISC Ltd.). In the next step, the other data providers queried the data they possess about those in the sample, including the two identifiers hashed with the same algorithm. They then handed these over to the NISC Ltd. which later merged and anonymized them. Thus the dataset does not contain any natural identifier. After merging the individuals' data and dropping the original identifiers, the linked dataset was sent to the KRTK Databank in a raw format yet not suitable for research work. The data cleaning then began as a joint effort of the fellow workers of the KRTK Databank and those researchers who have been engaged with the different registries for a long time. The anonymized dataset is solely available for scientific research via safe server connection and under controlled conditions.

The following healthcare-related information is available on an individual level for the period of 2009–2017: Social Security Number registry (gender, birth year and month, as well as information on Social Security Number validity), district code of residence, data about the term of social insurance, public health care, general practitioner care, inpatient and outpatient care, mortality, prescription take-outs, monetary provisions (sick benefit, baby-care allowance, childcare benefit, sick-leave). Out of these, the following data have been used

in this volume: district code of residence, number of visits to the GP, number of cases and expenses[1] of outpatients' care, number of days and expenses[2] of hospitalization, number of prescriptions taken out and expenses[3] – in total and by the main Anatomical Therapeutical Category (ATC) groups – as well as mortality. It is important to bear in mind that the aggregation of data does not allow accurate recovery of aggregated healthcare statistics due to a slightly different dataset and the nature of sampling.

The section on labour market consists of data about the employee, referral of public employment and labour force on an individual level. The Hungarian Labour Market utilizes data about labour market status and wage income.

Social transfer includes data about pension payments, monetary provisions, unemployment, and labour force related programs, on an individual level.

The section on education contains data about the participation in higher educational training, higher educational relationship, public educational relationship, maturity exam and the National Assessment of Basic Competencies, on an individual level.

Information about firms comes from the corporation tax declaration and NES Wage Survey records, at a firm-level although linked to employees/individuals.

More details of the Admin3 are available in *Sebők* (2019).

1 Including laboratory care, except for CT and MRI diagnostics.

2 Including active and chronic care.

3 Expenses covered by social security and by the patient are both available.

Reference

SEBŐK, A. (2019): The Panel of Linked Administrative Data of KRTK Databank. Working Papers on the Labour Market (BWP) 2019/2. Institute of Economics, Centre for Economic and Regional Studies, Budapest.

STATISTICAL DATA

Edited by
ÉVA CZETHOFFER
Compiled by
JÁNOS KÖLLŐ
JUDIT LAKATOS
JÓZSEF TAJTI

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.

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	Unemployment rate
1995	101.5	104.6	108.4	96.1	87.8	98.1	128.2	10.2
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	105.1	103.5	104.3	106.4	108.3	101.1	102.8	3.7
2019	104.9	105.4	104.2	105.7	107.7	101.0	103.4	3.4

[a] After 1995 there was a change in the methodology for accounting the undivided service fee of financial intermediation. 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] 1995–2000: those with more than 5 employees, 2001–: excluding water and waste management, including businesses with fewer than 5 employees.

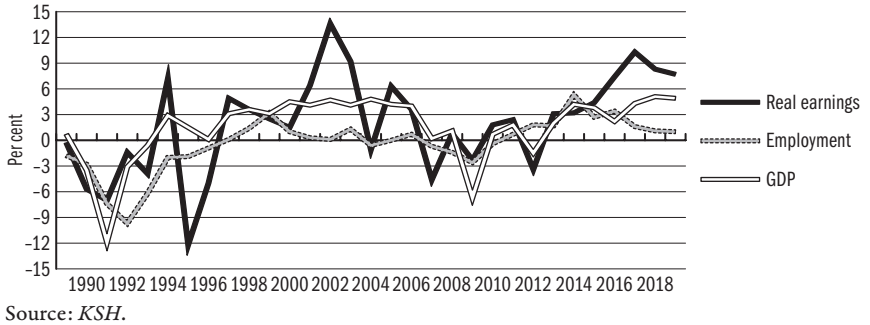
[c] Volume index.

Note: Previous year = 100, except for unemployment rate.

Source: GDP: *STADAT* (2020.02.28. version). Industrial production index: 2001–: *STADAT* (2020.03.20. version). Export and import: 2001–: *STADAT* (2020.03.03. version). Real earnings: 1995–: *STADAT* (2020.02.26. version). Employment: *KSH MEF* (2020.03.13. version). Consumer price index: *STADAT* (2020.01.13. version). Unemployment rate: *STADAT* (2020.03.13. version). Other data: *KSH*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent01_01

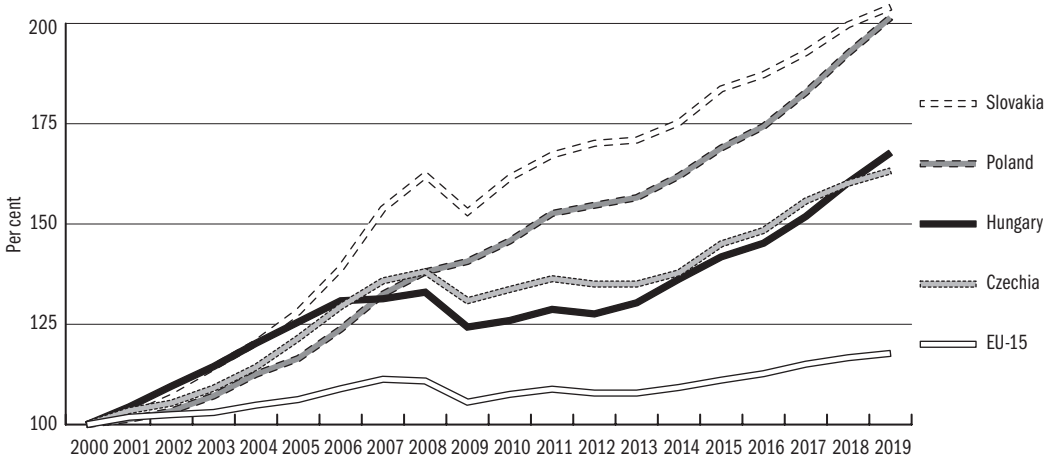
Figure 1.1: Annual changes of basic economic indicators



Source: *KSH*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ena01_01

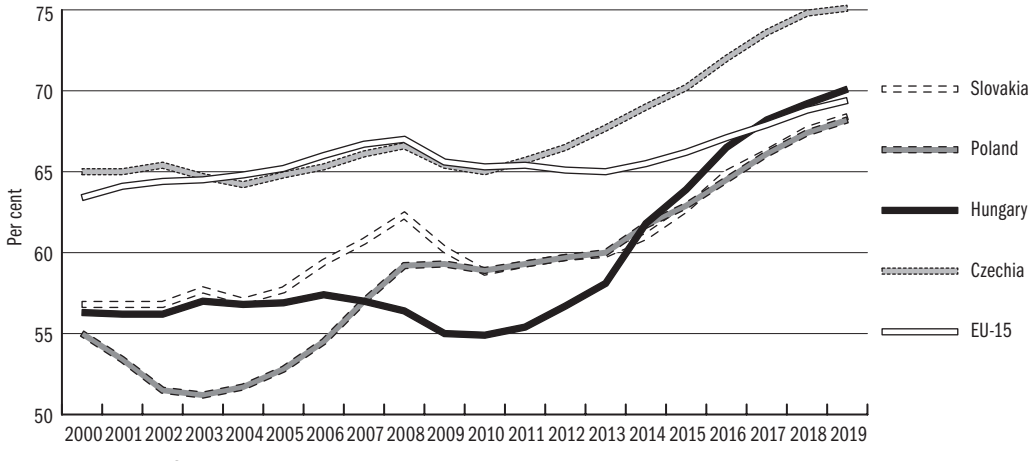
Figure 1.2: Annual GDP time series (2000 = 100%)



Source: *Eurostat*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ena01_02

Figure 1.3: Employment rate of population aged 15–64



Source: *Eurostat*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ena01_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]	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

[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* (2019.07.15. version)

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent02_01

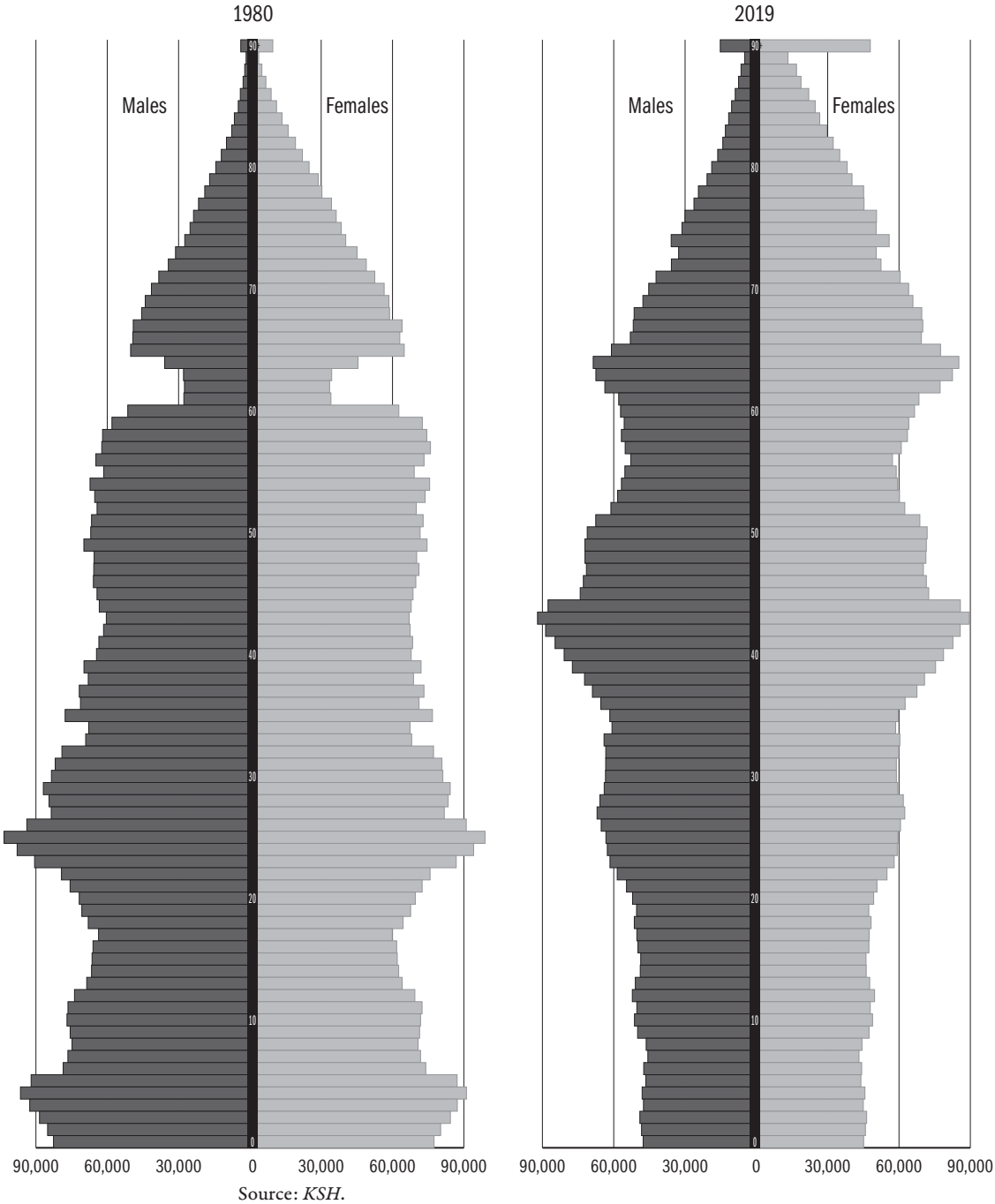
Table 2.2: Population by age groups, in thousands[a]

Year	0–14	15–24	25–54	55–64	65+	Total
			years old			
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

[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* (2019.07.15. version)

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent02_02

Figure 2.1: Age structure of the Hungarian population, 1980, 2019



Source: *KSH*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ena02_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

[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* (2019.07.15. version)

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent02_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

[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* (2019.07.15. version)

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent02_04

Table 3.1: Labour force participation of the population over 14 years, wherein 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

[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/2020ent03_01

Table 3.2: Labour force participation of the population over 14 years, males, in thousands[a]

	Population of males 15–59								Population of males 60 and over			
			Inactive									
Year	Employed	Unemployed	Pensioner	Full time student	On child care leave	Other inactive	Inactive total	Total	Employed	Unemployed	Pensioner, other 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

[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/2020ent03_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	Unemployed	Inactive					Total	Employed	Unemployed	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

[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/2020ent03_03

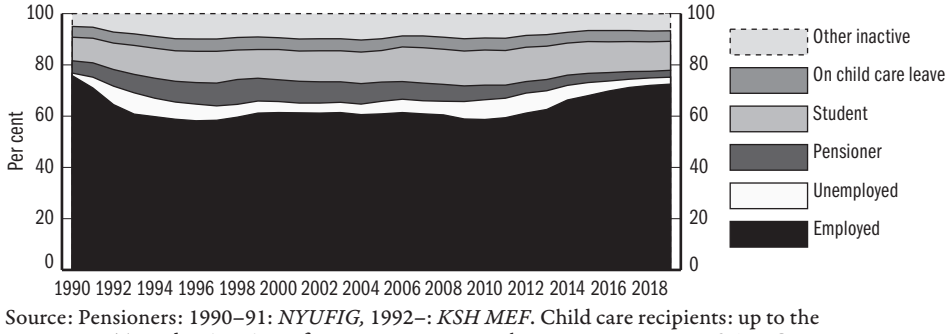
Table 3.4: Labour force participation of the population over 14 years, per cent

Year	Population of males 15–59 and females 15–54								Population of males over 59 and female over 54			
	Employed	Unemployed	Inactive					Total	Employed	Unemployed	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

Source: Pensioners: *KSH MEF*. Child care recipients: up to the year 1995 *TB* and estimation, after 1995 *MEF*. Unemployment: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent03_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

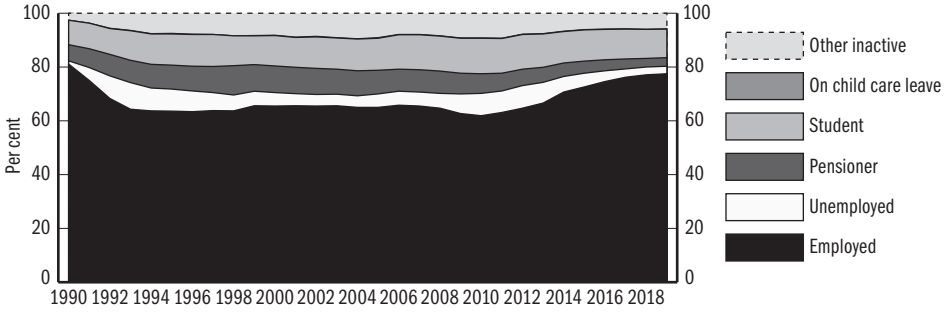
Table 3.5: Labour force participation of the population over 14 years, males, per cent

Year	Population of males 15–59								Population of males 60 and above			
	Employed	Unemployed	Inactive					Total	Employed	Unemployed	Pensioner, other inactive	Total
			Pensioner	Full time student	On child care leave	Other inactive	Inactive total					
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

Source: Pensioners: *KSH MEF*. Child care recipients: up to the year 1997 *TB* and estimation, after 1997 *MEF*. Unemployment: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent03_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/2020ena03_02

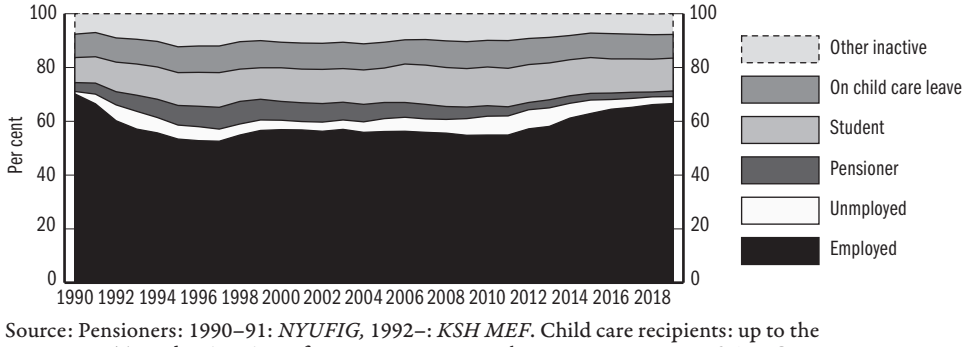
Table 3.6: Labour force participation of the population over 14 years, females, per cent

Year	Population of females 15–54								Population of females 55 and above			
	Employed	Unemployed	Inactive					Total	Employed	Unemployed	Pensioner, other inactive	Total
			Pensioner	Full time student	On child care leave	Other inactive	Inactive total					
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

Source: Pensioners: *KSH MEF*. Child care recipients: up to the year 1997 *TB* and estimation, after 1997 *MEF*. Unemployment: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent03_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/2020ena03_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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent03_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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent03_08

Table 4.1: Employment

Year	In thousands	1992 = 100	Annual changes	Employment ratio[a]
1990	4,880.0	119.5	..	59.0
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

[a] Per cent of the population over 14 years of age.
Source: 1990: *KSH MEM*, 1995–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent04_01

Figure 4.1: Employed

Source: 1990–91: *KSH MEM*, 1992–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ena04_01

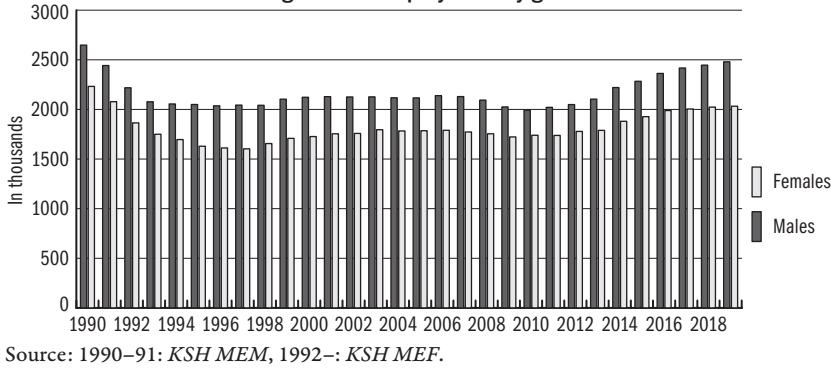
Table 4.2: Employment by gender

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
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

Source: 1990: *KSH MEM*, 1995–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent04_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/2020ena04_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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent04_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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent04_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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent04_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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent04_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	4,024.8	0.3	164.2	322.8	4,512.1

Note: Conscripts are excluded. The participants of winter-time training programs within the Public Works Program are accounted 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/2020ent04_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

Note: Conscripts are excluded. The participants of winter-time training programs within the Public Works Program are accounted 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/2020ent04_08

Table 4.9: Composition of employed persons by sector, by gender, per cent

	2015			2016			2017			2018			2019		
	Males	Females	Together	Males	Females	Together	Males	Females	Together	Males	Females	Together	Males	Females	Together
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
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
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
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
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
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
Wholesale and retail trade; repair of motor vehicles and motorcycles	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
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
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
Information and communication	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
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
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
Professional, scientific and technical activities	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
Administrative and support service activities	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
Public administration and defence; compulsory 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
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
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
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
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
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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent04_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
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

Source: MEF, IV. quarterly waves.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent04_10

Table 4.11: Distribution of employees in the competitive sector[a] by firm size, per cent

	Less than 20	20–49	50–249	250–999	1000 and more
Year			employees		
2005	27.0	15.0	20.5	17.5	20.0
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

[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/2020ent04_11

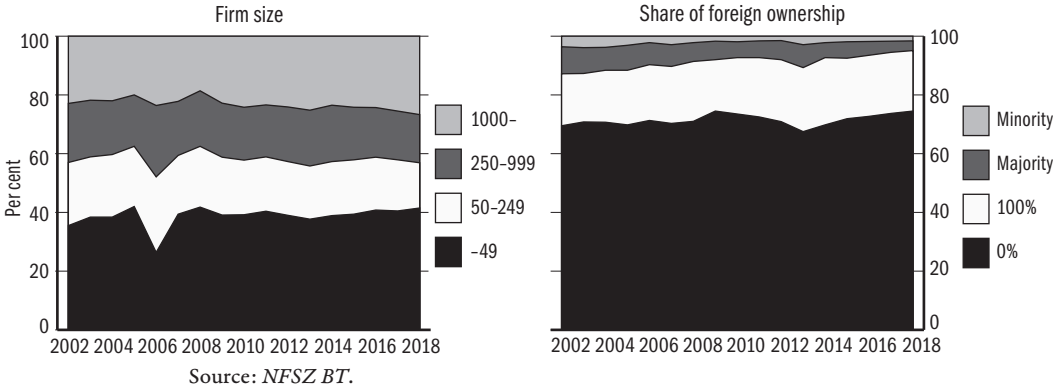
Table 4.12: Employees of the competitive sector[a] by the share of foreign ownership, per cent

Share of foreign ownership	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
100%	18.6	19.0	19.4	20.4	17.5	19.2	20.2	21.1	21.8	22.9	20.6	20.8	20.8	20.6
Majority	8.5	7.5	7.4	6.4	6.3	5.4	5.7	6.5	7.8	5.1	5.6	4.7	3.8	3.3
Minority	3.1	2.2	2.9	2.2	1.7	1.9	1.6	1.5	2.9	2.2	1.9	1.8	1.7	1.6
0%	69.8	71.3	70.3	71.0	74.6	73.5	72.4	70.9	67.5	69.9	71.9	72.6	73.8	74.5

[a] Firms employing 5 or more workers.
Note: Since 2019 the NFSZ BT is conducted by KSH. The variables of this table are not collected any longer.
Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent04_12

Figure 4.3: Employees of the corporate sector by firm size and by the share of foreign ownership



Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ena04_03

Table 4.13: 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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent04_13

Table 4.14: 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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent04_14

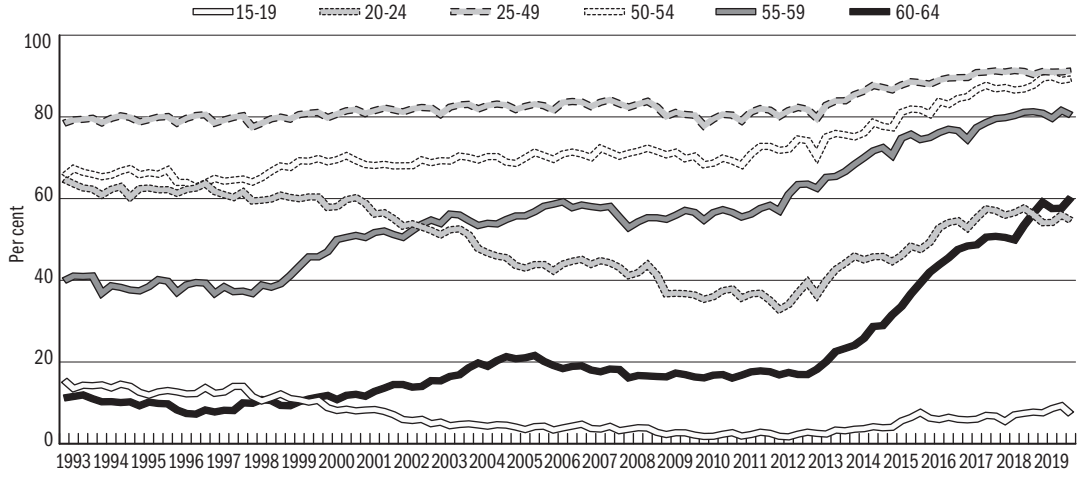
Table 4.15: Employment rate of population aged 15–64 by level of education, males, per cent

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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent04_15

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/2020ena04_04

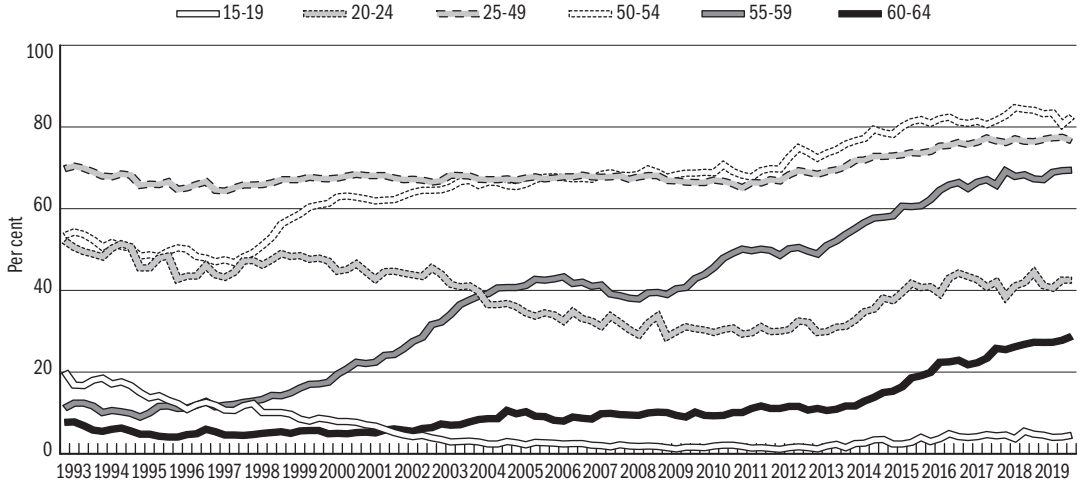
Table 4.16: Employment rate of population aged 15–64 by level of education, females, per cent

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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent04_16

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/2020ena04_05

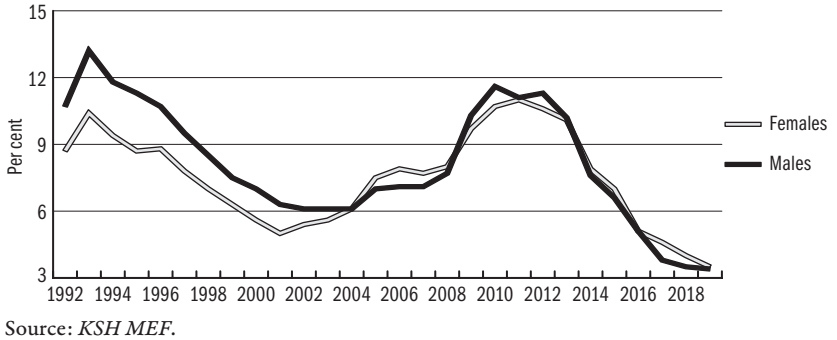
Table 5.1: Unemployment rate by gender and share of long term unemployed, per cent

Year	Unemployment rate			Share of long term unemployed[a]
	Males	Females	Total	
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

[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/2020ent05_01

Figure 5.1: Unemployment rates by gender



Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ena05_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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent05_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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent05_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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent05_04

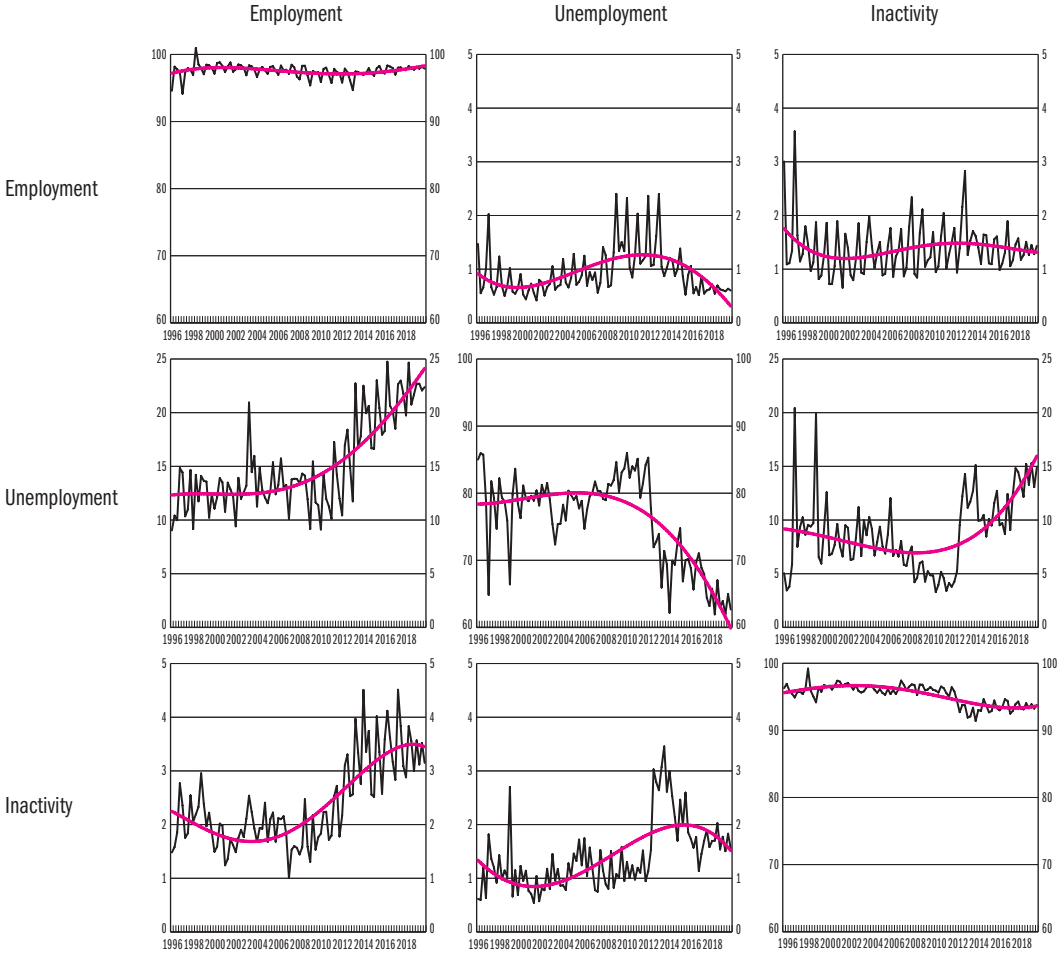
Table 5.5: Composition of the unemployed by level of education, females, per cent

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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent05_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 between 15–64 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 were 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/2020ena05_02

Table 5.6: The number of unemployed[a] by duration of job search, in thousands

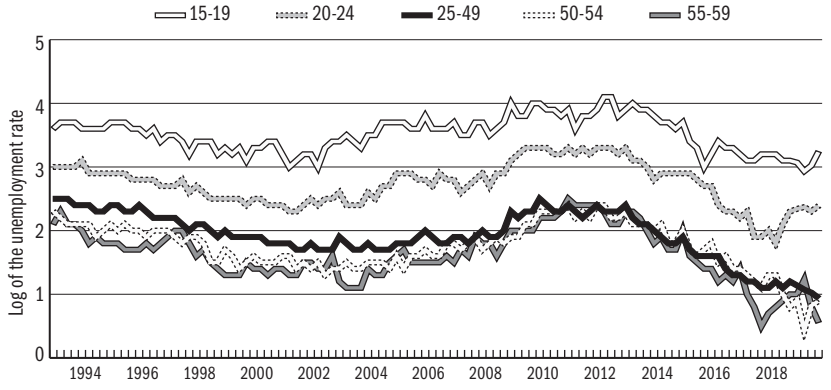
Year	Length of job search, weeks [month]								Total
	1–4 [<1]	5–14 [1–3]	15–26 [4–6]	27–51 [7–11]	52 [12]	53–78 [13–18]	79–104 [19–24]	105– [>24]	
1992	43.9	90.9	96.4	110.7	10.6	41.7	38.4	n.a.	432.6
1993	36.2	74.8	87.9	120.5	14.7	75.1	83.7	n.a.	492.9
1994	30.5	56.5	65.0	91.9	8.4	63.0	73.8	40.4	429.5
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

[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/2020ent05_06

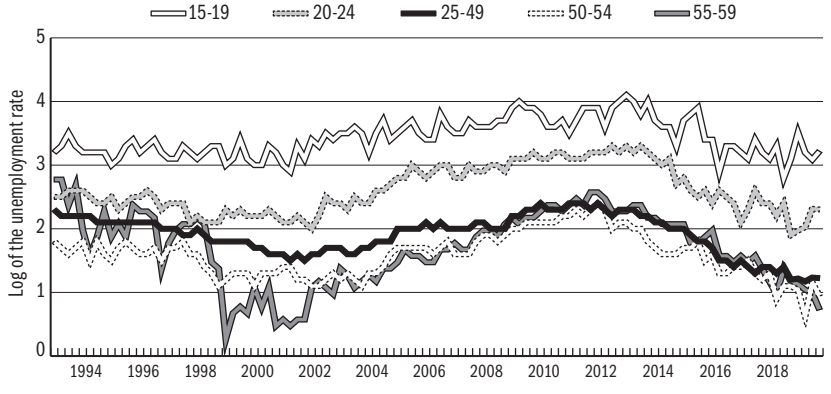
Figure 5.3: Unemployment rate by age groups, males aged 15–59, quarterly



Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ena05_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/2020ena05_04

Table 5.7: Registered unemployed[a] and LFS unemployment

	Registered unemployed		LFS unemployed, total		LFS unemployed, age 15–24	
Year	In thousands	rate in %	In thousands	rate in %	In thousands	rate in %
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

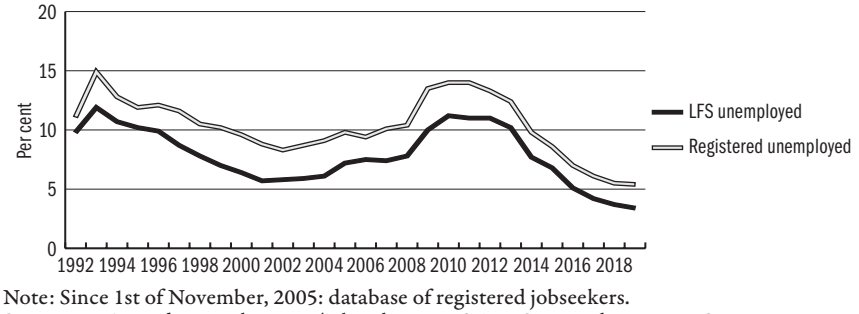
[a] Since 1st of November, 2005: database of registered jobseekers. From the 1st of November, 2005 the Employment Act changed the definition of registered unemployed to registered jobseekers. After termination of compilation of Balance of Labour Force in 2016 the number of economically active population – 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/2020ent05_07

Figure 5.5: Registered and LFS unemployment rates



Note: Since 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/2020ena05_05

Table 5.8: Composition of the registered unemployed[a] by educational attainment, yearly averages, per cent

Educational attainment	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
8 grades of primary school or less	42.7	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
Vocational school	32.9	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
Vocational secondary school	13.1	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
Grammar school	7.5	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
College	2.7	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
University	1.0	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
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 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/2020ent05_08

Table 5.9: The distribution of registered unemployed school-leavers[a] by educational attainment, yearly averages, per cent

Educational attainment	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
8 grades of primary school or less	34.7	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
Vocational school	20.4	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
Vocational secondary school	23.2	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
Grammar school	10.8	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
College	7.7	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
University	3.3	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
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 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/2020ent05_09

Table 5.10: Registered unemployed by economic activity as observed in the LFS, per cent

Year	Employed	LFS-unemployed	Inactive	Total	Year	Employed	LFS-unemployed	Inactive	Total
2002	4.4	47.4	48.2	100.0	2011	3.5	66.7	29.8	100.0
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

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/2020ent05_10

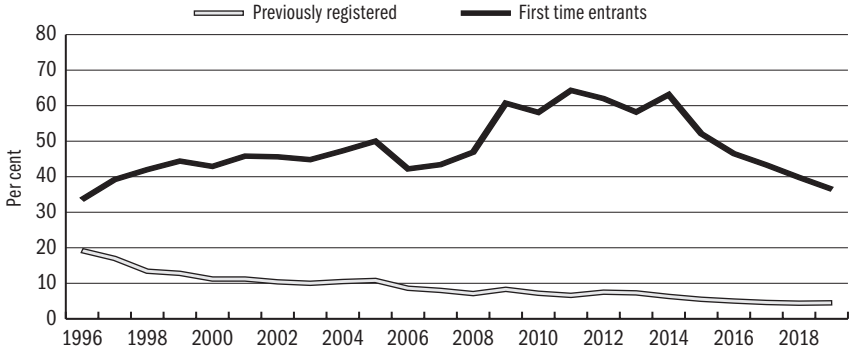
Table 5.11: Monthly entrants to the unemployment register[a], monthly averages, in thousands

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
First time entrants	11.2	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
Previously registered	45.8	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
Together	57.0	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

[a] Since 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/2020ent05_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/2020ena05_06

Table 5.12: Selected time series of registered unemployment, monthly averages, in thousands and per cent

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Registered unemployment[a]	390.5	364.1	344.7	357.2	375.9	409.9	393.5	426.9	442.3	561.8
Of which: school-leavers	26.0	26.8	28.5	31.3	33.8	40.9	38.7	40.4	41.4	49.3
Non school-leavers	364.4	337.4	316.2	325.9	342.2	369.1	354.7	386.5	400.9	512.5
Male	209.7	196.4	184.6	188.0	193.3	210.4	200.9	219.9	228.3	297.9
Female	180.8	167.7	160.1	169.2	182.6	199.5	192.5	207.0	214.0	263.9
25 years old and younger	79.1	75.6	71.1	71.6	71.4	78.9	75.8	80.3	75.9	104.3
Manual workers	321.2	302.0	286.3	296.2	308.5	336.2	321.9	..	..	..
Non manual workers	69.3	62.1	58.4	61.0	67.4	73.7	71.6	..	..	..
Unemployment benefit recipients[b]	131.7	119.2	114.9	120.0	124.0	134.4	151.5	134.6	136.5[e]	202.1
Unemployment assistance recipients[c]	143.5	131.2	113.4	116.2	120.4	133.4	121.8	133.0	147.5	156.0
Unemployment rate[d]	9.3	8.5	8.0	8.3	8.7	9.4	9.0	9.7	10.0	12.8
Shares within registered unemployed, %										
School-leavers	6.7	7.3	8.3	8.8	9.0	10.0	9.8	9.5	9.4	8.8
Male	53.7	53.9	53.5	52.6	51.4	51.3	51.1	51.5	51.6	53.0
25 years old and younger	20.3	20.8	20.6	20.0	19.0	19.2	16.5	18.8	17.2	18.6
Manual workers	82.2	82.9	83.1	82.9	82.1	82.0	81.8	..	..	..
Flows, in thousands										
Inflow to the Register	54.1	57.0	56.0	54.8	57.8	60.7	50.8	51.4	54.0	69.0
Of which: school-leavers	8.0	7.8	7.8	7.7	7.6	8.2	7.0	6.2	6.3	7.5
Outflow from the Register	56.8	59.4	55.8	53.5	54.4	59.8	51.4	48.4	51.3	58.4
Of which: school-leavers	8.2	7.7	7.5	7.6	7.1	7.9	7.1	6.0	6.2	6.7

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Registered unemployment[a]	582.7	582.9	559.1	527.6	422.4	378.2	313.8	283.0	255.3	250.9
Of which: school-leavers	52.6	52.9	61.5	66.0	54.6	47.0	35.8	29.6	24.8	22.6
Non school-leavers	530.1	529.9	497.6	461.6	367.8	331.2	278.0	253.4	230.5	228.3
Male	305.0	297.1	275.8	267.7	214.2	187.5	156.0	137.9	122.4	119.5
Female	277.7	285.8	283.3	259.9	208.2	190.7	157.8	145.1	132.9	131.4
25 years old and younger	102.8	102.3	101.1	97.8	78.2	68.8	56.0	49.8	43.6	41.4
Manual workers	..	..	..	..	..	..	..	..	..	..
Non manual workers	..	..	..	..	..	..	..	..	..	..
Unemployment benefit recipients[b]	187.7	159.9	71.1	61.2	56.4	57.1	60.2	63.1	64.0	69.1
Unemployment assistance recipients[c]	167.8	182.1	200.3	184.4	132.4	126.2	99.8	87.4	75.7	68.4
Unemployment rate[d]	13.3	13.2	12.6	11.9	9.5	8.5	6.9	6.1	5.5	5.4
Shares within registered unemployed, %										
School-leavers	9.0	9.1	11.0	12.5	12.9	12.4	11.4	10.5	11.0	9.0
Male	52.3	51.0	49.3	50.8	50.7	49.6	49.7	48.7	47.9	47.6
25 years old and younger	17.6	17.5	18.1	18.5	18.5	18.2	17.8	17.6	17.1	16.5
Manual workers	..	..	..	..	..	..	..	..	..	..
Flows, in thousands										
Inflow to the Register	65.3	70.9	69.5	65.5	69.4	57.6	51.5	47.9	44.2	41.0
Of which: school-leavers	7.9	8.2	10.0	10.8	11.2	9.0	7.7	6.7	5.9	4.9
Outflow from the Register	66.4	74.2	68.1	78.4	71.3	62.1	56.8	49.4	45.3	41.6
Of which: school-leavers	7.5	8.1	8.6	11.8	11.3	9.7	8.2	7.0	6.1	5.1

[a] Since 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 1st of November, 2005: jobseeker benefit recipients. From September 1st, 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 January 1, 2011, then from September 1, 2011, the name was changed to employment substitution support.
[d] Relative index: 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: 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.
2008 data, comparable to 2009: 141.5 thousand people.
Source: *NFSZ REG*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent05_12

Table 5.13: The number of registered unemployed[a] who became employed on subsidised and non-subsidised employment[b]

	2013		2014		2015		2016		2017		2018		2019	
	Persons	Per cent	Persons	Per cent	Persons	Per cent	Persons	Per cent	Persons	Per cent	Persons	Per cent	Persons	Per cent
Subsidised employment	359,962	60.2	351,550	63.2	278,875	61.0	237,986	60.0	180,630	54.8	149,481	51.4	119,506	47.1
Non-subsidised employment	237,795	39.8	204,887	36.8	177,960	39.0	158,391	40.0	149,244	45.2	141,214	48.6	134,201	52.9
Total	597,757	100.0	556,437	100.0	456,835	100.0	396,377	100.0	329,874	100.0	290,695	100.0	253,707	100.0

[a] Since 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/2020ent05_13

Table 5.14: Benefit recipients and participation in active labour market programmes

Year		Unemployment 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
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

[a] Since 1st of November, 2005: jobseeker benefit recipients. From September 1, 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 January 1, 2011, then from September 1, 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 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.
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/2020ent05_14

Table 5.15: The ratio of those who are employed among the former participants of ALMPs[a], per cent

Active labour market programmes	2003[b]	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]
Suggested training programmes[d]	43.0	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
Accepted training programmes[e]	46.0	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
Retraining of those who are employed[f]	93.3	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
Support for self-employment[g]	89.6	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
Wage subsidy programmes[h]	62.0	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
Work experience programmes[i]	66.1	66.5	66.8	66.6	66.3	74.6	..	..	72.0	69.9	68.5	–	–	–	–	–	–
Further employment programme[j]	78.2	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 entrepeneurship: 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/2020ent05_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
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
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
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
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
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
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
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
	415.6	–	549.0	546.0	553.3	524.4	497.0	438.6	366.9	291.6	283.0	240.7	248.2
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
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
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
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
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
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
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
	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
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
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
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
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
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
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
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
	145.8	–	144.1	161.7	174.7	193.5	177.4	138.8	130.8	94.4	87.4	73.1	69.9

[a] Since 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 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 January 1, 2011, then from September 1, 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: 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 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/2020ent05_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, %
2001	308,780	27.2	65.1	2010	352,535	38.9	55.8
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

[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/2020ent05_17

Table 5.18: The distribution of the total number of labour market training participants[a]

Groups of training participants	2004	2005	2006	2007	2008	2009	2010	2011
Participants in suggested training	33,002	29,252	36,212	32,747	48,561	41,373	50,853	32,172
Participants in accepted training	19,406	9,620	7,327	5,766	4,939	8,241	6,853	2,495
One Step Forward (OFS) programme	–	–	–	270	59,347	11,169	2,316	–
Non-employed participants together	52,407	38,872	43,539	38,783	112,847	60,783	57,706	34,667
Of which: school-leavers	12,158	9,313	1,365	1,111	18,719	21,103	12,030	7,935
Employed participants	7,487	4,853	3,602	3,467	37,466	12,496	336	908
Total	59,894	43,725	47,141	42,250	150,313	73,279	60,358	35,575
	2012	2013	2014	2015	2016	2017	2018	2019
Participants in suggested training	43,438	22,574	10,900	330	50,953	68,125	61,451	37,825
Participants in accepted training	2,446	22,574	1,275	1,189	1,410	1,370	241	–
One Step Forward (OFS) programme	–	–	–	–	–	–	–	–
Non-employed participants together	45,884	132,587	200,466	61,127	53,153	69,495	61,692	37,825
Of which: school-leavers	9,976	106,333	31,083	3,981	12,318	14,984	12,924	7,748
Employed participants	716	631	827	14,389	2,493	3,002	3,214	3,717
Total	46,600	133,218	201,293	75,516	55,646	72,497	65,176	41,542
Of which: public works participants simultaneously involved in training	–	88,004	143,275	50,124	29,686	40,432	32,735	16,020

[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/2020ent05_18

Table 5.19: Employment ratio of participants ALMPs by gender, age groups and educational attainment for the programmes finished in 2019[a], per cent

	Non-employed participants			Supported self-employ-ment[b]	Wage subsidy programme
	suggested training	accepted training	total		
By gender					
Males	42.0	46.5	42.1	24.6	24.2
Females	40.3	38.6	40.3	23.7	23.5
By age groups					
–20	28.4	80.0	28.5	19.0	8.6
20–24	36.9	35.7	36.9	21.2	28.9
25–29	41.2	40.5	41.1	24.3	34.6
–29 together	36.2	41.4	36.3	22.8	18.9
30–34	43.8	65.4	44.0	22.8	34.3
35–39	44.7	60.0	44.8	23.3	33.3
40–44	44.9	41.0	44.8	25.0	33.4
45–49	45.0	24.0	44.9	26.4	35.2
50–54	45.4	45.0	45.4	28.5	34.3
55+	41.8	35.0	41.7	23.5	34.1
By educational attainment					
Less than primary school	36.4	–	36.4	18.8	20.9
Primary school	38.1	46.5	38.2	19.5	23.4
Vocational school for skilled workers	45.0	31.7	44.9	23.3	33.0
Vocational school	42.3	33.3	42.2	19.4	29.0
Vocational secondary school	45.6	44.1	45.5	24.8	36.8
Technicians secondary school	41.6	30.0	41.4	25.9	41.9
Grammar school	43.9	50.0	44.0	23.1	27.8
College	47.5	58.3	47.7	25.5	41.4
University	38.1	57.1	38.6	26.6	34.2
Total	41.0	43.3	41.0	24.1	23.8

[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/2020ent05_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	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Approved qualification	78.3	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
Non-approved qualification	12.6	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
Foreign language learning	9.1	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
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/2020ent05_20

Table 5.21: The distribution of those entering training programmes by age groups and educational level

	Training				Training for public works participants				Together			
	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019
Total number of entrants	17,312	18,958	32,171	5,179	26,361	31,508	32,735	19,564	43,673	50,466	64,906	24,743
By age groups, %												
–20	5.7	7.5	7.4	21.0	7.1	6.3	5.5	3.4	6.5	6.7	6.4	7.1
20–24	15.1	17.7	16.4	38.9	11.4	10.7	9.0	5.5	12.9	13.3	12.7	12.5
25–44	56.4	51.4	52.2	24.9	47.5	47.1	47.8	57.4	51.0	48.7	50.0	50.6
45–49	10.8	10.4	10.8	5.7	12.2	12.9	13.1	13.2	11.6	12.0	12.0	11.7
50+	12.0	13.0	13.1	9.4	21.9	23.0	24.7	20.4	17.9	19.2	18.9	18.1
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
By level of education, %												
Less than primary school	1.1	2.2	2.2	2.8	15.6	16.0	16.3	7.4	9.9	10.8	9.3	6.4
Primary school	35.1	38.8	36.2	38.6	78.8	75.2	71.3	45.6	61.4	61.6	53.9	44.2
Vocational school	22.4	21.8	21.4	14.9	1.8	5.7	7.9	19.2	10.0	11.7	14.6	18.3
Vocational and technical secondary school	21.7	18.7	20.2	20.6	1.9	1.6	2.4	13.5	9.8	8.0	11.2	15.0
Grammar school	15.1	14.9	15.8	18.3	1.6	1.3	1.9	10.6	7.0	6.4	8.8	12.2
College, university	4.6	3.6	4.2	4.8	0.2	0.1	0.1	3.6	2.0	1.4	2.2	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

Source: *NFSZ*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent05_21

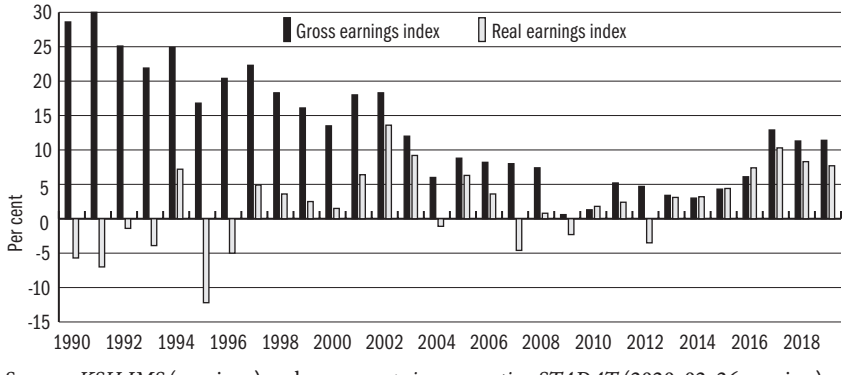
Table 6.1: Annual changes of gross and real earnings

Year	Gross earnings	Net earnings	Gross earnings index	Net earnings index	Consumer price index	Real earnings index
	HUF		previous year = 100			
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

Note: Earnings data include payments to public works participants.
Source: *KSH IMS* (earnings) and *consumer price accounting*. Gross earnings, gross earnings index: 2000–: *STADAT* (2020.02.26. version). Net earnings, net earnings index: 2008–: *STADAT* (2020.02.26. version). Consumer price index: *STADAT* (2020.01.14. version). Real earnings index: *STADAT* (2020.02.26. version).

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent06_01

Figure 6.1: Annual changes of gross nominal and net real earnings



Source: *KSH IMS* (earnings) and *consumer price accounting STADAT* (2020. 02. 26. version).

Online data source in xls format: http://www.bpdata.eu/mpt/2020ena06_01

Table 6.2.a: Gross earnings ratios in the economy, HUF/person/month

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Agriculture, forestry and fishing	137,101	143,861	153,301	164,136	171,921	180,251	189,136	204,385	230,638	255,664	293,207
Mining and quarrying	244,051	234,243	254,607	271,012	279,577	287,036	289,665	299,354	332,985	375,494	433,732
Manufacturing	190,331	200,692	213,281	230,877	241,170	253,162	263,877	279,336	311,879	344,495	391,907
Electricity, gas, steam and air conditioning supply	345,035	363,900	379,606	404,073	410,485	422,444	439,282	454,361	498,280	546,640	603,003
Water supply; sewerage, waste management and remediation activities	181,818	193,604	207,614	223,206	224,654	224,447	230,574	234,037	269,090	300,387	343,570
Construction	152,204	153,130	156,682	163,649	177,790	185,680	196,947	201,095	227,524	254,711	287,851
Wholesale and retail trade; repair of motor vehicles and motorcycles	175,207	185,812	196,942	212,521	218,936	223,882	230,036	243,716	273,810	304,112	342,830
Transportation and storage	196,350	200,129	210,146	217,794	223,410	230,138	239,147	247,562	279,507	310,196	345,091
Accommodation and food service activities	122,561	122,699	125,757	139,731	147,023	152,874	157,560	165,969	189,489	211,984	239,585
Information and communication	366,752	368,113	392,963	410,045	426,460	449,412	460,122	479,625	510,675	561,443	623,527
Financial and insurance activities	427,508	433,458	456,980	459,744	470,966	486,054	493,956	519,027	561,576	608,234	665,380
Real estate activities	177,747	182,903	184,829	219,287	212,391	214,163	221,125	239,317	281,502	316,079	312,371
Professional, scientific and technical activities	292,974	297,489	303,292	330,860	320,422	345,198	369,460	392,266	431,838	462,814	507,670
Administrative and support service activities	149,131	145,576	149,675	163,300	169,223	181,338	198,050	215,241	246,072	277,744	306,208
Public administration and defence; compulsory social security	234,696	242,958	252,848	247,139	258,803	262,055	282,194	313,084	358,569	392,840	442,437
Education	194,958	195,930	192,984	197,344	216,927	245,933	258,200	274,211	297,404	320,233	334,862
Human health and social work activities	161,265	142,282	153,832	151,446	151,287	143,047	146,700	154,443	185,037	218,184	247,211
Arts, entertainment and recreation	179,199	179,976	192,407	209,930	216,869	226,327	213,286	227,509	289,154	333,997	366,803
Other service activities	160,375	150,025	162,490	175,872	174,777	181,601	193,303	207,222	243,967	271,921	305,751
National economy, total	199,837	202,525	213,094	223,060	230,664	237,695	247,924	263,171	297,017	329,943	367,833
Of which:											
– Business sector	200,304	206,863	217,932	233,829	242,191	252,664	262,731	276,923	308,994	341,540	380,996
– Budgetary institutions	201,632	195,980	203,516	200,027	207,191	209,706	220,210	237,494	275,251	308,508	339,386

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* (2020.02.26. version). 2019–: NAV social security reports.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent06_02a

Table 6.2.b: Gross earnings ratios in the economy, per cent

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
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
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
Manufacturing	95.2	99.1	100.0	103.4	104.6	106.4	106.4	106.1	105.0	104.4	106.5
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
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
Construction	76.2	75.5	73.5	73.4	77.1	78.0	79.4	76.4	76.6	77.2	78.3
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
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
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
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
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
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
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
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
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
Education	97.6	96.7	90.6	88.5	94.0	103.4	104.1	104.2	100.1	97.1	91.0
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
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
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
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
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
– Budgetary institutions	100.9	96.8	95.5	89.7	89.8	88.2	88.8	90.2	92.7	93.5	92.3

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* (2020.02.26. version). 2019–: NAV social security reports.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent06_02b

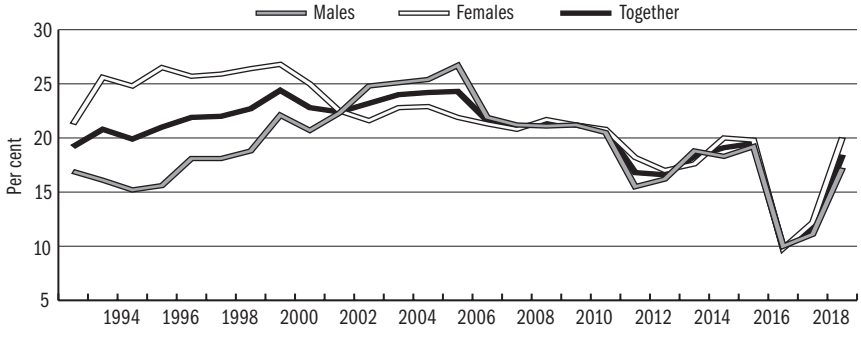
Table 6.3: Regression-adjusted earnings differentials

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Male	0.1500	0.1360	0.1680	0.1670	0.1440	0.1500	0.1550	0.1500	0.1420	0.1350	0.1520	0.1300
Less than primary school	–0.4800	–0.3720	–0.4140	–0.3650	–0.5540	–0.4950	–0.5200	–0.4260	–0.4800	–0.5240	–0.5360	–0.5710
Primary school	–0.3730	–0.3520	–0.4010	–0.3910	–0.4330	–0.4040	–0.3990	–0.3840	–0.3650	–0.3570	–0.3760	–0.4040
Vocational school	–0.2750	–0.2710	–0.2750	–0.2690	–0.2860	–0.2660	–0.2470	–0.2490	–0.2030	–0.1910	–0.2170	–0.2260
College, university	0.5900	0.5900	0.5670	0.5610	0.5970	0.6020	0.5970	0.5570	0.5630	0.6060	0.6000	0.5750
Estimated labour market experience	0.0238	0.0233	0.0243	0.0237	0.0262	0.0267	0.0256	0.0238	0.0227	0.0070	0.0245	0.0253
Square of estimated labour market experience	–0.0004	–0.0003	–0.0004	–0.0004	–0.0004	–0.0004	–0.0004	–0.0004	–0.0004	0.0000	–0.0004	–0.0004
Public sector	0.1130	0.1530	0.0444	0.0500	–0.0665	–0.1060	–0.1240	–0.2480	–0.1900	–0.0843	–0.2030	–0.3060

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/2020ent06_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/2020ena06_02

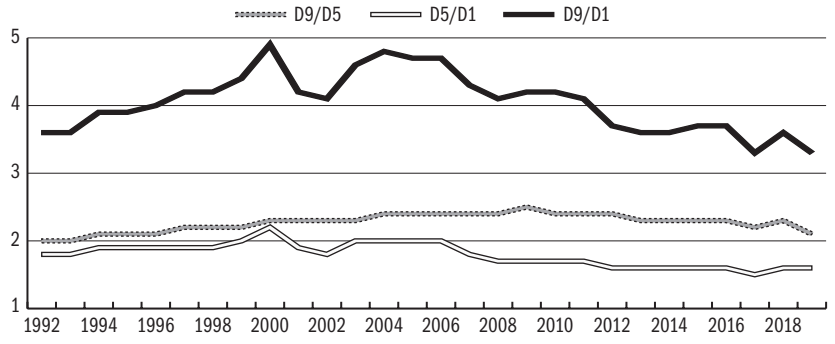
Table 6.4: Percentage of low paid workers[a] by gender, age groups, level of education and industries [lenia

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
By gender																		
Males	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	17.2
Females	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	20.0
By age groups																		
-24	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	24.3
25-54	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	16.1
55+	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	25.5
By level of education																		
8 grades of primary school or less	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	44.3
Vocational school	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	16.8
Secondary school	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	5.4
Higher education	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	6.0
By industries[b]																		
Agriculture, forestry, fishing	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	21.8
Manufacturing	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	13.2
Construction	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	32.0
Trade, repairing	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	25.4
Transport, storage, communication	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	15.5
Financial intermediation	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	22.4
Public administration and defence, compulsory social security	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	2.3
Education	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	12.4
Health and social work	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	11.7
Total	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	18.4

[a] Percentage of those who earn less than 2/3 of the median earning amount.
[b] 2002–2008: 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/2020ent06_04

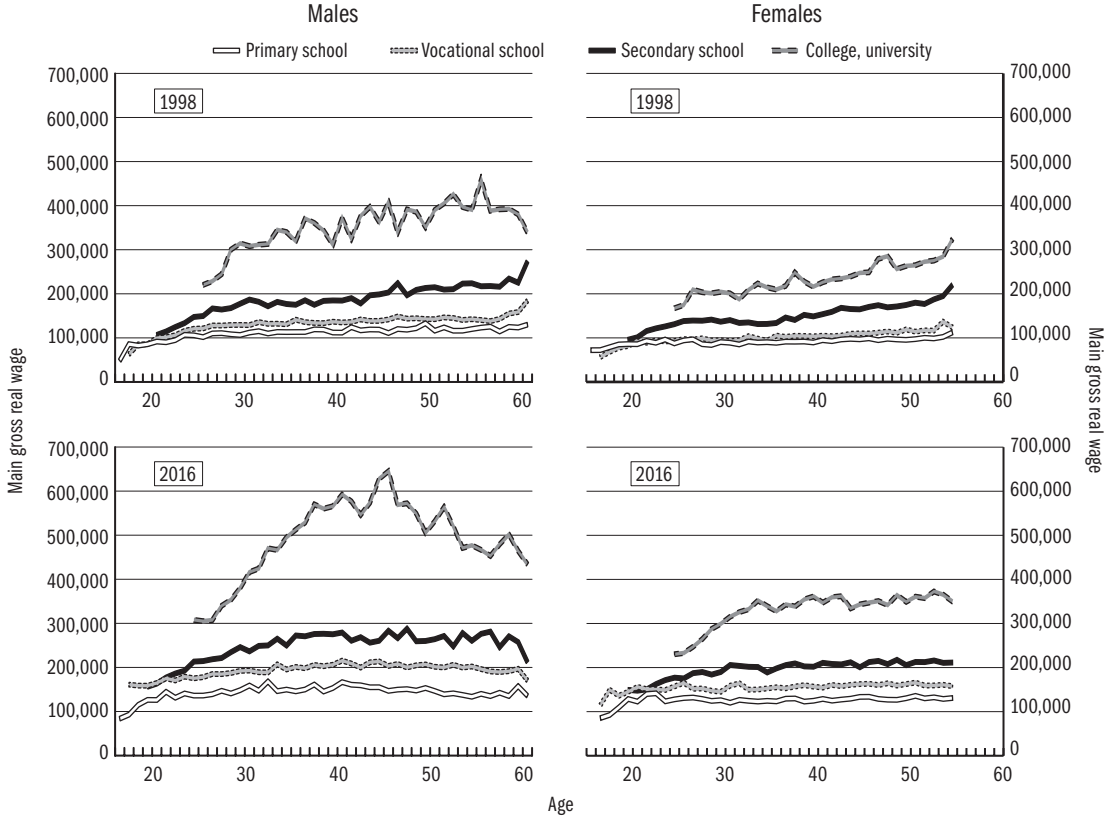
Figure 6.3: The dispersion of gross monthly earnings



Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ena06_03

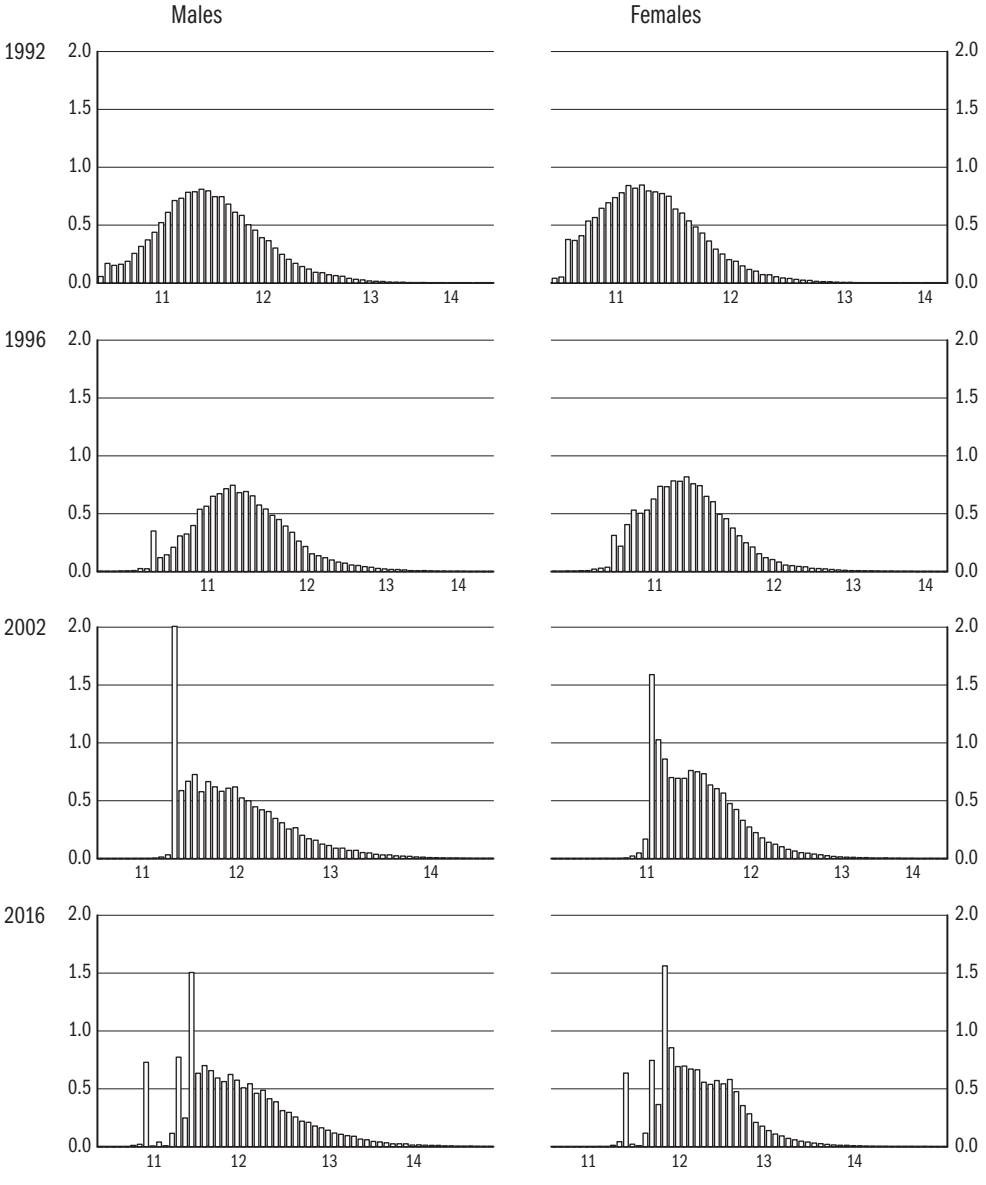
Figure 6.4: Age-income profiles by education level in 1998 and 2016, women and men



Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ena06_04

Figure 6.5: The dispersion of the logarithm of gross real earnings (2016 = 100%)



Source: *NFSZ BT*.

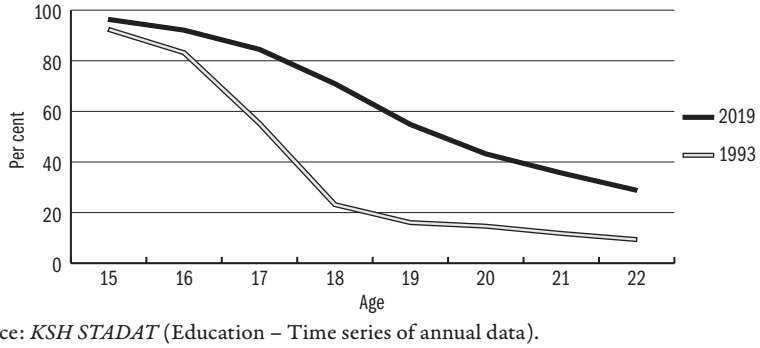
Online data source in xls format: http://www.bpdata.eu/mpt/2020ena06_05

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[b]	89,821	61,165	32,387	36,285

[a] Estimated data.
[b] Preliminary data.
Source: *KSH STADAT* (Education – Time series of annual data).
Online data source in xls format: http://www.bpdata.eu/mpt/2020ent07_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/2020ena07_01

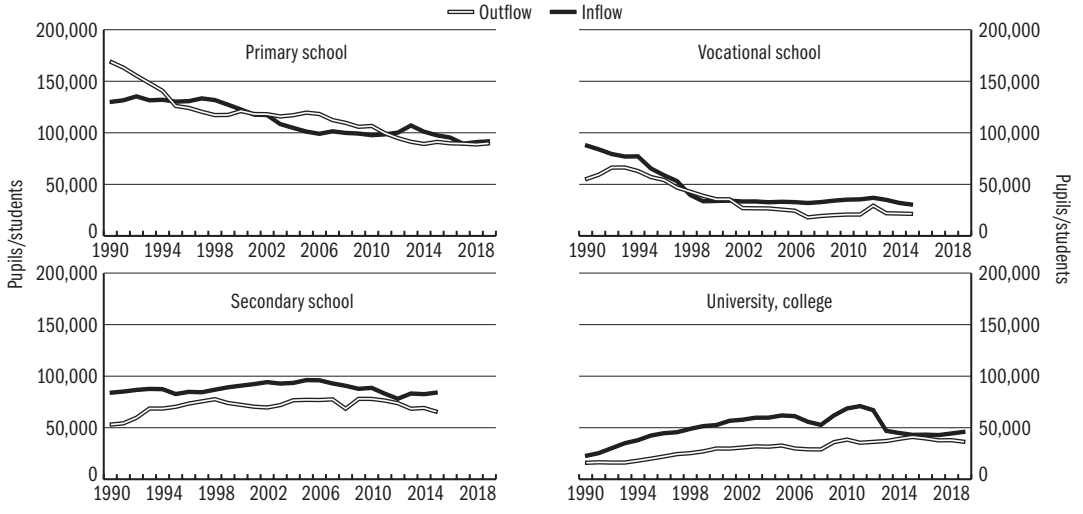
Table 7.2: Pupils/students entering the school system by level of education, full-time education

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 post-graduate (MA/MSc) training[d]
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[e]	91,747	3,423	25,019	48,753	38,261	46,082

[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.
[e] Preliminary data.
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/2020ent07_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/2020ena07_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]
2005/2006	859,315	8,797	122,162	197,217	244,001	217,245
2006/2007	828,943	9,563	119,637	200,292	243,096	224,616
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[e]	720,329	7,004	65,771	188,970	149,090	186,797

[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.
[e] Preliminary data.
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/2020ent07_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]
2005/2006	2,543	–	4,049	46,661	43,289	163,387
2006/2007	2,319	–	4,829	45,975	45,060	151,203
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[e]	3,211	25	25,453	28,185	32,008	61,907

[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.
[e] Preliminary data.
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/2020ent07_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

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/2020ent07_05

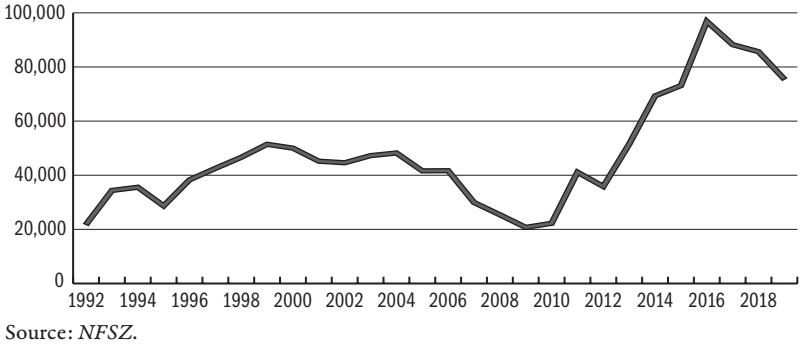
Table 8.1: The number of vacancies[a] reported to the local offices of the NFSZ

Year	Number of vacancies at closing date		Number of registered unemployed[b] at closing date	Vacancies per 100 registered unemployed[b]
	Total	Of which: public works participants		
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

[a] Monthly average stock figures.
[b] Since 1st of November, 2005: registered jobseekers.
Source: *NFSZ*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent08_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/2020ena08_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

[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/2020ent08_02

Table 8.3: The number of vacancies

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of persons[a]	23,156	27,167	28,724	26,523	32,802	37,709	44,552	55,202	66,118	83,510	78,708
Per cent[b]	0.9	1.0	1.1	1.0	1.2	1.4	1.5	1.9	2.2	2.7	2.4

[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: 2020.08.19. version, downloaded: 2020.08.23.)

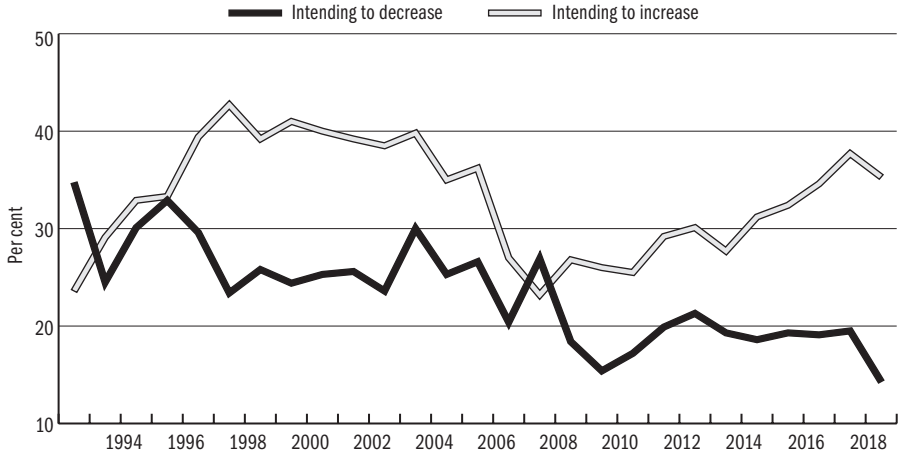
Online data source in xls format: http://www.bpdata.eu/mpt/2020ent08_03

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

[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/2020ent08_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/2020ena08_02

Table 9.1: Regional inequalities: Employment rate[a]

Year	Budapest	Pest	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
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

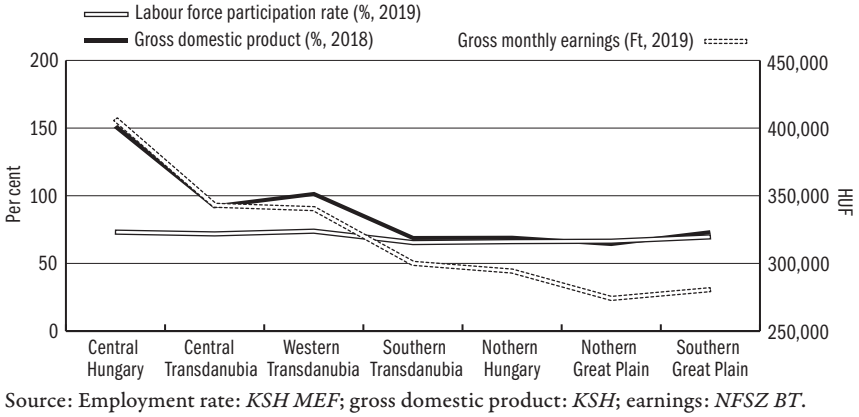
[a] Age: 15–64.

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/2020ent09_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/2020ena09_01

Table 9.2: Regional inequalities: LFS-based unemployment rate[a]

Year	Budapest	Pest	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

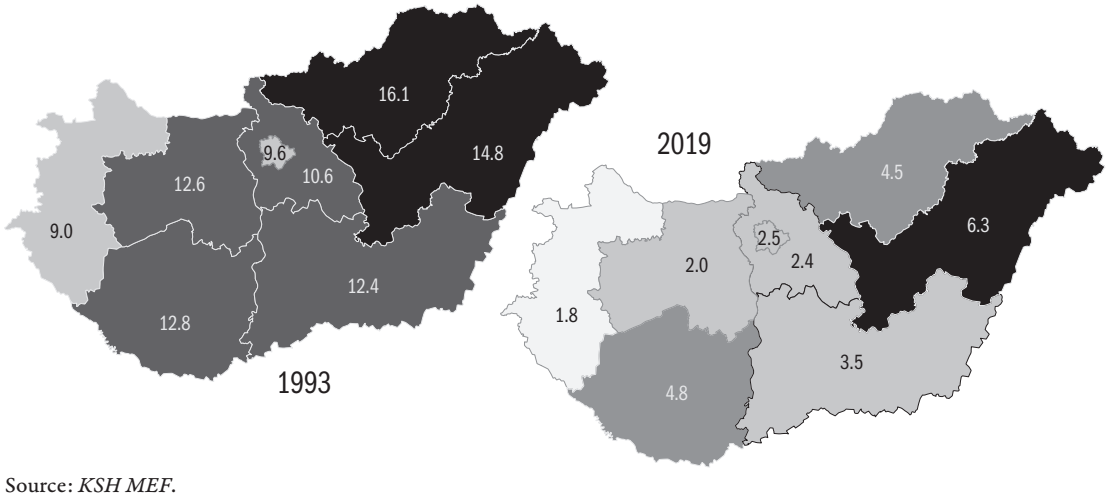
[a] Age: 15–74.

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/2020ent09_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/2020ena09_02

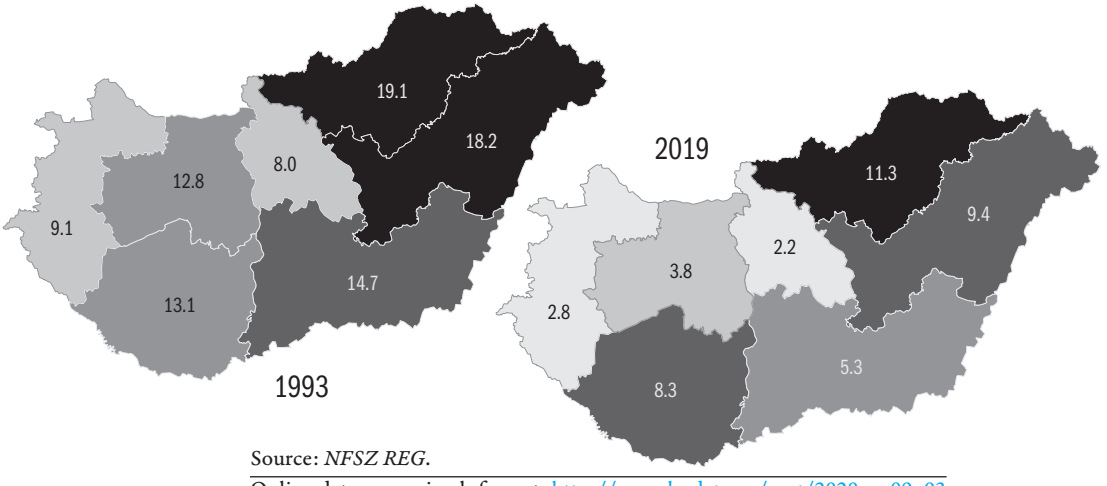
Table 9.3: Regional differences: The share of registered unemployed[a] relative to the economically active population[b], per cent

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

[a] Since 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/2020ent09_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/2020ena09_03

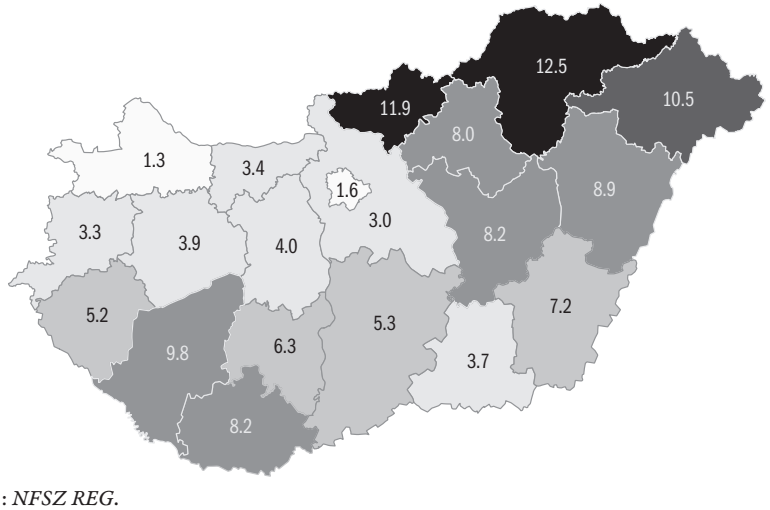
Table 9.4: Annual average registered unemployment rate[a] by counties, per cent[b]

County	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

[a] Since 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/2020ent09_04

Figure 9.4: Regional inequalities: Means of registered unemployment rates in the counties, 2019



Source: *NFSZ REG.*

Online data source in xls format: http://www.bpdata.eu/mpt/2020ena09_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

[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/2020ent09_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	0.0267	–0.0605	–0.1120	–0.1140	–0.1540	–0.1320
2014	0.0203	–0.0474	–0.1250	–0.1150	–0.1390	–0.1330
2015	0.0303	–0.0145	–0.0990	–0.0920	–0.1290	–0.1180
2016	0.0414	–0.0321	–0.1420	–0.1670	–0.1900	–0.1410

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/2020ent09_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								
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	5,200	2,996	3,512	2,186	2,077	2,123	2,353	3,314
2015	5,370	3,318	3,831	2,345	2,361	2,258	2,563	3,534
2016	5,536	3,487	3,984	2,446	2,436	2,310	2,626	3,658
2017	6,001	3,723	4,159	2,674	2,746	2,540	2,839	3,968
2018	6,604	4,024	4,419	3,001	3,010	2,804	3,189	4,364
Per cent								
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	66.4	66.8	63.9	72.5	100.0
2016	151.3	95.3	108.9	66.9	66.6	63.1	71.8	100.0
2017	151.2	93.8	104.8	67.4	69.2	64.0	71.5	100.0
2018	151.3	92.2	101.3	68.8	69.0	64.3	73.1	100.0

Note: The data have been retrospectively revised following ESA2010 standards (European System of National and Regional Accounts).
Source: *KSH STADAT* (2019.12.23. version).

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent09_07

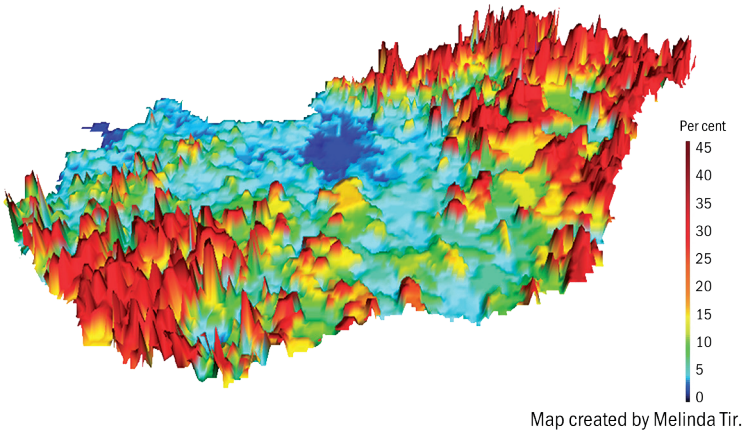
Table 9.8: Commuting

	Working in the place of residence		Commuter	
Year	in thousands	per cent	in thousands	per cent
1980	3,848.5	76.0	1,217.2	24.0
1990	3,380.2	74.7	1,144.7	25.3
2001	2,588.2	70.1	1,102.1	29.9
2005	2,625.1	68.2	1,221.3	31.8
2011	2,462.8[a]	62.5	1,479.8	37.2
2017	2,374.0	61.5	1,485.2	38.5

[a] Includes those working abroad but classified by the respondents of LFS as household members.
Source: NSZ, microcensus.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent09_08

Figure 9.5: The share of registered unemployed relative to the population aged 15–64, 1st quarter 2007, per cent

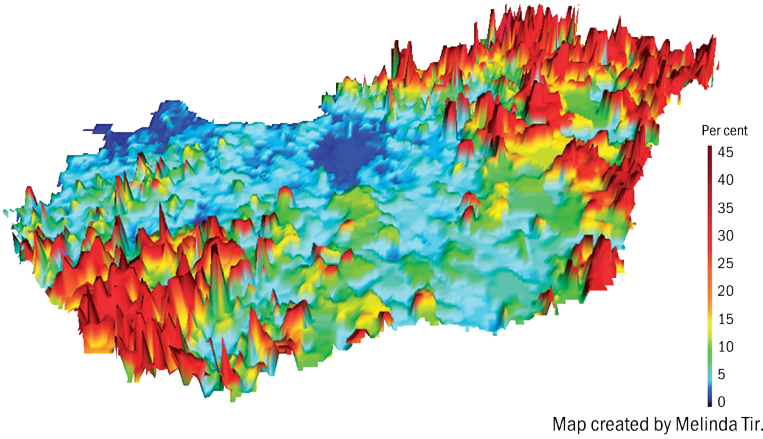


Map created by Melinda Tir.

Note: The ratio of registered unemployed was calculated using the following method: 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/2020ena09_05

Figure 9.6: The share of registered unemployed relative to the population aged 15–64, 1st quarter 2019, per cent

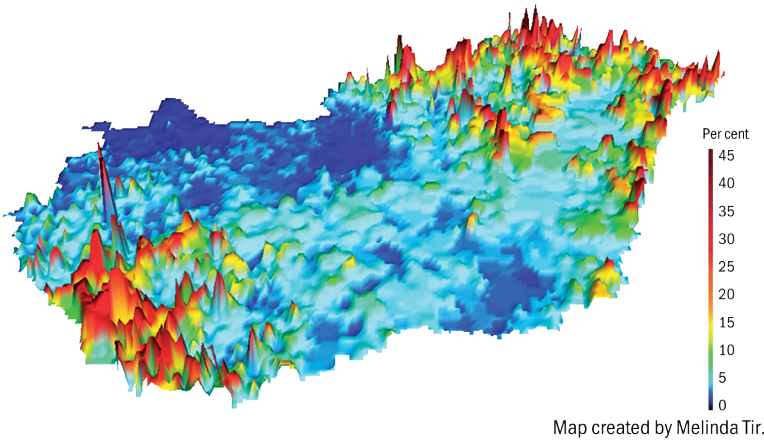


Map created by Melinda Tir.

Note: The ratio of registered unemployed was calculated using the following method: 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/2020ena09_06

Figure 9.7: The share of registered unemployed relative to the population aged 15–64, 3rd quarter 2007, per cent

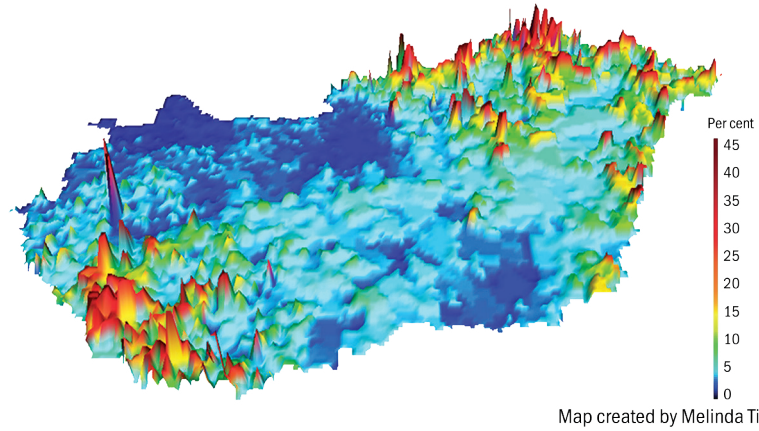


Map created by Melinda Tir.

Note: The ratio of registered unemployed was calculated using the following method: 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/2020ena09_07

Figure 9.8: The share of registered unemployed relative to the population aged 15–64, 3rd quarter 2019, per cent



Map created by Melinda Tir.

Note: The ratio of registered unemployed was calculated using the following method: 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/2020ena09_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

Source: *KSH STADAT* strike statistics (2020.01.31. version).

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent10_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

[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/2020ent10_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

Source: *ITM,* Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent10_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

Source: *ITM,* Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent10_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

Source: *ITM,* Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent10_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

Source: *ITM,* Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent10_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).

Source: *ITM,* Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent10_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).

Source: *ITM,* Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent10_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/2020ent10_09

Table 10.10: Single employer collective agreements in the national economy

	Number of collective agreements					The number of employees covered by collective agreements				
Industries	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Agriculture	66	66	65	65	65	17,603	12,263	10,990	10,990	10,538
Mining and quarrying	9	9	9	9	9	2,057	1,751	1,136	1,136	1,209
Manufacturing	353	346	343	346	347	174,379	180,257	148,315	149,136	150,676
Electricity, gas, steam and air conditioning supply	43	45	44	44	49	13,450	13,210	12,410	12,524	14,555
Water supply; sewerage, waste management and remediation activities	69	59	56	63	62	25,021	25,796	23,283	24,316	24,252
Construction	47	45	46	45	45	7,540	6,358	4,511	4,510	3,487
Wholesale and retail trade; repair of motor vehicles and motorcycles	117	115	112	110	107	25,212	24,197	18,326	17,575	17,699
Transportation and storage	50	91	96	96	89	109,336	125,960	112,168	112,470	117,274
Accommodation and food service activities	34	36	36	37	38	4,969	5,127	2,805	2,699	3,577
Information and communication	15	16	16	16	16	15,514	13,954	12,255	12,255	11,663
Financial and insurance activities	26	27	29	29	29	22,476	22,882	22,285	22,672	22,320
Real estate activities	32	43	49	50	52	7,367	8,152	1,446	1,672	1,687
Professional, scientific and technical activities	57	55	53	53	67	9,534	7,432	4,981	4,791	6,064
Administrative and support service activities	24	23	25	25	26	10,238	9,589	4,270	4,263	4,372
Public administration and defence; compulsory social security	104	106	102	123	121	21,224	28,022	10,734	34,947	34,556
Education	352	355	354	354	356	176,637	177,956	175,162	45,072	46,890
Human health and social work activities	226	227	226	228	227	94,549	98,399	81,037	84,116	84,790
Arts, entertainment and recreation	92	96	96	97	98	9,341	9,955	8,181	8,181	8,431
Other service activities	19	21	20	22	22	2,283	2,552	2,311	2,330	2,537
National economy, total	1,735	1,781	1,777	1,812	1,825	748,730	773,812	656,606	555,655	566,577

Source: *ITM*, Employment Relations Information System, Register of Collective Agreements.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent10_10

Table 10.11: Multi-employer collective agreements in the business sector[a]

Industries	The number of firms covered by the multi-employer[b] collective agreements					The number of employees covered by the multi-employer collective agreements				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Agriculture	706	673	678	667	670	32,822	28,586	27,359	27,182	25,488
Mining and quarrying	4	6	6	6	6	242	530	526	526	583
Manufacturing	231	237	240	244	244	67,668	72,432	60,161	60,291	61,665
Electricity, gas, steam and air conditioning supply	34	40	39	37	38	17,962	21,151	19,720	19,440	17,272
Water supply; sewerage, waste management and remediation activities	28	32	33	31	30	11,450	14,039	13,053	12,990	12,771
Construction	555	558	549	558	556	112,034	112,352	116,659	128,317	109,154
Wholesale and retail trade; repair of motor vehicles and motorcycles	240	221	209	207	208	25,944	23,640	21,256	21,284	22,399
Transportation and storage	1,560	1,620	1,618	1,613	1,615	73,515	97,689	89,412	54,567	56,405
Accommodation and food service activities	35	39	39	40	39	73,759	75,848	79,360	86,972	71,865
Information and communication	11	9	9	9	9	550	461	231	231	201
Financial and insurance activities	12	12	13	12	12	3,499	3,662	3,652	3,652	3,714
Real estate activities	40	42	47	48	50	4,030	4,255	330	365	339
Professional, scientific and technical activities	58	56	57	58	58	4,368	3,783	815	843	953
Administrative and support service activities	111	104	105	105	105	9,310	9,433	6,007	6,009	5,218
Public administration and defence; compulsory social security	3	3	3	3	3	1,540	1,571	1,388	1,388	1,269
Education	26	25	25	24	25	189	134	122	122	115
Human health and social work activities	0	0	0	0	0	0	0	0	0	0
Arts, entertainment and recreation	2	1	0	0	0	10	2	0	0	0
Other service activities	13	9	9	9	9	1,125	381	236	236	221
National economy, total	3,669	3,687	3,679	3,671	3,677	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.

Source: *ITM*, Employment Relations Information System, Register of Collective Agreements.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent10_11

Table 11.1: Family benefits

Year	Family allowance[a]		Child-care benefit[a]		Child-rearing support[a]		Child-care allowance[a]		Infant-care benefit[b]
	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	..	39,275	30,388	178,532	27,289
2011	24,528	1,190,707	83,959	87,717	..	37,829	30,929	169,721	24,769
2012	24,491	1,167,640	91,050	81,839	..	38,608	30,640	168,037	25,223
2013	24,257	1,149,796	96,661	81,234	..	37,411	30,687	161,274	24,230
2014	23,674	1,134,556	104,547	83,701	..	36,101	31,180	161,226	24,753
2015	23,902	1,108,302	110,896	85,970	..	34,587	31,883	163,376	25,886
2016	23,849	1,094,004	118,607	91,126	..	33,381	31,880	162,992	26,931
2017	23,678	1,090,651	130,087	97,470	..	32,941	31,278	164,297	27,989
2018	23,681	1,082,791	142,084	102,512	..	32,607	31,248	159,226	27,696
2019	23,636	1,077,010	157,265	104,440	..	32,698	31,179	155,954	28,066

[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.
Source: *KSH STADAT.*

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent11_01

Table 11.2: Unemployment benefits and average earnings

Year	Insured unemployment benefit and other non-means tested benefits[a]		Means tested unemployment assistance[b]		Net monthly earnings, HUF[c]
	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

[a] Average of headcount at the end of the month. Since 1st of November, 2005 insurance based unemployment benefits are officially called "jobseeker's allowance".
[b] Persons receiving social assistance: registered job-seekers of working age, classified as vulnerable by the PES. Since 1st of January 2009 two types of social assistance exist; group 1 receive social benefit, while group 2 receive 'availability assistance', conditional on acceptance of job offers provided by the PES. From the 1st of January 2011, the second type of benefit was renamed as 'wage replacement allowance'. On 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*, *KSH STADAT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent11_02

Table 11.3.a: Number of those receiving pension[a], and the mean sum of the provisions they received in January of the given year

Year	Old age pension			Disability pension under and above retirement age		
	Number of recipients	Average amount before increase, HUF	Average amount after increase, HUF	Number of recipients	Average amount before increase, HUF	Average amount after increase, HUF
2002	1,664,062	43,368	47,561	789,544	37,369	40,972
2003	1,657,271	50,652	54,905	799,966	43,185	46,801
2004	1,637,847	57,326	60,962	806,491	48,180	51,220
2005	1,643,409	63,185	67,182	808,107	52,259	55,563
2006	1,658,387	69,145	72,160	806,147	56,485	58,935
2007	1,676,477	74,326	78,577	802,506	59,978	63,120
2008	1,716,315	81,975	87,481	794,797	65,036	69,160
2009	1,731,213	90,476	93,256	779,130	70,979	73,166
2010	1,719,001	94,080	98,804	750,260	73,687	77,500
2011	1,700,800	99,644	104,014	721,973	77,945	81,367
2012	1,959,202[b]	99,931	104,610	302,990[c]	..	..

[a] Pension: Excludes survivors pensions.
[b] From 2012 onwards, the disability pensions of persons older than the mandatory retirement age are granted as old-age pensions.
[c] Excludes persons older than the mandatory retirement age.
Source: *MÁK*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent11_03a

Table 11.3.b: 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		2017		2018		2019	
	Number of recipients	Average amount after increase (HUF/month)	Number of recipients	Average amount after increase (HUF/month)	Number of recipients	Average amount after increase (HUF/month)	Number of recipients	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
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
–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
–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 to 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 for the professional or contractual members of the Hungarian Army. Pension for the professional members of the armed forces or for the professional or contractual members of the Hungarian Army born before 1955 were only transformed into old age pension in 2012, hence data from this year apply to them.
Source: *MÁK*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent11_03b

Table 11.4.a: 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

Year	Temporary annuity		Regular social annuity		Health damage annuity for miners		Total	
	Number of recipients	Average amount, HUF	Number of recipients	Average amount, HUF	Number of recipients	Average amount, HUF	Number of recipients	Average amount, HUF
2001	15,640	20,809	198,820	15,610	3,304	53,379	217,764	16,556
2002	11,523	26,043	200,980	17,645	3,348	59,558	215,851	18,744
2003	12,230	30,135	203,656	19,907	3,345	65,380	219,231	21,171
2004	11,949	33,798	207,300	21,370	2,950	69,777	222,199	22,681
2005	13,186	36,847	207,091	22,773	2,839	74,161	223,116	24,259
2006	14,945	40,578	195,954	23,911	2,786	77,497	213,685	25,776
2007	19,158	42,642	184,845	25,050	2,693	80,720	206,696	27,406
2008	21,538	46,537	170,838	27,176	2,601	85,805	194,977	30,096
2009	21,854	46,678	159,146	27,708	2,533	86,165	183,533	30,774
2010	20,327	47,060	148,704	27,645	2,448	86,252	171,479	30,783
2011	16,448	47,096	139,277	27,588	2,371	86,411	158,096	30,500

Disability pensions and temporary provisions for disability groups 1–2, granted prior to 2012, have been transformed to '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 to '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/2020ent11_04a

Table 11.4.b: 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		2017		2018		2019	
	Number of recipients	Average amount after increase (HUF/month)	Number of recipients	Average amount after increase (HUF/month)	Number of recipients	Average amount after increase (HUF/month)	Number of recipients	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
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
–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
–rehabilitation provision	92,951	54,282	40,741	45,604	34,955	46,292	28,128	47,292
–annuity for miners with damaged health	2,038	98,621	2,020	100,817	1,924	104,818	1,800	107,798

Disability pensions and temporary provisions for disability groups 1–2, granted prior to 2012, have been transformed to '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 to '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/2020ent11_04b

Table 11.5: The mean age for retirement and the number of pensioners

	2010		2011		2012		2013		2014	
Pension	Age	Persons	Age	Persons	Age	Persons	Age	Persons	Age	Persons
Females										
Old age and similar pensions	60.7	13,617	58.6	85,502	59.3	53,659	59.6	40,773	59.7	39,424
Pension for women entitled to retire before the mandatory age after having accumulated at least 40 entitlement years	–	–	57.6	54,770	57.8	26,921	58.0	24,309	58.3	27,659
Disability and accident-related disability pension	50.8	10,478	50.7	9,040	–	–	–	–	–	–
Rehabilitation annuity	47.6	6,789	47.1	5,267	..	..	..	..	..	..
Total	54.4	30,884	57.2	99,809	..	..	..	..	..	..
Males										
Old age and similar	60.2	37,219	60.6	44,111	62.2	22,261	62.3	21,870	62.8	18,904
Disability and accident-related disability pension	52.1	13,345	52.0	11,106	–	–	–	–	–	–
Rehabilitation annuity	47.4	6,123	47.0	4,944	..	..	..	..	..	..
Total	56.9	56,687	57.9	60,161	..	..	..	..	..	..
Together										
Old age and similar pensions	60.3	50,836	59.2	129,613	60.2	75,920	60.6	62,643	60.7	58,328
Disability and accident-related disability pension	51.5	23,823	51.4	20,146	–	–	–	–	–	–
Rehabilitation annuity	47.5	12,912	47.1	10,211	..	..	..	..	..	..
Total	56.0	87,571	57.5	159,970	..	..	..	..	..	..
	2015		2016		2017		2018		2019	
Females										
Old age and similar pensions	60.1	42,187	61.1	55,838	61.0	46,931	61.2	49,600	62.0	59,590
Pension for women entitled to retire before the mandatory age after having accumulated at least 40 entitlement years	58.7	28,775	59.0	28,268	59.3	28,660	59.5	29,321	59.6	27,580
Disability and accident-related disability pension	–	–	–	–	–	–	–	–	–	–
Rehabilitation annuity	..	..	..	..	..	..	..	..	..	..
Total	..	..	..	..	..	..	..	..	..	..
Males										
Old age and similar pensions	62.8	22,550	63.1	50,331	63.6	32,303	63.7	34,970	64.1	57,001
Disability and accident-related disability pension	–	–	–	–	–	–	–	–	–	–
Rehabilitation annuity	..	..	..	..	..	..	..	..	..	..
Total	..	..	..	..	..	..	..	..	..	..
Together										
Old age and similar pensions	61.0	64,737	62.1	106,169	62.0	79,234	62.2	84,570	63.0	116,591
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/2020ent11_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

Year	Disability annuity		Year	Disability annuity	
	Number of recipients	Average amount, HUF		Number of recipients	Average amount, HUF
2004	27,923	25,388	2012	32,560	33,426
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

Source: *MÁK*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent11_06

Table 11.7: Newly determined disability pension claims and detailed data on the number of newly determined old-age pension claims

Year	Disability and accident-related disability pensions, total	Old-age and old-age type pensions[a]			From the total: at the age limit			From the total: under the age limit		
		Male	Female	Together	Male	Female	Together	Male	Female	Together
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	85,502	129,613	8,708	7,882	16,590	33,013	76,385	109,398
2012	n.a.	22,261	53,659	75,920	10,904	9,367	20,271	8,508	42,651	51,159
2013	n.a.	21,870	40,773	62,643	18,825	13,289	32,114	533	25,902	26,435
2014	n.a.	18,904	39,424	58,328	14,724	8,830	23,554	919	28,551	29,470
2015	n.a.	22,550	42,187	64,737	17,805	10,618	28,423	1,290	29,327	30,617
2016	n.a.	50,331	55,838	106,169	46,069	25,037	71,106	1,579	28,967	30,546
2017	n.a.	32,303	46,931	79,234	26,099	15,097	41,196	2,078	29,215	31,293
2018	n.a.	34,970	49,600	84,570	28,151	16,393	44,544	1,966	29,796	31,762
2019	n.a.	57,001	59,590	116,591	52,356	29,447	81,803	1,939	27,949	29,888

[a] Before 2012 old-age type pensions include: 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 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 on 2012–2016 have been revised and may differ from those in earlier publications. The column for 'of which in the year of reaching the mandatory age' exclude people, who retired before reaching the mandatory age but expected to reach it in the given calendar year.

Source: *MÁK*.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent11_07

Table 11.8: Retirement age threshold

Birth year	Calendar 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 of 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 prior to 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).

Prior to 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/2020ent11_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

[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/2020ent12_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 unemployed	general	registered unemployed	general	registered unemployed
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 employment[c], Ft/day		Total wage cost, HUF/day		Tax wedge, simplified employment, %	
	gross, HUF/month	gross, HUF/day	net, HUF/month	net, HUF/day	HUF/month	HUF/day		temporary work	seasonal agricultural/tourism work	temporary work	seasonal agricultural/tourism work	temporary work	seasonal agricultural/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

[a] Wage paid at the 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_kozterhei, 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/2020ent12_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	..	161,000	28,500
2018. I. I.	138,000	41.8	..	180,500	28,500
2019. I. I.	149,000	..	..	195,000	28,500
2020. I. I.	161,000	..	..	210,600	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/2020ent12_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	49.2	40.8	46.1	39.7
2008	50.9	42.3	46.8	40.3
2009	47.9	40.3	46.2	40.6[d]
2010	46.9	38.6	43.8	36.2
2011	46.8	38.3	45.2	39.5
2012	47.1	40.2	47.9	49.0
2013	46.6	40.1	49.0	49.0
2014	46.0	40.6	49.0	49.0
2015	45.6	41.4	49.0	49.0
2016	46.3	41.4	48.3	48.3
2017	46.0	39.6	46.2	46.2
2018	45.7	38.9	45.0	45.0
2019	..	..	45.0	45.0

[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 Statisctics/ 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/2020ent12_04

Table 13.1: Employment and unemployment rate of population aged 15–64 by gender in the EU, 2019

	Employment rate			Unemployment rate		
Country	males	females	together	males	females	together
Austria	81.2	72.4	76.8	4.6	4.4	4.5
Belgium	74.5	66.5	70.5	5.7	4.9	5.4
Bulgaria	79.3	70.7	75.0	4.5	3.7	4.2
Cyprus	81.7	70.1	75.7	6.3	8.0	7.1
Czech Republic	87.7	72.7	80.3	1.7	2.4	2.0
Denmark	81.9	74.7	78.3	4.8	5.3	5.0
United Kingdom	84.0	74.6	79.3	3.9	3.5	3.8
Estonia	84.0	76.3	80.2	4.1	4.3	4.4
Finland	78.5	75.8	77.2	7.2	6.2	6.7
France	75.2	68.1	71.6	8.5	8.4	8.5
Greece	71.3	51.3	61.2	14.0	21.5	17.3
Netherlands	84.8	75.5	80.1	3.4	3.4	3.4
Croatia	72.0	61.5	66.7	6.2	7.2	6.6
Ireland	81.4	69.0	75.1	5.2	4.7	5.0
Poland	80.7	65.3	73.0	3.0	4.4	3.3
Latvia	79.3	75.5	77.4	7.2	5.4	6.3
Lithuania	79.0	77.4	78.2	7.1	5.5	6.3
Luxembourg	77.2	68.1	72.8	5.7	5.5	5.6
Hungary	83.1	67.6	75.3	3.4	3.5	3.4
Malta	86.7	66.7	77.2	3.3	3.6	3.4
Germany	84.6	76.6	80.6	3.5	2.7	3.2
Italy	73.4	53.8	63.5	9.1	11.1	10.0
Portugal	79.9	72.7	76.1	5.9	7.2	6.5
Romania	80.3	61.3	70.9	4.3	3.4	3.9
Spain	74.0	62.1	68.0	12.5	16.0	14.1
Sweden	84.4	79.7	82.1	6.7	7.0	6.8
Slovakia	79.9	66.9	73.4	5.6	6.0	5.8
Slovenia	79.7	72.9	76.4	4.0	5.0	4.5
EU-28	79.6	68.2	73.9	6.1	6.5	6.3

Source: *Eurostat* http://epp.eurostat.ec.europa.eu.

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent13_01

Table 13.2: Employment composition of the countries in the EU[a], 2019

Country	Self employed[b]	Part time	Fixed term contract	Agriculture	Industry	Market services	Non market services[c]
Austria	10.6	27.2	7.7	3.3	25.6	38.7	32.4
Belgium	12.9	24.9	9.4	0.8	20.9	35.3	42.9
Bulgaria	9.9	1.9	3.9	6.5	30.4	38.3	24.9
Cyprus	12.0	10.2	12.0	2.1	18.5	47.0	32.5
Czech Republic	15.7	6.3	6.5	2.6	37.7	32.7	27.0
Denmark	7.4	24.2	9.9	2.0	18.6	37.5	41.9
United Kingdom	14.3	24.4	4.3	0.9	18.2	39.8	41.1
Estonia	10.8	11.3	2.8	3.1	29.3	38.0	29.5
Finland	11.8	15.5	13.6	3.4	21.8	35.5	39.3
France	11.3	17.5	14.4	2.4	20.6	35.8	41.2
Greece	27.9	9.1	8.7	11.0	15.5	43.5	30.0
Netherlands	15.4	50.2	16.9	2.0	16.2	40.7	41.1
Croatia	10.5	4.8	16.0	5.6	28.0	37.4	29.0
Ireland	12.5	19.7	8.4	3.6	19.0	41.9	35.5
Poland	17.4	6.1	17.4	9.0	32.4	32.9	25.7
Latvia	11.0	8.4	2.8	7.4	24.2	38.7	29.8
Lithuania	10.9	6.4	1.3	6.2	26.0	37.2	30.6
Luxembourg	7.4	17.0	8.3	0.7	10.8	42.4	46.2
Hungary	10.1	4.4	5.9	4.7	32.3	32.3	30.8
Malta	14.8	12.4	7.7	0.9	19.0	41.9	38.1
Germany	8.5	27.2	11.0	1.1	27.5	34.8	36.6
Italy	20.4	18.7	13.4	3.7	26.2	37.9	32.3
Portugal	13.6	8.1	17.9	3.4	25.5	36.2	34.9
Romania	15.2	6.1	1.1	19.1	30.9	30.0	20.0
Spain	14.9	14.5	22.3	4.0	20.5	40.5	34.9
Sweden	8.7	22.5	14.3	1.3	18.6	36.7	43.3
Slovakia	14.8	4.5	6.6	2.8	36.4	32.0	28.8
Slovenia	11.8	8.4	11.5	3.7	34.4	33.8	28.0
EU-28	13.5	19.1	11.6	3.6	24.3	36.7	35.3

[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/2020ent13_02

Table 13.3: The ration of vacancies, IV. quarter, 2019

Country	Vacancy rate	Country	Vacancy rate	Country	Vacancy rate
Bulgaria	0.9	North Macedonia	1.6	Norway	2.5
Portugal	1.0	Luxembourg	1.7	Latvia	3.1
Slovakia	1.1	Estonia	1.9	Netherlands	3.2
Poland	1.1	Finland	2.2	Germany	3.3
Romania	1.1	Slovenia	2.3	Czechia	6.3
Lithuania	1.4	Sweden	2.4		
Croatia	1.5	Hungary	2.4		

Source: *Eurostat*. http://ec.europa.eu/eurostat/web/labour-market/job-vacancies/database (jvs_q_nace2: 2020.09.25. version, downloaded: 2020.10.24.)

Online data source in xls format: http://www.bpdata.eu/mpt/2020ent13_03

14 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 aim of the survey is 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 as 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, defense activity contributes to the national product, conscripts are generally considered as economically active persons, any exceptions are marked in the footnotes of the table. The data regarding the number of conscripts comes 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 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 at 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 on the basis of the population number 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 weights to the estimation are made in two steps. First the primary weights are calculated for the 275 strata of the sample, then these weights 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 weights 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 weights are based on the 1990 Census (ii) in 1998–2001 the weights based on the 1990 Census have been corrected using data of the 2001 Census (iii) in 2002–2005 the weights are based on the 2001 Census (iv) from 2006 onwards the weights 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, is 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. In order to ensure comparability, the indices are presented in a comparative structure, but due to changes in the source, 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, 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 depends on actual annual changes in the tax table (tax brackets) and in the tax allowances. Thus the actual size of the differences are also influenced by the share of indi-

viduals at given firms that fall outside the bracket for employee allowances.

The indexes pertain to the comparable sample, taking changes in the definitions, and of the sample frame into account. 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 of net real earnings is calculated from the ratio of 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 time period between the two censuses.

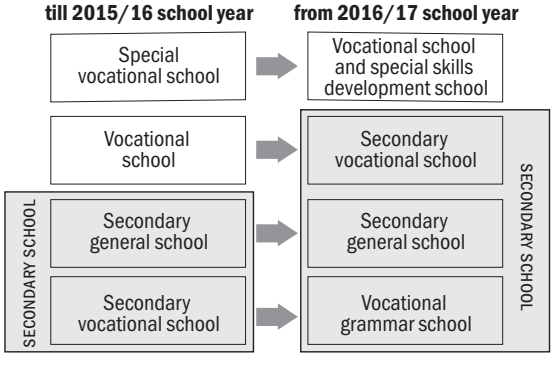
The MEM, as its name shows, is a balance-like account that compares the labour supply (human resources) to the labour demand at an ideal moment (1 January). Population is taken into account by economic activity, with a differentiation between statistical data of those of working age and the population outside of the working age. Source of data: Annual labour survey on employment since 1992 of enterprises and of 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 was designated as the nominal date of the data survey (before 2000 it was a similar date, which nevertheless varied by school-types).

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. The new name of special vocational schools is vocational school and special skills development school, 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 need 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 aquire 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 examination 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 the secondary vo-

cational school, the secondary general school and the vocational grammar school together are meant by it. 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 are to 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 in order 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 of 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 exiters, 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 benefit. Between 1997–2005, the system also contained the recipients of pre-retirement unemployment benefit.

Jobseeking allowance recipients: from September 1, 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 September 1, 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 September 1, 2011 the conditions for determining and disburs-

ing the jobseeking assistance changed. The "a" and "b" type 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 September 1, 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, 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 on a monthly basis 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 of the number of registered unemployed/jobseekers and the registered unemployment rate are obviously different from the figures based on the KSH MEF. It is mainly the different conceptual approach, definition, 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 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 in view of 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.

From 2005, the surveys are 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 in 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 in every third year, thus we are in possession of an enormous database for the years of 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, 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 fulfill all requirements of the EU, so from this time on it serves also for 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 the Eurostat in anonymized form in accordance with EU regulations.

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