

THE HUNGARIAN LABOUR MARKET 2018

EDITORS

KÁROLY FAZEKAS

ÁGNES SZABÓ-MORVAI

**CENTRE FOR ECONOMIC AND REGIONAL STUDIES,
HUNGARIAN ACADEMY OF SCIENCES
BUDAPEST, 2019**

**THE HUNGARIAN LABOUR MARKET
2018**

THE HUNGARIAN LABOUR MARKET

Editorial board of the yearbook series

IRÉN BUSCH – Head of Department, Ministry of Interior, Department of Public Work's Statistics Analyses and Monitoring • KÁROLY FAZEKAS – general director, Centre for Economic and Regional Studies, Hungarian Academy of Sciences (CERS HAS) • JENŐ KOLTAY – senior research fellow, Institute of Economics, Centre for Economic and Regional Studies, Hungarian Academy of Sciences (IE CERS HAS) • JÁNOS KÖLLŐ – scientific advisor, Institute of Economics, Centre for Economic and Regional Studies, Hungarian Academy of Sciences (IE CERS HAS) • JUDIT LAKATOS – senior advisor, Hungarian Central Statistical Office (HCSO) • ÁGNES SZABÓ-MORVAI – research fellow, Institute of Economics, Centre for Economic and Regional Studies Hungarian Academy of Sciences (IE CERS HAS)

Series editor

KÁROLY FAZEKAS

THE HUNGARIAN LABOUR MARKET 2018

EDITORS

KÁROLY FAZEKAS

ÁGNES SZABÓ-MORVAI

**INSTITUTE OF ECONOMICS, CENTRE FOR ECONOMIC
AND REGIONAL STUDIES, HUNGARIAN ACADEMY OF SCIENCES
BUDAPEST, 2019**

Edition and production: Institute of Economics, Centre for Economic and Regional Studies, Hungarian Academy of Sciences.

Copies of the book can be ordered from the Institute of Economics, Centre for Economic and Regional Studies, Hungarian Academy of Sciences.

Address: 4. Tóth Kálmán Str, 1097 Budapest

Phone: (+36-1) 309 26 49

Fax: (+36-1) 319 31 36

E-mail: biblio@rtk.mta.hu

Web site: <http://mtakti.hu>

Translated by: *Orsolya Kisgyörgy* (Foreword; The Hungarian Labour Market in 2017; In Focus 5.2, 5.4, K 6.2, 8.2, 8.3, 11.2, 11.3; Labour Market Policy Tools, Pocketbook); *Krisztina Olasz* (In Focus Foreword, 1, 2.1, 2.3, K2.1, 3.3, 4.1, 4.2, 4.3, 5.1, 6.1, K6.1, 6.2, K6.3, 7, 8.4, K8.2, 9., K9.1, 10, 11.1); *Anna Adamecz-Völgyi* (In Focus 2.2, 8.1); *Endre Tóth* (In Focus 3.1, 5.3, K8.1); *Zsombor-Cseres Gergely* (In Focus 3.2); *Gábor Körösi* (In Focus K10.1); *András Simonovits* (In Focus 12)

Revised by: Stuart Oldham

The publication of this volume has been financially supported by the Hungarian Academy of Sciences and Ministry of Finance

Copyright © Institute of Economics, Centre for Economic and Regional Studies, Hungarian Academy of Sciences, 2019

Cover photo © János Eifert, 2019

ISSN 1785-8062

Publisher: Károly Fazekas

Copy editor: Anna Patkós

Design, page layout: font.hu

Typography: Garamond, Franklin Gothic

Printing: Oliton Kft.

CONTENTS

Foreword	11
The Hungarian labour market in 2017 (<i>Tamás Bakó & Judit Lakatos</i>)	19
Economic background	21
Labour force supply and employment	21
Labour demand and labour force potential	27
Earnings	33
References	39
In Focus: Women in the labour market	41
Introduction (<i>Ágnes Szabó-Morvai</i>)	43
1 Women in the labour market	47
1.1 The problem and its background and literature review (<i>Júlia Varga</i>) ..	47
2 Women in the Hungarian labour market – Trends in the past ten years	54
2.1 Labour force participation, employment, unemployment and wages (<i>János Köllő</i>)	54
2.2 Is there a glass ceiling in Hungary? Gender wage gap by educational attainment (<i>Anna Adamecz-Völgyi</i>)	63
2.3 Female and male managers (<i>Beáta Nagy & Anna Sebők</i>)	66
K2.1 Women in science – in Europe and Hungary (<i>Veronika Paksi & Dóra Groó</i>)	69
3 Women’s labour market performance in the EU and in Hungary	71
3.1 Female employment in post-socialist EU member states (<i>Flóra Samu, Ágota Scharle & Márton Csillag</i>)	71
3.2 Inequality in Europe – women, men and couples (<i>Zsombor Cseres-Gergely</i>)	76
3.3 Work-family policies affecting female employment in Europe (<i>Judit Kálmán</i>)	80
4 Human capital, part I. Birth and early childhood	89
4.1 Introduction (<i>Ágnes Szabó-Morvai</i>)	89
4.2 The role of early childhood shocks in the emergence of gender inequalities (<i>Ágnes Szabó-Morvai</i>)	91
4.3 The impacts of abortion restrictions on birth outcomes (<i>Anna Adamecz-Völgyi, Anna Bárdits, Gábor Kertesi & Ágnes Szabó-Morvai</i>)	95

5	Human capital, part II. Test scores and school performance	98
5.1	Changes in the gender gap in educational attainment (<i>Júlia Varga</i>) ...	98
5.2	Gender gaps in test scores in international comparison (<i>Zoltán Hermann</i>)	104
5.3	Girls in Hungarian vocational education (<i>Márton Csillag, Bori Greskovics & Tamás Molnár</i>)	111
5.4	Horizontal gender segregation in higher education – STEM applications (<i>Koen Declercq & Júlia Varga</i>)	114
6	Human capital, part III. The role of non-cognitive skills	122
6.1	The impact of the increasing significance of non-cognitive skills on the labour market situation of women (<i>Károly Fazekas</i>)	122
K6.1	Gender differences in the stability of personality traits over time (<i>János Kiss Hubert & Ágnes Szabó-Morvai</i>)	130
6.2	Gender differences in preferences in the literature (<i>Luca Flóra Drucker, Dániel Horn & Hubert János Kiss</i>)	132
K6.2	Gender differences in the use of cognitive skills at work (<i>Rita Pető & Balázs Reizer</i>)	139
K6.3	The effect of motivation and feedback (<i>Anna Lovász & Ágnes Szabó-Morvai</i>)	140
7	Human capital, part IV. Health and labour market participation among women (<i>Anikó Bíró, Réka Branyiczki & Péter Elek</i>)	141
8	Marriage, having children	151
8.1	The effects of teenage motherhood (<i>Anna Adamecz-Völgyi</i>)	151
8.2	The impact of childcare availability on female labour supply (<i>Ágnes Szabó-Morvai & Anna Lovász</i>)	156
K8.1	Development of nursery capacities (<i>Ágota Scharle</i>)	159
8.3	Career before and after having a child (<i>Anna Lovász, Ewa Cukrowska-Torzewska & Ágnes Szabó-Morvai</i>)	160
8.4	The role of parenthood in the gender wage gap (<i>Anna Lovász & Ewa Cukrowska-Torzewska</i>)	163
K8.2	Opportunities provided by the hungarian birth cohort study (<i>Balázs Kapitány & Zsuzsanna Veroszta</i>)	166
9	Division of labour in the household (<i>Ágnes Szabó-Morvai</i>)	167
K9.1	Spillover between work and private life (<i>Beáta Nagy, Gábor Király & Márta Radó</i>)	171
10	Classic labour market discrimination (<i>Anna Lovász & Bori Simonovits</i>)	173
K10.1	Labour market discrimination, 1995–2016 (<i>Gábor Körösi</i>)	177

11 The institutional context	178
11.1 Changes in the regulatory environment affecting female employment (<i>Ágnes Makó</i>)	178
11.2 Flexible work arrangements and other family-friendly measures among Hungarian companies (<i>István János Tóth, Miklós Hajdu & Ágnes Makó</i>)	184
11.3 The main characteristics of women in public works (<i>Irén Busch & Judit Lakatos</i>)	189
12 Dilemmas of Female40 (<i>András Simonovits & Melinda Tir</i>)	192
Labour Market Policy Tools (June 2017–May 2018) (<i>Miklós Hajdu, Ágnes Makó, Fruzsina Nábelek & Zsanna Nyíró</i>)	197
1 Institutional changes	199
2 Supports	200
3 Services	201
4 Active labour market measures and comprehensive programmes	201
5 Policy tools affecting the labour market	205
Statistical data	209
1 Basic economic indicators	211
2 Population	213
3 Economic activity	216
4 Employment	224
5 Unemployment	234
6 Wages	251
7 Education	258
8 Labour demand indicators	262
9 Regional inequalities	265
10 Industrial relations	273
11 Welfare provisions	278
12 The tax burden on work	284
13 International comparison	288
14 Description of the main data sources	291
Index of tables and figures	297

AUTHORS

ANNA ADAMECZ-VÖLGYI – UCL INSTITUTE OF EDUCATION; BUDAPEST INSTITUTE
TAMÁS BAKÓ – IE CERS HAS
MÓNIKA BÁLINT – CERS HAS
ANNA BÁRDITS – CEU
ANIKÓ BÍRÓ – IE CERS HAS
RÉKA BRANYICZKI – CEU; TÁRKI SOCIAL RESEARCH INSTITUTE
IRÉN BUSCH – MINISTRY OF INTERIOR DEPARTMENT OF PUBLIC WORK'S
STATISTICS ANALYSES AND MONITORING
ZSOMBOR CSERES-GERGELY – EUROPEAN COMMISSION, JOINT RESEARCH CENTRE
MÁRTON CSILLAG – BUDAPEST INSTITUTE
EWA CUKROWSKA-TORZEWSKA – UNIVERSITY OF WARSAW
ÉVA CZETHOFFER – CERS HAS
KOEN DECLERCQ – IRES, UCLOUVAIN, FNRS, AND LEER, KU LEUVEN
LUCA FLÓRA DRUCKER – CEU
PÉTER ELEK – IE CERS HAS; EÖTVÖS LORÁND UNIVERSITY, DEPARTMENT OF ECONOMICS
KÁROLY FAZEKAS – IE CERS HAS
BORI GRESKOVICS – BUDAPEST INSTITUTE
DÓRA GROÓ – ASSOCIATION OF HUNGARIAN WOMEN IN SCIENCE
MIKLÓS HAJDU – CORVINUS UNIVERSITY OF BUDAPEST
ZOLTÁN HERMANN – IE CERS HAS
DÁNIEL HORN – IE CERS HAS
JUDIT KÁLMÁN – IE CERS HAS
BALÁZS KAPITÁNY – HUNGARIAN DEMOGRAPHIC RESEARCH INSTITUTE
GÁBOR KERTESI – IE CERS HAS
GÁBOR KIRÁLY – BUDAPEST BUSINESS SCHOOL, FUTURE OF HIGHER EDUCATION
RESEARCH CENTRE
HUBERT JÁNOS KISS – IE CERS HAS
JÁNOS KÖLLŐ – IE CERS HAS
GÁBOR KÖRÖSI – IE CERS HAS
JUDIT LAKATOS – HUNGARIAN CENTRAL STATISTICAL OFFICE (HCSO)
ANNA LOVÁSZ – IE CERS HAS
ÁGNES MAKÓ – INSTITUTE FOR ECONOMIC AND ENTERPRISE RESEARCH
TAMÁS MOLNÁR – BUDAPEST INSTITUTE
FRUZSINA NÁBELEK – INSTITUTE FOR ECONOMIC AND ENTERPRISE RESEARCH

BEÁTA NAGY – CORVINUS UNIVERSITY OF BUDAPEST
ZSANNA NYÍRŐ – INSTITUTE FOR ECONOMIC AND ENTERPRISE RESEARCH
VERONIKA PAKSI – CENTRE FOR SOCIAL SCIENCES, HAS
RITA PETŐ – CEU
MÁRTA RADÓ – CORVINUS UNIVERSITY OF BUDAPEST;
CENTRE FOR SOCIAL SCIENCES, HAS
BALÁZS REIZER – IE CERS HAS
FLÓRA SAMU – CORVINUS UNIVERSITY OF BUDAPEST;
CENTRE FOR SOCIAL SCIENCES, HAS
ÁGOTA SCHARLE – BUDAPEST INSTITUTE
ANNA SEBŐK – CERS HAS
WU SHANSHAN – BEIJING NORMAL UNIVERSITY
ANDRÁS SIMONOVITS – IE CERS HAS
BORI SIMONOVITS – EÖTVÖS LORÁND UNIVERSITY
ÁGNES SZABÓ-MORVAI – IE CERS HAS
JÓZSEF TAJTI – MINISTRY OF FINANCE
MELINDA TIR – CERS HAS
ISTVÁN JÁNOS TÓTH – IE CERS HAS
JÚLIA VARGA – IE CERS HAS
ZSUZSANNA VEROSZTA – HUNGARIAN DEMOGRAPHIC RESEARCH INSTITUTE

FOREWORD

The *Hungarian Labour Market Yearbook* series was launched in the year 2000 by the Institute of Economics of the Hungarian Academy of Sciences with the support of the National Employment Foundation. The yearbook presents the actual characteristics of the Hungarian labour market and employment policy, and provides an in-depth analysis of a topical issue each year. The editorial board has striven to deliver relevant and useful information on trends in the Hungarian labour market, the legislative and institutional background of the employment policy, and up-to-date findings from Hungarian and international research studies to civil servants, staff of the public employment service, municipalities, NGOs, public administration offices, education and research institutions, the press and electronic media.

An important aspect is that the various analyses and the data published in the yearbook series should provide a good source of knowledge for higher education on the different topics of labour economics and human resources management. The yearbook series presents the main characteristics and internal trends of the Hungarian labour market.

Continuing our previous editorial practice, we selected an area that we considered especially important from the perspective of understanding Hungarian labour market trends and the effectiveness of evidence-based employment policy. Based on the decision of the editorial board the topic of 'In Focus' this year discusses the labour market situation of women. The yearbook consists of five main parts.

1. The Hungarian labour market in 2017

According to the population based representative survey, the labour force survey of the Central Statistical Office the number of employed reached 4 million 421 thousand at an annual average, which means a significant, 1.6 percent increase compared to the previous year. In the course of the year the pace of employment growth has however continuously slowed down due to the shrinking labour force potential and thus the annual growth was significantly below the 3.5 percent increase of 2016. After the massive growth in the number of public workers over the past few years – which also contributed significantly to the improvement of the employment rate – the number of public works participants stagnated in 2016 and – in accordance with the government's intention – has decreased in 2017. In connection with the gender employment gap the fact has also to be mentioned that part-time employment among Hungarian women is one of the lowest in the EU and other

forms of employment which could facilitate the reconciliation of work and family life (e.g. teleworking, flexible or unbound working time) hardly exist.

In 2017 in the framework of the job vacancy survey of the CSO enterprises, non-profit and public institutions reported nearly 70 thousand unfilled jobs at an annual average – 23 percent higher than in 2016. The growing competition for workforce, the direct and indirect impacts of the government measures as well as the favourable economic trends all contributed to the highest pace of wage increase of the past decade. Besides the increase of the minimum wage the selective wage re-arrangement of public sector employees also continued, although there are still areas where wages have been unchanged for almost a decade.

An important source of the labour supply is the labour reserve, which according to the extended definition includes the unemployed, the inactive who want to work, the underemployed and public workers. In 2017 all of these categories – connecting to the labour market with various strengths – were characterized by a decrease. The segment of the labour reserve linking most closely to the labour market is the unemployed (in terms of the ILO definition). The decrease of unemployment started to follow employment growth with an element of delay following the financial crisis although it has been quite intensive over recent years. In 2016 the number of unemployed was half the number of 2013 while in 2017 the number of unemployed in the LFS was below 200 thousand – for the first time in the history of the survey since 1992. At an annual average 95.7 thousand men and approximately as many women were unemployed. Thus, the unemployment rate of men was 3.8 percent while that of women 4.6 percent. Herewith the Hungarian unemployment rate was among the four lowest ones of the EU.

2. In Focus

This year the topic of ‘In Focus’ is the labour market situation of women, which – going beyond itself – has a significant impact on at least three economic and social fields challenging policy makers. The first one is economic growth: if the activity rate of women caught up men the European GDP would increase by 12 percent in the next 15 years (for more details see Chapter 1. of ‘In Focus’). The second one is the low fertility, which is one of the most serious concerns of Hungary and Europe. The improving labour market situation of women could also have a positive impact on this issue. As several studies pointed out the fertility rate in past decades was higher in those European countries where the reconciliation of work and family life is a given opportunity for women and that the introduction of policy measures on reconciliation obviously increased both the fertility and the labour market activity of women. The third major problem is the question of pension insurance originating in the low fertility i.e. how will the decreasing number of the active aged population

maintain the growing number of pensioners in an ageing society. As women form a potentially active, highly educated active aged population the increase of the labour market activity of women could be useful from this respect too.

The labour market situation of women on the basis of international research (Chapter 1). The labour market activity of women has significantly increased across Europe approaching but not overtaking the activity rates of men. The increase of the labour market activity of women was fostered by the improving educational attainment of women and the increase of wages as well as by several other factors including the spread of household appliances and contraceptive pills. The female employment rate also approximated the employment rate of men but the forms of employment differ significantly. Part-time employment for example is more typical for women. Employment segregation e.g. the clustering of men and women in different occupations is more and more typical within European labour markets. In recent decades the gender wage gap has also decreased significantly in Europe due to the increasing education level and work experience of women. The largest proportion of the gender pay gap is explained by gender differences in occupations, economic sectors and differences across sectors. The gender pay gap however is the largest in the highest wage segments that originates in the observation that women enter into senior management positions to a much smaller extent.

Women in the Hungarian labour market. The subchapters of Chapter 2. provide an overview on the evolution of the labour market situation of the past years – including activity, unemployment, the gender pay gap and its most important reasons. In the past 17 years since the millennium the employment rate both of men and women has significantly increased. The expansion of market jobs, the public and foreign work of Hungarians as well as the decrease of the active aged population equally contributed to this increase. From the end of the 1980s until the millennium the gender pay gap decreased and the average wage of women increased from 75 percent to 90 percent compared to the average wage of men. Since the 2000s average gender pay gaps remained almost unchanged however the composition by educational attainment shows that while the gender pay gap increased among the tertiary educated it decreased at lower levels. Until 2016 the proportion of women in management positions reached 41 percent in total. In the public sector this share is higher, between 50 and 70 percent depending on the sector, while it is lower in the business sector with a proportion of 10–50 percent.

The situation of the female workforce in the EU and Hungary (Chapter 3). In the early 2000s post-socialist countries of Europe were in an advantageous situation compared to the EU15 with respect to female employment. Although the economic crisis decreased female labour market participation in these countries more seriously they resumed more or less their advantageous situation. Between 2002 and 2016 the difference among countries in the field of

female labour market participation was mainly influenced by general trends although demographic and policy aspects also played an important role. The employment rate of women is largely determined by the policies of certain countries including the child-care leave, the taxation system, flexible employment opportunities and the spread of child-care services. On the other hand, the income level of women is in the whole of Europe below the income of men. That means that a man on average has a 50–70 percent higher work and personal income than a woman. The extent of income inequalities however is much higher among women. The inequality in levels of income could be reduced if someone lives in a relationship but the share of those living in a relationship is becoming lower and lower in Europe.

Labour market situation determining human capital (Chapters 4–7). The main reason for the evolution of gender inequalities at birth and in early childhood is circumstances other than ideal and this causes stronger disadvantages to boys at later stages of life. This fact was also underlined by the outcomes of the examination of the Hungarian abortion ban in 1974. Based on educational performance the situation of women is good and has been improving in Hungary. Each year since 1990 the proportion of women in tertiary education is higher than that of men while their share of early school-leavers always remained below the proportion of men.

In the case of the skills assessing test scores of PISA the difference between Hungarian girls and boys is average. Boys perform somewhat better in mathematics while the advantage of girls in reading is below the international average. According to the analysis it seems probable that traditional education systems – where grade repetition is more frequent, selection is early and the use of modern pedagogic methods is less common – are more favourable for boys.

Significant differences occur between boys and girls in the field of study choice. Women with a vocational qualification background have considerably lower chances to become employed than men with the same level of education. Half of this disadvantage could be explained by the career choice. If everyone was hired in the occupation according to their professional qualification, then based only on this the expected wage gap in favour of men was 16.5 percent in the case of vocational qualification while 1.7 percent in the case of vocational secondary qualification level. Labour market performance – beyond educational performance – is also determined by non-cognitive (personal) characteristics.

There are significant differences in the majority of non-cognitive characteristics between boys and girls already in early childhood – and mainly in favour of girls. These differences in skills have a considerable influence on school and labour market success. In the past years non-cognitive skills have become more and more appreciated in the labour market because the proportion of tasks

requiring non-substitutable skills increased due to the spread of computer-managed, automated and most recently by artificial intelligence managed production and service systems. Non-cognitive skills also include preferences that could be measured by experimental methods. Labour market activity is strongly influenced by the health condition of individuals therefore we also provide an overview on the health status of Hungarian women.

Marriage, children and the reconciliation of work and family life (Chapters 8–9). The difference in the labour market situation of men and women originates mainly in occasions around parenthood. The labour supply of women with young children is substantially influenced by the number of child-care places and this link around the age of 3 is much stronger in Eastern-Central European countries than in Western or Southern Europe. The employment and wage of women not only starts to lag behind that of men after childbirth but already in the previous years. Unlike Western countries the wage gap is significantly greater in the case of future mothers in Southern and Eastern Europe than that of women who will not become mothers in the forthcoming years. With the better reconciliation of paid work and household duties women need to give up less from their labour market performance. The share of household duties between partners definitely promotes reconciliation. In Southern and Eastern countries (including in Hungary) women work in total one-two hours longer in paid and unpaid work than men, while in Northern and Western countries the gender difference is negligible.

Discrimination, institutional surroundings (Chapters 10–12). Discrimination faced by women is hardly demonstrable nor measurable. By examining the data on wages in the period between 1995–2016 the level of the measurable discrimination decreased significantly from around 18 percent to 9–13 percent and older women are probably much more affected by this discrimination. The institutional surroundings also strongly influence the labour market situation of Hungarian women. The most important measures of the past 10 years were probably making child-care benefits more flexible, the introduction of the family tax credit and the development of child-care services for children under 3. It is important to highlight that while employers in certain cases promote the establishment of family-friendly employment forms, in other cases they even hamper the use of benefits guaranteed by the law. A remarkable element of the institutional surroundings is the public works system. Since 2014 female participation in public work is higher compared to that of men. The Hungarian rules on pension promote the early retirement of women which decreases female employment rates.

3. Changes in labour market policy tools (June 2017–May 2018)

This chapter summarizes the main legislative changes in connection with labour market policies between June 2017 and May 2018.

The modification of the Vocational and Adult Training Act increased the weight of practical training and established the so called sectoral skill councils from 1st of July 2018. Members of the sectoral skill councils are the representatives delegated by sectoral stakeholders. The body could make proposals on the modernisation of the training contents and the operation of the vocational training system.

In the framework of the tender HRDOP-1.2.9-17 ‘Women in the family and at work’ ‘Family and Career Points’ were established in order to promote the labour market situation of women, to spread atypical forms of employment and facilitate work-life balance. A new form of cooperatives, the pensioners’ cooperative for public interest was introduced on 1st July 2017 with the aim of encouraging the employment of retired people.

In connection with the different labour market services the programme HRDOP-1.5.2-16 has to be mentioned. Its goal is the development of labour market services of municipalities and in its framework disadvantaged job-seekers are provided help in finding a job. In addition to this, the program on the ‘Development of lawful employment’ EDIOP-5.3.7-VEKOP-17 started in June 2017 and aims at improving working conditions and promoting lawful employment.

The gradual cutback of the public works programme has also continued in the past year. In 2017 the planned amount for public works in the Hungarian central budget was 325 billions of HUF and 225 billions of HUF in 2018. The factually used support however was only 261 billions of HUF in 2017. The budget plan for 2019 is 180 billions of HUF that will not further decrease in the forthcoming years.¹ In 2018 the amount of the minimum wage and the guaranteed wage minimum further increased. In 2017 a modification enabled the government to establish a different minimum wage and guaranteed wage minimum for certain groups of employees.²

In addition to this, modifications were carried out in the tax and social contribution system concerning employers’ contributions. The most important change was the decrease of the social contribution tax and the health contribution. A significant change in the field of fringe benefits (in Hungary often referred as cafeteria) was that the tax-free amount of the housing allowance was raised and the support was extended to employees with a fixed-term contract as well as temporary workers. In addition, the scope of tax-free items was complemented by the support for the student’s loan repayment.

1 One EUR = 309.1 HUF (monthly average exchange rate, 2017).

2 There are two types of minimum wage in Hungary, the minimum wage and the guaranteed wage minimum (for skilled workers). Employees in jobs with at least minimum secondary or vocational secondary qualification requirements are entitled for the guaranteed wage minimum.

4. Statistical data

This chapter, in the same structure as in previous years, provides detailed information on the major economic trends, the population, labour market participation, employment, unemployment, inactivity, wages, education, labour demand, regional imbalances, migration, labour relations, welfare ben-

efits as well as drawing an international comparison of certain labour market indicators since the times of the political transition.

The data presented in the chapter have two main sources: on the one hand, the regular institutional and population surveys of the 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 unemployment register database (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 disability pensions and benefits was provided by the Hungarian State Treasury. Finally, some 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.

The tables and figures of the chapter 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.

5. The Hungarian labour market, pocket edition

This year, for the first time this collection of figures based on the Hungarian data forms the annex of this volume. By highlighting important links, this booklet makes gender gaps in education, employment as well as the gender wage gap and their characteristics transparent and easily understandable.

The editorial board would like to thank colleagues at the *Institute of Economics – Research Centre for Economic and Regional Studies – HAS, Ministry of Finance, Central Statistical Office, Hungarian State Treasury, colleagues of the Budapest Institute for Policy Analysis and members of the Economics of Human Resources Committee of the Hungarian Academy of Sciences* for their help in collecting and checking the necessary information, editing and preparing parts of this publication as well as discussing it. We would like to give our thanks for the financial support of the Hungarian Academy of Sciences and Ministry of Finance.

**THE HUNGARIAN
LABOUR MARKET
IN 2017**

TAMÁS BAKÓ & JUDIT LAKATOS

ECONOMIC BACKGROUND

Hungarian GDP increased by 4.1 percent in 2017 compared to the previous year. The accelerated growth was mainly influenced by the favourable interest rate environment, the expanding lending and the large-scale availability of EU resources. The GDP growth has its roots basically in the increasing domestic consumption, which was also reflected in the import dynamics exceeding the export growth. Nevertheless, the structure of the economic growth was balanced: on the production side manufacturing, construction and service sectors – within predominantly commerce and ICT sectors – performed exceptionally well while on the utilization side consumption and gross fixed capital formation contributed to the expansion to the largest extent.

Over the past year the volume of investments increased by 16.7 percent, which was the second fastest growth rate since 2000 (*HDB*, 2018). Favourably, the investment boost was large scaled and characterized all sectors of the national economy except for the administrative and service supporting sectors, the latter of which rather stagnated. The volume of investments has grown in all other sectors and investments in education achieved the fastest growth (67.1 percent), which – taking into consideration its long-term labour market impact – is a highly positive phenomenon.

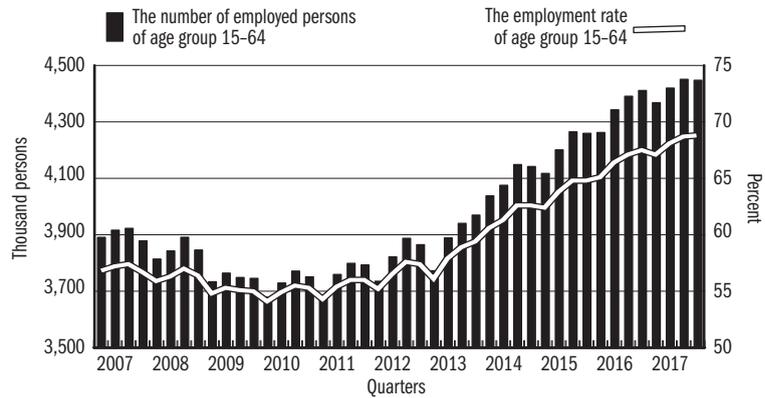
In 2017 the economic environment in total – especially the relatively dynamic economic growth and the unfavourable demographic trends – made the labour market tight and employers faced growing recruitment challenges, which resulted in the improvement of the bargaining position of employees in several sectors.

LABOUR FORCE SUPPLY AND EMPLOYMENT

According to the results of the representative data collection of the Hungarian Central Statistical Office (the Labour Force Survey, hereafter CSO LFS) in 2017 the annual average number of employed¹ reached 4 million 421 thousand (*Figure 1.*), which represents a further significant increase of 1.6 percent compared to the previous year. In the course of the year, however the pace of the employment growth has continuously slowed down due to the shrinkage of the labour force potential thus the annual growth was considerably below the 3.4 percent increase of 2016.

¹ According to the definition of the CSO LFS employed is a person who worked at least one hour during the reference week, or was temporarily absent from a job. Maternity leave means temporary absence, however in the current accounting scheme only those persons are classified as employees in this group who effectively carry out gainful activity in addition to the use of maternity benefit – independently from the fact of whether or not they have a job.

Figure 1: The number of employed persons and the employment rate of age group 15–64, 2010–2017



Source: CSO, LFS.

In 2017 one of the sources of the supplementary labour force was the ‘additional’ age group remaining at the labour market due to the gradual increase of the retirement age while the other source signified those individuals who belong to the category of the labour force potential in a broader sense namely the unemployed, the inactive who want to work and public workers. The number of working pensioners and students also increased although this growth was well below government expectations. The modifications on the entitlement criteria of child-care benefits also contributed to the expansion of the labour force by establishing a financial interest in an early return to the labour market. The – pretty much insatiable – demand for additional labour force represents though a greater and greater challenge in several fields of the economy.

The question is – if this and the growing labour costs hinder the establishment of new production capacities in Hungary and if it encourages – and if so to what extent – the spread of new technologies substituting human labour. In addition to the ‘traditional’ reasons for labour demand – which hits certain fields especially hard – the increasing solvent demand as a consequence of the dynamic real-value growth of wages in 2017 – also contributed to the need for additional labour force potential (both in the commercial and service sectors).

As a result of the multiannual favourable trend the Hungarian employment rate of the age group 20–64 (which was 66.7 percent in 2014) reached 73.3 percent in 2017² exceeding the EU average by 1.1 percentage points as published by the Eurostat. The employment rate of males was 81 percent i.e. 3 percentage points higher, while the 65.7 percent employment rate of women was 0.8 lower than the EU28 average. As regards the employment rate – during a short decade – Hungary became a member of the middle-ranked countries from a country lagging behind. This sharp increase, however – in addition to the growing number of the employed – also had its origins in the shrinking

² The target for 2020 is 75 percent.

number of the working age population which is the denominator of the employment rate and which thus explains the 0.8 percentage point improvement from the 1.8 percentage point increase in 2017 compared to the previous year.

After the strong growth in the number of public workers over the past few years – which contributed significantly to the improvement of the employment rate – their number stagnated in 2016 and – in accordance with the government’s intention – has already decreased in 2017 (*Table 1*).

Table 1: Evolution of the number of employed by certain important aspects

	Number of employees (thousand pers.)		Change	
	2016	2017	thousand persons	percentage
Total				
Male	2,362.5	2,417.3	54.8	102.3
Female	1,989.1	2,004.1	14.9	100.7
Type given in the LFS				
Primary labour market, domestic	4,014.3	4,117.8	103.4	102.6
Public employment	220.9	194.0	-26.9	87.8
At foreign site	116.4	109.6	-6.8	94.2
Region				
Budapest	840.3	845.3	5.0	100.6
Pest	565.6	578.0	12.4	102.2
Central Transdanubia	487.9	498.7	10.8	102.2
Western Transdanubia	457.0	469.6	12.6	102.8
Southern Transdanubia	370.7	369.3	-1.5	99.6
Northern Hungary	466.6	474.8	8.1	101.7
Northern Great Plain	613.9	631.1	17.2	102.8
Southern Great Plain	549.5	554.8	5.2	100.9
Status				
Employed persons	3884.4	3964.4	80.1	102.1
Member of business partnerships and co-operatives	148.0	156.8	8.8	105.9
Self-employed entrepreneur, independent and helping family member	319.3	300.2	-19.1	94.0
Age group				
15-24	301.1	302.6	1.5	100.5
25-39	1,569.4	1,550.8	-18.6	98.8
40-59	2,207.0	2,267.2	60.2	102.7
60+	274.1	300.8	26.7	109.8

Source: CSO, LFS.

Besides this – at least among members of the households covered by the CSO labour force survey – fewer persons worked abroad than in the previous year. Therefore, the number of the employed in the domestic primary labour market increased by 2.6 percent i.e. by 1 percentage point more than the total number of the employed. The improvement of the employment rate of men was more remarkable than that of women supposedly because the gradual in-

crease of the retirement age affected the expansion of the female labour force less intensively than men due to the early retirement opportunity exclusively for women after 40 years of employment.³ A sign of the slight increase of in-country labour mobility is that the employment increased more intensively in regions where the labour reserve was below average.

After the dynamic increase of the past years the number of foreign-working Hungarians stagnated in 2016 and slightly decreased in 2017 (*Table 2*).⁴ Similarly to the five years earlier household survey three-quarters of the foreign-working population reported Austria or Germany as the country of work. The majority of households of those working in Austria is situated in the counties at the Western border of Hungary and had frequently moved there from another part of the country explicitly with the goal of working abroad. The typical 'cross-border commuter' is a man, young or middle-aged with a vocational or vocational secondary qualification and has a job in the industrial, construction or possibly in the catering sector in the target country.

Table 2: The number of persons who reported a foreign workplace in the labour force survey of the CSO by target country, 2017 (thousand persons)

	Austria	Germany	United Kingdom	Other	Total
Total	49.3	32.9	10.7	16.7	109.6
Gender					
Male	36.7	26.1	7.4	13.0	83.2
Female	12.6	6.8	3.3	3.7	26.4
Age group					
15–29	9.1	7.1	3.9	3.5	23.6
30–49	31.3	19.0	5.1	10.9	66.3
50–74	8.9	6.9	1.7	2.3	19.7
Highest qualification					
At most primary	4.5	3.6	0.5	1.8	10.4
Secondary (without secondary school graduation)	21.6	17.4	2.6	5.2	46.7
Secondary (with secondary school graduation, without vocational qualification)	8.3	3.5	2.1	2.2	16.1
Secondary (with secondary school graduation and vocational qualification)	8.8	5.9	2.0	4.3	20.9
Tertiary	6.1	2.6	3.6	3.3	15.5
Sectoral classification of the employer					
Industry, construction	17.4	20.6	2.2	7.3	47.5
Commerce, transportation, logistics	9.4	4.8	2.5	3.3	20.1
Accommodation and catering	11.1	3.5	3.8	2.3	20.7
Other sectors	11.4	4.0	2.2	3.7	21.3

Source: CSO, LFS.

³ Since its introduction in 2013 to the end of 2017 the benefit was utilized by nearly 200 thousand individuals, which means that the female labour force potential decreased annually by 30 thousand on average.

⁴ Information in the Hungarian labour force survey contains information only regarding those foreign-working individuals of whom – as of household members – the recorded households provided data. The number of those Hungarians who work abroad but are not covered by the labour force survey cannot be taken into account additionally because the adjusted population model – as the framework of the weighting of the LFS – could count only with that part of foreign-working Hungarians who are revealed in administrative databases, i.e. the population that should be used for multiplication could have been already calculated into the number of Hungarians working abroad.

The other data source on the number of foreign-working Hungarians are migration statistics published by the Eurostat and provide an additional perspective to the topic. In 2017 more than 300 thousand Hungarians between the age of 15–64 (i.e. active aged from a labour market perspective) were recorded by the labour force surveys of different EU Member States (*Table 3*).⁵

Table 3: Number and employment rate of Hungarians living in other EU Member States

	2010	2016	2017
Number (thousand persons)			
Born in Hungary but lives in another EU country, aged 15–64	145.2	323.7	339.3
Hungarian citizens aged 15–64 living in other EU countries	114.8	312.6	321.1
Of which			
– Aged 20–64	112.4	303.5	307.6
– Women	60.7	158.6	168.0
– With primary educational attainment	16.3	43.9	55.1
– With tertiary educational attainment	36.7	104.2	106.2
– Employed	90.7	252.9	261.7
Employment rate (percent)			
Hungarian citizens aged 20–64 living in other EU countries	74.0	80.5	80.5
Out of which			
– Men	82.7	89.1	89.5
– Women	66.3	72.0	72.4
– With primary educational attainment	62.9	75.9	74.5
– With secondary educational attainment	73.2	80.1	80.8
– With tertiary educational attainment	79.0	81.0	82.6

Source: *EU-LFS* (Eurostat database).

In 2017 in contrast with the outcomes of the Hungarian survey indicating the dominance of males among Hungarians working abroad the narrow majority of the foreign-working population were women according to the foreign surveys and, in addition the proportion of the highly-educated was even higher than the Hungarian average. There were differences in the share by target country too: 46 percent of Hungarian employees recorded in foreign surveys worked in Germany, 22 percent in the United Kingdom while Austria with 15 percent was only the third target country.

89.5 percent of men at the age of 20–64 were in employment, which is 8.5 percent higher than the employment rate according to the records of the Hungarian survey. Although the employment rate of women recorded in the surveys of other EU countries was below that of men it exceeded significantly the performance presented by the Hungarian LFS of the CSO. Even more interesting is the fact that while the outcomes of the LFS show that although less than 54 percent of persons aged 20–64 with at least primary qualification were employed this rate was 74.5 percent according to foreign surveys.

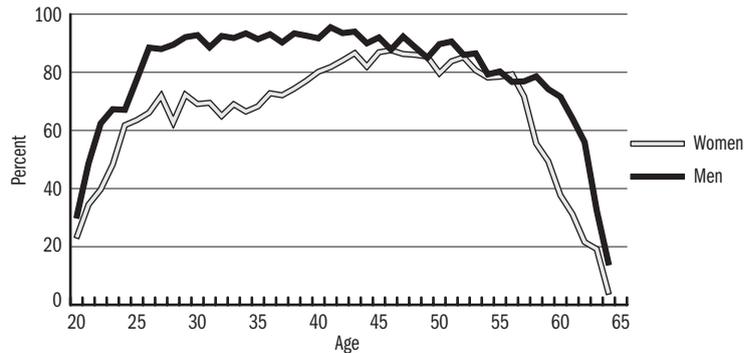
The majority of Hungarians living in another EU Member State changed country of residence due to labour market reasons, therefore their employ-

⁵ The overlap between the two populations, namely those who reported a foreign workplace in CSO LSF and Hungarian citizens in the registers of other EU countries is only partial. A part of the former group is in fact daily commuter and therefore do not fall under the scope of the labour force surveys of other EU countries. Another part is those who, due to the long distance, also have foreign residence or are more challenging to reach than in general (for example due to the reason of community type housing or because they do not speak the language of the target country properly). Persons without a Hungarian household relation or who moved abroad with their families frequently occur exclusively in the surveys of other EU countries. This difference could be demonstrated by the example of the United Kingdom where the labour survey of 2017 registered six times more Hungarian workers in the UK than the Hungarian register.

ment rate is significantly higher in all important breakdowns than the domestic one. According to foreign surveys the number of Hungarians working abroad increased significantly by 30–50 thousand persons annually – from a low basis – between 2010 and 2015. This increase was among the fastest ones in the European Union. In 2016 labour emigration already declined remarkably and has apparently stopped in 2017 although the decrease indicated by the LFS of the Central Statistical Office in this segment is still not demonstrable.

The European Commission in its country report of 2017 provided an overall picture on the Hungarian employment policy too (EC, 2018) and as well as appreciating the improvements of labour market indicators also had some critical remarks. These – among others – related to the disproportionately low labour market participation of the low-skilled, women, the disabled and the Roma although the employment of these groups also showed some improvement. Even in 2017 a significant part of Roma and low-skilled people worked in public works, which was severely criticized by the European Commission from the beginning especially due to its less effective and sometimes even counter-productive nature in labour market integration.

Figure 2: Employment rate of men and women at age 20–64 by age group, 2017 (percent)



Source: CSO LFS, data of 2nd quarter of 2017.

The gender gap in employment of the age group of 20–64 was 15.3 percentage points in 2017 – slightly exceeding the EU average. The EC report (2018) links this phenomenon to the low participation rate of children under 3 in formal child-care. As presented by the figure on the employment rate by age group the employment rate of Hungarian women evolves in line with the employment rate of men only until their mid-twenties then in the period of child-bearing age it lags significantly behind.⁶ The employment rate of women in their mid-forties reaches again the employment rate of men but the steep fall due to retirement starts two-three years earlier than that of men. By maintaining the current retirement rules the gender employment gap is not ex-

⁶ This problem however has its roots probably not only in the lack of nursery places. According to a supplementary survey of the labour force survey of 2014, three-quarters of women entitled to child-care benefit wished to spend the entire eligibility period at home with their child by taking the traditional view (consciously or under circumstances) created by the possibilities of the previous decades that it is the best for the child if the mother provides them with personal care at home until kindergarten-age. This approach is the least characteristic of women with a tertiary qualification, whose career development could be hampered by the long-term absence and for whom returning to the previous job could mean higher financial gain than average.

pected to decrease even if more women with young children decide to spend a shorter time on child-care leave than the maximum period.

Related to the gender employment gap the fact also has to be mentioned that part-time employment among women is one of the lowest in the EU and other forms of employment which could facilitate the reconciliation of work and family life (e.g. teleworking, flexible working time and zero hours contract) hardly exists. Although it is true that the proportion of women on shift work is around, while the share of women working regularly or occasionally Saturdays and Sundays is below, the EU average.

Labour market expansion affected all social groups unrelated to qualification level though labour market chances of the less-educated (with a primary qualification) are still considerably less favourable. In 2017 53.9 percent of persons with a low level of education at age 20–64 were employed, which is a significant improvement compared to the 36.1 percent employment rate in 2010. Nevertheless, this value is still almost 20 percentage points below the employment rate of persons with a secondary qualification. (In addition, the public works programme has the strongest impact on the employment rate of the lowest qualified. Without this, the increase of the employment rate compared to 2010 would have been 4 percentage points less.) The employment rate of persons with a higher than primary qualification exceeded, while that of persons with maximum primary qualification lagged behind, the EU average.

The gender employment gap also depends on the qualification level. The gap is the narrowest between men and women with the Baccalaureate. In addition, in the first part of the period between 2010 and 2017 the employment rate of women at this qualification level even exceeded the employment rate of men. The gap is the widest in the population with at least a lower secondary qualification, however the growth of the employment rate (compared to 2010) of both genders was the most rapid at this education level. (Note, that the data do not include public workers.) In 2017 more than 60 percent of men aged 20–64 (including public workers in total 64.7 percent) were in employment while the employment rate of women was 38.9 percent (and 45.4 percent including public workers).

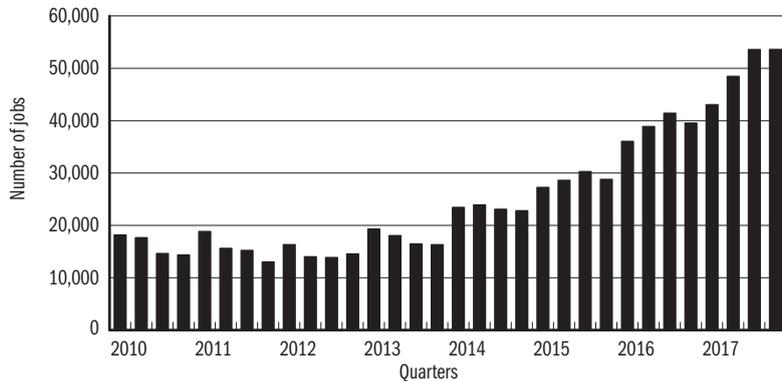
LABOUR DEMAND AND LABOUR FORCE POTENTIAL

By the continuous decline of the domestic labour reserve and the hardly changing numbers of Hungarians working abroad labour demand of the economy has further increased in 2017. This – besides the expansion of the production capacities as well as the housing and general construction boom – was influenced by the long-time unseen increase of incomes (and the proportionally growing consumption). According to the aggregated outcomes of the Job Vacancy Survey⁷ of the CSO the non-profit and the public sec-

⁷ Besides the CSO-data collection based on common European provisions, another data collection exists with the purpose of monitoring the evolution of labour demand of the economy. In reporting labour demand to the National Employment Service (as data collector), mainly those employers have an interest who wish to hire workforce in a supported form (this, typically takes two-thirds of the reports) or those who search workers for low-qualified jobs (and therefore see a chance to find them among registered job-seekers). As these two observations indicate quite different demand structures, consistency between the two neither in trends nor in volume necessarily exists. For example, in the last month of 2017 the number of vacancies in the register of the NES was 123.2 thousand which is highly above the number estimated by CSO. Although, while the number of vacancies reported at CSO continuously increased, the number of vacancies in the NES register was 11 percent less than in the same period of the previous year.

tor reported already 70 thousand job vacancies on annual average in 2017, 23 percent higher than in 2016. The number of current job vacancies or job vacancies of the near future (for which employers have already taken steps to fill – for example by advertisement) at business sector enterprises with at least five employees was 43.1 thousand in the first quarter, 48.5 thousand in the second quarter and already 53.6 thousand in the third and fourth quarters of 2017 (*Figure 3*).

Figure 3: The number of job vacancies in the business sector



In the fourth quarter of the previous year the number of job vacancies has shown a nearly 36 percent surplus compared to the same period of the previous year, which also means that the number of job vacancies increased at a similar pace than in the last year. In the last quarter of the past year 2.5 percent of the business sector jobs were unfilled. Compared to the number of employees in certain sectors the number of job vacancies was the highest in the administrative and service supporting sector (5.2 percent) followed by the manufacturing sector (3.2 percent) and the IT sector (3.1 percent). In manufacturing – hiring the largest number of employees within the national economy – the number of job vacancies reached nearly 22.3 thousand in the 4th quarter of 2017, which means an increase of 49 percent compared to the same period of the previous year.

In the past few years the number and proportion of unfilled jobs has continuously increased in Hungary but also in the EU as a whole. In the 4th quarter of 2017 2 out of 100 jobs was unfilled in the EU28 countries, however the situation varies significantly among Member States. The proportion of unfilled jobs is high in countries with a low unemployment rate while the number of job vacancies is low in countries still facing post-crisis challenges. The highest proportion of job vacancies within the EU occurs in the Czech Republic where 4.4 out of 100 jobs were unfilled in the 4th quarter of 2017. This was followed by Belgium (3.4 percent), then Germany (2.8 percent) – which at

the same time is the main target country of Hungarian migrant workers. In Germany, this means almost one million unfilled jobs despite the fact that 1.5 million – partly economic – refugees arrived in the country presumably with the purpose of work. At the opposite side of the scale stood Greece facing stable economic constraints and where only 0.1 percent of the jobs was unfilled in the given period. The rate of unfilled jobs was 0.7 percent in Spain and 0.8 percent in Bulgaria and Portugal. Although the proportion of job vacancies in Hungary was medium-high it was one of the two-three countries where the number of unfilled positions showed the most intensive growth in 2017 (and in the previous year).

The extended definition of labour reserve includes the unemployed, the inactive, who want to work, the underemployed and public workers. In 2017 all of these categories – connecting to the labour market with various strengths – were characterized by a decrease. Labour reserve in total (without the underemployed) was slightly above a half million (*Table 4*). In the event of strong labour demand the underemployed are able to find a full-time job easier and the ‘unemployed’ status could also be transformed easier to ‘employed’. Therefore, the number of persons in these two categories has decreased significantly. In the case of public workers, the change was the result of a targeted governmental intervention while the number of those inactive who want to work but in reality, do not carry out any job-search activity decreased only to a smaller extent.

Table 4: Evolution of the number of the employed and the potential labour reserve, 2010–2017 (thousand persons)

	2010	2016	2017	2017	2017	Change 2017/2016
	men and women total		women	Proportion of women (percent)	Men and women total (percent)	
Employed total	3,732.4	4,351.6	4,421.4	2,004.1	45.3	101.6
Out of which:						
- underemployed	59.2	50.6	40.4	24.1	59.8	79.8
- public worker	72.5	220.9	194.0	105.7	54.5	87.8
Unemployed	469.4	234.6	191.7	96.0	50.1	81.7
Out of inactive:						
- wants to work but is not disposable	10.3	6.9	6.8	3.3	49.1	98.6
- wants to work and is disposable	200.8	128.5	120.6	63.9	53.0	93.9

Source: CSO LFS.

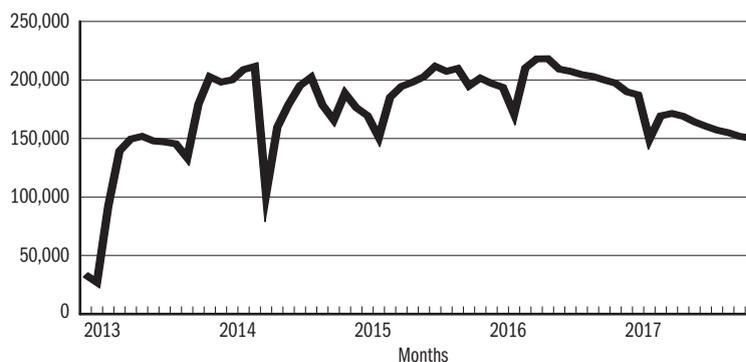
The underemployed – who work part-time due to the lack of an available full-time job and also meet the criteria of disposability – are taken into account as part of the labour reserve in the EU. In spite of the low number of part-time workers in Hungary and the fact that it is not easy to find such a job, nearly

one out of five part-time employees was underemployed according to the answers provided in the LFS. The decision on working other than full-time is usually influenced by a combination of factors, therefore it is not possible to know what proportion of underemployed would accept a full-time job if offered. Due to this reason and because the only option in this case were to be the extension of their working time, this category may be ignored by the recording of the labour reserve.

In 2017 the largest group within the labour reserve were public workers. In line with the transformation of the unemployment benefit system and the expansion of public works schemes their number increased substantially between 2013 and 2015. In 2016 the increase slowed down but the number of public workers still remained 223.5 thousand on an annual average – 15.3 thousand more than in the previous year. However, in 2016 the government explicitly expressed the intention to speed up the transition of public workers into the primary labour market through administrative measures on the one hand and establishing incentives (i.e. the widening of the gap between the minimum wage and the public employment wage) on the other hand.

The reduction of the number of PWS participants has already started in 2017 (*Figure 4*) and in line with this the number of public workers decreased by 40 thousand at an annual average compared to the previous year. (While the number of those who reported themselves as public workers in the LFS decreased somewhat slighter.) Another change was that the number of public workers was less cyclical in 2017. As labour demand has been continuously growing the decreasing number of public works jobs did not influence unemployment statistics.

Figure 4: Evolution of the number of public workers, 2013–2017 (thousand persons)



Source: CSO monthly labour statistics.

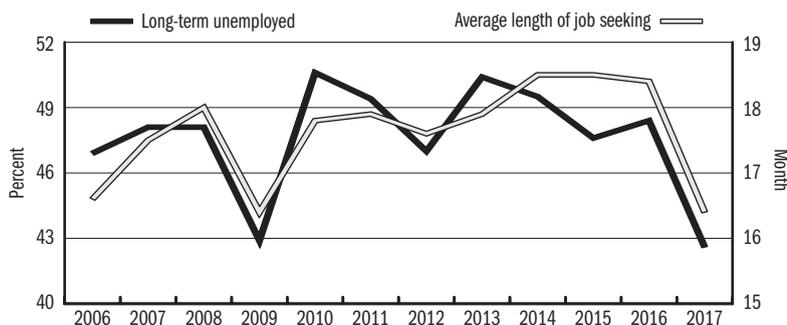
Primarily those persons were able to leave public works who were better qualified or lived in settlements with better transport links or more job opportunities. The former aspect resulted in a further decrease of the (already low)

average educational attainment of public workers and made it more and more difficult to find the appropriate workforce for the more qualified positions (e.g. site managers) within public works. As regards the importance of PWS territorial differences remained significant: in counties (and small regions) with a less favourable labour market situation its weight is still considerable while in better situated areas PWS ensures work opportunity and an income exceeding the amount of social benefit for those who – for some reason – cannot find a job or could enter into a job after combating serious obstacles in the primary labour market.

The most closely linked segment of the labour reserve is the unemployed according to the definition of the ILO. Those, who although they do not work and do not have a job from which they are temporary absent want to work and take steps in order to find a job, and in the event that they find one, there is no obstacle, which could hamper them to start working. Albeit the decrease of unemployment started to follow employment growth with some delay after the financial crisis it was quite intensive in recent years. In 2016 the number of unemployed was half the number existing in 2013 while in 2017 the number of unemployed in the LFS was below 200 thousand – for the first time in the history of the survey since 1992. At an annual average level 95.7 thousand men and approximately the same number of women were unemployed. Thus, the unemployment rate of men was 3.8 percent while that of women 4.6 percent. Thereby the Hungarian unemployment rate became among the four lowest ones of the EU.

The growing labour demand could shorten the period between the job loss and the replacement. In Hungary, a further incentive is that the eligibility period of the insurance-based unemployment benefit is unprecedentedly short in the EU. In 2017 the average length of the unemployment period became 2 months shorter however the average length is still equal to 16.4 months and 42.6 percent of the unemployed are long-term unemployed (*Figure 5*).⁸

Figure 5: Proportion of long-term unemployed and average length of unemployment



Source: CSO LFS.

⁸ In the past ten years the long-term unemployment rate has never been so low except for 2009 when – due to the mass-influx into the unemployment register as a consequence of the economic crisis – the number of newly registered unemployed became suddenly extraordinarily high.

Another important information source on the number of unemployed is the administrative register of job-seekers. A certain section of the unemployed do not search for a job effectively (however through the registration the client declares that he/she is ready to accept a job opportunity offered by the labour office), therefore do not fall under the unemployed category according to the labour force survey based on the ILO definition. Furthermore, another smaller element of jobseekers carries out some kind of gainful activity and therefore is considered to be employed. The number of registered job-seekers – in addition to the labour market situation – is highly influenced by the national characteristics of the benefit system. Therefore this definition is clearly not suitable for international comparison but is essential to gain exact knowledge for the understanding of the domestic labour market situation. In 2017 the number of registered job seekers further decreased but the change was more moderate than the decrease of the unemployed according to the ILO definition – the reason behind this is probably that a significant element of public workers switch regularly between registered job-seeker and public worker categories. The annual average number of registered job-seekers was 283 thousand from which 29.6 thousand were career-starters. (The number of job-seekers was 313.8 thousand in the previous year.) The proportion of those registered job-seekers who are not eligible for any kind of benefit decreased (to 46.8 percent in 2017 from 49 percent in 2016) while the proportion of those eligible for a limited period of unemployment benefit (unemployment assistance) remained more or less unchanged in the previous years.

In past years a part of those inactive who are capable and also would like to work were ‘absorbed’ by the public work system, therefore only slightly more than 120 thousand persons belonged to this category in 2017. The reasons why individuals who would like to work yet do not search for a job are various. The answer chosen by the majority of persons was that they did not expect the job search to be successful. This reason was mentioned by 47.5 percent of men and 35.2 percent of women which – even by growing labour demand – could be a real fear in the case of those having less favourable labour market characteristics than average. This was followed (by 17.5 and 12 percent) by the answer ‘waiting for the recall of the former workplace’ which in most cases probably was the expression of the intention to re-enter into public work. In the case of women ‘caring responsibilities’ was an equally serious reason, while in the case of men the share of answers was more or less equal among the further options given in advance. Beside the structural mismatch between labour demand and supply, there were significant geographical differences in the distribution of job vacancies and the labour reserve in the broader sense in 2017 (*Figure 6*).

Figure 6: The Proportion of job vacancies and the labour reserve* by regions, 2017



* Labour reserve – in addition to the unemployed and the inactive who want to work – also includes public workers. Annual average data, 2017.
Source: CSO LFS, and CSO job vacancy statistics.

EARNINGS

The significant, 6 percent growth of real wages in 2016 was followed by a further 13 percent wage increase in 2017. The direct and indirect effects of the government measures as well as the favourable economic trends and the growing competition for labour force all contributed to the fastest wage growth of the past decade. The 15 percent increase of the minimum wage and the 25 percent increase of the guaranteed wage minimum were the most powerful government measures in their effect. Wages in the lower wage segments of the business sector were directly influenced by the minimum wage increase while in higher wage segments it contributed to the increase through the demand on retaining the former wage proportions. The consequences of the drastic increase of the minimum wage were controversial in the public sector.

The wage increase was realized in the earnings of the lowest earners at the bottom of the public-sector wage grid – typically in positions with a vocational qualification requirement (and therefore with an eligibility for the guaranteed wage minimum of 161 thousand HUF). Institutions with a lack of resources however, created the margin of the wage increase by cutting back different wage supplements and benefits thus the increase of the basic salary did not necessarily mean a similar increase in earnings at the same time. Another negative consequence of the minimum wage increase was that it prevailed over the salary items in the career system (where wages depend on the length of seniority) causing overlaps among certain items. This impact was especially strong in the case of salary items of jobs with secondary qualification requirements. A further increase of the minimum wage is among the plans of the government.⁹

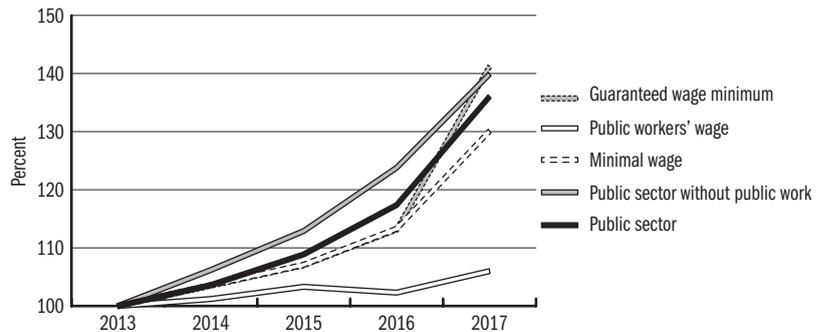
The increasing minimum wage caused difficulties for less efficient companies or companies hiring employees with lower additional value producing capac-

⁹ In 2018 the minimum wage increased by a further 8 percent and the guaranteed wage minimum by 12 percent.

ity because they have to put up financial resources for the growing labour costs. If they fail employees could only be hired in public work (with a salary more and more below the minimum wage) which system – even if in decreasing volume – the government counts upon over the long-term. In addition, this phenomenon could speed up the terminating of companies with a low level of profit which ones, however are important from a local community perspective (such as shops in small settlements – of which more closed down in 2017 than in previous years). Due to the further increased labour demand the minimum wage growth did not have a considerable crowding-out effect in 2017.

Besides the increase of the minimum wage the selective wage re-arrangement of public sector employees also continued, although there are still areas where wages have been unchanged for almost a decade. In 2017 the evolution of the number of public workers did not substantially influence the pace of salary growth (without public workers the growth rate was 0.4 percentage points lower because the number of PWs participants stagnated and their wage also remained unchanged). In 2017 however, there was a 20 percent decrease in the number of PW participants leading to a ‘surplus’ of 1.2 percentage points in the growth rate of wages. This decrease contributed to the wage dynamics of the public sector – where 90 percent of public workers are hired – by 2.9 percentage points. The growth rate of the wage increase of public sector employees – without public workers – exceeded the growth rate in the business sector only by 1.6 percentage points (and within the regular salary part only by 0.2 percentage points). There was a modest increase in the public employment wage in 2017 too however its proportion compared to the minimum wage decreased even more significantly than in the previous years (*Figure 7*).¹⁰

Figure 7: Growth rate of gross salaries (2013 = 100 percent)



Source: Monthly labour report.

10 In 2017 the public employment wage increased to 81,530 HUF from 79,155 HUF (valid in 2015 and 2016) while the guaranteed wage minimum increased to 106,555 HUF from 101,480 HUF. The wage of site managers – slightly above the general public employment wage – increased by a similar proportion.

11 From 2017 the former rates (10 percent up to 500 million HUF of the positive tax base and 19 percent above 500 million HUF) were modified uniformly to 9 percent regardless of threshold.

The additional financial source for the wage increases was ensured by the decrease of employers’ labour costs (i.e. social contribution tax rate decreased from 27 to 22 percent) and the cutback and unification¹¹ of the corporate tax rate which is only linked indirectly to labour costs. (This latter however had

only a limited effect on the expenditure savings of small and medium sized enterprises.) Another modification in the taxation system also contributed to the financial viability of the wage increase which, originally did not serve this goal. In 2017 the reduction of the VAT on certain food products was followed by a similar decrease in catering but its impact was not reflected in catering prices. This phenomenon was mostly explained by the wage growth (as a reaction on the growing minimum wage as well as the intensifying competition environment). Although the reduction is able to counterbalance the deterioration of competitiveness as a consequence of the dynamic wage increase in the short-term, the impact of this measure is only limited.¹²

The interim statistics on wages¹³ in the business sector cover companies with at least five employees, which in total hired 2.08 million persons in 2017.¹⁴ The growth rate of gross salaries was 11.6 percent overall. Within the earnings of blue-collar workers they increased by 14.9 percent to 221,3 thousand HUF and of white-collar workers increased by 8.6 percent to 444,7 thousand HUF. The unusually considerable difference between the wage dynamics of the two basic groups (moreover in favour of blue-collar workers) originated partially in the increase of the minimum wage and the guaranteed wage minimum. The wage increase was also connected to the fact that employees of the nearly 200 state-owned enterprises received a wage increase of 13–14 percent as a first step of the triannual agreement on wage development. Such large companies as the National Railway Company (MÁV), the Hungarian Post, the Volán (national bus company) or regional water providers were also among the enterprises concerned by the agreement. The growing bargaining power of employees is indicated by the fact that the number of strikes with the aim of enforcing wage demands also increased. (Although the number of such actions still remained low.)

In 2017 the highest-level wage increase among business sector-dominated sectors of the national economy was taking place in real-estate and water and waste management (17.6 and 15 percent). The other considerable growth of earnings ensued in the accommodation and food service sectors (14.2 percent). In this growth – besides the increase of the minimum wage – the intention of tackling labour force problems of the sector also played an important role.

Administration and service activities sectors were characterized by an increase above average (14.3 percent). The rate of the wage growth was around average in the most important sectors from a labour market perspective; such as manufacturing, commerce and repair of vehicles and motorcycles, however there were significant differences at sectoral or company level. In the commercial sector employees of foreign-owned chains (Lidl, Aldi, Auchan and partly Tesco as a result of enforcements in strikes) were provided a salary well-above average. At the same time, smaller companies even faced difficulties to ensure the financial source for the increased wage minimum. Conversely, the increase

12 In spite of the reduction of the social contribution rate the hourly labour cost increased by 10 percent in 2017.

13 The data of micro enterprises is attached to this with the method of additional estimation based on tax declarations once a year, therefore this data becomes available only at the end of 2018.

14 From 2018 the continuously up-dated register of the NTA provides the framework for the weighting of the interim institutional labour data collection. The calculation of the number above is already based on the same method.

remained well below-average in the information and communication sector (6.5 percent) and in financial and insurance activities sector (8.2 percent) in those two sectors of the national economy where average wages are exceptionally high (510.7 thousand HUF and 561.6 thousand HUF monthly).¹⁵

In 2017 the subsistence of more than one-fifth of employees (including public workers) was ensured by the public sector. Thus, government measures affecting the wage of public sector employees strongly influence the rate of the wage increase in the national economy as a whole. Taking into consideration that three out of four public sector employees are women this influence is even stronger on the wage position of women. An overall wage arrangement with a common approach was not carried out although there were smaller measures in all the three sectors of the national economy – all of them characterized by the dominance of public bodies – which through their carry-over or current year effect contributed to the increasing rate of the wage growth.

Therefore, there are certain fields in the same sectors of the national economy where considerable wage development had been carried out in the last period and others, where salaries did not change at all. Above all, this is typical for public administration, defence and compulsory social insurance sectors. Here, as part of the agreement on the 50 percent wage increase until 2018 police and defence officers were provided with an increase of 5 percent from 1st July and, in addition those employees who were previously not subject to wage re-arrangement also received an additional allowance. As from 1st January 2017 earnings of the employees of the National Tax and Customs Office (NAV) increased by a further 5 percent while the wages of the employees of county and capital level government offices increased too. The decision on the average annual wage increase of 5 percent of judicial employees between 2016 and 2018 was also approved. Thus, salaries of employees in the public administration, defence and compulsory social insurance sectors increased in total by 14 percent compared to the previous year.

The most important factor of the 8.8 percent wage increase of educational employees was the multiannual wage arrangement of lecturers and researchers in higher education which commenced in the Autumn of 2016. Besides this, in line with the life-career model of pedagogues in public education introduced in 2013 an average increase of 3.5 percent was also foreseen to 2017. The wage arrangement linked to the life-career model follows a typical pattern: a significant part of the wage increase concentrates on the first year while in the following years smaller increases are divided proportionally. The disadvantage of this system is, that once the wage arrangement process terminates the significant impact of the first-year wage increase is hardly noticeable anymore – as was also underlined by the reactions of the pedagogue society.

In 2016 and 2017 wage correction measures targeted primary health and social care sector employees. After several smaller corrections, the wage ar-

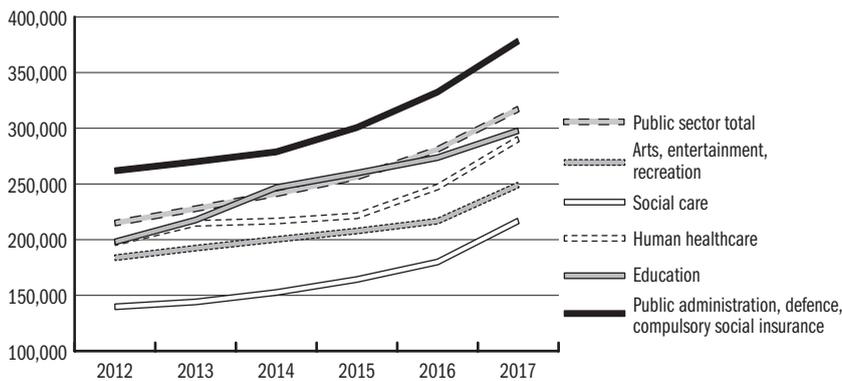
15 Intellectual occupations are strongly overrepresented in both sectors of the national economy, which partly explains the high average wage.

range started in the second half of 2016 and therefore – as a basis value – also influenced the wage increase. As from November 2017 the wage of medical specialists and hospital-pharmacists rose by 100 thousand HUF while colleagues without a specialist exam were eligible for a wage increase of 50 thousand HUF. Besides this, the earnings of health care professionals increased by 12 percent on average. The arrangement also abolished several smaller anomalies in certain grades (e.g. kindergarten teachers with a tertiary qualification came under the wage category of pedagogues). For a significant element of social sector employees, the wage arrangement however solely meant that their wage was increased to the amount of the guaranteed wage minimum.

The gross average salary of employees in the human health sector – without public workers – exceeded the wage level of the previous year by 17.4 percent, while the increase in the social care sector was 20.5 percent. From January 2017 20 thousand employees of the cultural sector were also provided with a wage increase of 15 percent on average, however in most cases this only achieved the amount of the wage minimum guaranteed by law.

The evolution of the gross salary of public sector employees in the most important sectors is illustrated by *Figure 8*.

Figure 8: The evolution of gross earnings in the public sector in the most important sectors of the national economy (without public workers, thousand HUF)



Source: CSO, Monthly labour report.

In 2017 the wage of employees in the non-profit sector – which role in terms of employment capacity remains below the two other sectors – increased by 10.6 percent compared to the previous year. (The data do not include public workers.) Employees of public institutions and non-profit organizations fulfilling state-delegated tasks whose salary decreased as a result of the changes of personal income and social contribution taxation in 2011 and 2012 are eligible to request a compensation payment (which is not included into the salary). As a result of further wage corrections and the change of the labour

force the number of employees eligible for compensation decreased from nearly 400 thousand in 2012 to approximately 100 thousand in 2017. The monthly average amount of the compensation was 8,700 HUF.

Besides wages other work income forms part of the employees' earnings too. Its main form is the so-called fringe benefits – in Hungary usually referred as cafeteria.¹⁶ In 2017 no major change was carried out in the rules on cafeteria benefits and the upper limits of the preferential taxation also remained unchanged. (200 thousand HUF/year for public sector employees and 450 thousand HUF/year for employees at other types of employers.) Based on this, employers did not have an interest in the rearrangement of its proportion within work income. This, and the fact that in some cases the source of the minimum wage increase was realized by cutting back cafeteria benefits at the same time resulted in the situation that the 7.6 percent growth rate of the other work income remained well below the level of the wage increase. This means that the proportion of other work income decreased within the total work income. The annual average of other work income of full-time employees was 186 thousand HUF in the business sector and 178 thousand HUF in the public sector, however there are large differences behind the average even in the case of employers in the same economic sector.

The amount of the net earnings depends on the current legislation on taxes and contributions. In 2017 the sole change influencing net salary substantially was that tax credit after two children further increased: parents raising two children could deduct their monthly tax-base by 100,000 HUF per child instead of 83,300 HUF per child in the previous year. Tax credits of parents with one and three or more children remained unchanged: parents raising one child could diminish their tax base by a monthly amount of 66,670 HUF while with three and more children by 220,000 HUF per child. *Table 5* presents the evolution of net and real earnings taking into account the family tax credit in 2017.

Table 5: Net and real earnings calculated with the family tax relief, 2017

Number of dependent children	Calculated net earnings/person/month (HUF)	Net earning	Real earning	Share of employees by household (percentage)
		Change compared to 2016		
0 child	193,659	12.6	10.0	54.1
1 child	201,999	12.8	10.2	22.4
2 children	230,815	13.7	11.1	17.1
3 children or more	249,235	11.7	9.0	6.4
National economy total	205,431	12.8	10.1	100.0

Source: Monthly employment report and micro simulation model with the use of the data of Household Budget and Life Circumstances Survey.

The growth rate of the net average wage without family tax credit was 12.9 percent – corresponding to the increase of the gross wage – therefore average

¹⁶ According to the Hungarian definitional framework work income means wage and other work income together which equals to the definition agreed in international practice.

net earnings in the national economy (without public workers) equalled 206,7 thousand HUF. Besides the 2.4 percent increase of the consumer price index the real value of salaries was 10.3 percent higher than in the previous year.

References

- HDB (2018): Periscope. Hungarian Development Bank, Budapest, July.
EC (2018): Country report – Hungary, 2018. March, 2018, European Commission. Brussels, 2018.3.7.SWD(2018) 215 final.

IN FOCUS:
WOMEN IN THE
LABOUR MARKET

Edited by
ÁGNES SZABÓ-MORVAI

INTRODUCTION

ÁGNES SZABÓ-MORVAI

This year, *In Focus* addresses the labour market situation of women, which has significance beyond the issue itself and affects at least three important socio-economic areas that present Hungarian policy formulation with challenges. The first is economic growth: if women's labour force participation rate reached that of men, Europe's GDP could be 12 per cent higher in the next 15 years (see Chapter 1). The second is low fertility, which is one of the most pressing problems of both Hungary and Europe: improvement in the labour market situation of women may also have a beneficial effect in this respect. Several papers (see Engelhardt *et al.* 2004, Brewster–Rindfuss, 2000, Rindfuss *et al.* 2003 and Castles 2003) report that fertility is higher in European countries where it is possible for women to reconcile work and family responsibilities and that policies supporting the reconciliation of the two clearly increased both fertility and the labour market participation of women (see for example Rønsen 2004, Boca, 1999, Febr–Ujhelyiova, 2013). The third serious problem is the issue of pension insurance arising from low fertility: how a shrinking working age population is able to support the increasing number of pensioners. Since women constitute a potentially deployable, highly qualified working age population, increasing their labour market participation would also be beneficial in this respect.

The labour market position of women according to international research (Chapter 1). The labour market participation of women has increased throughout Europe, nearing but not reaching the male participation rate. Improving female labour market participation was underpinned by their increasing educational attainment and rising wages but several other factors contributed to it, for example the spread of household appliances and the contraceptive pill. The employment rate of women has also been approaching that of men; however, the typical forms of their employment are dissimilar: for example, part-time employment is in several countries mostly characteristic of women. Occupational segregation, that is the concentration of men and women in differing occupations, has been increasingly characteristic of the European labour market. The gender wage gap has significantly decreased in Europe over the past decades, which is due to the improving educational attainment and increasing work experience of women. Most of the gender wage gap is attributable to the segregation of genders according to occupations, industries and sectors, with the largest pay gap in the highest wage categories, which implies that a lower percentage of women than men become senior managers.

Women in the Hungarian labour market (Chapter 2). Changes in the labour market situation of women in recent years are presented herein. The Subchapters discuss changes in, and the main reasons for, the gender gap in labour market participation, unemployment and wages. The employment rates of both women and men have considerably increased over the last 17 years since the turn of the millennium. The increase in jobs, public works schemes and employment abroad as well as the shrinking working age population have equally contributed to this increase. The gender wage gap decreased from the late 80s to the millennium: the average wage of women increased from 75 per cent of the average wage of men to about 90 per cent. Since the 2000s, the average wage differences have remained stable; however, the breakdown into qualification levels shows that the wage gap has grown among those with a tertiary degree and declined among those with lower qualifications. In 2016, 41 per cent of management positions were held by women: this proportion was higher in the public sector, ranging between 50 and 70 per cent, and lower in the business sector, varying between 10 and 50 per cent.

The situation of female workers in Europe and Hungary (Chapter 3). Concerning the employment of women, the post-communist countries of Europe were significantly ahead of the EU15 in the early 2000s. Although the global crisis of 2008 had a larger impact on the employment of women in these countries, they regained some of the advantage during the subsequent recovery. Differences across countries in the employment of women in the period 2001–2016 were due to general influences but demographics and policy also played a role. National policies, such as parental leave, tax regimes, flexible employment and the development of the childcare system determine the employment rate of women to a great extent. Nevertheless, the income level of women is lower than that of men throughout Europe: a man has 50–70 per cent more work and personal income than a woman on average. Additionally, income disparities are much higher among women. Living in a relationship abates this income disparity but the proportion of those living in a relationship is decreasing in Europe.

Human capital determining the labour market situation (Chapters 4–7). The main reason for the emergence of gender inequalities at birth and early childhood is that less than ideal circumstances put boys at a bigger disadvantage in later life – this has also been confirmed by research into the Hungarian abortion ban of 1974. As for educational achievement, the situation of women is good and has been improving in Hungary. The share of women in higher education has been higher than that of men every year since 1990 and the share of girls among early school leavers has always been lower than that of boys.

In competence testing PISA scores, there are average differences between Hungarian boys and girls; boys perform somewhat better in mathematics, while the advantage of girls in reading comprehension is smaller than the global average. Analysis shows that traditional education systems with more frequent grade repetition, earlier tracking and less prevalence of modern pedagogical methods are more likely to be advantageous for boys.

There is also a considerable difference between girls and boys in terms of study choices. Women with a secondary vocational qualification are less likely to find employment than men with the same qualification level and nearly half of this disadvantage is attributable to vocational choices. If everyone were employed in the occupation relevant to their vocational qualification, this would result in 16.5 per cent higher expected wages for men with a vocational school qualification and 1.7 per cent higher expected wages for men with an upper-secondary vocational school qualification than for women.

In addition to educational achievement, non-cognitive factors (personality traits) also determine labour market performance. There are considerable differences between boys and girls already in early childhood – usually to the advantage of girls – in the majority of non-cognitive skills, and these skill differences have a significant impact on their school and labour market performance. In recent years, non-cognitive skills have taken on added importance in the labour market, since the spread of automated, computer-controlled and, more recently, AI-controlled production and service systems resulted in the increase in tasks requiring non-cognitive skills, which cannot be replaced by technology. Non-cognitive skills also include preferences, which are impossible to measure experimentally. Furthermore, labour market participation is strongly affected by the health of individuals and therefore an overview of the state of health of Hungarian women is also provided.

Marriage, having children and work-life balance (Chapters 8–9). Differences between the employment of men and women are largely due to events surrounding the birth of their children. The labour supply of mothers with young children is considerably affected by the supply of nursery places and the association between the two at age three of their children is much stronger in Eastern Europe than in Western or Southern Europe. The employment and wages of women start diverging from those of men sooner than the birth of their children, in fact during the years preceding the birth. Unlike mothers in Western Europe, future mothers in Southern and Eastern Europe experience a greater wage disadvantage than women who do not give birth in the following few years. If paid work and household tasks are possible to coordinate better, women do not have to give up as much of their labour market performance because of having children. Coordination is supported by the share of housework between partners. In Southern and Eastern European

countries, including Hungary, women work one to two hours a day more on average in paid work and housework together, while the difference is negligible in Northern and Western Europe.

Discrimination and the institutional setting (Chapters 10–12). Discrimination against women is difficult to prove and measure. When looking at wage data from 1995–2016, measurable discrimination has decreased from 18 to 9–13 per cent and it probably affects older women more. The institutional setting also significantly influences the labour market situation of Hungarian women: the most important measures of the past 10 years include increasing the flexibility of childcare services, introducing the system of family tax credit and investment in nurseries. It should be noted that some employers support the development of family-friendly forms of employment for their employees, while others hinder the utilisation of legally guaranteed benefits. A key element of the institutional setting is the system of public works. Since 2014, women have participated in public works schemes in increasingly larger proportions than men. Pension laws promote the early retirement of women, which reduces their employment rates.

References

- BOCA, D. DEL (1999): Participation and Fertility Behavior of Italian Women: The Role of Market Rigidities. Centre for Household, Income, Labour and Demographic Economics. CHILD Working Papers, No. 10/2000.
- BREWSTER, K. L.–RINDFUSS, R. R. (2000): Fertility and Women's Employment in Industrialized Nations. *Annual Review of Sociology*, Vol. 26. No. 1. pp. 271–296.
- CASTLES, F. G. (2003): The World Turned Upside Down: Below Replacement Fertility, Changing Preferences and Family-Friendly Public Policy in 21 OECD Countries. *Journal of European Social Policy*, Vol. 13. No. 3. pp. 209–227.
- ENGELHARDT, H.–KÖGEL, T.–PRSKAWETZ, A. (2004): Fertility and Women's Employment Reconsidered: A Macro-Level Time-Series Analysis for Developed Countries, 1960–2000. *Population Studies*, Vol. 58. No. 1. pp. 109–20.
- FEHR, H.–UJHELYIOVA, D. (2013): Fertility, Female Labor Supply, and Family Policy. *German Economic Review*, Vol. 14. No. 2. pp. 138–165.
- RINDFUSS, R. R.–GUZZO, K. B.–MORGAN, S. P. (2003): The Changing Institutional Context of Low Fertility. *Population Research and Policy Review*, Vol. 22. No. 5. pp. 411–438.
- RØNSEN, M. (2004): Fertility and Family Policy in Norway. A Reflection on Trends and Possible Connections. *Demographic Research*, Vol. 10. No. 10. pp. 265–286.

1 WOMEN IN THE LABOUR MARKET

1.1 THE PROBLEM AND ITS BACKGROUND AND LITERATURE REVIEW

JÚLIA VARGA

The most remarkable labour market development in the developed countries in recent decades has been the increasing convergence of the labour market roles of men and women. The gender gap in labour market participation, employment, number of hours of paid and unpaid work, wages and qualification levels has significantly decreased but there are still considerable differences in the situation of the genders. A lower proportion of women participate in the labour force, they are overrepresented in part-time and temporary employment, in low paid industries and occupations, are less likely to be self-employed and more likely to be employees, are less likely to run their own businesses or work in senior positions, and differences between the wages of men and women still pertain.

Investigating the reasons for the gender gap in the labour market and looking for policy options which support the reduction of the differences are not only relevant for gender equality but also because these differences may have an impact on the economic growth prospects of countries. *Christiansen et al.* (2016) argue that aging European societies, where fertility growth is slowing down, narrowing the gender gap in the labour market may influence growth in two ways: on the one hand, by increasing labour supply, on the other, by improving the financial performance of businesses. The second assertion is based on the findings of an increasing number of recent studies on the impact of the presence of women in the boards or senior management on companies' performance. Research, carried out predominantly in the United States, shows that companies with women in the management have better financial performance (*Adler* 2001, *Carter et al.* 2003, 2010, *Erhardt et al.* 2003).

Eliminating the gender gap in the labour force participation rates would increase the European pool of labour by 6 per cent, according to the findings of *Christiansen et al.* (2016), but if the gender gap in work hours also disappeared, this growth would reach 15 per cent. According to *OECD* (2012) calculations, closing the gap in participation would enable a 12 per cent higher GDP in Europe over the next 15 years than the level achievable with the current participation rate. Other studies also reported a comparable impact on growth. *Cuberes-Teignier* (2014) and (2016) claim that as a result of a lower participation of women in the labour market and business, per capita income is 10 per cent lower than it would be in the case of equal participation. Increases in female participation and employment rates would not only bring

immediate economic benefits, but may also accelerate GDP growth in the medium and long term. According to findings of the OECD, a quarter of the economic growth achieved since 1995 has been due to reductions in the gender gap in employment rates (*OECD*, 2008, 2012).

In the majority of European countries the participation rate of women has been increasing since the 1970s, although at a different pace and starting from different levels. This continuous increase did not halt during the global economic crisis, which started in 2008–2009. As the average participation rate of men in the EU28 and EU15 did not change or only slightly changed during this period, the gender participation gap decreased.¹ In Hungary, similarly to other transitional countries, the female participation rate showed a different trajectory. In the communist era, female participation was higher than in more developed countries, then it suddenly plummeted at the beginning of the transition (from 76 per cent to 50 per cent between 1990 and 1995). After 2001 it started to grow again with some fluctuation but since the participation rate of men increased faster than that of women after 2012, the gender gap then started to widen after that date.²

At an individual level, age and educational attainment are the principal factors determining female labour market participation (see for example *Anderson–Levine*, 1999, *Attanasio et al.* 2008, *Thévenon*, 2009, *Jaumotte*, 2004, *Fortin*, 2005 and *Azmat et al.* 2006). Giving birth influences the labour market participation of women to different degrees over time and across countries and the differences are attributable to changes in family policy, attitudes and the labour market opportunities of women (*Del Boca et al.* 2009, *Connolly et al.* 2006 and *Vlasblom–Schipper*, 2006). Previously, marital status also used to have a major impact on the probability of employment of women but recent research shows that this effect has disappeared (*Cipollone et al.* 2013). However, the labour market status of partners does have an impact on female participation in most European countries: women with an unemployed partner are more likely to be active in the labour market (*Thévenon*, 2009), although the impact varies across countries and unemployment benefit systems (*Bredtmann et al.* 2014).

Family policy, subsidised child care and paid parental leave have a significant effect on the decisions of women with children concerning labour market participation (*Paull–Taylor*, 2002, *Jaumotte*, 2003, 2004, *Sánchez-Mangas–Sánchez-Marcos*, 2008, *Cipollone et al.* 2013 and *Del Boca et al.* 2009). Child care opportunities primarily influence the decisions of less qualified women, while part-time employment opportunities have more effect on the decisions of more qualified women.

There is extensive literature on the reasons for the increase in female participation. In addition to improving educational attainment and increasing wages, other factors also supported the labour market participation of women. Increasingly easy access to market substitutes for housework and the de-

1 The average participation rate of men aged 20–64 increased in the EU28 from 83.1 per cent to 83.5 per cent, and decreased in the EU15 from 84.2 per cent to 84 per cent between 2008 and 2017.

2 In 2017 the gender participation gap in the 20–64 age group was 15.3 percentage points in Hungary, while it was 11.5 percentage points in both the EU28 and the EU15 according to Eurostat data.

velopment and spread of household appliances (*Greenwood et al.* 2005) and contraceptive pills also contributed to the increase in the female labour supply (*Goldin–Katz*, 2002, *Bailey*, 2006, *Bailey et al.* 2012). Additionally, as a result of changes in the occupational composition of labour demand, the demand for office jobs, where women work in a higher proportion, has risen (*Goldin*, 1990, *Oppenheimer*, 1976). However, studies trying to explain the increase of female participation over time by changes in the usual variables (including wages, household incomes, educational attainment and other demographic variables) of traditional economic models, found that a large part of the change in participation cannot be explained in periods where the female participation rate grew more rapidly. This implies that changes in preferences and other unobserved factors may have an important role in the improving female participation (see *Blau–Kahn*, 2017).

Similarly to the narrowing gender gap in participation, the gap has also decreased between female and male employment rates over the past decades. Nevertheless, there are considerable differences in the forms of employment. In 2017, an average of 31.3 per cent of women and only 8.2 per cent of men aged 20–64 worked in part-time jobs in the EU-28.³ In Hungary, part-time employment of both genders was negligible: 2.6 per cent of men and 6.3 per cent of women aged 20–64 had a part-time job in 2017.

Occupational segregation has remained significant. An average of 30 per cent of women in the EU28 worked in sectors with a majority of female workers (education, healthcare, welfare) in 2014. Occupational segregation has increased since 2008, which has increasingly contributed to the continuing gender pay gap.

The gender pay gap is a popular subject of studies investigating the labour market opportunities of men and women because pay rates often indicate how individuals are valued economically and socially. Pay is also a composite indicator for an individual's educational attainment, qualifications, work experience and expected future participation. Most studies differentiate between the explained and unexplained elements of the pay gap. The first is due to the differences between the measurable characteristics of the genders, while the second is usually identified as labour market discrimination. However, when measuring the gender wage gap and interpreting results, controlling for the selection effects is an important and complex consideration (see *Lovász–Telegdy*, 2010, in Hungarian). When wage differences cannot be explained by productivity differences, discrimination seems plausible as an explanation (*Becker*, 1971, *Phelps*, 1972). Becker and other authors (for example *Arrow*, 1973) hypothesized that competition would reduce employers' discrimination, as the least discriminating firms, employing more women, would have lower production costs and thus push more discriminating firms out of the market. Several studies examined what impact increased competition has on

³ Eurostat.

the gender pay gap. *Black–Strahan* (2001) reported that following the deregulation of the financial sector (which they regarded as increased competition), the gender wage gap decreased in the banking sector. *Black–Brainerd* (2004) found that more exposure to international trade, that is increased competition, reduced the visible wage gap. *Lovász* (2010) relied on Hungarian data from the period between 1986 and 2003 to assess what proportion of the reduction in the wage gap is attributable to the impact of increased competition that diminishes discrimination. The results showed that increases in competition reduced employers' discrimination against women.

Studies on the gender wage gap applied various methods and diverse data sources, nevertheless some general trends are seen in their findings. One of the most important is that the gender wage gap has significantly narrowed in the developed countries over recent decades. A meta-analysis by *Weichselbaumer–Winter Ebmer* (2005) reviewed 263 studies on the gender wage gap from the period between the 1960s and the 1990s. The raw wage gap decreased from 65 per cent to 30 per cent between 1960 and 1990, primarily because female educational attainment and labour market experience improved. Although the studies applied varying methods and data, some of the findings were similar because the unexplained element of the wage gap did not decrease over time.

Blau–Kahn (2017) and *Goldin* (2014) presented similar results from the United States: in spite of a closing wage gap, the proportion of the unexplained element of the gap has not changed or even increased since the 1980s.

Reductions in the differences in educational attainment and the duration of work experience between the genders have contributed to the narrowing wage gap but the gender segregation according to occupations, industries and sectors has remained to be a determining factor. At present, occupational and sectoral segregation explains half of the wage gap in the United States (*Blau–Kahn*, 2017) and this is also the main reason for the gender wage gap in Europe (*Boll et al.* 2017). The importance of occupational – and in many cases sectoral – segregation was already researched by early studies on the gender wage gap (*Fuchs*, 1971, *Blinder*, 1973, *Oaxaca*, 1973, *Sawhill*, 1973, *Sorensen*, 1990, *Macpherson–Hirsch*, 1995). Women and men not only work in different occupations but at different levels of the hierarchy within an occupation.

In transitional countries, including Hungary, the gender wage gap significantly decreased after the political changeover (see for example *Kertesi–Köllő*, 1998, *Galasi*, 2000, *Brainerd*, 2000, *Newell–Reilly*, 2001). At that time it was primarily because low-qualified and less productive women were forced out of the labour market (*Hunt*, 2000) but also because competition curbed the discrimination of employers against women (*Lovász*, 2010). However, as for the start of the transitional period, *Csillag* (2007) reported that while in late communism gender segregation significantly contributed to the continuing pay gap, following the post-communist transition the line between female and

male occupations was more blurred and the overrepresentation of women in an occupation did not entail low wages.

In addition to studies on the average wages of men and women, more and more studies assessing the differences at the various points of wage distribution have been published in the past decade. *Blau–Kahn* (2017) presented that in the United States the wage gap is wider at the higher end of the wage distribution and decreases more slowly than at the lower end of the distribution. These findings are consistent with the results of other studies concerning the United States and other countries (*Kassenboehmer–Sinning*, 2014, *Arulampalam et al.* 2007). *Lovász* (2013), relying on Hungarian data, found that women lag behind more at the upper end of the wage distribution both in the public and the private sector, which supports the notion of the glass ceiling. Several studies report that women are less likely to be promoted than men of the same characteristics (*Blau–DeVaro*, 2007, *Cobb–Clark*, 2001, *McCue*, 1996, *Addison et al.* 2014). Whatever the reason for women to be less likely to work as senior managers, this fact also contributes to the continuing gender pay gap.

Some of the most recent studies have investigated the effects of gender differences in psychological characteristics and non-cognitive skills (*Heckman–Kautz*, 2012, *Nyhus–Pons*, 2011, *Cattan* 2014, *Fortin*, 2008, *Mueller–Plug*, 2006, *Semykina–Linz*, 2007). Findings showed that women are less likely than men to initiate wage bargaining or be willing to compete and they are more risk-averse, which may also contribute to the continuing gender wage gap or the choosing of a different discipline or occupation (for the summary of the relevant findings see for example *Bertrand*, 2011 and *Croson–Gneezy*, 2009). However, *Blau–Kahn* (2017) points out that, based on research results so far, psychological characteristics only explain a small proportion of the unexplained wage gap and that since these differences are based on experimental research, more evidence is needed to confirm that these differences also exist outside the research situation.

References

- ADDISON, J. T.–OZTURK, O.–WANG, S. (2014): The Role of Gender and Sector in Promotion and Pay Over a Career. *Journal of Human Capital*, Vol. 8. No. 3. pp. 280–317.
- ADLER, R. (2001): Women and Profits. *Harvard Business Review*, Vol. 79. No. 10. p. 30.
- ANDERSON, P.–LEVINE, P. (1999): Childcare and mothers' employment decisions, NBER Working Paper Series, No. 7058. National Bureau of Economic Research, Cambridge, MA.
- ARROW, K. J. (1973): The Theory of Discrimination. In: *Aschenfelter, O.–Rees, A.* (ed.): *Discrimination in Labor Markets*. Princeton University Press, Princeton.
- ARULAMPALAM, W.–BOOTH, A.L.–BRYAN, M. L. (2007): Is There a Glass Ceiling over Europe? Exploring the Gender Pay Gap across the Wage Distribution. *Industrial and Labor Relations Review*, Vol. 60. No. 2. pp. 163–186.
- ATTANASIO, O.–LOW, H.–SÁNCHEZ-MARCOS, V. (2008): Explaining changes in female labour supply in a life-cycle model. *American Economic Review*, Vol. 98. No. 4. pp. 1517–1551.
- AZMAT, G.–GUELLE, M.–MANNING, A. (2006): Gender gaps in unemployment rates in OECD countries. *Journal of Labor Economics*, Vol. 24. No. 1. pp. 1–37.
- BAILEY, M. (2006): More Power to the Pill. The Impact of Contraceptive Freedom on Women's Lifecycle Labor Supply. *Quarterly Journal of Economics*, Vol. 121. No. 1. pp. 289–320.
- BAILEY, M.–HERSHBEIN, J. B.–MILLER, A. R. (2012): The Opt-In Revolution? Contraception and the Gender Gap in Wages. *American Economic Journal: Applied*

- Economics, Vol. 4. No. 3. pp. 225–254.
- BECKER, G. S. (1971): *The Economics of Discrimination*. Second edition. University of Chicago Press, Chicago.
- BERTRAND, M. (2011): New Perspectives on Gender. In: *Ashenfelter, O. C.,–David Card, D.* (ed.): *Handbook of Labor Economics*, Vol. 4. Part B. Elsevier, Amsterdam, pp. 1543–1590.
- BLACK, S. E.–STRAHAN, P. E. (2001): The Division of Spoils. Rent-Sharing and Discrimination in a Regulated Industry. *The American Economic Review*, Vol. 91. No. 4. pp. 814–831.
- BLACK, S.–BRAINERD, E. (2004): Importing Equality? The Effects of Globalization on Gender Discrimination. *Industrial Labor Relations Review*, Vol. 57. No. 4. pp. 540–559.
- BLAU, F. D.–DEVARO, J. (2007): New Evidence on Gender Differences in Promotion Rates: An Empirical Analysis of a Sample of New Hires. *Industrial Relations*, Vol. 46. No. 3. pp. 511–550.
- BLAU, F. D.–KAHN, L. (2017): The Gender Wage Gap. Extent, Trends, and Explanations. *Journal of Economic Literature*, Vol. 55. No. 3. pp. 789–865.
- BLINDER, A. (1973): Wage Discrimination. Reduced Form and Structural Estimates. *Journal of Human Resources*, Vol. 8. No. 4. pp. 436–455.
- BOLL, C.–JAHN, M.–LAGEMANN, A. (2018): The gender lifetime earnings gap – exploring gendered pay from the life course perspective. *Journal of Income Distribution*, Vol. 25. No. 1. pp.1–53.
- BRAINERD, E. (2000): Women in Transition: Changes in Gender Wage Differentials in Eastern Europe and the Former Soviet Union. *Industrial & Labor Relations Review*, Vol. 54. No. 1. pp. 138–162.
- BREDTMANN, J.–OTTEN, S.–RULFF, C. (2014): Husband’s unemployment and wife’s labor supply. The added worker effect across Europe. *Ruhr Economic Paper*, No. 484. Ruhr University Bochum.
- CARTER, D. A.–D’SOUZA, F.–SIMKINS, B. J.–SIMPSON, W. G. (2010): The Gender and Ethnic Diversity of US Boards and Board Committees and Firm Financial Performance. *Corporate Governance: An International Review*, Vol. 18. No. 5. pp. 396–414.
- CARTER, D. A.–SIMKINS, B. J.–SIMPSON, W. G. (2003): Corporate Governance, Board Diversity, and Firm Value. *Financial Review*, Vol. 38. No. 1. pp. 33–53.
- CATTAN, S. (2014): *Psychological Traits and the Gender Wage Gap*. Institute for Fiscal Studies. Manuscript.
- CHRISTIANSEN, L.–LIN, H.–PEREIRA, J.–TOPALOVA, P.–TURK, R. (2016): Gender Diversity in Senior Positions and Firm Performance. Evidence from Europe IMF Working Paper, Vol. 16. No. 50. pp. 1–29.
- CIPOLLONE, A.–PATACCHINI, E.–VALLANTI, G. (2014): Female labour market participation in Europe: Novel evidence on trends and shaping factors. IZA Journal of Economic Labour Studies, Discussion Paper, No. 7710.
- COBB-CLARK, D. A. (2001): Getting Ahead: The Determinants of and Payoffs to Internal Promotion for Young U.S. Men and Women. In: *Polachek, S. W.* (ed.): *Research in Labor Economics*. Vol. 20. Elsevier Science, JAI, Amsterdam, pp. 339–372.
- CONNOLLY, S.–ALDRICH, M.–O’BRIEN, M.–SPEIGHT, S.–POOLE, E. (2016): Britain’s slow movement to a gender egalitarian equilibrium: parents and employment in the UK 2001–13. *Work, Employment and Society*, Vol. 30. No. 5. pp. 838–857.
- CROSON, R.–GNEEZY, U. (2009): Gender Differences in Preferences. *Journal of Economic Literature*, Vol. 47. No. 2. pp. 448–474.
- CUBERES, D.–TEIGNIER, M. (2014): Gender Inequality and Economic Growth. *A Critical Review Journal of International Development*, Vol. 26. No. 2. pp. 260–276.
- CUBERES, D.–TEIGNIER, M. (2016): Aggregate Effects of Gender Gaps in the Labor Market. A Quantitative Estimate. *Journal of Human Capital*, Vol. 10. No. 1. pp. 1–32.
- CSILLAG, M. (2007): *‘Female work’ and the gender wage gap from late socialism to today*. In: *Fazekas, K.–Kézdi, G.* (eds.): *The Hungarian Labour Market, 2007*. Centre for Economic and Regional Studies, Hungarian Academy Of Sciences & National Employment Non-Profit Public Company Ltd, Budapest, 2007, pp. 94–103.
- DEL BOCA, D.–PASQUA, S.–PRONZATO, C. (2009): Motherhood and market work decisions in institutional context. A European perspective. *Oxford Economic Papers*, Vol. 61. Suppl. 1. pp. 147–171.
- ERHARDT, N. L.–WERBEL, J. D.–SHRADER, C. B. (2003): Board of Director Diversity and Firm Financial Performance. *Corporate Governance: An International Review*, Vol. 11. No. 2. pp.102–111.
- FORTIN, N. M. (2005): Gender role attitudes and the labour market outcomes of women across OECD countries. *Oxford Review of Economic Policy*, Vol. 21. No. 3. pp. 416–438.
- FORTIN, N. M. (2008): The Gender Wage Gap Among Young Adults in the United States. The Importance of Money Versus People. *Journal of Human Resources*, Vol. 43. No. 4. pp. 884–918.
- FUCHS, V. R. (2003): *A nemek közötti gazdasági egyenlőtlenségekről. (On economic gender inequalities)* Nemzeti Tankönyvkiadó. Budapest.
- GALASI, P. (2000): *Női–férfi kereseti különbségek Magyarországon 1986–1996. (The gender wage gap in Hungary 1986–1996)* Országos Munkaügyi Kutató és Módszertani Központ, Budapest.
- GOLDIN, C. (1990): *Understanding the Gender Gap. An Economic History of American Women*. New York, Oxford University Press.

- GOLDIN, C. (2014): A Grand Gender Convergence. Its Last Chapter. *American Economic Review*, Vol. 104. No. 4. pp. 1091–1119.
- GOLDIN, C.–KATZ, L. F. (2002): The Power of the Pill: Oral Contraceptives and Women's Career and Marriage Decisions. *Journal of Political Economy*, Vol. 110. No. 4. pp. 730–770.
- GREENWOOD, J.–SESHADRI, A.–YORUKOGLU, M. (2005): Engines of Liberation. *Review of Economic Studies*, Vol. 72. No. 1. pp. 109–133.
- HECKMAN, J.–KAUTZ, T. (2012): Hard Evidence on Soft Skills. Adam Smith Lecture. *Labour Economics*, Vol. 19. No. 4. pp. 451–464.
- HUNT, J. (2002): The Transition in East Germany: When is a Ten-Point Fall in the Gender Wage Gap Bad News? *Journal of Labor Economics*, Vol. 20. No. 1. pp. 148–169.
- JAUMOTTE, F. (2003): Female labour force participation: Past trends and main determinants in OECD countries. OECD Economics Department Working Papers No. 376. OECD, Paris.
- JAUMOTTE, F. (2004): Labour force participation of women: Empirical evidence on the role of policy and other determinants in OECD countries. OECD Economic Studies, No. 37. OECD, Paris.
- KASSENBOEHMER, S. C.–SINNING, M. G. (2014): Distributional Changes in the Gender Wage Gap. *ILR Review*, Vol. 67. No. 2. pp. 335–361.
- KERTESI, G.–KÖLLŐ, J. (1998) Regionális munkanélküliség és bérek az átmenet éveiben. II. rész. (Regional unemployment and wages in the transitional years. Part 2) *Közgazdasági Szemle*, Vol. 45. No. 7–8. pp. 621–652.
- LOVÁSZ, A. (2010): [The effect of competition on the gender wage gap in Hungary, 1986–2003](#). In: *The Hungarian Labour Market, 2010*. Centre for Economic and Regional Studies, Hungarian Academy Of Sciences & National Employment Non-Profit Public Company Ltd, Budapest, 2010, pp. 94–103.
- LOVÁSZ, A. (2013): Jobbak a nők esélyei a közszférában? A nők és férfiak bérei közötti különbség és a foglalkozási szegregáció vizsgálata a köz- és magánszférában. (Do women have better chances in the public sector? The gender wage gap and occupational segregation in the public and private sectors) *Közgazdasági Szemle*, Vol. 60. No. 7–8. pp. 151–160.
- LOVÁSZ, A.–TELEGDY, Á. (2010): [Labour market discrimination – types, measurement issues, empirical solutions](#). In: *The Hungarian Labour Market, 2014*. Centre for Economic and Regional Studies, Hungarian Academy Of Sciences & National Employment Non-Profit Public Company Ltd, Budapest, 2010, pp. 46–67.
- MACPHERSON, D. A.–HIRSCH, B. T. (1995): Wages and Gender Composition, Why Do Women's Jobs Pay Less? *Journal of Labor Economics*, Vol. 13. No. 3. pp. 426–471.
- MCCUE, K. (1996): Promotions and Wage Growth. *Journal of Labor Economics*, Vol. 14. No. 2. pp. 175–209.
- MUELLER, G.–PLUG, E. J. S. (2006): Earnings Effects of Personality. *Industrial and Labor Relations Review*, Vol. 60. No. 1. pp. 3–20.
- NEWELL, A.–REILLY, B. (2001): The gender pay gap in the transition from communism. Some empirical evidence. *Economic Systems*, Vol. 25. No. 4. pp. 287–304.
- NYHUS, E. K.–PONS, E. (2012): Personality and the Gender Wage Gap. *Applied Economics*, Vol. 44. No. 1. pp. 105–118.
- OAXACA, R. (1973): Male-Female Wage Differences in Urban Labor Markets. *International Economic Review*, Vol. 14. No. 3. pp. 693–709.
- OECD (2008): Gender and sustainable development. Maximising the economic, social and environmental role of women. OECD, Paris.
- OECD (2012): Closing the gender gap. Act now. OECD, Paris.
- OPENHEIMER, V. (1976): The Female Labor Force in the United States. Demographic and Economic Factors Governing Its Growth and Changing Composition. Greenwood Press, Westport, CT.
- PAULL, G.–TAYLOR, J. (2002): Mothers' employment and childcare use in Britain. Institute for Fiscal Studies, London.
- PHELPS, E. S. [1972]: The Statistical Theory of Racism and Sexism. *American Economic Review*, Vol. 62. No. 4. pp. 659–666.
- SÁNCHEZ-MANGAS, R.–SÁNCHEZ-MARCOS, V. (2008): Balancing family and work. The effect of cash benefits for working mothers. *Labor Economics*, Vol. 15. No. 6. pp. 1127–1142.
- SAWHILL, I. V. (1973): The Economics of Discrimination against Women: Some New Findings. *Journal of Human Resources*, Vol. 8. No. 3. pp. 383–396.
- SEMYKINA, A.–LINZ, S. J. (2007): Gender Differences in Personality and Earnings: Evidence from Russia. *Journal of Economic Psychology*, Vol. 28. No. 3. pp. 387–410.
- SORENSEN, E. (1990): The Crowding Hypothesis and Comparable Worth Issue. *Journal of Human Resources*, Vol. 25. No. 1. pp. 55–89.
- THÉVENON, O. (2009): Increased Women's Labour Force Participation in Europe. Progress in the Work-Life Balance or Polarization of Behaviours? *Population*, Vol. 64. No. 2. pp. 235–272.
- VLASBLOM, J. D.–SCHIPPERS, J. (2006): Changing dynamics in female employment around childbirth. *Work, Employment and Society*, Vol. 20. No. 2. pp. 329–347.
- WEICHELBAUMER, D.–WINTER-EBMER, R. (2005): A Meta-Analysis of the International Gender Wage Gap. *Journal of Economic Surveys*, Vol. 19. No. 3. pp. 479–511.

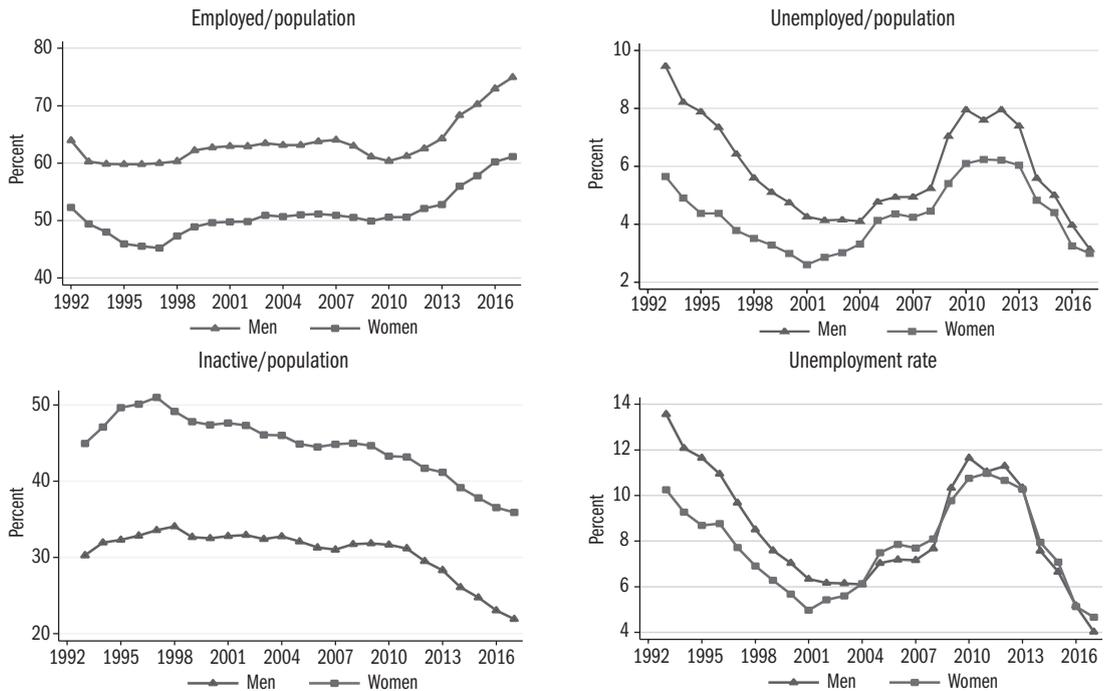
2 WOMEN IN THE HUNGARIAN LABOUR MARKET - TRENDS IN THE PAST TEN YEARS

2.1 LABOUR FORCE PARTICIPATION, EMPLOYMENT, UNEMPLOYMENT AND WAGES

JÁNOS KÖLLŐ

The key time series of male and female labour market participation are presented in *Figure 2.1.1*, using data and definitions from the Labour Force Survey (LFS) of the Hungarian Central Statistical Office (CSO). The two top panels and the bottom left panel of the Figure show the share of those in employment, unemployment and inactivity in the population aged 15–64, while the bottom right panel shows the evolution of the unemployment rate (i.e. the share of the unemployed in the labour force).

Figure 2.1.1: Selected indicators of employment, unemployment and inactivity in the population aged 15–64, 1992–2016 (percentage)



Note: The categories reflect the CSO classification.

Employed: a person who undertook at least an hour of gainful work during the week prior to the survey, or was temporarily away from their job.

Unemployed: a person who has no job but searched for a job actively during the month prior to the survey and would be able to start a job if he/she found one.

Inactive: neither employed, nor unemployed

Unemployment rate: unemployed/(employed + unemployed)

The points marked on the curves indicate the unweighted average of the four quarterly observations in the year concerned. The data on employed persons include public works participants and those working abroad.

Source: *LFS*.

After the transformational recession, the *employment to population ratio* followed an upward trend, which was interrupted by the global financial and economic crisis, especially in the case of men, who worked in the private sector in a higher proportion, including some industries highly affected by the crisis (for example the motor industry, construction, and transportation). By 2013 the employment rate of both genders had returned to the original trend, then started to grow rapidly, although this was largely due to the expansion of the public works scheme, increase in employment abroad and the shrinking working-age population of Hungary (i.e. the population in the denominator of the employment ratio). The long-term impact of these elements between 2000 and 2017 is presented in *Table 2.1.1*.

Table 2.1.1: The contribution of public works, employment abroad and population decline to the increase in the employment rate between 2000 and the first quarter of 2017

	Employment rate	Employment including public works and employment abroad	Employment without public works and employment abroad	Employees in domestic market jobs as a percentage of the total of those in employment	Population aged 15–64 living in Hungary
	(percentage)	(thousand persons)	(thousand persons)	(percentage)	(thousand persons)
Men					
2000	61.7	2057	2037	99.0	3334
2017	73.7	2352	2174	92.4	3188
Change (logarithmic difference)	0.178	0.134	0.065	-0.068	-0.045
Women					
2000	49.2	1722	1713	99.4	3500
2017	60.5	1970	1836	93.1	3253
Change (logarithmic difference)	0.207	0.134	0.069	-0.065	-0.073

Source: *LFS*, 2000 and 2017 Q1.

Employment rate (e) is the ratio of employed persons (E) to the working-age population (P) ($e = E/P$). Part $(1 - a)$ of employment represents market jobs in Hungary, while part a represents public works and employment abroad. Hungarian, ‘market-based’ employment, excluding public works participation or working abroad is: $E_k = (1 - a)E$. Relying on the definitions above, the employment rate is expressed as formula (1) in a reference period (0 in superscript) and in the period considered (1 in superscript). In this calculation the reference period is the first quarter of 2000 (data on public works and employment abroad have been available since then), while the period considered

is the first quarter of 2017. Equation (2), based on the definitions, quantifies the contribution of the changes (measured on a logarithmic scale) that took place in Hungarian, market-based employment, the joint importance of public works and employment abroad as well as population size.

$$e^1 = \frac{E^1}{P^1} = \frac{E_k^1 / (1-a^1)}{P^1} \quad \text{and} \quad e^0 = \frac{E^0}{P^0} = \frac{E_k^0 / (1-a^0)}{P^0} \quad (1)$$

$$\Delta \ln e = \Delta \ln E_k - \Delta \ln(1-a) - \Delta \ln P \quad (2)$$

It is apparent that the three components have been contributing roughly equally to the growing employment rate since the millennium. It is only the contribution of population decline (aging out of the working age population) which is different for men and women.

As for *Figure 2.1.1*, the top right panel reveals that at the low point of the transformational recession 8–10 per cent of working-age men were *unemployed*. This percentage was considerably lower, 4–6 per cent, in the case of women. The difference decreased steadily except for the years of the 2008–2010 crisis and has by now essentially disappeared: the unemployment to population ratio was 3 per cent in 2017 for both genders.

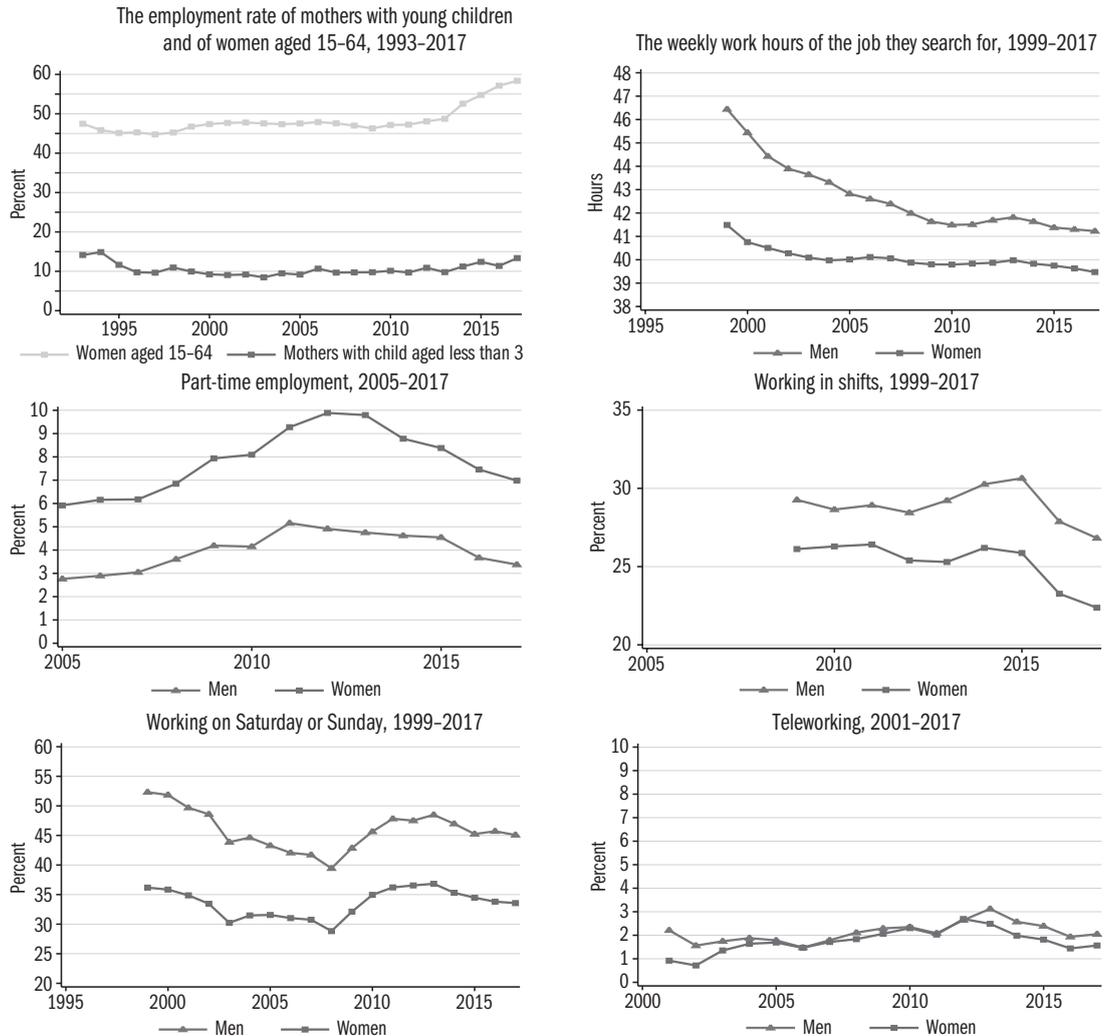
The share of *inactive* people grew in both genders until the late 90s: at that time one third of working-age men and one half of working-age women neither worked nor looked for a job. The gradual increase of the retirement age, regulations restricting disability retirement and those supporting employment during parental leave and motivating the registered unemployed to search for a job significantly reduced inactivity among men and women, although somewhat more in the case of men. In 2017, less than a quarter of working-age men and slightly more than a third of women was inactive according to CSO surveys (*Figure 2.1.1*, bottom left panel).

It must be noted that these surveys regard full time pupils and college or university students as inactive. In the first quarter of 2017, 46 per cent of inactive working-age men and 28 per cent of women were in fact in education. The percentage of men not in education, employment and not searching for a job was ‘only’ 14, while that of women was 28 percent (23 percent if women on parental leave are excluded).

The bottom right panel of *Figure 2.1.1* shows the evolution of the *unemployment rate*, the most often used labour market indicator. The rate (u) shows the proportion of the unemployed as a percentage of the labour force, which consists of those in employment (E) and the unemployed (U), that is $u = U / (E + U)$. This indicator has shown no significant difference for men and women since 2004. Compared to the males, the female unemployment rate is reduced by the lower number of unemployed among women and it is increased by the lower number of women in work. The equality of the rates hides major inequalities between their components.

Figure 2.1.2 highlights some of the characteristics of female employment. It is well-known and also analysed in the later chapters of *In Focus* that an extremely low share of mothers with young children are in employment by international comparison. The employment rate of mothers with a child aged less than three years has been around 10 per cent since the mid-90s and has hardly increased as a result of regulations permitting employment when on parental leave.

Figure 2.1.2: Some characteristics of male and female employment



Note: A mother with a young child is someone who has at least one child aged less than three years. Working on Saturday or Sunday: at least occasionally. The periods considered are limited by the availability of data.

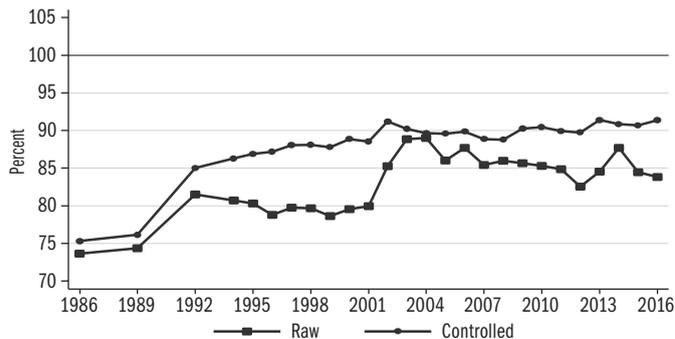
Source: LFS.

The large majority of women search for full-time jobs: they seek jobs with working hours of nearly 40 hours a week on average and this lags only one and a half hours behind the average time for men. In spite of this, the share of women employed part-time is double the share of men (7 and 3.2 per cent in 2017 respectively). It indicates the additional constraints on female employment that a much smaller proportion of women work shifts (26 versus 36 per cent in 2017 respectively) or at weekends (34 versus 45 per cent at least occasionally in 2017 respectively). Despite the difficulties of working long hours away from home, the share of those teleworking still does not exceed 2 per cent and it is slightly *lower* among women than among men.

Remarkably, in the 15–25-year periods concerned, differences between the genders or differences between women with and without young children changed very little. Only the number of work hours of jobs sought by men and women has converged – in other cases the curves are parallel.

Changes in the *gender wage gap* are presented in *Figure 2.1.3*, using Wage Survey data from the period between 1986 and 2016. In 1986, women earned less than 75 per cent of the average wages of men. The raw difference continuously decreased until 2001, and especially in the period 2002–2004. Then the disadvantage of women started to increase and stabilized at a level of about 15 per cent after 2007.

Figure 2.1.3: The wages of women compared to those of men, 1986–2016 (percentage)



Wages: gross monthly wages in May, plus 1/12 of the non-recurring income of the previous year, minus the non-recurring income received in May.

Raw: earnings of women, taking men's earnings as 100.

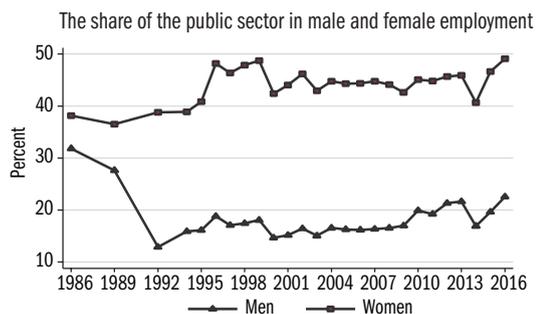
Controlled: Earnings of women compared to those of men, with identical labour market experience, educational attainment and sector.

The difference was calculated by a regression equation with the dependent variable being the logarithm of wages, while the independent variables are gender, labour market experience and its square, the estimated number of years spent in education and a binary variable representing the private sector. Instead of the parameter *b* for genders, figures are given in percentage term (e^b). All parameters are significant at the 0.01 level, the confidence intervals are so narrow that they would not be visible in the graph.

Source: Wage Surveys, 1986, 1989, 1992, 1994–2016.

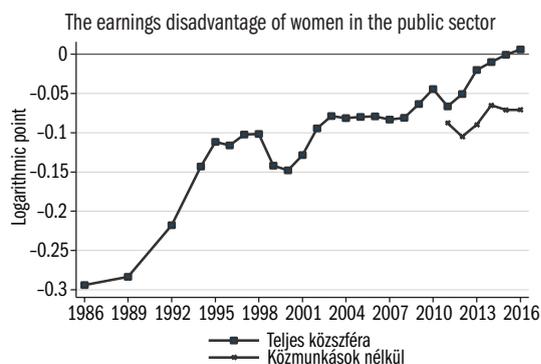
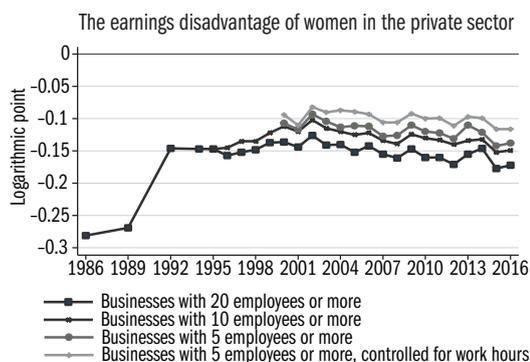
The ‘controlled’ curve of the Figure presents the estimated earnings disadvantage of women when labour market experience, educational attainment and sector (private vs public) are controlled for. As for the method of calculation, see the Notes to *Figure 2.1.3*. The difference calculated in this way decreased until 2001 and then stabilised at 10 percentage points. To understand this unique dynamic and the difference between the raw values and those controlled for basic characteristics, one should consider the wage differences between the public and private sector and the gender gap within sectors. Changes in the gender wage gap are highly influenced by the facts that a) the public sector plays a more significant role in female than in male employment, b) the wage level of the public sector has fluctuated excessively in the past thirty years, c) the earnings disadvantage of women was different *within* the public and the private sectors after 1992 and changed differently over time. The temporal variations in these factors are presented in *Figure 2.1.4*.

Figure 2.1.4: The importance of the public sector in female employment and wages, 1986–2016



The survey includes workers of state budgetary institutions prior to 1992 and public servants, civil servants, judges, prosecutors and public works participants after 1992 in the category of public sector employees.

Sample: public sector and enterprises with 20 employees or more. The curve shows the earnings disadvantage of workers in the public sector compared to the private sector, comparing employees of the same age and educational attainment, given in logarithmic scale.



Note: The curves show the earnings disadvantage of women, comparing employees of the same age and educational attainment, given in logarithmic scale, in the relevant populations.

Source: Wage Surveys, 1986, 1989, 1992, 1994–2016.

The top left panel of the Figure shows that the share of the public sector in female employment is much larger than in male employment and it increased over time almost continuously, from below 40 per cent to nearly 50 per cent. Its share in male employment fell from 30 per cent before the political change-over to below 12 per cent, and at present (in spite of a continuous increase after 1992) only slightly exceeds 20 per cent.

This disparity would not weigh much if the wage level of the public sector had not fluctuated so excessively compared to the private sector in the past thirty years. As shown in the top right panel, the earnings disadvantage of public sector workers, which was roughly 10 per cent before the fall of state socialism, increased to 30 per cent. As a result of increases in the minimum wage in 2001–2002 and increases in the salary of civil servants and public employees before and after the general elections in 2002, it fell to only 1–2 per cent; however, after continuous deterioration, it has now exceeded 40 per cent. This fluctuation, has necessarily affected the earnings position of an average woman compared to an average man.

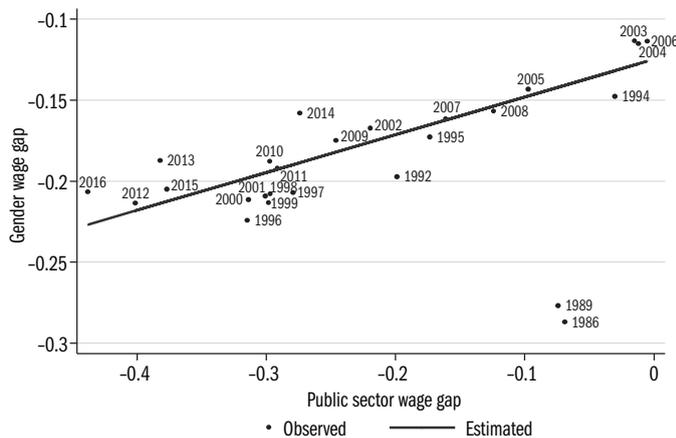
The situation is further complicated by the fact that the earnings disadvantage of women has always been different *within* the two main sectors of the economy. The graphs in the bottom left panel indicate that the earnings disadvantage of women in the private sector (controlled for age and educational attainment) fell from nearly 30 per cent to 15 per cent since the start of the transition; however, their situation did not improve afterwards and even worsened after the millennium.

The *extent* of the disadvantage depends on the types of businesses assessed. The Wage Survey only covered firms with 20 or more employees until 1995. The size limit was lowered to 10 persons in that year and to 5 employees in 2000. The gender gap in the hours worked also took on more importance after the millennium. Its impact has been measured since 1999. Apparently, the disadvantage of women is the greatest at medium-sized and large enterprises with at least 20 employees, currently about 17 per cent, while in the total population of businesses with more than 5 employees it is only 12 per cent even when controlled for work hours.

While in the private sector the wage gap between men and women of the same age and educational attainment was in the range of 10–15 per cent after the millennium, in the public sector it has continuously decreased since 1986 (with occasional slowdowns) and has by now completely disappeared – as long as employment in public works is considered part of the public sector (bottom right panel). Luckily, public works participants have been identified in the Wage Survey since 2011. If including market-based jobs only, the disadvantage of women still amounts to 6–7 per cent, which is substantially lower than the initial value and about half of that in the private sector, nevertheless not zero.

Figure 2.1.5 presents the impact of wage fluctuations in the public sector on the situation of women. The horizontal axis of the Figure shows by how much a public sector employee earned less than a private sector employee with equal gender, labour market experience and educational attainment. The vertical axis indicates the ‘general’ earnings disadvantage of women compared to men, irrespective of sector, holding labour market experience and educational attainment constant.

Figure 2.1.5: The earnings disadvantage of women (both sectors) and of public sector employees (both genders), 1986–2016, logarithmic point



Sample: public sector and enterprises with 20 employees or more. The curves show the earnings disadvantage of women and public sector employees, comparing employees of the same age and educational attainment, given in logarithmic scale.

Explanatory variables of the equation for women are: gender, labour market experience and its square, number of years spent in education.

Explanatory variables of the equation for the public sector: public sector, labour market experience and its square, number of years spent in education.

Regressing the earnings disadvantage of women (W) to earnings disadvantage in the public sector (P) (in 1992–2016) gives: $W = 0.23P - 0.12$, $r^2 = 0.77$. The standard error of N is 0.03, the t -value is 8.9. The standard deviation of P is 0.131, that of W is 0.043.

Source: Wage Surveys.

If the size of the two sectors and the share and the earnings disadvantage of women within the sectors did not change, there would be a deterministic relationship between the relative wage level of the public sector and the general gender wage gap. Since both the share and earnings disadvantage of women changed over the years, the relationship is not function-like but the points are placed on a well-fitting curve after 1992: the situation of women as an employee group improved substantially if the wage level of the public sector increased and it deteriorated in the periods of budgetary cuts.

What is remarkable is not the *presence* of this trivial relationship but its *strength*. The slope of the line connecting the points in the period 1992–2016

is 0.23: a unit change in the relative wage level of the public sector results in an approximately one-fourth unit change in the relative wages of women. Taking into account the standard deviation of the two earnings disadvantage indicators (see the notes to the Figure), a one standard deviation difference in the earnings disadvantage of the public sector is associated with a 0.7 standard deviation difference in the earnings disadvantage of women.

The budget cuts in the public sector and the fact that the wages of public servants did not follow (sufficiently) the wage growth accelerating after 2013 in the private sector played a key role in the halt of an improvement in the earnings position of women. The earnings position of the average woman was worse in 2016 than in 1992.

As pointed out in one of the studies (Köllő, 2014) of The Hungarian Labour Market 2014, the excessive fluctuation of the relative wage level of the public sector in Hungary, and the resulting volatility of the gender wage gap, is anything but natural. Such fluctuation of the wage difference between sectors was unprecedented in Europe prior to the financial and economic crisis starting in 2008. Even afterwards it was only in Romania that a comparable decrease in disadvantage took place (Vasile, 2012). The difference between the minimum and maximum values of the wage difference did not exceed 6.5 percentage points between 1993 and 2000 in Europe except Greece and France (Campos–Centeno 2012), while in Hungary it was 18.2 percentage points at that time and 29.5 percentage points in the next eight years. It must be also noted that the wage advantage in Greece increased monotonously in the 12.2 percentage point range, while in France the wage gap varied between –3 and +8 percentage points. Rises and falls comparable to the Hungarian ones – and the extreme earnings disadvantage at the low points – are uncommon in developed market economies.¹

¹ At the same time, Gimpelson–Lukiyanova (2009) reports a comparable earnings disadvantage (26–28 percentage points according to their regression estimation) in the Russian public sector in the early 2000s.

References

- CAMPOS, M. M.–CENTENO, M. (2012): Public-private wage gaps in the period prior to the adoption of the Euro: An application based on longitudinal data. Banco de Portugal, WP 1/2012. Lisbon.
- GIMPELSON, V.–LUKIYANOVA, A. (2009): Are public sector workers underpaid in Russia? Estimating the public-private wage gap. IZA discussion papers, No. 3941.
- KÖLLŐ, J. (2014): *What do we know about public sector employment?* In: Fazekas, K.–Neumann, L. (eds.): The Hungarian Labour Market, 2014. Centre for Economic and Regional Studies, Hungarian Academy Of Sciences & National Employment Non-Profit Public Company Ltd, Budapest, pp. 47–54.
- VASILE, V. (2012): Continuous flow of public sector reforms in Romania. In: Vaughan-Whitehead, D. (ed.): Adjustments in the Public Sector in Europe: Scope, Effects and Policy Issues, ILO, Geneva.

2.2 IS THERE A GLASS CEILING IN HUNGARY? GENDER WAGE GAP BY EDUCATIONAL ATTAINMENT

ANNA ADAMECZ-VÖLGYI

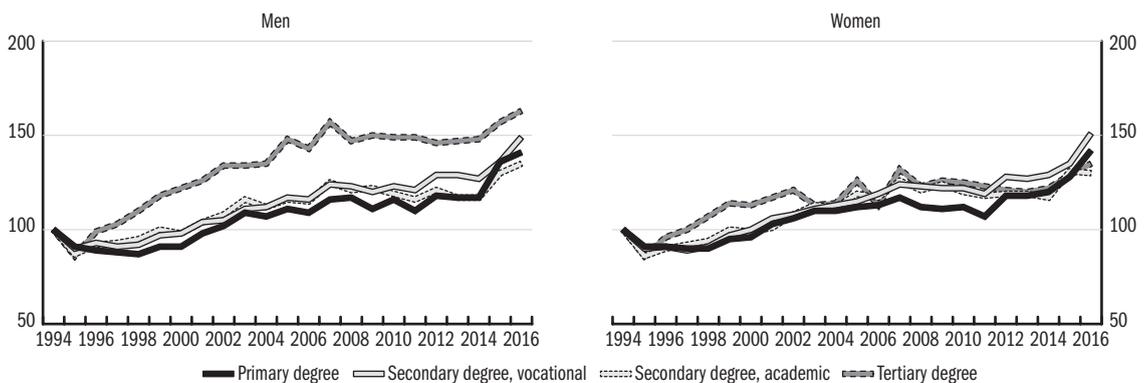
The average gender wage gap has been decreasing in Hungary since the beginning of the 1990's. Investigating the gender wage gap by educational attainment, however, reveals that it is decreasing only among those who have at most a secondary degree while it is still increasing among those having a tertiary degree. This phenomenon might be due to the *glass ceiling*: while the gender wage gap is decreasing in lower-level positions, above a certain level of labour market success the gender wage gap is widening. The *glass ceiling* metaphor refers to an invisible barrier in the corporate ladder that holds women (and other discriminated groups of employees) back from career advancement.

Research question

Earlier empirical research has focused on the average gender wage gap and aimed at identifying its causes. This chapter looks at the distribution of the gender wage gap by looking at whether its magnitude depends on educational attainment. We use the individual-level wage data of the Structure of Earnings (Béttarifa) survey from the private sector.

Figure 2.2.1 shows the evolution of average monthly wages of men and women in the last 20 years relative to 1994, net of consumer price inflation. Strikingly, the real wage growth of graduated men has been far above the real wage growth of both less-than-tertiary-educated men and women of all educational attainment levels, including graduated women as well.

Figure 2.2.1: The evolution of real wages in the private sector, 1994–2016 (1994 = 100)



Sample: full-time employees of firms with more than 20 workers in the private sector.

Vertical axis: real wage index relative to 1994. Real wages are constructed using the consumer price index of all years published by the Hungarian National Statistical Office.

Source: Own estimation using the Structure of Earnings (Béttarifa) survey.

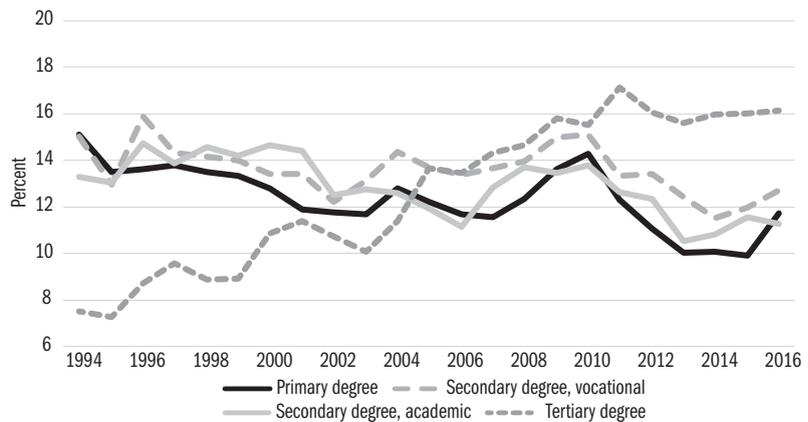
Wage differences among genders might occur as a result of women being more likely to work in occupations or at companies that offer lower wages on average to everybody. Thus, in the next section, we are looking at the evolution of the gender wage gap net of the effects of women and men working in positions and companies that are different in terms of their labour market returns. This *conditional gender wage gap* is considered as the upper limit of labour market discrimination.

Conditional gender wage gap by educational attainment

We estimate the conditional gender wage gap using Mincerian wage models. Based on *Pendakur–Woodcock (2010)*, we are investigating within-firm wage gaps that capture wage differences of men and women working at the same firms, in the same positions, who are of the same age and have the same level of educational attainment.¹ The effect of age is modelled using a second-degree polynomial while positions are coded using 4-digit occupation (FEOR) categories. We are also controlling for whether individuals are new entrants at the firm, and, for the difference between the share of graduated women and men within occupations and sectors as a proxy for the increasing relative supply of graduated women over time. We estimate separate equations in all years between 1994 and 2016, and, our dependent variable is the natural logarithm of gross nominal monthly wages.

Our results show that the conditional gender wage gap has decreased among those holding primary or secondary degrees, while it has been steadily increasing among college and university graduates (*Figure 2.2.2*). There is a particularly large improvement among those having at most a primary degree, mostly due to the fact that the minimum wage has been raised several times in this period.

Figure 2.2.2: Within-firm gender wage gap by educational attainment



¹ Estimating within-sector wage gaps instead of within-firm wage gaps gives very similar results and leads to the same conclusion.

Sample: full-time employees of firms with more than 20 workers in the private sector. The plotted coefficients are estimated in Mincerian wage models by linear regressions each year, and are derived using the interaction term of gender and

educational attainment. The vertical axis shows -1 -times the gender wage gap, i.e. 16% should be interpreted as conditional on firm and occupation fixed effects, age and the relative share of graduated women vs. men in sectors and occupations as detailed in the text, women on average earn 16% less than men. The explanatory power (R^2) of the yearly models is about 60%, sample size is between 90–130 thousand individuals.

Source: Own estimation using the Structure of Earnings (Bértarifa) survey.

Although a large higher education (HE) expansion took place in Hungary in the last 20 years, the share of those having a tertiary degree in the working age population is still around 75% of the comparable EU-average according to Eurostat data (28.5% vs. 21.4% in 2018, Eurostat Main Indicators Database). As our results suggest, the conditional wage returns of HE graduation are lower for women than for men. Theoretically, this could be the results of women being more likely to choose university courses that offer lower labour market returns; however, we measure the wage gap net of this effect as we control for firm and occupation fixed effects. Furthermore, we only use wage data from the private sector, thus, most low-paid, traditionally female occupations (teacher, nurse) are not included in our sample.

Conclusions

We find that the conditional gender wage gap is 50% larger among those having a tertiary degree than among the non-graduated. The average graduated woman, working at the same firm, having the same occupation and being of the same age, earned 16% less in 2016 than the average graduated man, while this difference was 11% among women and men who did not have a HE degree. This is due to the phenomenon that while the average wages of graduated men increased enormously in the last 20 years, the wage growth of graduated women was much more contained.

References

- PENDAKUR, K.–WOODCOCK, S. (2010): Glass Ceilings or Glass Doors? Wage Disparity Within and Between Firms. *Journal of Business & Economic Statistics* Vol. 28. No. 1. pp. 181–189.

2.3 FEMALE AND MALE MANAGERS

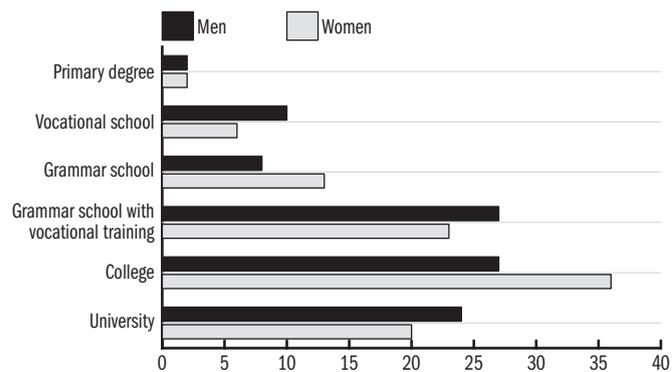
BEÁTA NAGY & ANNA SEBŐK

Share of men and women in management positions

Data from the Labour Force Survey of the Central Statistical Office (CSO) indicate that the share of women in management positions is increasing. The gender ratio in the first main category of the Hungarian Standard Classification of Occupations (HSCO) (managers) is close to balanced: the share of women in the 2010s exceeds 41 per cent. One of the important reasons for this high proportion is the increasing female dominance in the younger generations in higher education, which increases the female management pool.

However, this 41 per cent share hides the excessive heterogeneity of the category, since it includes all management categories (ministers, heads of nurseries, business leaders or railway stationmasters). That is why the most frequent educational attainment level in the main category of management positions is college degree, followed by upper-secondary qualification, while university degree is only the third most frequent for women and men alike (*Figure 2.3.1*).

Figure 2.3.1: Educational attainment in management, 2015–2017

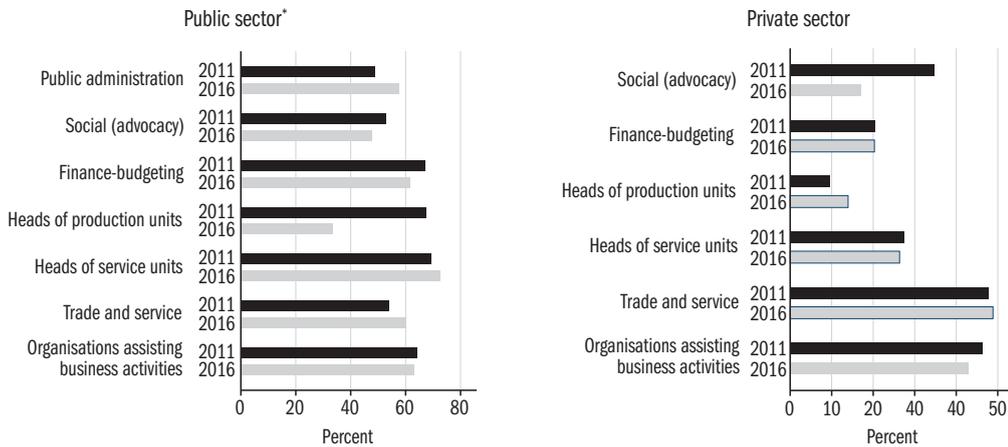


Source: Labour Force Survey of CSO.

Where are women in managerial positions?

Women more frequently hold management positions in the public rather than in the private sector (see data in *Pocketbook*). When further analysing horizontal segregation, the gender gap is also striking across economic sectors: women primarily work as managers in finance and budgeting, followed by manufacturing, while the order is just the opposite for men. Apparently, women and men hold management positions in different sectors and, as will be seen later, in different occupational categories (*Figure 2.3.2*).

Figure 2.3.2: The share of women in management categories (2011 and 2016)

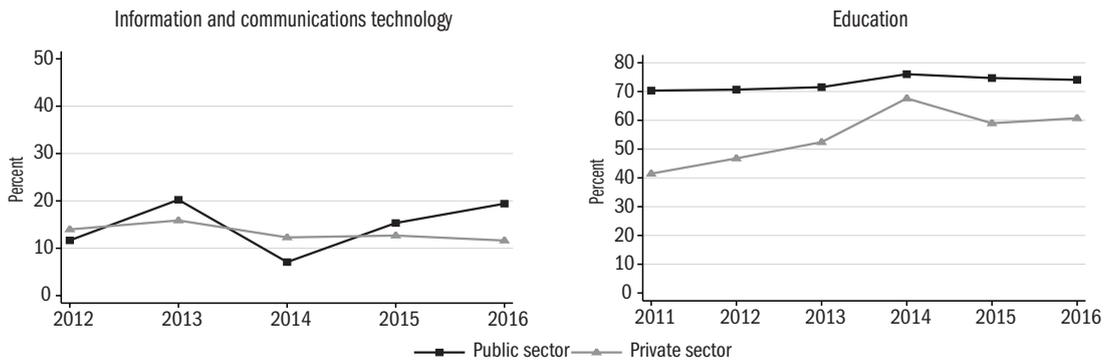


* Because of the small number of cases, the Figure does not include the category of HSCO-111: legislator and senior officials.

Source: Wage Survey, *National Labour Office* (NLO).

The narrower the categories, the more striking the segregation of female and male managers according to branches of industry: *Figure 2.3.3* illustrates this difference with the examples of managers in ICT and education.

Figure 2.3.3: The share of female managers in information and communications technology and in education

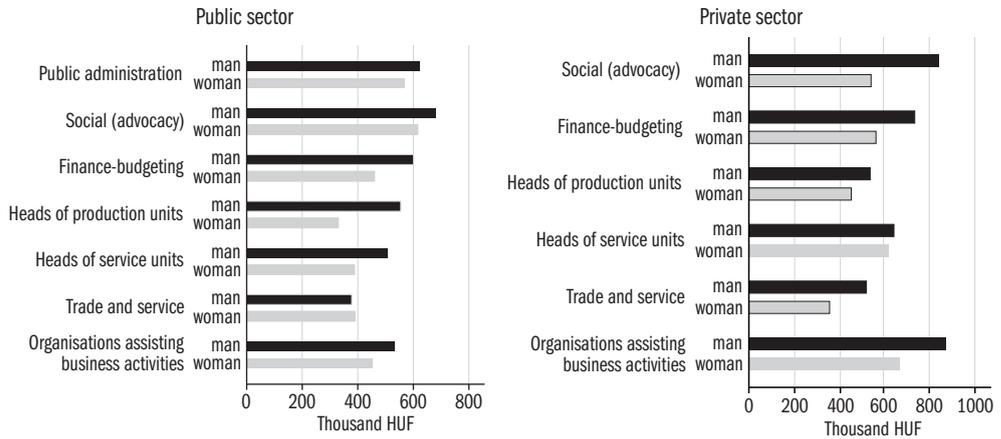


Source: Wage Survey, *National Labour Office* (NLO).

How much do managers earn?

The aggregate difference between the wages of men and women, according to data from the Wage Survey, was 16 percentage points in 2016, the majority of which results from segregation, the fewer hours worked by women because of family obligations and less work experience. However, an analysis of managers compares more homogeneous female and male groups of leaders. *Figure 2.3.4* presents the wages of female and male managers in the public and private sectors.

Figure 2.3.4: Average wages of men and women in management positions, 2016



Source: Wage Survey, *National Labour Office* (NLO).

In the public sector, both male and female managers earned the highest wages in advocacy, administration and finance-budgeting in the period investigated (Figure 2.3.4). The wage advantage of male leaders is significant in all categories except for the management of service organisations. As for the managers of service organisations, male leaders typically had the highest wages at financial institutions, while women had the highest wages as managers of healthcare and educational institutions.

In the *private* sector, men had the highest wages at leading organisations assisting business activities, followed by managers at special interest organisations and business organisations. Similarly, the highest average wages for women leaders were seen at organisations assisting business activities, followed by leaders at service organisations and business organisations. The wages of women managers were lower than those of men in all categories, mostly quite massively.

Do women managers have a family life?

There is a well-known correlation between holding a management position and the difficulties of balancing work and family life (the higher the position, the greater the difficulty). While men often may rely on their wives (partners) and children as resources, the 'second shift' drains resources in the case of women. Hungarian data also show that female managers are less often married or cohabit: in the 2010s, 70 per cent of male managers and 62 per cent of female managers lived in a relationship, according to the Labour Force Survey.

In families and households, the tasks of caring for dependents place more burden on women: caring for children and the elderly mainly falls to women. It is underpinned by the fact that more female than male managers receive social transfers related to child and elderly care. Data from the Labour Force Survey

indicate that 0 per cent of men as opposed to 6–7 per cent of women managers receive parental leave benefits or domiciliary care allowance in the 2010s.

Although data suggest a very high (41 per cent) proportion of women managers in Hungary, the patterns of occupational segregation are also seen. Social norms and roles keep women in feminized sectors and occupations, which are less-paid and in this way they account for some of the gender wage gap in management. Nevertheless the wage disadvantage of female managers, except for a single occupational category, is also conspicuous in a detailed category-by-category comparison. The disadvantage of female managers is reinforced and sustained by the fact that women more often than men are responsible for caring for dependents in the family.

K2.1 Women in science – in Europe and Hungary

VERONIKA PAKSI & DÓRA GROÓ

In accordance with the strategy of the European Union, the share of women in research and development (R&D) has been growing since the millennium; however, the gender gap is only very slowly decreasing. Women accounted for only one-third of the European R&D sector in 2012, and the share of women was even lower in the field of engineering and technology (28 per cent) in spite of a substantial labour shortage. One of the main reasons for the low presence is the significant disadvantages that female researchers still face during their career. A lower proportion of them is able to obtain a job in research or in a field corresponding to their qualifications and a higher proportion of them work under precarious employment contracts, especially in higher education. Although the gender wage gap has decreased since the millennium in R&D, women still received 18 per cent lower wages for the same job in 2012 – which was larger than the wage gap seen in the economy overall. Vertical segregation (the so-called glass ceiling) remained strong, particularly in male dominated professions, despite the fact that the proportion of female heads

of higher education institutions and the share of women in decision making bodies significantly improved in that period. Nevertheless, the proportion of female professors in the field of technology did not exceed 13 per cent in 2012 (*EC*, 2013, 2015).

The situation of Hungarian female researchers is less favourable than that of their European colleagues or their male counterparts. Their headcount has increased more slowly than that of men in R&D since the millennium, thus their proportion has been continuously decreasing – currently it does not even reach one-third. Horizontal segregation across sectors (the so-called glass wall) forces women into the low-paid public sector and only one-fifth of them holds a job in the better paid private sector. Although the largest increase in the headcounts of women was seen in technology, their proportion is the lowest in this field (22 per cent) and there is intense movement between the sectors: women typically move from the private to the public sector (*EC*, 2012, 2015). Qualitative research has highlighted that this trend is partly due to striving for a better work-life balance, meanwhile, knowl-

edge-intensive professions also have started to increasingly attract women to the private sector by often offering – beyond higher salaries – more family friendly conditions than the public sector. However, researchers' investments do not necessarily pay off in the other sectors, moreover, work-life balance is still considered as a responsibility of the individual in Hungary, but which women are unable to tackle alone. The career of female researchers with young children thus slows down in both sectors because they have difficulties in accomplishing the crucial elements of a successful career (e.g. international mobility, networking or undertaking decision-making roles) (Paksi et al. 2016, 2018).

Despite the two-decades-long strategy of the European Union, the above inequalities still designate a less advantageous career in science for women. In order to reduce gender inequalities, an integrated approach to the problem, as well as a targeted policy and social support are needed (Pető, 2018, Nagy-Paksi, 2014). Some good practices for such an outcome are found in Hungary. The Association of Women in Science has been working in the civil sector for ten years in cooperation with research and development institutions and experts, and supports the scientific career of young girls through several projects (Girls' Day, Women in Science Excellence Award). Another initiative is the Women in Science Presidential Committee established by the President of the Hungarian Academy of Sciences, which aims to increase the number of female

academics, support female researchers at all levels of their academic career and make a research career more attractive. Finally, although it is not obligatory, an increasing number of institutions in the private R&D sector develop and use practice-oriented workplace gender equality and diversity plans (Paksi et al. 2018).

References

- EC (2013): She Figures 2012. Gender in Research and Innovation. Statistics and Indicator. European Commission, Brussels.
- EC (2016): She Figures 2015. European Commission, Brussels.
- NAGY, B.–PAKSI, V. (2014): A munka–magánélet összehangolásának kérdései a magasan képzett nők körében. (Questions of harmonising work-life balance among higher educated women.) In: Spéder, Zs. (ed.): A család vonzásában. Tanulmányok Pongrácz Tiborné tiszteletére. (Family attractions. Studies in honour of Tiborné Pongrácz.) KSH NKI, Budapest, pp. 159–175.
- PAKSI, V.–NAGY, B.–KIRÁLY, G. (2016): The timing of motherhood while earning a PhD in engineering. *International Journal of Doctoral Studies*, Vol. 11. pp. 285–304.
- PAKSI, V.–TARDOS, K.–FÁBRI, GY. (2018): Career Models and Career Advancement in Research and Development. Different Patterns and Inequalities in Labour Market Opportunities, Personal Network Building and Work-Life Balance. Preliminary findings, NKFIH, No. 116099. project.
- PETŐ, A (2018): Nők a tudományban. (Women in science) *Magyar Tudomány*, Vol. 125. No. 4. pp. 550–565.

3 WOMEN'S LABOUR MARKET PERFORMANCE IN THE EU AND IN HUNGARY

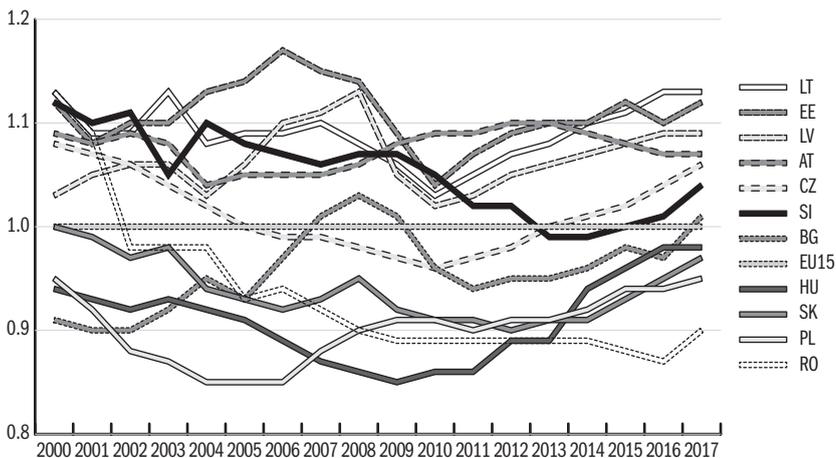
3.1 FEMALE EMPLOYMENT IN POST-SOCIALIST EU MEMBER STATES¹

FLÓRA SAMU, ÁGOTA SCHARLE & MÁRTON CSILLAG

In the early 2000s, the post-socialist EU Member States still had a distinct advantage in female employment compared to the old Member States. They had lost this advantage before the outbreak of the global financial crisis but regained it to some extent during and after the recession (*Csillag et al. 2013*). This chapter examines the role of demographic and policy factors driving these changes.

Before the transition in 1989, Central and Eastern European countries were characterised by high overall employment and a small gender employment gap. Cross country dispersion in the Soviet bloc was also smaller than within the EU15, where female employment varied considerably between high levels in the Nordic countries and low levels in the South. Female employment dropped as a result of the transitional shock in most CEE countries, and the recovery proved to be slow. Despite the steady rise of female employment in the New Member States (NMS) since 2000, the employment rates have come close to the EU15 average only recently (*Figure 3.1.1*).²

Figure 3.1.1: Relative female employment rate in post socialist EU countries, EU15 = 1



Note: Share of 20–59 years old population. The Hungarian data include the participants of public works as well (which significantly raises the employment rate after 2009).

Country abbreviations: AT: Austria, BG: Bulgaria, CZ: Czech Republic, EE: Estonia, HU: Hungary, LT: Lithuania, LV: Latvia, PL: Poland, RO: Romania, SI: Slovenia, SK: Slovakia.

Source: Eurostat (lfsa_ergan).

¹ The research leading to the results reported in this paper has received funding from the European Union's Seventh Framework Programme (FP7/2007–2013) under grant agreement 'Growth-Innovation-Competitiveness: Fostering Cohesion in Central and Eastern Europe' (GRINCOH).

² Bulgaria is an exception as female employment increased compared to the EU15 until 2008 (most likely due to the high emigration rate, which reduced labour supply). Romania stands out at the other extreme, where the female employment rate declined in absolute terms as well.

Female unemployment was above the EU15 average in several NMS in the 2000's but it has steadily declined since the financial crisis, falling below the EU15 average throughout the region. In some countries, this reflects genuine improvement in labour market opportunities, while for example in Romania and Poland it was coupled with a rise in inactivity (compared to the EU15).

The cross-country variation in female employment in the CEE region has received little attention so far. Earlier studies focused only on Western Europe (e.g. *Cipollone et al.* 2014) or tended to focus on explaining differences in the overall decline in employment (e.g. *Munich and Svejnar*, 2009). Research on the impact of attitudes or policies on female employment in the CEE (e.g. *Fodor*, 2005) usually ignores variations *within* the female labour force.

This chapter presents the evolution of female employment in selected CEE countries and describes the role of 1) demographic trends (such as ageing, increasing educational attainment or declining fertility that affect the composition of the female labour force), 2) differential increases in employment across subgroups that may be related to policy changes, and 3) general labour market processes that affect employment equally in all subgroups.

We use a *Smith and Welch* (1989) type dynamic decomposition. We compare selected CEE countries to Austria as a benchmark country, where female employment is somewhat higher, but the main trends are very similar to the EU15 average.³

The decomposition method

The procedure is to first estimate a regression model of the determinants of employment separately for two regions in both the beginning and the end of the period under consideration, and then to use the estimated coefficients and the distribution of explanatory variables to account for the changes in the difference between the employment rates across the countries. We estimated the impact of major demographic variables on employment in linear probability models using individual-level data of the EU-LFS for the period 2001–2016 (women aged 20–64). *Csillag et al.* (2013) provides a more detailed description of the method, while *Samu et al.* (2017) presents the results in more detail.

Factors influencing female employment

Female employment is influenced by long term demographic processes, slowly changing attitudes, societal expectations, also by regulations and incentives that can be influenced by government policies in the short term. In this paper we examine only the factors that have a differential impact on the employment of particular subgroups of women (or mothers) clustered by age and education.

An increase in fertility rates lowers female employment unless it is accompanied by a strong improvement of day-care provision. We measure the role of fertility trends in the decomposition by the decline of female employment

³ We use a single country as a benchmark as the average of the EU15 covers widely differing countries. We chose Austria in particular as its Continental welfare system is similar to the system of most CEE countries.

attributed to the growing share of mothers in the female population. Population ageing also reduces female employment rates because in older generations less people work due to declining health, increasing leisure time and the disincentive effect of the pension system. We capture the role of ageing by the growing share of older generations. The increase in levels of education tends to raise female employment: we capture this by the changing share of those with a high level of education and those with a low level – within the population.⁴

The expansion of day-care services and their free or subsidized provision may raise female employment rates. The contribution of day-care services can be measured by the changing employment rate of mothers with small children. The role of pension regulations is reflected in the changing employment rate of older women. Raising the statutory retirement age may increase the female employment rate, while relaxing the rules of minimum service years may decrease employment. Raising the guaranteed minimum wage may reduce the employment rate of less educated women.⁵ The contribution of demand stimulating wage subsidies can be captured only if they targeted certain age or education groups (by examining the changes in the employment of these subgroups).

There are other factors such as economic development that normally increase overall labour demand, or a decline in gender discrimination which improves chances for all women to access the labour market. The contribution of these factors cannot be separated in the decomposition.

What factors have influenced the rate of female employment in Hungary?

In Austria female employment rose steadily from 65% to 74% between 2001 and 2016, while the other countries showed larger fluctuations especially during the financial crisis. The growth of female employment was rapid before the crisis in Bulgaria and in Estonia, while in Poland the growth rate was high after the crisis as well. In Hungary the female employment rate was 61% in 2001, and it increased rather slowly afterwards until the end of the crisis when it grew at a higher pace to reach 70% by 2016.

The age distribution of the labour force was rather similar in the selected countries, and ageing affected all the countries though at a different pace. In Poland and in Estonia the pace of ageing was higher (share of age group of 55–59 years grew from 9–11% to 15%) than in Austria (from 12% to 14%), while in Bulgaria and in Hungary a slower increase was observed (from 13–14 to 14–15%).

The educational composition of the female labour force varied widely between the selected countries. At the start of the period in 2001, in Austria, Bulgaria and Hungary a quarter of the female labour force had low levels of education, while in Poland and Estonia the share of those with low levels of education reached 20 and 10% respectively. By the end of the period the coun-

⁴ Effective policy measures may change the educational attainment level of particular social groups such as unemployed youth, that can generate an increase of employment in the short term.

⁵ The large-scale extension of public works would cause a significant rise of employment in this group, but we control for this in the Hungarian data. (See methodology and rationale in *Scharle*, 2016.)

tries which lagged behind at the start improved their relative position. The share of the highly educated labour force was the largest in Bulgaria and in Estonia at the start of the period. Although the share of the highly educated increased in all selected countries, the improvement was much more rapid in Austria and in Poland. At the end of the period this indicator was the lowest in Hungary among all selected countries (in Austria it grew from 12.5% to 32.2% within 16 years, while in Hungary it increased from 15.1% to 28.8%).

Overall, Hungary was not significantly disadvantaged in 2001 compared to Austria regarding the composition of the female labour force. Yet before the crisis the pace of employment growth was slower in Hungary. Decomposing the total change in employment, we find that the slower pace was mainly due to general factors and the contribution of some specific factors was in fact positive in Hungary. The share of the labour force with low levels of education dropped significantly, which lifted the female employment rate by 1.6 percentage points (pp). Employment opportunities for women with small children did not worsen as much as in Austria, which contributed to a further 1.5 pp of relative improvement. However, these positive effects were offset by the large negative contribution of general (−4.5 pp) and demographic factors (−1.5 pp).

During the crisis the improvement of female employment continued in Austria, while it stalled in Hungary. The difference between the two countries can be explained mainly by general factors (6.5 pp). Demographic factors widened the gap between the two countries: Hungary was characterized by a more rapidly accelerating ageing process (−0.6 pp), a slower reduction in that part of the labour force with low levels of education (−0.5 pp) and improving fertility (−0.6 pp). The implemented policy measures were mainly on the positive side in Hungary: restriction of retirement regulations (0.8 pp) and promoting labour market inclusion of mothers (0.6 pp) supported female employment but could not fully compensate for the significant negative contribution of general factors.

After the crisis the improvement of female employment slowed down in Austria but commenced a more rapid growth in Hungary, mainly due to general factors (6.3 pp), since the contribution of demographic trends and policy changes was small. The share of 55–59 years olds grew faster in Austria and more gradually in Hungary (0.8 pp). However, the share of the high-educated in the labour force rose also more rapidly in Austria (−1.6 pp). Policy measures tended to widen the gap between Austria and Hungary. The employment rate of 55–59 years old (−0.8 pp), high-educated (−0.9 pp) and mothers with small children (−0.6 pp) increased faster in Austria than in Hungary.

The general factors were dominant in the rapidly growing Eastern-European countries as well. Female employment grew faster in Estonia and in Bulgaria than in Hungary mainly because of general economic factors (5.6 pp and 7.7 pp).⁶ The widening performance gap of Poland can be explained mainly by

6 In Bulgaria the rapid employment growth of population aged 55–59 was likely driven also by the ambitious pension reform (1.4 pp), in Estonia the improving employment rates of mothers with small children (1.2 pp) and highly educated women (0.9 pp) were added to the general economic driving factors.

the accelerating ageing process in the period before the financial crisis. The share of the older (55–59 years old) age group grew faster in the Polish working age population than in Hungary (or in Austria) and the employment rate of women in this age group decreased. During the crisis the negative demographic factors were no longer present, while general factors were more favourable (the Polish economy weathered the crisis much more robustly than the Hungarian economy). This was the main reason why Poland was able to catch up by the end of the period.⁷

It appears therefore, that the changes in female employment were driven mainly by general economic factors between 2001 and 2016 in the countries examined, but the contribution of demographic and policy related factors was not negligible. By the end of the period Hungary caught up to the European average but barely narrowed the employment gap with Austria: the improving trend after the crisis was restrained by unfavourable policy measures implemented.

⁷ After the crisis a smaller increase of female employment was recorded again in Poland than in Hungary, mainly due to general economic factors.

References

- CIPOLLONE, A.–PATACCHINI, E.–VALLANTI, G. (2014): Female labour market participation in Europe. Novel evidence on trends and shaping factors. *IZA Journal of European Labor Studies*, Vol. 3. No.18.
- CSILLAG, MÁRTON–SAMU, FLÓRA–SCHARLE, ÁGOTA (2013): Exclusion from the labour market in post-socialist EU member states. Grincoh Working Paper.
- FODOR, ÉVA (2005): Women at work: The Status of Women in the Labour Markets of the Czech Republic, Hungary and Poland. Policy Report on Gender and Development, United Nations Research Institute for Social Development (UNRISD), Occasional Paper 3.
- MUNICH, DANIEL–SVEJNAR, JAN (2009): Unemployment and worker-firm matching. Theory and evidence from East and West Europe, World Bank WP 4810.
- SAMU, FLÓRA–SCHARLE, ÁGOTA–CSILLAG, MÁRTON (2018): A női foglalkoztatottságot alakító tényezők poszt-szocialista EU tagországokban (Factors shaping female employment in post-socialist EU member states). Budapest Institute, manuscript.
- SCHARLE, ÁGOTA (2016): Mennyit nőtt a foglalkoztatás 2008 óta Magyarországon? (Employment change since 2008 in Hungary) In: *Kolosi, Tamás–Tóth, István György* (eds.): *Társadalmi riport 2016. Társadalmi, Budapest*, pp. 54–72.
- SMITH, J. P.–WELCH, F. (1989): Black economic progress after Myrdal, In: *Journal of Economic Literature*, Vol. 27. No. 2. pp. 519–564.

3.2 INEQUALITY IN EUROPE – WOMEN, MEN AND COUPLES

ZSOMBOR CSERES-GERGELY

1 *Ortiz-Ospina and Rosner* (2018) provides a noteworthy global overview.

2 *Filauro* (2018) and *Vacas-Soriano and Fernández-Macías* (2017) uses a similar approach. Graphs used here are from a recent revision of *Benczúr et al.* (2017).

3 We have created the database by pooling per country micro-data from the European Union Statistics on Income and Living Conditions (EU-SILC) survey. North-West Europe (NW) is comprised of Austria, Belgium, Denmark, United Kingdom, Finland, France, Netherlands, Ireland, Luxembourg, Germany and Sweden. Southern Europe (SO) is comprised of Cyprus, Greece, Italy, Malta, Portugal and Spain. Central and Eastern Europe (CEE) is comprised of Bulgaria, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. Personal income is defined as the sum of personal labour income and transfers attached to persons. All income sources are yearly totals. Labour income is a result of worked months, hours and wage rates, thus cannot be directly compared to the ILO employment rate.

4 Here and in what follows, I use the word ‘partners’ as a catch-all phrase for spouses and those cohabiting.

5 Due to the procedure used for data cleaning, shared income does not precisely match on average in the case of men and women; therefore I present average values here. Sharing half of the personal income is assumed as there is no information on actual sharing in an EU-wide database. Data on personal consumption, such as the one *Bargain et al.* (2018) uses, could be used for this purpose.

Although we know a fair amount about processes shaping income inequality of men and women on the labour market and within households, this is not true about such inequalities themselves.¹ In what follows, I would like to show for the whole of Europe that income inequality *between* as well as *within* the two genders, that is among women and men, together with patterns of cohabitation and employment are important drivers of overall income inequality. We shall see that these drivers show remarkable differences across geographic areas in Europe and have changed considerably during the 2009–2012 crisis.

The basis of this section is *Benczúr et al.* (2017),² which uses an EU-wide individual database, considers different income sources and computes different inequality measures to look at income inequality in the EU as a whole. Because there are significant differences among them, I use the geographic areas as defined there: North-west- (NW), Southern- (SO) and Central and Eastern Europe (CEE).³ The following calculations use data from the years 2006–2014 for the 25–60 years old population with personal income.

One can characterise the income inequality *between* men and women with differences in the share of those with non-zero income and that in average income levels among them. After the 2009 crisis, an increasingly larger percentage of women earned labour income, both in the whole of the EU and in each area considered. At the same time, the share of working men has decreased, especially in Southern Europe. Differences in income levels are substantial: in Europe, a man commands 50–70 per cent more labour- and personal income on average than a woman – see the first half of *Table 3.2.1*. If, instead of relying solely on personal income, cohabiting partners⁴ share half of that with each other, the disposable income of women increases by 15–30 per cent, and that of men decreases by 18–30 per cent in the EU as a whole (see the second half of *Table 3.2.1*).⁵ The same is true in all geographic areas, but the gain of women and the loss of men is much lower in Central and Eastern Europe than elsewhere. Inequality between the average woman and man is thus similar in the case of personal- and labour income but is likely to decrease notably if partners pool income.

The level of average income is always lower in the case of women than in the case of men, but inequality (measured by the log-variance of income) is higher for women – see *Figure 3.2.1*. The difference is relatively small in Central and Eastern Europe (inequality is larger only by 15 per cent among women than among men), while much larger elsewhere (the difference is be-

tween 30–60 per cent). These differences are due to the components of annual labour income, mostly months and hours worked [Benczúr *et al.* (2017) discusses the details]. Participation patterns of women and men in Southern Europe changed considerably during the crisis years, and this also affected inequality, decreasing differences among women and men. Indeed: inequality among men rose dramatically, from a level typical of North-west Europe to that characteristic of Central and Eastern Europe. A change towards a similar direction, but of smaller magnitude took place in North-west Europe too. Inequality levels of income shared among partners are smaller in all years and areas than the already low levels of men (measured in log variance, assuming equal sharing).

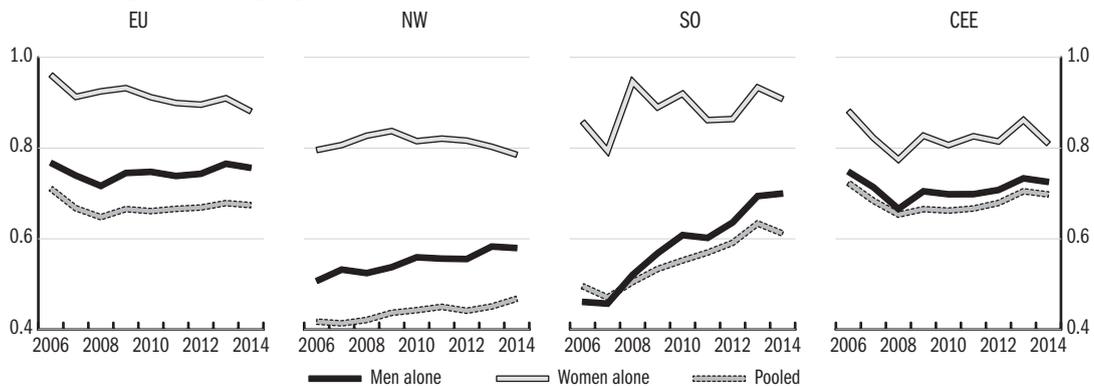
Table 3.2.1: Average annual income levels for women and men in geographic areas of the European Union (in thousands of Euros at 2015 prices, adjusted for purchasing power parity; 25–60-year-olds commanding personal income)

	Labour income				Personal income				Shared		Shared/personal			
	Women		Men		Women		Men		Together		Women		Men	
	thousand euros								per cent					
	2006	2014	2006	2014	2006	2014	2006	2014	2006	2014	2006	2014	2006	2014
EU	14	15	27	25	16	16	29	27	21	21	131	128	72	76
NW	18	19	34	32	20	20	36	34	26	26	130	130	72	76
SO	14	13	26	21	15	14	28	23	20	18	130	125	70	76
CEE	7	9	11	14	8	10	12	14	10	12	119	115	79	82

Remark: The modified OECD scale was used to calculate per capita household income and the PPI indicator of Eurostat to adjust for differences in purchasing power.

Source: Own calculations based on *EU-SILC* microdata.

Figure 3.2.1: Inequality of personal income among women and men as measured by the log variance in geographic areas of the European Union (25–60-year-olds with personal income)

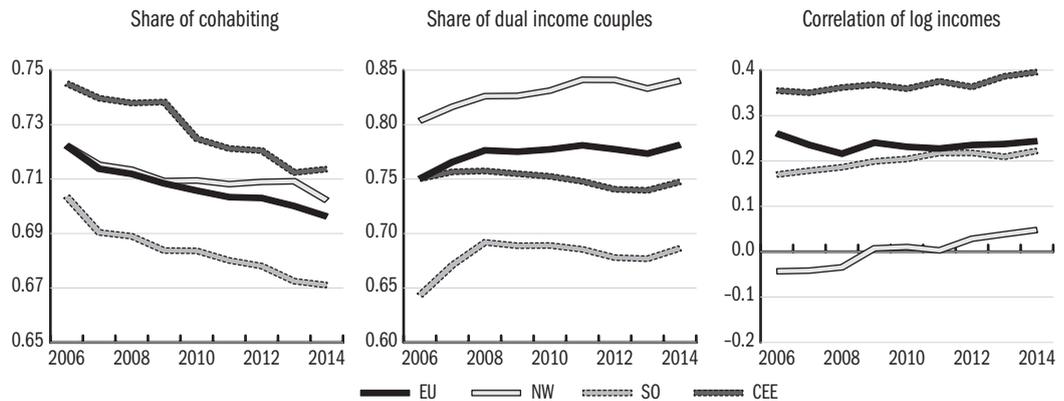


Source: Calculations based on *EU-SILC* microdata.

The overall gain coming from income pooling among partners depends on the prevalence of cohabitation and labour market activity of partners as well

as the correlation between incomes. About two-thirds of the Europeans in the sample cohabits in partnership – see the first panel of *Figure 3.2.2*. The same proportion is somewhat above the EU-average in Central and Eastern Europe and below that in Southern Europe but exhibits a decreasing trend over time almost everywhere (the North-west after the Crisis being an exception). An increasing number of partners work in all geographic areas. Both the share of dual-earner couples and its increase is the largest in North-west Europe, followed by that in Central and Eastern Europe, while Southern Europe comes last with a rather low level. The rightmost panel of *Figure 3.2.2* shows that there are considerable differences across areas also in terms of the correlation of partners' incomes. The correlation is positive and relatively strong in the CEE, not significantly different from zero in the North-west, while in Southern Europe it is measured in-between, around the EU average.

Figure 3.2.2: Household characteristics and their effect on pooled income



Source: Own calculations based on *EU-SILC* microdata.

Based on the differences among and the trends of the components of inequality, we see that it is their interaction that shapes inequality among men and women living in partnership. Couples residing in North-west Europe experience a drop in income inequality not only because of the above-average demographic potential of cohabitation but also because of the small correlation between the income of the partners. Quite the opposite happens in Central and Eastern Europe, where the large positive correlation between income sources cancels the more modest, but still favourable demographic and labour market potential. This cancellation is the reason why income inequality across women does not change significantly when passing to pooled income. The same underlying mechanisms and the dramatic changes in labour market participation of women and men explain why the gain from pooled income decreases over time in the case of women in Southern Europe.

References

- BARGAIN, O.–LACROIX, G.–TIBERTI, L. (2018): Validating the Collective Model of Household Consumption Using Direct Evidence on Sharing. IZA, Bonn, IZA Discussion Paper Series. Working Paper, 11653.
- BENCZÚR PÉTER–CSERES-GERGELY ZSOMBOR–HARASZTOSI PÉTER (2017): EU-Wide Income Inequality in the Era of the Great Recession. Joint Research Centre, European Commission, Ispra, JRC Working Papers in Economics and Finance. Working Paper, 2017/14.
- FILAURO, S. (2018): The EU-Wide Income Distribution Inequality Levels and Decompositions. European Commission DG Employment, Social Affairs and Inclusion, Brussels.
- ORTIZ-OSPINA, E.–ROSNER, M. (2018). [Economic Inequality by Gender](#). OurWorldin-Data.Org.
- VACAS-SORIANO, C.–FERNÁNDEZ-MACÍAS, E. (2017): [Income Inequalities and Employment Patterns in Europe before and after the Great Recession](#). Publications Office of the European Union, Luxembourg.

3.3 WORK-FAMILY POLICIES AFFECTING FEMALE EMPLOYMENT IN EUROPE

JUDIT KÁLMÁN

Female labour force participation has improved remarkably in Europe over recent decades but there are still a few EU member states where it is below 60 per cent (Greece, Spain, Italy, Malta, Croatia)¹ and in several Eastern European countries, including Hungary, it fails to reach 66.5 per cent of the EU average, although increasing since the 2000s and getting close to it.² Female labour market participation is lower than male participation in each European country, with great variance across member states. There are countries (for example Malta, Italy, Greece, Romania, the Czech Republic, Slovakia, Poland and Hungary) where the difference is striking, even though the average educational attainment of women has by now exceeded that of men.³ Furthermore, female employees usually work fewer hours,⁴ in lower-status positions, in lower paid service sectors, which collectively result in significant gender gaps in wages and incomes. Factors affecting female employment at an individual level and wage differences between genders – described in detail in *Chapter 4* – are influenced by demographic and structural effects alike, furthermore several differences stem from incentives determined by institutions, welfare systems, policies and tax regimes. The latter are described briefly in this subchapter.

The access of women to employment and job opportunities is not only important for their individual financial independence, activity, parenthood, participation in public affairs and through these in a better quality of life and greater gender equality⁵ but it also has a considerable impact on better allocation of skills and thereby on economic growth (*IMF*, 2016, *OECD*, 2018), population growth, alleviation of several public finance and social problems of aging societies and sustainability of fiscal policy. Acknowledging this, the EU has several directives, objectives and policies in place to encourage member states to strive to enhance the labour market situation of women (Directive 2006/54/EC⁶ and Article 153 TFEU⁷), involving those who are inactive or excluded from the labour market (Article 151), implementing the principle ‘equal pay for equal work’ (Article 157) and a better work-life balance for carers. Increasing the current labour market participation of women is strongly related to the employment target of the Europe 2020 Strategy (employment rate must be increased to 75 per cent by 2020 in the EU) and to reducing poverty in several member states (see for example single mothers). There has been some ongoing horizontal coordination in social and employment policies; nevertheless, the policies of individual member states are significantly different.

1 Eurostat data from 2017.

2 For more details on female employment in the post-communist EU member states see Sub-chapter 3.1.

3 An average of 44 per cent of women and 34 per cent of men had a tertiary qualification in the EU28 in 2016.

4 An average of one-third (31.4 per cent) of working women aged 20–64 were employed part time, while the figure is only 8.2 per cent for men in the EU28 in 2017. It is 38.9 per cent among mothers with young children and 5.8 among fathers with young children. The rate of women in part-time employment is especially high in Netherlands (75 per cent), Belgium, Denmark, the United Kingdom, Ireland, Germany and Austria (see Eurostat).

5 All EU member states have ratified the Convention on the Elimination of All Forms of Discrimination Against Women adopted by the UN in 1979.

6 Directive 2006/54/EC.

7 Article 153 TFEU.

Policies and their impact on female employment

Policies in EU member states – similarly to other developed countries⁸ – assist with reducing the cost of bringing up children (family allowances, tax allowances), balancing work and family life⁹ (maternity leave, parental leave – for mothers and more recently also for fathers), flexible work arrangement possibilities, childcare system (nursery, kindergarten) but the way, extent and design of support are rather different. The abundant international literature increasingly labels these policies work-family policy rather than family policy or employment policy, referring to the paradigm shift with a focus on the balance of work and parenting and to the fact that it is not the effects of individual policy packages but of the policy mix that should be evaluated (*Hegewisch–Gornick*, 2011, *Thévenon–Luci*, 2012, *Szikra*, 2010).

Parental leave policies – reinforce attachment to the labour market but their length and income replacement effect also matter

Evidence indicates that the existence and duration¹⁰ of paid maternity and parental leave aiming at job retention are crucial (*Cascio et al.* 2015, *Ruhm*, 1998, *Hegewisch–Gornick*, 2011, *Nieuwenhuis et al.* 2012). Paid maternal and parental leave reduces the risk of mothers giving up their existing jobs around the time of giving birth to their children. These parental leave allowances are tied to past employment in all member states, thus they do not protect unemployed women who give birth. The beneficiaries usually make full use of them, whether they are a few months' long (Cyprus, Portugal) or last several years (Germany, Norway, Eastern European countries) – see for example the tables in the OECD Family Policy database. Obviously, mothers tend to stay in the labour market more often in countries where employers do not dismiss them during or directly after parental leave and the childcare system is well-developed and accessible for the majority (*Del Boca et al.* 2008, *EC*, 2015, *Lambert*, 2008).

In several countries (Finland, Norway and the post-communist countries) it is possible to stay at home for three or four years on parental leave; however, these allowances are not necessarily linked to job protection and only involve a smaller amount of monetary benefit.¹¹ Monetary benefit linked to parental leave varies to a great extent (*Figure 3.3.1*): there are countries where it equals 100 per cent of the wage earned previously (Baltic countries, Portugal and Germany), while in others it is reduced or does not have a specified obligatory value.

Where none or only a small percentage of wages are compensated for, considerably fewer mothers or fathers stay on parental leave, although it differs across qualification levels, social and labour market positions, because of different opportunity costs of staying at home. Empirical results (*Akgunduz–Plantenga*, 2018, *Rønsen–Sundström*, 2002, *Evertsson–Duvander* 2011) show that too

⁸ *Cipollone et al.* (2014) estimates that 25 per cent of the increase in the employment of young women has been due to these policies in the past 20 years. The figure is 30 per cent in the case of highly qualified women but the policies have a less significant effect on the labour supply of low-qualified women.

⁹ The impact of becoming a parent on employment is obvious when comparison is made with childless women: the employment rate of women with a child younger than six years is on average 8 percentage points lower compared to childless women in the EU; however, this difference is over 30 (or even 40) in Hungary, Slovakia and the Czech Republic and more than 15 per cent in Estonia, Finland and Germany. While in several countries, becoming a mother has an insignificant effect (see for example Belgium or Holland, where the proportion of part-time employment is high) or even a positive effect on the labour market status of women (Sweden, Slovenia and Portugal), in the case of men, becoming a father always has a positive effect (see *Sub-Chapter 8.4* and *EC*, 2015).

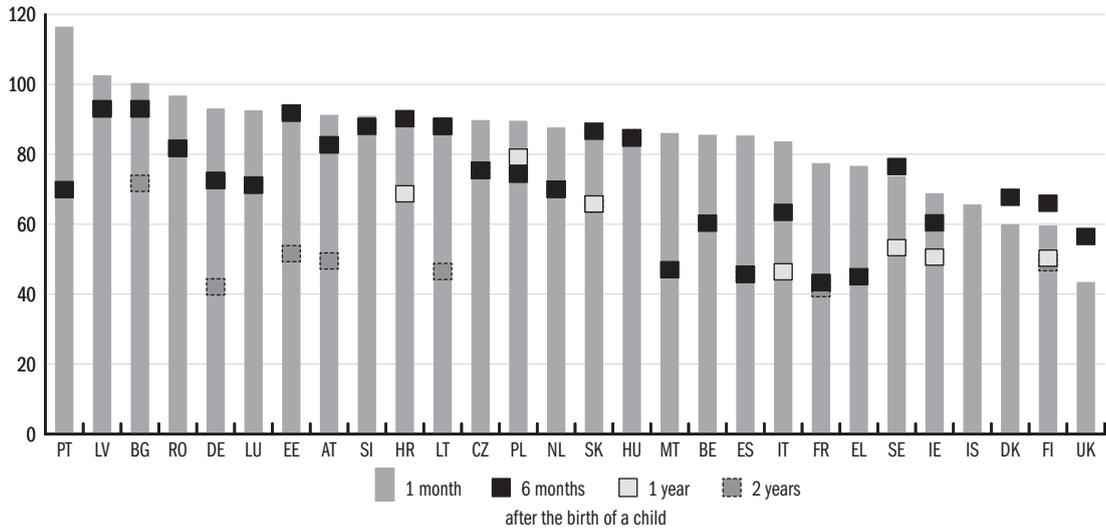
¹⁰ Tables F2.1–2.5 of the OECD Family Database provide data on the duration and the income replacement rate.

¹¹ Except for Germany, where parental leave with job protection is three years long but without monetary benefits. In the post-communist countries there is a small amount unrelated to past wages. In Norway and Finland this was introduced specifically to reduce the burden on the childcare system and it demonstrably contributed to the reductions in mothers' employment rates but not equally in the various groups of society: it was mainly used by poor, migrant families with several children and therefore not only were these mothers increasingly excluded from the labour market but their children benefited less from early childhood development provision (*Fagnani*, 2009, *Moss–Korintus*, 2008).

12 There is no consensus in the literature about what constitutes a ‘too long’ parental leave but an OECD study (Thévenon–Solaz, 2014) suggested that a period of parental leave longer than two years tend to cut parents off from, and hinder them from, re-entering the labour market; they have a negative impact on their future wages and career and reinforce occupational segregation.

extensive¹² periods of parental leave have a negative impact on mothers’ return to the labour market (an excessively long gap in work experience results in skill deterioration), on the wage level achievable (*wage penalty*) and the share of housework in the family (Ronsen, 2001) as well as on macro-level employment rates (Jaumotte 2003, OECD, 2017, Albrecht et al. 2003, Hegewisch–Gornick, 2011).

Figure 3.3.1: The equivalised net household income one month, six months and two years after the birth of a child, as a percentage of their prior net income



Country codes: AT: Austria, BE: Belgium, BG: Bulgaria, CZ: the Czech Republic, DE: Germany, DK: Denmark, EE: Estonia, EL: Greece, ES: Spain, FI: Finland, FR: France, HR: Croatia, HU: Hungary, IE: Ireland, IT: Italy, IS: Iceland, LT: Lithuania, LU: Luxembourg, LV: Latvia, MT: Malta, NL: Netherlands, PL: Poland, PT: Portugal, RO: Romania, SE: Sweden, SI: Slovenia, SK: Slovakia, UK: the United Kingdom.

Note: OECD simulation calculations, for a sample family of two parents and two children, assuming that all paid periods of parental leave are taken without interruption and the first child is two years old when the second is born.

Source: OECD Family Policy Database, FP 2.4.

13 In most countries it is still only women who are likely to use parental leave, except for Norway, Sweden, Iceland, Portugal and Germany, where the father’s quota is not transferable, that is families either lose it, or get less money if the mother alone stays at home. In these countries the share of fathers staying at home on parental leave is increasing (Björnberg 2002, Kluge–Tamm, 2009).

14 At the same time, it is also seen that the father’s quota contributes to the slow changes in stereotypes and a more fairly distributed housework, which lifts the burden on women.

As a result of European guidelines, nearly all countries have a father’s quota, whereby a certain part of the parental leave may (only) be used by fathers, though there are large differences in the duration and extent of allowances (in Hungary it is five days, in most countries it is two weeks, while in the Nordic countries it is six months), as well as in its transferability to the mother.¹³ Findings show that men use the opportunities offered by policies different than woman: they reduce their labour supply to a smaller extent, or use the leave in several shorter periods, especially if it involves loss of income (Hegewisch–Gornick, 2011).¹⁴

The disincentive effect of monetary family benefits and the tax system

Generous monetary family benefits and family tax credits have a negative impact on female labour force participation through the income effect (*Nieuwenhuis et al.* 2012, *Thévenon*, 2012, *IMF*, 2016). In several countries (for example Luxembourg, the Czech Republic, Ireland and Greece) the tax system does not encourage the taking up of employment by the second wage earner in the family (higher marginal tax rates),¹⁵ which significantly influences the labour supply of women (*Keane*, 2011, *Prescott*, 2004). Transferable family tax allowance is usually claimed by better paid men, which may also reduce female employment or reduces the income of divorced women (*Szikra*, 2010). Rather than a joint taxation of married couples (for example France, Germany, Ireland and Portugal), a more neutral tax system, leaning towards individual taxation curbs these disincentives and contributes to increasing female employment (*Jaumotte*, 2003, *IMF*, 2016).

According to *Korpi* (2000) and *Korpi et al.* (2013), support measures in line with the so called ‘earner-carer’ model promote a more equal gender division of paid and unpaid work and contribute to higher employment rates and higher fertility. These include maternity leave, shared parental leave and benefits subject to prior employment. By contrast, policies of countries where the ‘traditional-family model’ applies tend to sustain gender disparities: they include monetary benefits¹⁶ that are most often not linked to previous employment and are lump-sum or flat rate. The actual policies used in most welfare states combine these dimensions; however, there are clusters of countries where one of these models dominates¹⁷ and others where both are present – Hungary belonging to the latter (see *Wesolowski – Ferrarini*, 2017, p. 13). It remains to be seen, whether in such situations the diverging policies reinforce or cancel each other out.

Part-time/flexible employment opportunities

Part-time employment opportunities facilitate the labour market integration of women, support work-family reconciliation in certain life stages and undoubtedly play an important role in increasing female employment. In several, but not all, OECD countries it is easy to shift back and forth between full-time and part-time employment (*OECD*, 2007) and there are countries with typically high part-time female employment (Netherlands, the United Kingdom, Austria and Germany – see *Figure 3.3.2*).

At the same time, some countries promoting full-time employment are also able to achieve high female employment (France, the Nordic countries and Slovenia). It should be noted that *part-time employment is very often not voluntary and results from other policies* (e.g. taxation or inadequate, inaccessible or too expensive kindergarten care), and it also has *controversial effects because*

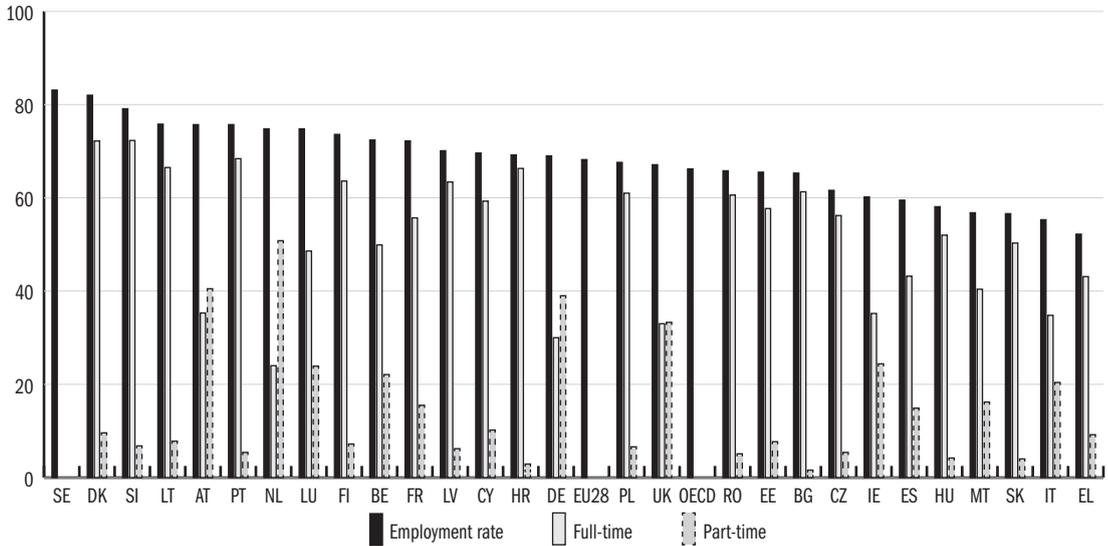
15 The inactivity trap is a situation when an implicit tax increase hinders the re-entry of inactive persons to the labour market – this is currently the highest in Belgium, Germany and Denmark. The low wage trap also plays a role: it emerges when the extent of higher tax rates and lower benefits resulting from higher labour supply is such that it averts labour supply. The tax burden on the second wage earner is considered high if any or both of these effects are significant.

16 Dependent child allowances, maternity benefit, extended parental leave benefit following a paid leave, family tax credits and disincentives in the tax system discouraging the activity of the second wage earner etc.

17 The earner-carer model is characteristic of the Nordic and Baltic countries and Slovenia, while several elements of the benefit system reinforcing the traditional family model and roles are in place in Germany, Austria, the Czech Republic and Belgium.

it may create lock-in situations and disincentives. Women in part-time employment are often found in low-status jobs, having lower hourly rates, switching jobs frequently, less eligible for unemployment benefits, thus they are in a worse and more vulnerable employment situation, not to mention their lower future old-age pension.¹⁸

Figure 3.3.2: The employment rate of mothers aged 15–64, with at least one child, working full-time or part-time, 2014



See country codes below Figure 3.3.1 (CY: Cyprus).

Source: Author’s calculation based on Tables LMF1.2 of the *OECD Family Database*.

Development of childcare provision

A comprehensive and accessible system of childcare institutions is a crucial element for the employment of mothers (*Blau–Currie, 2003, Del Boca, 2015, Anderson–Levine, 2000, OECD, 2007, EC, 2015*); countries with a high employment rate of mothers invested substantially in developing child day care provision. Nevertheless, in her comparative study *Jaumotte (2003)*, found that tax systems and parental leave schemes have a stronger impact on female labour supply and that the better development of childcare institutions is more important in countries where full-time female employment is dominant because it is easier for women working part time to find informal childcare solutions. Although attitudes of parents towards childcare institutions vary across countries, as does utilisation and the number of hours spent in childcare (*Andringa et al. 2015*), some patterns emerge:

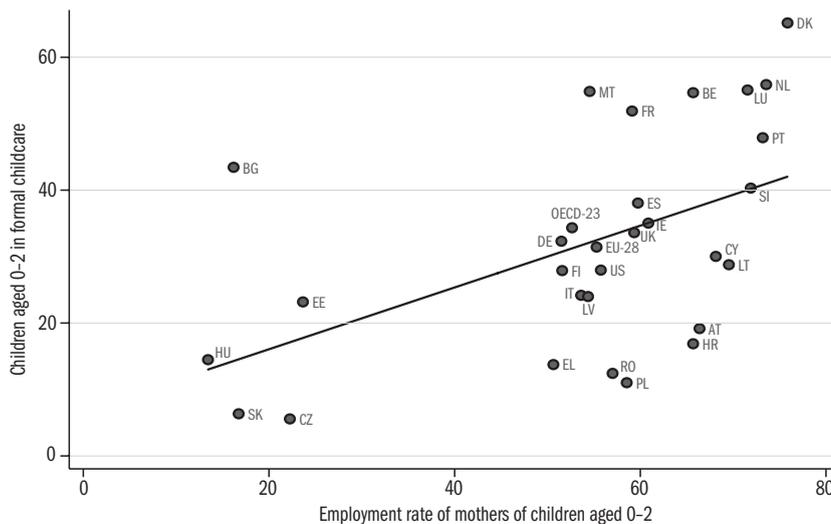
- 1) universal and strongly subsidised provision in the Nordic countries;
- 2) in the more traditional Southern European countries there are very few places for children under the age of three and not accessible everywhere;

18 The case of Sweden, Denmark and to some extent Norway suggests that part-time employment opportunities can only provide transitional solutions to the higher employment rate of mothers (it was typical of these countries in the 1980s and 1990s), and a more comprehensive, well thought-out policy mix – including the combination of tax and social security policy, exclusive father’s quotas and the expansion of nursery and kindergarten provision – drastically reduces part-time employment and increases full-time employment among women.

- 3) the extensive use of expensive private settings in the English-speaking countries, with subsidised provision available only for single mothers;
- 4) the free-of-charge childcare system in the post-communist countries used to be extensive but has shrunk since transition and is now characterised by serious regional disparities.

High costs of using childcare institutions limit female labour supply and the labour market reintegration of mothers (for example in Ireland, Netherlands or Poland, where even families with a median income spend cc. 20 percent of their income on childcare). These institutions are used more extensively (especially by single parents) in countries where they are free of charge or are highly subsidised and therefore affordable for the majority¹⁹ and are, at the same time, of good quality (*Han et al.* 2009), which results in higher female employment in all groups by education level (*Cascio et al.* 2015). However, the authors point out that the accessibility of the childcare system alone does not increase the total labour supply of women if it only replaces other, informal solutions (babysitters, family day care, grandmothers etc.). Furthermore, their usage is not only influenced by cost and access but also significantly and to a varying extent across countries by preferences and social norms, which change rather slowly over decades.

Figure 3.3.3: Employment rate of mothers (full or part time) and the participation of children aged 0–2 in formal childcare, 2014



See country codes below *Figure 3.3.1* (CY: Cyprus).

Source: Author's calculation based on the *OECD Family Database*, participation of children aged 0–2 in centre based (ISCED 0) or other *early childhood education and care (ECEC)*, the employment rate of mothers aged 15–64 (working full or part time) having one child aged below three.

19 Cf. reducing child poverty is also an important objective of the EU2020.

Figure 3.3.3 shows clearly what was already seen previously, that Hungary, the Czech Republic and Slovakia form a separate group: they sadly have the worst mother employment rates within the EU. These countries have a high family benefits expenditure to GDP ratio and a weak childcare system with large regional disparities, coupled with excessively long parental leave schemes.²⁰ These policies together hinder, rather than encourage the return of women to employment.

* * *

In conclusion, apparently those countries have the best results in female employment where it is easy to reconcile work and family: a large proportion of young children spend a high number of hours in centre based day-care, part-time female employment is high, monetary and in-kind family benefits are generous but the duration of parental leave is below average and maternity leave is less generous (EC, 2015, *Blau-Kahn*, 2013, IMF, 2016). While relatively a lot is known about the impact of these policies on female labour market participation, less is known about how they influence the number of hours worked. It is also evident that the impact of the entire mix of these policies must be evaluated as a whole because the same policy might have a different effect in a different context.²¹ For a long time it seemed that the trend of declining fertility cannot be avoided and female employment can only be improved at the expense of that. However, since the 2000s there have been several examples in developed countries of policies supporting work-family reconciliation resulting in both high female employment and high fertility (Sweden, France, the United Kingdom etc.), while in another group of countries (Italy, Spain and Greece) low female employment is coupled with low fertility rates. Experience has shown that policies supporting the labour market reintegration of mothers and work-family reconciliation also have a positive impact on fertility rates and child development (*Thévenon-Luci*, 2012, *OECD*, 2012). i. e. they help resolving the often mentioned potential conflict of working mothers *versus* balanced child development. Several lessons can be drawn from the diverse practices of the various countries with different development levels, dissimilar institutional and political settings and cultures; however, the cross-country transferability of these policy options is limited. Certainly, in order to increase female employment rates the above policies have to be fine-tuned and better coordinated, the disincentives of the tax and benefit system be cut and the cultural stereotypes and social norms concerning the role of women in society, public and private sectors and politics must be challenged. Diversity is essential both for better targeting of such policies exerting different effects on various sub-groups of women as well as to ensure individual choice.

20 Even though nearly 90 per cent of children over three attend kindergarten in Hungary (the so-called Barcelona objectives), as for younger children, the country lags behind. Only the past few years brought about a shift in the family policy of these countries, which may slowly lead to changes in the unfavourable indicators.

21 For example introducing universal obligatory kindergarten attendance should not be expected to increase female labour supply where childcare has already been generously subsidised or where mothers have significant unearned income (from their partners or from family benefits etc.). Additionally, where there is not sufficient demand in the regional labour market, labour supply will be less flexible and thus the same universal kindergarten scheme will have less impact on female employment.

References

- AKGUNDUZ, Y. E.–PLANTENGA, J. (2018): Child Care Prices and Maternal Employment: A Meta-Analysis, *Journal of Economic Surveys*, Vol. 2. No. 1. pp. 118–133.
- ALBRECHT, J.–EDIN, P. A.–SUNDSTRÖM, M.–VROMAN, S. (1999): Career interruptions and subsequent earnings: A re-examination using Swedish data. *Journal of Human Resources*, Vol. 34. No. 2. pp. 294–311.
- ANDERSON, P. M.–LEVINE, P. B. (2000): Child care costs and mothers' employment decisions. In: *Blank, R.–Card, D. E. (eds.): Finding jobs. Work and welfare reform*. Russell Sage Foundation, New York, NY, pp. 420–462.
- ANDRINGA, W.–NIEUWENHUIS, R.–GERVEN, M. V. (2015): Women's working hours. The interplay between gender role attitudes, motherhood, and public childcare support in 23 European countries. *International Journal of Sociology and Social Policy*, Vol. 35. No. 9/10. pp. 582–599.
- BJÖRNBERG, U. (2002): Ideology and choice between work and care: Swedish family policy for working parents. *Critical Social Policy*, Vol. 22. No. 1. pp. 33–52.
- BLAU, D.–CURRIE, J. (2003): Pre-school, day care and after school care: Who's minding the kids? National Bureau of Economic Research, Working Paper, No. 10670.
- BLAU, F. D.–KAHN, L. (2017): The Gender-Wage Gap: Extent, Trends, and Explanations. *Journal of Economic Literature*, Vol. 55. No. 3. pp. 789–865.
- CASCIO, E.–HAIDER, S. J.–NIELSEN, H. S. (2015): The effectiveness of policies that promote labor force participation of women with children: A collection of national studies. *Labour Economics*, Vol. 36. pp. 64–71.
- CIPOLLONE, A.–PATTACINI, E.–VALLANTI, G. (2014): Female labour market participation in Europe: Novel evidence on trends and shaping factors. *IZA Journal of European Labor Studies* Vol. 3. No. 18.
- DEL BOCA, D. (2015): Child care arrangements and labor supply. IDB Working Paper Series, No. 569.
- DEL BOCA, D.–PASQUA, S.–PRONZATO, C. (2008): Motherhood and market work decisions in institutional context: A European perspective. *Oxford Economic Papers*, Vol. 61. Suppl. 1. pp. 147–171.
- EC (2015): Employment and Social Developments Report, 2015. European Commission, Brussels.
- EVERTSSON, M.–DUVANDER, A. Z. (2011): Parental Leave – Possibility or Trap? Does Family Leave Length Effect Swedish Women's Labour Market Opportunities? *European Sociological Review*, Vol. 27. No. 4. pp. 435–450.
- FAGNANI, J. (2009): France. Finland. In: *Moss P. (ed.): International review of leave policies and related research*. pp. 179–185.
- HAN, W.–RUHM, C.–WALDFOGEL, J.–WASHBROOK, E. (2009): Public policies and women's employment after childbearing. NBER Working Papers, No. 14660.
- HEGEWISCH, A.–GORNICK, J. C. (2011): The impact of work-family policies on women's employment. A review of research from OECD countries. *Community, Work and Family*, Vol. 14. No. 2. pp. 119–138.
- IMF (2016): Individual Choice or Policies? Drivers of Female Employment in Europe. IMF WP 2016/49.
- JAUMOTTE, F. (2003): Female labour force participation: Past trends and main determinants in OECD countries, OECD Economics Department Working Papers, No. 376, OECD Publishing, Paris.
- KEANE, M. P. (2011): Labor Supply and Taxes: A Survey., *Journal of Economic Literature* Vol. 49, No. 4. pp. 961–1075.
- KLUVE, J.–TAMM, M. (2013): Parental leave regulations, mothers' labor force attachment and fathers' childcare involvement: evidence from a natural experiment. *Journal of Population Economics*, Vol. 26. No. 3. pp. 983–1005.
- KORPI, W. (2000): Faces of inequality: Gender, class, and patterns of inequalities in different types of welfare states. *Social Politics: International Studies in Gender, State and Society*, Vol. 7. No. 2. pp. 127–191.
- KORPI, W.–FERRARINI, T.–ENGLUND, S. (2013): Women's Opportunities under Different Family Policy Constellations: Gender, Class, and Inequality Trade-offs in Western Countries Re-examined. *International Studies in Gender, State and Society*, Vol. 20. No. 1. pp. 1–40.
- LAMBERT, S. J. (2008): Passing the Buck: Labor Flexibility Practices that Transfer Risk onto Hourly Workers. *Human Relations*, Vol. 61. No. pp. 1203–1227.
- MOSS, P.–KORINTUS, M. (eds.) (2008): *International Review of Leave Policies and Related Research*, 2008 Department for Business Enterprise and Regulatory Reform, London (UK), Employment Relations Research Series, No. 100.
- NIEUWENHUIS, R.–NEED, A.–KOLK, H. (2012): Institutional and Demographic Explanations of Women's Employment in 18 OECD Countries. *Journal of Marriage and Family*. Vol. 74. No. 3. pp. 614–630.
- OECD (2007): *Babies and bosses: Reconciling work and family life: A synthesis of findings for OECD countries*. OECD, Paris.
- OECD (2012): *Closing the Gender Gap: Acting Now!* OECD, Paris.
- OECD (2017): *Starting Strong 2017. Key OECD Indicators on Early Childhood Education and Care*. OECD, Paris.
- OECD (2018): *How does access to early childhood education services affect the participation of women in the*

- labour market? Education Indicators in Focus, No. 59. OECD, Paris.
- PRESCOTT, E. (2004): Why do Americans work so much more than Europeans? Federal Reserve Bank of Minneapolis, *Quarterly Review*, Vol. 28. No. pp. 2–13.
- RØNSEN, M. (2001): Market work, child care and the division of household labour. Adaptations of Norwegian mothers before and after the cash-for-care reform. Statistics Norway, Oslo, Reports 2001.
- RØNSEN, M.–SUNDSTRÖM, M. (2002): Family policy and after-birth employment among new mothers. A comparison of Finland, Norway and Sweden. *European Journal of Population*, Vol. 18. No. 2. pp. 121–152.
- RUHM, C. J. (1998): The economic consequences of parental leave mandates: Lessons from Europe. *The Quarterly Journal of Economics*, Vol. 113. No. 1. pp. 85–317.
- SZIKRA DOROTTYA (2010): Családtámogatások Európában történeti perspektívában. In: *Simonyi Ágnes* (ed.): *Családpolitikák változóiban. Szociálpolitikai és Munkaügyi Intézet, Budapest*, pp. 9–20.
- THÉVENON, O. (2013): Drivers of Female Labour Force Participation in the OECD. OECD Social, Employment and Migration Working Papers, No. 145. OECD Publishing, Paris.
- THÉVENON, O.–LUCI, A. (2012): Reconciling Work, Family and Child Outcomes. What Implications for Family Support Policies? *Population Research and Policy Review*, Vol. 31. No. 6. pp. 855–882.
- THÉVENON, O.–SOLAZ, A. (2014): Parental leave and labour market outcomes: lessons from 40 years of policies in OECD countries. Working Papers, 199. Institut National d'Études Démographiques (INED).
- WESOŁOWSKI, K.–FERRARINI, T. (2017): Family Policies and Fertility – Examining the Link between Family Policy Institutions and Fertility Rates in 33 Countries, 1995–2011. SOFI Working Paper, 2017/8. Stockholm University.

4 HUMAN CAPITAL, PART I BIRTH AND EARLY CHILDHOOD

4.1 INTRODUCTION

ÁGNES SZABÓ-MORVAI

Educational attainment, labour market status, choice of profession and wages all strongly depend on individual human capital, which is a set of personal characteristics that enable someone to produce economic value (see for example *Mincer*, 1958). The most important elements, and the ones examined most often by economists, are cognitive skills, non-cognitive characteristics and health – this volume covers these in detail; however, due to lack of space, some important topics, such as network capital, will not be analysed.

Cognitive skills mainly include attention and the ability of processing information, measured by intelligence and performance tests developed for this purpose (see *Bilker et al.* 2012), which effectively predict labour market success (*Heckman et al.* 2006).

Non-cognitive characteristics include several personality traits and abilities, such as the Big Five personality traits (extraversion, agreeableness, conscientiousness, neuroticism and openness) often used by psychologists and the preference parameters used and measured by economists (social, risk, competitive and time preferences) (*Borghans et al.* 2008a).

According to Heckman's model of human capital formation, the various components of human capital are fundamentally related. Components of human capital created in one period increase the return on investments made in the next period. Additionally, cross effects are also seen, for example because of a higher level of non-cognitive skills in the first period, the level of cognitive skills grows faster in the second period (*Heckman*, 2007).

Chapters 4–7 give an overview of the major components of human capital as well as the gender differences in these components. Chapter 4 presents the formation of human capital in early childhood and the impact of shocks on children. Chapter 5 discusses school performance, which strongly relates to cognitive skills; however, non-cognitive skills (for example perseverance and tolerance for failure) also have a significant impact on it (*Borghans et al.* 2008b). Chapter 6 covers the differences in, and the effects of, non-cognitive factors, while Chapter 7 details what is currently known about the health of Hungarian women.

References

- BILKER, W. B.–HANSEN, J. A.–BRENSINGER, C. M.–RICHARD, J.–GUR, R. E.–GUR, R. C. (2012): Development of Abbreviated Nine-item Forms of the Raven's Standard Progressive Matrices Test. *Assessment*, Vol. 19. No. 3. pp. 354–369.

- BORGHANS, L.–DUCKWORTH, A. L.–HECKMAN, J. J.–TER WEEL, B. (2008a): The Economics and Psychology of Personality Traits. *Journal of Human Resources*, Vol. 43. No. 4. pp. 972–1059.
- BORGHANS, L.–MEIJERS, H.–TER WEEL, B. (2008b): The Role of Noncognitive Skills in Explaining Cognitive Test Scores. *Economic Inquiry*, Vol. 46. No. 1. pp. 2–12.
- HECKMAN, J. J. (2007): The technology and neuroscience of capacity formation. Kézirat.
- HECKMAN, J. J.–STIXRUD, J.–URZUA, S. (2006): The Effects of Cognitive and Noncognitive Abilities on Labor Market Outcomes and Social Behavior. Working Paper, 12006. National Bureau of Economic Research.
- MINCER, J. (1958): Investment in Human Capital and Personal Income Distribution. *Journal of Political Economy*, Vol. 6. No. 4. pp. 281–302.

4.2 THE ROLE OF EARLY CHILDHOOD SHOCKS IN THE EMERGENCE OF GENDER INEQUALITIES

ÁGNES SZABÓ-MORVAI

Research on the reasons for the gender gap in employment often focuses on factors affecting individuals in late childhood (education, career choice) and adulthood (having children, career paths). However, labour market performance is strongly influenced by the components of human capital such as mental capacity (cognitive skills), personality traits and health. The components of human capital are actively shaped by the environment from the moment of conception. In the months prior to birth, intrauterine effects and stimuli provide the environment for foetal development. The inherited set of genes, the number of prior abortions of the mother, her way of life before and during pregnancy, addictions, nutrition, stress level as well as air and water quality are all found to have an impact on the foetus. The circumstances of birth, preterm delivery, complications during delivery and the quality of subsequent medical care are decisive for later life. Following birth, children's primary environment is within their families, where most effects come from. The amount and quality of food intake is important, just as how much family members talk and read to the child, if there is violence, substance abuse or financial insecurity in the family – and a divorce or adoption may also be decisive events. Additionally, the wider environment, including air and drinking water pollution, local medical care and health visiting service and the access to and quality of nurseries, kindergartens and primary schools also influence human capital (*Szabó-Morvai, 2016*).

By the time children are ten years old, they are affected by plenty of impacts largely defining their labour market success. Some of these influences have been proven to affect girls and boys differently. In order to understand the reasons for the gender employment gap, it is useful to consider which circumstances result in what kind of differences in human capital between genders. Research findings show that psychological harm such as violence or neglect negatively affect both boys and girls. However, physiological impacts such as starvation, harmful environmental factors and poverty affect boys more. This may be due to the profound difference in the neurobiological development of boys and girls between conception and the age of two (*Schore, 1994, 2017*).

According to *Schore (2017)*, the right hemisphere of boys develops more slowly than that of girls and thus boys are more susceptible to negative environmental impacts than girls of the same age. *Kunzler et al. (2015)* reported that infant boys react differently to separation anxiety (separation from the mother): their cortisol levels soar significantly and repeated separation leads

to the divergent development of some of the neural pathways in the brain, which will be responsible for future behavioural disorders, while emotional responsiveness and stress tolerance will also change.

This may be the reason why grade repetition at school, behavioural problems, substance abuse, juvenile delinquency, suicide or psychological disorders such as attention deficit hyperactivity disorder (ADHD) or autism spectrum disorder are seen in a higher proportion of boys. For example *Chetty et al. (2016)* used administrative data to prove that boys brought up in single-parent families in poor financial circumstances are less likely to find employment in their twenties than girls brought up in similar circumstances.

Many children are exposed to these risks: in Hungary the share of children living in poor households¹ is 18 per cent, the share of children living in single-parent families² is 12.5 per cent, while the share of vulnerable children in basic school³ is 5.1 per cent. *Table 4.2.1* indicates data on Hungarian men in some important dimensions. For example the share of suicide is 3.5 times and the share of prisoners are 19.9 times higher among men than among women.

Table 4.2.1: Dimensions of vulnerability among men and women

	Men	Women	Difference (percentage point)
Share of SEN pupils (per cent, 2009–2015) ^a	5.98	3.29	1.8
Suicide (hundred-thousands, 2010) ^b	35	10	3.5
Number of prisoners (2016) ^c	16,361	822	19.9
Drug users attending treatment (2016) ^d	9,357	4,235	2.2
Number of registered alcoholics	12,952	5,033	2.6

^a Based on data from the National Assessment of Basic Competences organised by the Educational Authority.

^b Central Statistical Office (CSO).

^c Eurostat.

^d CSO.

1 Age group: 0–5 years, 2016. Source: *Varga et al. (2018)*.

2 Data from 2001, age group: below six. CSO.

3 2016, pupils in basic (primary and lower secondary) school. The share of pupils vulnerable because of family circumstances (malnourished, exposed to domestic violence, neglected or showing symptoms of drug addiction) as reported by school-teachers. Source: Institute of Economics, HAS.

4 The postpartum depression of mothers is a typical form of neglectful parenting: in this case the mother does not or insufficiently responds to the needs, signals and communication of the baby. Neglectful parenting causes as much harm in the future development of children as physical abuse.

5 Several studies reported that childhood abuse and neglect result in structural changes in the corpus callosum, thus the part of the brain providing one of the most important links between the two hemispheres will be smaller. This may lead to a deterioration of the efficiency of cognitive functions (*Petersen et al. 2014*).

Hereafter research with non-exhaustive examples for the association between early childhood shocks and later consequences are described.

Emotional shocks

Research findings concerning later impacts of early childhood shocks are mixed. *Petersen et al. (2014)* found that boys neglected⁴ or abused in childhood were more likely than girls to have behavioural disorders.⁵ This is contradicted by *Currie–Widom (2010)*, which compared victims of childhood violence or neglect with a group of individuals not experiencing these. The members of the group exposed to violence were 14 per cent less likely to be employed and if employed, they were less likely to have a job requiring a qualification. They were also more likely to earn lower wages and have fewer assets (a car, house etc.). The impacts were stronger in the case of women than in the case of men. *Norman et al. (2012)*, in their meta-analysis, did not find a sig-

nificant gender difference in the negative consequences of childhood abuse and neglect. *Phelps* (1998) found that the divorce of parents did not affect boys significantly, while the earnings of women clearly decreased. However, *Lizardi et al.* (2009) reported that while parental divorce did not increase the risk of suicide for girls, it did increase it for boys.

Physiological impacts

As for physiological environmental shocks, research results are more consistent: consequences are clearly more severe for boys. *Catalano* (2011) and *Catalano et al.* (2013) and (2006) provide circumstantial evidence for the vulnerability of boys in the womb by reporting that at times of natural or social disasters and economic crises the share of boys in live births decreases.⁶ Additionally, negative intrauterine impacts not only affect foetal loss, but also influence the future health and cognitive characteristics of surviving infants.

Analysing children born after the terrorist attacks of 11 September 2001 in New York, *Currie–Schwandt* (2015) found that air pollution with dust has a negative impact on the birth weight of infants, with a clearly stronger effect on boys: their birth height is significantly smaller, and they may develop cardiovascular problems, such as high blood pressure in later life.

The employability of boys brought up in poverty, single-parent families and a disadvantaged neighbourhood is substantially lower than that of girls brought up in similar circumstances (*Chetty et al.* 2016). *Autor et al.* (2015), relying on administrative data of boy-girl siblings, showed that the sons of low-qualified single mothers, who attend low-quality primary school, will be more likely to play truant or have behavioural problems than their sisters. These boys also achieve lower scores on competence tests, are less likely to complete upper-secondary school and more likely to be juvenile offenders.

⁶ *Eriksson et al.* (2010) suggest that the placenta of boys transports nutrients more efficiently (therefore they tend to grow bigger during pregnancy); however, it is less capable of storing them. This is why the growth of boys requires more nutrients and a less favourable environment (for example the starvation of their mothers) causes more harm in foetal development.

References

- AUTOR, D.–FIGLIO, D.–KARBOWNIK, K.–ROTH, J.–WASSERMAN, M. (2015): Family Disadvantage and the Gender Gap in Behavioral and Educational Outcomes. Institute for Policy Research Northwestern University, Working Paper Series, WP-15-16.
- CATALANO, R. (2011): Selection in Utero Contributes to the Male Longevity Deficit. *Social Science and Medicine*, Vol. 72. No. 6. pp. 999–1003.
- CATALANO, R.–BRÜCKNER, T.–MARKS, A. R.–ESKENAZI, B. (2006): Exogenous Shocks to the Human Sex Ratio. The Case of September 11, 2001 in New York City. *Human Reproduction*, Vol. 21. No. 12. pp. 3127–3131.
- CATALANO, R.–YORIFUJI, T.–KAWACHI, I. (2013): Natural Selection *in Utero*. Evidence from the Great East Japan Earthquake. *American Journal of Human Biology*, Vol. 25. No. 4. pp. 555–559.
- CHETTY, R.–HENDREN, N.–LIN, F.–MAJEROVITZ, J.–SCUDERI, B. (2016): Childhood Environment and Gender Gaps in Adulthood. *American Economic Review*, Vol. 106 No. 5. pp. 282–288.
- CURRIE, J.–SCHWANDT, H. (2015): The 9/11 Dust Cloud and Pregnancy Outcomes. A Reconsideration. *Journal of Human Resources*, Vol. 53. No. 3. pp. 805–831.

- CURRIE, J.–WIDOM, C. S. (2010): Long-Term Consequences of Child Abuse and Neglect on Adult Economic Well-Being. *Child Maltreatment*, Vol. 15 No. 2. pp. 111–120.
- ERIKSSON, J. G.–KAJANTIE, E.–OSMOND, C.–THORNBURG, K.–BARKER, D. J. P. (2010): Boys Live Dangerously in the Womb. *American Journal of Human Biology*, Vol. 22. No. 3. pp. 330–335.
- KUNZLER, J.–BRAUN, K.–BOCK, J. (2015): Early Life Stress and Sex-Specific Sensitivity of the Catecholaminergic Systems in Prefrontal and Limbic Regions of Octodon Degus. *Brain Structure and Function*, Vol. 220. No. 2. pp. 861–868.
- LIZARDI, D.–THOMPSON, R. G.–KEYES, K.–HASIN D. (2009): Parental Divorce, Parental Depression, and Gender Differences in Adult Offspring Suicide Attempt. *The Journal of Nervous and Mental Disease*, Vol. 197. No. 12. pp. 899–904.
- NORMAN, R. E.–BYAMBAA, M.–DE, R.–BUTCHART, A.–SCOTT, J.–VOS, T. (2012): The Long-Term Health Consequences of Child Physical Abuse, Emotional Abuse, and Neglect. A Systematic Review and Meta-Analysis. *PLoS Medicine*, Vol. 9. No. 11.
- PETERSEN, A. C.–JOSEPH, J.–FEIT, M. (eds.) (2014): Consequences of Child Abuse and Neglect. In: *New Directions in Child Abuse and Neglect Research*. National Research Council, National Academies Press, Washington, DC.
- PHELPS, C. D. (1998): Gender differences in the long-term economic consequences of parental divorce. *Journal of Economic Behavior and Organization*, Vol. 37. No. 2. pp. 151–168.
- SCHORE, A. N. (1994): Affect regulation and the origin of the self. The neurobiology of emotional development. Norton, New York, NY.
- SCHORE, A. N. (2017): All Our Sons: The Developmental Neurobiology and Neuroendocrinology of Boys at Risk. *Infant Mental Health Journal*, Vol. 38. No. 1. pp. 15–52.
- SZABÓ-MORVAI, Á. (2016): Háttér tanulmány a Magyar Születési Kohorszivizsgálathoz. (Background Essay to the Hungarian Birth Cohort Study.) Manuscript.
- VARGA, J.–HAJDU, T.–HERMANN, Z.–HORN, D. (2018): A közoktatás indikátorrendszerre, 2017. (Indicator-system of the Hungarian public education, 2017.) Ed: *Varga, J.* IE CERS HAS, Budapest.

4.3 THE IMPACTS OF ABORTION RESTRICTIONS ON BIRTH OUTCOMES

ANNA ADAMECZ-VÖLGYI, ANNA BÁRDITS, GÁBOR KERTESI
& ÁGNES SZABÓ-MORVAI

In-utero shocks have a long-term impact on human capital, which determines future labour market performance. This study investigates the effects of the abortion ban introduced in Hungary in 1974, relying on the birth database of the Central Statistical Office (CSO), with preliminary findings presented below.

In countries where there is a strict abortion ban, the number of unsafe abortions is much higher (*Ganatra et al.* 2017). As a result of unsafe abortions, 13 per cent of mothers die globally and a quarter of the women undergoing such a procedure suffer permanent damage to their health (*Haddad-Nour*, 2009). This obviously has a negative impact on their future pregnancies.

After some of the unsafe abortion attempts children are nevertheless born. We exploit a natural experiment to investigate the impact of abortion restrictions on the health of the newborn children: on 1 January 1974 in Hungary, the previous relatively permissive abortion regulation was tightened, abortion committees were established and abortion was only allowed in specific cases. Restricting access to abortion may have a negative effect on the health of new-born children. On the one hand, in the early stage of pregnancy, when mothers are not aware of being pregnant and the foetus is the most vulnerable, mothers' behaviour during unplanned pregnancies may be different from how they would behave in a planned pregnancy. On the other hand, restricting access to abortion may lead to choosing alternative ways of terminating the pregnancy, which in many cases do not succeed but are however harmful to both the foetus and the mother.

Such effects of the restrictions introduced in 1974 in Hungary have already been studied by medical research. It is well-documented that, after the restrictions, in cases when an abortion was not permitted by the abortion committee, doctors tried to induce miscarriages with high-dose oestrogen injections if requested by women (*Czeizel et al.* 2014). This practice continued until 1978, when it became apparent that as a result of unsuccessful attempts, there was a dramatic upsurge in the number of children born with limb reduction defects. This was only one of the methods; other detrimental practices might also have existed.

This study explores whether the restrictions had an impact on the health of children at birth, and if this impact differed for girls and boys. The causal impact of the restrictions is challenging to measure because of several other

changes that happened in this period: contraceptive pills became cheaper and more accessible, while family allowance, parental leave benefits and other benefits related to child rearing increased. We identify the impact of the restrictions making use of the fact that until the end of 1978 the restrictions did not apply to women aged 35 and above; they had the same access to abortion as earlier. Our empirical strategy consists of comparing the children of mothers aged 34 and 36.¹ Even before the restriction, women aged 34 gave birth to more children than women aged 36. In 1974, the number of births increased further among women aged 34 but not among women aged 36, and we assume that this difference is the result of the restrictions as women aged 34 became less likely to have an opportunity for an abortion. Since the two age groups are very close to one another, it is reasonable to think that the growing gap in births in 1974 was not caused by any other changes (for example the increase in the family allowance) because those were not linked to age.

We evaluate whether the share of children with birth defects also increased as a result of the restrictions using a ‘difference in differences’ approach. This assumes that in the absence of restrictions on abortion, the difference in the share of children with birth defects between the two maternal age groups would have remained the same. If the share of children with birth defects increased among mothers aged 34 but not among mothers aged 36, the difference would be interpreted as the impact of the restrictions. Our findings are shown in the third row of *Table 4.3.1*. The restrictions increased the share of children with birth defects in 1974 by 1 percentage point (Column 1), due to a decrease in the group aged 36 and an increase in the group aged 34. This impact is robust to the inclusion of several control variables (Column 2) and is statistically significant in both models.² This 1-percentage-point impact means that the share of children born with birth defects increased nearly fourfold due to the restrictions.

If we are looking at the data of more years before and after the restrictions, trade-offs emerge. On the one hand, this allows us to control for the variability of the share of children with birth defects within a year. On the other hand, the distance from the cut-off year, 1974, when the restrictions were introduced, increases. The larger the distance from the cut-off, the more opportunities women had for adapting to the new regulation. The impact we have found in 1974 is still robust looking at 1973–1975 but becomes small and insignificant looking at 1972–1976; thus, further investigations are needed in this respect.³

We have also looked at whether the effects differ between boys and girls; these findings are not presented here in details. We find suggestive evidence that the negative impacts might have been larger for boys, which is consistent with the relevant literature indicating that boys are more sensitive to in-utero negative shocks (see for example *Catalano et al. 2013, Eriksson et al. 2010*).

1 It is not known how permissive abortion committees were with mothers aged 35, therefore the age group of 34 was chosen as the treatment group and the age group of 36 as the control group. If in actual practice there were mothers aged 36, whose abortion was not permitted for reasons unknown to us, in spite of their age but mothers aged 34 were more likely to be denied, it does not create a problem for the identification strategy adopted.

2 It has a probability of less than 5 per cent that such or a larger impact would be seen due to random fluctuation, if in fact there were no impacts

3 Limitations of the study include the very small number of children with birth defects in the sample: in the longest period examined, fewer than 20 children per year on average were born with birth defects altogether in the two age groups, thus a few children born with a birth defect may substantially affect our estimates.

**Table 4.3.1: The impact of restrictions on access to abortion in 1974
on the share of children born with birth defects**

	(1)	(2)	(3)	(4)	(5)	(6)
	1974		1973-1975		1972-1976	
Born to a mother aged 34	-0.006* (0.004)	-0.007* (0.004)	-0.006*** (0.002)	-0.006*** (0.002)	-0.003* (0.001)	-0.002* (0.001)
Born after June 1974	-0.004 (0.004)	-0.005 (0.005)	-0.002 (0.002)	-0.005 (0.005)	-0.0003 (0.002)	-0.0007 (0.004)
The effect of restrictions	0.009** (0.005)	0.011** (0.005)	0.007** (0.003)	0.007** (0.003)	0.003 (0.002)	0.003 (0.002)
Constant	0.009*** (0.003)	0.012* (0.006)	0.008*** (0.002)	0.012*** (0.004)	0.005*** (0.001)	0.005 (0.003)
Controls	no	yes	no	yes	no	yes
N	4,512	4,358	12,651	12,196	20,359	19,607
R ²	0.001	0.006	0.001	0.003	0.000	0.003

Notes: Sample of live births of women aged 34 and 36. Linear probability models.

The coefficients of all columns were estimated by separate regressions. Robust standard errors in brackets. Control variables: educational attainment, proxy for income, county of residence, type of settlement, quarter of year fixed effects.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

References

- CATALANO, R.–YORIFUJI, T.–KAWACHI, I. (2013): Natural Selection in Utero: Evidence from the Great East Japan Earthquake. *American Journal of Human Biology: The Official Journal of the Human Biology Council*, Vol. 25. No. 4. pp. 555–559.
- CZEIZEL ENDRE–MÉTNEKI JÚLIA–BÉRES JUDIT (2014): 50 years of the Hungarian Congenital Abnormality Registry. *Congenital Anomalies*, Vol. 54. No. 1. pp. 22–29.
- ERIKSSON, J. G.–KAJANTIE, E.–OSMOND, C.–THORNBURG, K.–BARKER, D. J. P. (2010): Boys Live Dangerously in the Womb. *American Journal of Human Biology*, Vol. 22. No. 3. pp. 330–335.
- GANATRA, B.–GERDTS, C.–ROSSIER, C.–BROOKE, R. J.–TUNÇALP, Ö.–ASSIFI, A.–SEDGH, G. (2017): Global, Regional, and Sub-regional Classification of Abortions by Safety, 2010–14: Estimates from a Bayesian Hierarchical Model. *Lancet*, Vol. 390. No. 10110. pp. 2372–2381.
- Haddad, L. B.–Nawal, M. N. (2009): Unsafe Abortion: Unnecessary Maternal Mortality. *Reviews in Obstetrics and Gynecology*, Vol. 2. No. 2. pp. 122–126.

5 HUMAN CAPITAL, PART II TEST SCORES AND SCHOOL PERFORMANCE

5.1 CHANGES IN THE GENDER GAP IN EDUCATIONAL ATTAINMENT

JÚLIA VARGA

By the end of the 1990s, in most developed countries the gender gap in educational attainment had reversed (see for example *Schofer–Meyer*, 2005, *Goldin et al.* 2006, *Vincent-Lancrin*, 2008, *Parro*, 2012). While men used to have a higher educational attainment than women, in recent decades women have obtained tertiary or higher qualifications in greater proportions than men and have been low-qualified in lesser proportions. Research has revealed several reasons for such an increase in female educational attainment. For example, because labour market participation of women has become widely accepted, this encouraged women to invest in human capital (*Goldin et al.* 2006). The increase in the labour demand for higher education graduates and the additional wage return to higher education also supported the participation of women in higher education (see for example *Charles–Luoh*, 2003, *DiPrete–Buchmann*, 2006). *Becker et al.* (2010) conclude that the costs of higher education are lower for women because of the gender differences in non-cognitive skills and explain the higher participation of women by the lower costs. Women have not only overtaken men in higher education participation rates but female higher education students also graduate in a higher proportion (*DiPrete–Buchmann*, 2006, *OECD*, 2016), which further increases their advantage in the share of higher education graduates.

In 2017 the share of those with a lower-secondary qualification at most (ISCED 0–2) in young people in the EU28 was nearly 5 percentage points higher among men than among women, while the share of those with a higher education (tertiary) qualification was 17.5 percentage points higher among women than among men. In the age group 30–34, the share of those with a higher education qualification was 10 percentage points higher among women (*Table 5.1.1*). This gender gap was smaller in Hungary than the EU28 average but there is a similar tendency.

In 1990, at the start of the economic changeover, the educational attainment of women in the population over 15 was lower than that of men in Hungary – except for those with an upper-secondary qualification. Compared to men, women had a smaller share of those with a lower-secondary qualification or less, a substantially smaller share of those with a secondary vocational qualification without an upper-secondary school leaving certificate (*Matura*) and a somewhat smaller share of those with a higher education qualification.

However, they had a larger share of those with an upper-secondary qualification with Matura (*Figure 5.1.1*).

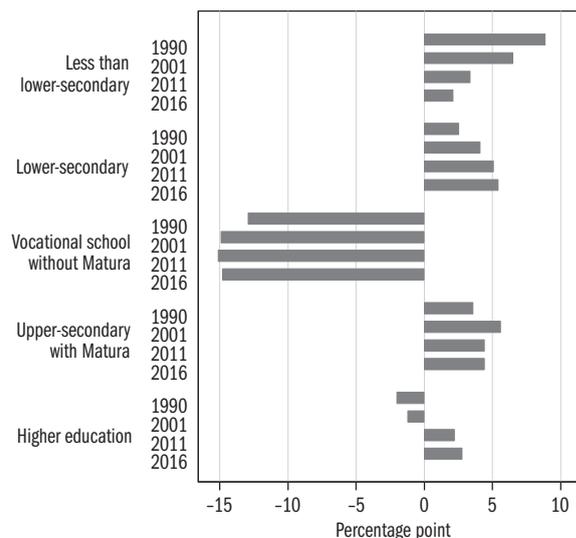
Table 5.1.1: Difference in the share of educational attainment between women and men in younger age groups, 2017

	EU28 average			Hungary		
	women	men	difference	women	men	difference
percentage						
Aged 20–24						
Upper-secondary at most (ISCED 0–2)	14.2	19.1	-4.9	15.5	15.8	-0.3
Upper-secondary (ISCED 3)	64.4	65.8	-1.4	73.1	78.5	-5.5
Tertiary (ISCED 5–8)	32.4	14.9	17.5	11.4	5.7	5.7
Aged 30–34						
Tertiary (ISCED 5–8)	44.2	33.9	10.3	35.8	24.7	11.1

Note: The percentage of women with a certain educational attainment level aged 20–24 (and aged 30–34) within the female population aged 20–24 (and aged 30–34 respectively) minus the percentage of men with the same educational attainment level aged 20–24 (and aged 30–34) within the male population aged 20–24 (and aged 30–34 respectively).

Source: Eurostat.

Figure 5.1.1: The difference in the share of educational attainment levels among men and women aged over 15 in Hungary, 1990, 2001, 2011 and 2016 (percentage point)



Note: The percentage of women with a certain educational attainment level minus the percentage of men with the same educational attainment level.

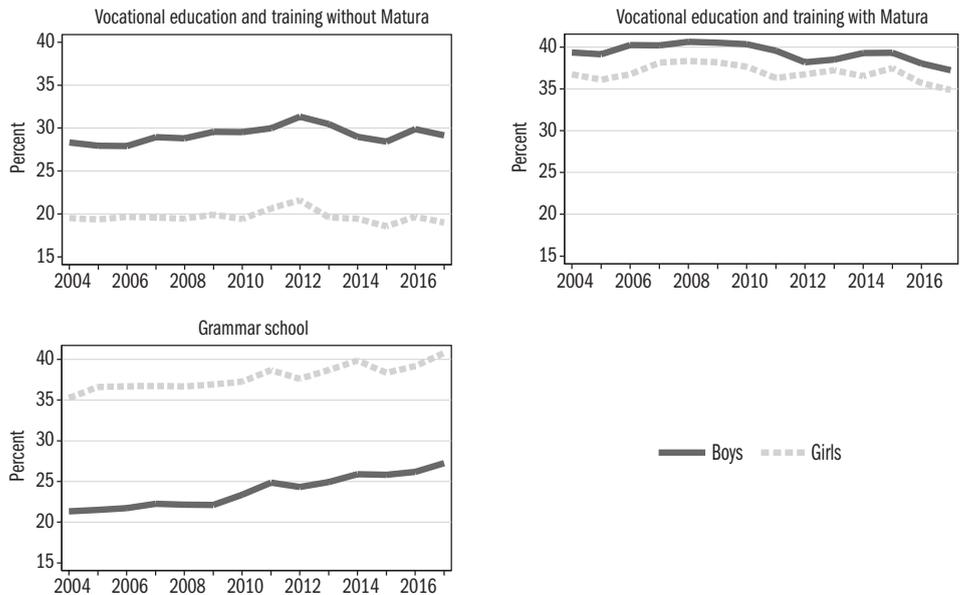
Source: Calculated from data from the 1990, 2001 and 2011 census and the 2016 micro-census (CSO). The positive section of the graph indicates the predominance of women, while the negative section indicates the predominance of men.

However, in younger age groups women were already more qualified in 1990 than men. There was no difference in the share of those with a lower-second-

ary educational attainment level at most between the genders but women had a greater share of higher education graduates (*Table 5.1.1*) since in Hungary (similarly to the Scandinavian countries and the other post-communist countries) the share of women in higher education had already reached 50 per cent by 1981, then exceeded it (*Bavel, 2012*). As a result of the expansion of education after the political changeover, by 2011 the share of women in higher education graduates had already exceeded that of men in the entire population over 15, and this advantage further increased up until 2016.

In the coming years the gender gap is likely to increase further. On the one hand, when continuing their studies in upper secondary education, the share of boys in vocational education and training, which does not lead to an upper-secondary school leaving exam (*Matura*) and in this way does not enable pupils to enter higher education, is 10 percentage points higher. By contrast, the share of girls in general upper-secondary education (*gymnasiums*) is 10 percentage points higher (*Figure 5.1.2*). Boys have only a 2–3 percentage points higher share in upper-secondary vocational education than girls, therefore girls are, on the whole, in a higher proportion in education leading to a *Matura*.

Figure 5.1.2: The share of the genders within the pupils of the different types of upper-secondary schools in Hungary, 2004–2017 (percentage)

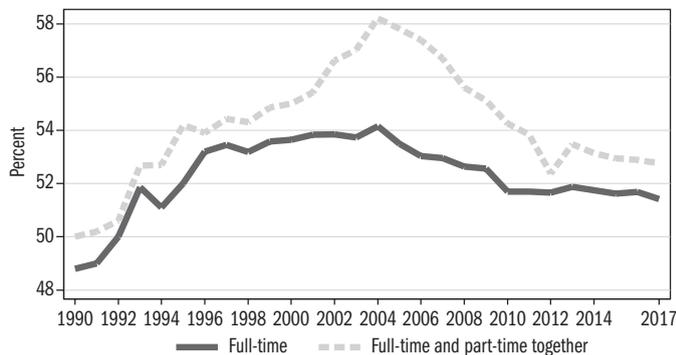


Source: *Varga et al. (2018)*, Indicator C.2.4.

The share of women in higher education decreased after 2004 but it still exceeds 50 per cent in both full-time and part-time programmes (*Figure 5.1.3*). Furthermore, since women also complete their studies in higher proportions than men in Hungary, there is an even greater difference between the share

of women and men among higher education graduates – to the advantage of women (see *Hermann–Varga, 2012*).

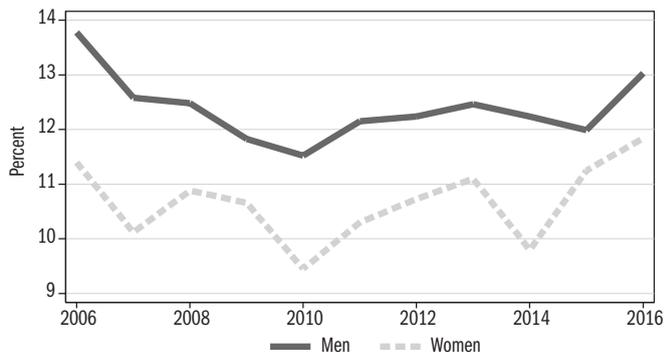
Figure 5.1.3: The share of women in higher education in Hungary, 1990–2017 (percentage)



Source: Data from the yearbooks of education published by the Ministry for Education in the period 1990–2000 and data from the Educational Authority since 2000.

The proportion of the low-qualified is also likely to decrease more (or increase less) among women, because there is a lower share of early school leavers among women than among men, although after 2010, along with the increasing proportion of early school leavers in general, the share of early school leavers among women started to approach that of men (*Figure 5.1.4*).

Figure 5.1.4: The proportion of early school leavers in Hungary broken down by gender, 2006–2016 (percentage)

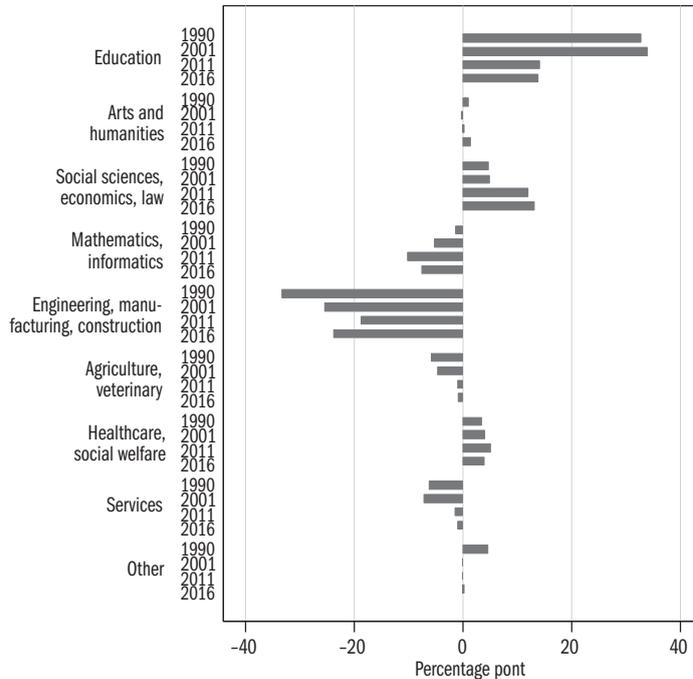


Source: *Varga et al. (2018)*.

Although women at present obtain a higher education qualification in a greater proportion than men, they do not form a majority in all fields of science. There is significant gender segregation in terms of fields of study in most countries but there are considerable differences across countries. Women are underrepresented in Science, Technology, Engineering and Maths (the STEM subjects) and overrepresented in the fields of teacher education, humanities,

social sciences, law and healthcare (*Charles–Bradley, 2002, Vincent-Lancrin, 2008 and Zafar, 2013*). These differences have important consequences for the earning potential of men and women (*Brown–Corcoran, 1997, Jurajda, 2003 and Machin–Puhani, 2003*).

Figure 5.1.5: Differences in the proportions of fields of studies of degrees obtained by women and men aged 30–34 in Hungary 1990, 2001, 2011 and 2016 (percentage point)



Source: Calculated from data from the 1990, 2001 and 2011 census and the 2016 micro-census (CSO).

In 1990, nearly half of women with a higher education qualification, aged 30–34, had a degree in teaching in Hungary. Even though women remained overrepresented in this area over the next decade, the gender gap in the share of teaching degrees decreased (from 33 percentage points to 14 percentage points). By contrast, the difference in the share of social sciences, economics and law degrees has increased, to the advantage of women. While in 1990 women only had a 5 percentage points higher share of degrees obtained in such disciplines than men, in 2016 they already had a 13 percentage higher share. As for the share in degrees in engineering, industry and construction, women started to close the gap in the period 1990–2011. In 1990, men had an advantage of 33 percentage points, which decreased to 18 percentage points by 2011. However, the advantage of men in Mathematics, Informatics and Science grew from less than 1.5 percentage points in 1990 to more than

10 percentage points in 2011. Between 1990 and 2016 the very small gender gap in human sciences, arts, healthcare and social welfare did not change and it disappeared in agriculture and veterinary studies.

In spite of the significant changes in the proportions across disciplines, considerable differences remained in Hungary between the two genders in the shares of degrees in different disciplines, which profoundly affects the labour market opportunities of the genders and also has an impact on the proportions of disciplines in higher education degrees in general. In Hungary it seems unlikely to increase the proportion of STEM graduates substantially without the increase in the share of women in these disciplines.

References

- BAVEL, J. V. (2012): The reversal of gender inequality in education, union formation and fertility in Europe. *Vienna Yearbook of Population Research*, Vol. 10. pp. 127–154.
- BECKER, G. S.–HUBBARD, W. H. J.–MURPHY, K. M. (2010): Explaining the Worldwide Boom in Higher Education of Women. *Journal of Human Capital*, Vol. 4. No. 3. pp. 203–241.
- BROWN, C.–CORCORAN, M. (1997): Sex-based differences in school content and the Male-Female Wage Gap. *Journal of Labor Economics*, Vol. 15. No. 3. pp. 431–465.
- CHARLES, K. K.–LUOH, M. C. (2003): Gender differences in completed schooling. *Review of Economics and Statistics*, Vol. 85. No. 3. pp. 559–577.
- CHARLES, M.–BRADLEY, K. (2002): Equal but separate? A cross-national study of sex segregation in higher education. *American Sociological Review*, Vol. 67. No. 4. pp. 573–599.
- DIPRETE, T. A.–BUCHMANN, C. (2006): Gender-specific trends in the value of education and the emerging gender gap in college completion. *Demography*, Vol. 43. No. 1. pp. 1–24.
- GOLDIN, C.–KATZ, L. F.–KUZIEMK, I. (2006): The Homecoming of American College Women: The Reversal of the College Gender Gap. *Journal of Economic Perspectives*, Vol. 20. No. 4. pp. 133–156.
- HERMANN, Z.–VARGA, J. (2012): A népesség iskolázottságának előrejelzése 2020-ig. Iskolázási mikroszimulációs modell (ISMIK). *Közgazdasági Szemle*, Vol. 59. No. 7–8. pp. 854–891.
- JURAJDA, S. (2003): Gender wage gap and segregation in enterprises and the public sector in late transition countries. *Journal of Comparative Economics*, Vol. 31. No. 2. pp. 199–222.
- MACHIN, S.–PUHANI, P. A. (2003): Subject of degree and the gender wage differential. Evidence from the UK and Germany. *Economics Letters*, Vol. 79. No. 3. pp. 393–400.
- OECD (2016): Completion rate of full-time students by level of education, gender, method and duration (2014). In: *Education at a Glance 2016*. Chapter A. The Output of Educational Institutions and the Impact of Learning, Table A9.1. OECD, Paris, pp. 31–171.
- PARRO, F. (2012): International Evidence on the Gender Gap in Education over the Past Six Decades. A Puzzle and an Answer to It. *Journal of Human Capital*, Vol. 6. No. 2. pp. 150–185.
- SCHOFER, E.–MEYER, J. W. (2005): The Worldwide Expansion of Higher Education in the Twentieth Century. *American Sociological Review*, Vol. 70. No. 6. pp. 898–920.
- VARGA, J.–HAJDU, T.–HERMANN, Z.–HORN, D. (2018): A közoktatás indikátorrendszere, 2017. Ed: Varga, J. MTA KRTK KTI, Budapest.
- VINCENT-LANCRIN, S. (2008): The Reversal of Gender Inequalities in Higher Education: An On-going Trend. In: *Higher Education to 2030*. Vol. 1. Demography–OECD, Paris, pp. 265–298.
- ZAFAR, B. (2013): College Major Choice and the Gender Gap. *Journal of Human Resources*, Vol. 48. No. 3. pp. 545–595.

5.2 GENDER GAPS IN TEST SCORES IN INTERNATIONAL COMPARISON

ZOLTÁN HERMANN

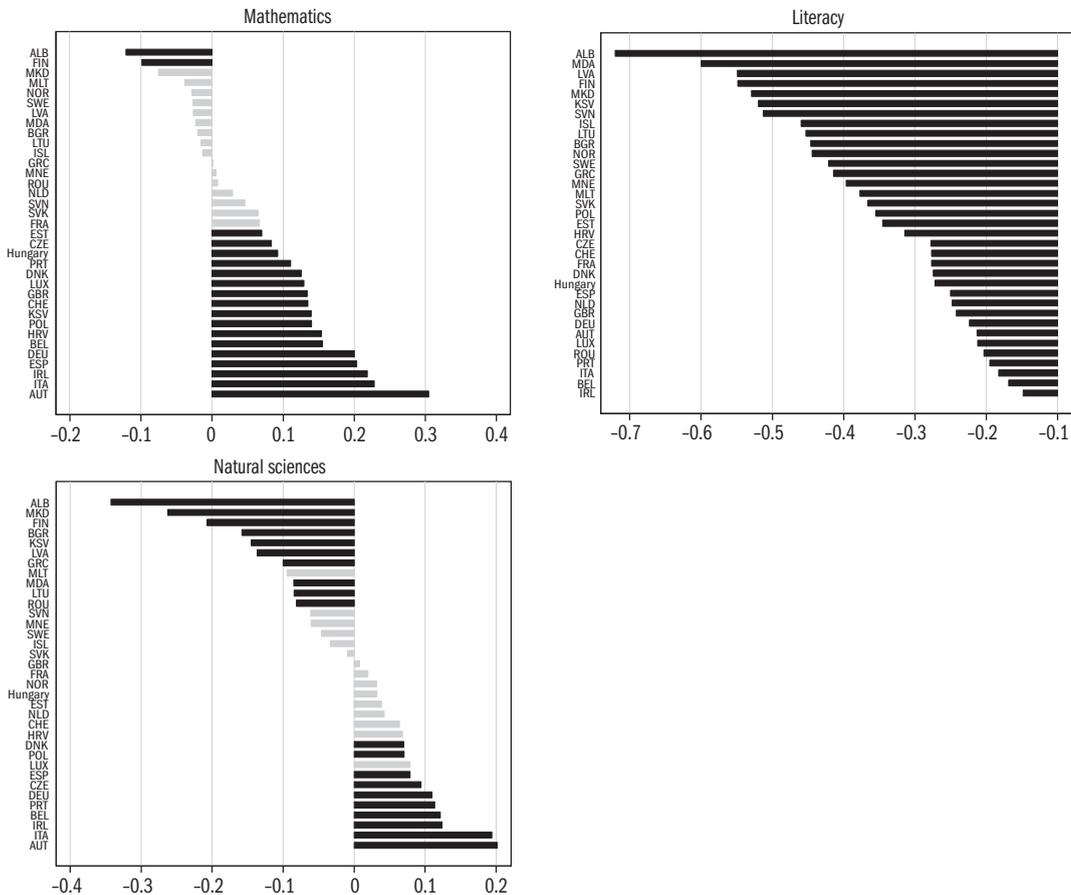
It is a well-known fact, that there are significant differences among countries regarding the gender gap in test scores (*Marks, 2008*). Gender gaps in test scores (hereafter GGTS) based on the data of the latest PISA programme of 2015 are presented below. The PISA Programme measures students' skills in mathematics, natural sciences and literacy with standardized tests to assess how well students can apply what they learnt in school to real-life situations out of the context of school exercises. The programme measures the skills of students at the age of 15.

There are significant differences among countries in the average performance level of students. In order to precede its influence on the measured GGTS, test scores were standardised by country thus the unit of the GGTS is the standard deviation (SD). Raw scores were divided by the standard deviation excluding gender differences, calculated from the average of boys' variance and girls' variance (*Baye-Monseur, 2016*). This way the variance component generated by the gender gap itself is eliminated from the standard deviation. The GGTS was measured from the boys' aspect; positive values indicate the better performance of boys.

Figure 5.2.1 presents the average values of the GGTS in European countries. Gender gaps are the largest in the field of literacy. The performance of girls exceeds that of boys in every European country, by a country average of 0.35 standard deviation, which denotes a significant difference. In mathematics, it is rather boys who perform better on average but this is not the case in every country. In some countries, the difference is not significant while in Finland and Albania girls perform better than boys. In the average of countries, the advantage of boys is 0.07 standard deviation. As regards natural sciences the picture is rather mixed. In one-third of the countries boys achieve better scores, in one-third girls while there is no significant difference in the remaining countries.

However, differences among countries are significant in all the three fields. Although the standard deviation of the GGTS among countries is the largest in literacy (0.14 SD) its value is quite similar in mathematics and natural history (0.10 and 0.12 SD). In the case of Hungary the GGTS is around the medium level. There is no significant difference in the field of natural sciences. The performance of boys is somewhat better (0.09 SD) in mathematics. The advantage of girls in literacy (0.27 SD) is somewhat below the European average.

Figure 5.2.1: Gender gaps in test scores (boys-girls) in European countries, 2015



Dark grey: significant GGTS at a level of 5 percent

Light grey: not significant GGTS at a level of 5 percent

Abbreviations: ALB: Albania, AUT: Austria, BEL: Belgium, BGR: Bulgaria, CHE: Switzerland, CZE: Czech Republic, DEU: Germany, DNK: Denmark, ESP: Spain, EST: Estonia, FIN: Finland, FRA: France, GBR: United Kingdom, GRC: Greece, HRV: Croatia, HUN: Hungary, IRL: Ireland, ISL: Iceland, ITA: Italy, KSV: Kosovo, LTU: Lithuania, LUX: Luxemburg, LVA: Latvia, MDA: Moldova, MKD: Macedonia, MLT: Malta, MNE: Montenegro, NLD: Germany, NOR: Norway, POL: Poland, PRT: Portugal, ROU: Romania, SVK: Slovak Republic, SVN: Slovenia, SWE: Sweden.

Source: Own calculation based on the PISA database of 2015.

It is important to mention that there is a strong positive correlation at the country-level among test score differences measured in the three fields of studies. (Guiso *et al.* 2008, Marks, 2008). Regarding the European data of 2015 this correlation is around 0.8. This means that the more advantage boys for example have in mathematics in a country typically the less they lag behind in literacy. This, however does not mean that gender differences *in total* are high in certain countries while lower in others. The difference rather is that girls in

certain education systems perform relatively better in all the three fields (as in Finland or Latvia) while in other countries boys learn relatively more effectively (as in Austria or Italy).

This correspondence leads to two important conclusions. First, it is not likely that different degree of specialization of gender roles is the main driver of the country differences. If this were to be the case, in countries where the education system transmits strongly specialized expectations after gender roles the advantage of boys would be similarly significant in mathematics than the advantage of girls in literacy, i.e. negative correlation could be observed. Second, cross-country differences could hardly be explained by subject-specific education policies (e.g. teaching methods and curricula in mathematics). It is more likely, that these originate in the more general characteristics of the education systems (Marks, 2008).

Possible reasons for gender gaps in test scores among countries

Literature on cross-country differences traditionally explains this variation by social and cultural factors, results are however mixed. A part of the analyses demonstrates a positive association (Guiso *et al.* 2008, Else-Quest *et al.* 2010), while others did not find a link at all (Fryer–Lewitt, 2010, Stoet–Geary, 2015). Another part of the literature links the differences of GGTS among countries with the characteristics of the education system. Van Langen *et al.* (2006) examined the integration of the education systems (school types, segregation, differences among schools) and found, that girls perform relatively better in a more unified school system. Ayalon–Livneh (2013). Van Hek (2017) arrived at a similar consequence regarding the standardisation of education systems, which was measured by the variation in pedagogic methods among teachers. Hermann–Kopasz (2018) studied three further characteristics of the school system: early selection among school types, frequency of grade repetition and deployment of the so called, student-oriented teaching practices. The latter is measured by the composite index developed by the OECD (2013). The composite index is based on the frequency of classroom practices e.g. when individual students are allocated different exercises, students work on longer projects or engage in group work. The results of this study regarding European countries are summarized below.

Table 5.2.1 demonstrates the correspondence based on single cross-sectional regression estimates on the European sample. In countries where grade repetition is more frequent boys perform relatively better than girls (their advantage is larger in mathematics and their disadvantage is smaller in literacy). On the contrary, student-oriented teaching practices are more favourable for girls. Early selection (at the age of 14 or earlier) is not closely related to test score differences.

Table 5.2.1: Gender gaps in test scores (boys-girls) and the characteristics of the education system in European countries, 2015

	Mathematics	Literacy	Natural sciences
	(1)	(2)	(3)
Early selection	0.0286 (0.0298)	0.0324 (0.0367)	0.0269 (0.0340)
Frequency of grade repetition	0.0278* (0.0143)	0.0531*** (0.0176)	0.0266 (0.0163)
Student-oriented teaching practice	-0.133** (0.0518)	-0.0729 (0.0639)	-0.116* (0.0591)

Note: Cross-sectional regression estimates. $N = 30$. Due to its outlier values Albania was excluded. Standard errors in square brackets.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: Own calculation based on the PISA database of 2015.

These correlations themselves, however do not answer the question of whether the characteristics of the education system do have an effect on gender gaps. To explore causal effects we employ indirect methods.

We can assume that grade repetition has primarily an impact on low achiever students by directly affecting or threatening them. Therefore, correlation between test score differences and grade repetition is expected to be the strongest in their case. This hypothesis though cannot be proved which implies that the frequency of grade repetition is unlikely to have a direct effect on test score gaps (*Hermann-Kopasz, 2018*). The correlation with grade repetition is more likely to represent the impact of some other characteristic of the educational system.

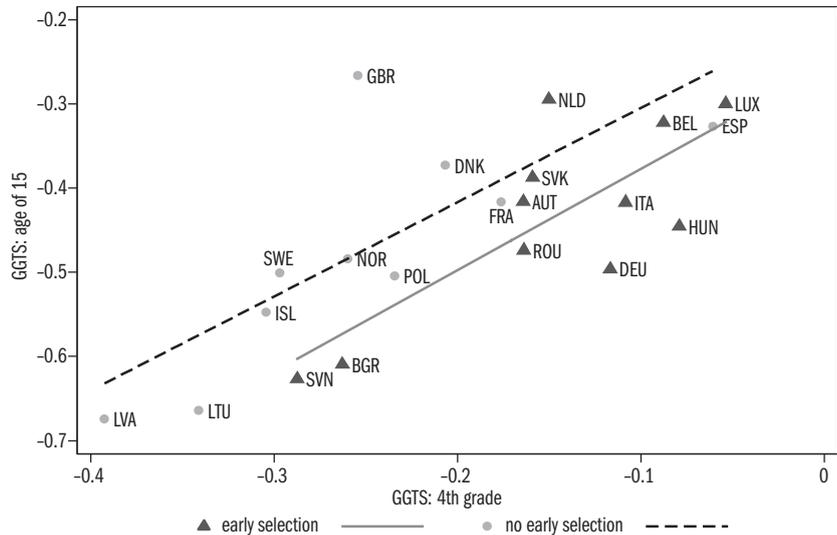
The link between student-oriented teaching practices and the gender gap could be examined also within countries, as teaching practices could differ among schools as well as within schools. The results of student level estimates containing country- or school fixed effects confirm that student-oriented teaching practices could have a positive impact on the relative performance of girls. (*Hermann-Kopasz, 2018*).

The direct impact of early selection could be examined by the difference-in-differences method, complementing PISA data with the data of the TIMSS and PIRLS data on fourth grade pupils by IEA.¹ As no different school types exist in primary education anywhere, the direct impact of early selection could be estimated by comparing the change in GGTS between the fourth grade and the age of 15 in early tracking and late- or non-tracking countries. The impact is shown by the fact that the change is greater in selective school systems than in countries with a unified school system. *Figure 5.2.2* presents this effect in the field of literacy based on PISA data of 2012. It is clearly visible, that the disadvantage of boys in literacy increases between the fourth grade and the age of 15 in all countries (except the United Kingdom where it remains at the same level). This growth, however is stronger in school systems

¹ IEA: International Association for the Evaluation of Educational Achievement. TIMSS: Trends in International Mathematics and Science Study. PIRLS: Progress in International Reading Literacy Study.

with early selection. The average effect is indicated by the difference between the levels of the lines representing the two groups of countries.

Figure 5.2.2: The impact of early selection on the gender gaps in literacy test scores (boys-girls) in European countries, 2015



Note: Abbreviations see under *Figure 5.2.1*.

Source: Own calculation based on the data of PISA of 2015 (age 15) and PIRLS of 2006 (4th grade).

Regression estimates on whole sample of countries confirm the effect shown by *Figure 5.2.2* in all the three fields of knowledge (*Hermann–Kopasz, 2018*). In the case of literacy the effect is statistically significant on the European subsample, as well. The direct impact of early selection therefore is advantageous for girls. The reason for this is that the share of girls in vocational-type schools providing a lower level of general education is lower in general.

On the whole, it seems that gender gaps in test scores cohere with the characteristics of the education system. More traditional education systems – where grade repetition is more frequent, selection is early, and the use of modern pedagogic methods is less widespread – favour boys. The *direct* impact of early selection however improves the performance of girls.

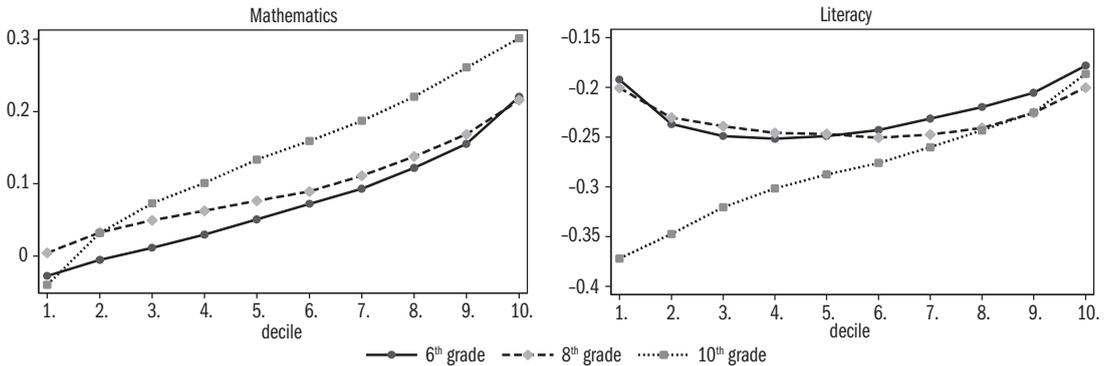
Gender gaps in test scores and the distribution of student achievement

Beyond differences in average test scores it is worthwhile to examine gender gaps both among exceptionally weak and well-performing students. The lower proportion of girls in tertiary education in STEM (natural science, IT, technology and mathematics) programmes is well-known; from this respect GGTS measured among well-performers is more relevant than the average

GGTS (*Baye–Monseur, 2016*). The analysis of the other tail of the distribution shows the extent of gender-specificity of low achievement.

Figure 5.2.3 presents GGTS in Hungary in deciles by test scores, in three grades based on the standardized data of the National Assessment of Basic Competencies.

Figure 5.2.3: Gender gaps in test scores (boys-girls) by students' performance in Hungary, 2013–2017



Source: Own calculation based on the data of the National Assessment of Basic Competencies.

Gender gaps show remarkably different patterns on the two tails of the distribution. In mathematics boys have a larger advantage in the top of the distribution and there is no difference among low achievers. GGTS in primary schools is even smaller, the advantage of boys increase after the 8th grade except in the group of the weakest performers.

As regards to literacy the difference at the 10th grade is the largest – in favour of girls – among the weak performers. Gender gaps at the 6th and 8th grade however show a balanced picture. Differences at the 10th grade are in line with the PISA data as well as with the general findings of the literature. In international comparison, however in Hungary girls perform exceptionally well relative to boys in the lower part of the distribution in all the three fields measured by PISA, while gender gaps in other parts of the distribution are of average size. This is probably related to the differences among school tracks.

It is worth mentioning here, that test scores of high achiever boys in European countries typically exceed or at least reach the test scores of the best performer girls in the field of natural sciences while among low achievers it is rather girls who have the advantage. This pattern is consistent with the lower participation rate of girls in STEM education (*Baye–Monseur, 2016*).

Finally, a further commonly-known characteristic of the gender gap in test scores is that the test score distribution among boys is less equal, the variance is higher than among girls (*Baye–Monseur, 2016*). In the average of European countries, the variance measured among boys is about 15 percent higher in

all the three fields. This difference in Hungary, however is among the smallest ones.

References

- AYALON, H.–LIVNEH, I. (2013): Educational standardization and gender differences in mathematics achievement: A comparative study. *Social Science Research*, Vol. 42. No. 2. pp. 432–445.
- BAYE, A.–MONSEUR, C. (2016): Gender differences in variability and extreme scores in an international context. *Large-scale Assessments in Education*. IEA-ETS Research Institute Journal, Vol. 4. No. 1.
- ELSE-QUEST, N. M.–HYDE, J. S.–LINN, M. C. (2010): Cross-national patterns of gender differences in mathematics: A meta-analysis. *Psychological Bulletin*, Vol. 136. No. 1. pp. 102–127.
- FRYER, JR. R. G.–LEVITT, S. D. (2010): An empirical analysis of the gender gap in mathematics. *American Economic Journal: Applied Economics*, Vol. 2. No. 2. pp. 210–240.
- GUIISO, L. F.–MONTE, P.–SAPIENZA, P.–ZINGALES, L. (2008): Culture, gender, and math. *Science*, 320. pp. 1164–1165.
- ZOLTÁN HERMANN–MARIANNA KOPASZ (2018): Educational policies and the gender gap in test scores. A cross-country analysis. BWP 2018/5.
- MARKS, G. N. (2008): Accounting for the gender gaps in student performance in reading and mathematics: evidence from 31 countries. *Oxford Review of Education*, Vol. 34. pp. 89–109.
- OECD (2013): PISA 2012 Results: Ready to Learn: Students' Engagement, Drive and Self-Beliefs. Vol. III, OECD Publishing, Paris.
- STOET, G.–GEARY, D. C. (2015): Sex differences in academic achievement are not related to political, economic, or social equality. *Intelligence*, Vol. 48. pp. 137–151.
- VAN HEK, M. (2017): Gender inequality in educational attainment and reading performance A contextual approach. ICS dissertation series, 248.
- VAN LANGEN, A.–BOSKER, R.–DEKKERS, H. (2006): Exploring cross-national differences in gender gaps in education. *Educational Research and Evaluation*, Vol. 12. No. 2. pp. 155–177.

5.3 GIRLS IN HUNGARIAN VOCATIONAL EDUCATION*

MÁRTON CSILLAG, BORI GRESKOVICS & TAMÁS MOLNÁR

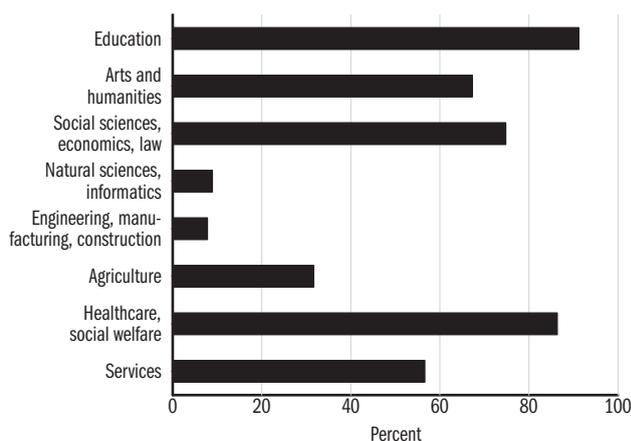
The most striking example of labour market differences between men and women is occupational gender segregation, i.e. men and women work in different fields and occupations. Vertical segregation covers gender differences in occupational hierarchies, while horizontal segregation reflects gender differences between occupations that can lead to exclusively male and female professions. In many cases ‘male professions’ result in higher prestige and higher wages. In this analysis we focus on the latter, the horizontal segregation.

Because occupational choice is strongly determined by educational attainment, we look first at gender differences in vocational education between different fields, then we examine their impact on later employment and wages.

Gender segregation in vocational secondary education

In this analysis we use data from the Hungarian Educational Authority, and we assess gender ratio by different vocational programmes in basic vocational schools (lasting 3 years, with typically no baccalaureate), and in vocational secondary schools (lasting 4–5 years, with a baccalaureate) among students passing the final exam in 2014.¹ Breaking down the data by a broader field of studies results in significant gender differences. Girls represent the overwhelming majority, more than 86% and 91% of students in the field of Health Care and Education, while less than 10% of students graduating from the fields of Mathematics, IT and Natural Sciences, as well as Technical Studies and Construction were girls (*Figure 5.3.1*).²

Figure 5.3.1: Share of girls in different vocational programmes (%)



Source: Authors' calculation, based on data from Educational Authority, *OH KIRSTAT*, 2014.

* The analysis was produced under the project 'Girls can do it. Supporting non-traditional career choices of women with a vocational education.' We are thankful for the support of the Visegrád Fund.

1 In the academic year 2016/2017 a limited transformation of vocational education was conducted. Since then it has been possible to obtain a baccalaureate degree in both kinds of vocational schools. Although we use data from 2014, therefore, the transformation made no impact on our results.

2 If we focus on different vocational programmes (thus on narrowly defined fields of study) gender segregation becomes more pronounced. In our calculations we used the first two digits of the three digit official National Qualifications Register (OKJ) code to distinguish between different vocational programmes.

Consequences on the labour market

Employment rate

We analysed the impact of gender and vocational qualifications on labour market status using the data of the annual Labour Force Survey conducted by the Hungarian Central Statistical Office in 2014. We assessed 10,575 young Hungarian individuals aged 20 to 29, who had a vocational qualification with or without a baccalaureate.

We examined the explanatory power of gender and the field of vocational qualification for employment chances, while controlling for other demographic attributes (e.g. region, age).³ We assessed separately the group of young persons who have a basic vocational education and the ones who have a vocational secondary education.⁴ We found a significant gender gap in the group who have attained a basic vocational education: only 61.7% of young women were employed, while 76.4% of men had a job. In the group with a vocational secondary education gender differences were negligible: 83.3% of women and 86.5% of men were employed.

Using multiple regression analysis, we see that the effect of gender on employment probability is largely reduced if we included the field of vocational qualification in the model among those with a basic vocational education.⁵ By contrast, among young people with a vocational secondary education no such result can be observed. More specifically women without a baccalaureate had by 11 percentage points a lower chance to be employed than men with the same education, but the difference becomes significantly smaller (5.74 pp) if we include the effect of field of vocational qualification in the model. There was no significant gender gap in the group of people with a baccalaureate, although women were slightly less likely to be employed than men (*Table 5.3.1*). The results suggest that half of the gender gap among young people with a basic vocational education can be explained by the unfavourable field of study choice of young women, which is most likely due to the fact that girls tend to choose occupations with less favourable labour market outcomes.

3 In our calculations we used a logit model. In our final model the following variables were involved: gender, the dummy variable of different occupations (with data from about at least 50 people). We controlled the model for age, the region of residence and the wave of the survey.

4 In our analysis participants of public work schemes and people on maternity or parental leave were not included.

5 Age has a significant impact on employment both among people with a basic vocational education and vocational secondary education. The level of employment increases with age. The region of residence also correlates with the employment, the correlation is especially strong among people with a basic vocational education. People living in the central and western parts of Hungary have significantly greater chances to be employed than people living in Eastern-Hungary. This correlation is likely to be true for groups with a different level of education as well.

Table 5.3.1: Employment chances of women compared to men

	Basic vocational education		Vocational secondary education	
	gender only	whole model	gender only	whole model
Marginal effect	-0.11	-0.06	-0.03	-0.03
Confidence interval	[-0.17, 0.06]	[-0.12, 0.01]	[-0.07, 0.00]	[-0.07, 0.02]
p-value	0.000	0.087	0.064	0.230

Source: Authors' calculation based on data from the national *Labour Force Survey* in 2014.

We also found that employment correlates strongly with occupational choice among young adults with a basic vocational education. Several fields (e.g. textile industry, trade) chosen by mainly women offer worse labour market out-

comes than others (e.g. electrical industry) chosen predominantly by men. Conversely, the impact of occupational choice was smaller among young people with a vocational secondary education.

Gender pay gap

The gender differences in field of study choices have a strong impact on the future wages as well. The share of women is systematically higher in fields which lead to occupations where the relative average wages are lower.

If everyone worked in the same occupation or field in which they graduated, men would earn 18% more than women among young adults with a basic vocational education (using data from 2014 on graduations and wages).⁶ After controlling for other factors determining wages young men still earn more by 16.5% than women due to their more favourable occupational choices. Among young people with a vocational secondary education the gender pay gap caused by the gender differences in the field of vocational education is negligible, reaching only 1.9% in the case of average wages, and amounting to 1.7% if we control for the other factors.

We found five programmes in basic vocational education that are mainly responsible for the significant expected early career gender pay gap. These five programmes in total widened the gender gap by 15.4% in favour of men. Three of these were primarily chosen by men and led to relatively high earnings (machinery, energetics and construction programmes). The other two programmes were in the fields of trade and tourism and attracted mainly women; and given that these two programmes led to lower (relative) wages they decreased the average expected wages of women.

Summary

We found on the basis of the 2014 data that girls and boys were characterized by a different pattern of fields of study choices in secondary vocational education. This fact strongly affects the futures chances of men and women on the labour market, especially among those with no baccalaureate. Women with a basic vocational education have a significantly less chance to be employed than men with the same education and half of the gender gap can be explained by gender differences in field of study choices. The different occupational choices can also lead to a future gender pay gap: if everyone worked in the same occupation or field from which they graduated, men with a basic vocational education would earn more by 16.5% than women with the same level of education, while the gender pay gap is only 1.7% among young persons with a vocational secondary education.

⁶ We used individual wage data (Bértarifa) for 2014 and estimated the relative wages and wage premiums of different occupations (3 digits code of Hungarian Standard Classification of Occupation [FEOR]). The wage premiums were calculated by controlling for age and region of workplace. We must add that only declared wages are in the data, which can bias the calculation of relative wage premiums. We connected the wage premiums to data received from the Hungarian Educational Authority for 2014 and we assumed that every young person takes a job related to her/his field of education.

5.4 HORIZONTAL GENDER SEGREGATION IN HIGHER EDUCATION – STEM APPLICATIONS

KOEN DECLERCQ & JÚLIA VARGA

Despite the significant increase in the participation of women in higher education as presented in chapter 5.1, horizontal gender segregation is still considerable. STEM (Science, Technology, Engineering and Mathematics) study fields are chosen by a much smaller proportion of women than men. This not only negatively influences labour market opportunities of women, but also the labour supply of STEM graduates.

The reasons for horizontal gender segregation have been broadly studied in the literature. One strand of the literature tried to explain this phenomenon by the gender skill gaps in test scores in mathematics (*Ceci et al.* 2009, *Ceci-Williams*, 2010, *Halpern et al.* 2007, *Hyde et al.* 2008, *Turner-Bowen*, 1999, *Wai et al.* 2010). However, most of this research concluded that the gender gap in test scores in mathematics has significantly decreased over recent decades and therefore, nowadays gender performance gaps explain the horizontal gender segregation only to a smaller extent (*Hyde et al.* 2008, *Spelke*, 2005, *Goldin et al.* 2006).

Other research found that labour market expectations of men and women differ from each other and can partly explain the different decisions in higher education (see for example *Montmarquette et al.* 2002, *Varga*, 2006, *Boudarbat*, 2008, *Arcidiacono et al.* 2012). These studies found that women are less responsive to expected earnings when making their choices in higher education. This is another reason why women are less likely to choose the STEM-fields than men. According to *Zafar* (2013), future wage expectations explain only a small part of the gender gap in STEM fields. Gender differences in preferences are the most important explanation. Other studies arrived at the same conclusion (*Turner-Bowen*, 1999, *Kahn-Ginter*, 2017). More recent studies show that horizontal segregation in higher education – in addition to the differences in preferences – also has its roots in gender differences in risk aversion (*Bertrand*, 2011, *Croson-Gneezy*, 2009, *Eckel-Grossman*, 2008, *Gneezy et al.* 2003) and in the propensity to participate in competitions as well as in self-confidence (*Reuben et al.* 2014). These studies found that women are more risk-averse and are less self-confident. This could also explain the choices of different fields of study as women are less likely to apply to highly competitive fields.

In connection with the explanations based on the differences in preferences, the question occurs whether preferences are constant or if they change over

time. This chapter studies whether a change in admission chances influences application decisions to STEM programmes and whether the effects differ by gender. The analysis is based on the impact evaluation of the education reform of 2012.¹ In 2012 a sudden and considerable reduction took place both in the number of public-financed university places and in university places in general. The study fields were not equally affected by this decrease. The reform implied a proportionally larger decrease in the number of non-STEM places, which led to an increase in the relative admission chances to the public-financed STEM programmes. The impact of this modification is analysed below.

The analysis is based on two administrative databases which are linked at individual level, namely the 2011 and 2012 waves of the whole sample of the Secondary School Graduation Database of the Educational Agency and the whole sample of the Higher Education Application Database of the Higher Education Application Agency. The linked data observe which secondary school graduates applied for higher education studies in the given year. The data also observe the graduation results of all graduates, the type of their secondary school, the type of the settlement where it is located and the date of birth of the graduate. The data was only used for the students who graduated in the year of the higher education application i.e. in 2011 or in 2012. The analysis does not consider individuals who applied to state-accredited higher vocational education. The sample was limited to students who applied for an initial (BA) or a so-called an undivided program. The higher education application database contains information on all applications including the applicant's number, institution, programme, the type of the financing, the level of the training type and, if the applicant was admitted to the given training programme. Furthermore, the data also include detailed information on the applicant's 'test scores' (achievements in the secondary school and the results of the secondary school graduation exam), additional scores for disadvantaged applicants or applicants who had taken a language exam before.

Table 5.4.1 presents the applications of 2011 and 2012, before and after the policy reform. According to the descriptive statistics, it seems that women reacted more strongly to the changes. The share of higher education applicants decreased for both men and women, but the decrease was more outspoken for women. In 2011, one-fourth of the male graduates applied to a STEM programme as the first selected option while this proportion was only 7.1 percent among women. STEM applicants of both genders chose almost exclusively public-financed training programmes. In 2012 the proportion of men applying to STEM training programmes as a first option did not change while the proportion of women increased by 1 percent. The share of men who applied for STEM training programmes as a final option decreased by 0.6 percent while the proportion of women increased by 0.5 percent.

¹ Detailed analysis see at [CERS HAS](#).

Table 5.4.1: Application decision in higher education ranking. The share of higher education applicants compared to the total number of secondary school graduates in the given year by gender, 2011–2012

	Men			Women		
	Public-financed	Self-financed	Total	Public-financed	Self-financed	Total
A) First ranked option, 2011						
STEM	25.1	0.1	25.2	7.1	0.0	7.1
Non-STEM	27.6	1.6	29.2	52.8	1.9	54.7
Total	52.7	1.7	54.4	60.0	1.9	61.8
B) Last ranked option, 2012						
STEM	24.8	0.4	25.2	8.1	0.1	8.2
Non-STEM	18.3	6.3	24.6	36.5	10.1	46.6
Total	43.1	6.7	49.8	44.6	10.2	54.8
C) First ranked option, 2011						
STEM	23.9	2.8	26.8	8.6	0.7	9.2
Non-STEM	19.3	8.4	27.7	40.3	12.3	52.6
Total	43.2	11.2	54.4	48.9	13.0	61.8
D) Last ranked option, 2012						
STEM	19.1	7.2	26,2	7.7	2.0	9.7
Non-STEM	11.0	12.5	23,6	24.2	20.9	45.1
Total	30.1	19.7	49,8	31.9	22.9	54.8

Table 5.4.2 presents the results of the simple models that evaluate how the reform affected application decisions: (1) the decision to apply to higher education, (2) the number of applications, (3) the decision to rank a STEM programme first, (4) the decision to rank a STEM programme last, (5) the decision to rank at least one STEM programme, (6) the total number of STEM programs, (7) the decision to rank a self-financed programme first, (8) the decision to rank a self-funded program last, (9) the decision to rank at least one self-financed study programme and (10) the total number of self-financed options ranked. Models (2) and (6) are simple OLS regressions and the further ones are logit models.²

The results of model (1) show that women are more likely to apply to higher education. The reforms of 2012 caused a decrease in the number of students applying to higher education and especially discouraged participation of women.

The following regressions show that after the reform, more men applied to STEM programmes both as their first and final selections and that men submitted a higher number of such applications than women. However, there was no significant difference between men and women regarding the change in the probability of applying to at least one STEM programme. Men responded to the modifications of 2012 rather by increasing their STEM applications while women were more likely to apply to self-financed programmes after 2012 which – as the admission chances to the self-financed programmes are higher – seems to be a less risky strategy.³

2 The table only contains estimation results of the *gender* variable, the dummy variable of *the year of the reform* (i.e. 2012) and the *interaction* of these the two variables.

3 The student considers if it is reasonable to invest time in the preparation for the admission exam. An important element of this consideration is the probability of admission. The lower the probability for the admission the riskier is the time invested into the preparation.

Table 5.4.2: Higher education applications – the impact of the reform

	(1) Applies	(2) Number of total applications	(3) STEM ranked first	(4) STEM ranked last
Women	0.080* (0.004)	0.096* (0.014)	-0.299* (0.005)	-0.305* (0.005)
D ₂₀₁₂	-0.047* (0.004)	0.272* (0.015)	0.018* (0.004)	0.016* (0.004)
Women × D ₂₀₁₂	-0.049* (0.006)	-0.111* (0.020)	-0.005 (0.006)	-0.005 (0.006)
	(5) At least one STEM application	(6) STEM applications in total	(7) Application to self-financed programme as first selection	(8) Application to self-financed programme as final selection
Women	-0.339* (0.005)	-0.912* (0.013)	0.003 (0.003)	0.012* (0.005)
D ₂₀₁₂	0.014* (0.005)	0.302* (0.017)	0.105* (0.003)	0.200* (0.005)
Women × D ₂₀₁₂	0.004 (0.007)	-0.239* (0.020)	0.026* (0.004)	0.017* (0.006)
	(9) Applies for at least one self-financed programme	(10) Number of applications for self-financed programmes		
Women	0.022* (0.005)	0.049 (0.010)		
D ₂₀₁₂	0.245* (0.005)	0.660* (0.013)		
Women × D ₂₀₁₂	0.028* (0.007)	0.114* (0.017)		

Note: The decision to apply to higher education was estimated on the whole sample of secondary school graduates in 2011 and 2012. Control variables are age, results of the secondary school graduation exam, and regional fixed effects. The other models were estimated on the subsample of secondary school graduates who applied for higher education. The control variables in these estimations – in addition to the former ones – were an indicator for low socio-economic status and the type of the secondary school of the applicant.

* Significant at 5 percent.

A structural model was estimated to measure the extent to which secondary school graduates consider admission probabilities when making their application decisions. The model allows for gender differences in preferences for the different fields of study and gender differences in responsiveness to expected admission probabilities. (For the description of the model see *Annex 5.4*). The estimation process consisted of two steps. First, based on the data of 2011, the probability of admission to the first ranked programme was estimated with a binary logit regression. Next, the probability that a high school graduate chooses a particular study program at a specific institution was estimated with a conditional logit model.⁴ *Table 5.4.3* presents the results of the conditional logit model and shows significant gender differences in the choice

⁴ The estimation results on the first step are not published here, for the results see at [CERS HAS](#).

between the several study fields. First, women are less likely to apply for technology and ICT than men, but there is no gender difference in the choice for natural science programmes. This means that it is not the case in all STEM fields that women are less likely to choose them. Next, the estimation results show that women are more responsive to admission probabilities when making their choices in higher education. This can be related to the findings of previous studies that women are more risk-averse in their choices than men.

Table 5.4.3: Application decisions of first ranked options

	Economics, Business	Technology, ICT	Teacher training	Health	Natural Science	Agricultural
Constant	-7.442* (0.085)	-8.591* (0.099)	-5.124* (0.129)	-8.329* (0.141)	-7.925* (0.173)	-7.220* (0.148)
Male	-0.719* (0.043)	1.593* (0.058)	-2.707* (0.140)	-1.185* (0.068)	0.227* (0.084)	0.149* (0.072)
+19 years	0.076 (0.041)	-0.209* (0.045)	-0.101 (0.073)	-0.356* (0.065)	-0.482* (0.085)	-0.083 (0.074)
Mathematics	4.123* (0.111)	5.413* (0.126)	0.503* (0.199)	3.270* (0.152)	3.545* (0.192)	2.267* (0.186)
Hungarian language	2.181* (0.137)	1.224* (0.139)	1.444* (0.241)	2.921* (0.215)	1.330* (0.246)	1.338* (0.238)
History	1.718* (0.150)	0.570* (0.154)	0.913* (0.256)	2.663* (0.229)	2.120* (0.281)	2.028* (0.263)
Budapest	-0.805* (0.044)	-1.080* (0.047)	-0.689* (0.081)	-0.613* (0.067)	-0.841* (0.084)	-1.152* (0.082)
Self	-0.838* (0.172)	-3.074* (0.257)	-2.881* (0.300)	-2.007* (0.303)	-4.026* (1.013)	-2.370* (0.281)
	Legal, admin- istrative	Arts	Humanities and Social Sciences	Self-financed programme	Probability of admission	Distance from the institution
Constant	-7.283* (0.125)	-6.426* (0.108)	-7.551* (0.092)	-	1.756* (0.065)	-0.015* (0.000)
Male	0.057 (0.055)	-0.121* (0.056)	-0.853* (0.046)	0.519* (0.098)	-0.673* (0.085)	0.000 (0.000)
+19 years	-0.084 (0.058)	-0.121* (0.057)	0.077* (0.043)	0.179* (0.085)	-	-
Mathematics	1.000* (0.146)	1.055* (0.151)	0.453* (0.148)	-1.708* (0.239)	-	-
Hungarian language	5.053* (0.200)	2.229* (0.182)	4.553* (0.148)	-2.967* (0.276)	-	-
History	1.371* (0.208)	1.408* (0.197)	1.922* (0.156)	-1.456* (0.301)	-	-
Budapest	-1.279* (0.062)	-0.304* (0.056)	-0.572* (0.046)	0.968* (0.082)	-	-
Self	-0.148 (0.185)	-2.530* (0.222)	-1.277* (0.182)	-	-	-

Note: Robust standard errors in parentheses; * $p < 0.05$. The probability of ranking an option first is estimated with a conditional logit model. The model is estimated on the sample of all high school graduates of 2011. Results must be interpreted relative to the base category of not applying to higher education.

Finally, we used the model to study the possible impact of an alternative admission policy in higher education. We simulated an open access policy in STEM programmes. This hypothetical policy allows all high school graduates, irrespective of high school background, to start at all STEM options in higher education. This hypothetical policy stimulates enrolment in STEM programs without discouraging students to apply to other programs. *Table 5.4.4* compares the outcomes of this simulation with the status quo of 2011.

Table 5.4.4: The simulated impact of the alternative higher education policy. Counterfactual analysis: the impact of open access to STEM programs

	Status quo in 2011			Counterfactual policy		
	state-financed	self-financed	total	state-financed	self-financed	total
Men						
STEM	25.1	0.1	25.2	37.4	0.0	37.4
Non-STEM	27.6	1.6	29.2	23.0	1.3	24.2
Total	52.7	1.7	54.4	60.3	1.3	61.6
Women						
STEM	7.1	0.0	7.1	16.6	0.0	16.6
Non-STEM	52.9	1.9	54.7	47.4	1.7	49.0
Total	60.0	1.9	61.9	64.0	1.7	65.7

Note: Predicted outcomes are expressed as percentages of 2011 high school graduates.

Outcomes of the counterfactual policy are expressed as percentage point changes relative to the status quo.

Under the counterfactual scenario of an open access policy in subsidized STEM programs, more men and women would apply to higher education. More men and women would apply to STEM programs and fewer high school graduates would apply to non-STEM programs. While the relative increase in applications to STEM programs is larger for women, the increase in the total number of students applying to STEM programs is larger for men.

Our analysis shows that changes in admission standards can encourage students to apply to STEM programmes. At the same time, we show that secondary school graduates do not perceive all higher education programmes as close substitutes. A certain proportion of students – and especially women – even desist from applying to higher education if the chance of admission and therefore the utility of applying decreases for their preferred programmes. The analysis also revealed that men and women not only differ in their preferences for STEM fields, but women are also more responsive to admission probabilities when making their application decisions. The results also showed that there are no gender differences in the probability of applying to certain fields within STEM – namely natural sciences – if we control for the results in mathematics and other characteristics of our model. However, in order to identify the reasons for the considerable gender difference in the technological and IT fields further research is needed.

References

- ARCIDIACONO, P.–HOTZ, J.–KANG, S. (2012): Modelling college major choices using elicited measures of expectations and counterfactuals. *Journal of Econometrics*, Vol. 166. No. 1. pp. 3–16.
- BERTRAND, M. (2011): New perspectives on gender. In: *Ashenfelter O.–Layard, R.–Card D.* (eds.): *Handbook of Labor Economics*, Vol. 4. Part B. Elsevier, pp. 1543–1590.
- BOUDARBAT, B. (2008): Field of study choice by community college students in Canada. *Economics of Education Review*, Vol. 27. No. 1. pp. 79–93.
- CECI, S. J.–WILLIAMS, W. M. (2010): Sex Differences in Math-Intensive Fields. *Current Directions in Psychological Science*, Vol. 19. No. 5. pp. 275–279.
- CECI, S. J.–WILLIAMS, W. M.–BARNETT, S. M. (2009): Women’s underrepresentation in science: Sociocultural and biological considerations. *Psychological Bulletin*, Vol. 35, No. 2. pp. 218–261.
- CROSON, R.–GNEEZY, U. (2009): Gender differences in preferences. *Journal of Economic Literature*, Vol. 47. No. 2. pp. 1–27.
- ECKEL, C.–GROSSMAN, P. (2008): Men, women and risk aversion. Experimental evidence. In: *Plott, C, R.–Smith, V, L.* (eds.): *Handbook of Experimental Economics Results*, Vol. 1. Elsevier, New York, pp. 1061–1073.
- GNEEZY, U.–NIEDERLE, M.–RUSTICHINI, A. (2003): Performance in competitive environments. Gender differences. *The Quarterly Journal of Economics*, Vol. 118. No. 3. pp. 1049–1074.
- GOLDIN, C.–KATZ, L.–KUZIEMKO, I. (2006): The homecoming of American college women. The reversal of the college gender gap. *Journal of Economic Perspectives*, Vol. 20. No. 4. pp. 133–156.
- HALPERN, D. F.–BENBOW, C. P.–GEARY, D. C.–GUR, R. C.–HYDE, J. S.–GERNSBACHER, M. A. (2007): The Science of Sex Differences in Science and Mathematics. *Psychological Science in the Public Interest*, Vol. 8. No. 1. pp. 1–51.
- HYDE, J. S.–INDBERG, S. M.–LINN, M. C.–ELLIS, A. B.–WILLIAMS, C. C. (2008): Gender Similarities Characterize Math Performance. *Science*, Vol. 321. No. 5888. pp. 494–495.
- KAHN, S.–GINTHER, D. (2017): Women and STEM. NBER Working Paper, No. 23525.
- MONTMARQUETTE, C.–CANNINGS, K.–MAHSEREDJIAN, S. (2002): How do young people choose college majors? *Economics of Education Review*, Vol. 21. No. 6. pp. 543–556.
- REUBEN, E.–SAPIENZA, P.–ZINGALES, L. (2014): How stereotypes impair women’s careers in science. *Proceedings of the National Academy of Sciences of the United States of America*, Vol. 111. No. 12. pp. 4403–4408.
- SPELKE, E. S. (2005): Sex Differences in Intrinsic Aptitude for Mathematics and Science? A Critical Review. *American Psychologist*, Vol. 60. No. 9. pp. 950–958.
- TURNER, S.–BOWEN, W. (1999): Choice of major. The changing (unchanging) gender gap. *Industrial and Labor Relations Review*, Vol. 52. No. 2. pp. 289–313.
- VARGA JÚLIA (2006): The Role of Labour Market expectations and admission probabilities in students’ application decisions on higher education. The case of Hungary. *Education Economics*, Vol. 14. No. 3. pp. 309–327.
- WAI, J.–CACCHIO, M.–PUTALLAZ, M.–MAKEL, M. C. (2010): Sex differences in the right tail of cognitive abilities. A 30-year examination. *Intelligence*, Vol. 38. No. 4. pp. 412–423.
- ZAFAR, B. (2013): College major choice and the gender gap. *Journal of Human Resources*, Vol. 48. No. 3. pp. 545–595.

5.4 Annex

A student i applies to a study program $j \in J$ at an institution $k \in K$ to maximize the utility of studying. The utility of applying to a specific study option is given by

$$U_{ijk}(X_i, \lambda_{ijk}, d_{ik}) = \alpha_0^i + \alpha_1^i X_i + \alpha_2 \lambda_{ijk} + \alpha_3 \lambda_{ijk} X_i + \alpha_4 d_{ik} + \alpha_5 d_{ik} X_i + \varepsilon_{ijk}$$

$$U_{ijk}(X_i, \lambda_{ijk}, d_{ik}) = V_{ijk}(X_i, \lambda_{ijk}, d_{ik}) + \varepsilon_{ijk} ,$$

with $V_{ijk}(X_i, \lambda_{ijk}, d_{ik})$ the deterministic part of utility. Utility depends on an alternative specific constant α_0^i , and personal characteristics such as gender and high school background X_i . Utility also depends on the admission probability λ_{ijk} . Students obtain a higher utility from programs for which they have a high-

er probability of being admitted. We interact this probability with gender to assess whether women are more responsive to admission probabilities when making their application decisions. Admission probabilities differ between programs but also between institutions. Given that students must pay a fee for each study program they rank after their third option, students might strategically apply to a less popular institution for which they have higher admission probabilities. Previous literature shows that travel distance is an important factor of participation in higher education and the decisions where and what to study. Students prefer study options located in their neighborhood. We therefore include the travel distance d_{ik} between the location of the high school of the student and the institution as a determinant of utility. Finally, utility depends on an unobserved preference shock ε_{ijk} , which is iid type 1 extreme value distributed. The probability that student i chooses for study program j at institution k is then given by the logit formula

$$P_{ijk} = \frac{\exp V_{ijk}(X_i, \lambda_{ijk}, d_{ik})}{\sum_{j \in j, k \in k} \exp(V_{ij}k'(X_i, \lambda'_{ij}k', d'_{ik}))} .$$

In the model, students consider the probability of being admitted when applying to higher education. The probability that student i is admitted to study program j at institution k is given by

$$\lambda_{ijk}(M_i, cap_{jk}) = \beta_0^j + \beta_1^j M_i + \beta_2 cap_{jk} + \eta_{ijk},$$

and depends on a program alternative specific constant β_0^j , a vector of matriculation exam scores M_i , and a measure of the capacity of program j at institution k : cap_{jk} . Capacity of the program is defined as the ratio of admitted students relative to the total applicants in the study option. The capacity of the program serves as an exclusion restriction. Capacity influences the utility of applying to an option only indirectly through the effect on the admission probability. We assume that there is no direct effect of capacity on the utility of applying to specific options. Finally, the admission probability depends on an iid type 1 extreme value distributed error term η_{ijk} .

6 HUMAN CAPITAL, PART III

THE ROLE OF NON-COGNITIVE SKILLS

6.1 THE IMPACT OF THE INCREASING SIGNIFICANCE OF NON-COGNITIVE SKILLS ON THE LABOUR MARKET SITUATION OF WOMEN

KÁROLY FAZEKAS

The labour market situation of women has improved in most countries of the world over recent decades: their enrolment ratio has increased and a higher share have entered upper-secondary and higher education. The proportion of entrants to the labour market with upper-secondary or higher education qualifications has increased, the likelihood of their employment in jobs requiring a higher education qualification has grown significantly and the gender wage gap has narrowed (*Autor–Wasserman, 2013, Deming, 2017, Cortes et al. 2018*). However, the likelihood of women becoming managers or entrepreneurs has not changed and the gender wage gap at the higher end of the wage distribution is still very large (*Cortes et al. 2018, Collischon, 2018*).

Improvements in the labour market situation of women are accompanied by the relative deterioration in the situation of men. In the labour market of the United States, the educational attainment, employment probability and real wages of men at around the median of the wage distribution have also worsened in absolute terms over recent decades. This trend is so conspicuous that not only research articles discuss it (*Jacob, 2002, Lai, 2010, Cortes et al. 2018*), but numerous popular books, essays and blogposts analyse the reasons for boys' and men's failures at school, in the families and at workplaces as well as how the trend is related to technological development and demographic, social and political trends (*Zimbardo, 2015, Farrel–Gray, 2018, Peterson, 2018, Smialek, 2018, Gross, 2018*). This shift took place in a period when the returns on *non-cognitive skills* increased considerably in the labour market (*Borghans et al. 2008, Deming, 2017, Deming–Kahn, 2017, Edin et al. 2017*). Its reasons and consequences were explored in one of the *In Focus* chapters of last year's *Hungarian Labour Market* (Fazekas, 2018. p. 149.). Based on relevant literature, this Subchapter presents how the increasing importance of non-cognitive skills has been related to changes in the labour market situation of women.

Empirical research in economics on the characteristics of, and reasons for, gender-related differences in the labour market mainly focuses on the effects of human capital. It is problematic that the usual variables of the discipline (educational attainment, school marks and the results of cognitive skills tests)

do not explain a substantial part of the differences. Therefore new research that covers previously not included fields such as non-cognitive skills, cultural contexts or preferences for social roles (*Grove et al. 2011, Lundberg, 2017*) is of great significance. Analyses on the impacts of human capital have usually differentiated between the cognitive and non-cognitive skills of employees in recent years (*Heckman et al. 2006, Borghans et al. 2008*). Cognitive skills enable us to understand the information flooding us from the moment of birth and to process it in the course of learning (for example writing skills, reading comprehension, numeracy and intellectual capacity). Non-cognitive skills, on the other hand, ensure that one is motivated to accomplish learning or work-related tasks, give self-confidence to take risks, encourage one to compete and enable oneself to trust others when undertaking tasks in efficient cooperation with other people.

It is certainly a welcome trend to include new, previously neglected areas in economic narratives. However, it is crucial for economic analysis to integrate the newly included factors in a uniformly interpreted, coherent conceptual framework and to be able to measure their qualities in a uniformly interpreted, standardised way (*Zhou, 2016*).

The gender differences in non-cognitive skills and their impact on education, the labour market and career success have a huge psychological, sociological and economic literature (*Autor et al. 2016, Rosen et al. 2010*). Relevant research generally suggests that there are significant differences in the majority of non-cognitive skills between boys and girls (usually to the advantage of girls) already in early childhood and this gap has a considerable impact on the school success and failures of boys and girls (*Jacob, 2002, Feingold, 1994, Baron-Cohen et al. 2005, Koenig et al. 2011*).

It is a particularly important finding that the differences seen in kindergarten and primary school age children tend to increase over the years (*DiPrete-Jennings, 2012*). As early as in primary school, girls are found to be more disciplined, able to focus more on learning tasks and more motivated to achieve better learning outcomes (*Frenette-Zeman, 2007*). However, this mainly results in better school grades rather than better test results. This difference directed the attention of researchers towards the role of teachers marking children's work. Presumably, teachers also take the *quality of non-cognitive skills* into account when marking the *quality of cognitive skills* of individual children. Researchers think this explains why school marks predict further education rates, the probability of dropping out and even labour market success or failure following graduation as well as individual social characteristics more precisely than school test results measuring only cognitive skills (*Cornwell et al. 2011, Martins 2017*). At the same time, several empirical studies show that boys tend to have greater self-confidence, be more inclined to take risks and perform better in a highly competitive environment (*Altonji-Blank, 1999*).

These differences partly explain why there is a higher proportion of men than women in management positions (*Niederle–Vesterlund, 2007, Harrington 2017, Koenig et al. 2011*).

According to the relevant literature, the gender gap in non-cognitive skills in early childhood partly has evolutionary causes (*Baron-Cohen et al. 2005*), and is partly the result of parental, familial and community upbringing and early cultural impacts. Parents and individuals in the residential environment of the family convey, from infancy onwards, expectations about the gender roles accepted in the given culture. This also means that parents and the school set differing expectations for boys and girls and try to develop their various non-cognitive skills to a different degree.

The increasing importance of non-cognitive skills has had substantially different impacts on the labour market situation of women and men over recent years (*Deming, 2017, Sheikh, 2015*). This trend is partly related to the nature of technological development. As a result of the spread of computer-controlled, automated and, more recently, artificial intelligence governed production and service systems, the share of routine tasks requiring low qualification, physical strength and dexterity as well as the share of analytical tasks requiring high qualification and advanced cognitive skills declined, while the share of tasks requiring emotional intelligence and non-cognitive skills increased. Available data indicate that women and men adapted to these changes to a very different degree. From 1981 to 2015, the number of female employees performing routine tasks decreased from nearly 60 per cent to below 35 per cent, the number of those performing non-routine, analytical tasks stagnated, while the proportion of women performing tasks requiring social skills increased from 48 per cent to over 65 per cent in the United States (*Seikh, 2015*). It is not only that the number of jobs in the labour market requiring social skills is increasing but the proportion of women in these jobs is also growing.

The emergence of non-cognitive skills highly depends on cultural conditioning and gender stereotypes, which affect the development of skills and in this way educational attainment, employment and the gender wage gap. A good example is the number of women employed in jobs requiring science, technology, engineering and mathematics (STEM) skills and knowledge of mathematics and natural sciences. *Deming (2017)* calculated that the share of tasks requiring *both* good social skills and good cognitive skills such as mathematics and science competences has increased most in recent years in the labour market of the United States. At the same time, school test results showed that girls' STEM skills are worse and girls get worse grades in STEM subjects than boys. However, research suggests that these differences are not due to biological attributes but due to educational and cultural impacts faced from early childhood onwards. In a sufficiently encouraging environment, the STEM results of girls are not at all worse than those of boys. Improving female

employability and increasing wages in STEM jobs encourage an increasing proportion of girls already at school to improve their STEM skills.

The changing labour market position of women is not simply a result of technological changes with a varying impact on skills. This change is an extremely complex, multifactorial process, with largely social and demographic reasons. Because of the increasing proportion of services, including the share of those working in human, healthcare and geriatric services, the share of tasks requiring empathy and advanced emotional intelligence also increases. Since such skills of women are generally better than those of men, they are able to perform these tasks more easily and successfully.

Numerous empirical analyses show that skill levels achieved in early childhood determine life events experienced in later life (*Cunha–Heckman*, 2008, *Cunha et al.* 2010). Empirical studies on the gender gap in non-cognitive skill levels measured in early childhood are mainly from developing countries (*Lavado et al.* 2014, *Nakajima et al.* 2016). Research undertaken in rural Indonesia indicates that girls are better than boys in cognitive and non-cognitive skills already in early childhood. Skill levels are affected by the quality indicators of the environment, participation in early childhood development programmes, the quality of early childhood education institutions and parenting methods. Research from both developed and developing countries suggests that girls have an advantage in non-cognitive skills as early as in kindergarten, and they retain this advantage throughout primary and lower-secondary education. It is very well illustrated by the results of the Early Development Instrument (EDI) used in Australia and Canada for measuring non-cognitive skills in early childhood. It reveals a particularly large difference in the cooperation skills, the willingness to follow norms and the emotional stability of children. (*Australian Government*, 2013, *Janus–Duku*, 2007).

In accordance with a recent social trend, the educational attainment of women exceeds that of men globally to an increasing extent and in an increasing number of social groups. In the sixties in the United States twice as many men than women graduated from university, while today the number of women obtaining a Bachelor (BA) degree exceeds that of men by 30 per cent. Several empirical studies showed that the participation rate of women in higher education is primarily explained by their better non-cognitive skills. This does not only mean that women with better non-cognitive skills achieved better test results at upper-secondary school and thus were able to enter universities in higher proportions. *Jacob* (2002), based on data from the turn of the millennium, found that the effect of non-cognitive skills remains significant even after controlling for upper-secondary school test results. This trend was also observed in Hungary in this period (*Székelyi et al.* 1998).

The characteristics of and the reasons for the gender wage gap are discussed in the Subchapter *In Focus 2.1*. It is well-known that men and women with

identical cognitive skills have very different patterns of occupational and workplace choices as well as wage levels. The gender wage gap at workplaces is usually explained by discrimination against women and the dissimilar occupational structure (*Cobb-Clarc, 2011*). If that is true, it is also likely that the dissimilar non-cognitive skills of men and women to some extent explain the gender wage gap through occupational choice. Relevant empirical research shows that it is actually so and the effect is significant although not very strong. Men and women with very similar non-cognitive skills choose very different occupations. Nevertheless, the lower relative wages of women in general are due not only to the differences of male and female occupational choices but also to the fact that women are paid less than men in the same occupation.

The results of relevant studies more or less consistently reveal that data controlled for age and qualification still show a 20 per cent wage advantage for men. These data clearly indicate that differences in non-cognitive skills have a considerable role in these differences. Overall, including non-cognitive skills in the analysis increases the explanatory power of the models that examine the reasons for the gender wage gap (*Fortin, 2008, Nikolaou, 2012, Yamaguchi, 2012*). The better non-cognitive skills of women indeed improve their wage situation. Nonetheless, half of the gender wage gap cannot be explained by either cognitive or non-cognitive skills (*Brenzel-Laible, 2016*).

A major part of the wage gap is obviously attributable not to the wages characteristic of the occupation concerned but to the position held in the management hierarchy of a given firm (*Collischon, 2018*). The fact that women with the same cognitive skills as men are considerably less likely to become managers is often called the 'glass ceiling' in relevant literature. The phenomenon is partly explained by the differences in non-cognitive skills: women tend to take less risks and have lower self-esteem and self-confidence. (*Harrington, 2017, Chen et al. 2017*.) However, this relationship strongly depends on the cultural context in which the skill gap is seen in the labour market, for example, what skill differences between men and women decision-makers recruiting managers assume in spite of these skill differences existing or not in a particular case.

Research on the differences in the non-cognitive skills of women and men holding management positions suggests that these differences have a significant impact on the probability of becoming a manager. *Barrett-Staneva (2017)* reports that extroverted men are more likely to become chief executive officers than extroverted women. *Harrington (2017)* analyses the impact of four groups of non-cognitive skills (non-cognitive personality traits, self-confidence, self-esteem and willingness to take risks) on the probability of becoming a manager. Findings show that assertiveness, self-confidence and high-risk tolerance significantly but not strongly affect the probability of becoming a manager.

It is well-known that women are considerably underrepresented among entrepreneurs. According to the relevant literature, this has strong cultural reasons in different societies. In developed countries, the differences in the non-cognitive skills of women undoubtedly have an important role in their underrepresentation. *Koellinger et al.* (2013), in their study covering 17 countries, found that this is not because of differences in the survival rate of companies run by men and women but because of the difference in entrepreneurship between men and women. The reason for this principally lies in the lower self-confidence and risk taking of women (*Segal*, 2014).

The gender gap in non-cognitive skills emerging in early childhood has a strong impact on the enrolment ratio, the dropout rates in upper-secondary education and the chances of entering higher education. (*Cunha–Heckman*, 2008, *Cunha et al.* 2010, *Cornwell et al.* 2011, *DiPrete–Jennings*, 2012). Experience shows that the cognitive skills of children can be developed more in early childhood, while socio-emotional skills can also be developed at later stages (*Cunha–Heckman*, 2008, *Almlund et al.* 2011, *Kautz et al.* 2014).

The increasing importance of non-cognitive skills transforms the labour market positions of men and women, it undoubtedly improves the employment opportunities of women and reduces the gender wage gap. However, this trend is strongly context dependent and cannot be examined separately from the cultural attributes of society. Improvement in the labour market positions of men and women ultimately depends whether society is aware of the transformation of skills necessary for the development of the economy induced by the technological revolution and to what extent it is able to develop these from the moment of birth, throughout life, in accordance with individual personality traits and gender-related attributes.

Considering the increasing significance of non-cognitive skills and the considerable lagging behind of men in these skills, it is important that adult education programmes take these characteristics into account and that the development of non-cognitive skills receives more focus in the curricula, teacher evaluation and initial teacher education.

References

- ALMLUND, M.–DUCKWORTH, A. L.–HECKMAN, J. J.–KAUTZ, T. (2011): Personality Psychology and Economics. IZA Discussion Paper, No. 5500. Institute for the Study of Labor (IZA).
- ALTONJI, J. G.–BLANK, R. M. (1999): Race and gender in the labor market. In: *Ashenfelter, O. C.–Card, D.* (eds.): *Handbook of Labor Economics*, V. 3. Part C. pp. 3143–3259. Elsevier.
- AUSTRALIAN GOVERNMENT (2013): A snapshot of early childhood development in Australia 2012 Australian Early Development Index (AEDI) national report. Australian Government, Canberra.
- AUTOR, D.–FIGLIO, D.–KARBOWNIK, K.–ROTH, J.–WASSERMAN, M. (2016): Family disadvantage and the gender gap in behavioral and educational outcomes. National Bureau of Economic Research, Working Paper, No. 22267.
- AUTOR, D.–WASSERMAN, M. (2013): Wayward Sons. The Emerging Gender Gap in Labor Markets and Education. NEXT Research Paper Series. Third Way.
- BARON-COHEN, S.–KNICKMEYER, R. C.–BELMONTE, M. K. (2005): Sex Differences in the Brain. *Science*, Vol. 310. No. 5749. pp. 819–823.
- BARRETT, G.–STANEVA, A. (2017): Gender pay gap and

- returns to cognitive and non-cognitive skills: Evidence from Australia. Conference paper. School of Economics, University of Sydney. Australian Conference of Economists.
- BORGHANS, L.–DUCKWORTH, A. L.–HECKMAN, J. J.–WEEL, B. (2008): The Economics and Psychology of Personality Traits. *Journal of Human Resources*, University of Wisconsin Press, NBER Working Paper No. 13810. Vol. 43. No. 4.
- BRENZEL, H.–LAIBLE, M. (2016): Does Personality Matter? The Impact of the Big Five on the Migrant and Gender Wage Gaps. IAB-Discussion Paper, No. 26.
- COBB-CLARK, D. A.–TAN, M. (2011): Non-cognitive Skills, Occupational Attainment, and Relative Wages. *Labour Economics*, Vol. 18. No. 1. pp. 1–13.
- COLLISCHON M. (2018): Can Personality Traits Explain Glass Ceilings? SOEP papers on Multidisciplinary Panel Data Research at DIW. Berlin, SOEP paper No. 965.
- CORNWELL, C. M.–MUSTARD, D. B.–PARYS J. V. (2011): Non-cognitive Skills and the Gender Disparities in Test Scores and Teacher Assessments: Evidence from Primary School. IZA Discussion Paper, No. 5973.
- CORTES, G. M.–JAIMOVICH, N.–SIU, H. E. (2018): The ‘End of Men’ and Rise of Women in the High-Skilled Labor Market. NBER Working Paper Series, No. 24274.
- CHEN, W.–GROVE, W. A.–HUSSEY, A. (2017): The role of confidence and non-cognitive skills for post-baccalaureate academic and labor market outcomes. *Journal of Economic Behavior and Organization*, Vol. 138. pp. 10–29.
- CUNHA, F.–HECKMAN, J. J. (2008): Formulating, identifying and estimating the technology of cognitive and non-cognitive skill formation. *The Journal of Human Resources*, Vol. 43. No. 4. pp. 738–782.
- CUNHA, F.–HECKMAN, J. J.–SCHENNACH, S. M. (2010): Estimating the technology of cognitive and non-cognitive skill formation. *Econometrica*, Vol. 78. No. 3. pp. 883–931.
- DEMING, D. J. (2017): The Growing Importance of Social Skills in the Labor Market. *Quarterly Journal of Economics* Vol. 132. No. 4. pp. 1593–1640.
- DEMING, D. J.–KAHN, L. B. (2017): Skill Requirements across Firms and Labor Markets: Evidence from Job Postings for Professionals. NBER Working Paper, No. 2332.
- DIPRETE, T. A.–JENNINGS, J. L. (2012): Social and behavioral skills and the gender gap in early educational achievement. *Social Science Research*, Vol. 41. No. 1. pp. 1–15.
- EDIN P.–FREDRIKSSON, P.–NYBOM, M.–ÖCKERT, B. (2017): The Rising Return to Non-Cognitive Skill. IZA DP. No. 10914.
- FARREL, W.–GRAY J. (2018): *The Boy Crisis: Why Our Boys Are Struggling and What We Can Do About It*. BenBella Books.
- FAZEKAS KÁROLY (2018): What Are the Tendencies in Demand? The Appreciation of Non-Cognitive Skills. In: *Fazekas Károly–Köllő János* (eds.): *The Hungarian Labour Market 2017*. Institute of Economics, Centre for Economic and Regional Studies, Hungarian Academy of Sciences, Budapest, pp. 149–157.
- FEINGOLD, A. (1994): Gender Differences in Personality: A Meta-Analysis. *Psychological Bulletin*, Vol. 116. No. 3. pp. 429–456.
- FORTIN, N. M. (2008): The Gender Wage Gap among Young Adults in the United States: The Importance of Money versus People. *Journal of Human Resources*, Vol. 43. No. 4. pp. 884–918.
- FRENETTE, M.–ZEMAN, K. (2007): Why are Most University Students Women? Evidence Based on Academic Performance, Study Habits and Parental Influences. Statistics Canada, Analytical Studies Branch Research Paper Series, No. 303.
- GROSS, G. (2018): We are failing our boys. Part 1. Technology time is not without consequence. *Thrive – Global*.
- GROVE, W. A.–HUSSEY, A.–JETTER, M. (2011): The Gender Pay Gap Beyond Human Capital. Heterogeneity in Non-cognitive Skills and in Labor Market Tastes. *Journal of Human Resources*, Vol. 46 No. 4. pp. 827–874.
- HARRINGTON, N. P. (2017): *Making the Male Manager: Can Non-Cognitive Skills Explain the Glass Ceiling? Senior Projects*, Spring, No. 123.
- HECKMAN, J. J.–STIXRUD, J.–URZUA, S. (2006): The Effects of Cognitive and Non-cognitive Abilities on Labor Market Outcomes and Social Behavior. *Journal of Labor Economics*, Vol. 24. No. 3. pp. 411–482.
- JACOB, B. A. (2002): Where the Boys Aren’t. Non-Cognitive Skills, Returns to School and the Gender Gap in Higher Education. NBER Working Paper, No. 8964.
- JANUS, M.–DUKU, E. (2007): The school entry gap. Socio-economic, family, and health factors associated with children’s school readiness to learn. *Early Education and Development*, Vol. 18. No. 3. pp. 375–403.
- KAUTZ, T.–HECKMAN, J. J.–DIRIS, R. WEEL, B.–BORGHANS, L. (2014): *Fostering and Measuring Skills: Improving Cognitive and Non-Cognitive Skills to Promote Lifetime Success*. NBER Working Paper, No. 20749.
- KOELLINGER, P.–MINNITI, M.–SCHADE CH. (2013): Gender Differences in Entrepreneurial Propensity. *Oxford Bulletin of Economics and Statistics*, Vol. 75. No. 2. pp. 213–234.
- KOENIG, A. M.–EAGLY, A. H.–MITCHELL, A. A.–RISTIKARI, T. (2011): Are Leader Stereotypes Masculine?

- A Meta-Analysis of Three Research Paradigms. *Psychological Bulletin*, Vol. 137. No. 4. pp. 616–642.
- LAI, F. (2010): Are boys left behind? The evolution of the gender achievement gap in Beijing's middle schools. *Economics of Education Review*, Vol. 29. No. 3. pp. 383–399.
- LAVADO, P.–VELARDE, L.–YAMADA, G. (2014): Cognitive and Non-cognitive Skills and Wages. The Role of Latent Abilities on the Gender Wage Gap in Peru, *Young Lives*. University of Oxford. WP No. 118.
- LUNDBERG, S. (2017): Non-Cognitive Skills as Human Capital. In: *Hulten, C. R.–Ramey, V. A.* (eds.): *Education, Skills, and Technical Change: Implications for Future US GDP Growth*. NBER Book Series Studies in Income and Wealth, University of Chicago Press.
- MARTINS, P. S. (2017): (How) Do Non-Cognitive Skills Programs Improve Adolescent School Achievement? Experimental Evidence. IZA Working Paper, No. 10950.
- NAKAJIMA, N.–JUNG, H.–PRADHAN, M.–HASAN, A.–KINNELL, A.–BRINKMAN, S. (2016): Gender Gaps in Cognitive and Non-Cognitive Skills in Early Primary Grade. Evidence from Rural Indonesia. Policy Research Working Paper, No. 7833. World Bank, Washington, DC.
- NIEDERLE, M.–VESTERLUND, L. (2007): Do Women Shy away from Competition? Do Men Compete too Much? *Quarterly Journal of Economics*, Vol. 122. No. 3. pp. 1067–1101.
- NIKOLAOU, D. (2012): Direct and Indirect Effects of Non-cognitive Skills on the Gender Wage Gap. The Ohio State University. Working Paper.
- PETERSON, J. B. (2018): *12 Rules for Life: An Antidote to Chaos*. Random House of Canada. Kindle Edition.
- ROSEN, J. A.–GLENNIE, E. J.–DALTON B. W.–LENNON, J. M.–BOZICK, R. N. (2010): *Non-cognitive Skills in the Classroom: New Perspectives on Educational Research*. RTI Press Research Triangle Park, NC.
- SEGAL, C. (2014): *Women, Character and Competition*. In: *Reeves, R. W.* (ed.): *Essays on Character & Opportunity*. Brookings. Center on Children and Families. The Character & Opportunity Project, pp. 25–28.
- SHEIKH, S. B. (2015): *Non-Cognitive Skills and Labor Market Success*. North Hall, 3047, Department of Economics. University of California, Santa Barbara. Manuscript.
- SMIALEK, J. (2018): *How Demand for Social Skills Helps Women at Work*. Eco Pulse. Bloomberg. February 6.
- SZÉKELYI MÁRIA–CSEPELI GYÖRGY–ÖRKÉNY ANTAL–SZABADOS TÍMEA (1998): *Válaszúton a magyar oktatási rendszer*. (Hungarian Education System on the Crossroad). Új Mandátum Könyvkiadó, Budapest.
- YAMAGUCHI, S. (2012): *Changes in Returns to Task-Specific Skills and Gender Wage Gap*. Department of Economics, McMaster University.
- ZIMBARDO, P. (2015): *Man Disconnected. How technology has sabotaged what it means to be male*. Ebury Publishing, kindle edition (Kindle Location 58).
- ZHOU, K. (2016): *Non-cognitive skills: Definitions, measurement and malleability*. Background paper prepared for the 2016. Global Education Monitoring Report. D/GEMR/MRT/2016/ P1/5.

K6.1 Gender differences in the stability of personality traits over time

JÁNOS KISS HUBERT & ÁGNES SZABÓ-MORVAI

Non-cognitive skills include many characteristics and personality traits, for example the notion of the locus of control (Rotter, 1966). According to this, those who believe life’s outcomes are due to their own efforts have an internal locus of control, while those with an external locus of control think that the results of events do not depend on their own actions but on external factors (chance, luck or other people).¹ Persons with an internal locus of control – *ceteris paribus* – tend to achieve better school performance and are more likely to continue their studies (see Piatek–Pinger, 2016). Concerning the stability of the locus of control, Cobb-Clark–Schurer (2013) found that the locus of control did not or only minimally changed within a timeframe of 1–4 years in most people, and it is mainly young people and the elderly who tend to change substantially in this respect. Further findings show that positive life events (marriage, promotion) do not have a significant effect on the locus of control; however, very many negative life events (at least nine within four years) such as illness or unemployment will push the person towards an external locus of control.

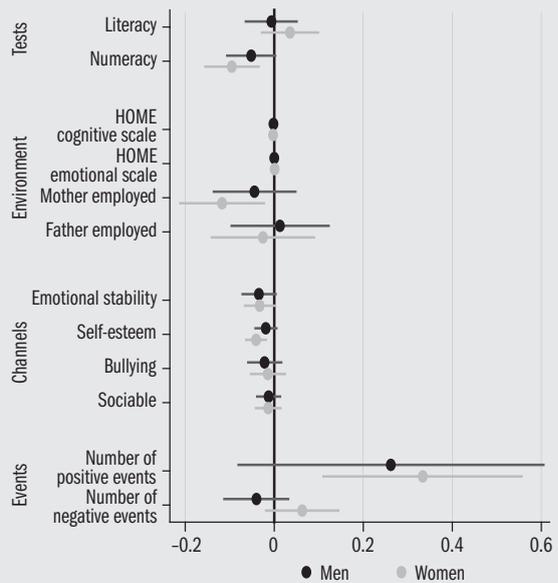
Relying on the Hungarian Life Course Survey launched in 2006, it is possible to give a detailed assessment of the situation in Hungary. The database containing 10 thousand cases provides information on family background in addition to school performance. Participants of the survey also completed a test on locus of control in 2006 and 2009.² The present study explores how stable the locus of control is and what determines changes to it.

We found that, considering the whole sample, correlation (0.179) between the values for the locus

of control measured at the two dates is lower than in the abovementioned Australian sample (0.533 across quarters), which is not surprising, since that study involved the total population, while the Hungarian survey only involved teenagers, whose personality traits have not yet fully evolved. The correlation is stronger in the case of girls: the value of the locus of control changes less in their case, while among boys it changes more considerably (in line with their later maturation) and their internal control increased in the period examined.

Regression analysis has been performed to assess what the locus of control is associated with – the results are presented in Figure K6.1.1.

Figure K6.1.1: Association between changes in the locus of control and individual characteristics and life events



Note: The HOME Inventory measures the extent of stimulation provided by the home environment. Items of the HOME cognitive scale include the number of books owned, newspaper subscriptions, extracurricular activities, visits to museums and the cleanliness of rooms. The HOME emotional scale includes items such as whether the child tidies up, meets relatives, eats together with his or her parents or whether

1 When presenting the definition of the locus of control and its labour market related impact, we rely on the excellent synthesis study of Cobb-Clark (2015).
 2 The locus of control index ranges between 0–4: the lower the value, the more internal control is characteristic of the given individual. Therefore change in the locus of control ranges from –4 to +4, with the negative (positive) change indicating that the person shifted in the direction of internal (external) control.

the mother showed positive feelings when talking to the child during the interview (Bradley *et al.* 2000).

As opposed to girls, change in the locus of control among boys is not associated with individual characteristics and life events. Girls with better results in the mathematics tasks of the National Assessment of Basic Competences in 2006 tended to shift towards internal control. This is consistent with the finding that internal control and good school performance are closely linked. The internal control of girls also increased if their mothers had a job. Increased emotional stability and self-esteem were associated with internal control, this coincided with

the expected impact. This finding is consistent with the hypothesis that children whose parents ensure a stable emotional background, peaceful environment and stress-free life are more likely to have internal control (see Carton–Nowicki, 1994, Skinner *et al.* 1998 or Stephens–Delys, 1973). When examining life events, negative life events were not found to be associated with changes in the locus of control, but positive life events increased external control for girls.³

³ Cobb-Clark–Schurer (2013) report that certain positive life events reduce internal control.

References

- BRADLEY, R. H.–CORWYN, R. F.–CALDWELL, B. M.–WHITESIDE-MANSELL, L.–WASSERMAN, G. A.–MINK, I. T. (2000): Measuring the Home Environments of Children in Early Adolescence. *Journal of Research on Adolescence*, Vol. 10. No. 3. pp. 247–88.
- CARTON, J. S.–NOWICKI, S. (1994): Antecedents of individual differences in locus of control of reinforcement: A critical review. *Genetic, Social, and General Psychology Monographs*, Vol. 120. No. 1. pp. 31–81.
- COBB-CLARK, D. A. (2015): Locus of Control and the Labor Market. *IZA Journal of Labor Economics*, Vol. 4. No. 1. 3.
- COBB-CLARK, D. A.–KASSENBOEHMER, S. C. SCHURER, S. (2014): Healthy habits. The connection between diet, exercise, and locus of control. *Journal of Economic Behavior and Organization*, Vol. 98. pp. 1–28.
- COBB-CLARK, D. A.–SCHURER, S. (2013): Two Economists' Musings on the Stability of Locus of Control. *The Economic Journal*, Vol. 123. No. 570. F358–400.
- PIATEK, R.–PINGER, P. (2016): Maintaining (Locus of) Control? Data Combination for the Identification and Inference of Factor Structure Models. *Journal of Applied Econometrics*, Vol. 31. No. 4. pp. 734–755.
- ROTTER, J. B. (1966): Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, Vol. 80. 1. pp. 1–28.
- SKINNER, E. A.–ZIMMER-GEMBECK, M. J.–CONNELL, J. P.–ECCLES, J. S.–WELLBORN, J. G. (1998): Individual differences and the development of perceived control. *Monographs of the Society for Research in Child Development*, Vol. 63. No. 2–3. v–vi, pp. 1–234.
- STEPHENS, M. W.–DELYS, P. (1973): A locus of control measure for preschool children. *Developmental Psychology*, Vol. 9. No. 1. pp. 55–65.

6.2 GENDER DIFFERENCES IN PREFERENCES IN THE LITERATURE

LUCA FLÓRA DRUCKER, DÁNIEL HORN & HUBERT JÁNOS KISS

The innate and learned characteristics of women and men may profoundly determine their educational and labour market choices. This chapter focuses on gender differences in a group of non-cognitive skills:¹ risk preferences, competitive preferences, and social preferences.² These preferences may have an impact on labour market performance. For example, risk-averse individuals are more likely to choose professions with secure pay, while more competitive individuals tend to perform better in professions where they are under daily pressure. The chapter strongly relies on relevant summary papers of *Bertrand* (2011), *Croson–Gneezy* (2009), and *Niederle* (2015).

Risk preferences

Risk aversion is measured by experiments involving various tasks in economics. One of the most famous lab experiments was conducted by *Holt–Laury* (2002). In this experiment, participants had to choose between two options (*A* and *B*). In option *A*, participants had a chance to win 2 dollars with probability p , and 1.6 dollars with probability $1 - p$. In option *B*, the probabilities were the same but the amounts were 3.85 dollars and 0.1 dollars. Participants made ten consecutive choices between *A* and *B*, across which the probability (p) changed from 0.1 to 1, in 0.1 increments. Obviously, when $p = 1$, option *B* is more attractive, as one will surely get 3.85 dollars instead of 2 dollars. However, when $p = 0.1$, the expected value of *A* is 1.17 dollars higher than that of *B*, therefore participants will be more likely to choose *A*. The question is, when does a person switch between *A* and *B*. The switching point is regarded as the measure of risk-taking. Risk-lovers tend to prefer higher rewards (3.58 dollars) already at low values of p , while risk-averse people switch only when there is a fairly high probability of winning the larger reward. There are other types of tasks, as well. For example, *Eckel–Grossman* (2002) alter rewards instead of probabilities in the consecutive choices, while several other studies rely on the investment game introduced by *Gneezy–Potters* (1997), or the bomb risk elicitation task invented by *Crosetto–Filippin* (2013).

Most papers either find that women are more risk-averse or do not find gender differences in risk preferences. *Holt–Laury* (2002) report that women are slightly more risk-averse over small stakes (with no significant difference with larger stakes), while *Eckel–Grossman* (2002) find that women are considerably more risk-averse. *Charness–Gneezy* (2012) review studies using the investment game of *Gneezy–Potters* (1997) and report that in most studies (14 out of 15)

1 The stability of non-cognitive skills over time is discussed in Subchapter 6.1 and Box K6.1.

2 One of the most researched preferences is time preference; however, gender differences in this preference do not receive much attention in the literature, therefore we did not include it in this paper (for example *Dittrich–Leipold* [2014] found men less patient but *Wang et al.* [2016] did not find gender differences).

women are more risk-averse than men. However, *Crosetto–Filippin* (2016) do not find gender differences when using the bomb risk elicitation task.

The results obviously raise the question whether it is possible to assess attitudes to risk in a simple experiment or risk preferences are more complex. This is the idea behind domain-specific risk-taking. *Weber et al.* (2002) evaluate risk-taking in five domains (ethics, finances, health/ safety, social relations, recreation) by voluntarily completed questionnaires. The findings indicate that the magnitude of risk-taking does depend on the domain. The findings are consistent with *Dohmen et al.* (2011), who find that women are more risk-averse than men in all domains.

Overall, the majority of surveys and studies suggest that women are more risk-averse. However, we agree with *Niederle's* (2015) warning that the size of gender differences (if one finds any) in risk preferences depends on the way of measuring them, and that these differences are mostly small, even if statistically significant. The results of the experiments and surveys show that risk taking is a complex matter and is impossible to evaluate it with a single indicator, therefore we must give due consideration to whether the indicator used in a given study is generalizable.

As for the labour market consequences, *Bonin et al.* (2007), using German data, find that more risk-averse individuals tend to choose a profession with a more stable pay. Additionally, *Dohmen–Falk* (2011) reveal that more risk-tolerant people are more likely to choose a job with a performance-based pay, and women are less willing to work for a flexible pay. The results of *Le et al.* (2011), relying on Australian data, are also consistent with the above: women are more risk-averse than men. The authors also report that higher risk tolerance is associated with higher pay and therefore the gender difference in risk preferences contribute to the gender pay gap. This effect is not significant, and it explains a maximum of 3 per cent of the pay gap.

Competitiveness

Psychology literature generally accepts the observation that boys spend more time playing games involving competition, while girls tend to prefer games without winners and losers. They also find that boys are more likely to consider themselves competitive than girls (*Campbell*, 2013). As several important and highly paid professions have a competitive environment, it is not surprising that women are underrepresented in them. Experimental economics has provided numerous useful insights over the past 15 years into what is behind gender differences in attitudes towards competition.

The first experiment about competition was conducted by *Gneezy et al.* (2003). At one of the most prestigious technical universities of Israel (where there is strong competition for admission), students faced a computer-based task: they had to solve as many mazes as possible in fifteen minutes. When in

the first round students got a reward for each solved maze (piece-rate pay), there was no significant difference between the performance of boys and girls. In the next round there was a competition-based pay scheme. There were three boys and three girls in a group. Only the best-performing group member was rewarded, but the reward was six times as much as the piece-rate in the first round.³ This time the performance of boys significantly improved compared to the round with piece-rate pay, while the performance of girls did not change. Thus boys performed considerably better than girls in a competitive environment.

However, there are two important differences between piece-rate pay and competitive pay. On the one hand, when competing, reward is partly dependent on the performance of others, on the other hand, reward is less secure compared to piece-rate pay – and, as mentioned before, women may be more risk averse. In the third round (random pay), based on the number of solved mazes, a randomly selected participant received a reward of similar size as in the competitive round, in order to eliminate the effect of risk aversion. In this way the insecurity of payment remained but there was no competition. Now, boys and girls performed similarly as in the piece-rate round. Therefore, the gender difference in average performance is probably due to attitudes towards competition.

The authors also explored whether gender composition of the groups has an impact on performance. They repeated the competitive round with same-gender groups. Boys performed equally well as in the earlier competition with mixed-gender groups. By contrast, the performance of girls significantly improved when they had to compete against girls. Several other studies reported similar findings (*Günther et al.* 2010, *Shurchkov*, 2012).

It should be noted though that boys usually only performed better in ‘boyish’ tasks when competing but in more ‘girlish’ tasks (such as reading comprehension) the studies did not find such differences. Moreover, *Cárdenas et al.* (2012) found that when the task was rope jumping, girls performed better when they had to compete. In conclusion, the performance of girls either does not improve or improves less than that of boys in a competitive situation.

Niederle–Vesterlund (2007) and later research revealed that women are more likely to avoid competition than men. For example, even though there is no difference between genders in the likelihood of successfully completing a task, girls tend to choose piece-rate pay instead of a potentially higher but competition-based pay.⁴ This results in relative losses for girls, as they do not participate in competition, which could allow them to make greater profit.

Gender differences in preferences for competition already emerge in kindergarten (*Sutter, Glätzle–Rützler*, 2014). They persist throughout the entire career (*Mayr et al.* 2012), although they change with age and follow a reverse U-shaped curve. Social background also influences preferences for competition: the higher his or her socio-economic background, the more competitive one is. Nevertheless, while there is no difference in competitiveness between

³ Different students participated in the different rounds, thus it is not the impact of competitive or non-competitive settings on an individual that results reveal, but how the performance of boys and girls changes in such cases on average.

⁴ This statement remains true when risk preferences are also taken into account.

boys and girls of low socio-economic background, with high socioeconomic background, boys are more willing to compete than girls (*Bartling et al.* 2012).

In addition to identifying individual characteristics influencing competitiveness, it is also important to identify institutional changes that could reduce the gender gap in competitiveness. Large gender gap in competitiveness may result in a significant loss in social welfare if good-performing women do not dare to enter competition and therefore do not enrol in schools or enter occupations where their performance could realise. Since we saw that women are more willing to compete against women but less willing to compete against men, competition could be distorted in a way to promote women's interest in it. For example, if not only the best performance but also the best female performance was rewarded, women might be more inclined to compete. *Bala-foutas–Sutter* (2012) and *Niederle et al.* (2012) reported that these ideas actually work in experiments and more good-performer women are willing to engage in competition. Obviously, more research is needed into the topic.

Preferences for competition may significantly affect how one performs in education and at work. For example, they may have an impact on school admission results (*Ors et al.* 2013), on achievement in vocational competitions (*Iriberry–Rey–Biel*, 2018), or on study choices (*Buser et al.* 2014). Attitudes to competition also play a role in choosing a workplace. Relying on British and American data, *Manning–Saidi* (2010) and *Flory et al.* (2015) report that women are less likely to choose a competitive job. Also, according to *Reuben et al.* (2017), gender differences in competitiveness and self-confidence explain nearly four-fifth of gender differences in wage expectations.

In summary, the gender difference in preferences for competition is one of the most robust observations of experimental economics, and this difference partly explains later gender gaps in education and at work.

Social preferences

The simplest definition of social preferences is that the utility of an individual does not only depend on her own payoff but also on the payoff of others. Thus, altruism, envy, attitudes towards inequality, and reciprocity may all be manifestations of social preferences. Women are usually considered to be more social (less selfish, more cooperative etc.), because there are significantly more women in occupations requiring cooperation with others (e.g. nursing and teaching). But is this really the case?

Researchers usually study social preferences with incentivized tasks. Redistributive preferences can be analysed most easily with dictator games. Here, one of the parties divides a sum of money between herself and the other party. Since the experiment is usually anonymous and participants do not know each other, absent social preferences (such as generosity) we expect the 'dictator' not to give anything to the other party. We can interpret the amount

allocated to the other party as the manifestation of altruism.⁵ When only considering the amount of money given to the other party, there are no conclusive results on whether women are more generous (*Croson–Gneezy, 2009, Engel, 2011, Niederle, 2015*).

There is another classic game, called the ultimatum game, which is different from the dictator game in that here the other party is not passive. If the other party accepts the amount offered, the proposed allocation is realized, if she rejects, both parties leave empty-handed. The interpretation of the ultimatum game is not as straightforward as that of the dictator game. In the ultimatum game, the decision of the proposer is also defined by risk aversion in addition to altruism, since she wishes to avoid the other party rejecting her offer. Accordingly, there are mixed results concerning gender differences: sometimes women, sometimes men offer higher amounts.

Results vary similarly concerning the trust game, the third classic game, where the first party can send any fraction of a given amount to the second party. The sent amount increases (most often triples), and then the second party decides how much of this increased amount she sends back to the first party. *Croson–Gneezy (2009)* reported that women's decisions varied more in these experiments: apparently, they are more responsive to the details of the experiment than men.

Social preferences also include cooperation skills, which are typically assessed by the prisoners' dilemma game, or its generalisation, the public goods game, as well as by other social dilemma games. One of the most important characteristics of these games is that from the individual point of view, the dominant strategy is to be selfish, however, total payoff is maximised by unselfish behaviour. Studies usually conclude that there is no profound difference between genders in the amounts offered if the gender of the other party is unknown. In mixed pairs, women are more cooperative than men but when comparing single-sex male or female pairs, men cooperate more (*Balliet et al. 2011*).

Gender differences in bargaining and negotiation are also related to social preferences. Women tend to be less competitive during bargaining: they ask for less money and are less likely to engage in bargaining at all (*Säve–Söderbergh, 2007, Small et al. 2007*). *Bowles et al. (2005)* observe that women are better at bargaining when they do it for others than when they do it for themselves, while as for men there is no such difference. It may be because women are more caring with others than with themselves, or because they are afraid of the negative reactions they get if they stand up too strongly for themselves. *Bowles et al. (2007)* claim the latter is a real fear: the participants of the experiment tended to be more critical towards women fighting for higher wages.

In summary, although there are no significant gender differences in social preferences in lab experiments, there may be substantial differences in characteristics such as bargaining skills.

⁵ *List (2007)* and *Bardsley (2008)* showed that minor changes to the experiment easily make participants less altruistic, therefore the generosity seen in the dictator game may be also due to the design of the experiment in addition to altruism.

Conclusion

How important are gender differences in preferences? *Niederle* (2015) notes that she sees two camps of researchers studying gender differences. One of these camps emphasise the differences between the genders, while the other the similarities. Based on the findings we reported, the situation concerning preferences is not so simple: the given context defines whether one finds differences or similarities between the genders. Considering competition, studies largely agree that men are more competitive. As for risk preferences and social preferences, the situation is not that clear-cut. Women may be more risk-averse than men but it also depends on the domain, the situation, and the assessment method, while in the case of social preferences the picture is even less clear. It is important to note that although the advantage of lab experiments is that effects may be better separated, and in this way the presence of gender differences may be confirmed with more certainty, the statistically significant differences found in lab experiments are not necessarily significant in real life – their impact in everyday life may be negligible. Furthermore, it is well-researched that non-cognitive factors have a great impact in school, in the labour market and in other segments of life (for example *Borghans et al.* 2008, *Manning–Swaffield*, 2008); however, we have less information on how important are gender differences in preferences in differences in real-life outcomes.

References

- BALAFOUTAS, L.–SUTTER, M. (2012): Affirmative Action Policies Promote Women and Do Not Harm Efficiency in the Laboratory. *Science*, Vol. 335. No. 6068. pp. 579–582.
- BALLIET, D.–LI, N. P.–MACFARLAN, S. J.–VAN VUGT, M. (2011): Sex differences in cooperation: a meta-analytic review of social dilemmas. *Psychological Bulletin*, Vol. 137. No. 6. pp. 881–909.
- BARDSLEY, N. (2008): Dictator game giving: altruism or artefact? *Experimental Economics*, Vol. 11. No. 2. pp. 122–133.
- BARTLING, B.–FEHR, E.–SCHUNK, D. (2012): Health effects on children’s willingness to compete. *Experimental Economics*, Vol. 15. No. 1. pp. 58–70.
- BERTRAND, M. (2011): New Perspectives on Gender, In: *Handbook of Labor Economics*. Elsevier, Vol. 4. Part B. pp. 1543–1590.
- BONIN, H.–DOHMEN, T.–FALK, A.–HUFFMAN, D.–SUNDE, U. (2007): Cross-sectional earnings risk and occupational sorting: The role of risk attitudes. *Labour Economics*, Vol. 14. No. 6. pp. 926–937.
- BORGHANS, L.–DUCKWORTH, A. L.–HECKMAN, J. J.–WEEL, B. TER (2008): The Economics and Psychology of Personality Traits. *Journal of Human Resources*, Vol. 43. No. 4. pp. 972–1059.
- BOWLES, H. R.–BABCOCK, L.–MCGINN, K. L. (2005): Constraints and triggers: situational mechanics of gender in negotiation. *Journal Personality Social Psychology*, Vol. 89. No. 6. pp. 951–965.
- BOWLES, H. R.–BABCOCK, L.–LAI, L. (2007): Social incentives for gender differences in the propensity to initiate negotiations. Sometimes it does hurt to ask. *Organizational Behavior Human Decision Processes*, Vol. 103. No. 1. pp. 84–103.
- BUSER, T.–NIEDERLE, M.–OOSTERBEEK, H. (2014): Gender, Competitiveness, and Career Choices. *The Quarterly Journal of Economics*, Vol. 129. No. 3. pp. 1409–1447.
- CÁRDENAS, J. C.–DREBER, A.–VON ESSEN, E.–RANEHILL, E. (2012): Gender differences in competitiveness and risk taking: Comparing children in Colombia and Sweden. *Journal of Economic Behavior and Organization*, Vol. 83. No. 1. pp. 11–23.
- CAMPBELL, A. (2013): *A Mind Of Her Own*. The evolutionary psychology of women. Oxford University Press, Oxford.
- CHARNES, G.–GNEEZY, U. (2012): Strong Evidence for Gender Differences in Risk Taking. *Journal of Economic Behavior and Organization*. *Gender Differences in Risk Aversion and Competition*, Vol. 83. No. 1. pp. 50–58.
- CROSETTO, P.–FILIPPIN, A. (2013): The ‘bomb’ risk elicitation task. *Journal of Risk Uncertainty*, Vol. 47. No.

1. pp. 31–65.
- CROSETTO, P.–FILIPPIN, A. (2016): A theoretical and experimental appraisal of four risk elicitation methods. *Experimental Economics*, Vol. 19. No. 3. pp. 613–641.
- CROSON, R.–GNEEZY, U. (2009): Gender Differences in Preferences. *Journal of Economics Literature* Vol. 47. No. 2. pp. 448–474.
- DITTRICH, M.–LEIPOLD, K. (2014): Gender differences in time preferences. *Economics Letters*, Vol. 122. No. 3. pp. 413–415.
- DOHMEN, T.–FALK, A. (2011): Performance Pay and Multidimensional Sorting: Productivity, Preferences, and Gender. *American Economic Review*, Vol. 101. No. 2. pp. 556–590.
- DOHMEN, T.–FALK, A.–HUFFMAN, D.–SUNDE, U.–SCHUPP, J.–WAGNER, G. G. (2011): Individual Risk Attitudes: Measurement, Determinants, and Behavioral Consequences. *Journal of the European Economic Association*, Vol. 9. No. 3. pp. 522–550.
- ECKEL, C. C.–GROSSMAN, P. J. (2002): Sex differences and statistical stereotyping in attitudes toward financial risk. *Evolution & Human Behavior*, Vol. 23. No. 4. pp. 281–295.
- ENGEL, C. (2011): Dictator games: a meta study. *Experimental Economics*, Vol. 14. No. 4. pp. 583–610.
- FLORY, J. A.–LEIBBRANDT, A.–LIST, J. A. (2015): Do Competitive Workplaces Deter Female Workers? A Large-Scale Natural Field Experiment on Job Entry Decisions. *The Review of Economics Studies*, Vol. 82. No. 1. pp. 122–155.
- GNEEZY, U.–NIEDERLE, M.–RUSTICHINI, A. (2003): Performance in Competitive Environments: Gender Differences. *The Quarterly Journal of Economics*, Vol. 118. No. 3. pp. 1049–1074.
- GNEEZY, U.–POTTERS, J. (1997): An Experiment on Risk Taking and Evaluation Periods. *The Quarterly Journal of Economics*, Vol. 112. No. 2. pp. 631–645.
- GÜNTHER, C.–EKINCI, N. A.–SCHWIEREN, C.–STROBEL, M. (2010): Women can't jump? – An experiment on competitive attitudes and stereotype threat. *Journal of Economics Behavior and Organisation*, Vol. 75. No. 3. pp. 395–401.
- HOLT, C. A.–LAURY, S. K. (2002): Risk Aversion and Incentive Effects. *American Economic Review* Vol. 92. No. 5. pp. 1644–1655.
- IRIBERRI, N.–REY-BIEL, P. (2018): Competitive Pressure Widens the Gender Gap in Performance: Evidence from a Two-stage Competition in Mathematics. *Economics Journal*, 31 July.
- LE, A. T.–MILLER, P. W.–SLUTSKE, W. S.–MARTIN, N. G. (2011): Attitudes towards economic risk and the gender pay gap. *Labour Economics*, Vol. 18. No. 4. pp. 555–561.
- LIST, J. A. (2007): On the Interpretation of Giving in Dictator Games. *Journal of Political Economy*, Vol. 115. No. 3. pp. 482–493.
- MANNING, A.–SAIDI, F. (2010): Understanding the Gender Pay Gap: What's Competition Got to Do with it? *ILR Review*, Vol. 63. No. 4. pp. 681–698.
- MANNING, A.–SWAFFIELD, J. (2008): The gender gap in early-career wage growth. *Economics Journal*, Vol. 118. No. 530. pp. 983–1024.
- MAYR, U.–WOZNIAK, D.–DAVIDSON, C.–KUHN, D.–HARBAUGH, W. (2012): Competitiveness across the life span: The feisty fifties. *Psychology and Aging*, Vol. 27. No. 2. pp. 278–285.
- NIEDERLE, M. (2015): Gender. In: *Handbook of Experimental Economics*. Princeton University Press, pp. 481–563.
- NIEDERLE, M.–SEGAL, C.–VESTERLUND, L. (2012): How Costly Is Diversity? Affirmative Action in Light of Gender Differences in Competitiveness. *Management Science*, Vol. 59. pp. 1–16.
- NIEDERLE, M.–VESTERLUND, L. (2007): Do Women Shy Away From Competition? Do Men Compete Too Much? *The Quarterly Journal of Economics*, Vol. 122. No. 3. pp. 1067–1101.
- ORS, E.–PALOMINO, F.–PEYRACHE, E. (2013): Performance Gender Gap: Does Competition Matter? *Journal of Labor Economics*, Vol. 31. No. 3. pp. 443–499.
- REUBEN, E.–WISWALL, M.–ZAFAR, B. (2017): Preferences and Biases in Educational Choices and Labour Market Expectations: Shrinking the Black Box of Gender. *The Economics Journal*, Vol. 127. No. 604. pp. 2153–2186.
- SÄVE-SÖDERBERGH, J. (2007): Are Women Asking for Low Wages? Gender Differences in Wage Bargaining Strategies and Ensuing Bargaining Success. Working Paper Series, No. 7. Stockholm University, Swedish Institute for Social Research.
- SHURCHKOV, O. (2012): Under Pressure: Gender Differences in Output Quality and Quantity under Competition and Time Constraints. *Journal of the European Economic Association*, Vol. 10. No. 5. pp. 1189–1213.
- SMALL, D. A.–GELFAND, M.–BABCOCK, L.–GETTMAN, H. (2007): Who goes to the bargaining table? The influence of gender and framing on the initiation of negotiation. *Journal of Personality and Social Psychology*, Vol. 93. No. 4. pp. 600–613.
- SUTTER, M.–GLÄTZLE-RÜTZLER, D. (2014): Gender Differences in the Willingness to Compete Emerge Early in Life and Persist. *Management Science*, Vol. 61. No. 10. pp. 2339–2354.
- WANG, M.–RIEGER, M. O.–HENS, T. (2016): How time preferences differ: Evidence from 53 countries. *Journal of Economic Psychology* Vol. 52. pp. 115–135.
- WEBER, E. U.–BLAIS, A.–R.–BETZ, N. E. (2002): A domain-specific risk-attitude scale: measuring risk perceptions and risk behaviors. *Journal of Behavioral Decision Making*, Vol. 15. No. 4. pp. 263–290.

K6.2 Gender differences in the use of cognitive skills at work

RITA PETŐ & BALÁZS REIZER

Gender pay gap decreased worldwide during recent decades mainly due to the increase of the average relative educational level of women compared to men and therefore women became segregated less and less into occupations with low skills and wage level (*Blau–Kahn, 2000*).

As a result of this process the gender pay gap *within* occupations is now larger than *between* occupations. *Black–Spitz–Oener (2010)* also demonstrated that the wage disadvantage of women mainly originates in the fact that women in the same occupation use their cognitive skills less than men. This is a surprising result as occupations are defined with detailed lists of tasks, which determines all tasks the employee should fulfil in the given occupation (*ISCO, 2008*). Thus, if the definition of occupations is exact, no systematic gender differences could exist in the use of skills within occupation.

In our related study (*Pető–Reizer, 2018*) we examined the possible reasons why the skills use of women at work lags behind. For this work, the survey called Programme for the International Assessment of Adult Competencies (PIAAC)¹ was used. The survey asked employees directly how often they carry out certain activities (e.g. using Excel, writing a letter etc.) and based on the answers a standardised index of skills use has been created. Based

on our results the disadvantage in the skills use of women by 0.2–0.3 standard deviation is the same as if women in the same occupation attended school 4 years less than men. This disadvantage does not disappear even if differences in demographic and other employment related characteristics are filtered out. The disadvantage in skills use of women appears in all the 16 countries assessed by PIAAC at all qualification levels. In addition, based on the outcomes of PIAAC tests in mathematics and reading it can be also proved that the reason behind the less intensive skills use of women is not the lack of the necessary skills.

Finally, we demonstrate that the gender gap in skills use disappears if we filter out the impact of the time spent with housework. Those women who do more housework also fulfil less skill-intensive tasks at their workplace than men in the same occupation, with the same educational level and with equal test results in mathematics and reading.

It follows from our outcomes, that measures aiming at decreasing segregation *between* occupations are not able to eliminate gender gaps at workplaces. Besides this, it is apparent that activities at work and at home are closely connected therefore gender distribution of tasks at work and in the free time have to be understood jointly in order to decrease gender inequalities at work.

References

- BLACK, S. E.–SPITZ-OENER, A. (2010): Explaining women's success: technological change and the skill content of women's work. *The Review of Economics and Statistics*, Vol. 92. No. 1. pp.187–194.
- BLAU, F. D.–KAHN, L. M. (2000): Gender differences in pay. *Journal of Economic perspectives*, Vol. 14. No. 4. pp. 75–99.
- ISCO (2008): International Standard Classification of Occupations.
- PETŐ, RITA–REIZER, BALÁZS (2018): Gender Differences in Skill Content of Jobs. Manuscript.

¹ *Programme for the International Assessment of Adult Competencies (PIAAC)* is an overall international survey established by the OECD, which measures basic competencies of the adult population used in everyday life and at work in the participating countries. The internationally harmonized assessment of skills started in 2003. Hungary joined the assessment of skills in 2008 – unlike the other rounds of 2003 and 2013 in which surveys Hungary did not participate.

K6.3 The effect of motivation and feedback

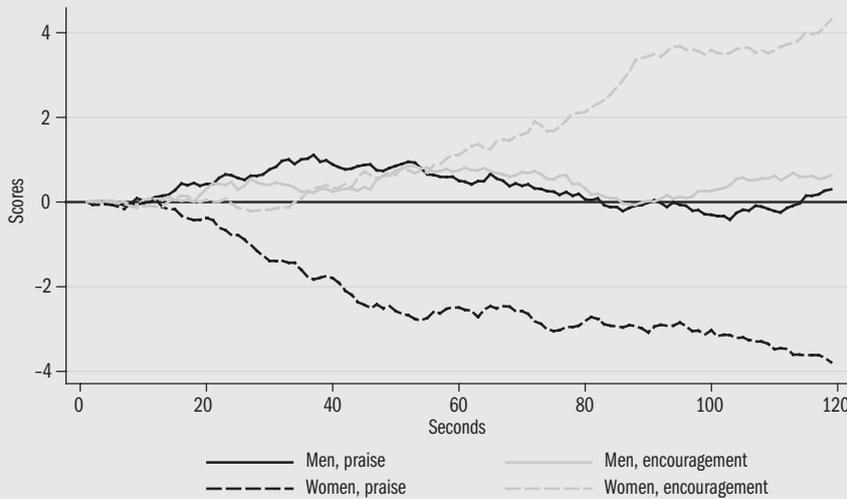
ANNA LOVÁSZ & ÁGNES SZABÓ-MORVAI

Gender related differences in school and work performance may partly be explained by the differences in non-cognitive characteristics between the genders (for example men tend to have greater self-confidence and be more competitive) and that the conditions and rules of a given environment (such as the labour market) favour men because of the attributes characteristic of them (for example those with more self-confidence are more successful at wage negotiations and those who like to compete are more likely to be promoted) (Niederle, 2016).

A recent study (Lovász et al. 2017) explored whether encouragement ('You can do it') or praise ('Well done!') affect performance differently, de-

pending on gender. In an online game, individuals were randomly assigned to a control group (did not get encouragement or praise) or a treatment group (got encouragement or praise). Figure K6.3.1 presents the differences in the average scores of the treatment and control groups during the game. Women were affected more strongly by both encouragement (positively) and praise (negatively) than men. These effects are strongly related to the lower self-confidence of women: men with low self-confidence were influenced by both treatments similarly to women. This suggests that individualised, subjective feedback may increase the performance of certain (less confident) groups, especially of women, during certain tasks.

Figure K6.3.1: The impact of praise and encouragement according to gender - difference in scores between the treatment and control groups during the game



References

LOVÁSZ, A.-CUKROWSKA-TORZEWSKA, E-RIGÓ, M.-SZABÓ-MORVAI, Á. (2017): Gender Differences in the Effect of Subjective Feedback. Budapest Working Papers on the Labour Market, BWP, No. 1705.

NIEDERLE, M. (2016): Gender. In: Roth, A. E.-Kagel, J. H. (eds.): Handbook of Experimental Economics. Volume 2, pp. 481-553. Princeton University Press, Princeton.

7 HUMAN CAPITAL, PART IV

HEALTH AND LABOUR MARKET PARTICIPATION AMONG WOMEN

ANIKÓ BÍRÓ, RÉKA BRANYICZKI & PÉTER ELEK

Ability to work is affected by mental and physical health, which may contribute to the fact that Hungarian women, especially those over 50, fall behind the EU average in labour market participation. At the same time, labour market participation also has an impact on health.

Based on international literature, we know that unemployment has a negative impact on mental health (*Thomas et al. 2005, Schaller–Stevens, 2015*); however, there is no consensus regarding its impact on physical health. As for the health effects of retirement, research results are not consistent either (for example *van der Heide et al. 2013, Insler, 2014, Behncke, 2012*). On the other hand, bad health has been found to have a negative impact on employability (*García-Gómez et al. 2013, Riphahn, 1999*) and it reduces the probability of re-employment after unemployment (*Stewart, 2001*).

Due to a lack of individual-level panel data on health, there is little knowledge of the causal link between health and labour market participation in Hungary. Based on administrative and questionnaire-based data, this subchapter provides an overview of the relationships between the health and labour market participation of women and points out divergence from European patterns and possible causalities.

Health and labour market participation among women aged 50+ in European comparison, based on SHARE data

Descriptive analysis

The SHARE (Survey of Health, Ageing and Retirement in Europe) database¹ provides detailed data on the health and labour market participation of women over 50. It is an internationally harmonised, multidisciplinary panel survey, which collects data biannually about the health, labour market situation and socio-economic characteristics of the population over 50, allowing the comparison of the health of working and non-working women. The data are available to the entire research community free of charge.

Hungary joined the survey in its fourth wave, in 2011,² with a sample of about 2000 households including 1700 women, nearly half of whom were working age according to the retirement age effective in 2011 (aged 50–62). Since 93 per cent of women aged over 60 are in retirement, we focused on a younger middle-aged age group: we compared the health of women aged 50–59 based on their employment status. Employed people were defined as those who reported to

1 We are using data from the 4th wave of share SHARE (DOI: 10.6103/SHARE.w4.611), for details on methodology see *Börsch-Supan et al (2013)*. The SHARE data collection was 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° 211909, SHARE-LEAP: N° 227822, SHARE M4: N° 261982). Additional funding was provided by the German Ministry for Education and Research, Max Planck Society for the Advancement of Science, U.S. National Institute on Ageing (U01_AG09740-13S2, P01_AG005842, P01_AG08291, P30_AG12815, R21_AG025169, Y1-AG-4553-01, IAG_BSR06-11, OGHA_04-064, HHSN271201300071C) (see share-project.org).

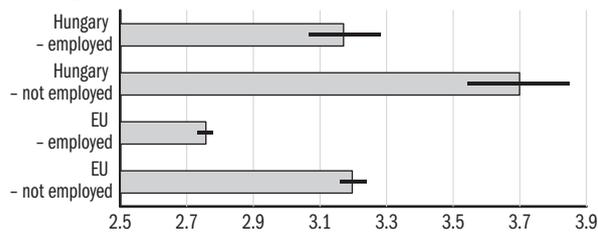
2 The 4th wave of SHARE includes the following countries: Austria, Belgium, the Czech Republic, Denmark, Estonia, France, Holland, Poland, Hungary, Germany, Italy, Portugal, Spain, Switzerland, Sweden, Slovenia. The next data collection was conducted in 2017 in Hungary, the data from which were published in spring 2019.

work (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 this part of the analysis although it is telling that their share among women aged 50–59 is 16 per cent in Hungary, more than double of the European average. Thus the sample included about 280 ‘employed’ and 170 ‘not employed’. We note that the second half of this paper will focus on the health indicators of disability pensioners.

The SHARE database contains several health-related indicators: the self-reported general health of respondents, the number of chronic diseases or symptoms, the number of health problems affecting ‘activities of daily living’ (ADL), occurrence of various diseases, body mass index (BMI, which relates weight to height) and depression based on the Euro-D scale.³ Results from a grip test are also available, which measures grip strength, and is strongly related to the general physical condition of the elderly.

Figures 7.1–7.6 present the average value of the above indicators among working age women in Hungary compared to the other countries of the sample, broken down by employment status. On average, those who work are healthier among both European and Hungarian women. It is striking that the health of Hungarian women, particularly that of the ‘not employed’ group, is generally worse than the European average.

Figure 7.1: Subjective health by employment status



Note: Average self-reported subjective health ranging from 1 (excellent) to 5 (poor) among women aged 50–59. 95 percent confidence interval of the mean is presented. Source: Authors’ compilation based on data from *SHARE*.

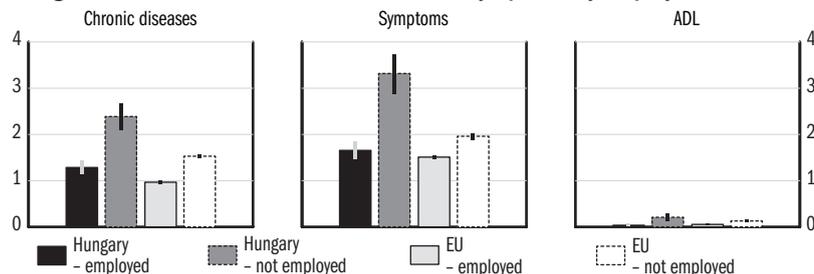
Overall, the self-reported health of working Hungarian women is good, while that of women not working is only between good and fair, and the European averages are by half a category better in both groups (*Figure 7.1*). Those not working suffer from more than two chronic diseases on average and the number of their symptoms exceeds two and a half. Working women report nearly one disease and one symptom less in Hungary (*Figure 7.2*). Women not working lag behind the EU average more seriously in both indicators. The average number of health problems affecting ADL was negligible in all groups assessed.

In Hungary, half of the women not working and more than one-third of working women had high blood pressure (the corresponding European averages being 32 per cent and 22 per cent respectively), although the difference

³ The Euro-D measures the symptoms of depression using a 12-point scale (*Prince et al. 1999*).

between the two groups was not statistically significant. There is a considerable difference between the working and not working groups in the prevalence of heart attack, diabetes and chronic lung disease (*Figure 7.3*).

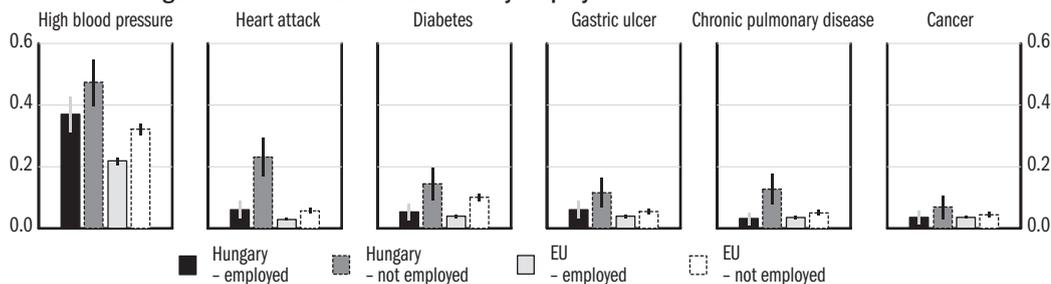
Figure 7.2: Number of chronic diseases and symptoms by employment status



Note: The average number of chronic diseases, health symptoms (for example back pain, heart problems, choking, persistent cough etc.) and health problems affecting ADL among women aged 50–59. 95 percent confidence interval of the mean is presented.

Source: Authors' compilation based on data from *SHARE*.

Figure 7.3: Occurrence of diseases by employment status

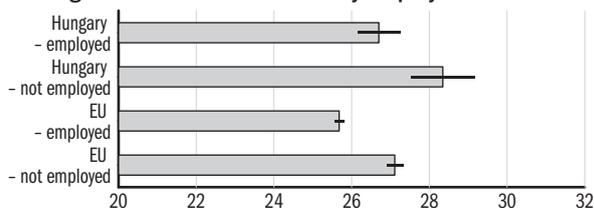


Note: The average rate of occurrence of diseases among women aged 50–59. 95 percent confidence interval of the mean is presented.

Source: Authors' compilation based on data from *SHARE*.

Even though the age group 50–59 was found overweight on average in both Hungary and Europe (BMI average over 25), the probability of being overweight is higher in the non-working population (*Figure 7.4*). The grip test revealed that the grip strength of those not working is also weaker (*Figure 7.5*).

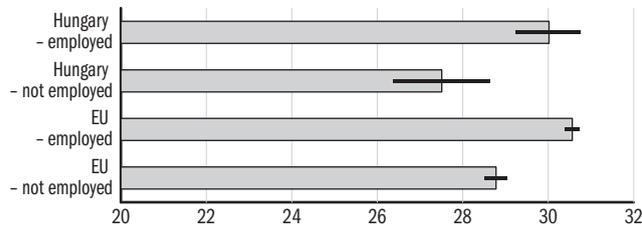
Figure 7.4: BMI broken down by employment status



Note: Average BMI among women aged 50–59. 95 percent confidence interval of the mean is presented.

Source: Authors' compilation based on data from *SHARE*.

Figure 7.5: Grip strength broken down by employment status

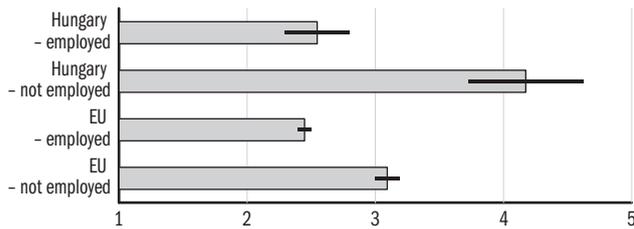


Note: Average grip strength (kilogramme) among women aged 50–59. 95 percent confidence interval of the mean is presented.

Source: Authors’ compilation based on data from *SHARE*.

Working women have better mental health (*Figure 7.6*). The Hungarian and European averages substantially differ in the non-working group. The average Hungarian figure for non-working women exceeds four, which is classified as clinically significant depression.

Figure 7.6: Depression broken down by employment status



Note: The average degree of depression on the Euro-D scale among women aged 50–59. 95 percent confidence interval of the mean is presented.

Source: Authors’ compilation based on data from *SHARE*.

Controlling for factors affecting health and labour market participation

We showed that working women are healthier both mentally and physically than those not working. This may have several reasons: working may be associated with a more active and healthier lifestyle but it is also possible that women not working have left or were cut off from the labour market because of their worse mental and physical health. Although it is impossible to establish causal links in cross-sectional *SHARE* data, it is worth examining whether working women are also healthier if individuals of the same age, qualification, marital status and type of settlement of residence are compared in Hungary.

Table 7.1 presents the results of three linear regressions, with subjective health (1: excellent, 5: poor), the number of chronic diseases and grip strength (kilogramme) as dependent variables. All the three indicators show that working women are healthier, even after controlling for the above demographic characteristics. Also relying on the *SHARE* database, *Divényi–Kézdi* (2013) found that the employability of individuals with the best health and cognitive skills, aged 50–59 in Hungary is very similar to the European average, while the employ-

ability of those with worse health and cognitive skills is increasingly lagging behind the European average. It was also revealed that the difference between the Hungarian and German employment rates decreases if cognitive skills and the distribution of health in addition to demographic factors are controlled for. When partly reproducing these linear models (where the dependent variable is employment status again), it is seen that the 20 percentage points lag of Hungarian women aged 50–59 compared to German women would decrease to 12 percentage points if both the demographic composition and the health of the population would correspond to the German average (*Table 7.2*).

Table 7.1: Average differences in health indicators by employment status, controlling for demographic and socio-economic factors, among women aged 50–59 in Hungary

	Subjective health (1)	Number of chronic diseases (2)	Grip strength (3)
Working	-0.364*** (0.123)	-0.707*** (0.208)	1.908** (0.932)
Control variables	Yes	Yes	Yes
Number of observations	334	334	326
R ²	0.167	0.188	0.095

Note: Robust standard errors in brackets.

Control variables: *age variables* (age and age squared), *qualification* (5 ISCED categories), *marital status* (married or cohabiting, single, widow), *type of settlement* (five categories from urban to rural).

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Authors' calculation based on data from *SHARE*.

Table 7.2: Differences in employment rates between countries, controlling for age, qualification, type of settlement and the distribution of health, among women aged 50–59

	Employment (1)	Employment (2)	Employment (3)
Hungary	-0.200*** (0.0503)	-0.162*** [0.0511]	-0.122** (0.0512)
Country indicators (reference: Germany)	Yes	Yes	Yes
Age variables	Yes	Yes	Yes
Type of settlement	Yes	Yes	Yes
Qualification	-	Yes	Yes
Health variables	-	-	Yes
Number of observations	5,614	5,542	5,326
R ²	0.130	0.181	0.211

Note: Robust standard errors in brackets.

Control variables: *age variables* (age and age squared), *qualification* (based on ISCED), *type of settlement* (five categories from urban to rural), *health* (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*.

The associations between labour market status, health expenditure and mortality

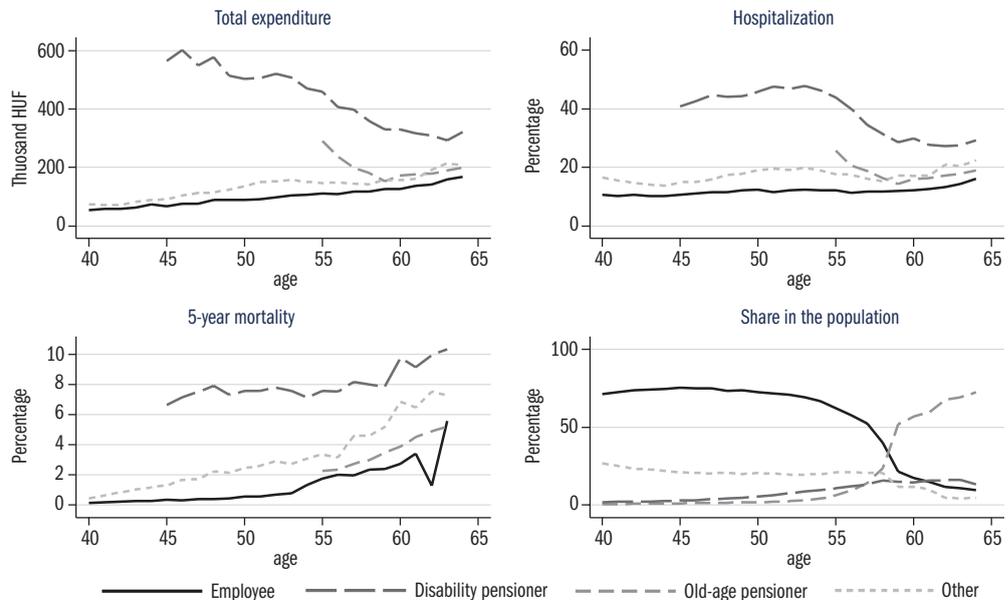
Health expenditure and mortality by labour market status

The individual-level administrative panel database of the Databank of the Institute of Economics of the Centre of Economic and Regional Studies of the Hungarian Academy of Sciences (IE CERS HAS), which covers a randomly selected 50 per cent of the population in the period 2003–2011, does not contain direct information on disease but includes data on healthcare use, mortality and labour market information. From these data an association between health and labour market status may be inferred, and hence the findings from the SHARE data can be supplemented.

⁴ Expenditure data are annual, therefore the analysis takes years as timescale. Women are considered working if they worked at least for six months in a given year. A person on old-age pension or disability pension is defined as someone who is not in employment and received the benefit for at least six months in the given year. Figure 7.7. only includes data on categories whose share in the given age group reached a minimum threshold in 2011.

Figure 7.7 presents the average health expenditure for 2011 (the sum of outpatient, inpatient and prescribed pharmaceutical expenditures), the probability of hospital stay, and the probability of death calculated from 2006 onwards by age, for the categories of working women, those receiving disability or old-age pension and for women not belonging to any of the above three categories. The bottom right panel of the Figure contains the share of the various employment categories by age within the entire population in 2011.⁴

Figure 7.7: Annual per capita health expenditure, probability of hospital stay, five-year probability of death and the share in the total population by employment category, women aged 40–64



Note: Data are from 2011, except for the five-year probability of death, which is from 2006.

Source: Authors' calculation based on the administrative database of IE, CERS, HAS.

The Figure reveals that 4–8 times more healthcare expenditure is allocated to disability pensioners than to working women in the 45–54 age group. The Figure does not show but the difference within the category is similar (4–10-fold) for inpatient care and prescription medicines but it is only threefold for outpatient expenditure. The annual probability of hospital stay in this age group is 10–12 per cent for working women, while it is 41–46 per cent for women on a disability pension. All this points to the dramatically worse health of women on a disability pension, confirmed by the bottom left panel of *Figure 7.7.* showing the five-year probability of death by age and employment category. Women on a disability pension have a 7 per cent, while working women a much less than 1 per cent risk of death within five years in the 45–54 age group.

The figures indicate a smaller difference in the health indicators of women on old age pension and those working beyond the retirement age. In 2011 the early retirement age was 59 years and that was when the majority of women working in their fifties retired. Over this age, the healthcare expenditure and the probability of death of those on an old age pension only slightly exceeded those of women continuing work. This suggests that it is the relatively healthier that continue to work in higher proportions after the retirement age; however, health has less significance than at a younger age, when taking a disability pension. Of course, it is also possible that the healthcare expenditure of old age pensioners and women continuing work is only different because of the changing incentives at the time of retirement itself. Nevertheless, *Bíró-Elek* (2018) reported that retirement actually reduces the probability of attending specialist outpatient care and the consumption of any prescribed medicine, thus this mechanism does not explain the slightly higher healthcare expenditure of old age pensioners compared to working women.

Finally, the probability of the death of women belonging to the category ‘Other’ (not working and not receiving a pension) is considerably higher than that of working women but lower than that of women on a disability pension and their healthcare expenditure is only slightly higher than that of working women.

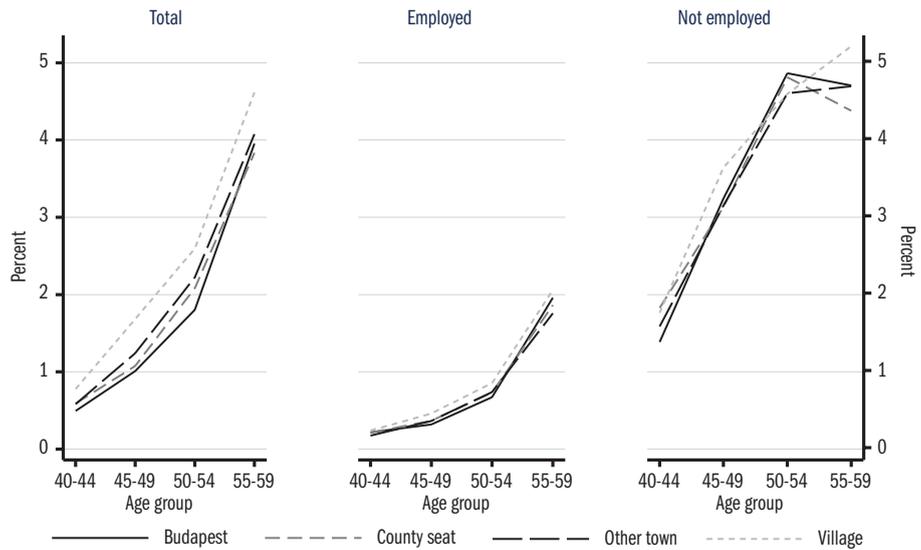
Associations with the type of settlement

The above results, with minor modifications, hold even after controlling for local supply and demand factors in the regression framework, using the county and the type of settlement of residence. In the following, the five-year probability of death by type of settlement will be examined. The left-hand panel of *Figure 7.8* shows that the raw mortality indicator in the 40–54 age group of women is one and a half higher in villages than in the capital (in county seats and other cities the figures are between these two values and the data are somewhat more balanced in the 55–59 age group).⁵ At the same time, the

⁵ *Figure 7.2.* presents age groups spanning five years within the 40–59 age group, because the low mortality rates broken down by settlement type and employment status could only be measured with a large error.

middle and the right-hand panel indicate that within the working and within the non-working groups there are no substantial differences in mortality according to the type of settlement. In other words, the difference between the probability of death of working and not working women is nearly the same within each type of settlement. It suggests that the significant difference in the raw mortality in the various settlement types is due to the fact that the employment rate is considerably lower in villages than in the capital. This is consistent with the Hungarian literature on health inequalities, which examines the role of several variables, among them employment, in mortality and other health differences (see for example *Orosz–Kollányi 2019*).

Figure 7.8: Five-year probability of death by settlement type and employment status in 2006, women aged 40–59



Source: Authors' calculation based on the administrative database of IE, CERS, HAS.

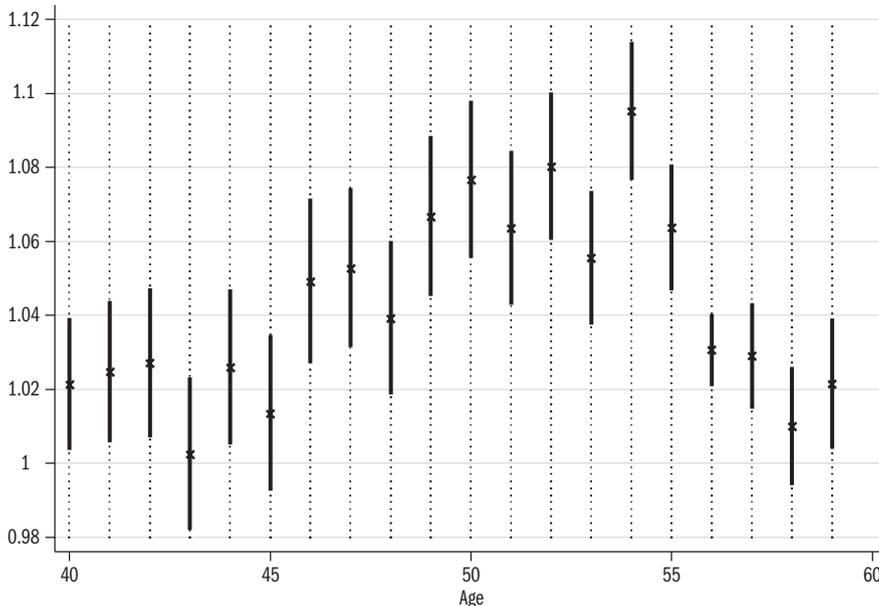
Healthcare expenditure predicts exit from employment

Based on the above, those not working are in significantly worse health (with worse mortality indicators) than working women and consequently healthcare expenditure, primarily on inpatient care and on prescribed pharmaceuticals, is substantially higher. In the following we demonstrate that health (measured by healthcare expenditure) also has an impact on the probability of exiting employment, even after several years.

A logit model is estimated on the probability of a working person permanently exiting employment in a given year (defined as not taking up work in either of the following two years). The key explanatory variable is individual healthcare expenditure k years before, measured as a percentile of the distribution of expenditure of women of a given age. Healthcare supply and demand

factors are controlled for using the age, estimated educational attainment⁶ and the county and settlement type of the place of residence of individuals as well as the calendar year.

Figure 7.9: The effect of healthcare expenditure decile one year before on permanent exit from employment



Note: Odds ratios obtained from the logit model with their 95 per cent confidence interval.

Explanatory variable: interaction of age and the decile (10 times the percentile) of healthcare expenditure incurred one year before.

Control variables: see in text. Reference years: 2008–2009.

Source: Authors' calculation based on the administrative database of *IE, CERS, HAS*.

The estimates show that if the healthcare expenditure spent on the individual one year before was one decile (ten percentiles) higher, the odds of exiting employment permanently increased 1.041-fold (standard error for the estimated odds ratio is 0.002).⁷ Furthermore (not shown in detail), healthcare expenditure five years before also has a significant positive effect on the probability of permanent exit (odd ratio approximately 1.013, standard error 0.002). *Figure 7.9.* presents the age-specific effect of the decile of healthcare expenditure one year before on permanent exit from employment. It reveals that prior healthcare expenditure has the strongest effect on the exit of the 46–55 age group.

Conclusions

Both questionnaire-based (SHARE) and administrative data indicated that among the active age population working women are in better physical and

⁶ Educational attainment was estimated using the occupational (Hungarian Standard Classification of Occupations, HSCO) code of the employment of the person, based on the median of qualifications relating to the given HSCO code in the Labour Force Survey (LFS) conducted by the Central Statistical Office.

⁷ Note: the annual probability of permanent exit from employment is around 5 per cent in the 40–54 age group, which increases substantially, over 20 per cent after reaching retirement.

mental health than women not working. The healthcare expenditure and mortality rate of women receiving disability pensions in this age group were many times greater than the healthcare expenditure and mortality rate of working women.

The poor health indicators in Hungary partly explain the low employment rate of middle-aged women by European comparison. Health status is a strong explanatory variable of future labour market status (1–5 years later).

In conclusion, improving the health of middle-aged women may significantly contribute to increasing their labour market participation.

References

- BEHNCKE, S. (2012): Does retirement trigger ill health? *Health Economics*, Vol. 21. No. 3. pp. 282–300.
- BÍRÓ, A.–ELEK, P. (2018): How does retirement affect healthcare expenditures? Evidence from a change in the retirement age. *Health Economics*, Vol. 27. No. 5. pp. 803–818.
- BÖRSCH-SUPAN, A. (2018): Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 4. Release version: 6.1.0. SHARE-ERIC. Data set. DOI: 10.6103/SHARE.w4.610
- BÖRSCH-SUPAN, A.–BRANDT, M.–HUNKLER, C.–KNEIP, T.–KORBMACHER, J.–MALTER, F.–SCHAAN, B.–STUCK, S.–ZUBER, S. (2013): Data Resource Profile: The Survey of Health, Ageing and Retirement in Europe (SHARE). *International Journal of Epidemiology*. DOI: 10.1093/ije/dyt088.
- DIVÉNYI, J.–KÉZDI, G. (2013). Low employment among the 50+ population in Hungary: the role of incentives, health and cognitive capacities. In: *Börsch-Supan, Brandt, Litwin and Weber* (eds): Active ageing and solidarity between generations in Europe: First results from SHARE after the economic crisis. Gruyter, pp. 77–90.
- GARCÍA-GÓMEZ, P.–VAN KIPPERSLUIS, H.–O'DONNELL, O.–VAN DOORSLAER, E. (2013): Long-term and spill-over effects of health shocks on employment and income. *Journal of Human Resources*, Vol. 48. No. 4. pp. 873–909.
- INSLER, M. (2014): The health consequences of retirement. *Journal of Human Resources*, Vol. 49. No. 1. pp. 195–233.
- OROSZ, É.–KOLLÁNYI, ZS. (2019): Health Status, Health Inequalities in International Comparison. In: *Kolosi, T.–Tóth, I. Gy.* (eds.): Social Report, 2019. Társi, Budapest, pp. 237–257.
- PRINCE, M. J.–REISCHIES, F.–BEEKMAN, A. T.–FUHRER, R.–JONKER, C.–KIVELA, S. L.–VAN OYEN, H. (1999): Development of the EURO-D scale – a European Union initiative to compare symptoms of depression in 14 European centres. *The British Journal of Psychiatry*, Vol. 174. No. 4. pp. 330–338.
- RIPHAHN, R. T. (1999): Income and employment effects of health shocks A test case for the German welfare state. *Journal of Population Economics*, Vol. 12. No. 3. pp. 363–389.
- SCHALLER, J.–STEVENS, A. H. (2015): Short-run effects of job loss on health conditions, health insurance, and health care utilization. *Journal of Health Economics*, Vol. 43. pp. 190–203.
- STEWART, J. M. (2001): The impact of health status on the duration of unemployment spells and the implications for studies of the impact of unemployment on health status. *Journal of Health Economics*, Vol. 20. No. 5. pp. 781–796.
- THOMAS, C.–BENZEVAL, M.–STANSFELD, S. A. (2005): Employment transitions and mental health: an analysis from the British household panel survey. *Journal of Epidemiology and Community Health*, Vol. 59. No. 3. pp. 243–249.
- VAN DER HEIDE, I.–VAN RIJN, R. M.–ROBROEK, S. J.–BURDORF, A.–PROPER, K. I. (2013): Is retirement good for your health? A systematic review of longitudinal studies. *BMC Public Health*, Vol. 13. No. 1. 1180.

8 MARRIAGE, HAVING CHILDREN

8.1 THE EFFECTS OF TEENAGE MOTHERHOOD

ANNA ADAMECZ-VÖLGYI

This chapter looks at the relationship between teenage motherhood, female labour supply and self-declared late-life health. While there is ample evidence on the negative consequences of teenage motherhood, we know surprisingly little about the channels of these effects. Teenage mothers not just have their first child at an early age but also have more children during their lives than women who delay childbearing to their adult years. In this research we aim at investigating whether having a higher average number of children could be a potential channel of the long term effects of teenage motherhood.

Measuring the effects of teenage motherhood

An extensive literature considers the effects of teenage motherhood; however, the identification of its causal impacts is not straightforward. Women having their first child before age 20 are inherently different from women who have their first child later or might not have a child at all. Some of these differences might be observed for the researcher (i.e. family background), most of these however are unobserved and thus cause a selection bias. The literature applies three identification strategies to solve the selection problem and pin down the causal effects of teenage motherhood (statistical matching, twin fixed effects, instrumental variables), and, these methods lead to inconsistent conclusions. Several authors agree that teenage motherhood has negative effects on female health (*Webbink et al.* 2008), and these effects can even be detected late in life (*Angelini–Mierau*, 2015). However, there is no agreement on its labour market and education effects, and we know especially little about the potential channels of its impact.

Teenage mothers have on average more children during their lives than women who delay motherhood to post-adolescence. Theoretically, having more children, independently of the timing of the first birth, could be a reason why teenage mothers are less likely to be employed or have poorer health later in life. This investigates whether having a higher number of children could be a potential channel of the long term effects of teenage motherhood.

Data and methods

We use the second and the third wave of the European SHARE survey.¹ The sample consists of 12,650 women from 14 European countries who were born between 1920 and 1959 and were 50–89 years old when the data of the third wave (SHARELIFE) were collected.² The data allow us to control for

1 A Survey of Health, Ageing and Retirement in Europe (SHARE). See more in *Börsch-Supan et al.* (2013).

2 Those having really poor health in childhood or later are less likely to be still alive and be in our sample; thus, the sample is selected in this respect.

the childhood socio-economic background, health and cognitive abilities of women, and controlling for this rich set of childhood characteristics hopefully decreases the estimation bias due to the selection of teenage mothers.

Building on *Angelini–Mierau* (2015), we are estimating the relationship between having the first child before age 20, and, our two outcome variables (life-long employment history of women, late life health) using linear probability models. We extend their empirical strategy with two elements. First, in addition to their measure of self-declared health status, we define an outcome variable that captures the probability of employment between ages 20–65. Second, we are investigating whether the baseline relationship changes between teenage motherhood and the two outcome variables if we control for the number of children women chose to have.

Table 8.1.1 compares the explanatory variables between teenage mothers and women who either had their first child after age 20, or did not have a child (comparison group). Teenage mothers tend to come from lower socio-economic backgrounds but their childhood health has not been worse than those of the comparison group. Teenage mothers are less likely to have one or two and more likely to have three or more children than women in the comparison group.

Table 8.1.1: Background characteristics and fertility of women

	Comparison group	Teenage mothers	Two-sided t-test p-values
Fertility			
Has child	0.88	1.00	0.000***
One child	0.16	0.09	0.000***
Two children	0.41	0.38	0.079*
Three children	0.19	0.29	0.000***
Four children	0.07	0.12	0.000***
Five or more children	0.05	0.13	0.000***
Age at the time of the survey	66.30	64.57	0.000***
Childhood characteristics: family			
Parents smoked	0.61	0.61	0.801
Parents were heavy drinkers	0.08	0.13	0.000***
Parents had mental problems	0.03	0.03	0.170
Mother lived with the child	0.96	0.95	0.112
Father lived with the child	0.92	0.84	0.000***
Childhood characteristics: housing			
No. of rooms per person in the family	0.73	0.62	0.000***
Bathroom	0.32	0.24	0.000***
Cold running water	0.69	0.64	0.002***
Hot running water	0.34	0.24	0.000***
Inside toilet	0.52	0.41	0.000***
Central heating	0.18	0.13	0.000***

	Comparison group	Teenage mothers	Two-sided t-test p-values
Childhood characteristics: number of books at home			
0-10	0.41	0.5	0.000***
11-25	0.23	0.26	0.075*
26-100	0.23	0.18	0.000***
101-200	0.07	0.04	0.000***
200+	0.06	0.04	0.001***
Childhood characteristics: higher skills relative to peers			
Math	0.32	0.25	0.000***
Grammar	0.41	0.31	0.000***
Childhood characteristics: occupation of the head of the household			
Legislator, senior official or manager	0.05	0.03	0.021**
Professional	0.04	0.01	0.000***
Technician or associate professional	0.05	0.02	0.001***
Clerk	0.06	0.03	0.000***
Service, shop or market sales worker	0.08	0.07	0.200
Skilled agricultural or fishery worker	0.28	0.26	0.432
Craft or related trades worker	0.21	0.23	0.109
Plant/machine operator or assembler	0.05	0.06	0.222
Elementary occupation	0.16	0.24	0.000***
Childhood characteristics: childhood health in general			
Excellent or very good	0.34	0.35	0.449
Childhood health: prevalence of illnesses			
Infectious disease	0.84	0.83	0.694
Polio	0.01	0.01	0.593
Asthma	0.02	0.02	0.564
Respiratory problems	0.03	0.03	0.794
Allergies	0.03	0.04	0.717
Severe diarrhoea	0.01	0.01	0.796
Meningitis/encephalitis	0.01	0.01	0.764
Chronic ear problems	0.03	0.03	0.146
Speech impairment	0.00	0.01	0.110
Difficulty seeing even with eyeglasses	0.02	0.02	0.585
Severe headaches or migraines	0.05	0.06	0.323
Epilepsy, fits or seizures	0.00	0.01	0.331
Emotional, nervous, or psychiatric problems	0.01	0.02	0.219
Broken bones, fractures	0.06	0.06	0.765
Appendicitis	0.09	0.13	0.001***
Childhood diabetes	0.00	0.00	0.303
Heart trouble	0.01	0.01	0.457
Leukaemia or lymphoma	0.00	0.00	0.616

No. of observations: comparison group: 11,669 teenage mothers: 981.

Sources: Own estimation from the SHARELIFE data.

Results

The first three columns of *Table 8.1.2* show the relationship between teenage motherhood and the probability of employment while the second three columns of the table show the relationship between teenage motherhood and

late-life good health. Having no control variables in the models, both the probability of employment and late-life good health is negatively correlated with teenage motherhood (*column 1 and 4*). The negative relationship prevails even after controlling for a rich set of childhood characteristics of women (*column 2 and 5*): teenage mothers work with a 4-percentage-point lower probability throughout their active years and they are 6 percentage points less likely to assess their health as good at the time of the data collection (in ages 50–89) than the comparison group. Expressed in percentages, the effect on employment is –6% while the effect on self-assessed health is –20%.

Table 8.1.2: The relationship between teenage motherhood and the outcome variables

	The effects of teenage motherhood on the probability of					
	employment			late-life good health		
	(1)	(2)	(3)	(4)	(5)	(6)
Coefficient of teenage motherhood	-0.055*** (0.011)	-0.043*** (0.011)	-0.004 (0.011)	-0.091*** (0.013)	-0.061*** (0.013)	-0.066*** (0.013)
Control variables						
Age, age squared	x	x	x	x	x	x
Country fixed effects	x	x	x	x	x	x
Childhood controls*		x	x		x	x
No. of children			x			x
No. of observations	12,650	12,650	12,650	12,650	12,650	12,650

* Childhood controls: all variables that are listed in *Table 8.1.1*. Robust standard errors in parentheses.

The average probability of employment is 0,502 (standard error: 0,003), the average probability of good late-life health 0,285 (standard error: 0,004) in the comparison group. The comparison group contains women having their first child after age 20 and childless women. Result are similar if childless women are not included in the sample.

Sources: Own estimation from the SHARELIFE data.

The 3rd and 6th columns extend the models with the number of children women had during their lives. Controlling for the number of children practically eliminated the negative effects of teenage motherhood on the probability of employment (3rd column) while it has not changed the effect on late-life good health (6th column). It seems that the number of children could be a potential channel of the effect of teenage fertility on employment, while teenage motherhood affects late-life health outcomes through other channels.

Conclusions

It has to be emphasized again that this chapter does not claim to identify the causal effects of teenage motherhood. Although the SHARE data allow us to control for a rich set of childhood characteristics of women, these characteristics can only explain a small share of the variation of teenage motherhood.³ In spite of this, it is interesting that controlling for the number of children

³ Teenage motherhood as a binary variable regressed on the explanatory variables of our models gives $R^2 = 0,03$ and $F = 7$, both indicates really poor performance.

eliminates the negative effects of teenage motherhood on employment while it does not change the effect on self-assessed health. The next step of this research is to set up a credible identification strategy to look at the causal effects of teenage motherhood on late-life outcomes, and, to include objective measures of late-life health.

References

- ANGELINI, V.–MIERAU, J. (2017): [Late-life Health Effects of Teenage Motherhood](#). University of Groningen, Groningen, SOM Research Reports; No. 17002-EEF.
- BÖRSCH-SUPAN, A.–BRANDT, M.–HUNKLER, C.–KNEIP, T.–KORBMACHER, J.–MALTER, F.–SCHAAN, B.–STUCK, S.–ZUBER, S. (2013): [Data Resource Profile: The Survey of Health, Ageing and Retirement in Europe \(SHARE\)](#). *International Journal of Epidemiology*, Vol. 42. No. 4. pp. 992–1001.
- WEBBINK, D.–MARTIN, N. G.–VISSCHER, P. M. (2008): Does teenage childbearing increase smoking, drinking and body size? *Journal of Health Economics*, Vol. 27. No. 4. pp. 888–903.

8.2 THE IMPACT OF CHILDCARE AVAILABILITY ON FEMALE LABOUR SUPPLY

ÁGNES SZABÓ-MORVAI & ANNA LOVÁSZ

The employment situation of women is highly influenced by the fact that they fall out of the labour market by reason of having children. One of the most important measures of the employment policy in connection with this is the establishment of nursery and kindergarten places, which – by liberating the time of mothers – enables them to return to work before the child reaches school-age. The impact of the kindergarten¹ places on employment could, however, differ among countries, and therefore the outcomes in the literature are also ambiguous. Several studies show that the availability of childcare promotes female employment (*Lovász–Szabó-Morvai, 2013, Nollenberger–Rodríguez-Planas, 2015 and Bauernschuster–Schlotter, 2015*), while several other studies did not find a significant link between kindergarten availability and the employment of mothers (*Bettendorf et al. 2015, Lundin et al. 2008, Givord–Marbot, 2015*).

This, however, only appears to be contradictory. In reality, the extent of the impact depends on the elements of the institutional setting, for example, the length and amount of in-cash benefits, the flexibility of employment, or relevant social norms. Medium length parental leaves coupled with generous childcare benefits help mothers the most to efficiently return to the labour market. The lack of leaves, or leaves that are too short restrains maternal employment because their employment protection ends before they are able to return to their former job. On the other hand, long paid leaves encourage mothers to stay absent from the labour market for long time periods, which in general leads to lower wages and occupation levels (*Budig et al. 2012*). The availability of flexible work arrangements (for example part-time employment or remote work) contribute strongly to the employment of mothers with young children by allowing for a more gradual separation from the child. The attitude of society regarding the employment of mothers with young children is an important issue too. If mothers – in line with society’s expectations – stay home with their child for a lengthy period (for example, in the case of Hungary and other Central-Eastern European countries, for three or even more years), then the expansion of the availability of childcare places may be less effective in increasing the employment of mothers with children under 3.

Based on data from seven European countries, *Szabó-Morvai–Lovász (2017)* studied the institutional conditions under which the availability of kindergarten places could increase the labour supply of mothers. The analysis relied on the data of the European Labour Force Survey (EU-LFS), and analysed the interaction between the impact of the availability of kindergarten places and

¹ In fact, we have to consider both nursery and kindergarten services, as the composition of the child-care system differs from country to country, therefore the age of the children of the mothers in different studies varies between the ages of 0–12. However, the majority of articles consider ages 3–5 as the most relevant in this respect.

the institutional surroundings using a regression discontinuity design. The essence of the method is that in countries where a kindergarten enrolment threshold exists – i.e. those who were born before a certain date are able to enrol into kindergarten for sure, while those who were born after cannot – the impact of kindergarten availability can be estimated by comparing the labour supply of mothers whose children were born just before this date with those whose children were born just after. *Table 8.2.1* summarizes the results of the estimation and the most important institutional characteristics by country. The β values show the estimated impact of kindergarten availability on the labour supply of mothers.

Table 8.2.1 The impact of the availability of child-care services on the labour supply of mothers (β) and the most relevant institutional characteristics

	Enrolment rate of children in nursery and kindergarten (percent)		Impact of the kindergarten β	Female employment by the age of the child (percent)		
	age 2	age 3		0–2 years	3–5 years	6–14 years
Austria	26.5	54.7	0.29***	67.0	74.0	82.0
France	58.0	86.2	0.25	61.0	74.0	79.0
Hungary	16.7	60.2	0.19**	12.0	63.0	75.0
Czech Republic	7.0	41.9	0.20*	20.0	70.0	87.0
Slovak Republic	6.7	46.4	0.28**	15.0	56.0	80.0
Greece	28.7	49.1	-0.07	50.0	54.0	59.0
Italy	38.4	81.5	-0.02	51.0	53.0	56.0

	Availability of informal child care (relatives, neighbours)	In-cash services			Flexibility of employment: Share of part-time employment within the total employed female population (percent)	Norms: the child suffers ^a (percent)
		length of leave (weeks)	average replacement rate of the leave (percent)	in-cash benefits at the age of 3 of the child as a percentage of the median wage		
Austria	18.7	60	85.3	12.6	46.0	54.8
France	7.9	42	44.7	12.1		41.0
Hungary	18.9	160	44.5	23.0	9.0	54.7
Czech Republic	24.3	110	51.1	16.4	10.0	
Slovak Republic	16.3	164	32.0	17.7	6.0	44.4
Greece	32.5	43	53.9	5.2	12.5	65.3
Italy	18.0	48	52.7	5.2	31.6	61.8

^a A child below school-age suffers if their mother works (0 percent: do not agree at all, 100 percent: totally agree).

Note: Table prepared after *Szabó-Morvai–Lovász* (2017).

*** $p < 0,01$, ** $p < 0,05$, * $p < 0,1$.

Source: Own calculation based on the data of *OECD Family Database*, *Eurostat*, and the *European Values Study*.

Based on the outcomes, childcare availability has a significant and high impact on the employment of mothers in the Central Eastern European countries (Czech Republic, Hungary, Slovak Republic). The labour supply of mothers is very low prior to age of three of children compared to that of mothers of

older children. The availability of child-care places at nurseries is limited, and, additionally, parental leave also ends around age three of children. In Southern European countries (Italy, Greece), the results do not show a remarkable impact around age three of children. A significant portion of mothers fall out of the labour market permanently after childbirth, while those mothers who return to the labour market do so much earlier, due to the short length of child-care leaves. The impact in the two Western countries differs: in Austria – where the coverage of child-care services is much lower and the society’s attitude is more traditional – there is a positive impact, while in France the impact is not significant. Overall, the results suggest that the labour supply of mothers in Central-Eastern Europe could be significantly increased through the expansion of child-care services. The impact, however – especially in the case of the development of the capacities of crèches – could be constrained by the societal attitudes against the use of child-care services at an early age, and the long period of the paid parental leave.

References

- BAUERNSCHUSTER, S.–SCHLOTTER, M. (2015): Public child care and mothers’ labor supply – Evidence from two quasi-experiments. *Journal of Public Economics*, Vol. 123. p. 1–16.
- BETTENDORF, L. J. H.–JONGEN, E. L. W.–MULLER, P. (2015): Childcare subsidies and labour supply – Evidence from a large Dutch reform. *Labour Economics*, Vol. 36. pp. 112–123.
- BOCA, D. D. (2002): The Effect of Child Care and Part Time Opportunities on Participation and Fertility Decisions in Italy. *Journal of Population Economics*, Vol. 15. No. 3. pp. 549–573.
- BUDIG, M. J.–MISRA, J.–BOECKMANN, I. (2012): The Motherhood Penalty in Cross-National Perspective: The Importance of Work – Family Policies and Cultural Attitudes. *Social Politics: International Studies in Gender, State and Society*, Vol. 19. No. 2. pp. 163–193.
- GIVORD, P.–MARBOT, C. (2015): Does the cost of child care affect female labor market participation? An evaluation of a French reform of childcare subsidies. *Labour Economics*, Vol. 36, No. C. pp. 99–111.
- LUNDIN, D.–MÖRK, E.–ÖCKERT, B. (2008): How far can reduced childcare prices push female labour supply? *Labour Economics*, Vol. 15. No. 4. pp. 647–659.
- NOLLENBERGER, N. –RODRÍGUEZ-PLANAS, N. (2015): Full-time universal childcare in a context of low maternal employment: Quasi-experimental evidence from Spain. *Labour Economics*, Vol. 36, No. C. pp. 124–136.
- SZABÓ-MORVAI, Á.–LOVÁSZ, A. (2013): Does Childcare Matter for Maternal Labor Supply? Pushing the limits of the Regression Discontinuity Framework. BWP, HAS CERC, Institute of Economics, 2013/13.
- SZABÓ-MORVAI ÁGNES–LOVÁSZ ANNA (2017): Childcare and Maternal Labor Supply – a Cross-Country Analysis of Quasi-Experimental Estimates from 7 Countries. BWP, 2017/3. HAS CERC, Institute of Economics, Budapest.

K8.1 Development of nursery capacities

ÁGOTA SCHARLE

Day-care of children under age 3 is mainly provided by their own families in Hungary. Formal day-care capacities (traditional nurseries or community-based care, mini and workplace nurseries) are limited, so only 11–12% of all children are enrolled in formal day-care (this rate is smaller than the official data provided by the Hungarian Central Statistical Office, because the latter is calculated as the ratio of official capacities and potential recipients instead of actual enrolment).

Nursery capacities increased slowly but continuously between 2001 and 2016. In 2017 the growth stopped, and a downturn was reported likely caused by changes in the regulations on community-based day care ('családi napközi', see chapter 11.1).

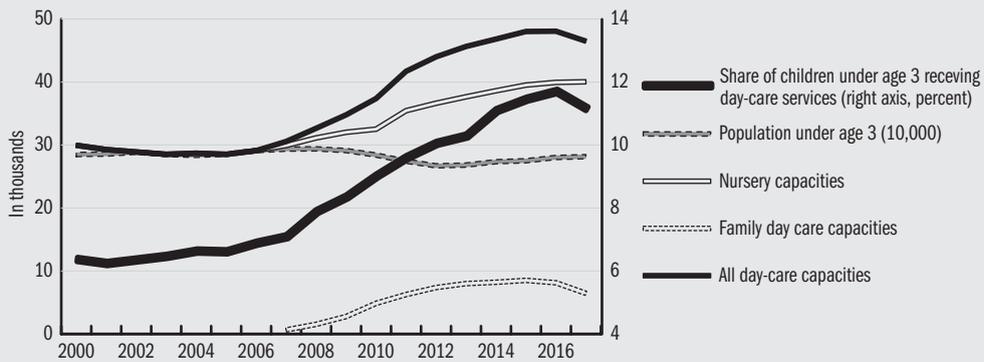
Most of the existing nurseries are run by the municipalities financed by a per capita grant from the central budget (Makay, 2012, KSH, 2018). Until

2018, the funding system did not promote the extension of capacities. The government grant does not fully cover the costs of service provision, and the tax and social security contributions of mothers returning to work are paid to the central budget. Thus, even if the expansion of nursery services were to yield a positive return at the macro level, the balance is not necessarily positive for most municipalities.

References

- KSH (2018): A gyermekek napközbeni ellátása, 2017. Statisztikai Tükör, január 8.
- MAKAY, ZSUZSANNA (2012): Bölcsődék: jogszabályváltozások és kutatási eredmények. Korfa, Vol. 12. No. 1.
- SCHARLE, ÁGOTA-SAMU, FLÓRA (2013): Napközbeni gyermekellátó intézmények kapacitásbővítésének célzottsága. Budapest Szakpolitikai Elemző Intézet.

Figure K8.1.1: Day-care capacities between 2000–2017



Nursery capacities were higher by 20% than the official data provided by the Central Statistical Offices before 2009 due to previous regulations that allowed nurseries to derogate from the authorised capacity limit by 20%.

Community-based care capacities include community-based care ('családi napközi') and mini and workplace nurseries in 2017.

Source: 'Day-Care Services in 2017' titled special data provision of Central Statistical Office.

8.3 CAREER BEFORE AND AFTER HAVING A CHILD

ANNA LOVÁSZ, EWA CUKROWSKA-TORZEWSKA
& ÁGNES SZABÓ-MORVAI

The wage disadvantage of mothers and the wage advantage of fathers following the birth of their child compared to individuals without children has been documented in many countries (for example *Davies–Pierre*, 2005). The wage disadvantage of mothers is highly dependent on the institutional context (such as the availability of child-care services and the length of paid parental leave) and the cultural background, therefore its magnitude differs across countries. (See *subchapter 8.4*) Based on the available previous evidence, the wages of mothers are generally lower compared to both women without children and fathers. This could be explained by specialization within households: after the birth of the child, mothers spend their time on childcare, while fathers focus more on earning money.

Due to this specialization, there could be differences in the decisions and the labour market situation of future mothers even prior to having a child, even though there are no real time constraints related to childcare present yet, but rather as a consequence of their expectations. It is possible that future mothers already invest less into their career during this time since they know that having a child will lead to serious labour market disadvantages, and therefore it is not worthwhile for them to make substantial investments in their careers. Thus, even before the birth of their first child, the wages of future mothers could differ from the wages of future fathers, and from women who do not plan to have children.

International evidence

So far, the pre-parenthood wage gap has only been studied in relatively few countries, mainly due to the lack of appropriate data that allows us to follow both the labour market characteristics and the child-birth situation of future parents over a longer term. Based on German administrative data, *Adda et al.* (2015) showed that family planning has an impact on the labour market decisions of women even before the birth of their child, as a lot of women choose an occupation which is reconcilable with child-care. According to the results of *Angelov et al.* (2016), in Sweden there is only a slight difference between the income and the monthly wage of future mothers and fathers prior to the birth of the child. However, following the birth, the relative income of mothers shrinks considerably due to the sudden reduction of the working time. At the same time, their hourly wage does not decline sharply, but rather more gradually until the child becomes 15 years old, which can be explained by the longer run child-care activities of mothers.

Kleven et al. (2018) revealed that in Denmark, there are considerable changes in connection with working hours, occupational levels, and hourly wages of mothers after the birth of their first child. Over time, these differences after the birth explain a greater and greater part of the gender wage gap. However, the gender wage gap prior to parenthood has narrowed in the last decades: women invest more into their careers before their first child's birth, despite the fact that afterwards they still face significant disadvantages in the labour market.

The Hungarian situation in European comparison

Based on data from the 2006–2016 waves of the *European Union Statistics and Living Conditions (EU-SILC)* survey collected by Eurostat, we carry out a comparative estimation. The analysis presents the relative mean wages of mothers and fathers in Hungary and some other countries before and after the birth of their first child. The relative wages of mothers and fathers were estimated based on wage equations, first for the time period from four years prior to the birth of their first child, and then when their child was 3–6 years old. The dependent variable was the logarithm of the hourly wage,¹ therefore the effect of differences in the number of hours worked was filtered out. The equations also controlled for educational attainment and calendar year. Besides the the wage gap between mothers and fathers, the gender wage gap was also estimated for the sample of individuals without children, which was used to assess the reasons behind the pre-parenthood wage gaps.

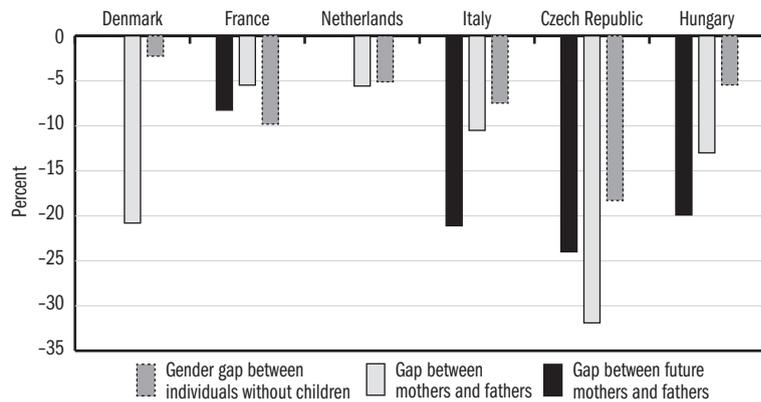
The estimated differences are summarized in *Figure 8.3.1*. There are no significant differences in the mean hourly wages of future mothers and fathers in Denmark or in the Netherlands prior to childbirth. Mothers in France earn approximately 8 percent less compared to men before becoming parents. In Italy, the Czech Republic, and Hungary, however, the wage gap among future parents is higher, between 20 and 24 percent. The disadvantage in the hourly wage of mothers with children aged 3–6 showed a significant link – although its extent differed country by country. The disadvantage in hourly wages after having a child was lower in France, Italy, and Hungary than before childbirth. This is likely related to labor market selection: only those mothers return to work when their child is between the age of 3–6 whose labour market outlook is more favourable or who are more committed to their careers.

The results show that in the Western-European countries studied women do not suffer any wage disadvantage (or only to a small extent) compared to men prior to having a child in the near future. In Southern and Eastern European countries, however, a wage gap already exists prior to the childbirth. The wage disadvantage of mothers in Western countries is the same or lower compared to the wage gap between men and women without children, while in Southern and Eastern European countries it is significantly higher. The results presented suggest that the wage disadvantage of future mothers in Southern and

¹ Calculated on the basis of the annual income, the monthly activity, and the number of usual working hours.

Eastern Europe does not only depend on external, institutional factors (such as employer discrimination) but is also the consequence of the choices (application to a higher position, career choices) of women themselves. Although the result does not provide evidence on a causal link, it appears that in countries where mothers with young children face higher disadvantages, mothers-to-be already constrain their labor market activity in the years before the childbirth.

Figure 8.3.1: The differences in the hourly wages of mothers and fathers before and after the birth of their first child, and the difference between men and women without children (percent)



Source: Own calculation based on the data of *EU-SILC*.

References

- ADDA, J.–DUSTMANN, C.–STEVENS, K. (2016): The career costs of children. *Journal of Political Economy*, Vol. 125. No. 2. pp. 469–486.
- ANGELOV, N.–JOHANSSON, P.–LINDAHL, E. (2016): Parenthood and the Gender Gap in Pay. *Journal of Labor Economics*, Vol. 34. No. 3. pp. 545–579.
- DAVIES, R.–PIERRE, G. (2005): The family gap in pay in Europe: A cross-country study. *Labour Economics*, Vol. 12. No. 4. pp. 469–486.
- KLEVEN, H.–LANDAIS, C.–SØGAARD J. (2018): Children and Gender Inequality: Evidence from Denmark. NBER Working Paper, No. 24219.

8.4 THE ROLE OF PARENTHOOD IN THE GENDER WAGE GAP

ANNA LOVÁSZ & EWA CUKROWSKA-TORZEWSKA

One of the obvious causes of gender-related labour market differences – including the average wage gap – is having children and the impact of related obligations. Empirical research based on data from several countries showed that mothers have lower mean wages than women without children (*Davies–Pierre, 2005*). The main reasons for the wage penalty of mothers include: the effects of the duration of absences from the labour market (depreciation of human capital, obsolete network of contacts); changes in the preferences for workplace characteristics and wage differentials compensating for this (for example more flexible work hours, stress-free work), as well as employer discrimination, which is also related to the duration of absences before and after giving birth. As for fathers, research usually reveals a considerable wage premium (*Lundberg–Rose, 2000*), resulting from extended work hours and effort, as well as more conscious requests for promotions and pay raises by fathers, and their positive discrimination by employers.

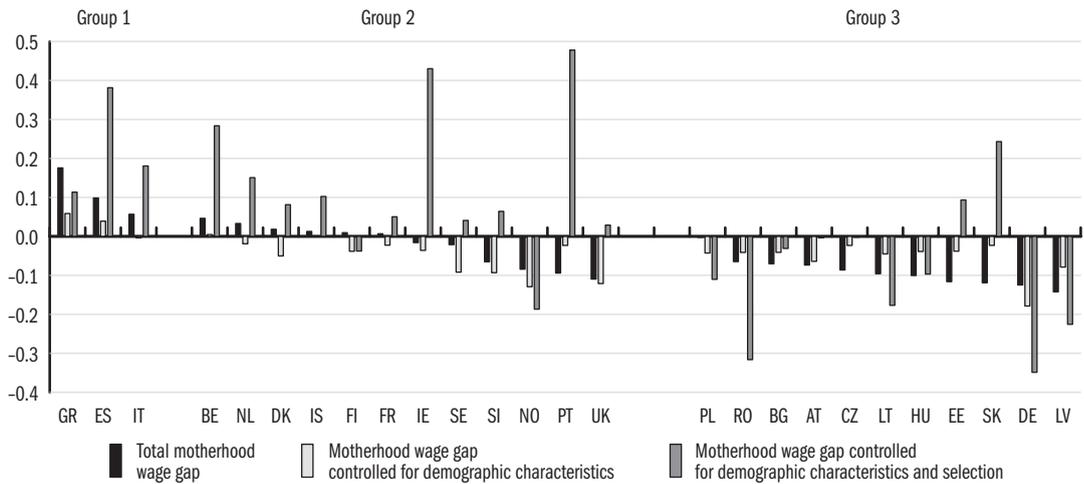
Some of the activities undertaken after the birth of their child are biologically determined for women. However, regarding long-term preferences for childcare, it is more difficult to establish which part is innate, and which is a result of social norms and the system of institutions. How long they wish to stay at home with their children after the birth, when they feel they are able to trust others with caring for their children, and how much time they wish to spend working and being with their children depends on the individual mother and father. Nevertheless, individual preferences and labour market situations are influenced by both the cultural and institutional environment. Assessments of the differences in the employment and wage penalty of mothers across countries also point to the importance of these factors (*Budig et al. 2012*).

Both the mothers' wage penalty and the fathers' wage premium increase the average gender wage gap. One study covering 26 EU countries estimated the motherhood and fatherhood wage gaps as well as the gender gap among childless individuals, and also to what extent these explain the overall gender wage gap (*Cukrowska-Torzewska–Lovász, 2017*). *Figure 8.4.1* shows the estimated extent of the maternal wage gaps in the countries examined. They are estimated using three methods: a) without controls, b) taking the observed characteristics (age, education, region) into account, and c) additionally controlling for labour market and parenthood selection effects. Non-significant estimates are coloured in white.

Based on the most relevant elements of the institutional environment, the countries are classified into three groups. The first group includes Southern European countries, where maternity leave is usually short, childcare avail-

ability is low, and social norms are conservative. *Figure 8.4.1* reveals that in these countries, mothers do not face a wage penalty, and actually earn more on average than childless women. This is due to the fact that a significant proportion of mothers leave the labour market permanently following the birth of their children; however, mothers who do work are especially motivated and highly capable, and return to work after a short leave. The second group mainly includes Western European countries, with relatively generous, moderate length maternity leaves, a high availability of childcare and flexible work arrangements, and societies supportive of mothers' work after having children. In these countries, alongside the higher employment rates of mothers, there is a moderate motherhood wage penalty, related to the wide-spread availability of part-time employment and related lower wages.

Figure 8.4.1: Average wage differences between mothers and childless women by country



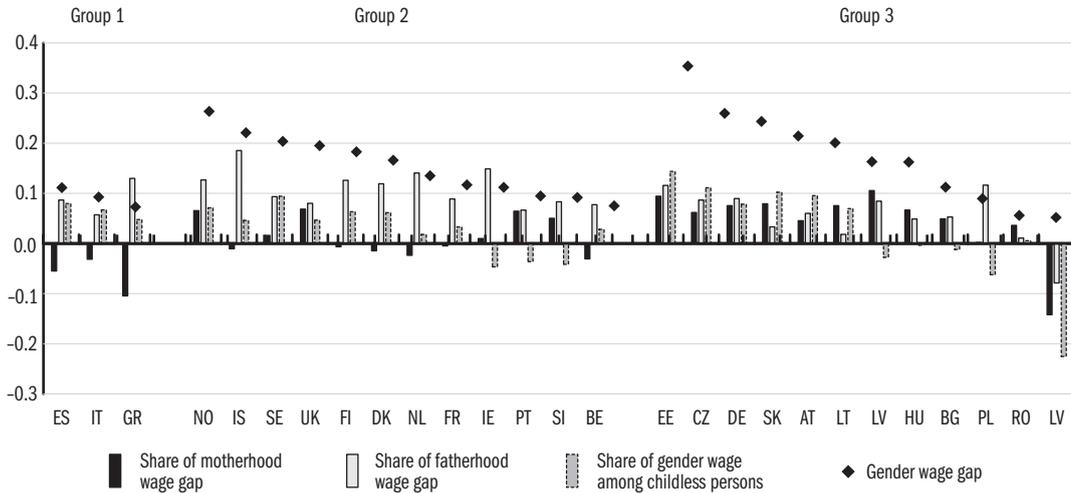
Source: Authors' calculations from the *EU-SILC* database (2004–2014).

The third group consists of Central and Eastern European countries, including Hungary, with typically very long maternal leaves, low availability of childcare and flexible work arrangements, as well as traditional social norms. The highest motherhood wage penalty is seen in this group: mothers return to their protected jobs after long absences, which has a negative impact on their promotion prospects and wages. Fathers receive a – fairly substantial – wage premium in each of these countries.

Figure 8.4.2 indicates how motherhood and fatherhood wage gaps, as well as the gender wage gap among childless individuals, contributed to the overall gender wage gap. The gender wage gap in Southern European countries is due to the fatherhood wage premium and the wage gap among childless individuals, while the motherhood wage premium has a negative impact on it. In Western European countries, the role of fatherhood premium is decisive.

The motherhood wage penalty contributes to a smaller but still significant extent, as does the wage gap among childless individuals. In Central and Eastern European countries, however, alongside the still significant fatherhood wage premium, the role of the motherhood wage penalty is also decisive.

Figure 8.4.2: The contribution of the motherhood and fatherhood wage gaps and the gender wage gap among the childless to the overall gender wage gap



Source: Authors' calculations from the *EU-SILC* database (2004–2014).

These findings suggest that Hungary and other countries with similar institutional systems could significantly improve the relative wages of women with policy measures that encourage the earlier return of mothers to the labour market and the better reconciliation of work and family. These measures include: increasing the flexibility of the length of paid parental leave, expanding childcare provision – especially nursery places –, increasing the length of paternal leave and promoting its uptake, supporting the spread of flexible work arrangements, and shaping public opinion regarding the employment of mothers and the more active participation of fathers in childcare.

References

- BUDIG, M. J.–MISRA, J.–BOECKMANN, I. (2012): The Motherhood Penalty in Cross-National Perspective: The Importance of Work–Family Policies and Cultural Attitudes. *Social Politics*, Vol. 19. No. 2. pp. 163–193.
- CUKROWSKA-TORZEWSKA, E.–LOVÁSZ, A. (2017): The Impact of Parenthood on the Gender Wage Gap – a Comparative Analysis of European Countries and Family Policies. *Budapest Working Papers on the Labour Market*, BWP, 2017/15.
- DAVIES, R.–PIERRE, G. (2005): The family gap in pay in Europe: A cross-country study. *Labour Economics*, Vol. 12. No. 4. pp. 469–486.
- LUNDBERG, S.–ROSE, E. (2000): Parenthood and the earnings of married men and women. *Labour Economics*, Vol. 7. No. 6. pp. 689–710.

K8.2 Opportunities provided by the Hungarian Birth Cohort Study

BALÁZS KAPITÁNY & ZSUZSANNA VEROSZTA

Cohort '18 (the Hungarian Birth Cohort Study) is a longitudinal study launched by the Hungarian Demographic Research Institute of the CSO.¹ The structure of the survey is presented in *Figure K8.2.1*.²

The study aims at providing a comprehensive overview of children growing up in Hungary and the factors influencing that childhood. The questions included are multidisciplinary in order to collect data on several aspects (demographic, social, psychological, health etc.) of the welfare of children and young adults as well as the factors affecting it and to assess the multiple interactions among them.

The comprehensive analysis of the raising of children evaluates *the various indicators of growing up*. These outcomes cover several areas including physical development, cognitive development, socio-emotional development, health, wellbeing, performance and (in future stages) mobility.

The study aims at both identifying the *determi-*

nants of growing up and evaluating their *impacts*. Family and social environmental factors (socialization), social disparities, access to institutions, health as well as the employment position, lifestyle, supply of information, the expectations and plans of the family raising the child are considered decisive in how the child develops.

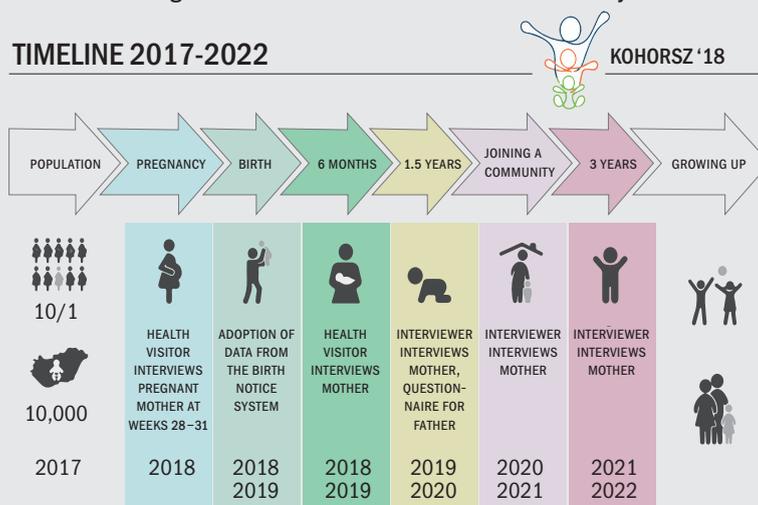
The ongoing waves of data collection (gestational and 6-month-old survey) will provide excellent opportunities for exploring the following areas, among others: division of work within the family and its modification after the birth of children, exit from the labour market prior to giving birth, the labour market plans of women and their realisation before and after giving birth, the circumstances of an early return to employment of women with young children and the take-up of family benefits and social benefits by families with young children with various types of employment contracts.

Reference

VEROSZTA ZSUZSANNA (ed.) (2018): Technical report. Growing Up in Hungary – Cohort'18 Hungarian birth cohort study. Prenatal research, preparational phase. Working Papers on Population, Family and Welfare, No. 30, Hungarian Demographic Research Institute, Budapest.

- 1 The study was funded from the grant HRDOP 1.9.4. – ECOP-16 Ministry of Human Capacities (Renewing Methodology and Informatics in the Social Sector).
2 For more details on the survey, see the survey website, (kohorsz18.hu/en), and the research documentation publication: *Veroszta* (ed.) (2018).

Figure K8.2.1: Structure of the Cohort'18 survey



9 DIVISION OF LABOUR IN THE HOUSEHOLD*

ÁGNES SZABÓ-MORVAI

Describing the labour market situation of women can only be made complete if tasks outside paid work are also taken into account. Furthermore, reconciling work and private life and sharing household tasks within the family are not only important for the labour market opportunities of women but also for the decision of the family to have children, the wellbeing of family members and the development of children. Empirical research shows that in the dual-earner model, families have more children when the mother is able to reconcile the requirements of paid work, children and the household, and where the mother has better chances to find employment (see for example *Prifti–Vuri*, 2013, *Rønsen*, 2004, *Rindfuss–Brauner-Otto*, 2008). In addition to flexible worktime, sharing the housework by partners may also contribute to that consequence. In his comprehensive literature review, *Blaskó* (2010) found that for the balanced and healthy development of children, the key is not how old the child should be when the mother returns to work (preferably after the age of one) but that the return should match the expectations of the mother and that a balance between work and private life should be achieved. The amount of time spent with the father also plays an enormous role in the development of the child: for example it supports considerably the development of social skills (*Huerta et al.* 2013). Highly qualified fathers were found to recently be spending more time with their children in several countries (*Chalasaní*, 2007).

Sharing the housework within the family is strongly associated with the paid work of the wage earners of the family: they are probably interrelated (see for example *Becker*, 1965). Thus the division of work between women and men at home is highly dependent on the relative labour market position of spouses or partners. The share of the housework men undertake increases with the strength of the relative position of their wife or partner (*Rizavi–Sofer*, 2009), which is consistent with the predictions of theoretical works (*Chiappori*, 1997). Nevertheless, surveys show that the division of work is considerably influenced by traditional attitudes to roles, since the share of women in housework does not decrease further over time, even if they earn as much as, or more than, their partner (*Sevilla-Sanz et al.* 2010, *West–Zimmerman*, 1987).

Figures 9.1–9.4, based on the 2010 Time Use Survey of the CSO, indicate how much time women and men of a certain age spend doing various activities every week on average (for more details see *Gál et al.* 2017). The majority of childcare is carried out by women: there is a striking difference between the genders at childbearing age (between 20 and 40), which reaches a balance by the age of 45 and later on stays almost the same. It may largely contribute

* I would like to thank *Róbert Iván Gál*, *Endre Szabó* and *Lili Vargha* for providing me with the Figures prepared from data of the Time Use Survey of the CSO.

to the relatively great difference that a significant proportion of women do not return to employment until their children are three years old (*Figure 9.1*).

Figure 9.1: Time spent with childcare broken down by age (2010)

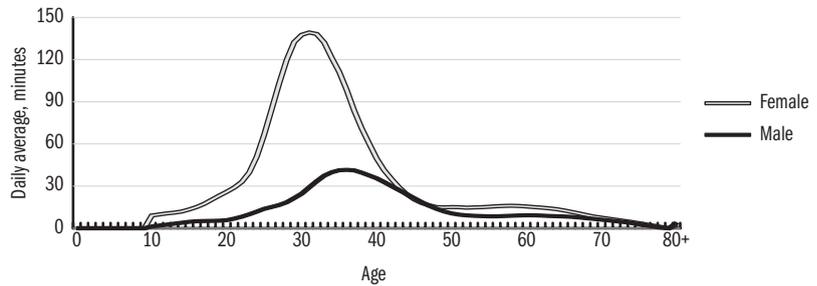
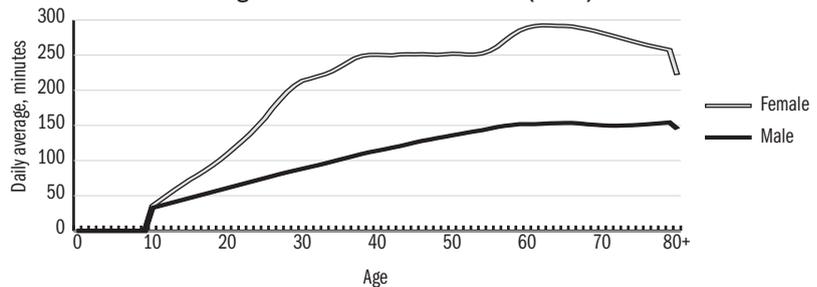


Figure 9.2 shows the overall differences in housework. From the age of 10, Hungarian girls carry out increasingly more housework than boys: twice as much (about two hours a day on average) at the age of 20 as boys of the same age (one hour a day on average). The rate remains the same during the years of employment and later, in retirement. This suggests that in Hungary it is not so much the relative labour market position but rather the traditional gender roles that determine the division of housework between the genders.

Figure 9.2: General housework (2010)



Hungarians undertake relatively little unpaid work outside the household, a considerable proportion of which is time spent visiting children by divorced parents, mainly men (*Figure 9.3*).

Figure 9.3: Unpaid work carried out outside the household (2010)

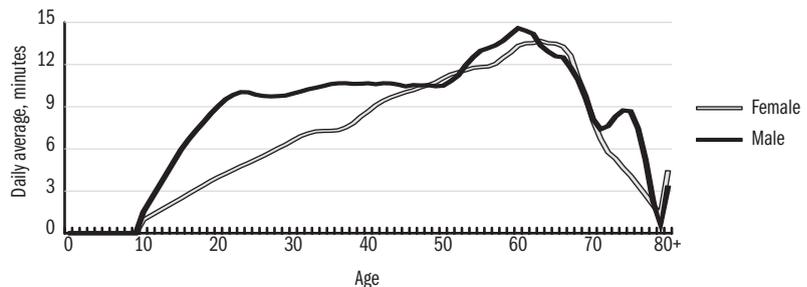


Figure 9.4 presents the time spent doing paid work during the individual life course. The greatest difference in paid work between men and women is seen around the childbearing age, typically around the age of 30, as mothers generally stay at home with children, while fathers increase their labour supply.

Figure 9.4: Time spent doing paid work during the individual life course (2010)

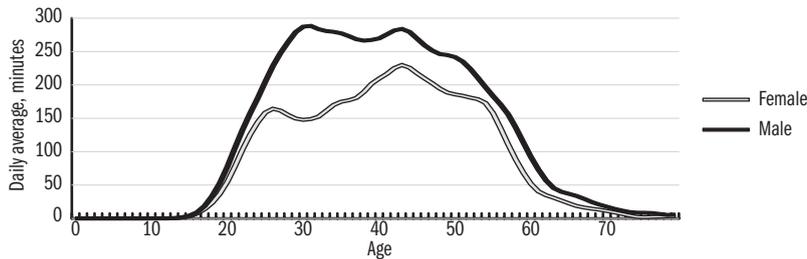
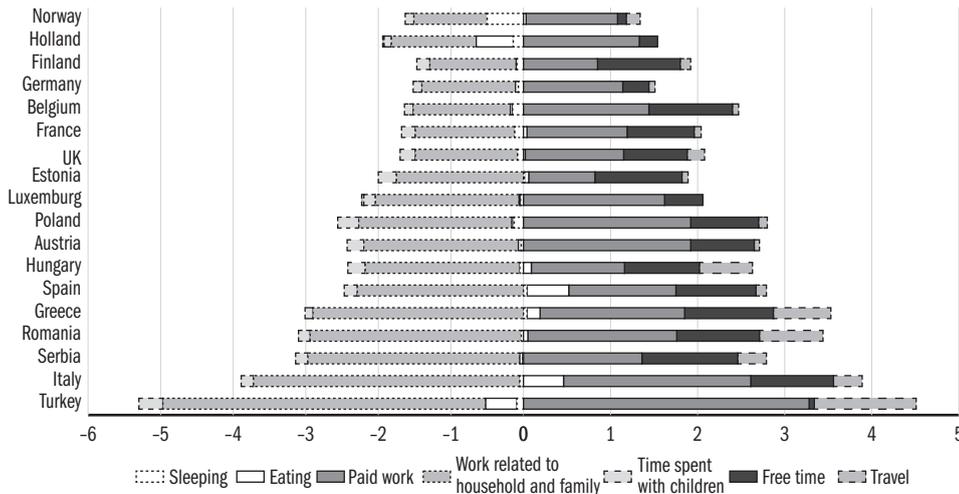


Figure 9.5 relies on data from the 2010 Time Use Survey of Eurostat.¹ It presents the differences in the time spent on the major groups of activities between men and women. Values to the left of zero indicate the extra time spent by women, values to the right of zero indicate the extra time spent by men. In most European countries, men work 1–3 hours more paid work per day, while the extra time of women spent on housework and childcare is similar. In the Southern and Eastern European countries, including Hungary, there is a relatively large difference: women do a total of 1–2 hours a day more paid and unpaid work on average, while in the Northern and Western countries this difference is negligible.

¹ Eurostat 2010. Including: Population and Social Conditions/Living conditions and Welfare/Time Use Survey (TUS).

Figure 9.5: Differences in the average time spent by men and women on certain activities per day in the European countries (2010)



Note: Negative values indicate the extra time spent by women, while positive values indicate the extra time spent by men. In the interest of clarity, categories of activities requiring little time were not included in the Figure, therefore the activities do not add up to 24 hours and the overall male-female difference does not equal zero.

Source: Eurostat, Time Use Survey, 2010.

References

- BECKER, G. S. (1965): A Theory of the Allocation of Time. *The Economic Journal*, Vol. 75. No. 299. pp. 493–517.
- BLASKÓ ZSUZSA (2010): Meddig maradjon otthon az anya? A gyermekfejlődés szempontjai. *Esély*, No. 3. pp. 89–116.
- CHALASANI, S. (2007): The Changing Relationship between Parents' Education and Their Time with Children. *Electronic International Journal of Time Use Research*, Vol. 4. No. 1. pp. 93–117.
- CHIAPPORI, P.-A. (1997): Introducing Household Production in Collective Models of Labor Supply. *Journal of Political Economy*, Vol. 105. No. 1. pp. 191–209.
- GÁL RÓBERT IVÁN–VARGHA LILI–SZABÓ ENDRE (2017): Láthatatlan transzferek: Ki adja és ki kapja a háztartási munkát? *Demográfia*, Vol. 60. No. 4. pp. 283–298.
- HUERTA, M. C.–ADEMA, W.–BAXTER, J.–HAN, W. J.–LAUSTEN, M.–LEE, R. H.–WALDFOGEL, J. (2013): Fathers' Leave, Fathers' Involvement and Child Development: Are They Related? Evidence from Four OECD Countries. 140. *OECD Social, Employment and Migration Working Papers*. OECD Publishing.
- PRIFTI, E.–VURI, D. (2013): Employment Protection and Fertility: Evidence from the 1990 Italian Reform. *Labour Economics*, Vol. 23. C, pp. 77–88.
- RINDFUSS, R. R.–BRAUNER-OTTO, SARAH, R. (2008): Institutions and the Transition to Adulthood. Implications for Fertility Tempo in Low-Fertility Settings. *Vienna Yearbook of Population Research*, 6. pp. 57–87.
- RIZAVI, S. S.–SOFER, C. (2009): Women's Relative Position and the Division of Household Work. A Study of French Couples. *European Journal of Economic and Social Systems*, Vol. 22. No. 2. pp. 13–26.
- RØNSEN, M. (2004): Fertility and Family Policy in Norway. A Reflection on Trends and Possible Connections. *Demographic Research*, Vol. 10. No. 10. pp. 265–286.
- SEVILLA-SANZ, A.–GIMENEZ-NADAL, J. I.–FERNANDEZ, C. (2010): Gender Roles and the Division of Unpaid Work in Spanish Households. *Feminist Economics*, Vol. 16. No. 4. pp. 137–184.
- WEST, C.–ZIMMERMAN, D. H. (1987): Doing Gender. *Gender and Society*, Vol. 1. No. 2. pp. 125–151.

K9.1 Spillover between work and private life*

BEÁTA NAGY, GÁBOR KIRÁLY & MÁRTA RADÓ

According to spillover theory, the experiences one undergoes in one area of life positively or negatively influence (spill over to) another area. This spillover takes place in both directions: from private life to work and from work to private life. This study only explores the latter. Scientific papers (*Greenhaus–Powell, 2006*) usually differentiate between affective and instrumental spillover between work and family. Affective work-family spillover means taking home one’s feelings and attitudes from work, while the transfer of skills is called instrumental spillover.

In the work-family spillover literature, temporal and spatial flexibility receives special focus. Flexible work arrangements may significantly support the reconciliation of work and family obligations but also often make establishing and maintaining borders between various areas of life difficult.

At the same time, the flexibility of work is also a privilege that not all groups possess. Men tend to be able to choose their place of work more flexibly than women. Similarly, individuals with a higher social status are more likely to have a job that does not require permanent presence and, in this way, may be carried out remotely.

As part of the Omnibus survey by TÁRKI, the study titled *Dilemmas and Strategies for Reconciling Family and Work (K104707)* by the Hungarian Scientific Research Fund explored, on a representa-

tive sample of the Hungarian adult population, in May 2014, to what extent work spills over to private life, merging negative and positive spillover effects in one index. The analysis primarily concerned the association between gender and spillover. *Figure K9.1.1* presents differences in spillover according to gender, financial well-being and flexibility of work. It shows that men, those enjoying financial well-being and those with more flexible work arrangements reported more positive spillover.

Then it was examined whether spillover is independent of gender if the flexibility of work and financial well-being are controlled for (*Figure K9.1.2*). The model below shows that after controlling for financial well-being and the flexibility of work, spillover is independent of gender.

In order to better understand the estimated parameters of *Figure K9.1.2*, the categories of the variables should be examined in more detail. The gender variable assumes the value 1 if the respondent is male and the value 2 if the respondent is female. The financial well-being variable assumes the value 1 if the respondent is poor and the value 2 if the respondent is rich. The ‘flexibility of work’ variable assumes the value 1 if the respondent has flexible work arrangements and the value 2 if he or she has fixed work arrangements. Finally, the value of the *spillover* variable is 1 if work has a negative effect on private life, 2 if it has a neutral effect and 3 if it has a positive effect.

* The detailed analysis in English is included in *Radó et al. (2015)*.

Figure K9.1.1: Spillover by gender, material prosperity and flexibility of work

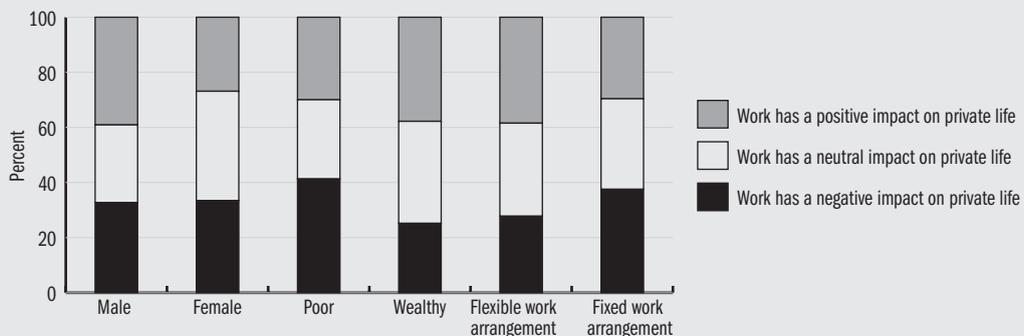
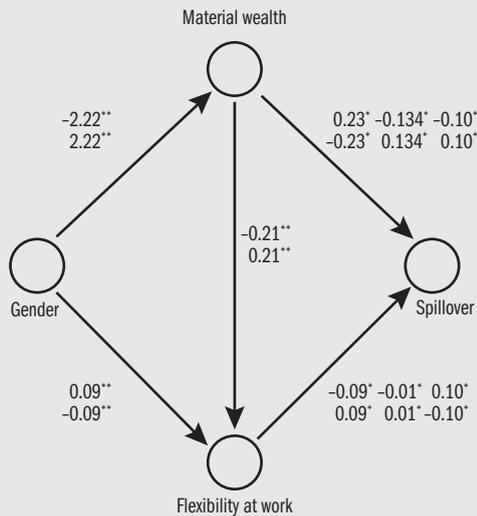


Figure K9.1.2: Parameters estimated for the path model



Note: The graphical presentation of the loglinear path model also shows the estimated parameters on arrows. Provided that a hypothetical graph has two nodes (*A* and *B*): if *A* and *B* were binary variables, only the non-redundant parameters related to the lower value would be provided. On the other hand, if two or three categories were related to *A* or *B*, all parameters would be provided. The estimated parameters in the *i*th row and *j*th column of arrow *AB*, correspond to the *i*th value of *A* and the *j*th value of *B* respectively. Significance levels *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

In conclusion, women are significantly less likely than men to have a job with a positive effect on family life, even though spillover is independent of gender, if financial well-being and flexible work arrangement are controlled for. This is because women are less likely to report financial well-being and flexible work arrangement, which would increase the possibility of positive spillover.

Our analysis revealed that gender disparities are caused and maintained by various social inequalities such as access to flexible work arrangements and subjective financial well-being. The results confirmed that men are characterised by better subjective financial well-being. The study also revealed that after controlling for subjective financial well-being, men are more likely to perceive they are able to influence their working conditions. The findings point out that equal access to flexible work arrangements and increasing the perceived financial well-being of women significantly improve the social position of women both directly and indirectly.

References

- GREENHAUS, J. H.–POWELL, G. N. (2006): When work and family are allies: A Theory of work-family enrichment. *The Academy of Management Review*, Vol. 31. No. 1, pp. 72–92.
- RADÓ, M.–NAGY, B.–KIRÁLY, G. (2015) Work-to-Family Spillover: Gender Differences in Hungary. *Demográfia*, Vol. 58. No. 5. English edition, pp. 39–64. DOI:10.21543/DEE.2015.2.

10 CLASSIC LABOUR MARKET DISCRIMINATION

ANNA LOVÁSZ & BORI SIMONOVITS

The simplest definition of labour market discrimination is the following: members of a certain group receive unequal treatment – for example, during recruitment, wage setting, or promotion – compared to another group, and this differentiation is not based on their productivity but on their membership in the particular group (for example based on gender, age, ethnicity) (*Arrow*, 1998, *Loury*, 2002). As a result of discrimination in the labour market, the members of the disadvantaged group may have, on average, a lower employment rate, occupational level, and wage.

In addition to their productive characteristics, the labour market situation of employees also depends on their individual preferences. This determines which jobs they apply for given their level of human capital, how much time they spend working, and how much effort they put into getting promoted. The main difficulty of measuring discrimination empirically is that the *actual* productivity and preferences of individuals are rarely observed. This makes it difficult to establish to what extent any observed mean differences in wages and other outcomes at the group level are a consequence of discrimination, and to what extent are they due to the different characteristics and preferences of the groups.

Characteristics and preferences seen in the labour market are also influenced by discrimination prior to entering the labour market (for example, when teachers or parents discourage girls from choosing certain areas of study). Pre-labor market differences in group-level characteristics may be further increased by the expectations of the discriminated group: they may invest relatively less in their human capital if the expected returns in the labour market are smaller. Discrimination should therefore be regarded as a cumulative process, often manifesting in more than one area (*Blank et al.* 2004).

The situation in Hungary

In view of the above theoretical considerations, we assess the available data sources in order to analyse the extent of labour market discrimination against women in Hungary. First, using the 2016 Wage Survey, various specifications of the gender wage gap are estimated. Next, the occurrence of discrimination is described using the limited labour market discrimination tests, data on the legal cases brought in front of the Equal Treatment Authority (ETA), and population surveys on the perception of labour market discrimination.

Gender wage gap estimates

Public and political discourse often cites the gender wage gap as evidence of discrimination against women. However, when interpreting any wage differ-

ences, it is important to be aware of what they actually measure – and what they don't. We estimated the gender wage gap in the private sector using data from the *Wage Survey* (Table 10.1). The estimated wage equations contain the logarithm of wage as the dependent variable, and the unexplained (residual) wage difference is represented by the coefficient of the female dummy variable. The advantage of relying on an administrative database is that it is representative; however, due to unobserved differences (for example, ability or motivation) these estimates do not precisely measure discrimination.

Table 10.1: Gender wage gap estimates, private sector

Dependent variable	(1)	(2)	(3)	(4)	(5)
	logarithm of monthly wages		logarithm of hourly pay		
Female coefficient	-0.136***	-0.093***	-0.130***	-0.123***	-0.092***
Control variables					
Educational attainment			x	x	x
Experience				x	x
Region				x	x
Type of employment contract				x	x
Occupation					x
Number of observations	159,752	159,753	159,753	159,753	159,753
R ²	0.010	0.006	0.285	0.332	0.379

*** Significant at the 1 percent level.

Source: Authors' wage equation estimates based on the 2016 Wage Survey.

The model in column (1) of Table 10.1 shows the raw average wage gap in monthly wages. The estimated coefficient is 0.136, thus women's pay is 13.6 per cent lower than that of men. The monthly wage gap is partly due to the fewer hours women work. Therefore the hourly wage gap presented in model (2) is closer to the extent of labour market discrimination, and shows a smaller difference of about 9 per cent. Model (3) controls for the effect of gender differences in educational attainment on the wage gap. Accounting for these, the wage gap increases to 13 per cent, showing that women have higher educational attainment on average, and if this is also taken into account, their wage disadvantage is greater. We should note that so far as differences in educational attainment depend on innate skills and preferences, it is important to control for them, since the resulting wage differences are not due to labour discrimination. At the same time, by including education-related control variables, we restrict the estimation to the short-term impact of labour discrimination, and exclude the impact of any pre-labor market discrimination.

Model (4) controls for additional observed individual characteristics:¹ work experience, region, and the type of employment contract. When work experience is controlled for, the impact of child-related labor market absences – whether they are a result of individual preferences or external pressure – are also eliminated. The estimated wage gap barely changes after including these

¹ The control variables were included in order to account for the effects of dissimilar characteristics, but at the same time, the effects of any discrimination that occurs through these variables are also excluded from the estimated wage gap.

controls: it decreases to 12 per cent. Model (5) additionally controls for occupation (based on the first digit of the HSCO code) and the unexplained wage gap is reduced to 9 per cent. However, we do not know, to what extent the part controlled for by the inclusion of occupation variables is due to the individual preferences of women (for example they do not wish to work in better paid but more stressful positions), and to what extent it is due to discrimination by employers (for example, women are not hired or promoted into certain types of occupations). Therefore, this estimation may underestimate the extent of labour market discrimination.

Discrimination testing and legal cases

Labour market discrimination testing, which is increasingly popular in the United States and in Western Europe (see *Bertrand–Duflo*, 2016), is able to measure the extent of employers' discrimination present in an area more precisely, because it is based on controlled experiments. The limitations of the method include the fact that the results come from a small sample and thus are not representative, that it usually provides information only on the first phase (application) of finding a job, and also that it is costly and therefore rarely used. In Hungary, the last comprehensive testing of the differences in the opportunities for entering the labour market (by sending CV-s and applying via the phone) took place in 2008 (see *Sik–Simonovits*, 2008). The extent of rejection due to gender was measured in the occupations of shop assistant, bartender/catering staff, cleaner, courier, and telemarketers via telephone applications, and the study pointed to the (approximately 20 percent) disadvantage of men in these positions. The fact that employers prefer hiring women for certain jobs suggests that the occupational segregation revealed by the above wage gap estimation is not exclusively due to the preferences of employees.

The results of legal cases can also confirm the presence of discrimination in individual cases. These findings cannot be generalised, because the official statistics available only show 'the tip of the iceberg'. Adopting the equal treatment and equal opportunities laws² in accordance with European directives was a precondition to the EU accession of Hungary. The institutional system for enforcing the laws is ensured by the Equal Treatment Authority (ETA), established in February 2005. The legal cases of discrimination reported in a given year are available on the ETA website,³ and based on this, the number of cases investigated and the number of decisions on gender discrimination seem very low: in 2018 the ETA found infringement in only 10 cases out of a total of 24 cases investigated, and a settlement was reached in 14 cases.

Perception of labour market discrimination

Questionnaires on the perception of discrimination provide representative information on the perceptions of the population, but it is questionable how

2 Act CXXV of 2003 of Equal treatment and the promotion of equal opportunities.

3 ETA.

precisely they measure the actual extent of discrimination. Opinions on these offences are highly dependent on individual factors (sensitiveness, judgement of the situation) as well as the legislation and culture of the given country (if it is a matter of shame or it is acknowledged) (*Sik-Simonovits*, 2010). The database of the European Institute for Gender Equality (EIGE)⁴ shows that, based on responses to the Eurobarometer questionnaire, a relatively high share of Hungarians (12.5 per cent) think that discrimination against women is a significant problem: this is the 4th highest share among EU member states.

A comprehensive survey titled ‘Women’s affairs 2018’ was recently carried out regarding how Hungarian women feel about the division of labour in the family and labour market participation (*Gregor-Kováts*, 2018). The survey – conducted at the end of 2017 – showed that the four major groups of problems affecting the lives of Hungarian women are the following: 1) being a single parent, 2) raising a permanently ill child, 3) the expenses of raising a child, and 4) the low pay for part time work. Lower-status women were especially likely to report work and subsistence related problems, while gender-specific problems (such as the conflict between work and family life, the difficulties of returning to the labour market following maternal leave) were primarily reported by higher status women. This trend also reveals the hidden problems of perception surveys. Discrimination in a wider sense – including unequal treatment and the lack of appreciation – accounted for nearly one-tenth (9 per cent) of the total gender-specific problems reported ($N = 688$); discrimination was spontaneously reported by nearly every fifth female respondent (19 per cent) in the 50–59 age group.

Conclusions

Labour market discrimination against women is difficult to prove and to measure. Results based on different methods indicate a certain level of labour discrimination against women exists in Hungary; however, the disadvantage caused by this is difficult to quantify precisely. Estimates based on the Wage Surveys reveal an unexplained gender wage gap of about 0.09–0.13. The scarce available testing results point to occupational segregation and the related preferences of employers. The small number of legal cases suggests that rights awareness and demand for legal remedies are weak in the society. Perception surveys indicate that various forms of discrimination against women are present in the labour market and other areas of social life, and the problem is the most severe among older women.

⁴ Gender Statistics database.

References

- ARROW, K. J. (1998): What has Economics to Say About Racial Discrimination? *Journal of Economic Perspectives*, Vol. 12. No. 2. pp. 91–100.
- BERTRAND, M.–DUFLO, E. (2016): Field Experiments on Discrimination. NBER Working Paper, No. 22014.
- BLANK, R.–DABADY, M.–CITRO, C. F. (eds.) (2004): *Measuring Racial Discrimination*. The National Academies Press, Washington, DC.

- Gregor, A.–Kováts, E. (2018): *NŐÜGYEK, 2018. TÁRSADALMI PROBLÉMÁK ÉS MEGOLDÁSI STRATÉGIÁK.* (Women's Affairs 2018. Societal Problems and Solution Strategies in Hungary) Friedrich-Ebert-Stiftung, Budapest.
- LOURY, G. C. (2002): *The Anatomy of Racial Inequality*, Harvard University Press, Cambridge.
- SIK, E.–SIMONOVITS, B. (2008): Egyenlő bánásmód és diszkrimináció. (Equal Opportunities and Discrimination) In: *Kolosi, T.–Tóth, I. Gy.* (eds.): *Társadalmi Riport.* (Social Report) 2008. Társki, Budapest, pp. 363–386.
- SIK, E.–SIMONOVITS, B. (2010): Measuring Discrimination: Questionnaires and tests. In focus. In: *Károly Fazekas–Anna Lovász–Álmos Telegdy* (ed.): *The Hungarian Labour Market, 2010.* MTA Közgazdaságtudományi Intézet – Országos Foglalkoztatási Közalapítvány. pp. 121–134.

K10.1 Labour market discrimination, 1995–2016

GÁBOR KÖRÖSI

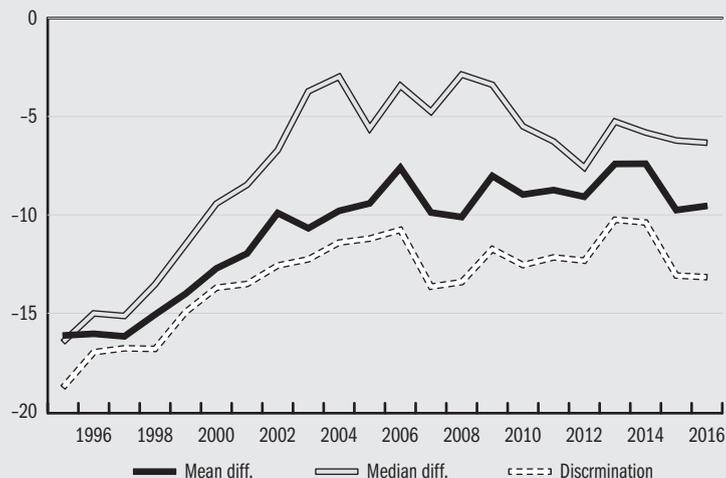
The wage survey data is available annually since the 1990's in a mostly comparable structure. Thus, the wage model can be estimated for two decades with a slight modification. It is eminently interesting how the gender wage gap changed over this period. A model very similar to Model 4 in Table 10.1 was estimated for the period between 1995 and 2016. The labour contract type had to be omitted from the regression. *Figure K.10.1* presents these estimates, together with the raw wage gap.

The gender wage gap declined until 2006, and stagnated afterwards. It is clear that the raw wage gap was not only smaller than the true discrimina-

tion, measured in a wage model, but the 'true' discrimination decreased less than one would guess from the raw gender wage gap.¹ *Figure K.10.1* also presents the difference in the gender specific median wages: the difference between a 'typical' female and a 'typical' male employee is significantly smaller than the average difference, indicating that the two wage distributions are different. That also means that the gender wage gap is not uniform for all.

¹ The raw gender wage gap is given by Model 1 in Table 10.1.

Figure K.10.1: Gender wage gap, hourly wage rate, corporate sector (percentages)



11 THE INSTITUTIONAL CONTEXT

11.1 CHANGES IN THE REGULATORY ENVIRONMENT AFFECTING FEMALE EMPLOYMENT

ÁGNES MAKÓ

This paper summarises the main changes to the regulatory environment affecting women's employment which have taken place in the past ten years, including child benefits, changes in the tax and pension systems as well as the various labour market policy instruments.

Child benefits

As a result of the cost cutting measures of the government in 2009, the upper age limit of granting a family allowance for children studying at school was reduced from age 23 to age 20 and its amount was frozen. As none of the ensuing governments have raised the amount since then, the amount of the family allowance has been unchanged since 2008 (see *Table 11.1.1*) (see Act LXXXIV of 1998).

Table 11.1.1: The monthly amount of the family allowance per child, since 2008 (HUF)

	Two parents	Single parent
One-child family	12,200	13,700
Two-child family	13,300	14,800
Family with three or more children	16,000	17,000
Family with a permanently ill or disabled child	23,300	25,900

Source: Act LXXXIV of 1998.

In 2009, the duration of the universal extended parental leave (*gyes*) and the parental leave (*gyed*) previously paid for the first three years of a child equaling the minimum old-age pension was maximised at two years in the case of children born after 30 April 2010 (Act LXXIX of 2009). Additionally, in order to be eligible for the pregnancy and confinement benefit (*tyvás*) and the parental leave (*gyed*), women should have been insured for 365 days instead of an earlier 180 days. In December 2010 the new government extended the duration of parental leave (*gyed*) for three years again. The law was effective retrospectively, and in this way women who gave birth between April and December 2010 were also eligible for the benefit for three years. The new regulation granted the benefit for mothers after their return to employment only when they worked part-time for four hours a day (previously, after the child turned one year old, mothers were able to work full time and claim the extended parental leave [*gyes*]). By amending the family support law (Act LXVI

of 2010) the government introduced the category of extended parental leave for adoptive parents, which enabled all adoptive parents adopting a child younger than ten years to claim extended parental leave for six months. (Previously it was only possible when adopting children aged three or younger.)

In accordance with Act CCXXIV of 2013, the so-called '*gyed* extra', since 1 January 2014 after the first birthday of their child parents can pursue an economic activity without any limitation on the time worked, while continuing to receive *gyed* or *gyes*. (Pursuant to the earlier regulation, it was not possible to work at all while receiving *gyed* and work part-time while receiving *gyes*.) If a family has another child born on or after 1 January 2014 while still receiving one of the child benefits for their previous child/children, they can now receive both benefits. As mentioned, restrictions on work while receiving *gyes* or *gyed* after the first birthday of the child have been abolished. The same Act introduced the childcare fee (*gyed*) for students in higher education. This makes full-time higher education students and those within a year after graduation eligible for *gyed* until the first birthday of their child.¹

The name of the pregnancy and confinement benefit (*tygás*) was changed to baby-care allowance (*csed*) on 1 January 2015, retaining the same eligibility conditions (*NHIF*, 2015). Since 1 January 2016, the law has enabled full time work while receiving childcare benefits after the child reached 6 months of age (*NHIF*, 2016). On 1 January 2018 the duration of *gyed* for students was extended from one year to two years (*HST*, undated).

Mothers paying back a student loan, with children born after 1 January 2018, are able to request suspension of the repayment after the third month of pregnancy. Half of the debt of women with a student loan giving birth to their second child after 1 January 2018 was waived as a form of non-refundable interest subsidy. Upon giving birth to their third child (or further children), all of their debt is written off.²

Tax regime

The government significantly increased the extent of family tax credits in 2010. Act CXVII of 1995 on the personal income tax was amended by Act CXXIII of 2010, enacting the new tax regime on 1 January 2011. As opposed to earlier legislation, this includes tax credits for families with one or two children although to a smaller extent than that for families with three or more children. The family tax credit can only be claimed once for each child and may be shared among parents or partners living in the same household (*Kormány.hu*, 2011). A government decision in 2014 gradually increased the tax credit of families with two children from 10,000 to 20,000 HUF between 2016 and 2019 (the amounts are included in *Table 11.1.2*) (*NTCA*, 2017).

After amending Act LXXXIV of 1998, children placed in temporary care at the request of, or approval by their parents must be regarded as children

¹ Act CCXXIV of 2013.

² Preferential treatment related to Student Loans.

raised in the household as of 1 January 2018, and thus may be taken into account for the family tax credit (*NTCA*, 2017).

Table 11.1.2: The monthly amount of family tax credit per child, 2011–2018 (HUF)

	One-child family	Two-child family	Families with three or more children
2011–2015	10,000	10,000	33,000
2016	10,000	12,500	33,000
2017	10,000	15,000	33,000
2018	10,000	17,500	33,000

Source: National Tax and Customs Administration (*NTCA*, 2017).

Pension system

As of 1 January 2011, women have been entitled to preferential retirement regardless of the retirement age, which is regulated by Act CLXX of 2010. Irrespective of their age, they are entitled to full old-age pension if they have at least forty year of insurance and they are not insured from the day starting their retirement. In terms of pension, insured periods include periods of economic activity and the periods of receiving childcare benefits.

Labour market policy instruments

Development of nurseries³

Pursuant to the amendment of Act XXXI of 1997 on child protection by Act IX of 2002, it is obligatory to provide nursery care in all settlements with a population of at least ten thousand persons from 1 January 2005 onwards.

The most recent amendment of the Act in 2015 (Act CCXXIII of 2015) provides that from 1 January 2017 it is compulsory to organise nursery care not only in settlements with a population of at least ten thousand but also where there is a demand for it by at least five children or the number of residents of the settlement below three years of age exceeds 40 persons. The deadline for fulfilling the obligation was 31 December 2018.

The same amendment introduced three forms of provision in addition to the (classic) nursery: the mini nursery, the workplace nursery and the family nursery. At the same time, it abolished the family day care centre as of 1 January 2017. Family day care centres used to provide care for children aged 20 weeks to 14 years old but from 2017 onwards they have been only able to provide care for children younger than three years and operate under the name family nursery. Meeting these requirements, they continue to be eligible for per capita state funding. Care for children older than three years is provided by for-profit child day care centres, which are not granted state funding.

As of 1 January 2016, Act CCXXIII of 2015 extended the teacher career scheme to include nursery staff with a higher education qualification. This entitles nursery staff with a higher education degree, employed in a pedagogic

³ The author hereby wishes to thank *Ágota Scharle* for her assistance with the section ‘Development of nurseries’.

position to a wage supplement. In line with Government decree 416/2015. (XII. 23.), the national budget allocates funding for nursery operators for the wages of early childhood education staff with a higher education degree.

The state contributes to the operation of nurseries in the form of per capita funding specified in the budget act, amounting to 494,100 HUF/person annually, which did not change between 2010 and 2017 (CSO, 2014). Since the per capita funding does not cover the operational and maintenance costs of the institutions and the provision for children, a 2011 amendment of the child protection law [government decree 328/2011. (XII. 29.)] allows municipality-operated nurseries to collect, in addition to the costs of meals, so-called usage fees for the care from 1 January 2012 onwards. This must not exceed 25 per cent of the net income per family member of the families subject to a fee (CSO, 2013). On 1 January 2018 the per capita funding of nurseries and mini nurseries was replaced by task-based funding (Act C of 2017). The national budget in this way provides funding based on the average wage for the municipalities operating nurseries to contribute to wages and social security contributions. Additional operational costs are born by municipalities based on their tax collection capacities.

Protection from dismissal

Act XXII of 1992 on the Labour Code provided that employers cannot terminate employment by regular notice during pregnancy, in the six months following giving birth and during the unpaid leave received for childcare purposes.

Act I of 2012 on the Labour Code, effective from 1 July 2012, also states that employers cannot terminate employment by regular notice during pregnancy, on maternal leave, in the six months following giving birth and during the unpaid leave received for childcare purposes and during assisted reproductive treatment. However, employees can only base their claims on these grounds if they informed the employer prior to their communicating the dismissal. The Constitutional Court in 2015 ruled that the requirement 'prior to communicating the dismissal' is unconstitutional and annulled it.⁴ Therefore the law currently in effect states that the employee is entitled to base her claim on pregnancy if she has informed the employer and in fifteen days of receiving this information the employer is entitled to revoke the dismissal in writing.

Atypical forms of employment

The stipulation of the Act I of 2012 on the Labour Code supports the return of women with children to employment, whereby parents with a child should be employed part-time at their request until the child is three years old or until the youngest child turns five years old in the case of having three or more children. The employer in this case must amend the employment contract to part-

⁴ On protection of pregnant mothers from dismissal.

time employment equalling half of the overall full day employment but they must only accept an offer for a four-hour work day and may consider accepting a six-hour work day. Pursuant to the law, upon agreement of the employer and employee, part-time or flexible working hours may be applied at any time.

Preferential treatment for employing members of disadvantaged groups in the labour market

Based on Act CXXXIII of 2004, parents returning to employment within a year of the end of the childcare benefit or after their child turned one year old (while receiving *gyes*) were entitled to a Start Plus card between 2007 and 2013. The employer employing the holder of such a card was entitled to paying reduced social security contribution. Start Cards cannot be requested since 1 January 2013. The incentive system related to the employment of disadvantaged labour market groups was integrated in the job protection scheme provided by Act CLVI of 2011, which took effect on 1 January 2013. Under the job protection scheme, employers are able to pay reduced social security tax and vocational training contribution after employees with young children during or following entitlement to child benefits.

References

- KORMÁNY.HU (2011): Tájékoztató a családi adózásról. (Information on the family tax credit system) Prime Minister’s Office, Budapest.
- HCSO (2013): A kisgyermek napközbeni ellátása, 2012. Bölcsődei gondozási díjak. (Child Daycare, 2012. Nursery Fees) Statistical Reflections, 29 July, 2013/58, Hungarian Central Statistical Office.
- HCSO (2014): Helyzetkép a kisgyermek napközbeni ellátásáról, 2013. Kötelezettségek, lehetőségek, tények. (State of Play in Child Daycare, 2013 Obligations, opportunities and facts) Statistical Reflections, 1 August, 2014/82, Hungarian Central Statistical Office.
- HST (undated): Parental Leave. Hungarian State Treasury – Health Insurance Cash Benefits, Budapest.
- NTCA (2017): Tájékoztató a családi kedvezmény szabályainak 2018. évi változásairól. (Information on the Changes in Regulations on Family Support in 2018) National Tax and Customs Administration, Budapest.
- NHIF (2015): Változatlan jogosultság mellett egyszerűsödnek a táppénz, a csecsemőgondozási díj, a gyermekgondozási díj és a baleseti táppénz elszámolási szabályai. (Simplification of accounting rules on sick pay, baby care allowance, parental leave, accident sick pay, with eligibility unchanged) (09.01.2015.) National Health Insurance Fund, Budapest, 9 January 2015.
- NHIF (2016): 2016. január 1-jétől kedvezően változtak a „gyed extra” szabályai. (The regulations on the parental leave ‘gyed extra’ changed favourably) National Health Insurance Fund, Budapest, 19 January 2016.
- LEGISLATION
- Act XXII of 1992 on the Labour Code.
- Act XXXI of 1997 on the Protection of Children and the Administration of Guardianship.
- Act LXXXIV of 1998 on Family Support.
- Act IX of 2002 on the Amendment of Act XXXI of 1997 on the Protection of Children and the Administration of Guardianship.

- Act CXXIII of 2004 on the Promotion of Employing Entrant Youth, the Unemployed above the Age of 50, Persons Seeking Jobs Following Care-giving for Children or Family Members, and Scholarship Holders.
- Act LXXXIX of 2009 on the Amendment of Act XXXI of 1997 on the Protection of Children and the Administration of Guardianship and on the Amendment of Certain Acts on Social Welfare.
- Act CLXX of 2010 on the Amendment of Certain Acts on Retirement and Other Related Acts.
- Act CXXIII of 2010 on the Amendment of Certain Acts Concerning Taxes and Mandatory Contributions, the Accounting Act, the Act on the Hungarian Chamber of Auditors and Other Acts on Taxation and Customs Ensuring Harmonisation with Community Law.
- Act LXVI of 2010 on the Amendment of Act LXXXIV of 1998 on Family Support and Act LXXXIV of 1997 on the Protection of Children and the Administration of Guardianship in Relation to the Completion of Compulsory Education.
- Act CLVI of 2011 on the Amendment of Certain Tax Laws and Other Related Laws.
- Act I of 2012 on the Labour Code.
- Act CCXXIV of 2013 on the Amendment of Certain Legal Acts Relating to the Restructuring of Childcare Benefits and to the Extension of Exemption from the Payment of Social Contribution Tax.
- Act CCXXIII of 2015 on the Amendment of Certain Social, Child Protection and Family Support and Other Related Legal Acts.
- Act C of 2017 on the 2018 Central Budget of Hungary.
- GOVERNMENT REGULATIONS
- Government Decree 328/2011. (XII. 29.) on Fees for Child Welfare and Child Protection Services and the Assessment of Eligibility.
- Government Decree 416/2015. (XII. 23.) on Subsidies on the Wages of Nursery Teachers with a Higher Education Qualification.

11.2 FLEXIBLE WORK ARRANGEMENTS AND OTHER FAMILY-FRIENDLY MEASURES AMONG HUNGARIAN COMPANIES

ISTVÁN JÁNOS TÓTH, MIKLÓS HAJDU & ÁGNES MAKÓ

Companies might offer flexible work arrangements for their contracted employees,¹ which could considerably help workers to achieve a better work-life balance and promote the reconciliation between work and family life. As a result, these employment forms create family-friendly surroundings for the employees.

The empirical economic literature thoroughly addresses the question of the effect of flexible forms of employment on employee's productivity, job commitment, motivation and on the firms' productivity. The results so far (*De Menezes et al.* 2011) are controversial. While 30–60 percent of the research underlined that flexible work arrangements have a positive impact on job commitment, motivation and the productivity of the company another significant part of the research did not find any positive statistical link between these factors.

The ILO's overall analysis on small and medium enterprises (*Croucher et al.* 2013) came to very similar conclusions. According to these, flexible work arrangements might increase workers' productivity and also might promote work-life balance; they could increase workers' well-being, satisfaction, confidence and motivation although the empirical analyses did not underline the conclusion that these impacts would prevail everywhere and directly (*Croucher et al.* 2013). The analysis of the ILO particularly stresses that the gender factor has to be taken into account by the planning of policies promoting flexible forms of employment.

The new research of *Beckmann* (2016) studies the application of a certain type of flexible work arrangement, the *self-managed working time* (SMWT) by using German company panel data. According to his results, five years after its introduction, the SMWT increased the company's productivity significantly by 9 percent whilst it also raised the labour costs by 8.5 percent. The author stresses that SMWT contributed to the productivity gain both at the level of the individual (worker) and the company and this could be interpreted as the positive impact of the better incentive for workers and in connection with this the de-centralisation steps taken by the company.

The aim of this current research is to study the extent to which companies in Hungary use the different forms of flexible work arrangements and the types of companies affected. Furthermore, it also examines the link between the use of these forms and the adaptability of firms to the change of the business cycles. As the data collection analysed in our research is connected to

¹ See: inc.com. The study examines three of these: 1) part-time work, 2) flexible working time and 3) home-office or remote work.

a survey on the short-term economic situation of the companies we also had the opportunity to examine the link between the companies' short-term economic situation and the use of flexible work arrangements. The use of certain types of these employment forms means the use of modern work organisation methods² at the same time and could therefore be interpreted as the proxy of the use of these methods. Our expectation therefore is, that companies using one or more types of flexible work arrangements are characterized by a better economic outlook in the given average business cycle than firms which do not use these forms because – due to the greater organisational flexibility – the former could faster adapt to the changes in the given business cycle and could make a better use of the advantages of it than companies which do not use flexible work arrangements or only to a lesser extent.

Data

For the analysis three surveys (2013, 2014 and 2016) of the Institute for Economic- and Enterprise Research of the Hungarian Chamber of Commerce and Industry (MKIK GVI) were used which were carried out in the framework of the institution's research programme on the short-term labour market forecast.³ For the data collection the interviewers visited the managers of the sampled companies personally. (At larger firms typically the HR managers while at smaller firms the owners or the executive directors.) This survey analyses such a subsample of the original data collection from which micro enterprises (with at the most 10 employees) are excluded and only those enterprises were taken into account which provided a valid answer to the questions regarding flexible work arrangements. The analysis examined the pooled sample of the three data collections. In 2013 2,976, in 2014 3,429, in 2016 4,056 companies and in total 10,461 companies were taken into account in the sample analysed.

Flexible work arrangements and other benefits

Companies could use more types of incentives and benefits in order to help their employees with families. Based on the data collection of 2013 and 2014 67 percent of the Hungarian companies take into account the opening times and periods of the educational institutions for the organisation of the working time and for the granting of the paid-annual leave.⁴ This is followed by the opportunity for part-time work (57 percent),⁵ flexible working time (42 percent), school starting support (35 percent), organisation of family events (28 percent), time off work for employees with families (14 percent), opportunity for remote work/home office (11 percent), the reimbursement of holiday accommodation costs, support for children's day-care at crèches and nursery schools (3–4 percent) and finally ensuring day-care services for children (2 percent).

The data also illustrate that there are significant differences in the use of certain flexible work arrangements in Hungary and that 31 percent of the

² See Kallenberg (2001, 2003).

³ See the descriptions of the data collections of 2013, 2014 and 2016 and the studies analysing the results *MKIK GVI* (2013), (2014), (2016).

⁴ The question used in the data collection of 2016 differed from the previous ones. See question 43. on page 154 of *MKIK GVI* (2016). Therefore, the data of the 2016 survey is not directly comparable with the data of 2013 and 2014. On the one hand, non-answering decreased significantly compared to the previous surveys and on the other hand the results of the proportion on the use of flexible work arrangements were systematically lower than before. Therewith the order of the use of the flexible work arrangements studied did not change: part-time employment was the most widespread (52 percent), this was followed by the flexible working time (26 percent) and the home-office or remote work (7 percent). Consequently, the outcomes of the surveys of 2013 and 2014 show a higher proportion of flexible work arrangements than the real rates as non-answering could rather mean 'no' than 'yes'.

⁵ These values are significantly higher than the proportion of employees in flexible forms of employment according to the Labour force survey of the CSO. The explanation for this might be that although a large proportion of companies use flexible work arrangements it affects only a small proportion of their employees.

companies did not ensure any of the three examined options – 1) part-time employment, 2) flexible working time, 3) home-office or remote work – for their employees. Additionally, 31 percent of the companies used only one, 26 percent two and only 7.5 percent all of the three preferential options at the same time.

The spread of flexible work arrangements – estimations

Primarily, we studied the relationship between the examined elements of the flexible work arrangements and certain characteristics of the companies, and then we also examined its link with an important elemental indicator of the composite index of the examinations related to the business cycle of companies namely the *corporate leader's opinion on the current economic situation*. In these surveys, the answers to the question regarding the assessment of the current economic situation of the enterprise indicated the subjective opinion of the leaders interviewed (OECD, 2003) and, as such, the answers reflected the company's adaptability to the given period of the business cycle and the extent the company had been able to use the opportunities of the given cycle.

Our hypothesis regarding the economic situation of companies is that those firms which make more of the examined forms of flexible work arrangements available to their employees are more flexible and are able to react more quickly to the changes of the business cycle which also has a positive impact on their economic situation. On the other hand, in companies which do not offer any types of flexible work arrangements to their employees (and apparently are less likely to use modern work organisation practices and incentives in general) the organisational structure is rather rigid and this is accompanied by weaker adaptability and less successful economic activity. Therefore, we assume that family-friendly measures enhance the situation of employees by ensuring a better work-life or work-family balance while at the same time they could also contribute to the improvement of the companies' adaptability and flexibility.

The findings suggest that companies in the industrial and service sector use family-friendly arrangements to a larger extent: for example, the probability of part-time work and flexible working time is 22–25 percent higher at companies in the industrial sector than in the agricultural sector. At the same time the probability of the three, examined work arrangements (in order: part-time, flexible working time and home-office or remote work) in the service sector is higher by 38, 116 and 490 percent. Home-office and remote work is typical for companies in the commercial sector especially at service provider companies. The impact of the size of the enterprise is trivial: obviously, there are more positions at larger enterprises which could be transformed into flexible forms of employment than at smaller companies. Based on the outcomes the real difference exists between companies with less than 250 and those with more than 250 employees. The probability of part-time work, flexible work-

ing time and remote work at the latter is higher by 250 percent, 70 percent and 80 percent than at companies with 10–19 employees.

Majority foreign-owned firms allow part-time work less frequently, however the probability that they have employees in a flexible working time arrangement or who work in home-office or remote work is 31 and 66 percent higher. Exporting companies (with a maximum of 50 percent turnover from export and those with a turnover from export above 50 percent) are also more characterized by the use of these options: in order, the probability for flexible working time is 21 and 24 percent higher than at companies producing for the domestic market while the probability of home-office and remote work is 70 and 81 percent higher.

As regards the economic situation it seems that there is no difference in the connection with part-time employment among companies in a different economic situation while in the case of flexible working time and home-office or remote work it could be considered that companies in a favourable economic situation use these kind of flexible work arrangements with a 24–33 percent higher probability. The examination of the number of the flexible employment options – 1) part-time employment, 2) flexible working time, 3) remote work or home-office – used by the companies shows similar results. The picture is obvious in the case of foreign-owned firms: majority foreign-owned companies make multiple types of flexible work arrangements available at the same time more frequently than domestic-owned ones. This leads to the conclusion that this decision of the former companies might fit into a broader policy framework on the flexibility enhancement of the company structure. The same observation could be made in connection with exporting companies: the majority of exporters use more types of flexible work arrangements than the non-exporter companies.

There are also considerable differences by economic situation: the probability that companies in a favourable economic situation use multiple types of flexible work arrangements is 16 percent higher than at companies in a less favourable economic situation. Therefore, it is worthwhile to look at the converse of the issue and examine also separately if the number of flexible work arrangements used helps firms towards a better and more flexible adaptation i.e. the multiple use of flexible work arrangements is accompanied by a better economic situation.

The results show that the existence of this relationship is not obvious. The outcomes of the surveys in 2013 and 2014 suggested that the economic situation of firms using two or three types of flexible work arrangements simultaneously was significantly better than of those which did not use flexible work arrangements at all. If a company used all the three examined forms (part-time, flexible working time and remote work) its chances for the more favourable economic situation were 11–64 percent higher than a similar company

which did not use flexible work arrangements. These links however are not evident at all in 2016. Based on the results it could certainly be concluded that flexible work arrangements – while they contribute to the well-being of workers and the establishment of the right balance between work and family life – do not worsen the situation of companies nor decrease their chances for their adaptation to the changing economic climate.

References

- BECKMANN, M. (2016): Self-managed working time and firm performance: Microeconomic evidence. Universitat Basel, WWZ Working Paper, April, 2016/01.
- CROUCHER, R.–STUMBITZ, B.–QUINLAN, M.–VICKERS, I. (2013): Can better working conditions improve the performance of SMEs? An international literature review, International Labour Office, Geneva.
- DE MENEZES, L. M.–KELLIHER, C. (2011): Flexible working and performance: A systematic review of the evidence for a business case. *International Journal of Management Reviews*, Vol. 13. No. 4. pp. 452–474.
- KALLENBERG, A. L. (2001): Organizing flexibility: the flexible firm in a new century. *British Journal of Industrial Relations*, Vol. 39. No. 4. pp. 479–504.
- KALLENBERG, A. L. (2003): Flexible Firms and Labor Market Segmentation: Effects of Workplace Restructuring on Jobs and Workers. *Work and Occupations*, Vol. 30. No. 2. pp. 154–175.
- MKIK GVI (2013): Short term labour market forecast – 2014. MKIK GVI, Budapest, December 2013
- MKIK GVI (2014): Short term labour market forecast – 2015. MKIK GVI, Budapest, December 2014
- MKIK GVI (2016): Short term labour market forecast – 2017. MKIK GVI, Budapest, December 2016
- OECD (2003): *Business Tendency Surveys. A Handbook*, OECD, Paris.

11.3 THE MAIN CHARACTERISTICS OF WOMEN IN PUBLIC WORKS

IRÉN BUSCH & JUDIT LAKATOS

The public works scheme was established as an answer to the unfavourable employment situation which came about due to the financial and economic crisis commencing in 2008. The scheme restarted in 2011 in a new form with special programmes including the ‘Start model programmes’ and the national and longer-term public works programmes.

Its initial goal was the activation of the inactive and the long-term unemployed and it also aimed at ensuring a transitional labour opportunity for those who had lost their jobs due to the economic crisis. The public works scheme plays an important role in the activities of the municipalities, especially where market-based labour demand is weak. With the change and improvement of the economic situation public works also has gone through continuous transformation: the number of public works participants has significantly decreased and currently its main goal is to ensure that public works participants attain a transition into the open labour market.

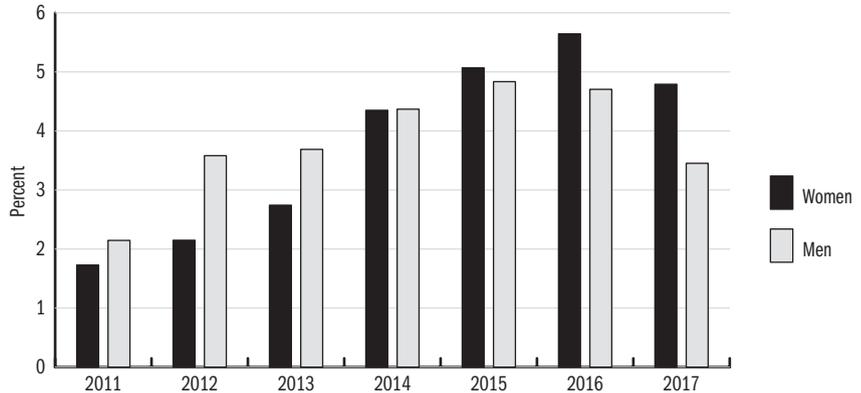
The data of the process-supporting integrated system (BM-IR) of the National Employment Service and the Labour Force Survey (LFS) of the CSO contain information on the characteristics of women enrolled in public works. The number of female public workers reached its peak in 2016 – by exceeding 112 thousand individuals and since then their number has been continuously shrinking (*Figure 11.3.1*). While the proportion of women within the total number of public workers was slightly above one-third in 2012 their number already exceeded the number of male public workers in 2016 and since that time there have been constantly more women involved than men.

Until 2013 the weight of public work in female employment lagged behind that of men. Then, in 2014 the participation rate of both men and women was 4.4 percent. It could be established that the role of public works played a more important role in female employment than in the case of men. The share of women within the public works was the highest – 5.6 percent – in 2016. Since that time their participation rate fell below 5 percent.

Over recent years the change in the composition of the educational attainment of women clearly demonstrates that public work programmes involve indeed the most disadvantaged individuals. Since 2011 the share of participants with less or no more than primary education (8 grades in Hungary) is more and more significant while the weight of women with a secondary vocational qualification and tertiary qualification shows a declining trend. The participation in public works became a less and less real alternative for younger or better educated women while at the same time this kind of employment

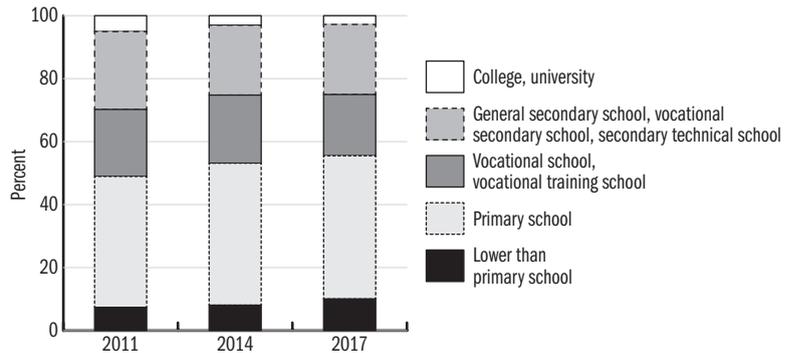
provides a sort of safety net for the unskilled or the older workers as well as for those living in a settlement which is lagging behind.

Figure 11.3.1: The share of women within public workers according to the BM-IR compared to the number of employed women according to the LFS (percent)



Source: Own editing based on BM-IR and LFS.

Figure 11.3.2: The share of female public workers by educational attainment (percent)



Source: Own editing based on the data set of BM-IR and the National Info-communication Service Zrt. (NISZ).

As well as the decline in the number of public works participants – and thus the decline of the female participants – those individuals have to be mentioned too who in spite of the favourable labour market conditions and the labour shortage in certain sectors are not able to leave public works. This is measured by the so-called locking-in indicator, which shows the number of months spent in public works by the individual before entering into public works referring to a certain period of time. If this indicator exceeds 12 months in the last three years the individual is considered to be locked-in in public works. In 2017 59.1 percent of women and 69.7 percent of men were recorded as locked-ins in the public works. Consequently, the long-term par-

ticipation in public works is less typical for women than men. Locking-in, however is more frequent among women over the age of 50 out of whom 72 percent belonged to this category. (In the case of 50+ men this proportion was 77.4 percent.) In 2017 the share of women below the age of 25 who were considered as locked-ins was 24.0 percent while in the case of women of the best working age (25–50 years) this proportion was 57.9 percent. After six months of leaving the public works 23.7 percent of women below 24 and 12.3 percent of women above 50 were in employment in the primary labour market. The same exit rate was only 4.8 percent among women with less or no more than primary education while among women with a tertiary qualification it was 44.5 percent.

In the labour force survey of the CSO the number of individuals¹ who chose ‘public works participant’ as labour market status was 190.9 thousand in the third quarter of 2017² which is 8 percent higher than the average staff number according to the administrative register on public workers in the same period however it was broadly consistent with the data calculated from the monthly average staff numbers.

Out of the 190.9 thousand public workers 104.5 thousand were women. More than half of female public workers lived in a household where they were the single person in employment (in a low-paid job). Or if there was another employed person in the household he/she was public worker too. This leads directly to the consequence that the per capita income in the majority of the households of public worker women was only enough to join the lowest income deciles. The proportion of those household members who work in the primary labour market was the highest in the age group 30–49 – to which half of the public worker women belonged. Nevertheless, this proportion barely reached 50 percent. The labour market characteristics of the households of male public workers seems to be even more unfavourable. Only less than one-third of their households had a ‘normal’ (primary labour market) employee and – not entirely independent of this – the proportion of households where the employed person was hired in the framework of public works was even larger than in the case of women.

Over the study period a child below the age of 15 was growing up in 45 percent of the households of female public workers while at least three children lived in 13 percent of the households. An undeniable advantage of the public works for mothers is that the employment is ensured at the place of residence and therefore it is more reconcilable with their child-care duties than a normal market job which in spite of the higher potential income would require daily commuting. 15 percent of the public worker women claimed themselves to be Roma. Public worker women were the single earners in 30 percent of the non-Roma households while this proportion was 38 percent in the case of Roma women.

¹ As the result of the weighting
² Due to the rotation-panel nature of the survey the analysis was limited to a typical quarter from the respect of public work.

12 DILEMMAS OF FEMALE40

ANDRÁS SIMONOVITS & MELINDA TIR

The program Female40 has been in operation in Hungary since 2011: basically it allows every Hungarian woman, who fulfills the eligibility criterion of working and caring small children for at least 40 years, to retire below the full benefit retirement age, without any actuarial deduction. Since 2012 any other channel for early retirement (with or without actuarial deduction) has been closed down. This dual system is unique to Hungary; in our opinion, it is dysfunctional and only the political circumstances keep it alive: the government prides itself on the generosity of Female40, while the opposition proposes its extension rather than its replacement with an international standard flexible (variable) retirement age.

In our study, first we present the data, then evaluate the program's advantages and disadvantages. Our starting point is *Augusztinovics* (2005) and *Augusztinovics–Köllő* (2009), which called attention to fragmented careers. In addition to *Mihályi–Vincze* (2016), we rely on the following papers: *Czegledi et al.* (2017), *Granseth et al.* (2019) and *Simonovits* (2018).

We commence the presentation of the data with the number and age of females who retired between 2007 and 2016 (*Table 12.1*). With a break on the rise between 2009 and 2012, the full benefit retirement age rose from 61 to 63.5 years (it was only 55 years in 1996). The number of new retirees jumped in two years: in 2007 due to the anticipation of the next year's drop in initial benefits; and in 2011 due to the sudden opening of Female40; otherwise both the numbers of all retirees and of Female40 retirees developed smoothly. The average (effective) retirement age of both categories rose quite slowly, and the introduction of Female40 diminished the first number by 2.2 years. In summary, the average retirement age rose by 3.2 years over a period of 10 years, and the Female40 beneficiaries' age by 1.4 years.

Table 12.1: The number and age of females taking old-age retirement

Year	Full-benefit retirement age	Total		Female40	
		number (thousand)	average age (year)	number (thousand)	average age (year)
2007	61	62.0	57.8		
2008		39.3	57.3		
2009	62	15.2	59.9		
2010		13.6	60.7		
2011		84.9	58.5	54.8	57.6
2012		51.2	59.2	26.6	57.8
2013	62	40.2	59.6	24.1	58.0
2014	62.5	39.1	59.6	27.6	58.3
2015		41.7	60.0	28.7	58.7
2016	63	54.9	61.0	28.7	59.0

Source: *Fazekas–Köllő* (eds.) (2017), Table 11.5, p. 269.

The average benefit received in Female40 was close to the male-female average benefit, i.e. it is significantly higher than the other females' average benefits.

At this point, we cite *Czeglédi et al. (2017)*. *Table 12.2* displays the situation of Female40 in 2013. The most populous cohort was born in 1955, their average retirement age was equal to 58 years; and their average career's length was equal to 41 years. The bulk retired with the minimal eligibility length, 40 years but 15 and 11 percent had 41 and 42 years, respectively.

Table 12.2: Data of Female40, 2013

Birth year	Relative average earning	Average initial benefit	Average length of employment	Size distribution according to contribution length (percent)				
				40	41	42	43	44
1953	4.9	60.0	41.5	37.7	29.4	18.4	4.9	5.1
1954	26.6	59.0	41.1	59.7	16.1	8.5	8.5	4.4
1955	32.9	58.2	41.1	61.4	9.3	15.2	10.5	1.7
1956	17.7	57.1	41.7	31.2	17.4	37.8	11.3	0.0
1957	9.3	56.1	40.7	65.6	23.6	7.2	0.0	*
1958	4.7	55.2	40.3	87.1	9.7	*	*	*
Average	100.0	57.9	41.1	56.3	14.8	15.9	8.2	2.0

* Less than 0.05.

Source: *ONYF (2014)* 111–112. Table 6.9.

Table 12.3 presents the same breakdown showing earnings and career's lengths.

Table 12.3 Relative benefits of Females 40, retiring in 2013, in terms of nationwide net age

Birth year	Size distribution (percent)	Average retirement age	Average length of employment	Size distribution according to contribution length (percent)				
				40	41	42	43	44
1953	0.938	0.771	40.5	70.6	18.2	60.9	20.3	10.2
1954	0.954	0.776	40.2	86.9	10.4	10.8	0.6	0.2
1955	0.954	0.775	40.2	90.2	8.0	10.2	0.4	0.2
1956	0.793	0.655	40.2	89.8	8.8	10.0	0.3	0.2
1957	0.792	0.639	40.2	91.7	7.6	0.6	0.0	*
1958	0.760	0.609	40.1	95.0	5.0	*	*	*
Average	0.897	0.731	40.2	88.2	9.1	10.5	0.6	0.3

* Less than 0.05.

Note: Meanwhile the source *ONYF [2015]* has also been published and the data for 2014 attest basically the same situation.

Source: *ONYF (2014)* 111–112. Table 6.9 censored.

Through the Connected Administrative Database, available in the CERS's Data Bank, we can obtain a more precise picture on the situation of various types in 2011. We distinguish three types of old-age retirees: early retirees, Female 40 and those retiring at the full benefit age. In the following paragraphs, we shall compare them (with respect to fragmentation, pre-retirement earning and benefit).

According to our statistics, it is evident that every year the share of early retirees was very high, those retiring at full benefit form a minority. The average retirement age basically follows the rise of the full-benefit retirement age. Discussing *Table 12.3* we have already mentioned the critical role played by the career’s length of 40 years; moreover, the differences between benefits of given cohorts (of those whose career’s length are 35–39 and 40–44.)

The closing part summarizes the findings of *Granseth et al. (2019)* on the Hungarian pension system. In the framework of a public data request, the ONYF (which became part of the Treasury) sent us a detailed contingency table on the retirement age and the career’s length of females retiring in 2016. Due to the loose–rigid system,¹ the bulk of the cells are empty (nobody could retire without having at least 40 years of eligibility or age 63). To save space, *Tables 12.4* and *12.5* present the data on career’s length with full-benefit age and Female40 in a condensed form, respectively:

Table 12.4: Condensed contingency table on females retiring in 2016, retirement age=63

Length of contribution	20	21	22	23	24	25	26	27	28	29
Frequency	0.008	0.008	0.009	0.010	0.013	0.014	0.016	0.016	0.016	0.017
Length of contribution	30	31	32	33	34	35	36	37	38	39
Frequency	0.019	0.020	0.022	0.021	0.022	0.023	0.021	0.025	0.026	0.029

Source: *Hungarian State Treasury*.

Table 12.5: Condensed contingency table on females retiring in 2016, Female40

Length of contributions (year)	Retirement age								
	55	56	57	58	59	60	61	62	63
40	0.014	0.019	0.026	0.113	0.038	0.013	0.008	0.004	0.030
41	0.004	0.011	0.012	0.012	0.026	0.025	0.010	0.004	0.018
42	0.000	0.014	0.030	0.012	0.008	0.019	0.020	0.005	0.015
43	0.000	0.000	0.013	0.016	0.009	0.006	0.017	0.011	0.014
44	0.000	0.000	0.000	0.005	0.008	0.006	0.003	0.008	0.017
Σ(S*=41.2)	0.018	0.044	0.081	0.058	0.089	0.069	0.058	0.024	0.094

Source: *Hungarian State Treasury*.

To save space, we aggregate the data of *Tables 12.4* and *12.5* into 3 categories in *Table 12.6*: *category 1*: females with at least 40 years of eligibility and younger than 63; *category 2*: females with less than 40 years of eligibility and not younger than 63; and *category 3*: females with at least 40 years of eligibility and aged at least 63. We call attention to the strongly negative correlation between retirement age and career’s length.

Table 12.7 contains the results of the 3-class aggregation. It is easy to see that under normal circumstances, on average, the beneficiaries of Female40 contribute less than, and the others contribute more than, they receive.

¹ Loose for the beneficiaries of Female40, and rigid for other retirees.

Table 12.6: Three-class aggregation: partial statistics

Category-1 (Female40) share	Category-2 (aged at least 63): share	Category-1 average retire- ment age	Category-2 average career's length	Relative standard error in 1	Relative standard error in 2
0.551	0.355	58.6	31.4	0.547	0.390

Table 12.7: Averages for the three classes

Name	Average retirement age	Average career's length	Standard error of retirement age	Standard error of career's length	Correlation coefficient
Data	60.6	37.8	2.6	5.7	-0.587

Source: Own calculations.

The real wage hike of 2016–2018, however, changed the situation (Statistical data, Table 1.1 and *Simonovits*, 2018). If we recalculate the lifetime balance, certain beneficiaries have recently suffered significant losses with respect to those staying. For example, assume that a woman of 40 years of eligibility and length of career retiring in 2016 with an annual benefit of 100 units which she will receive for 20 years. If she had stayed another 3 years and retiring in 2019, then her 80 percent replacement would have risen to 86 (7,5 percent rise) and due to valorization, from 2019 she would have received a real benefit of $1.075 \times 127 = 137$ units, which she would have enjoyed approximately for 17 years. (As if on her pension account her investment had exceptionally high real rates of return in 2016–2018!) The two lifetime benefits are $20 \times 100 = 2000$ units and $17 \times 137 = 2329$ units – a significant advantage for the stayer!

References

- AUGUSZTINOVICS, M. (2005): Population, employment and pensions. (in Hungarian) *Economic Review*, Vol. 52. No. 5. pp. 429–447.
- AUGUSZTINOVICS, M.–KÖLLÖ, J. (2009): Decreased Employment and Pensions. The Case of Hungary. In: *Holzmann R.–MacKellar L.–Repansek J.* (eds.): *Pension Reform in Southeastern Europe. Linking to Labor and Financial Market Reform*. Washington, D.C.: World Bank, pp. 89–104.
- CZEGLÉDI, T.–SIMONOVITS, A.–SZABÓ, E.–TIR, M. (2017): What is wrong with the Hungarian pension rules? *Acta Oeconomica*, 67. pp. 359–387.
- FAZEKAS, K.–KÖLLÖ, J. (eds.) (2017): *Hungarian Labour Market*, Budapest, CERS–HAS.
- GRANSETH, ERIK–KECK, WOLFGANG–NAGL, WOLFGANG–SIMONOVITS, ANDRÁS–TIR, MELINDA (2019): [Negative correlation between retirement age and contribution length?](#) Oxford Economic Papers.
- MIHÁLYI PÉTER–VINCZE LÁSZLÓ (2016): The Presentation of the Financial Consequences of the Female–Male40 concept in a Pay-As-You-Go System, *Economy and Finance*, Vol. 3. No. 1. pp. 3–24.
- ONYF (2014): *ONYF Statistical Yearbook, 2013* (in Hungarian) Budapest, CANPI.
- ONYF (2015): *ONYF Statistical Yearbook, 2014* (in Hungarian) Budapest, CANPI.
- SIMONOVITS, A. (2018): The Boomerang of Female40: Seniority pensions in Hungary, 2011–2018, CERS–HAS Working Paper 2018/32. (Forthcoming in: *European Journal of Social Security*.)

**LABOUR MARKET
POLICY TOOLS
(JUNE 2017–MAY 2018)**

**MIKLÓS HAJDU
ÁGNES MAKÓ
FRUZSINA NÁBELEK
ZSANNA NYÍRÓ**

This chapter summarizes the main legislative changes of policy tools in the field of the labour market between June 2017 and May 2018.

1 INSTITUTIONAL CHANGES

1.1 Vocational training system

The modification of the Vocational and Adult Training Act¹ of 18th December 2017 (entered into force on 1st January 2018) increased the weight of practical training and established the so called sectoral skill councils on 1st of July 2018. Members of the sectoral skill councils are delegated by the sectoral stakeholders of the given economic sectors. The body is able to make proposals on the modification of the National Training Register (NTR), the modernisation of the training contents, the operation of the training system and prepares forecasts in order to determine the directions and goals of the training programmes.²

In order to strengthen practical training, the quota on the maximum number of training contracts has been abolished.³ In addition, training contracts of 9th grade students do not terminate automatically at main activity training companies. The modification enables parties to conclude a so-called pre-training contract between October and April already before the first vocational year.

In addition to this, vocational secondary school students at the 11th and 12th grade are also allowed to conclude a training contract (regarding the profession that could be achieved in the given grade, for at least 250 hours per academic year). The range of other institutions and organisations entitled to conclude a training contract has also been widened. The new rules make it clear that the student has to accomplish the uninterrupted professional practice in the duplicated grade even if they had previously accomplished it. According to the former legislation practical trainers had to have appropriate basic vocational qualification and practical knowledge. Moreover, in professions with master craftsmen requirements only those were entitled to teach as practical trainers who themselves also obtained the title of Master qualification. In line with the modification from the academic year of 2019/2020 practical trainers are obliged to complete a training course for practical trainers together with an exam with the exception of trainers who already have a master craftsmen examination, a tertiary degree or those who are above the age of 60.

1.2 Family and Career Point

In the framework of the tender HRDOP-1.2.9-17 'Women in the family and at work'⁴ 71 'Family and Career Points' (formerly Female Information and

1 Act 92 of 2017 on the modification of certain rules on education, vocational training and adult training and other related laws.

2 See on page hbkik.hu.

3 Whether an enterprise with practical training as main activity is entitled to hire more than 12 apprentices is not any more determined by the proportion of revenues in relation to the practical training normative used but the revenues of the company and the number of employees or the form of the company (self-employer).

4 See in the [description of the call for tender](#).

Service Centre/Women Centre) were established until the end of 2018 countrywide – except in the Central Hungary region. Based on common operative rules the main goal of the centres is to improve the labour market situation of women, to spread atypical forms of employment and promote work-life balance. The colleagues of the centres provide special training courses and counselling to women in order to help them in returning to the labour market and to facilitate the reconciliation of work and family life. Each centre co-operates with at least 20 local employers on the basis of an agreement and promotes atypical and flexible forms of employment through training and legal counselling.⁵

1.3 Establishment of pensioners' cooperatives

A new form of cooperative the so-called pensioners' cooperative for public interest was introduced on 1st July 2017 with the aim of promoting the employment of retired people. Pensioners hired through the cooperative are exempted from the payment of social security contributions and they only have to pay the personal income tax. In addition, the employment does not influence the financial amount of pensions.⁶ The association concludes the contract with the employer and the loan for the activity performed cannot be lower than the minimum wage or the guaranteed wage minimum according to the proportion of the working time.⁷

2 SUPPORTS

2.1 Unemployment benefit

As a result of the growth of the minimum wage⁸ in 2018 (see point 5.1) the maximum amount of the unemployment benefit was also increased. Hence, from 1st January 2018 the monthly maximum of the unemployment benefit is 138,000 HUF while the monthly amount of the unemployment assistance before pension is 55,200 HUF. Job-seekers participating in an intensive training programme accepted by the employment office are provided with a wage substitution benefit of an amount between 48,918 HUF and 81,530 HUF.

2.2 Rehabilitation and invalidity benefits

In January 2018, the amount of rehabilitation and invalidity benefits increased by 0.8 percent which means that its basic amount reached 98,890 HUF.⁹

Act 191 of 2011 on the benefits of persons with reduced working capacity¹⁰ and other related laws was supplemented by the rules of the exceptional invalidity benefit. The new rule established benefit opportunity for those disabled who, according to their health status and the grade of their work capacity loss were eligible for benefit but due to the lack of the necessary insurance time required by the law are not provided with benefits.

5 See on page csaladbarator-szag.hu.

6 Act 89 of 2017 on the modification on certain acts in connection with the establishment of pensioners cooperatives for public interest.

7 Act 146 of 2017 on the modification of certain acts in connection with the employment of recipients of miners' transitional benefit through pensioners cooperatives for public interest.

8 On the increase of the minimum wage.

9 See the act.

10 See the act.

2.3 Childcare benefits

As a consequence of the minimum wage increase¹¹ in 2018 (for details see 5.1) the maximum amount of the child care fee (gyed) – which equals to 70 percent of the doubled amount of the actual minimum wage – was increased to 193,200 HUF in 2018. The fixed amount of the graduate child care fee (diplomás gyed) was increased to 96,600 HUF in the case of a BA and to 126,350 HUF in the case of a MA degree. In addition, from this year recipients are eligible for this benefit until the second birthday of the child. The maximum amount of the infant care allowance based on equity (csed) and the child care fee based on equity – as their amount are also determined by the minimum wage – increased too (to 276,000 HUF and 138,000 HUF).

3 SERVICES

3.1 Development of labour market services of local municipalities

In the framework of the programme ‘HRDOP-1.5.2-16 Development of human services with territorial approach’ local municipalities and municipality-maintained enterprises could apply for a support for the development of human public services from March 2017. Applicants have to guarantee that they will contribute to the improvement of the employability of disadvantaged groups and will strengthen their labour market situation.

3.2 Development of lawful employment

The program on the ‘Development of lawful employment’ EDIOP-5.3.7-VE-KOP-17 started in June 2017 and aims at improving working conditions and promoting lawful employment through the development of health and safety at work and by strengthening the labour inspectorate. The budget of the programme is 3.8 bn HUF and is implemented by the Ministry of Finance (former Ministry for National Economy).

4 ACTIVE LABOUR MARKET MEASURES AND COMPREHENSIVE PROGRAMMES

4.1 Tightening of the public works programme

The gradual cutback of the public works programme has been quicker than originally planned by the Government Decree 1139/2017 (of 20th of March) in 2017. In 2017 the planned budget of the public works programme was 325 bn HUF in the Hungarian national budget and 225 bn HUF in 2018 however, factually only 261 bn HUF was used in 2017.¹² The planned budget for 2019 is 180 bn HUF which (in real value terms) will not further decrease in the forthcoming years.

¹¹ See the act.

¹² On the cutback of public works.

4.2 Extension of the central labour market programme ‘From public work to the business sector’

The extension of the central labour market programme ‘From public work to the business sector’ was announced in July 2017. The aim of the programme is to promote business sector employment of those PWs participants with a vocational qualification who are motivated and are ready and capable for work. The programme contains two new support elements: 1. Employers could also hire a mentor (a professional supporter) with wage support, 2. Participants could be provided by labour market services. The new programme support elements were available between 1st July 2017 and 31st December 2018. The total budget of the programme is 5.8 bn HUF.

4.3 The aim of public work and the determination of preferentiated settlements from the respect of public work

According to Gov. Decree 1952/2017 of 13th December¹³ the main goal of public works for the year 2018 is to encourage PWs participants to leave public work and contribute to satisfying the seasonal labour demand in agriculture as well as to increase the employment and employability of those who are not able to enter into the primary labour market. An additional goal is the improvement of housing conditions and social integration of the Roma as well as promoting social integration of former detainees, balancing territorial labour market inequalities and improving the life quality of PWs participants. Finally, it also aims at increasing the population retention capacity of the countryside while supporting self-sufficient and self-sustaining settlements and social enterprises.

4.4 Employment cooperatives, partnerships, pacts

In June 2017 tenders ‘TOP-5.1.1-16 – County level employment agreements, co-operation in the field of employment and economic development’ and ‘TOP-6.8.2-16 – Local employment co-operation in cities with county rights and their surroundings’ were published with the aim of supporting employment co-operation, partnerships and the implementation of training and employment programmes. The programme provides support to the expansion of the local labour markets, the training and employment of job-seekers as well and ensures the necessary means to enhance the co-operation of the local stakeholders. The target group of TOP-5.1.1-16 are county level municipalities while that of TOP-6.8.2-16 are municipalities of cities with county rights. The budget of the former programme is 1.4 bn HUF and 6.7 bn HUF for the latter.

4.5 Encouraging social enterprises

The tender ‘EDIOP-5.1.7-17 – Encouraging social enterprises’ started in June 2017 and its aim is to reinvigorate and stabilise social enterprises in order to

¹³ See [Government decision](#).

establish long-term employment opportunities. The budget of the tender is 15 bn HUF.

4.6 Pilot programmes on strengthening the social economy and promoting labour market integration of the most disadvantaged groups

The tender ‘HRDP-1.11.1-17 – Pilot programmes on strengthening social economy and promoting the labour market integration of the most disadvantaged with the co-operation of NGOs and enterprises’ commenced in July 2017. The aim of this measure is the introduction and spread of sustainable social enterprise models in the social economy with the involvement of the most disadvantaged groups. The budget of the programme is 785 million HUF.

4.7 Supporting job creation investments of micro-, small-, and medium sized enterprises

In August 2017 ‘NEF-2017-SME Supporting job creation investments at micro-, small-, and medium sized enterprises’ and in January 2018 ‘NEF-2017-2-SME Supporting job creation investments at micro-, small-, and medium sized enterprises’ calls for tenders were published. The aim of the two tenders was reducing territorial differences, establishing territorial cohesion and strengthening the local economy. The budget of ‘NEF-2017-SME was 10 bn HUF while of ‘NEF-2017-2-SME 5 bn HUF.

4.8 Women in the family and at the workplace

Call for tender ‘HROP-1.2.9-17 – Women in the family and at the workplace’ was published in June 2017 in order to improve the labour market situation of women and to facilitate the reconciliation of family and work. The programme also aims at increasing the fertility rate while improving the financial situation of families as well as increasing social prestige and the mental health and self-estimation of mothers through promoting a smoother and quicker return to work. The budget of the tender is 14.1 bn HUF.

4.9 Supporting labour market integration of disadvantaged persons

The tender called ‘Supporting labour market integration of disadvantaged persons by local means’ in the framework of HRDOP-1.1.7-17 commenced in May 2017. Its goal is to improve the labour market situation of persons with the involvement of non-governmental organisations having their headquarters or establishment in the less-developed regions of Hungary. The budget of the programme is 6.0 bn HUF.

4.10 Supporting the employment of disabled people

The call for tender ‘HRDOP-1.1.6-17 – Supporting the individual or in-group employment of disabled persons’ commenced in June 2017. The programme

ensures special competency and skill development as well as training opportunities for the target group in order to improve the efficiency of the employment of disadvantaged persons. The budget of the tender is 1.1 bn HUF.

4.11 Chance at home

The call for tender ‘Chance at home – HRDOP-1.2.11-16’ was published in May 2017. It provides support for young persons who live, originally come from, or would like to settle down in, settlements with 3,000–20,000 thousand inhabitants in disadvantaged regions. The support provides help to these young people in establishing their livelihood and family life. The budget of the programme is 11 bn HUF.

4.12 ‘Establishing workers’ accommodation’ central labour market programme

Central labour market programme ‘Establishing workers’ accommodation’ was published in January 2018 and provides support for the construction or renovation of buildings which are appropriate to ensure accommodation for at least 80 workers. The budget of the programme is 5 bn HUF.

4.13 Changes in connection with housing support in order to promote mobility

The maximum amount of the mobility support for workers provided by employers – introduced in 2017 – has, from 1st January 2018, significantly increased. The maximum tax-free amount of the support is equal to 60 percent of the minimum wage (instead of the former 40 percent) in the first 2 years of the employment; 40 percent in the next 2 years (instead of the former 25 percent); and 20 percent in the fifth year (instead of the former 15 percent). A further change is that – unlike the former rules – the support is also available for employees with a fixed-term contract as well as for temporary workers from 2018.¹⁴

4.14 Supporting the entrepreneurship of job-seekers and young persons

The call for tender on ‘Supporting the entrepreneurship of job-seekers and young persons – training and mentoring – EDIOP-5.2.7-17’ was published in June 2017 with the aim of encouraging job-seekers above the age of 30 and young persons below 30 to become entrepreneurs in greater numbers in Hungary. The budget of the programme is 6 bn HUF. In addition, in April 2017 ‘EDIOP-5.2.7-17 – Supporting youth entrepreneurship’ and ‘EDIOP 5-1-10-17 – Supporting the entrepreneurship of job-seekers’ tenders were published. EDIOP 5.2.7-17 is targeting enterprises established by young persons at the age of 18–25 registered in the Youth Guarantee System or young persons at

¹⁴ Act 77 of 2017 on the modification of certain acts on taxation and other related laws.

the age of 25–30 registered as job-seekers. At the same time EDIOP 5.1.10-17 targeted individual undertakings and companies established by registered job-seekers above the age of 30. The goal of both programmes is to prepare participants to start their own business (as self-employer or in the form of a micro-enterprise). The budget of EDIOP-5.2.7 was 16 bn HUF while of EDIOP-5.1.10-17 it was 8 bn HUF.

4.15 Development of digital labour market competencies in the Central Hungary region

The programme ‘Development of digital labour market competencies in the Central Hungary region – CCHOP-8.5.4-17’ commenced in June 2017 and aims at improving digital competencies of the population in order to improve labour market performance. The budget of the programme is 1.3 bn HUF.

4.16 Job retention support – in order to maintain employment capacity of enterprises facing transitional challenges

In the framework of the programme called ‘Immediate action’ the call for tender ‘Support for job retention in order to maintain the employment capacity of enterprises facing transitional challenges’ (ACS_MEGŐRZŐ) was published in January 2018. The aim of the programme is to ensure the uninterrupted employment of the workforce by supporting the employment of those affected by mass dismissals. The budget of the programme is 3.9 bn HUF.

5 POLICY TOOLS AFFECTING THE LABOUR MARKET

5.1 Changes in connection with the minimum wage and the guaranteed wage minimum¹⁵

As from 1st January 2018 the amount of the minimum wage of full-time employees increased from 127,500 HUF to 138,000 HUF while the amount of the guaranteed wage minimum for skilled workers (in a job with a minimum qualification requirement of general or vocational secondary education) increased from 161,000 HUF to 180,500 HUF in the case of full-time employment.¹⁶

Based on a modification in November 2017 the Government has been entitled to establish a differentiated minimum wage and a guaranteed wage minimum for certain groups of employees. ‘Necessary requirements for the fulfilment of the job, the characteristics of the national labour market and the situation of the national economy as well as the attributes of certain economic sectors and the labour market characteristics of certain geographical areas’ have to be taken into account in the determination of the minimum wage and the guaranteed wage minimum.¹⁷ In addition, the modification declares that in the case of a performance-based wage the amount of the earn-

15 There are two types of minimum wage in Hungary, the minimum wage and the guaranteed wage minimum (for skilled workers). Employees in jobs with at least minimum secondary or vocational secondary qualification requirements are entitled for the guaranteed wage minimum

16 Government Decree 430/2016 of 15th December.

17 Act 159 of 2017 Article 202.

ings has to achieve the minimum wage or the guaranteed wage minimum on the condition of fulfilling 100 percent of the performance standards in case of full-time employment.¹⁸

5.2 Transformation of the tax and contribution system

5.2.1 *Decreasing of the social contribution tax and health contribution*

With reference to the favourable economic situation – and the slightly modified original plans of the Autumn Tax Package¹⁹ of 2016 – the rates of the social contribution tax and the health contribution paid by employers was further reduced from the former 22 percent to 19.5 percent each.²⁰

5.2.2 *Modifications in the personal income tax and the transformation of the cafeteria system*

The scale of tax-free benefits was complemented by the following items from 2018:

- The proportion of tax-free housing allowance was modified (see under point 4.13);
- In-hand benefits (e.g. meals, travel reimbursement) of vocational training participants became tax-free during the practical training;²¹
- Benefits provided to individuals participating in supported adult training, labour market training or labour market programme in order to promote social inclusion;²²
- Tax-free benefits were complemented by the support for student loan repayment up to a monthly amount equivalent to 20 percent of the minimum wage.²³

5.3 Student's summer job

The Ministry for National Economy published the students' summer work programme also in 2017. The programme (with a budget of 2.3 bn HUF) supported the employment of those young persons between the age of 16 and 25 at territorial and local municipalities or other institutions maintained by the municipality. The programme – besides the financial gain – could also help students fulfil a compulsory professional traineeship. Between 1st July and 31st August approximately 25–30 thousand young persons participated in the programme. With a daily maximum working time of 6 hours participants with a vocational qualification were provided with 120,750 HUF while without a vocational qualification 95,625 HUF per month.²⁴

18 Act 159 of 2017 Article 202.

19 Act 66 of 2016 on the modification of certain acts on taxation and other related laws, and Act 122 of 2010 on the modification of the National Tax and Customs Administration.

20 Act 156 of 2017 on the decrease of the social contribution tax and the modification of related laws. Social contribution tax and health contribution are both 20 percent according to Act 182 of 2016.

21 Act 77 of 2017 on the modification of certain acts on taxation and other related laws.

22 Act 77 of 2017 on the modification of certain acts on taxation and other related laws.

23 Éva Kelemen (Petricskóné) 2018: Cafeteria 2018, Tax journal, No. 3.

24 For information see page kormany.hu.

Annex

Table F1: Expenditures and revenues of the tight section of employment policy in the national budget, 2012–2018 (m HUF)*

	2012	2013	2014	2015	2015	2016	2016	2017	2018
	actual	actual	actual	plan	actual	plan	actual	plan	plan
Expenditures									
1. Active subsidies									
Employment and training subsidies	22,017.2	25,105.9	28,120.8	14,000.0	12,302.4	16,172.0	27,503.9	16,172.0	35,000.0
Co-financing EU-funded employability (and adaptability) projects	6,967.0	16,279.6	17,130.1	11,064.6	11,064.6	3,808.7	3,808.7		
Public work (START work programme)	131,910.7	171,053.4	225,471.1	270,000.0	253,723.3	340,000.0	267,965.7	325,000.0	225,000.0
SR0P 1.1. Labour market services and support	29,772.3	33,804.9	35,790.1	7,500.0	12,305.1	54.5	79.5		
SR0P 1.2 Normative supports in order to promote employment	16,250.1	14,477.3	1,080.1						
EDIOP 5. Employment priority – annual published budget								81,600.0	7,800.0
Out of which source of CCHOP								1,000.0	
EDIOP 6. competitive workforce – budget published in the given year								74,380.0	
Reimbursement of social security contribution relief	4,784.1	3,277.5	551.5						
Pre-financing labour market programmes 2014–2020			0.0	49,200.0	13,654.9	54,700.0	50,101.3	74,116.4	84,300.0
2. Vocational and adult training subsidies	16,516.0	18,736.2	24,725.9	16,000.0	30,084.7	13,819.0	27,872.0	20,000.0	29,930.0
4. Passive expenditures									
Job search benefits and assistances	64,067.2	51,819.9	49,235.0	50,000.0	49,657.7	47,000.0	53,454.1	47,000.0	55,000.0
Transfer to Pension Insurance Fund	907.0	961.3	451.6	400.0	309.1	0.0			
5. Payments from Wage Guarantee Fund	6,606.6	5,487.8	4,178.5	6,150.0	3,790.7	4,950.0	3,994.3	4,000.0	4,000.0
6. Operational expenditures	100.0	1,472.8	2,418.3	3,050.0	2,816.0	3,283.4	2,899.3	3,500.0	2,900.0
7. Other budget contribution									
15. Headline stability reserves						389.5	389.5		
Supplementary subsidies for employers	5,222.9								
16. Sectoral subsidy for minimum wage increase		7,000.0	9.1						
17. Other expenditures		22.3							
Total expenditures	305,121.1	349,498.9	389,162.1	427,364.6	389,708.5	484,177.1	438,068.3	645,768.4	443,930.0

(Please find Revenues on the next page.)

	2012	2013	2014	2015	2015	2016	2016	2017	2018
	actual	actual	actual	plan	actual	plan	actual	plan	plan
Revenues									
25. Revenues of SROP programmes**	42,827.3	51,276.1	39,776.7	43,000.0	22,466.1	51,700.0	46,365.0	60,000.0	70,400.0
26. Other revenues									
Other revenues, regional	559.0	602.3	1,507.8	1,000.0	1,290.8	1,000.0	1,839.5	1,000.0	1,000.0
Other revenues, national	1,113.6	1,376.8	2,537.1	1,000.0	901.5	1,000.0	1,745.6	1,000.0	1,000.0
Other revenues from adult and vocational training	1,020.1	692.6	216.8	800.0	10,147.6	800.0	2,169.2	800.0	800.0
31. Vocational training contribution	80,352.5	60,398.7	60,910.8	63,134.0	65,308.2	56,996.1	70,327.6	60,706.7	74,436.3
33. Redemption of wage guarantee subsidies	792.0	1,046.1	934.5	1,000.0	663.6	1,000.0	424.6	1,000.0	1,000.0
34. Debt management revenues (technical)									
35. Part of health and labour market contributions payable to the National Employment Fund	127,096.6	125,614.6	135,819.4	141,772.9	144,953.2	150,476.4	155,369.2	165,801.9	194,169.2
36. Funding from the national budget	71,273.8	20,000.0		8,449.0	8,449.0	95,000.0	31,023.3		25,000.0
38. Part of social contribution tax payable to the National Employment Fund	67,284.5						68,605.5	217,539.6	0.0
Contribution related to the Job Protection Action Plan		91,542.7	95,936.7	100,541.7	100,541.7	105,769.9	52,884.9		
Total revenues	392,319.4	352,549.9	337,639.8	360,697.6	354,721.7	463,742.4	430,754.4	507,848.2	367,805.5
Pending items	270.3	-964.6							
Changes of deposits	87,468.6	-2,086.4							
Total	393,040.4	351,560.1	389,162.1	427,364.6	354,721.7	484,177.1	430,754.4	507,848.2	367,805.5
Total revenues at 2012 prices (deflated by the consumer price index)	393,040.4	345,683.5	383,423.8	421,484.5	349,841.1	475,612.8	423,135.1	487,173.1	352,831.7

* The ordinal numbers in the table correspond to the title numbers identifying the headlines of the national budget.

** Regarding 2017 and it includes the revenue 'Reimbursement of the expenditures of the pre-financed EU programmes'.

Source: The act on the central budget of Hungary (plan) and the act on the implementation of the central budget of the given year (actual); regarding 2013 the amount of 153,779.8 million HUF was modified by the provisions of Government Decisions No. 1507/2013 of 1st August and 1783/2013 of 4th November with an additional budget of 26,116 million HUF to public work; regarding the plan of 2014 the original amount of 183,805.3 million HUF was modified by Government Decision 1361/2014 of 30th June (allocating an additional budget of 47,300 million HUF to public works). Revised regarding plan of 2017 by the provisions of Act 84/2017 'On the modification of Act 110/2016 on the 2016 Central Budget of Hungary'. The source of the expenses of the EDIOP is Government Decision No. 1006/2016 of 18th January on the determination of the annual development framework of the Economic Development and Innovation Operational Programme and further Government Decisions on its modification.



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: http://adatbank.krtk.mta.hu/tukor_kereso. We inform the reader tables based on Wage survey data are not updated. Data for 2017 and 2018 will be available in 2019.

- 1 Basic economic indicators
- 2 Population
- 3 Economic activity
- 4 Employment
- 5 Unemployment
- 6 Wages
- 7 Education
- 8 Labour demand indicators
- 9 Regional inequalities
- 10 Industrial relations
- 11 Welfare provisions
- 12 The tax burden on work
- 13 International comparison
- 14 Description of the main data sources

DATA SOURCES

CIRCA	Communication & Information Resource Centre Administrator
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]
NAV	National Tax and Customs Administration [Nemzeti Adó- és Vámhivatal]
NEFMI	Ministry of National Resources [Nemzeti Erőforrás Minisztérium]
NEFMI EMMI STAT	Ministry of National Resources, Educational Statistics [Nemzeti Erőforrás Minisztérium, Oktatásstatisztika]
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]
NGM	Ministry of National Economy [Nemzetgazdasági Minisztérium]
NMH	National Labour Office [Nemzeti Munkaügyi Hivatal]
NSZ	Population Census [Népszámlálás]
NYUFIG	Pension Administration [Nyugdíjfolyósító Igazgatóság]
ONYF	Central Administration of National Pension Insurance [Országos Nyugdíjbiztosítási Főigazgatóság]
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
1990	96.5	90.7	95.9	94.8	94.3	97.2	128.9	..
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	103.8	103.7	107.7	104.0	106.4	100.3	109.2	5.7
2002	104.5	103.2	105.9	105.1	113.6	100.1	105.3	5.8
2003	103.8	106.9	109.1	110.1	109.2	101.3	104.7	5.9
2004	105.0	107.8	118.4	115.2	98.9	99.4	106.8	6.1
2005	104.4	106.8	111.5	106.1	106.3	100.0	103.6	7.2
2006	103.9	109.9	118.0	114.4	103.6	100.7	103.9	7.5
2007	100.4	107.9	115.8	112.0	95.4	99.3	108.0	7.4
2008	100.9	100.0	104.2	104.3	100.8	98.6	106.1	7.8
2009	93.4	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	101.7	105.6	109.9	106.7	102.4	100.7	103.9	11.0
2012	98.4	98.2	100.7	99.9	96.6	101.8	105.7	11.0
2013	102.1	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	103.4	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	104.0	104.8	105.8	108.2	110.3	101.6	102.4	4.2

^a After 1996 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).

^b 1990–2000: those with more than 5 employees, 2001–: excluding water and waste management, including businesses with fewer than 5 employees.

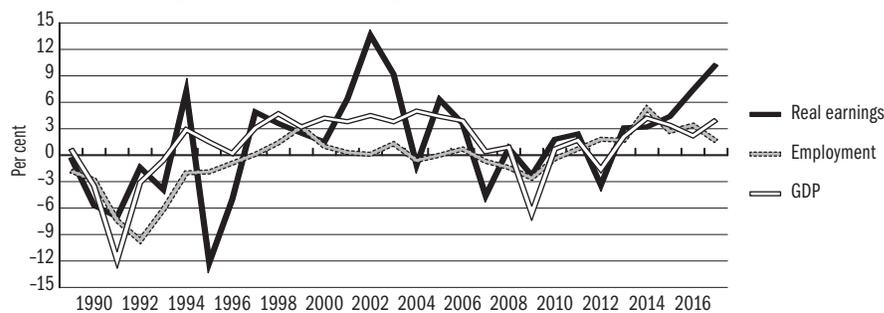
^c Volume index.

Note: Previous year = 100, except for unemployment rate.

Source: GDP: *STADAT* (2018.05.06. version), 2017: preliminary data; Industrial production index: 2001–: *STADAT* (2018.06.13. version); Export and import: 2001–: *STADAT* (2018.03.02. version); Real earnings: 1995–: *STADAT* (2018.02.20. version); Employment: 1990: *KSH MEM*; 1995–: *KSH MEF* (2018.03.06. version). Consumer price index: 1990–: *STADAT* (2018.01.12. version). Unemployment rate: *STADAT* (2018.03.06. version). Other data: *KSH*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent01_01

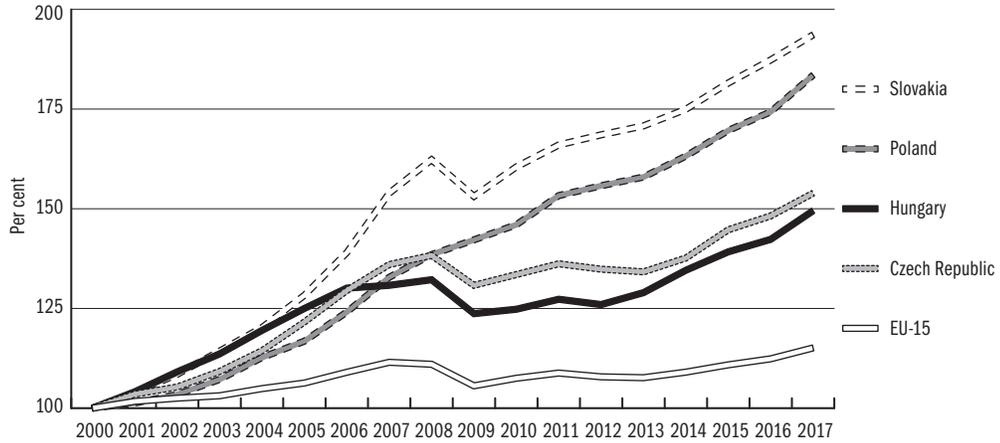
Figure 1.1: Annual changes of basic economic indicators



Source: *KSH*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ena01_01

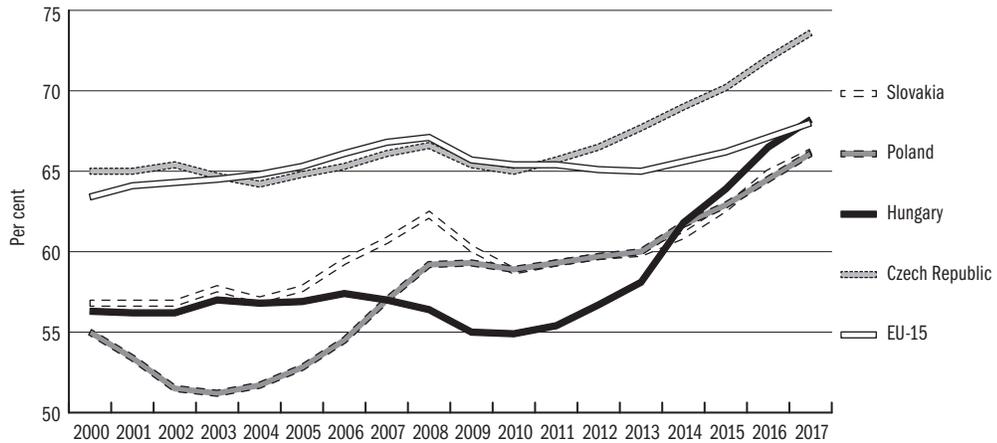
Figure 1.2: Annual GDP time series (2000 = 100%)



Source: Eurostat.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ena01_02

Figure 1.3: Employment rate of population aged 15-64



Source: Eurostat.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ena01_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
2000	10,221	98.5	-0.3	6,961.3	0.47	0.21
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

^a January 1st. The data for 2000–2011 are estimates based on the 2001 census and demographic data (reference date 2001.02.01.). Those for 2012–2016 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* (2018.06.29. version)

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent02_01

Table 2.2: Population by age groups, in thousands^a

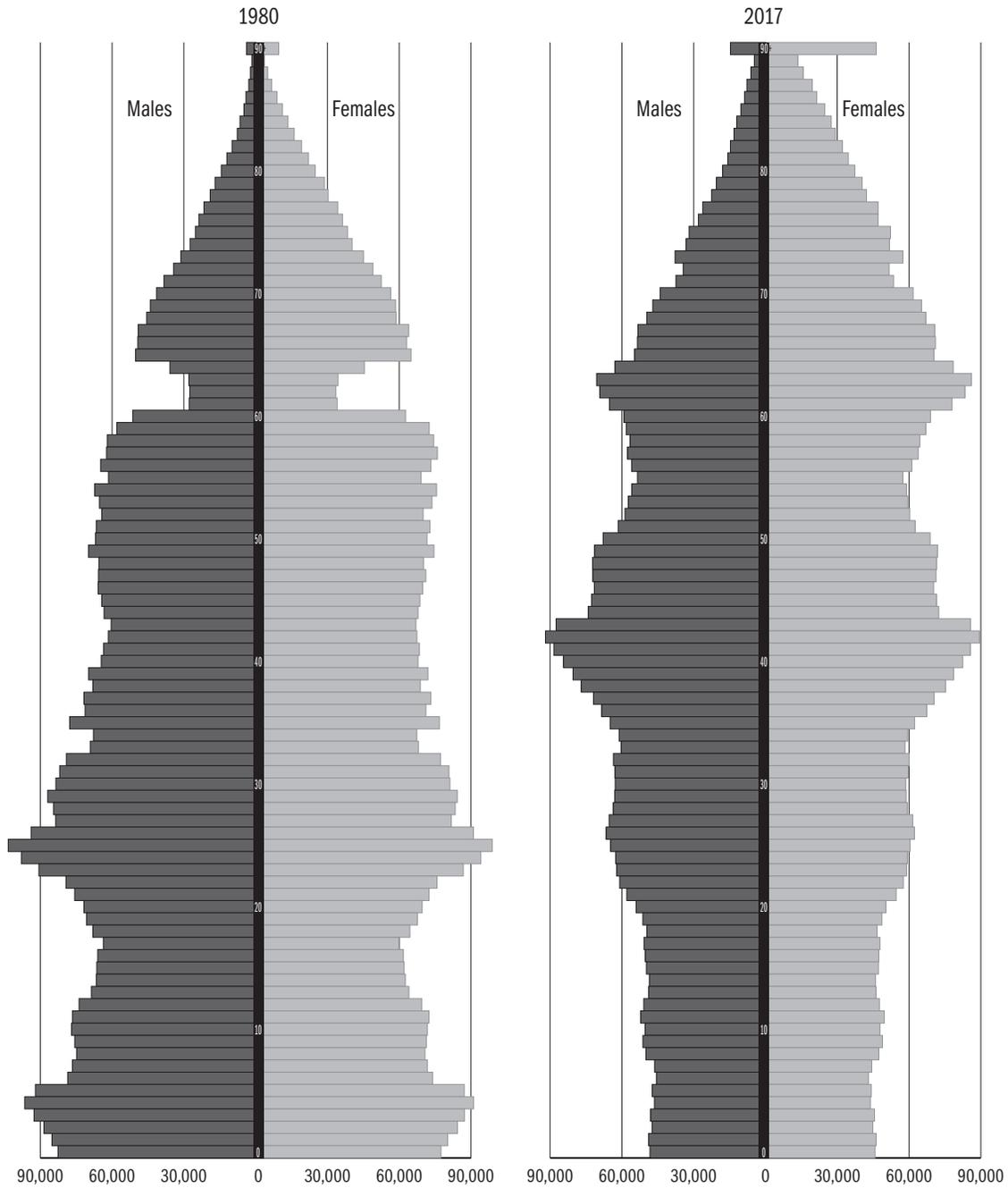
Year	0-14	15-24	25-54	55-64	65+	Total
	years old					
2000	1,729.2	1,526.5	4,291.4	1,143.4	1,531.1	10,221.6
2005	1,579.7	1,322.0	4,409.1	1,209.2	1,577.6	10,097.6
2006	1,553.5	1,302.0	4,399.8	1,230.0	1,590.7	10,076.6
2007	1,529.7	1,285.9	4,393.9	1,251.5	1,605.1	10,066.1
2008	1,508.8	1,273.3	4,377.1	1,262.3	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

^a January 1st. The data for 2000–2011 are estimates based on the 2001 census and demographic data (reference date 2001.02.01.). Those for 2012–2016 are estimates based on the 2011 census (reference day 2011.10.01.) and demographic data.

Source: *KSH STADAT* (2018.06.29. version)

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent02_02

Figure 2.1: Age structure of the Hungarian population, 1980, 2017



Source: *KSH*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ena02_01

Table 2.3: Male population by age groups, in thousands^a

Year	years old					Total
	0-14	15-24	25-59	60-64	65+	
2000	885.0	780.9	2,403.8	224.8	570.8	4,865.2
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

^a January 1st. The data for 2000–2011 are estimates based on the 2001 census and demographic data (reference date 2001.02.01.). Those for 2012–2016 are estimates based on the 2011 census (reference day 2011.10.01.) and demographic data.

Source: *KSH STADAT* (2018.06.29. version)

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent02_03

Table 2.4: Female population by age groups, in thousands^a

Year	years old					Total
	0-14	15-24	25-54	55-59	60+	
2000	844.3	745.6	2,170.5	334.8	1,261.3	5,356.5
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

^a January 1st. The data for 2000–2011 are estimates based on the 2001 census and demographic data (reference date 2001.02.01.). Those for 2012–2016 are estimates based on the 2011 census (reference day 2011.10.01.) and demographic data.

Source: *KSH STADAT* (2018.06.29. version)

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent02_04

STATISTICAL DATA

 Table 3.1: Labour force participation of the population over 14 years, in thousands^a

Year	Population of males 15-59 and females 15-54							Population of males over 59 and females over 54				
	Employed	Unem- ployed	Inactive				Total	Employed	Unem- ployed	Pensioner, other inactive	Total	
			Pensioner	Full time student	On child care leave	Other inactive						Inactive total
1980	4,887.9	0.0	300.8	370.1	259.0	339.7	1,269.6	6,157.5	570.3	0.0	1,632.1	2,202.4
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

^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: 1980–91: *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/2018ent03_01

Table 3.2: Labour force participation of the population over 14 years, males, in thousands^a

Year	Population of males 15-59							Population of males 60 and over				
	Employed	Unem- ployed	Inactive				Total	Employed	Unem- ployed	Pensioner, other inactive	Total	
			Pensioner	Full time student	On child care leave	Other inactive						Inactive total
1980	2,750.5	0.0	173.8	196.3	0.0	99.1	469.2	3,219.7	265.3	0.0	491.8	757.1
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

^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: 1980-91: *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/2018ent03_02

STATISTICAL DATA

Table 3.3: Labour force participation of the population over 14 years, females, in thousands^a

Year	Population of females 15-54							Population of females 55 and above				
	Employed	Unem- ployed	Inactive				Total	Employed	Unem- ployed	Pensioner, other inactive	Total	
			Pensioner	Full time student	On child care leave	Other inactive						Inactive total
1980	2,137.4	0.0	127.0	173.8	259.0	240.6	800.4	2,937.8	305.0	0.0	1,140.3	1,445.3
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

^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: 1980–91: *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/2018ent03_03

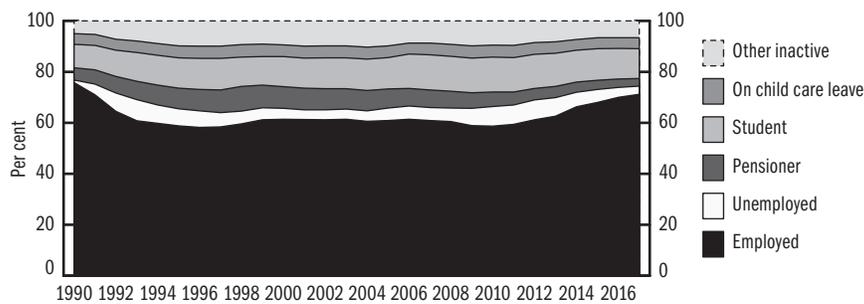
Table 3.4: Labour force participation of the population over 14 years, per cent

Year	Population of males 15-59 and females 15-54							Population of males over 59 and females over 54				
	Employed	Unem- ployed	Inactive				Total	Employed	Unem- ployed	Pensioner, other inactive	Total	
			Pensioner	Full time student	On child care leave	Other inactive						
1980	79.4	0.0	4.9	6.0	4.2	5.5	20.6	100.0	25.9	0.0	74.1	100.0
1990	75.9	1.0	4.8	9.2	4.2	5.0	23.1	100.0	15.1	0.0	84.9	100.0
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
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

Source: Pensioners: 1980-90: *NYUFIG*, 1995-: *KSH MEF*. Child care recipients: up to the year 1995 *TB* and estimation, after 1995 *MEF*. Unemployment: 1990: *NFSZ REG*, 1995-: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent03_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

STATISTICAL DATA

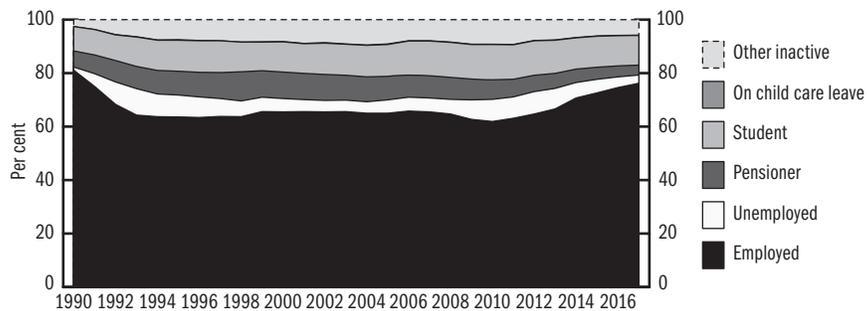
Table 3.5: Labour force participation of the population over 14 years, males, per cent

Year	Population of males 15-59							Population of males 60 and above				
	Employed	Unem- ployed	Inactive				Total	Employed	Unem- ployed	Pensioner, other inactive	Total	
			Pensioner	Full time student	On child care leave	Other inactive						
1980	85.4	0.0	5.4	6.1	0.0	3.1	14.6	100.0	35.0	0.0	65.0	100.0
1990	81.0	1.2	6.0	9.1	0.0	2.6	17.8	100.0	15.7	0.0	84.3	100.0
1995	63.6	8.2	8.9	11.6	0.2	7.5	28.2	100.0	4.7	0.3	95.0	100.0
1996	63.4	7.7	9.2	11.8	0.1	7.8	28.9	100.0	3.7	0.2	96.1	100.0
1997	63.7	6.7	9.7	11.9	0.0	7.9	29.6	100.0	3.3	0.2	96.4	100.0
1998	63.7	5.9	10.9	11.1	0.0	8.4	30.4	100.0	3.4	0.4	96.2	100.0
1999	65.5	5.4	9.9	10.7	0.1	8.3	29.1	100.0	4.6	0.1	95.4	100.0
2000	65.5	5.0	9.9	11.3	0.1	8.2	29.5	100.0	5.0	0.1	94.9	100.0
2001	65.6	4.5	9.8	11.1	0.1	8.9	29.9	100.0	5.1	0.1	94.8	100.0
2002	65.5	4.3	9.7	11.7	0.2	8.6	30.1	100.0	5.6	0.1	94.3	100.0
2003	65.5	4.3	9.3	11.6	0.1	9.1	30.1	100.0	6.5	0.1	93.4	100.0
2004	65.0	4.3	9.3	11.8	0.1	9.5	30.7	100.0	7.8	0.1	92.1	100.0
2005	64.9	5.0	8.8	11.9	0.2	9.1	30.0	100.0	7.9	0.1	92.0	100.0
2006	65.8	5.2	8.2	12.8	0.1	7.9	29.0	100.0	7.2	0.1	92.6	100.0
2007	65.5	5.2	8.3	13.0	0.1	7.9	29.3	100.0	7.4	0.1	92.5	100.0
2008	64.7	5.5	8.3	13.0	0.1	8.4	29.8	100.0	7.0	0.1	92.8	100.0
2009	62.6	7.3	7.7	13.0	0.1	9.2	30.1	100.0	7.3	0.2	92.5	100.0
2010	61.8	8.3	7.3	13.2	0.1	9.2	29.8	100.0	7.2	0.3	92.6	100.0
2011	63.1	8.0	6.6	12.9	0.1	9.3	28.9	100.0	7.8	0.3	91.9	100.0
2012	64.6	8.4	6.1	12.9	0.1	7.8	27.0	100.0	7.6	0.4	92.0	100.0
2013	66.6	7.7	5.6	12.4	0.1	7.6	25.7	100.0	8.7	0.5	90.8	100.0
2014	70.7	5.8	5.0	11.7	0.1	6.7	23.6	100.0	10.4	0.9	88.7	100.0
2015	72.5	5.1	4.5	11.6	0.1	6.1	22.4	100.0	13.3	1.0	85.7	100.0
2016	74.6	4.0	4.1	11.3	0.1	5.9	21.4	100.0	16.8	0.8	82.3	100.0
2017	76.3	3.1	3.7	11.1	0.1	5.8	20.6	100.0	18.4	0.6	81.0	100.0

Source: Pensioners: 1980-90: *NYUFIG*, 1995-: *KSH MEF*. Child care recipients: up to the year 1997 *TB* and estimation, after 1997 *MEF*. Unemployment: 1990: *NFSZ REG*, 1995-: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent03_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*.

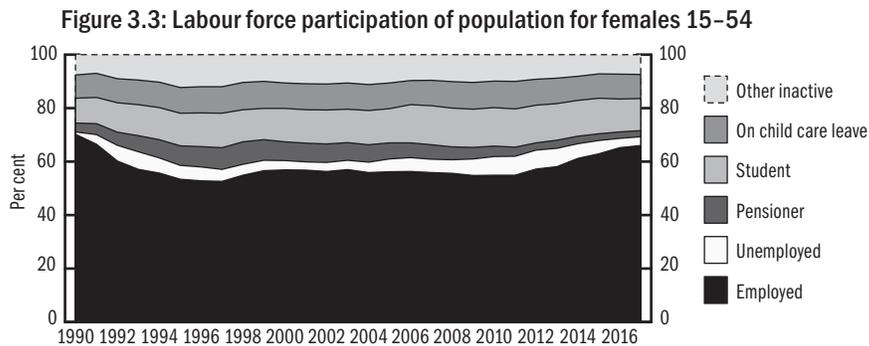
Online data source in xls format: http://www.bpdata.eu/mpt/2018ena03_02

Table 3.6: Labour force participation of the population over 14 years, females, per cent

Year	Population of females 15-54							Population of females 55 and above				
	Employed	Unem- ployed	Inactive				Total	Employed	Unem- ployed	Pensioner, other inactive	Total	
			Pensioner	Full time student	On child care leave	Other inactive						Inactive total
1980	72.8	0.0	4.3	5.9	8.8	8.2	27.2	100.0	21.1	0.0	78.9	100.0
1990	70.3	0.9	3.3	9.3	8.7	7.6	28.9	100.0	14.8	0.0	85.2	100.0
1995	53.4	5.2	7.3	12.2	9.6	12.3	41.4	100.0	4.7	0.3	95.1	100.0
1996	52.8	5.2	7.6	12.6	9.8	12.0	42.0	100.0	4.8	0.3	94.9	100.0
1997	52.6	4.5	8.1	12.9	9.9	12.0	42.9	100.0	4.7	0.3	95.0	100.0
1998	55.0	4.1	8.4	12.0	10.2	10.4	40.9	100.0	4.1	0.3	95.6	100.0
1999	56.6	3.9	7.7	11.7	10.1	10.0	39.5	100.0	4.9	0.1	95.0	100.0
2000	56.9	3.5	7.0	12.5	9.5	10.6	39.5	100.0	5.7	0.1	94.2	100.0
2001	56.8	3.1	7.0	12.5	9.7	10.9	40.1	100.0	6.2	0.1	93.7	100.0
2002	56.4	3.4	6.9	12.7	9.7	11.0	40.2	100.0	7.3	0.2	92.5	100.0
2003	56.9	3.5	6.6	12.5	9.8	10.6	39.6	100.0	9.2	0.2	90.6	100.0
2004	56.0	3.9	6.5	12.8	9.7	11.2	40.2	100.0	10.4	0.3	89.3	100.0
2005	56.2	4.8	6.0	12.8	9.6	10.6	38.9	100.0	10.8	0.4	88.8	100.0
2006	56.3	5.2	5.5	14.3	9.0	9.7	38.5	100.0	11.1	0.4	88.5	100.0
2007	55.9	5.0	5.4	14.6	9.5	9.6	39.1	100.0	11.1	0.4	88.4	100.0
2008	55.7	5.1	4.8	14.5	9.9	10.1	39.2	100.0	11.1	0.6	88.4	100.0
2009	54.7	6.2	4.3	14.3	10.0	10.4	39.1	100.0	11.6	0.7	87.7	100.0
2010	54.9	7.0	3.9	14.4	9.9	9.9	38.1	100.0	13.1	1.0	85.9	100.0
2011	54.8	7.1	3.4	14.3	10.3	10.0	38.1	100.0	14.2	1.2	84.6	100.0
2012	57.1	7.1	2.7	14.1	9.7	9.2	36.0	100.0	14.1	1.2	84.7	100.0
2013	58.0	6.9	3.0	13.7	9.5	8.8	35.1	100.0	14.0	1.1	84.9	100.0
2014	61.3	5.5	2.8	13.4	9.0	8.1	33.2	100.0	15.0	0.9	84.0	100.0
2015	62.9	5.0	2.5	13.3	9.1	7.2	32.1	100.0	15.9	0.9	83.2	100.0
2016	65.6	3.6	2.4	12.7	9.4	7.4	31.9	100.0	17.2	0.8	82.0	100.0
2017	66.6	3.3	2.3	12.4	9.2	7.6	30.2	100.0	17.3	0.7	81.9	100.0

Source: Pensioners: 1980–90: *NYUFIG*, 1995–: *KSH MEF*. Child care recipients: up to the year 1997 *TB* and estimation, after 1997 *MEF*. Unemployment: 1990: *NFSZ REG*, 1995–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent03_06



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/2018ena03_03

STATISTICAL DATA

Table 3.7: Population aged 15–64 by labour market status (self-categorised), in thousands

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Together												
In work	3,862.5	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
Unemployed	470.4	450.2	476.7	591.3	670.7	675.8	700.4	666.5	538.8	454.6	366.3	314.0
Students, pupils	846.3	861.1	863.7	854.8	854.6	842.2	811.2	772.5	733.5	710.3	675.6	650.4
Pensioner	622.9	592.2	635.6	627.6	599.3	582.0	630.3	613.6	557.5	477.5	420.1	392.6
Disabled	506.8	554.4	525.8	498.9	488.4	455.1	356.7	335.7	317.7	318.0	303.1	285.7
On child care leave	275.5	286.2	295.0	293.0	289.3	290.2	265.0	259.1	237.0	236.9	236.4	227.5
Dependent	115.2	111.9	104.0	101.9	95.3	104.3	93.1	96.9	85.3	91.7	93.7	93.2
Out of work for other reasons	107.7	101.8	101.7	104.9	78.2	78.9	89.1	78.0	78.4	81.9	84.1	84.9
Total	6,807.3	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
Males												
In work	2,106.3	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
Unemployed	251.6	242.0	255.8	333.6	375.6	372.2	382.9	364.4	283.7	241.4	198.9	159.4
Students, pupils	418.3	428.4	431.7	430.6	432.7	427.2	416.1	393.4	366.9	354.3	338.2	329.1
Pensioner	234.9	217.4	243.4	246.2	245.6	243.7	254.9	236.7	209.7	167.1	133.1	118.3
Disabled	243.0	269.4	257.9	238.2	234.6	215.7	177.1	161.6	152.5	152.0	149.4	137.8
On child care leave	5.6	4.3	5.6	5.7	6.7	4.5	4.1	4.1	3.1	2.9	3.8	1.9
Dependent	5.4	6.3	6.8	6.8	9.6	10.0	7.0	9.8	8.3	9.4	8.9	7.8
Out of work for other reasons	55.1	51.8	51.6	49.8	36.1	35.8	40.8	37.1	36.0	39.8	39.2	38.4
Total	3,320.2	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
Females												
In work	1,756.3	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
Unemployed	218.8	208.3	220.9	257.6	295.1	303.6	317.5	302.1	255.0	213.2	167.4	154.5
Students, pupils	428.0	432.7	432.0	424.2	421.9	415.0	395.1	379.0	366.6	356.0	337.4	321.3
Pensioner	388.0	374.8	392.2	381.4	353.7	338.2	375.4	376.9	347.8	310.3	287.0	274.3
Disabled	263.9	285.0	267.9	260.7	253.8	239.5	179.6	174.1	165.2	166.0	153.7	147.9
On child care leave	269.9	281.9	289.4	287.3	282.6	285.7	260.9	255.0	233.8	233.9	232.6	225.6
Dependent	109.7	105.6	97.2	95.1	85.7	94.3	86.1	87.2	77.0	82.3	84.7	85.4
Out of work for other reasons	52.6	50.0	50.1	55.1	42.1	43.1	48.3	40.9	42.4	42.2	44.9	46.5
Total	3,487.1	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

Source: KSH MEF.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent03_07

Table 3.8: Population aged 15–64 by labour market status (self-categorised), per cent

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Together												
In work	56.7	56.4	55.7	54.5	54.3	54.9	56.0	57.5	61.3	63.7	66.4	68.1
Unemployed	6.9	6.6	7.0	8.8	10.0	10.1	10.5	10.0	8.2	7.0	5.7	4.9
Students, pupils	12.4	12.7	12.8	12.7	12.7	12.5	12.1	11.6	11.1	10.9	10.4	10.1
Pensioner	9.2	8.7	9.4	9.3	8.9	8.7	9.4	9.2	8.5	7.3	6.5	6.1
Disabled	7.4	8.2	7.8	7.4	7.3	6.8	5.3	5.1	4.8	4.9	4.7	4.5
On child care leave	4.0	4.2	4.4	4.3	4.3	4.3	4.0	3.9	3.6	3.6	3.6	3.5
Dependent	1.7	1.6	1.5	1.5	1.4	1.6	1.4	1.5	1.3	1.4	1.4	1.5
Out of work for other reasons	1.6	1.5	1.5	1.6	1.2	1.2	1.3	1.2	1.2	1.3	1.3	1.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Males												
In work	63.4	63.2	62.1	60.3	59.4	60.3	61.0	63.1	67.3	70.0	72.8	75.0
Unemployed	7.6	7.3	7.7	10.1	11.4	11.3	11.6	11.1	8.7	7.5	6.2	5.0
Students, pupils	12.6	12.9	13.0	13.0	13.1	13.0	12.6	12.0	11.3	11.0	10.6	10.4
Pensioner	7.1	6.6	7.4	7.4	7.4	7.4	7.7	7.2	6.5	5.2	4.2	3.7
Disabled	7.3	8.1	7.8	7.2	7.1	6.5	5.4	4.9	4.7	4.7	4.7	4.3
On child care leave	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Dependent	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.2
Out of work for other reasons	1.7	1.6	1.6	1.5	1.1	1.1	1.2	1.1	1.1	1.2	1.2	1.2
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
Females												
In work	50.4	50.0	49.5	48.9	49.5	49.8	51.1	52.1	55.5	57.6	60.1	61.2
Unemployed	6.3	6.0	6.4	7.5	8.6	8.9	9.3	9.0	7.6	6.4	5.1	4.8
Students, pupils	12.3	12.5	12.5	12.3	12.3	12.1	11.6	11.2	11.0	10.8	10.3	9.9
Pensioner	11.1	10.8	11.3	11.1	10.3	9.9	11.0	11.2	10.4	9.4	8.8	8.5
Disabled	7.6	8.2	7.7	7.6	7.4	7.0	5.3	5.2	4.9	5.0	4.7	4.6
On child care leave	7.7	8.1	8.4	8.3	8.2	8.3	7.7	7.6	7.0	7.1	7.1	7.0
Dependent	3.1	3.0	2.8	2.8	2.5	2.8	2.5	2.6	2.3	2.5	2.6	2.6
Out of work for other reasons	1.5	1.4	1.4	1.6	1.2	1.3	1.4	1.2	1.3	1.3	1.4	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

Source: KSH MEF.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent03_08

Table 4.1: Employment

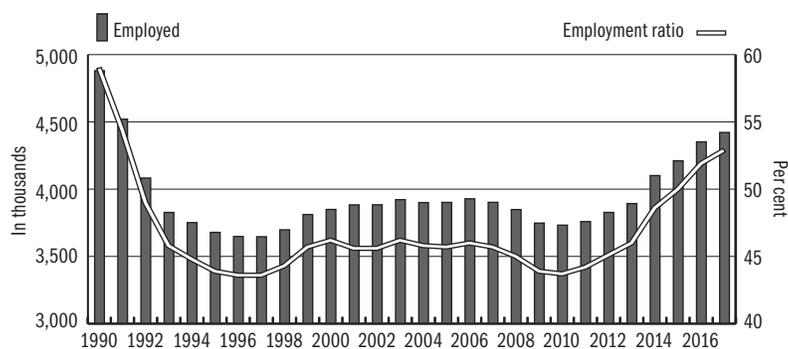
Year	In thousands	1992 = 100	Annual changes	Employment ratio ^a
1990	4,880.0	119.5	..	59.0
1991	4,520.0	110.7	-7.4	54.4
1992	4,082.7	100.0	-9.7	49.0
1993	3,827.0	93.7	-6.2	45.8
1994	3,751.5	91.9	-2.0	44.8
1995	3,678.8	90.1	-1.9	43.9
1996	3,648.2	89.4	-0.9	43.6
1997	3,646.4	89.3	0.0	43.6
1998	3,697.8	90.6	1.4	44.3
1999	3,811.4	93.4	3.2	45.7
2000	3,849.1	94.3	1.0	46.2
2001	3,883.3	95.1	0.3	45.6
2002	3,883.7	95.1	0.0	45.6
2003	3,921.9	96.1	1.2	46.2
2004	3,900.4	95.5	-0.5	45.8
2005	3,901.5	95.6	0.0	45.7
2006	3,928.4	96.2	0.7	46.0
2007	3,902.0	95.6	-0.7	45.7
2008	3,848.3	94.3	-1.4	45.0
2009	3,747.8	91.8	-2.6	43.9
2010	3,732.4	91.4	-0.4	43.7
2011	3,759.0	92.1	0.7	44.2
2012	3,827.2	93.7	1.8	45.1
2013	3,892.8	95.3	1.7	46.0
2014	4,100.9	100.4	5.3	48.6
2015	4,210.5	103.1	2.7	50.0
2016	4,351.7	106.7	3.4	51.9
2017	4,421.4	108.3	1.6	52.9

^a Per cent of the population over 14 years of age.

Source: 1990–91: *KSH MEM*, 1992–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent04_01

Figure 4.1: Employed



Source: 1990–91: *KSH MEM*, 1992–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ena04_01

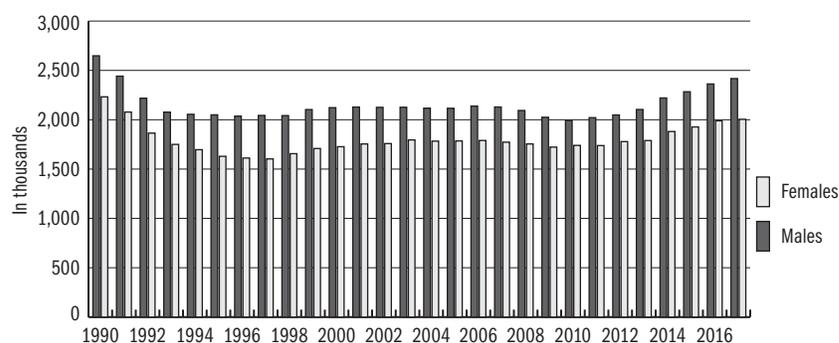
Table 4.2: Employment by gender

Year	Males		Females		Share of females (%)
	In thousands	1992 = 100	In thousands	1992 = 100	
1990	2,648.0	119.4	2,232.0	119.7	45.7
1991	2,442.0	110.1	2,078.0	111.5	46.0
1992	2,218.2	100.0	1,864.5	100.0	45.7
1993	2,077.0	93.6	1,750.0	93.9	45.7
1994	2,055.0	92.6	1,696.5	91.0	45.2
1995	2,049.6	92.4	1,629.2	87.4	44.3
1996	2,036.3	91.8	1,611.9	86.5	44.2
1997	2,043.5	92.1	1,602.9	86.0	44.0
1998	2,041.7	92.0	1,656.1	88.8	44.8
1999	2,103.1	94.8	1,708.4	91.6	44.8
2000	2,122.4	95.7	1,726.7	92.6	44.9
2001	2,128.7	96.0	1,754.6	94.1	45.2
2002	2,125.6	95.8	1,758.1	94.3	45.3
2003	2,126.5	95.6	1,795.4	96.2	45.8
2004	2,117.3	95.5	1,783.1	95.6	45.7
2005	2,116.1	95.4	1,785.4	95.8	45.8
2006	2,138.6	96.4	1,789.8	96.0	45.6
2007	2,129.3	96.0	1,772.7	95.1	45.4
2008	2,093.6	94.4	1,754.7	94.1	45.6
2009	2,025.1	91.3	1,722.8	92.4	46.0
2010	1,992.5	89.8	1,739.8	93.3	46.6
2011	2,021.0	91.1	1,738.0	93.2	46.2
2012	2,048.8	92.4	1,778.4	95.4	46.5
2013	2,103.7	94.8	1,789.0	96.0	46.0
2014	2,220.5	100.1	1,880.4	100.9	45.9
2015	2,283.5	103.0	1,927.0	103.4	45.8
2016	2,362.5	106.5	1,989.1	106.7	45.7
2017	2,417.3	109.0	2,004.1	107.5	45.3

Source: 1990–91: *KSH MEM*, 1992–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent04_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/2018ena04_02

STATISTICAL DATA

Table 4.3: Composition of the employed by age groups, males, per cent

Year	years old						Total
	15-19	20-24	25-49	50-54	55-59	60+	
1990	5.0	10.8	64.1	8.6	6.8	4.7	100.0
2000	1.5	12.4	67.3	10.6	6.4	1.8	100.0
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	0.7	6.6	65.6	10.4	9.0	7.8	100.0

Source: 1990: Census based estimates. 2000–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent04_03

Table 4.4: Composition of the employed by age groups, females, per cent

Year	years old					Total
	15-19	20-24	25-49	50-54	55+	
1990	5.2	8.6	66.2	10.0	10.0	100.0
2000	1.4	11.1	69.6	12.7	5.2	100.0
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

Source: 1990: Census based estimates. 2000–: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent04_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

Source: *KSH MEF*.Online data source in xls format: http://www.bpdata.eu/mpt/2018ent04_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

Source: *KSH MEF*.Online data source in xls format: http://www.bpdata.eu/mpt/2018ent04_06

STATISTICAL DATA

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

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/2018ent04_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

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/2018ent04_08

Table 4.9: Composition of employed persons by sector, by gender, per cent

	2013			2014			2015			2016			2017		
	Males	Fe-males	To-gether	Males	Fe-males	To-gether	Males	Fe-males	To-gether	Males	Fe-males	To-gether	Males	Fe-males	To-gether
Agriculture, forestry and fishing	5.1	1.9	3.5	5.0	1.7	3.5	5.3	1.9	3.7	5.4	1.9	3.8	5.5	1.8	3.8
Mining and quarrying	0.4	0.1	0.2	0.4	0.1	0.3	0.4	0.1	0.2	0.3	0.1	0.2	0.4	0.0	0.2
Manufacturing	26.7	18.0	22.6	28.1	18.0	23.3	27.4	18.0	23.0	27.5	18.1	23.1	28.4	18.6	23.8
Electricity, gas, steam and air conditioning supply	1.3	0.5	0.9	1.4	0.6	1.0	1.3	0.4	0.9	1.2	0.5	0.9	1.2	0.5	0.9
Water supply; sewerage, waste management and remediation activities	2.6	0.8	1.7	2.2	0.7	1.5	2.1	0.7	1.5	2.3	0.7	1.5	2.1	0.6	1.4
Construction	10.1	0.9	5.7	10.0	1.0	5.7	10.2	0.9	5.8	10.1	0.9	5.8	10.5	1.1	6.2
Wholesale and retail trade; repair of motor vehicles and motorcycles	10.3	15.6	12.8	10.2	15.5	12.7	9.6	15.2	12.3	9.7	14.6	12.0	9.9	14.5	12.0
Transportation and storage	9.7	3.8	6.9	9.1	3.8	6.6	9.0	3.7	6.5	9.4	3.5	6.6	9.6	3.7	6.9
Accommodation and food service activities	3.0	5.0	4.0	3.0	5.2	4.1	3.5	5.3	4.4	3.8	5.1	4.4	3.4	5.3	4.2
Information and communication	3.2	1.9	2.6	3.0	1.8	2.4	3.1	1.5	2.4	3.3	1.7	2.6	3.3	1.5	2.4
Financial and insurance activities	1.8	3.3	2.5	1.6	3.0	2.3	1.3	3.0	2.1	1.5	3.0	2.2	1.7	2.6	2.1
Real estate activities	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.4	0.6	0.5
Professional, scientific and technical activities	2.2	3.7	2.9	2.0	3.5	2.7	1.9	3.5	2.7	1.8	3.3	2.5	1.8	3.5	2.6
Administrative and support service activities	4.3	2.8	3.6	4.1	3.0	3.6	4.3	2.9	3.6	4.2	3.2	3.7	3.7	3.1	3.5
Public administration and defence; compulsory social security	10.1	11.1	10.6	10.5	11.6	11.0	10.9	13.0	11.9	10.9	13.5	12.1	10.3	13.1	11.6
Education	3.8	14.2	8.8	3.8	14.1	8.7	3.6	13.6	8.3	3.2	13.7	8.1	3.5	13.4	8.0
Human health and social work activities	2.6	12.2	7.2	2.5	11.9	7.0	2.5	11.6	6.8	2.4	11.7	6.8	2.2	12.1	6.8
Arts, entertainment and recreation	1.1	1.6	1.3	1.5	1.6	1.5	1.7	2.0	1.8	1.4	2.1	1.7	1.4	1.8	1.6
Other services	1.2	2.3	1.8	1.2	2.4	1.8	1.2	2.3	1.7	1.2	2.1	1.6	1.1	2.1	1.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: KSH MEF.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent04_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
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

Source: MEF, IV. quarterly waves.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent04_10

STATISTICAL DATA

Table 4.11: Distribution of employees in the competitive sector^a by firm size, per cent

Year	employees				
	Less than 20	20-49	50-249	250-999	1000 and more
2002	21.6	14.0	21.5	20.1	22.9
2003	23.0	15.3	20.5	19.3	21.8
2004	23.6	14.8	21.3	18.3	22.0
2005	27.0	15.0	20.5	17.5	20.0
2006	15.7	10.7	25.7	24.3	23.6
2007	25.2	14.2	20.0	18.4	22.2
2008	26.0	15.7	20.7	18.9	18.6
2009	23.4	15.7	19.7	18.4	22.8
2010	23.5	15.7	18.6	18.0	24.2
2011	24.9	15.6	18.5	17.7	23.4
2012	24.2	14.7	18.3	18.6	24.1
2013	23.2	14.5	18.1	19.0	25.2
2014	23.8	15.0	18.4	19.2	23.5
2015	24.0	15.4	18.5	17.9	24.2
2016	24.9	15.9	18.0	16.9	24.3

^a Firms employing 5 or more workers.

Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent04_11

Table 4.12: Employees of the competitive sector^a by the share of foreign ownership, per cent

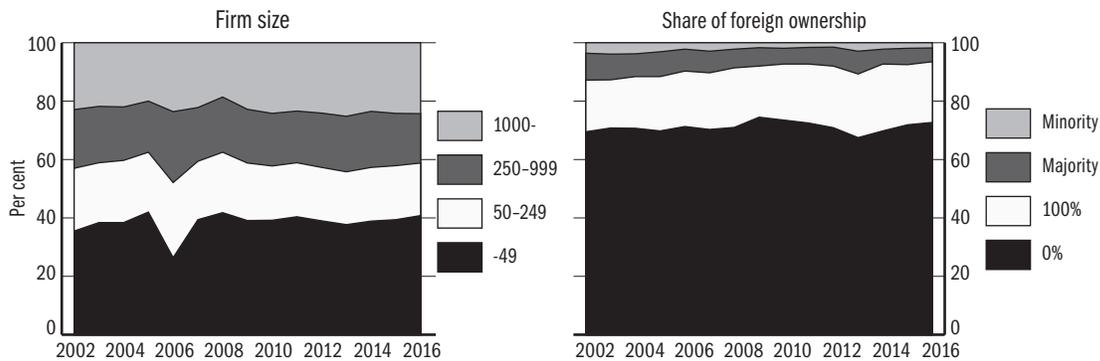
Share of foreign ownership	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
100%	17.7	16.5	17.7	18.6	19.0	19.4	20.4	17.5	19.2	20.2	21.1	21.8	22.9	20.6	20.8
Majority	9.2	8.8	7.8	8.5	7.5	7.4	6.4	6.3	5.4	5.7	6.5	7.8	5.1	5.6	4.7
Minority	3.6	3.9	3.8	3.1	2.2	2.9	2.2	1.7	1.9	1.6	1.5	2.9	2.2	1.9	1.8
0%	69.5	70.8	70.7	69.8	71.3	70.3	71.0	74.6	73.5	72.4	70.9	67.5	69.9	71.9	72.6

^a Firms employing 5 or more workers.

Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent04_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/2018ena04_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
1998	11.4	59.9	78.8	66.0	38.3	10.0	3.2	54.4
1999	10.6	60.3	80.5	69.0	44.0	10.4	3.8	56.2
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

Source: *KSH MEF*.Online data source in xls format: http://www.bpdata.eu/mpt/2018ent04_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
1998	10.7	47.5	66.3	52.3	13.6	5.0	1.2	41.0
1999	8.7	48.1	67.3	59.4	16.2	5.5	1.6	42.3
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

Source: *KSH MEF*.Online data source in xls format: http://www.bpdata.eu/mpt/2018ent04_14

STATISTICAL DATA

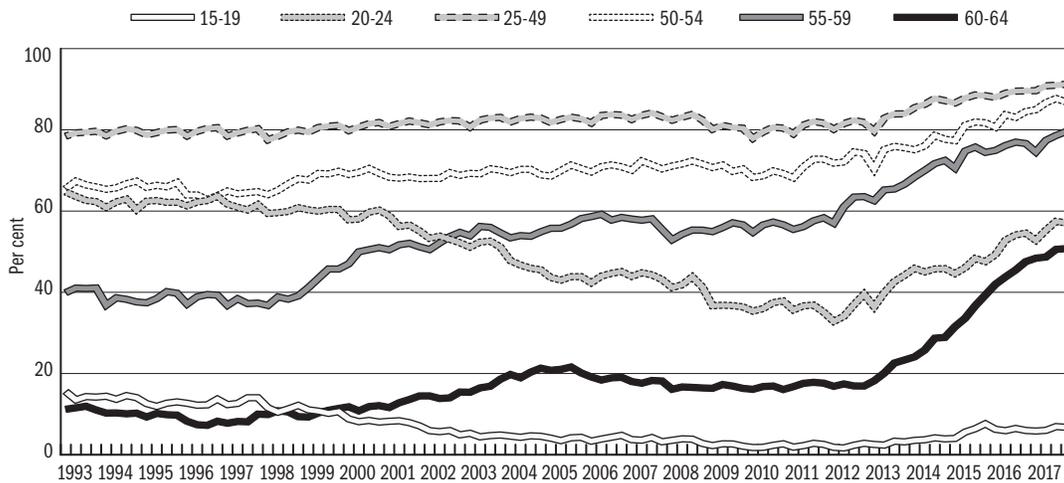
Table 4.15: Employment rate of population aged 15–64 by level of education, males, per cent

Year	8 grades of primary school or less	Vocational school	Secondary school	College, university	Total
1998	35.0	75.3	67.0	84.9	60.4
1999	33.6	76.8	68.3	86.8	62.4
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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent04_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/2018ena04_04

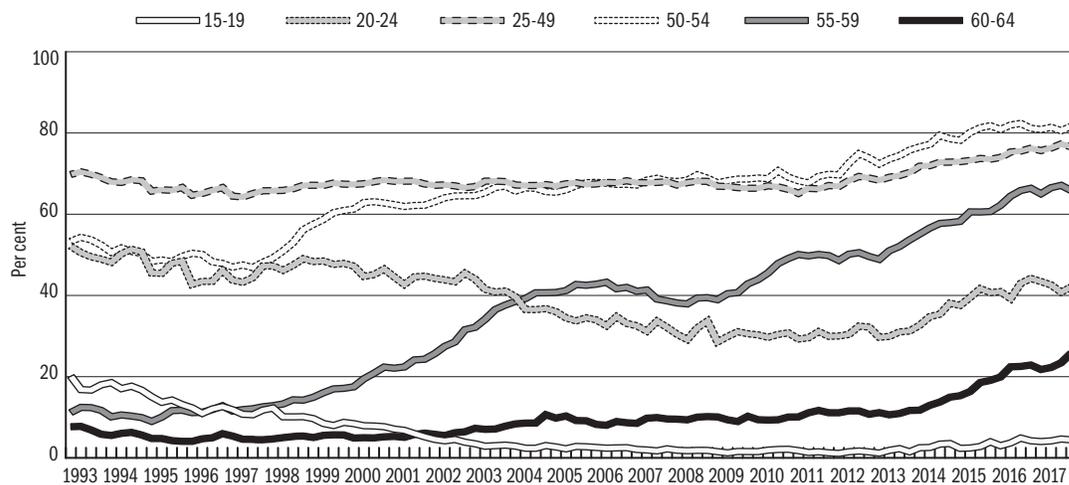
Table 4.16: Employment rate of population aged 15–64 by level of education, females, per cent

Year	8 grades of primary school or less	Vocational school	Secondary school	College, university	Total
1998	26.6	60.5	58.1	76.9	47.3
1999	26.1	61.4	59.0	77.5	49.0
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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent04_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/2018ena04_05

Table 5.1: Unemployment rate by gender and share of long term unemployed, per cent

Year	Unemployment rate			Share of long term unemployed ^a
	Males	Females	Total	
1992	10.7	8.7	9.8	..
1993	13.2	10.4	11.9	..
1994	11.8	9.4	10.7	43.2
1995	11.3	8.7	10.2	50.6
1996	10.7	8.8	9.9	54.4
1997	9.5	7.8	8.7	51.3
1998	8.5	7.0	7.8	48.8
1999	7.5	6.3	7.0	49.5
2000	7.0	5.6	6.4	49.1
2001	6.3	5.0	5.7	46.7
2002	6.1	5.4	5.8	44.9
2003	6.1	5.6	5.9	43.9
2004	6.1	6.1	6.1	45.0
2005	7.0	7.5	7.2	46.2
2006	7.1	7.9	7.5	46.9
2007	7.1	7.7	7.4	48.1
2008	7.7	8.0	7.8	48.1
2009	10.3	9.7	10.0	42.9
2010	11.6	10.7	11.2	50.6
2011	11.1	11.0	11.0	49.4
2012	11.3	10.6	11.0	47.0
2013	10.2	10.1	10.2	50.4
2014	7.6	7.9	7.7	49.5
2015	6.6	7.0	6.8	47.6
2016	5.1	5.1	5.1	48.4
2017	3.8	4.6	4.2	42.6

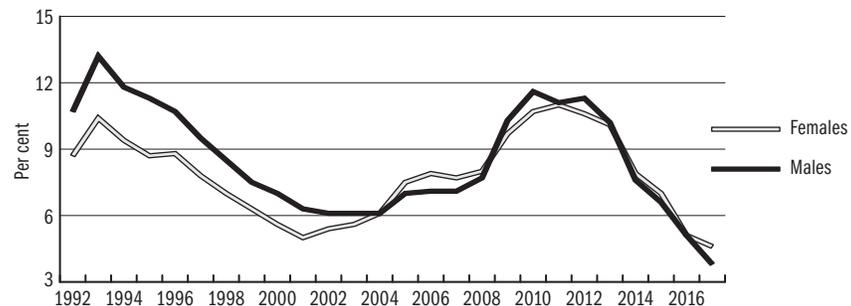
^a Long term unemployed are those who have been without work for 12 months or more, excluding those who start a new job within 90 days.

Note: Conscripted soldiers are included in the denominator.

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent05_01

Figure 5.1: Unemployment rates by gender



Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ena05_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
2000	13.4	7.7	4.8	1.6	7.0
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

Source: KSH MEF.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent05_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
2000	32.9	45.8	17.9	3.4	100.0
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

Source: KSH MEF.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent05_03

STATISTICAL DATA

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
2000	9.1	7.4	4.9	1.5	5.6
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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent05_04

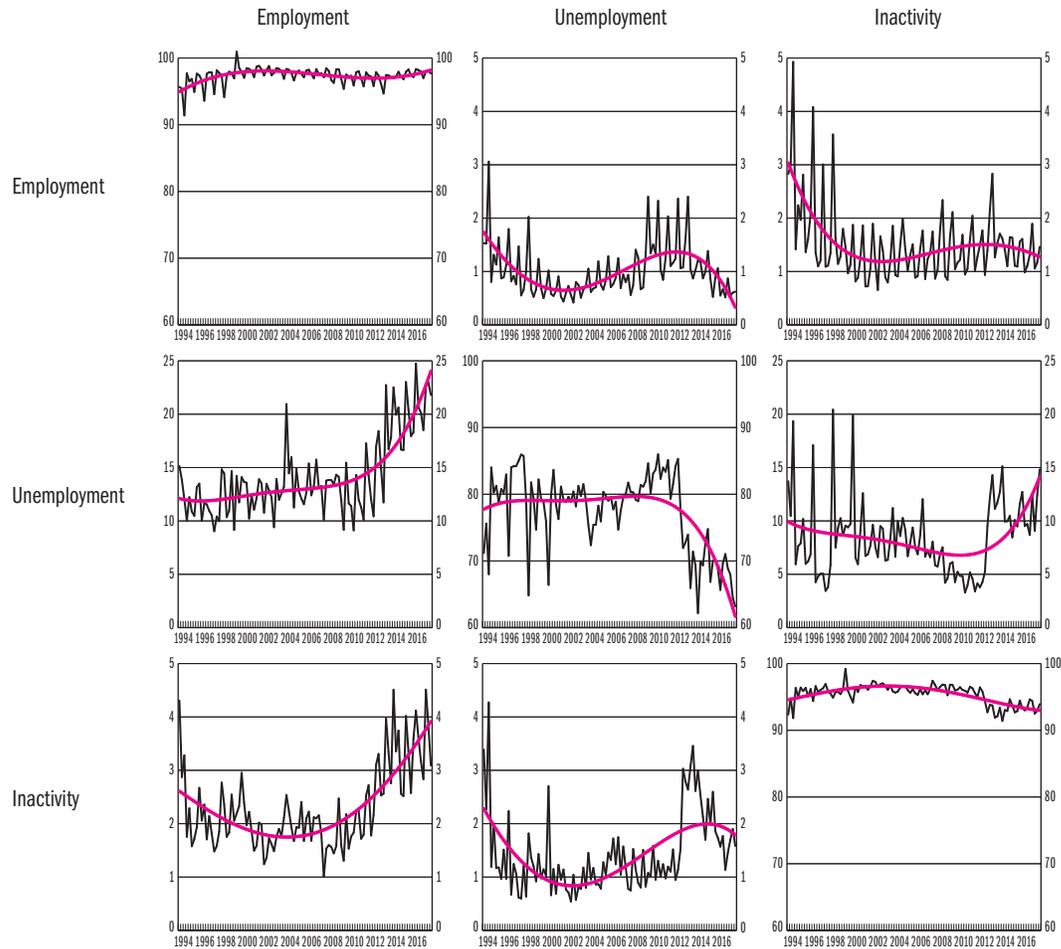
Table 5.5: Composition of the unemployed by level of education, females, per cent

Year	8 grades of primary school or less	Vocational school	Secondary school	College, university	Total
2000	31.8	28.2	35.0	5.0	100.0
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

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent05_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/2018ena05_02

STATISTICAL DATA

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

^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/2018ent05_06

Figure 5.3: Unemployment rate by age groups, males aged 15–59, quarterly

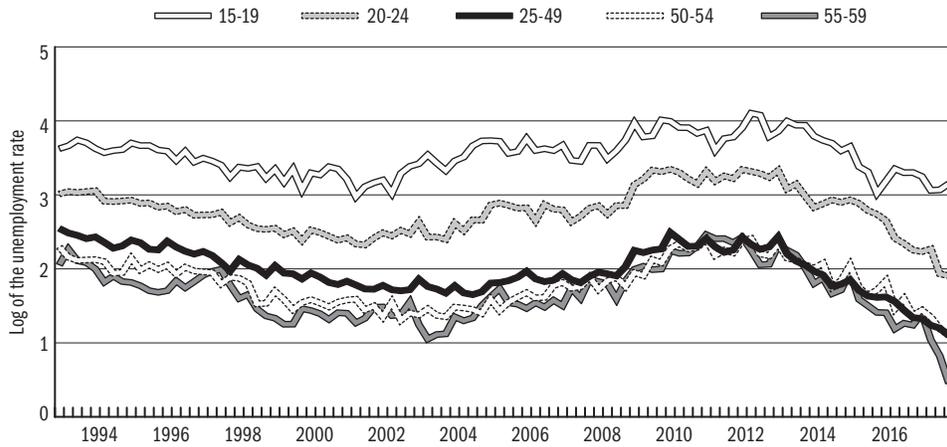
Source: *KSH MEF*.Online data source in xls format: http://www.bpdata.eu/mpt/2018ena05_03

Figure 5.4: Unemployment rate by age groups, females aged 15–59, quarterly

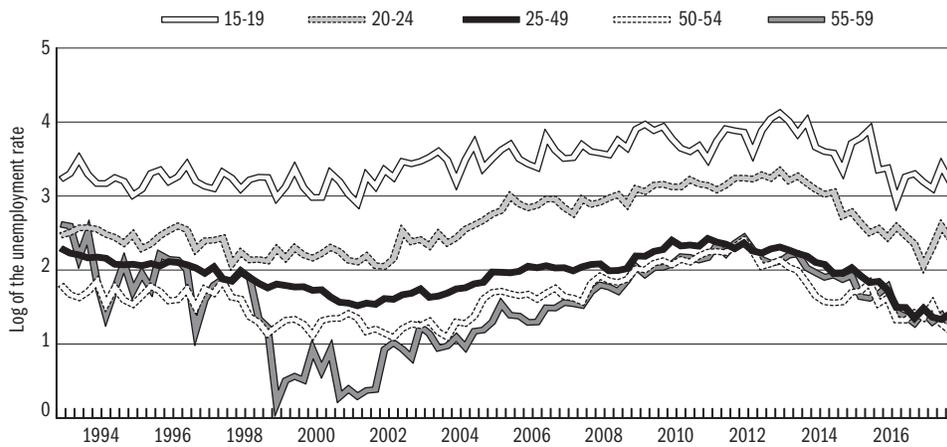
Source: *KSH MEF*.Online data source in xls format: http://www.bpdata.eu/mpt/2018ena05_04

Table 5.7: Registered unemployed^a and LFS unemployment

Year	Registered unemployed		LFS unemployed, total		LFS unemployed, age 15-24	
	In thousands	rate in %	In thousands	rate in %	In thousands	rate in %
1990	47.7	-	..	..	..	..
1995	507.7	11.9	416.5	10.2	114.3	18.6
1996	500.6	12.1	400.1	9.9	106.3	17.9
1997	470.1	11.6	348.8	8.7	95.8	15.9
1998	423.1	10.5	313.0	7.8	87.6	13.4
1999	409.5	10.2	284.7	7.0	78.6	12.4
2000	390.5	9.6	262.5	6.4	70.7	12.1
2001	364.1	8.8	232.9	5.7	55.7	10.8
2002	344.7	8.3	238.8	5.8	56.5	12.3
2003	357.2	8.7	244.5	5.9	54.9	13.4
2004	375.9	9.1	252.9	6.1	55.9	15.5
2005	409.9	9.8	303.9	7.2	66.9	19.4
2006	393.5	9.4	318.2	7.5	64.1	19.1
2007	426.9	10.1	312.1	7.4	57.4	18.0
2008	442.3	10.4	326.3	7.8	60.0	19.5
2009	561.8	13.5	417.8	10.0	78.8	26.4
2010	582.7	14.0	469.4	11.2	78.3	26.4
2011	582.9	14.0	466.0	11.0	74.5	26.0
2012	559.1	13.3	473.2	11.0	84.6	28.2
2013	527.6	12.4	441.0	10.2	83.5	26.6
2014	422.4	9.8	343.3	7.7	67.6	20.4
2015	378.2	8.6	307.8	6.8	58.9	17.3
2016	313.8	7.0	234.6	5.1	44.7	12.9
2017	283.0	6.1	191.7	4.2	36.3	10.7

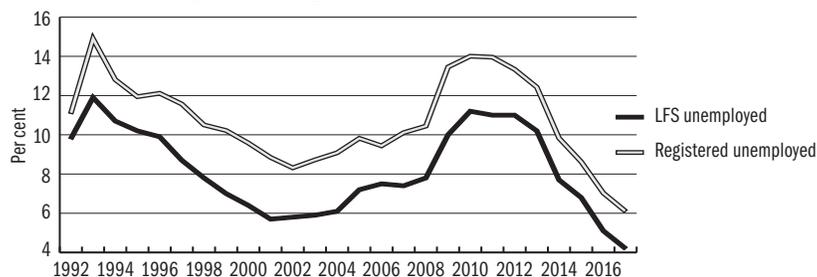
^a Since 1st of November, 2005: database of registered jobseekers. From the 1st of November, 2005 the Employment Act changed the definition of registered unemployed to registered jobseekers. After termination of compilation of Balance of Labour Force in 2016 the number of economically active population – 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/2018ent05_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/2018ena05_05



a

5 UNEMPLOYMENT

Table 5.8: Composition of the registered unemployed^a by educational attainment, yearly averages, per cent

Educational attainment	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
8 grades of primary school or less	42.4	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
Vocational school	33.5	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
Vocational secondary school	13.2	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
Grammar school	7.6	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
College	2.4	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
University	0.9	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
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

^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/2018ent05_08

Table 5.9: The distribution of registered unemployed school-leavers^a by educational attainment, yearly averages, per cent

Educational attainment	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
8 grades of primary school or less	33.7	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
Vocational school	20.6	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
Vocational secondary school	25.5	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
Grammar school	11.6	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
College	6.2	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
University	2.4	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
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

^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/2018ent05_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
2000	4.7	54.3	41.0	100.0	2009	3.7	67.1	29.2	100.0
2001	6.5	45.2	48.3	100.0	2010	3.2	70.4	26.4	100.0
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

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/2018ent05_10



STATISTICAL DATA

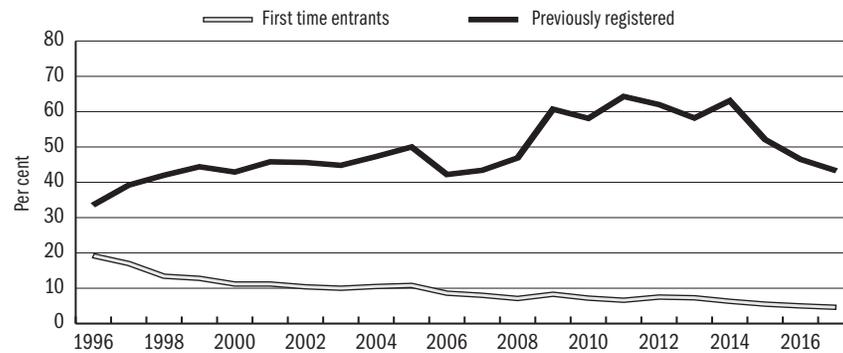
Table 5.11: Monthly entrants to the unemployment register^a, monthly averages, in thousands

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
First time entrants	11.2	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
Previously registered	42.9	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
Together	54.1	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

^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/2018ent05_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/2018ena05_06

Table 5.12: Selected time series of registered unemployment, monthly averages, in thousands and per cent

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Registered unemployment ^a	423.1	409.5	390.5	364.1	344.7	357.2	375.9	409.9	393.5	426.9
Of which: School-leavers	32.5	29.9	26.0	26.8	28.5	31.3	33.8	40.9	38.7	40.4
Non school-leavers	390.6	379.6	364.4	337.4	316.2	325.9	342.2	369.1	354.7	386.5
Male	233.4	221.4	209.7	196.4	184.6	188.0	193.3	210.4	200.9	219.9
Female	189.7	188.1	180.8	167.7	160.1	169.2	182.6	199.5	192.5	207.0
25 years old and younger	89.9	85.4	79.1	75.6	71.1	71.6	71.4	78.9	75.8	80.3
Manual workers	349.0	336.8	321.2	302.0	286.3	296.2	308.5	336.2	321.9	..
Non manual workers	74.1	72.7	69.3	62.1	58.4	61.0	67.4	73.7	71.6	..
Unemployment benefit recipients ^b	130.7	140.7	131.7	119.2	114.9	120.0	124.0	134.4	151.5	134.6
Unemployment assistance recipients ^c	182.2	148.6	143.5	131.2	113.4	116.2	120.4	133.4	121.8	133.0
Unemployment rate ^d	9.5	9.7	9.3	8.5	8.0	8.3	8.7	9.4	9.0	9.7
Shares within registered unemployed, %										
School-leavers	7.7	7.3	6.7	7.3	8.3	8.8	9.0	10.0	9.8	9.5
Male	55.2	54.1	53.7	53.9	53.5	52.6	51.4	51.3	51.1	51.5
25 years old and younger	21.3	20.9	20.3	20.8	20.6	20.0	19.0	19.2	16.5	18.8
Manual workers	82.5	82.3	82.2	82.9	83.1	82.9	82.1	82.0	81.8	..
Flows, in thousands										
Inflow to the Register	55.4	57.2	54.1	57.0	56.0	54.8	57.8	60.7	50.8	51.4
Of which: school-leavers	9.8	9.3	8.0	7.8	7.8	7.7	7.6	8.2	7.0	6.2
Outflow from the Register	60.4	57.2	56.8	59.4	55.8	53.5	54.4	59.8	51.4	48.4
Of which: school-leavers	11.0	9.4	8.2	7.7	7.5	7.6	7.1	7.9	7.1	6.0
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Registered unemployment ^a	442.3	561.8	582.7	582.9	559.1	527.6	422.4	378.2	313.8	283.0
Of which: School-leavers	41.4	49.3	52.6	52.9	61.5	66.0	54.6	47.0	35.8	29.6
Non school-leavers	400.9	512.5	530.1	529.9	497.6	461.6	367.8	331.2	278.0	253.4
Male	228.3	297.9	305.0	297.1	275.8	267.7	214.2	187.5	156.0	137.9
Female	214.0	263.9	277.7	285.8	283.3	259.9	208.2	190.7	157.8	145.1
25 years old and younger	75.9	104.3	102.8	102.3	101.1	97.8	78.2	68.8	56.0	49.8
Manual workers	..	..	..	..	..	..	..	..	..	..
Non manual workers	..	..	..	..	..	..	..	..	..	..
Unemployment benefit recipients ^b	136.5 ^e	202.1	187.7	159.9	71.1	61.2	56.4	57.1	60.2	63.1
Unemployment assistance recipients ^c	147.5	156.0	167.8	182.1	200.3	184.4	132.4	126.2	99.8	87.4
Unemployment rate ^d	10.0	12.8	13.3	13.2	12.6	11.9	9.5	8.5	6.9	6.1
Shares within registered unemployed, %										
School-leavers	9.4	8.8	9.0	9.1	11.0	12.5	12.9	12.4	11.4	10.5
Male	51.6	53.0	52.3	51.0	49.3	50.8	50.7	49.6	49.7	48.7
25 years old and younger	17.2	18.6	17.6	17.5	18.1	18.5	18.5	18.2	17.8	17.6
Manual workers	..	..	..	..	..	..	..	..	..	..
Flows, in thousands										
Inflow to the Register	54.0	69.0	65.3	70.9	69.5	65.5	69.4	57.6	51.5	47.9
Of which: school-leavers	6.3	7.5	7.9	8.2	10.0	10.8	11.2	9.0	7.7	6.7
Outflow from the Register	51.3	58.4	66.4	74.2	68.1	78.4	71.3	62.1	56.8	49.4
Of which: school-leavers	6.2	6.7	7.5	8.1	8.6	11.8	11.3	9.7	8.2	7.0

^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.

STATISTICAL DATA

^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/2018ent05_12

Table 5.13: The number of registered unemployed^a who became employed on subsidised and non-subsidised employment^b

	2011		2012		2013		2014		2015		2016		2017	
	Persons	Per cent	Persons	Per cent	Persons	Per cent	Persons	Per cent	Persons	Per cent	Persons	Per cent	Persons	Per cent
Subsidised employment	282,673	48.5	261,631	50.0	359,962	60.2	351,550	63.2	278,875	61.0	237,986	60.0	180,630	54.8
Non-subsidised employment	299,716	51.5	261,581	50.0	237,795	39.8	204,887	36.8	177,960	39.0	158,391	40.0	149,244	45.2
Total	582,389	100.0	523,212	100.0	597,757	100.0	556,437	100.0	456,835	100.0	396,377	100.0	329,874	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/2018ent05_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
2000	In thousands	117.0	139.7	0.0	106.5	26.7	25.3	27.5	73.5	516.2
	Per cent	22.7	27.1	0.0	20.6	5.2	4.9	5.3	14.2	100.0
2001	In thousands	111.8	113.2	0.0	105.2	29.0	30.0	25.8	37.2	452.2
	Per cent	24.7	25.0	0.0	23.3	6.4	6.6	5.7	8.2	100.0
2002	In thousands	104.8	107.6	-	115.3	21.6	23.5	21.2	32.8	426.8
	Per cent	24.6	25.2	-	27.0	5.1	5.5	5.0	7.7	100.0
2003	In thousands	105.1	109.5	-	125.0	21.2	22.5	20.1	36.6	440.0
	Per cent	23.9	24.9	-	28.4	4.8	5.1	4.6	8.3	100.0
2004	In thousands	117.4	118.4	-	132.3	16.8	12.6	16.8	28.5	442.8
	Per cent	26.5	26.7	-	29.9	3.8	2.8	3.8	6.4	100.0
2005	In thousands	125.6	127.8	-	140.2	21.5	14.7	20.8	31.0	481.6
	Per cent	26.1	26.5	-	29.1	4.5	3.1	4.3	6.4	100.0
2006	In thousands	117.7	112.9	-	146.4	16.6	12.3	14.6	13.8	434.3
	Per cent	27.1	26.0	-	33.7	3.8	2.8	3.4	3.2	100.0
2007	In thousands	128.0	133.1	-	151.8	19.3	14.6	23.4	6.8	477.0
	Per cent	27.6	28.7	-	32.7	2.7	2.3	3.7	2.3	100.0
2008	In thousands	120.7 ^d	145.7	-	158.2	21.2	21.2	25.0	14.1	506.1
	Per cent	23.8	28.8	-	31.3	4.2	4.2	4.9	2.8	100.0
2009	In thousands	202.8	151.9	-	215.0	135.3	13.6	17.8	54.1	790.5
	Per cent	25.7	19.2	-	27.2	17.1	1.7	2.3	6.8	100.0
2010	In thousands	159.6	163.5	-	222.4	164.5	17.8	26.7	40.3	794.8
	Per cent	20.1	20.6	-	28.0	20.7	2.2	3.4	5.1	100.0
2011	In thousands	122.8	168.2	-	239.8	91.6	13.6	20.4	39.9	696.3
	Per cent	17.6	24.2	-	34.4	13.2	2.0	2.9	5.7	100.0
2012	In thousands	56.3	185.6	-	281.1	92.4	15.4	30.0	2.2	663.0
	Per cent	8.5	28.0	-	42.4	13.9	2.3	4.5	0.3	100.0
2013	In thousands	55.3	169.3	-	264.0	149.5	42.0 ^e	31.7	3.8	715.5
	Per cent	7.7	23.6	-	36.9	20.9	5.9	4.4	0.5	100.0
2014	In thousands	58.6	123.4	-	216.5	139.1	24.6	17.7	2.8	582.7
	Per cent	10.0	21.3	-	37.3	24.0	4.2	3.1	0.5	100.0
2015	In thousands	55.0	110.6	-	168.7	224.9	6.2	9.1	5.6	580.1
	Per cent	9.5	19.1	-	29.1	38.8	1.1	1.6	1.0	100.0
2016	In thousands	56.7	85.0	-	136.0	219.6	17.9	21.1	3.1	539.4
	Per cent	10.5	15.8	-	25.2	40.7	3.3	3.9	0.6	100.0
2017	In thousands	63.1	87.4	-	132.4	181.0	17.4	24.3	3.8	509.5
	Per cent	12.4	17.2	-	26.0	35.5	3.4	4.8	0.8	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 em-

STATISTICAL DATA

ployment 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/2018ent05_14

Table 5.15: The ratio of those who are employed among the former participants of ALMPs^a, per cent

Active labour market programmes	2002 ^b	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
Suggested training programmes ^d	43.3	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
Accepted training programmes ^e	45.8	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
Retraining of those who are employed ^f	92.7	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
Support for self-employment ^g	90.7	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
Wage subsidy programmes ^h	62.9	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
Work experience programmes ⁱ	66.9	66.1	66.5	66.8	66.6	66.3	74.6	..	..	72.0	69.9	68.5	-	-	-	-
Further employment programme ^j	78.4	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 entrepreneurship: support of jobseekers in the amount of the monthly minimum wage or maximum HUF 3 million lump sum support (to be repaid or not), aimed at helping them become individual entrepreneurs or self-employed.

^h Wage support: aimed at helping the employment of disadvantaged persons, who would not be able to, or would have a harder time finding work without support. The data on wage subsidies and labour cost subsidies exclude the programs supporting job seeking school leavers and student work during summer vacation.

ⁱ Work experience-gaining support: the support of new entrants with no work experience for 6–9 months, the amount of the support is equal to 50–80% of the wage costs. The instrument was discontinued after December 31, 2006.. In 2009 they reintroduced the work experience gaining support for skilled new entrants, for employers who ensure employment of at least 4 hours a day and for 365 days. The amount of the support is 50–100% of the wage cost. Monitoring for the first exiters is available from 2011. The program supporting the school to work transition of skilled school leavers was abolished in 2014.

^j Further employment programmes: to support the continued employment of new entrants under the age of 25 for 9 months. Discontinued from December 31, 2006.

Source: NFSZ.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent05_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
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
Vocational school	30.7	-	33.1	31.4	29.8	29.1	28.9	27.6	27.1	27.3	26.2
Vocational secondary school	12.8	-	14.4	15.0	15.0	15.2	15.6	14.9	15.1	15.4	14.6
Grammar school	8.1	-	8.3	9.1	9.7	9.8	10.0	9.9	10.0	10.3	10.1
College	3.2	-	3.0	3.7	3.9	3.9	3.6	3.3	3.4	3.6	3.4
University	1.2	-	1.1	1.5	1.7	1.9	1.9	1.8	2.0	2.3	2.3
Total	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
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
Vocational school	37.0	39.2	39.4	36.2	34.5	34.5	34.8	33.3	33.1	32.8	31.4
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
Grammar school	11.0	10.6	10.1	11.6	12.3	12.7	12.0	10.9	11.8	11.3	10.8
College	6.0	5.7	4.5	5.8	6.7	7.6	6.7	5.7	6.4	5.9	5.2
University	2.3	2.1	1.7	2.6	3.1	3.8	3.6	3.3	3.9	3.8	3.6
Total	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
Unemployment assistance recipients^e											
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
Vocational school	26.5	-	26.6	27.4	26.1	26.4	26.6	26.1	25.6	25.5	24.3
Vocational secondary school	6.8	-	7.5	8.6	9.0	10.3	10.9	10.5	10.4	10.7	9.8
Grammar school	4.7	-	4.8	5.6	6.3	7.1	7.3	7.2	7.3	7.6	7.1
College	1.2	-	1.2	1.5	1.8	2.1	2.0	1.8	1.8	1.9	1.7
University	0.4	-	0.4	0.5	0.6	0.8	0.8	0.8	0.8	0.9	0.9
Total	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

^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/2018ent05_16

STATISTICAL DATA

Table 5.17: Outflow from the Register of Beneficiaries

Year	Total number of outflows	Of which:		Year	Total number of outflows	Of which:	
		became employed, %	benefit period expired, %			became employed, %	benefit period expired, %
1999	320,132	26.0	67.4	2008 ^a	261,573	43.4	48.9
2000	325,341	28.1	64.6	2009	345,216	37.9	56.0
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

^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/2018ent05_17

Table 5.18: The distribution of the total number of labour market training participants^a

Groups of training participants	2002	2003	2004	2005	2006	2007	2008	2009
Participants in suggested training	46,802	45,261	33,002	29,252	36,212	32,747	48,561	41,373
Participants in accepted training	31,891	28,599	19,406	9,620	7,327	5,766	4,939	8,241
One Step Forward (OFS) programme	-	-	-	-	-	270	59,347	11,169
Non-employed participants together	78,693	73,859	52,407	38,872	43,539	38,783	112,847	60,783
Of which: school-leavers	19,466	18,320	12,158	9,313	1,365	1,111	18,719	21,103
Employed participants	4,142	9,036	7,487	4,853	3,602	3,467	37,466	12,496
Total	82,835	82,895	59,894	43,725	47,141	42,250	150,313	73,279
	2010	2011	2012	2013 ^b	2014 ^b	2015 ^b	2016 ^b	2017 ^b
Participants in suggested training	50,853	32,172	43,438	22,574	10,900	330	50,953	68,125
Participants in accepted training	6,853	2,495	2,446	22,574	1,275	1,189	1,410	1,370
One Step Forward (OFS) programme	2,316	-	-	-	-	-	-	-
Non-employed participants together	57,706	34,667	45,884	132,587	200,466	61,127	53,153	69,495
Of which: school-leavers	12,030	7,935	9,976	106,333	31,083	3,981	12,318	14,984
Employed participants	336	908	716	631	827	14,389	2,493	3,002
Total	60,358	35,575	46,600	133,218	201,293	75,516	55,646	72,497

^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.

^b The data include public works participants simultaneously involved in training (88,004 public works participants in 2013, 143,275 public works participants in 2014, 50,124 public works participants in 2015, 29,686 public works participants in 2016, 40,432 public works participants in 2017).

Source: NFSZ.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent05_18

Table 5.19: Employment ratio of participants ALMPs by gender, age groups and educational attainment for the programmes finished in 2017^a, per cent

	Non-employed participants			Supported self-employment ^b	Wage subsidy programme
	suggested training	accepted training	total		
By gender					
Males	45.0	51.3	45.1	30.8	32.4
Females	44.8	33.3	44.8	30.8	35.7
By age groups					
-20	31.6	40.0	31.6	24.5	31.9
20-24	41.0	59.3	41.1	28.1	35.1
25-29	45.2	35.7	45.2	29.8	34.1
-29 together	40.4	48.2	40.5	28.9	34.5
30-34	48.3	45.5	48.3	29.1	33.2
35-39	48.5	53.3	48.6	30.6	35.8
40-44	49.2	61.1	49.3	31.3	29.8
45-49	48.4	18.2	48.3	35.6	30.3
50-54	47.1	64.7	47.1	32.5	38.1
55+	43.9	30.8	43.8	31.4	36.5
By educational attainment					
Less than primary school	39.5	0.0	39.5	14.3	24.7
Primary school	43.1	51.6	43.1	23.5	31.5
Vocational school for skilled workers	49.7	53.6	49.8	31.2	29.3
Vocational school	44.0	0.0	43.9	18.6	31.5
Vocational secondary school	53.4	52.0	53.4	32.0	37.4
Technicians secondary school	55.8	33.3	55.7	32.7	41.6
Grammar school	49.2	35.3	49.2	30.3	36.1
College	46.7	0.0	46.5	34.0	42.8
University	48.0	50.0	48.0	32.0	39.5
Total	44.9	48.2	44.9	30.8	34.1

^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/2018ent05_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	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Approved qualification	78.7	77.6	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
Non-approved qualification	14.0	13.6	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
Foreign language learning	7.3	8.8	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
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/2018ent05_20

STATISTICAL DATA

Table 5.21: The distribution of those entering training programmes by age groups and educational level

	Training				Training for public works participants				Together			
	2014	2015	2016	2017	2014	2015	2016	2017	2014	2015	2016	2017
Total number of entrants	24,137	12,016	17,312	18,958	68,518	28,036	26,361	31,508	92,655	40,052	43,673	50,466
By age groups, %												
-20	6.3	11.5	5.7	7.5	4.1	4.8	7.1	6.3	4.7	6.8	6.5	6.7
20-24	30.0	39.3	15.1	17.7	15.3	15.8	11.4	10.7	19.1	22.8	12.9	13.3
25-44	43.7	35.8	56.4	51.4	47.8	49.5	47.5	47.1	46.7	45.4	51.0	48.7
45-49	7.6	6.0	10.8	10.4	11.5	10.5	12.2	12.9	10.5	9.2	11.6	12.0
50+	12.4	7.4	12.0	13.0	21.4	19.4	21.9	23.0	19.0	15.8	17.9	19.2
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
By level of education, %												
Less than primary school	1.2	0.8	1.1	2.2	8.1	6.9	15.6	16.0	6.3	5.1	9.9	10.8
Primary school	28.7	35.2	35.1	38.8	49.8	44.6	78.8	75.2	44.3	41.8	61.4	61.6
Vocational school	22.7	19.7	22.4	21.8	23.3	21.5	1.8	5.7	23.2	21.0	10.0	11.7
Vocational and technical secondary school	24.9	23.5	21.7	18.7	9.7	14.0	1.9	1.6	13.6	16.8	9.8	8.0
Grammar school	17.6	17.8	15.1	14.9	7.0	9.4	1.6	1.3	9.8	11.9	7.0	6.4
College, university	4.9	3.0	4.6	3.6	2.1	3.6	0.2	0.1	2.8	3.4	2.0	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

Source: NFSZ.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent05_21

Table 6.1: Annual changes of gross and real earnings

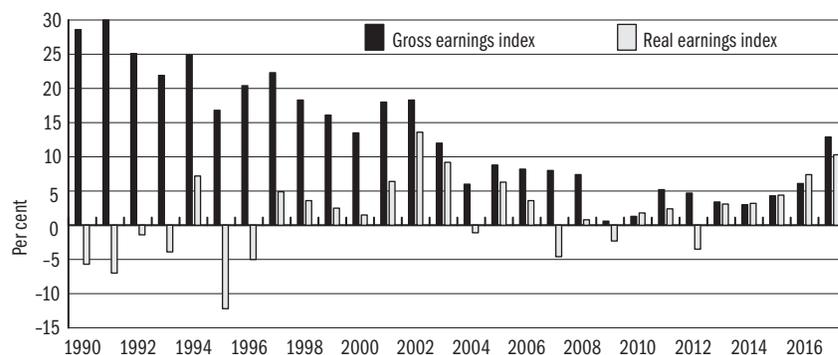
Year	Gross earnings	Net earnings	Gross earnings index	Net earnings index	Consumer price index	Real earnings index
	HUF		previous year = 100			
1995	38,900	25,891	116.8	112.6	128.2	87.8
1996	46,837	30,544	120.4	117.4	123.6	95.0
1997	57,270	38,145	122.3	124.1	118.3	104.9
1998	67,764	45,162	118.3	118.4	114.3	103.6
1999	77,187	50,076	116.1	112.7	110.0	102.5
2000	87,750	55,785	113.5	111.4	109.8	101.5
2001	103,554	64,913	118.0	116.2	109.2	106.4
2002	122,481	77,622	118.3	119.6	105.3	113.6
2003	137,193	88,753	112.0	114.3	104.7	109.2
2004	145,523	93,715	106.1	105.6	106.8	98.9
2005	158,343	103,149	108.8	110.1	103.6	106.3
2006	171,351	110,951	108.2	107.6	103.9	103.6
2007	185,018	114,282	108.0	103.0	108.0	95.4
2008	198,741	121,969	107.4	107.0	106.1	100.8
2009	199,837	124,116	100.6	101.8	104.2	97.7
2010	202,525	132,604	101.3	106.8	104.9	101.8
2011	213,094	141,151	105.2	106.4	103.9	102.4
2012	223,060	144,085	104.7	102.1	105.7	96.6
2013	230,714	151,118	103.4	104.9	101.7	103.1
2014	237,695	155,717	103.0	103.0	99.8	103.2
2015	247,924	162,400	104.3	104.3	99.9	104.3
2016	263,171	175,009	106.1	107.8	100.4	107.5
2017	297,017	197,516	112.9	112.9	102.4	110.3

Note: Earnings data include payments to public works participants.

Source: *KSH IMS* (earnings) and *consumer price accounting*. Gross earnings, gross earnings index: 2000-: *STADAT* (2018.02.20. version). Net earnings, net earnings index: 2008-: *STADAT* (2018.02.20. version). Consumer price index: 1995-: *STADAT* (2018.01.12. version). Real earnings index: 1995-: *STADAT* (2018.01.12. version).

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent06_01

Figure 6.1: Annual changes of gross nominal and net real earnings



Source: *KSH IMS* (earnings) and *consumer price accounting*, *STADAT* (2018.02.20. version).

Online data source in xls format: http://www.bpdata.eu/mpt/2018ena06_01

STATISTICAL DATA

Table 6.2.a: Gross earnings ratios in the economy, HUF/person/month

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Agriculture, forestry and fishing	122,231	133,570	137,101	143,861	153,301	164,136	171,921	180,251	189,136	204,385	230,638
Mining and quarrying	202,985	225,650	244,051	234,243	254,607	271,012	279,577	287,036	289,665	299,354	332,985
Manufacturing	172,277	183,081	190,331	200,692	213,281	230,877	241,170	253,162	263,877	279,336	311,879
Electricity, gas, steam and air conditioning supply	294,241	321,569	345,035	363,900	379,606	404,073	410,485	422,444	439,282	454,361	498,280
Water supply; sewerage, waste management and remediation activities	164,572	178,049	181,818	193,604	207,614	223,206	224,654	224,447	230,574	234,037	269,090
Construction	136,301	146,475	152,204	153,130	156,682	163,649	177,790	185,680	196,947	201,095	227,524
Wholesale and retail trade; repair of motor vehicles and motorcycles	158,077	171,780	175,207	185,812	196,942	212,521	218,936	223,882	230,036	243,716	273,810
Transportation and storage	173,776	186,376	196,350	200,129	210,146	217,794	223,410	230,138	239,147	247,562	279,507
Accommodation and food service activities	112,222	120,600	122,561	122,699	125,757	139,731	147,023	152,874	157,560	165,969	189,489
Information and communication	328,902	358,217	366,752	368,113	392,963	410,045	426,460	449,412	460,122	479,625	510,675
Financial and insurance activities	390,511	431,601	427,508	433,458	456,980	459,744	470,966	486,054	493,956	519,027	561,576
Real estate activities	159,225	169,845	177,747	182,903	184,829	219,287	212,391	214,163	221,125	239,317	281,502
Professional, scientific and technical activities	244,998	281,150	292,974	297,489	303,292	330,860	320,422	345,198	369,460	392,266	431,838
Administrative and support service activities	139,127	147,125	149,131	145,576	149,675	163,300	169,223	181,338	198,050	215,241	246,072
Public administration and defence; compulsory social security	253,335	267,657	234,696	242,958	252,848	247,139	258,803	262,055	282,194	313,084	358,569
Education	193,250	204,600	194,958	195,930	192,984	197,344	216,927	245,933	258,200	274,211	297,404
Human health and social work activities	160,050	169,977	161,265	142,282	153,832	151,446	151,287	143,047	146,700	154,443	185,037
Arts, entertainment and recreation	183,898	183,813	179,199	179,976	192,407	209,930	216,869	226,327	213,286	227,509	289,154
Other service activities	153,512	157,950	160,375	150,025	162,490	175,872	174,777	181,601	193,303	207,222	243,967
National economy, total	185,018	198,741	199,837	202,525	213,094	223,060	230,664	237,695	247,924	263,171	297,017
Of which:											
- Business sector	177,415	192,044	200,304	206,863	217,932	233,829	242,191	252,664	262,731	276,923	308,994
- Budgetary institutions	206,225	219,044	201,632	195,980	203,516	200,027	207,191	209,706	220,210	237,494	275,251

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* (2018.02.20. version).

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent06_02a

Table 6.2.b: Gross earnings ratios in the economy, per cent

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Agriculture, forestry and fishing	66.1	67.2	68.6	71.0	72.0	73.6	74.5	75.8	76.3	77.7	77.7
Mining and quarrying	109.7	113.5	122.1	115.5	119.5	120.9	121.2	120.7	116.8	113.7	112.1
Manufacturing	93.1	92.1	95.2	99.1	100.0	103.4	104.6	106.4	106.4	106.1	105.0
Electricity, gas, steam and air conditioning supply	159.0	161.8	172.7	179.6	178.2	181.1	178.0	177.8	177.2	172.6	167.8
Water supply; sewerage, waste management and remediation activities	88.9	89.6	91.0	95.6	97.4	100.0	97.4	94.7	93.2	88.9	90.6
Construction	73.7	73.7	76.2	75.5	73.5	73.4	77.1	78.0	79.4	76.4	76.6
Wholesale and retail trade; repair of motor vehicles and motorcycles	85.4	86.4	87.7	91.7	92.4	95.3	94.9	94.3	92.8	92.6	92.2
Transportation and storage	93.9	93.8	98.3	98.9	98.6	97.8	96.9	96.9	96.5	94.1	94.1
Accommodation and food service activities	60.7	60.7	61.3	60.6	59.0	62.7	63.7	64.4	63.6	63.1	63.8
Information and communication	177.8	180.2	183.5	181.7	184.4	183.9	184.9	189.0	185.6	182.2	171.9
Financial and insurance activities	211.1	217.2	213.9	214.0	214.5	206.2	204.2	204.1	199.2	197.2	189.1
Real estate activities	86.1	85.5	88.9	90.2	86.8	98.3	92.1	90.5	89.2	90.9	94.8
Professional, scientific and technical activities	132.4	141.5	146.6	146.9	142.4	148.4	138.9	145.1	149.0	149.1	145.4
Administrative and support service activities	75.2	74.0	74.6	71.9	70.3	73.3	73.4	77.3	79.9	81.8	82.8
Public administration and defence; compulsory social security	136.9	134.7	117.4	120.2	118.7	110.8	112.2	110.2	113.8	119.0	120.7
Education	104.4	102.9	97.6	96.7	90.6	88.5	94.0	103.4	104.1	104.2	100.1
Human health and social work activities	86.5	85.5	80.7	70.3	72.2	67.9	65.6	60.2	59.2	58.7	62.3
Arts, entertainment and recreation	99.4	92.5	89.7	88.8	90.3	94.1	94.0	95.0	86.0	86.4	97.4
Other service activities	83.0	79.5	80.3	74.1	76.1	78.9	75.8	76.1	78.0	78.7	82.1
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	95.9	96.6	100.2	102.1	102.3	104.8	105.0	106.3	106.0	105.2	104.0
- Budgetary institutions	111.5	110.2	100.9	96.8	95.5	89.7	89.8	88.2	88.8	90.2	92.7

Note: The data are recalculated based on the industrial classification system in effect from 2008.

Earnings data include payments to public works participants.

Source: *KSH* mid-year IMS. Gross earnings, gross earnings index: *STADAT* (2018.02.20. version).

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent06_02b

STATISTICAL DATA

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

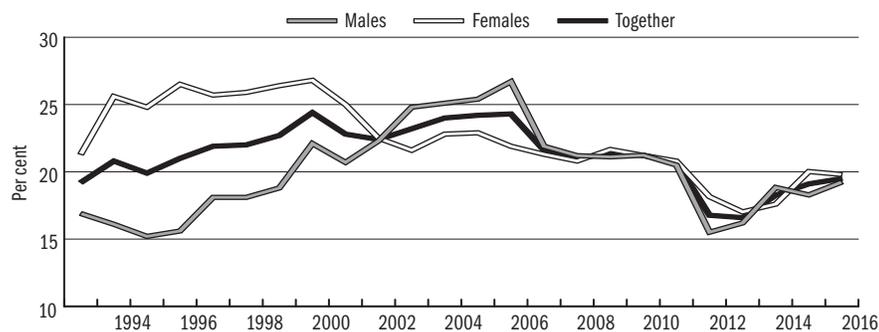
Note: the results indicate the earnings differentials of the various groups relative to the reference group in log points (approximately percentage points). All parameters are significant at the 0.01 level. The region parameters can be seen in Table 9.6.

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/2018ent06_03

Figure 6.2: The percentage of low paid workers by gender, per cent



Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ena06_02

Table 6.4: Percentage of low paid workers^a by gender, age groups, level of education and industries

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
By gender																	
Males	22.1	20.7	22.3	24.8	25.1	25.4	26.7	21.9	21.2	21.1	21.2	20.5	15.5	16.2	18.8	18.3	19.2
Females	26.8	25.0	22.5	21.6	22.8	22.9	21.9	21.3	20.8	21.7	21.2	20.8	18.2	17.0	17.6	20.0	19.8
By age groups																	
-24	37.0	35.5	37.6	39.9	43.9	44.2	46.3	40.1	34.6	38.9	38.2	36.6	26.4	30.9	29.7	31.2	31.7
25-54	22.8	21.9	21.8	22.3	23.6	24.0	24.2	21.4	20.6	21.0	20.9	20.4	16.3	16.3	18.0	18.5	19.0
55+	19.8	18.1	16.2	15.3	16.5	16.5	16.4	15.8	15.5	17.6	18.1	17.6	17.0	14.3	16.4	18.5	18.7
By level of education																	
8 grades of primary school or less	43.4	40.4	38.3	37.1	39.6	41.2	40.1	41.4	41.3	47.4	43.4	45.4	38.6	38.7	41.1	42.1	40.1
Vocational school	31.2	29.4	32.1	35.4	35.7	36.8	37.9	32.9	32.1	33.5	33.3	31.3	25.2	24.0	27.5	28.3	30.0
Secondary school	18.8	18.0	16.5	17.7	18.6	18.6	19.7	16.1	15.4	16.4	17.3	17.2	13.7	15.3	17.0	18.4	19.1
Higher education	4.7	4.7	3.6	3.5	3.9	3.8	4.3	2.5	2.4	2.3	2.9	2.7	2.0	2.5	3.0	2.9	3.9
By industries^b																	
Agriculture, forestry, fishing	38.0	34.3	37.9	37.3	37.1	37.5	41.6	37.9	36.6	36.7	34.6	31.8	21.8	26.3	28.2	25.8	24.6
Manufacturing	20.0	19.1	19.4	25.4	24.7	22.1	24.1	20.8	23.5	23.0	20.5	19.4	13.7	14.1	16.7	15.1	15.9
Construction	42.9	41.7	44.8	49.8	51.2	50.2	55.2	43.1	37.5	38.1	43.0	41.9	31.8	35.9	43.8	41.0	44.7
Trade, repairing	42.8	41.3	44.0	49.0	49.3	51.5	49.4	40.9	35.9	35.2	36.4	35.2	24.2	27.3	28.9	31.3	31.8
Transport, storage, communication	11.3	10.6	10.5	13.6	12.6	13.8	15.1	13.2	14.6	11.2	13.3	13.1	10.1	11.6	14.9	13.8	13.6
Financial intermediation	25.3	22.6	20.7	23.1	23.9	24.6	26.2	20.9	20.0	20.5	20.7	19.6	15.0	16.6	19.0	16.5	18.7
Public administration and defence, compulsory social security	13.7	13.8	9.3	6.6	8.2	6.0	6.3	7.4	6.7	8.7	8.8	9.8	13.4	9.1	11.8	15.3	13.2
Education	21.5	22.6	16.0	4.8	6.9	8.8	6.1	9.0	7.2	11.9	10.6	11.2	16.3	14.9	10.2	15.7	13.8
Health and social work	26.7	19.9	16.1	6.3	8.4	10.3	8.6	12.6	11.1	14.5	13.8	14.3	18.2	13.6	9.2	14.6	14.8
Total	24.4	22.8	22.4	23.2	24.0	24.2	24.3	21.6	21.0	21.4	21.2	20.7	16.8	16.6	18.3	19.1	19.5

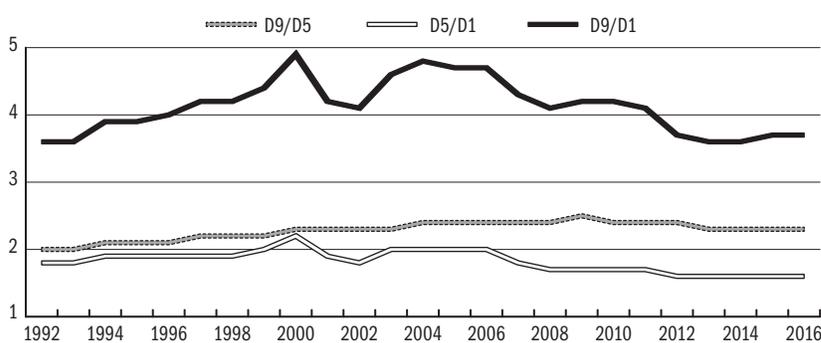
^a Percentage of those who earn less than 2/3 of the median earning amount.

^b 2000–2008: by TEÁOR'03, 2009: by TEÁOR'08.

Source: NFSZ BT.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent06_04

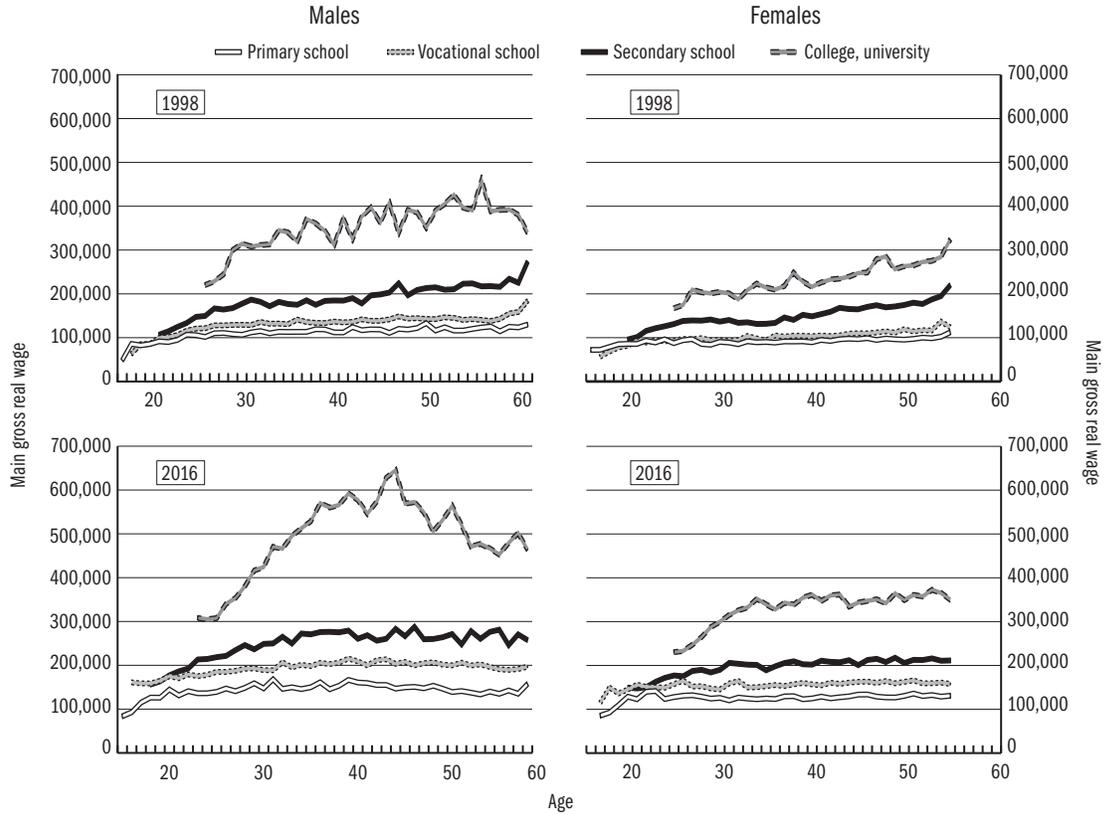
Figure 6.3: The dispersion of gross monthly earnings



Source: NFSZ BT.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ena06_03

Figure 6.4: Age-income profiles by education level in 1998 and 2016, women and men

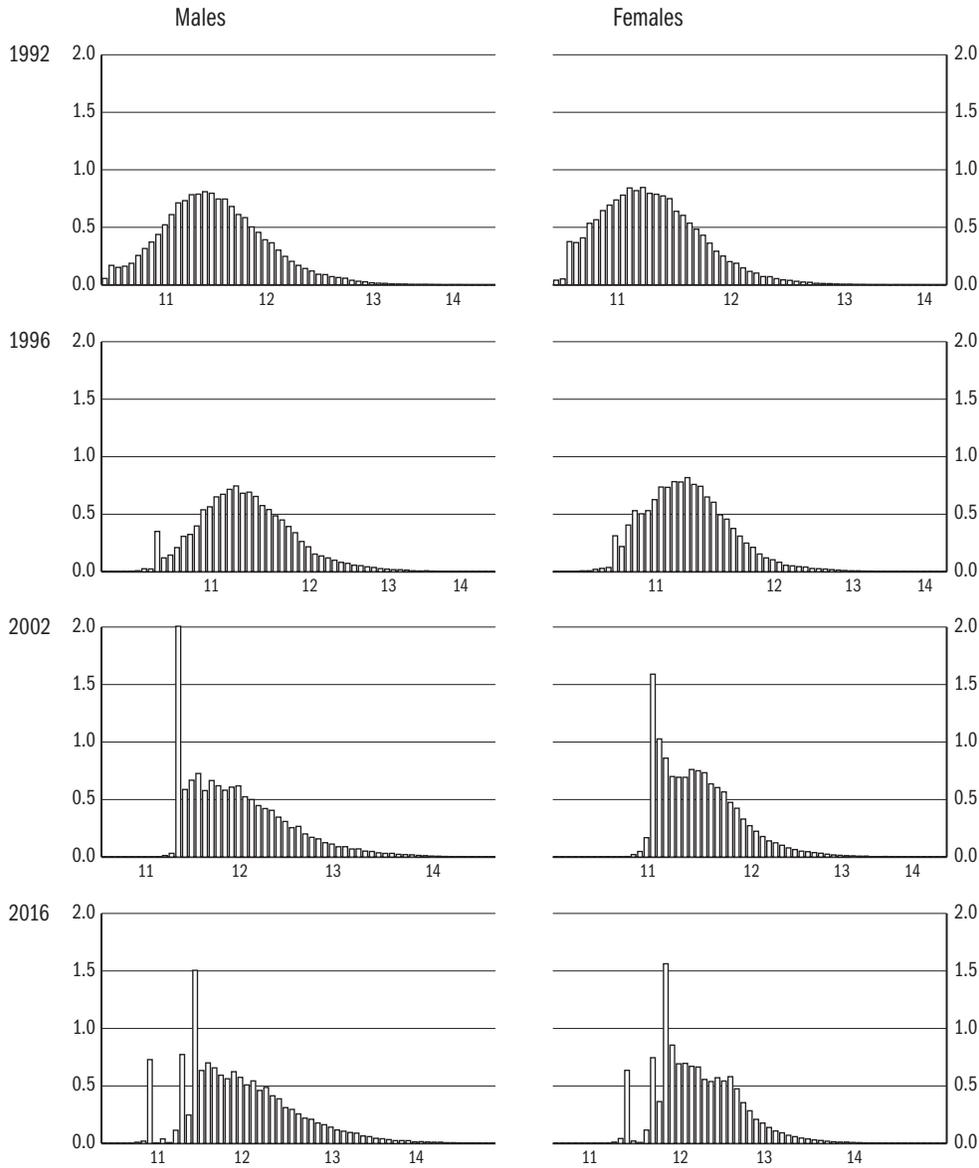


Source: NFSZ BT.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ena06_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/2018ena06_05



Table 7.1: Graduates in full-time education

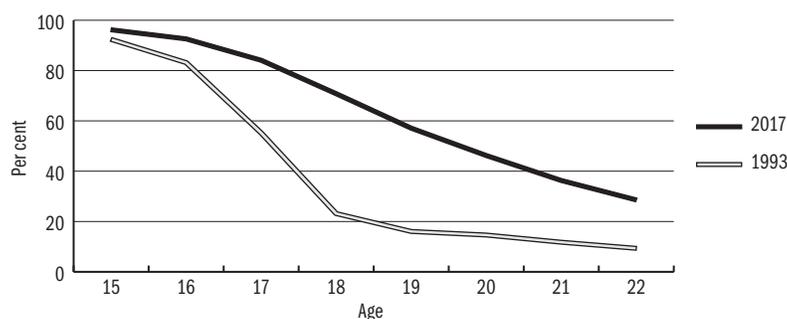
Year	Students finished 8 th grade	Students passed final examination at secondary level	Students passed vocational examination	Students graduated at tertiary education
1990	169,059	53,039	61,099	15,963
1995	126,066	70,265	67,234	20,024
1996	124,115	73,413	65,022	22,147
1997	120,378	75,564	56,994	24,411
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	39,653
2017	89,480	61,025	36,323	37,771

^a Estimated data.

Source: *KSH STADAT* (Education – Time series of annual data).

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent07_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/2018ena07_01

Table 7.2: Pupils/students entering the school system by level of education, full-time education

School year	Primary schools	Vocational schools and special skills development schools ^a	Secondary vocational schools ^b	Secondary general schools	Vocational grammar schools ^c	Tertiary undergraduate (BA/BSc) and postgraduate (MA/MSc) training ^d
2003/2004	108,447	2,505	33,531	43,130	49,725	59,699
2004/2005	104,757	2,560	32,823	44,097	49,422	59,783
2005/2006	101,157	2,684	33,276	46,252	49,979	61,898
2006/2007	99,025	2,795	32,780	45,711	50,328	61,231
2007/2008	101,447	2,809	32,012	43,796	49,212	55,789
2008/2009	99,871	2,907	32,852	43,150	47,571	52,755
2009/2010	99,270	2,935	34,270	41,398	46,371	61,948
2010/2011	97,664	2,780	35,386	42,464	46,223	68,715
2011/2012	98,462	2,637	35,507	40,819	42,255	70,954
2012/2013	100,183	2,555	37,033	38,665	39,504	67,014
2013/2014	107,108	2,320	35,015	41,650	41,624	46,931
2014/2015	101,070	3,562	32,068	42,744	39,825	44,867
2015/2016	97,553	3,617	30,400	44,803	39,351	43,080
2016/2017	95,391	3,593	30,265	47,326	38,157	43,292
2017/2018	89,343	3,497	28,046	48,608	36,582	42,856

^a Till 2015/2016 school year students in special vocational schools.

^b Till 2015/2016 school year students in vocational schools.

^c Till 2015/2016 school year students in secondary vocational schools.

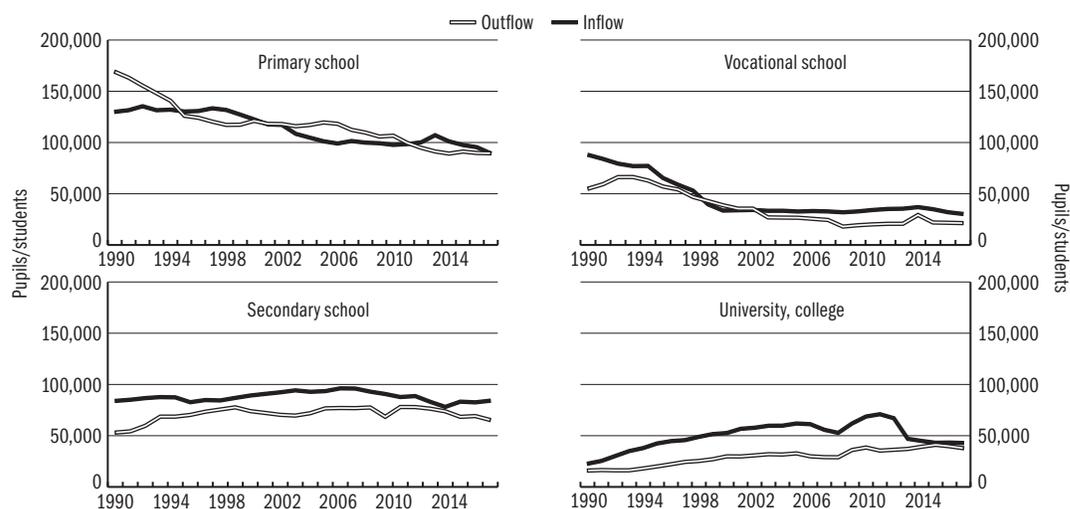
^d Including students in university and college level education and undivided training.

Note: In secondary schools number of students in 9th grade. In tertiary education number of students in 1st grade, from 2013/2014 school year number of new entrants.

Source: KSH STADAT (Education – Time series of annual data).

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent07_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/2018ena07_02

STATISTICAL DATA

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
2004/2005	887,785	8,369	123,403	193,366	245,302	212,292
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

^a Till 2015/2016 school year students in special vocational schools.

^b Till 2015/2016 school year students in vocational schools.

^c Till 2015/2016 school year students in secondary vocational schools.

^d Including students in university and college level education and undivided training.

Note: In secondary schools number of students in 9th grade. In tertiary education number of students in 1st grade, from 2013/2014 school year number of new entrants.

Source: *KSH STADAT* (Education – Time series of annual data).

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent07_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
2004/2005	2,766	-	3,505	45,484	44,837	166,174
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

^a Till 2015/2016 school year students in special vocational schools.

^b Till 2015/2016 school year students in vocational schools.

^c Till 2015/2016 school year students in secondary vocational schools.

^d Including students in university and college level education and undivided training.

Note: In secondary schools number of students in 9th grade. In tertiary education number of students in 1st grade, from 2013/2014 school year number of new entrants.

Source: *KSH STADAT* (Education – Time series of annual data).

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent07_04

Table 7.5: Number of applicants for full-time high school courses

Year	Applying	Admitted	Admitted as a percentage of applied	Applying	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

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/2018ent07_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		
1992	21,793	-	556,965	3.9
1993	34,375	-	671,745	5.1
1994	35,569	-	568,366	6.3
1995	28,680	-	507,695	5.6
1996	38,297	-	500,622	7.6
1997	42,544	-	470,112	9.0
1998	46,624	-	423,121	11.0
1999	51,438	-	409,519	12.6
2000	50,000	-	390,492	12.8
2001	45,194	-	364,140	12.4
2002	44,603	-	344,715	12.9
2003	47,239	-	357,212	13.2
2004	48,223	-	375,950	12.8
2005	41,615	-	409,929	10.2
2006	41,677	-	393,465	10.6
2007	29,933	-	426,915	7.0
2008	25,364	-	442,333	5.7
2009	20,739	-	561,768	3.7
2010	22,241	-	582,664	3.8
2011	41,123	-	582,868	7.1
2012	35,850	18,669	559,102	6.4
2013	51,524	27,028	527,624	9.8
2014	75,444	37,840	422,445	16.4
2015	73,122	34,591	378,181	19.3
2016	96,841	49,405	313,782	30.9
2017	88,243	43,659	282,970	19.1

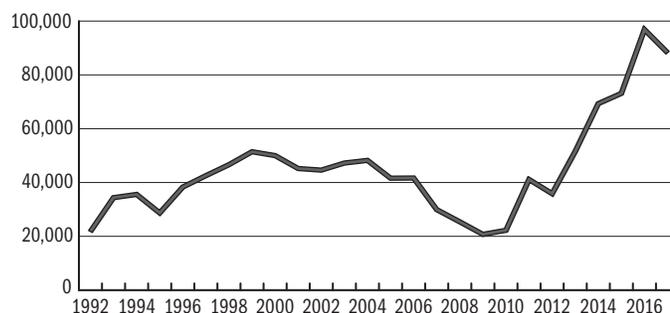
^a Monthly average stock figures.

^b Since 1st of November, 2005: registered jobseekers.

Source: NFSZ.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent08_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/2018ena08_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

^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/2018ent08_02

Table 8.3: The number of vacancies

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of persons ^a	32,500	37,044	34,633	23,156	27,167	28,724	26,523	32,802	37,709	44,552	55,202	66,118
Per cent ^b	1.2	1.4	1.3	0.9	1.0	1.1	1.0	1.2	1.4	1.5	1.9	2.2

^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: 2017.03.20. version, downloaded: 2017.05.02.)

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent08_03

Table 8.4: Firms intending to increase/decrease their staff^a, per cent

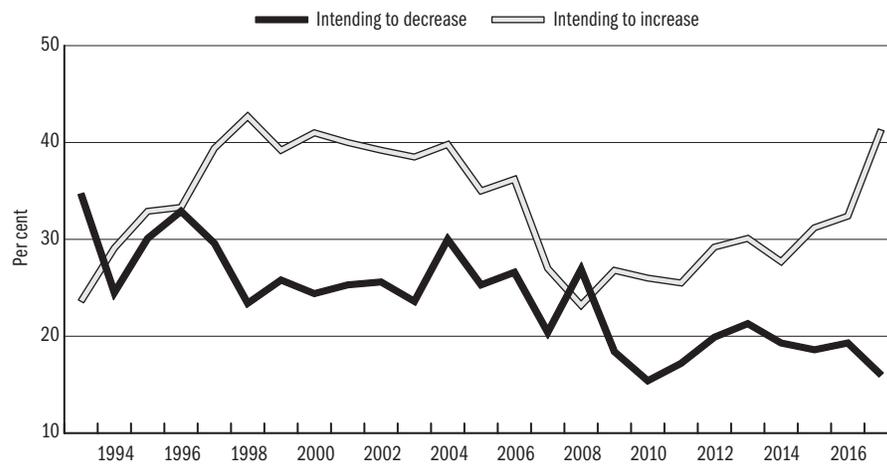
Year		Intending to decrease	Intending to increase	Year		Intending to decrease	Intending to increase
1995	I.	30.1	32.9	2003	I.	23.6	38.5
	II.	30.9	27.5		II.	32.1	34.3
1996	I.	32.9	33.3	2004		30.0	39.8
	II.	29.4	30.4	2005		25.3	35.0
1997	I.	29.6	39.4	2006		26.6	36.2
	II.	30.7	36.8	2007		20.4	27.0
1998	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		16.1	41.3

^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/2018ent08_04

Figure 8.2: Firms intending to increase/decrease their staff



Source: NFSZ PROG.

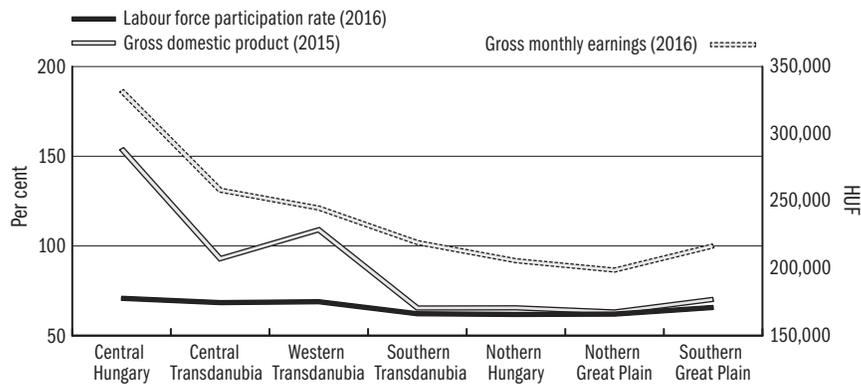
Online data source in xls format: http://www.bpdata.eu/mpt/2018ena08_02

Table 9.1: Regional inequalities: Employment rate^a

Year	Central Hungary	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
1996	56.8	52.7	59.3	50.3	45.7	45.6	52.8	52.4
1997	56.8	53.6	59.8	50.0	45.7	45.2	53.6	52.5
1998	57.7	56.0	61.6	51.5	46.2	46.4	54.2	53.7
1999	59.7	58.5	63.1	52.8	48.1	48.8	55.3	55.6
2000	60.5	59.2	63.4	53.5	49.4	49.0	56.0	56.3
2001	60.6	59.3	63.1	52.3	49.7	49.5	55.8	56.2
2002	60.9	60.0	63.7	51.6	50.3	49.3	54.2	56.2
2003	61.7	62.3	61.9	53.4	51.2	51.6	53.2	57.0
2004	62.9	60.3	61.4	52.3	50.6	50.4	53.6	56.8
2005	63.3	60.2	62.0	53.4	49.5	50.2	53.8	56.9
2006	63.1	61.3	62.5	53.2	50.7	51.1	54.0	57.4
2007	62.9	61.4	62.8	51.0	50.4	50.3	54.5	57.0
2008	62.7	59.9	61.6	50.8	49.4	49.5	54.0	56.4
2009	61.3	57.3	59.2	51.7	48.2	48.0	52.9	55.0
2010	60.0	57.0	58.6	52.4	48.3	49.0	54.1	54.9
2011	60.2	59.1	59.9	51.1	48.4	49.9	54.1	55.4
2012	61.7	59.2	61.0	51.9	49.1	51.8	55.5	56.7
2013	62.7	60.7	61.8	54.8	51.6	53.2	56.3	58.1
2014	66.0	64.3	65.8	58.6	55.7	57.3	59.7	61.8
2015	67.6	67.9	67.5	60.2	59.0	58.9	62.2	63.9
2016	70.8	68.4	68.9	62.2	61.8	62.0	65.7	66.5
2017	71.9	70.5	71.0	63.0	63.5	64.4	67.4	68.2

^a Age: 15–64.Source: *KSH MEF*.Online data source in xls format: http://www.bpdata.eu/mpt/2018ent09_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/2018ena09_01

STATISTICAL DATA

Table 9.2: Regional inequalities: LFS-based unemployment rate^a

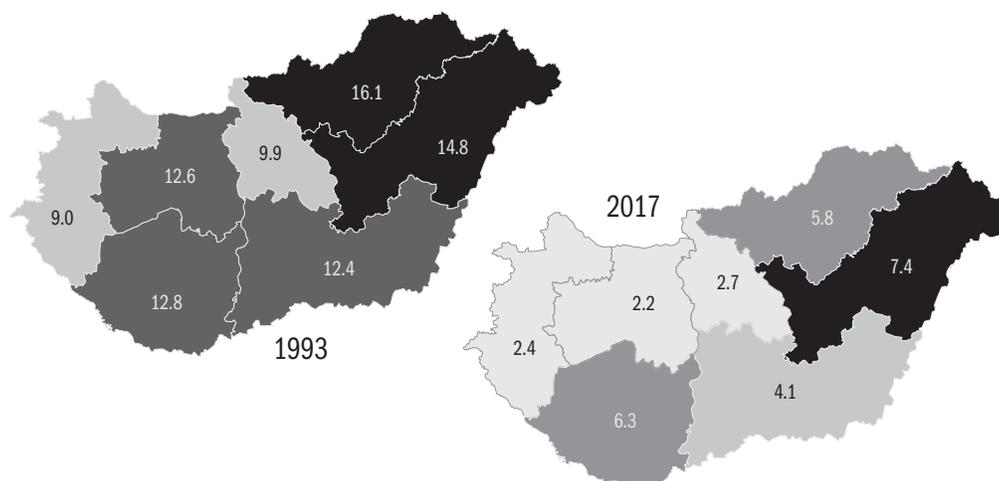
Year	Central Hungary	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
1996	8.2	10.4	7.1	9.4	15.5	13.2	8.4	10.0
1997	7.0	8.1	6.0	9.9	14.0	12.0	7.3	8.8
1998	5.7	6.8	6.1	9.4	12.2	11.1	7.1	7.8
1999	5.2	6.1	4.4	8.3	11.6	10.2	5.8	7.0
2000	5.3	4.9	4.2	7.8	10.1	9.3	5.1	6.4
2001	4.3	4.3	4.1	7.7	8.5	7.8	5.4	5.7
2002	3.9	5.0	4.0	7.9	8.8	7.8	6.2	5.8
2003	4.0	4.6	4.6	7.9	9.7	6.8	6.5	5.9
2004	4.5	5.6	4.6	7.3	9.7	7.2	6.3	6.1
2005	5.2	6.3	5.9	8.8	10.6	9.1	8.2	7.2
2006	5.1	6.0	5.8	9.2	10.9	10.9	8.0	7.5
2007	4.8	4.9	5.1	9.9	12.6	10.7	8.0	7.4
2008	4.5	5.8	5.0	10.3	13.3	12.1	8.7	7.8
2009	6.5	9.2	8.7	11.2	15.3	14.1	10.6	10.0
2010	8.9	10.0	9.3	12.4	16.2	14.4	10.4	11.2
2011	9.0	9.5	7.3	12.9	16.4	14.6	10.5	11.0
2012	9.5	9.9	7.5	12.1	16.1	13.9	10.3	11.0
2013	8.7	8.7	7.7	9.3	12.6	14.2	11.0	10.2
2014	6.2	5.6	4.6	7.8	10.4	11.8	9.0	7.7
2015	5.3	4.4	3.8	8.1	8.7	10.9	7.9	6.8
2016	3.8	3.0	2.7	6.2	6.3	9.3	5.6	5.1
2017	2.7	2.2	2.4	6.3	5.8	7.4	4.1	4.2

^a Age: 15–74.

Source: *KSH MEF*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent09_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/2018ena09_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
1999	4.5	8.7	5.9	12.1	17.1	16.1	10.4	9.7
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

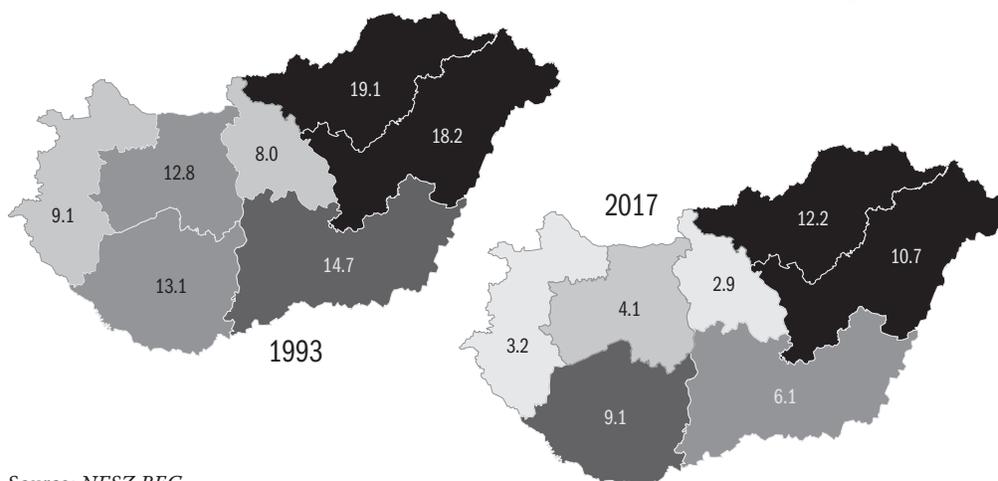
^a Since 1st of November, 2005: the ratio of registered jobseekers. From the 1st of November, 2005 the Employment Act changed the definition of registered unemployed to registered jobseekers.

^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/2018ent09_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/2018ena09_03

STATISTICAL DATA

Table 9.4: Annual average registered unemployment rate^a by counties, per cent^b

County	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Budapest	3.0	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
Baranya	11.6	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
Bács-Kiskun	10.0	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
Békés	13.1	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
Borsod-Abaúj-Zemplén	20.3	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
Csongrád	8.6	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
Fejér	7.2	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
Győr-Moson-Sopron	4.6	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
Hajdú-Bihar	14.7	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
Heves	12.0	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
Jász-Nagykun-Szolnok	13.4	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
Komárom-Esztergom	8.3	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
Nógrád	14.9	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
Pest	5.2	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
Somogy	11.9	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
Szabolcs-Szatmár-Bereg	19.5	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
Tolna	11.8	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
Vas	5.2	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
Veszprém	7.2	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
Zala	7.2	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
Total	9.3	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

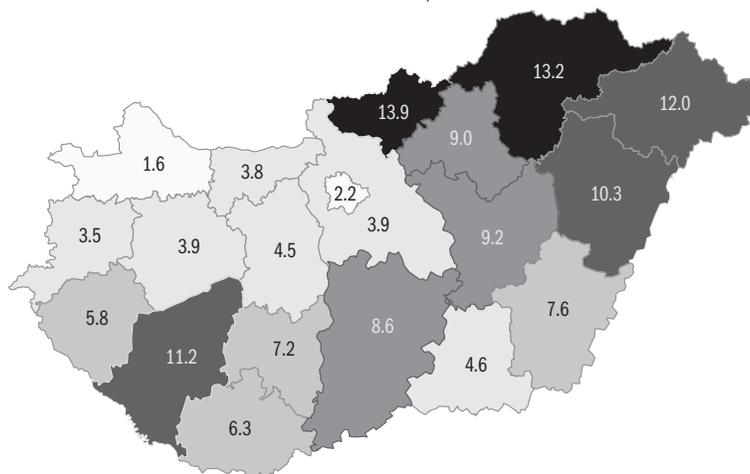
^a Since 1st of November, 2005: the ratio of registered jobseekers. From the 1st of November, 2005 the Employment Act changed the definition of registered unemployed to registered jobseekers.

^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/2018ent09_04

Figure 9.4: Regional inequalities: Means of registered unemployment rates in the counties, 2016



Source: NFSZ REG.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ena09_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
2002	149,119	110,602	106,809	98,662	102,263	98,033	97,432	117,672
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

^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.

Source: *NFSZ BT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent09_05

Table 9.6: Regression-adjusted earnings differentials

Year	Central Hungary	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain
2002	0.0903	-0.0378	-0.1120	-0.0950	-0.1170	-0.1070
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/2018ent09_06

STATISTICAL DATA

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								
2003	3,017	1,733	2,023	1,351	1,221	1,264	1,311	1,889
2004	3,347	1,963	2,148	1,464	1,364	1,371	1,459	2,088
2005	3,631	2,102	2,213	1,544	1,480	1,439	1,540	2,237
2006	3,968	2,190	2,426	1,619	1,553	1,533	1,617	2,409
2007	4,242	2,356	2,487	1,717	1,627	1,597	1,679	2,554
2008	4,492	2,442	2,623	1,840	1,683	1,697	1,815	2,709
2009	4,429	2,199	2,465	1,811	1,603	1,707	1,742	2,636
2010	4,513	2,359	2,697	1,839	1,637	1,726	1,765	2,722
2011	4,592	2,514	2,875	1,916	1,709	1,840	1,901	2,839
2012	4,718	2,555	2,920	1,969	1,727	1,874	1,976	2,901
2013	4,923	2,735	3,082	2,071	1,865	1,933	2,118	3,057
2014	5,150	2,991	3,536	2,207	2,081	2,132	2,345	3,303
2015	5,365	3,243	3,759	2,258	2,309	2,213	2,492	3,487
2016	5,475	3,422	3,952	2,377	2,394	2,298	2,576	3,609
Per cent								
2003	159.7	91.7	107.1	71.5	64.6	66.9	69.4	100.0
2004	160.3	94.0	102.9	70.1	65.4	65.7	69.9	100.0
2005	162.4	94.0	98.9	69.0	66.2	64.4	68.9	100.0
2006	164.8	90.9	100.7	67.2	64.5	63.7	67.1	100.0
2007	166.1	92.3	97.4	67.2	63.7	62.5	65.7	100.0
2008	165.8	90.1	96.8	67.9	62.1	62.6	67.0	100.0
2009	168.0	83.4	93.5	68.7	60.8	64.8	66.1	100.0
2010	165.8	86.6	99.1	67.6	60.1	63.4	64.8	100.0
2011	161.8	88.6	101.3	67.5	60.2	64.8	67.0	100.0
2012	162.6	88.1	100.7	67.9	59.5	64.6	68.1	100.0
2013	161.0	89.4	100.8	67.7	61.0	63.2	69.3	100.0
2014	155.9	90.5	107.0	66.8	63.0	64.5	71.0	100.0
2015	153.8	93.0	107.8	64.8	66.2	63.5	71.5	100.0
2016	151.7	94.8	109.5	65.8	66.3	63.7	71.4	100.0

Note: The data on 2000–2015 have been retrospectively revised following ESA2010 standards (European System of National and Regional Accounts).

Source: KSH.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent09_07

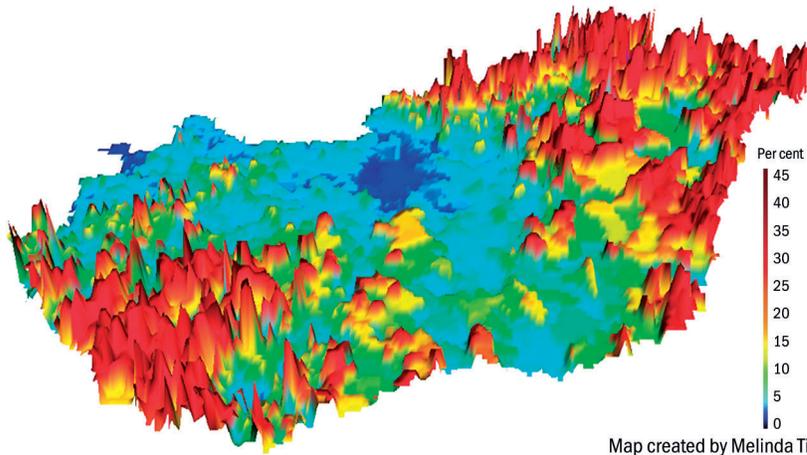
Table 9.8: Commuting

Year	Working in the place of residence		Commuter	
	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, LFS ad-hoc module.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent09_08

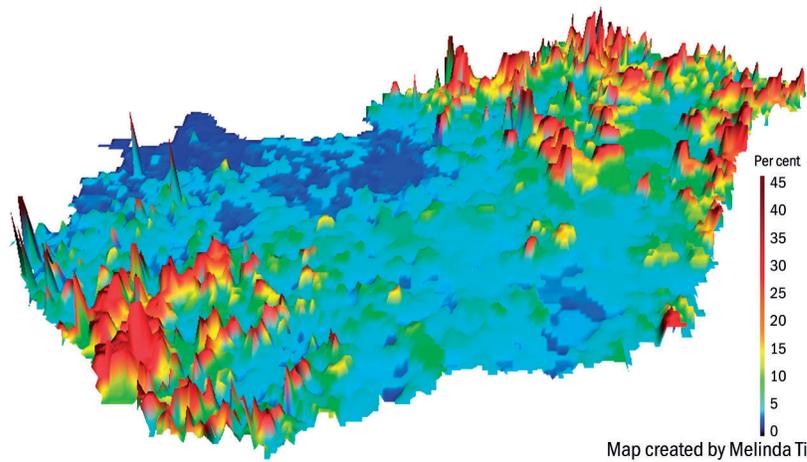
Figure 9.5: The share of registered unemployed relative to the population aged 15–64, 1st quarter 2007, per cent



Note: The ratio of registered unemployed was calculated using the following method: 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/2018ena09_05

Figure 9.6: The share of registered unemployed relative to the population aged 15–64, 1st quarter 2017, per cent

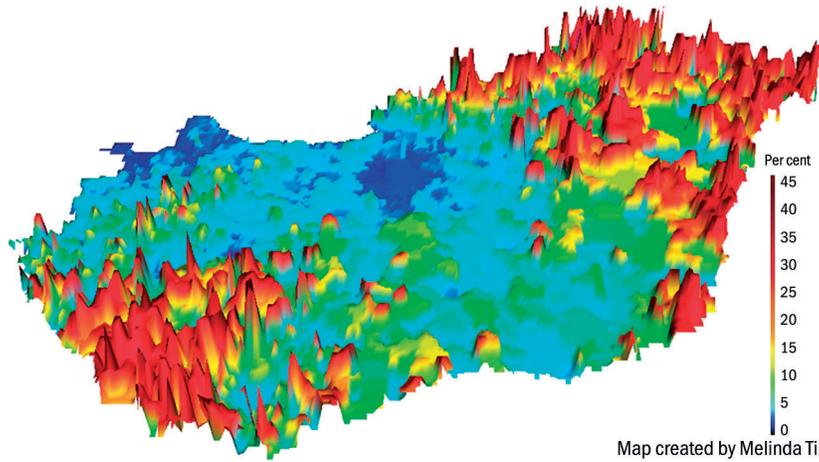


Note: The ratio of registered unemployed was calculated using the following method: number of registered unemployed divided by the permanent population of age 15–64. The number of registered unemployed is a quarterly average. The permanent population data is from the year 2016 (since 2017 data is not yet available).

Source: *Registered unemployed: NFSZ IR. Population: KSH T-Star.*

Online data source in xls format: http://www.bpdata.eu/mpt/2018ena09_06

Figure 9.7: The share of registered unemployed relative to the population aged 15–64, 3rd quarter 2007, per cent

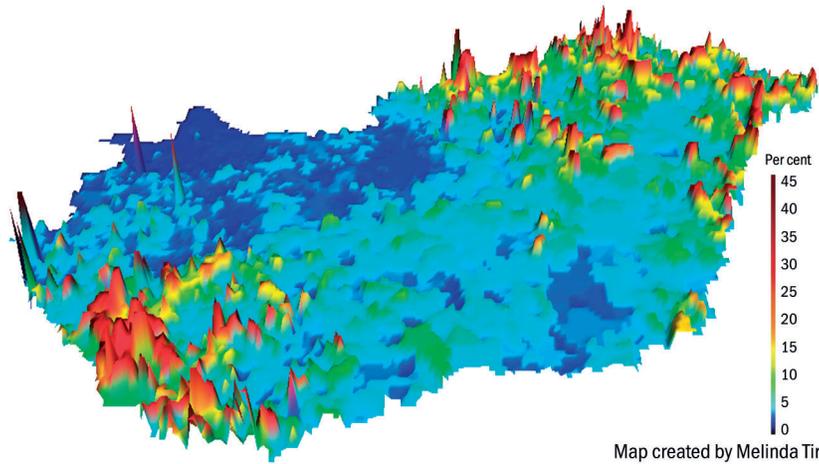


Note: The ratio of registered unemployed was calculated using the following method: number of registered unemployed divided by the permanent population of age 15–64. The number of registered unemployed is a quarterly average. The permanent population data is annual.

Source: *Registered unemployed: NFSZ IR. Population: KSH T-Star.*

Online data source in xls format: http://www.bpdata.eu/mpt/2018ena09_07

Figure 9.8: The share of registered unemployed relative to the population aged 15–64, 3rd quarter 2017, per cent



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 from the year 2016 (since 2017 data is not yet available).

Source: *Registered unemployed: NFSZ IR. Population: KSH T-Star.*

Online data source in xls format: http://www.bpdata.eu/mpt/2018ena09_08

Table 10.1: Strikes

Year	Number of strikes	Number of persons involved	Hours lost, in thousands
2001	6	21,128	61
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

Source: *KSH STADAT* strike statistics (2018.06.29. version).

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent10_01

Table 10.2: National agreements on wage increase recommendations^a

Year	OÉT - from 2013 VKF - Recommendations			Actual indexes	
	Minimum	Average	Maximum	Budgetary sector	Competitive sector
2001	122.9	116.3
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	102.6 ^b
2011	..	104.0-106.0	..	99.3	105.4
2012	-	no wage recommendations	-	103.7	107.3
2013	..	real wage preservation	..	110.9	103.4 ^b
2014	..	103.5	..	105.9	104.3
2015	..	103.0-104.0	..	106.3	103.9
2016	..	verbal recommendation was issued and accepted	..	109.6	105.4
2017	..	verbal recommendation was issued and accepted	..	113.0	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, PM*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent10_02

STATISTICAL DATA

Table 10.3: Single employer collective agreements in the business sector

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of agreements	1,033	1,032	1,027	962	966	959	942	951	951	950	994	995
Number of persons covered	489,568	532,065	467,964	432,086	448,138	448,980	442,723	448,087	443,543	458,668	463,823	386,947

Source: *PM*, Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent10_03

Table 10.4: Single institution collective agreements in the public sector

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of agreements	1,435	1,711	1,710	1,737	1,751	1,744	1,735	1,736	1,734	798	800	804
Number of persons covered	203,497	224,246	222,547	225,434	224,651	222,136	261,401	260,388	259,797	301,430	312,055	270,583

Source: *PM*, Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent10_04

Table 10.5: Multi-employer collective agreements in the business sector

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of agreements	75	74	78	80	82	81	81	83	83	83	84	84
Number of persons covered	86,079	83,117	80,506	222,236	221,627	202,005	204,585	173,614	219,050	299,487	313,044	266,212

Source: *PM*, Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent10_05

Table 10.6: Multi-institution collective agreements in the public sector

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of agreements	4	2	1	1	1	1	0	0	0	0	0	0
Number of persons covered	360	238	..	..	..	320	0	0	0	0	0	0

Source: *PM*, Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent10_06

Table 10.7: The number of firm wage agreements^a, the number of affected firms, and the number of employees covered

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of agreements	302	214	202	785	905	888	863	874	876	867	878	873
Number of persons covered	151,022	171,259	100,206	377,677	414,522	416,562	415,751	422,887	384,182	424,914	437,238	368,021

^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: *PM*, Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent10_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

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of agreements	40	44	40	45	62	68	68	73	74	74	74	73	70
Number of companies	145	162	147	150	2,350	2,460	2,199	2,219	1,096	2,886	3,700	1,833	1,833
Number of persons covered	35,039	42,817	33,735	40,046	191,258	211,753	180,131	191,013	160,092	208,128	289,154	199,779	165,789

^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: *PM*, Employment Relations Information System.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent10_08

Table 10.9: The share of employees covered by collective agreements, percent^a

Industries	Multi-employer collective agreements in the business sector ^b					Single employer collective agreements in the national economy				
	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
Agriculture	23.08	21.12	40.83	36.90	35.88	11.71	9.87	21.81	15.77	14.34
Mining and quarrying	5.36	5.35	6.87	16.02	16.21	40.51	40.46	58.42	52.92	35.02
Manufacturing	11.95	11.94	10.82	11.15	8.96	25.95	25.86	27.28	27.14	21.61
Electricity, gas, steam and air conditioning supply	69.67	73.69	78.50	89.54	84.24	53.09	53.19	58.00	55.15	52.27
Water supply; sewerage, waste management and remediation activities	23.87	27.10	35.25	43.26	42.61	46.61	46.57	59.09	57.08	53.44
Construction	99.88	98.00	98.91	98.54	98.56	5.84	6.65	6.63	5.57	3.80
Wholesale and retail trade; repair of motor vehicles and motorcycles	6.83	6.88	7.56	6.65	5.84	7.82	7.71	7.34	6.81	5.03
Transportation and storage	14.82	37.38	42.22	50.17	57.91	56.65	54.40	59.69	61.93	69.12
Accommodation and food service activities	92.42	87.66	93.51	94.02	93.26	6.49	6.24	5.62	5.75	2.94
Information and communication	0.88	0.81	0.74	0.58	0.28	20.14	19.19	20.81	17.64	15.04
Financial and insurance activities	5.24	5.36	5.85	5.94	6.05	33.41	32.89	37.50	37.05	36.78
Real estate activities	15.73	17.36	16.77	16.81	1.38	24.61	26.14	26.82	29.89	5.68
Professional, scientific and technical activities	4.58	4.49	5.39	4.20	0.85	12.24	12.78	10.37	7.45	4.71
Administrative and support service activities	6.22	7.06	6.30	6.24	3.96	8.01	8.17	6.18	5.87	2.63
Public administration and defence; compulsory social security	..	..	..	..	0.00	14.52	15.55	7.27	9.75	3.82
Education	3.91	4.81	5.43	2.27	2.32	41.94	44.98	70.79	68.30	61.75
Human health and social work activities	..	..	..	..	0.00	34.48	36.38	26.50	27.36	24.35
Arts, entertainment and recreation	0.16	0.14	0.09	0.02	0.00	24.01	22.99	21.68	23.51	21.15
Other service activities	0.63	1.46	7.58	2.54	1.52	8.76	6.88	11.80	12.58	11.18
National economy, total	19.34	21.51	20.85	23.66	22.14	24.24	24.59	25.84	25.99	22.14

^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.

Source: *PM*, Employment Relations Information System, Register of Collective Agreements.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent10_09

STATISTICAL DATA

Table 10.10: Single employer collective agreements in the national economy

Industries	Number of collective agreements						The number of employees covered by collective agreements					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Agriculture	65	66	66	66	66	65	7,628	8,709	7,680	17,603	12,263	10,990
Mining and quarrying	9	9	9	9	9	9	2,142	1,475	1,498	2,057	1,751	1,136
Manufacturing	344	354	355	353	346	343	157,710	157,659	157,178	174,379	180,257	148,315
Electricity, gas, steam and air conditioning supply	47	45	44	43	45	44	13,807	12,194	12,414	13,450	13,210	12,410
Water supply; sewerage, waste management and remediation activities	67	68	68	69	59	56	19,175	19,010	19,010	25,021	25,796	23,283
Construction	45	45	46	47	45	46	6,153	6,190	7,488	7,540	6,358	4,511
Wholesale and retail trade; repair of motor vehicles and motorcycles	119	118	119	117	115	112	25,686	25,573	25,565	25,212	24,197	18,326
Transportation and storage	57	59	59	50	91	96	104,150	98,748	96,550	109,336	125,960	112,168
Accommodation and food service activities	36	35	35	34	36	36	6,576	4,944	4,986	4,969	5,127	2,805
Information and communication	14	15	15	15	16	16	13,540	13,727	13,727	15,514	13,954	12,255
Financial and insurance activities	27	26	26	26	27	29	22,300	20,892	20,892	22,476	22,882	22,285
Real estate activities	31	32	32	32	43	49	6,957	7,100	7,079	7,367	8,152	1,446
Professional, scientific and technical activities	53	54	54	57	55	53	8,628	10,047	10,047	9,534	7,432	4,981
Administrative and support service activities	24	25	24	24	23	25	11,080	11,206	11,080	10,238	9,589	4,270
Public administration and defence; compulsory social security	102	105	104	104	106	102	37,643	38,313	40,431	21,224	28,022	10,734
Education	1,295	1,291	1,292	352	355	354	113,995	102,582	114,377	176,637	177,956	175,162
Human health and social work activities	236	226	228	226	227	226	100,879	92,631	95,961	94,549	98,399	81,037
Arts, entertainment and recreation	92	91	91	92	96	96	7,786	7,637	7,592	9,341	9,955	8,181
Other service activities	18	19	18	19	21	20	1,515	1,514	1,474	2,283	2,552	2,311
National economy, total	2,681	2,683	2,685	1,735	1,781	1,777	667,350	640,151	655,029	748,730	773,812	656,606

Source: PM, Employment Relations Information System, Register of Collective Agreements.
 Online data source in xls format: http://www.bpdata.eu/mpt/2018ent10_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 multi-employer collective agreements					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Agriculture	600	27	41	706	673	678	16,833	17,098	17,002	32,822	28,586	27,359
Mining and quarrying	5	3	4	4	6	6	195	195	195	242	530	526
Manufacturing	179	155	174	231	237	240	75,700	70,908	72,623	67,668	72,432	60,161
Electricity, gas, steam and air conditioning supply	34	35	35	34	40	39	16,393	15,991	17,142	17,962	21,151	19,720
Water supply; sewerage, waste management and remediation activities	23	22	28	28	32	33	9,229	9,229	9,283	11,450	14,039	13,053
Construction	486	484	510	555	558	549	110,173	105,521	110,173	112,034	112,352	116,659
Wholesale and retail trade; repair of motor vehicles and motorcycles	68	47	192	240	221	209	22,258	22,316	22,827	25,944	23,640	21,256
Transportation and storage	157	155	1,209	1,560	1,620	1,618	26,867	24,972	63,934	73,515	97,689	89,412
Accommodation and food service activities	31	29	37	35	39	39	63,526	61,204	63,526	73,759	75,848	79,360
Information and communication	12	12	12	11	9	9	597	597	597	550	461	231
Financial and insurance activities	13	7	9	12	12	13	3,626	3,269	3,269	3,499	3,662	3,652
Real estate activities	47	28	34	40	42	47	4,048	4,048	4,055	4,030	4,255	330
Professional, scientific and technical activities	39	33	45	58	56	57	2,755	3,293	3,326	4,368	3,783	815
Administrative and support service activities	84	82	104	111	104	105	7,855	7,888	10,013	9,310	9,433	6,007
Public administration and defence; compulsory social security	0	0	1	3	3	3	0	0	0	1,540	1,571	1,388
Education	17	20	24	26	25	25	171	171	172	189	134	122
Human health and social work activities	1	0	2	0	0	0	..	0	..	0	0	0
Arts, entertainment and recreation	1	1	4	2	1	0	13	13	13	10	2	0
Other service activities	7	2	2	13	9	9	88	83	204	1,125	381	236
National economy, total	1,804	1,142	2,467	3,669	3,687	3,679	360,327	346,796	398,354	440,017	469,949	440,287

^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: PM, Employment Relations Information System, Register of Collective Agreements.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent10_11

STATISTICAL DATA

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
2008	24,521	1,246,640	74,518	94,514	28,871	41,631	31,381	167,021	29,221
2009	24,524	1,245,893	78,725	95,050	28,652	40,263	30,716	174,153	29,230
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

^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/2018ent11_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	
2008	49,454	97,047	27,347	213,436	121,969
2009	51,831	152,197	23,117	167,287	124,116
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

^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 re-named 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: Labour Market Report, 2001. KSH: Welfare systems 2007, Welfare Statistics, Yearbook of Demographics. KSH Social Statistics Yearbooks. KSH STADAT*.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent11_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
2000	1,671,090	33,258	35,931	762,514	29,217	31,556
2001	1,667,945	37,172	41,002	772,286	32,381	35,705
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/2018ent11_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, from 2015

Type of benefit	2015			2016			2017		
	Number of recipients	Average amount (HUF/month)		Number of recipients	Average amount (HUF/month)		Number of recipients	Average amount (HUF/month)	
		before increase	after increase		before increase	after increase		before increase	after increase
Old age pension	2,022,905	n.a.	118,439	2,014,666	n.a.	121,041	2,045,738	n.a.	123,725
- Old age pension of persons above the mandatory retirement age ^b	1,894,897	n.a.	118,194	1,870,457	n.a.	120,930	1,901,565	n.a.	123,799
- Pension for women entitled to retire before the mandatory age after having accumulated at least 40 accrual years	122,253	n.a.	117,926	139,639	n.a.	119,457	141,904	n.a.	121,184
- Old age pension of persons younger than the mandatory retirement age	5,755	n.a.	210,014	4,570	n.a.	215,017	2,269	n.a.	220,526

^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 accrual years.

^b From 2012 onwards, the disability pensions of persons older than the mandatory retirement age are granted as old-age pensions.

Source: MÁK.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent11_03b

STATISTICAL DATA

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
2000	15,491	18,309	196,689	14,435	2,852	48,581	215,032	15,167
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/2018ent11_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, from 2016

	2016			2017		
	Number of recipients	Average amount (HUF/month)		Number of recipients	Average amount (HUF/month)	
		before increase	after increase		before increase	after increase
Support for disabled persons						
Disability and rehabilitation provision	357,979	n.a.	69,399	355,188	n.a.	70,127
- Disability provision for persons older than the mandatory retirement age	52,215	n.a.	78,425	62,518	n.a.	80,833
- Disability provision for persons younger than the mandatory retirement	228,730	n.a.	73,215	249,909	n.a.	71,199
- Rehabilitation provision	92,951	n.a.	54,282	40,741	n.a.	45,604
- Rehabilitation benefit	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
- Annuity for miners with damaged health	2,038	n.a.	98,621	2,020	n.a.	100,817

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/2018ent11_04b

Table 11.5: The median age for retirement and the number of pensioners

Pension	2008		2009		2010		2011		2012	
	Age	Persons	Age	Persons	Age	Persons	Age	Persons	Age	Persons
Females										
Old age and similar pensions	57.3	39,290	59.9	15,243	60.7	13,617	58.5	84,922	59.2	51,416
Pension for women entitled to retire before the mandatory age after having accumulated at least 40 accrual years	-	-	-	-	-	-	57.6	54,770	57.8	26,562
Disability and accident-related disability pension	50.5	8,565	51.1	9,065	50.8	10,478	50.7	8,667	-	-
Rehabilitation annuity	44.1	1,604	44.9	6,574	47.6	6,789	47.2	4,386	..	..
Total	55.7	49,459	54.1	30,882	54.4	30,884	57.3	97,975	..	..
Males										
Old age and similar	59.8	25,749	59.7	37,116	60.2	37,219	60.3	43,240	61.8	20,990
Disability and accident-related disability pension	51.9	11,069	52.3	11,992	52.1	13,345	51.9	10,673	-	-
Rehabilitation annuity	44.5	1,556	44.8	6,278	47.4	6,123	47.0	4,102	..	..
Total	56.9	38,374	56.4	55,386	56.9	56,687	57.8	58,015	..	..
Together										
Old age and similar pensions	58.3	65,039	59.7	52,359	60.3	50,836	59.1	128,162	59.9	72,406
Disability and accident-related disability pension	51.3	19,634	51.8	21,057	51.5	23,823	51.4	19,340	-	-
Rehabilitation annuity	44.3	3,160	44.9	12,852	47.5	12,912	47.1	8,488	..	..
Total	56.2	87,833	55.6	86,268	56.0	87,571	57.5	155,990	..	..
	2013		2014		2015		2016		2017 ^a	
Females										
Old age and similar pensions	59.6	40,122	59.6	39,023	60	41,735	61.0	55,199	60.9	45,463
Pension for women entitled to retire before the mandatory age after having accumulated at least 40 accrual years	58.0	24,042	58.3	27,468	58.7	28,551	59.0	28,147	59.3	28,445
Disability and accident-related disability pension	-	-	-	-	-	-	-	-	-	-
Rehabilitation annuity	..	..	..	..	..	..	..	..	..	..
Total	..	..	..	..	..	..	..	..	..	..
Males										
Old age and similar pensions	62.2	21,579	62.7	18,668	62.7	22,214	63.1	49,512	63.5	30,586
Disability and accident-related disability pension	-	-	-	-	-	-	-	-	-	-
Rehabilitation annuity	..	..	..	..	..	..	..	..	..	..
Total	..	..	..	..	..	..	..	..	..	..
Together										
Old age and similar pensions	60.5	61,701	60.6	57,691	60.9	63,949	62.0	104,711	62.0	76,049
Disability and accident-related disability pension	-	-	-	-	-	-	-	-	-	-
Rehabilitation annuity	..	..	..	..	..	..	..	..	..	..
Total	..	..	..	..	..	..	..	..	..	..

^a Preliminary data.

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 on 2012–2015 have been revised and may differ from those in earlier publications.

Source: MÁK.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent11_05

STATISTICAL DATA

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	2011	32,314	33,429
2005	28,738	27,257	2012	32,560	33,426
2006	29,443	28,720	2013	32,463	33,422
2007	30,039	30,219	2014	32,497	33,422
2008	30,677	32,709	2015	32,528	34,034
2009	31,263	33,434	2016	32,430	34,581
2010	31,815	33,429	2017	32,789	35,147

Source: MÁK.

 Online data source in xls format: http://www.bpdata.eu/mpt/2018ent11_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	Old-age and old-age type pensions ^a			From the total: at the age limit			From the total: under the age limit		
	Total	Male	Female	Together	Male	Female	Together	Male	Female	Together
2000	55,558	18,071	29,526	47,597	613	813	1,426	16,089	26,859	42,948
2001	54,645	28,759	14,267	43,026	2,200	4,882	7,082	25,175	7,396	32,571
2002	52,211	30,209	25,719	55,928	2,593	646	3,239	26,346	23,503	49,849
2003	48,078	32,574	13,574	46,148	3,058	5,098	8,156	28,064	6,537	34,601
2004	44,196	35,940	36,684	72,624	3,842	989	4,831	30,234	33,817	64,051
2005	41,057	33,175	48,771	81,946	4,035	6,721	10,756	27,719	40,142	67,861
2006	36,904	34,207	47,531	81,738	4,013	732	4,745	29,025	45,675	74,700
2007	34,991	51,037	62,168	113,205	3,722	6,660	10,382	45,731	54,177	99,908
2008	19,832	25,912	39,423	65,335	3,154	288	3,442	22,180	38,761	60,941
2009	21,681	37,468	15,468	52,936	4,193	6,692	10,885	32,452	8,289	40,741
2010	24,094	37,394	13,719	51,113	6,350	7,213	13,563	29,990	5,801	35,791
2011	19,340	43,240	84,922	128,162	9,058	7,938	16,996	32,400	76,019	108,419
2012	n.a.	20,990	51,416	72,406	10,735	9,253	19,988	7,362	40,493	47,855
2013	n.a.	21,579	40,122	61,701	18,621	13,071	31,692	473	25,487	25,960
2014	n.a.	18,668	39,023	57,691	13,771	8,411	22,182	1,681	28,614	30,295
2015	n.a.	22,214	41,735	63,949	16,506	9,795	26,301	2,355	29,767	32,122
2016	n.a.	49,512	55,199	104,711	45,484	24,705	70,189	1,543	28,772	30,315
2017 ^b	n.a.	30,586	45,463	76,049	24,993	14,391	39,384	2,025	28,842	30,867

^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.

^b Preliminary data.

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/2018ent11_07

Table 11.8: Retirement age threshold

Birth year	Calendar year																						
	2009	2011	2013	2014 II.	2015 II.	2017 I.	2018 I.	2019	2020 II.	2021 II.	2023												
	2010	2012	2014 I.	2015 I.	2016	2017 II.	2018 II.	2020 I.	2021 I.	2022	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	65.5	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, and who are not insured. In the case of old age pension, the minimum service time 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 accrual 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/2018ent11_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

^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/szolgalatasok/adostatisztikak/szemelyi_jovedelemado/szemelyijovedelemado_adostatiszika.html. Other data: http://nav.gov.hu/nav/szolgalatasok/adokulcsok_jarulekmertekek/adotablak.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent12_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
1997	17,000	783	15,045	693	26,450	1,196	43.1	500	500	1,193	1,193	41.9	41.9
1998	19,500	899	17,258	795	30,297	1,369	43.0	500	500	1,295	1,295	38.6	38.6
1999	22,500	1,037	18,188	838	34,538	1,546	47.3	500	500	1,338	1,338	37.4	37.4
2000	25,500	1,175	20,213	931	38,963	1,746	48.1	800	800	1,731	1,731	46.2	46.2
2001	40,000	1,843	30,000	1,382	58,400	2,638	48.6	1,600	1,600	2,982	2,982	53.6	53.6
2002	50,000	2,304	36,750	1,694	71,250	3,226	48.4	1,000	500	2,694	2,194	37.1	22.8
2003	50,000	2,304	42,750	1,970	70,200	3,191	39.1	1,000	500	2,970	2,470	33.7	20.2
2004	53,000	2,442	45,845	2,113	74,205	3,376	38.2	1,000	500	3,113	2,613	32.1	19.1
2005	57,000	2,627	49,305	2,272	79,295	3,572	37.8	700	500	2,972	2,772	23.6	18.0
2006	62,500	2,880	54,063	2,491	85,388	3,910	36.7	700	700	3,191	3,191	21.9	21.9
2007	65,500	3,018	53,915	2,485	89,393	4,095	39.7	700	700	3,185	3,185	22.0	22.0
2008	69,000	3,180	56,190	2,589	94,065	4,310	40.3	900	900	3,489	3,489	25.8	25.8
2009	71,500	3,295	57,815	2,664	97,403 ^b	4,464	40.6	900	900	3,564	3,564	25.3	25.3
2010	73,500	3,387	60,236	2,776	94,448	4,352	36.2	900	900	3,676	3,676	24.5	24.5
Year	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

^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: $\text{tax wedge} = (\text{total wage cost} - \text{net wage}) / \text{total wage cost}$.

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/2018ent12_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. 1.	73,500	36.3	48.6	89,500	28,500
2011. I. 1.	78,000	36.6	49.8	94,000	28,500
2012. I. 1.	93,000	41.7	54.3	108,000	28,500
2013. I. 1.	98,000	42.5	55.1	114,000	28,500
2014. I. 1.	101,500	42.7	56.9	118,000	28,500
2015. I. 1.	105,000	42.4	54.0	122,000	28,500
2016. I. 1.	111,000	42.2	53.5	129,000	28,500
2017. I. 1.	127,500	42.9	..	161,000	28,500
2018. I. 1.	138,000	..	..	180,500	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/szolgalatasok/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/2018ent12_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	39.0	43.1	37.8
2006	48.8	39.5	43.3	36.7
2007	49.3	41.9	46.1	39.7
2008	51.0	43.2	46.8	40.3
2009	47.9	41.0	46.2	40.6 ^d
2010	46.7	39.5	43.8	36.2
2011	46.8	39.4	45.2	39.5
2012	46.0	40.7	47.9	49.0
2013	45.8	40.6	49.0	49.0
2014	45.5	41.0	49.0	49.0
2015	45.0	41.8	49.0	49.0
2016	..	..	48.3	48.3
2017	..	..	46.2	46.2

^a Tax burden on work and contributions as a ratio of tax revenue from all tax forms.

^b The implicit tax rate is the quotient of the revenue from taxes and contributions pertaining to work and the income derived from work.

^c The tax wedge is the quotient of the total public burden (tax and contribution) and the total wage cost, it is calculated as: $\text{tax wedge} = (\text{total wage cost} - \text{net wage}) / \text{total wage cost}$.

^d The tax wedge of the minimum wage is the 2009 annual mean (the contributions decreased in June).

Source: 1991–1995: estimate of Ágota Scharle based on Ministry of Finance (PM) balance sheet data. 1996–2002: http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/index_en.htm. 2003–: https://ec.europa.eu/taxation_customs/business/economic-analysis-taxation/data-taxation_en, Eurostat online database. Implicit tax rate: Eurostat online database (gov_a_tax_itr). 2003–: https://ec.europa.eu/taxation_customs/business/economic-analysis-taxation/data-taxation_en. Tax wedge on the 67 percent level of the mean wage: OECD: Taxing wages 2010, Paris 2011, OECD Tax Statistics/ Taxing wages/ Comparative tables. Tax wedge at the level of the minimum wage: calculations of Ágota Scharle.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent12_04

Table 13.1: Employment and unemployment rate of population aged 15–64 by gender in the EU, 2017

Country	Employment rate			Unemployment rate		
	males	females	together	males	females	together
Austria	79.4	71.4	75.4	5.9	5.0	5.5
Belgium	73.4	63.6	68.5	7.1	7.1	7.1
Bulgaria	75.3	67.3	71.3	6.4	6.0	6.2
Cyprus	75.7	66.2	70.8	10.9	11.3	11.1
Czech Republic	86.3	70.5	78.5	2.3	3.6	2.9
Denmark	80.2	73.7	76.9	5.6	5.9	5.7
United Kingdom	83.4	73.1	78.2	4.5	4.2	4.4
Estonia	82.4	75.1	78.7	6.2	5.3	5.8
Finland	75.9	72.4	74.2	8.9	8.4	8.6
France	74.6	66.7	70.6	9.5	9.3	9.4
Greece	67.7	48.0	57.8	17.8	26.1	21.5
Netherlands	83.3	72.8	78.0	4.5	5.3	4.9
Croatia	68.9	58.3	63.6	10.6	11.9	11.2
Ireland	79.1	67.0	73.0	7.1	6.3	6.7
Poland	78.2	63.6	70.9	4.9	4.9	4.9
Latvia	77.0	72.7	74.8	9.8	7.7	8.7
Lithuania	76.5	75.5	76.0	8.6	5.7	7.1
Luxembourg	75.4	67.5	71.5	5.6	5.5	5.5
Hungary	81.0	65.7	73.3	3.8	4.6	4.2
Malta	83.4	58.4	71.2	4.5	4.7	4.6
Germany	83.1	75.2	79.2	4.1	3.3	3.8
Italy	72.3	52.5	62.3	10.3	12.4	11.2
Portugal	77.3	69.8	73.4	8.5	9.4	9.0
Romania	77.3	60.2	68.8	5.6	4.0	4.9
Spain	71.5	59.6	65.5	15.7	19.0	17.2
Sweden	83.8	79.8	81.8	6.9	6.4	6.7
Slovakia	77.5	64.7	71.1	7.9	8.4	8.1
Slovenia	76.9	69.7	73.4	5.8	7.5	6.6
EU-28	77.9	66.4	72.1	7.4	7.9	7.6

Source: Eurostat <http://epp.eurostat.ec.europa.eu>.

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent13_01

Table 13.2: Employment composition of the countries in the EU^a, 2017

Country	Self employed ^b	Part time	Fixed term contract	Agriculture	Industry	Market services	Non market services ^c
Austria	10.6	27.9	9.2	3.5	25.2	41.9	29.4
Belgium	13.1	24.5	10.4	1.1	20.9	40.1	38.0
Bulgaria	10.8	2.2	4.4	6.8	30.1	41.7	21.3
Cyprus	11.4	12.2	15.3	2.1	17.2	50.8	29.9
Czech Republic	16.1	6.2	9.6	2.8	38.5	34.4	24.3
Denmark	7.3	25.3	12.9	2.1	18.9	41.8	37.3
United Kingdom	14.0	24.8	5.6	1.0	18.3	44.9	35.7
Estonia	9.9	9.5	3.1	3.5	30.5	41.6	24.4
Finland	11.6	15.0	15.8	3.4	22.4	39.5	34.7
France	10.9	18.2	16.8	2.6	20.7	40.0	36.7
Greece	29.4	9.7	11.4	11.5	15.6	45.5	27.5
Netherlands	15.5	49.8	21.5	2.1	16.6	46.5	34.7
Croatia	10.5	4.8	20.6	6.4	26.7	41.8	25.1
Ireland	13.3	20.4	9.0	4.2	19.1	46.5	30.2
Poland	17.4	6.6	26.1	10.0	31.9	34.8	23.2
Latvia	11.8	7.7	3.0	6.9	23.5	42.6	27.0
Lithuania	10.9	7.6	1.7	7.4	25.3	40.5	26.8
Luxembourg	8.9	19.6	9.0	1.4	10.6	45.3	42.7
Hungary	9.7	4.3	8.8	5.0	31.7	35.7	27.7
Malta	14.1	13.4	5.9	0.9	19.9	47.1	32.1
Germany	9.1	26.9	12.9	1.2	27.7	39.9	31.2
Italy	20.8	18.5	15.5	3.6	26.3	41.7	28.4
Portugal	13.4	8.9	22.0	4.0	25.6	39.8	30.5
Romania	16.4	6.8	1.2	20.3	31.1	31.5	17.1
Spain	15.7	14.9	26.8	4.3	20.1	45.9	29.7
Sweden	8.6	23.3	16.1	1.5	18.4	41.3	38.8
Slovakia	15.0	5.8	9.4	2.7	37.4	33.6	26.4
Slovenia	11.4	10.3	17.6	4.7	33.6	35.9	25.8
EU-28	13.7	19.4	14.3	3.9	24.4	40.9	30.8

^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/2018ent13_02

STATISTICAL DATA

Table 13.3: The ration of vacancies, IV. quarter, 2017

Country	Vacancy rate	Country	Vacancy rate
Bulgaria	0.9	Finland	1.9
Portugal	0.9	Estonia	2.1
Poland	1.0	Norway	2.1
Slovakia	1.1	Slovenia	2.2
Romania	1.2	Hungary	2.2
North Macedonia	1.5	Sweden	2.3
Luxembourg	1.5	Netherlands	2.5
Lithuania	1.6	Germany	2.7
Croatia	1.7	Czech Republic	3.9
Latvia	1.9		

Source: *Eurostat*. <http://ec.europa.eu/eurostat/web/labour-market/job-vacancies/database>
(jvs_q_nace2: 2018.09.24. version, donwnloaded: 2018.10.10.)

Online data source in xls format: http://www.bpdata.eu/mpt/2018ent13_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

The source of the earnings data is the monthly (annual) institutional labour statistical survey. The sample frame covers enterprises with at least 5 employees, and public and social insurance and non-profit institutions irrespective of the staff numbers of employees.

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 individuals 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.

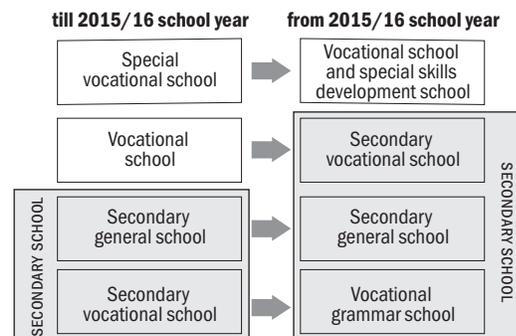
The MEM, as its name shows, is a balance-like account that compares the labour supply (human resources) to the labour demand at an ideal moment (1 January). Population is taken into account by economic activity, with a differentiation between statistical data of those of working age and the population 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 acquire a vocational qualification during the first 3 years, after which they have the opportunity to complete two further years preparing for a final examination at secondary level then they can pass a maturity examination. After completing the first four years of vocational grammar schools, students pass a vocational grammar school-leaving examination, during an additional year students prepare for the vocational examination. There was no change in the case of secondary general schools. The category of secondary school preparing students for final 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 vocational 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/counselor/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 ex-

ample, 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 work-time 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 disbursing 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 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).

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.

STATISTICAL DATA

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 NGM 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.

INDEX OF TABLES AND FIGURES

TABLES

HUNGARIAN LABOUR MARKET

Table 1: Evolution of the number of employed by certain important aspects	23
Table 2: The number of persons who reported a foreign workplace in the labour force survey of the CSO by target country, 2017	24
Table 3: Number and employment rate of Hungarians living in other EU Member States	25
Table 4: Evolution of the number of the employed and the potential labour reserve, 2010–2017	29
Table 5: Net and real earnings calculated with the family tax relief, 2017	38

IN FOCUS

Table 2.1.1: The contribution of public works, employment abroad and population decline to the increase in the employment rate between 2000 and the first quarter of 2017	55
Table 3.2.1: Average annual income levels for women and men in geographic areas of the European Union (in thousands of Euros at 2015 prices, adjusted for purchasing power parity; 25-60-year-olds commanding personal income)	77
Table 4.2.1: Dimensions of vulnerability among men and women ...	92
Table 4.3.1: The impact of restrictions on access to abortion in 1974 on the share of children born with birth defects	97
Table 5.1.1: Difference in the share of educational attainment between women and men in younger age groups, 2017	99
Table 5.2.1: Gender gaps in test scores (boys-girls) and the characteristics of the education system in European countries, 2015	107
Table 5.3.1: Employment chances of women compared to men	112
Table 5.4.1: Application decision in higher education ranking	116
Table 5.4.2: Higher education applications	117
Table 5.4.3: Application decisions of first ranked options	118
Table 5.4.4: The simulated impact of the alternative higher education policy. Counterfactual analysis: the	

impact of open access to STEM programs	119
Table 7.1: Average differences in health indicators by employment status, controlling for demographic and socio-economic factors, among women aged 50–59 in Hungary ..	145
Table 7.2: Differences in employment rates between countries, controlling for age, qualification, type of settlement and the distribution of health, among women aged 50–59	145
Table 8.1.1: Background characteristics and fertility of women	152
Table 8.1.2: The relationship between teenage motherhood and the outcome variables	154
Table 8.2.1 The impact of the availability of child-care services on the labour supply of mothers (β) and the most relevant institutional characteristics	157
Table 10.1: Gender wage gap estimates, private sector	174
Table 11.1.1: The monthly amount of the family allowance per child, since 2008 (HUF)	178
Table 11.1.2: The monthly amount of family tax credit per child, 2011–2018 (HUF)	180
Table 12.1: The number and age of females taking old-age retirement	192
Table 12.2: Data of Female40, 2013	193
Table 12.3 Relative benefits of Females 40, retiring in 2013, in terms of nationwide net age	193
Table 12.4: Condensed contingency table on females retiring in 2016, Retirement age=63	194
Table 12.5: Condensed contingency table on females retiring in 2016, Female40	194
Table 12.6: Three-class aggregation: partial statistics	195
Table 12.7: Averages for the three classes	195
POLICY TOOLS	
Table F1: Expenditures and revenues of the tight section of employment policy in the national budget, 2012–2018 (m HUF)	207
STATISTICAL DATA	
Table 1.1: Basic economic indicators	211

Table 2.1: Population	213
Table 2.2: Population by age groups, in thousands	213
Table 2.3: Male population by age groups, in thousands	215
Table 2.4: Female population by age groups, in thousands	215
Table 3.1: Labour force participation of the population over 14 years, in thousands	216
Table 3.2: Labour force participation of the population over 14 years, males, in thousands	217
Table 3.3: Labour force participation of the population over 14 years, females, in thousands	218
Table 3.4: Labour force participation of the population over 14 years, per cent	219
Table 3.5: Labour force participation of the population over 14 years, males, per cent	220
Table 3.6: Labour force participation of the population over 14 years, females, per cent	221
Table 3.7: Population aged 15–64 by labour market status (self-categorised), in thousands	222
Table 3.8: Population aged 15–64 by labour market status (self-categorised), per cent	223
Table 4.1: Employment	224
Table 4.2: Employment by gender ..	225
Table 4.3: Composition of the employed by age groups, males	226
Table 4.4: Composition of the employed by age groups, females	226
Table 4.5: Composition of the employed by level of education, males, per cent	227
Table 4.6: Composition of the employed by level of education, females, per cent	227
Table 4.7: Employed by employment status, in thousands	228
Table 4.8: Composition of the employed persons by employment status, per cent	228
Table 4.9: Composition of employed persons by sector, by gender, per cent	229
Table 4.10: Employed in their present job for 0–6 months, per cent	229
Table 4.11: Distribution of employees in the competitive sector by firm size, per cent	230

Table 4.12: Employees of the competitive sector by the share of foreign ownership, per cent	230	Table 5.16: Distribution of registered unemployed, unemployment benefit recipients and unemployment assistance recipients by educational attainment	247	share of registered unemployed relative to the economically active population, per cent	267
Table 4.13: Employment rate of population aged 15–74 by age group, males, per cent	231	Table 5.17: Outflow from the Register of Beneficiaries	248	Table 9.4: Annual average registered unemployment rate by counties, per cent	268
Table 4.14: Employment rate of population aged 15–74 by age group, females, per cent	231	Table 5.18: The distribution of the total number of labour market training participants	248	Table 9.5: Regional inequalities: Gross monthly earnings	269
Table 4.15: Employment rate of population aged 15–64 by level of education, males, per cent	232	Table 5.19: Employment ratio of participants ALMPs by gender, age groups and educational attainment for the programmes finished in 2017, per cent	249	Table 9.6: Regression-adjusted earnings differentials	269
Table 4.16: Employment rate of population aged 15–64 by level of education, females, per cent	233	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	249	Table 9.7: Regional inequalities: Gross domestic product	270
Table 5.1: Unemployment rate by gender and share of long term unemployed, per cent	234	Table 5.21: The distribution of those entering training programmes by age groups and educational level	250	Table 9.8: Commuting	270
Table 5.2: Unemployment rate by level of education, males, per cent	235	Table 6.1: Annual changes of gross and real earnings	251	Table 10.1: Strikes	273
Table 5.3: Composition of the unemployed by level of education, males, per cent	235	Table 6.2.a: Gross earnings ratios in the economy, HUF/person/month	252	Table 10.2: National agreements on wage increase recommendations	273
Table 5.4: Unemployment rate by level of education, females, per cent	236	Table 6.2.b: Gross earnings ratios in the economy, per cent	253	Table 10.3: Single employer collective agreements in the business sector	274
Table 5.5: Composition of the unemployed by level of education, females, per cent	236	Table 6.3: Regression-adjusted earnings differentials	254	Table 10.4: Single institution collective agreements in the public sector	274
Table 5.6: The number of unemployed by duration of job search, in thousands	238	Table 6.4: Percentage of low paid workers by gender, age groups, level of education and industries	255	Table 10.5: Multi-employer collective agreements in the business sector	274
Table 5.7: Registered unemployed and LFS unemployment	240	Table 7.1: Graduates in full-time education	258	Table 10.6: Multi-institution collective agreements in the public sector	274
Table 5.8: Composition of the registered unemployed by educational attainment, yearly averages, per cent	241	Table 7.2: Pupils/students entering the school system by level of education, full-time education	259	Table 10.7: The number of firm wage agreements, the number of affected firms, and the number of employees covered	274
Table 5.9: The distribution of registered unemployed school-leavers by educational attainment, yearly averages, per cent	241	Table 7.3: Students in full-time education	260	Table 10.8: The number of multi-employer wage agreements, the number of affected firms, and the number of covered companies and employees	275
Table 5.10: Registered unemployed by economic activity as observed in the LFS, per cent	241	Table 7.4: Students in part-time education	260	Table 10.9: The share of employees covered by collective agreements, percent	275
Table 5.11: Monthly entrants to the unemployment register, monthly averages, in thousands	242	Table 7.5: Number of applicants for full-time high school courses	261	Table 10.10: Single employer collective agreements in the national economy	276
Table 5.12: Selected time series of registered unemployment, monthly averages	243	Table 8.1: The number of vacancies reported to the local offices of the NFSZ	262	Table 10.11: Multi-employer collective agreements in the business sector	277
Table 5.13: The number of registered unemployed who became employed on subsidised and non-subsidised employment	244	Table 8.2: The number of vacancies reported to the local offices of the NFSZ, by level of education	263	Table 11.1: Family benefits	278
Table 5.14: Benefit recipients and participation in active labour market programmes	245	Table 8.3: The number of vacancies	263	Table 11.2: Unemployment benefits and average earnings	278
Table 5.15: The ratio of those who are employed among the former participants of ALMPs, per cent	246	Table 8.4: Firms intending to increase/decrease their staff	264	Table 11.3.a: Number of those receiving pension, and the mean sum of the provisions they received in January of the given year	279
		Table 9.1: Regional inequalities: Employment rate	265	Table 11.3.b: Number of those receiving pension, and the mean sum of the provisions they received in January of the given year	279
		Table 9.2: Regional inequalities: LFS-based unemployment rate ..	266	Table 11.4.a: Number of those receiving social annuities for people with damaged health, and the mean sum	
		Table 9.3: Regional differences: The			



INDEX OF TABLES AND FIGURES

of the provisions they received after the increase, in January of the given year 280

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, from 2016 280

Table 11.5: The median age for retirement and the number of pensioners 281

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 282

Table 11.7: Newly determined disability pension claims and detailed data on the number of newly determined old-age pension claims 282

Table 11.8: Retirement age threshold 283

Table 12.1: The mean, minimum, and maximum value of the personal income tax rate, per cent 284

Table 12.2: Changes in the magnitude of the tax wedge in the case of minimum wage and the temporary work booklet (AMK) 285

Table 12.3: The monthly amount of the minimum wage, the guaranteed wage minimum, and the minimum pension, in thousands of current-year HUF 286

Table 12.4: The tax burden on work as a ratio of tax revenue and earnings 287

Table 13.1: Employment and unemployment rate of population aged 15–64 by gender in the EU 288

Table 13.2: Employment composition of the countries in the EU 289

Table 13.3: The ration of vacancies, IV. quarter, 2017 290

FIGURES

HUNGARIAN LABOUR MARKET

Figure 1: The number of employed persons and the employment rate of age group 15–64, 2010–2017 22

Figure 2: Employment rate of men and women at age 20–64 by age group, 2017 (percent) 26

Figure 3: The number of job vacancies in the business sector 28

Figure 4: Evolution of the number of public workers, 2013–2017 (thousand persons) 30

Figure 5: Proportion of long-term unemployed and average length of unemployment 31

Figure 6: The Proportion of job vacancies and the labour reserve by regions, 2017 33

Figure 7: Growth rate of gross salaries (2013 = 100 percent) 34

Figure 8: The evolution of gross earnings in the public sector in the most important sectors of the national economy (without public workers, thousand HUF) 37

IN FOCUS

Figure 2.1.1: Selected indicators of employment, unemployment and inactivity in the population aged 15–64, 1992–2016 (percentage) ... 54

Figure 2.1.2: Some characteristics of male and female employment 57

Figure 2.1.3: The wages of women compared to those of men, 1986–2016 (percentage) 58

Figure 2.1.4: The importance of the public sector in female employment and wages, 1986–2016 59

Figure 2.1.5: The earnings disadvantage of women (both sectors) and of public sector employees (both genders), 1986–2016, logarithmic point 61

Figure 2.2.1: The evolution of real wages in the private sector, 1994–2016 (1994 = 100) 63

Figure 2.2.2: Within-firm gender wage gap by educational attainment 64

Figure 2.3.1: Educational attainment in management, 2015–2017 66

Figure 2.3.2: The share of women in management categories (2011 and 2016) 67

Figure 2.3.3: The share of female managers in information and communications technology and in education 67

Figure 2.3.4: Average wages of men and women in management positions, 2016 68

Figure 3.1.1: Relative female employment rate in post socialist EU countries, EU15 = 1 71

Figure 3.2.1: Inequality of personal income among women and men as measured by the log variance in geographic areas of the European Union (25–60-year-olds with personal income) 77

Figure 3.2.2: Household characteristics and their effect on pooled income 78

Figure 3.3.1: The equalised net household income one month, six months and two years after the birth of a child, as a percentage of their prior net income 82

Figure 3.3.2: The employment rate of mothers aged 15–64, with at least one child, working full-time or part-time, 2014 84

Figure 3.3.3: Employment rate of mothers (full or part time) and the participation of children aged 0–2 in formal childcare, 2014 85

Figure 5.1.1: The difference in the share of educational attainment levels among men and women aged over 15 in Hungary, 1990, 2001, 2011 and 2016 99

Figure 5.1.2: The share of the genders within the pupils of the different types of upper-secondary schools in Hungary, 2004–2017 100

Figure 5.1.3: The share of women in higher education in Hungary, 1990–2017 101

Figure 5.1.4: The proportion of early school leavers in Hungary broken down by gender, 2006–2016 101

Figure 5.1.5: Differences in the proportions of fields of studies of degrees obtained by women and men aged 30–34 in Hungary 1990, 2001, 2011 and 2016 102

Figure 5.2.1: Gender gaps in test scores (boys-girls) in European countries, 2015 105

Figure 5.2.2: The impact of early selection on the gender gaps in literacy test scores (boys-girls) in European countries, 2015 108

Figure 5.2.3: Gender gaps in test scores by students' performance in Hungary, 2013–2017 109

Figure 5.3.1: Share of girls in different vocational programmes (%) 111

Figure K6.1.1: Association between changes in the locus of control and individual characteristics and life events 130

Figure K6.3.1: The impact of praise and encouragement according to gender – difference in scores between the treatment and control groups during the game 140

Figure 7.1: Subjective health by employment status 142

Figure 7.2: Number of chronic diseases and symptoms by employment status 142

Figure 7.3: Occurrence of diseases by employment status 143

Figure 7.4: BMI broken down by employment status 143

Figure 7.5: Grip strength broken



down by employment status	144	Figure K.10.1: Gender wage gap, hourly wage rate, corporate sector (percentages)	177	Figure 5.6: Entrants to the unemployment register, monthly averages, in thousands	242
Figure 7.6: Depression broken down by employment status	144	Figure 11.3.1: The share of women within public workers according to the BM-IR compared to the number of employed women according to the LFS (percent)	190	Figure 6.1: Annual changes of gross nominal and net real earnings	251
Figure 7.7: Annual per capita health expenditure, probability of hospital stay, five-year probability of death and the share in the total population by employment category, women aged 40–64	146	Figure 11.3.2: The share of female public workers by educational attainment (percent)	190	Figure 6.2: The percentage of low paid workers by gender	254
Figure 7.8: Five-year probability of death by settlement type and employment status in 2006, women aged 40–59	148	STATISTICAL DATA		Figure 6.3: The dispersion of gross monthly earnings	255
Figure 7.9: The effect of healthcare expenditure decile one year before on permanent exit from employment	149	Figure 1.1: Annual changes of basic economic indicators	211	Figure 6.4: Age-income profiles by education level in 1998 and 2016, women and men	256
Figure K8.1.1: Day-care capacities between 2000–2017	159	Figure 1.2: Annual GDP time series (2000 = 100%)	212	Figure 6.5: The dispersion of the logarithm of gross real earnings (2016 = 100%)	257
Figure 8.3.1: The differences in the hourly wages of mothers and fathers before and after the birth of their first child, and the difference between men and women without children (percent)	162	Figure 1.3: Employment rate of population aged 15–64	212	Figure 7.1: Full time students as a percentage of the different age groups	258
Figure 8.4.1: Average wage differences between mothers and childless women by country	164	Figure 2.1: Age structure of the Hungarian population, 1980, 2015 ...	214	Figure 7.2: Flows of the educational system by level	259
Figure 8.4.2: The contribution of the motherhood and fatherhood wage gaps and the gender wage gap among the childless to the overall gender wage gap	165	Figure 3.1: Labour force participation of population for males 15–59 and females 15–54, total	219	Figure 8.1: The number of vacancies reported to the local offices of the NFSZ	262
Figure K8.2.1: Structure of the Cohort'18 survey	166	Figure 3.2: Labour force participation of population for males 15–59 ...	220	Figure 8.2: Firms intending to increase/decrease their staff	264
Figure 9.1: Time spent with childcare broken down by age (2010)	168	Figure 3.3: Labour force participation of population for females 15–54	221	Figure 9.1: Regional inequalities: Labour force participation rates, gross monthly earnings and gross domestic product in NUTS-2 level regions	265
Figure 9.2: General housework (2010)	168	Figure 4.1: Employed	224	Figure 9.2: Regional inequalities: LFS-based unemployment rates in NUTS-2 level regions	266
Figure 9.3: Unpaid work carried out outside the household (2010)	168	Figure 4.2: Employment by gender	225	Figure 9.3: Regional inequalities: The share of registered unemployed relative to the economically active population, per cent, in NUTS-2 level regions	267
Figure 9.4: Time spent doing paid work during the individual life course (2010)	169	Figure 4.3: Employees of the corporate sector by firm size and by the share of foreign ownership	230	Figure 9.4: Regional inequalities: Means of registered unemployment rates in the counties, 2016	268
Figure 9.5: Differences in the average time spent by men and women on certain activities per day in the European countries (2010)	169	Figure 4.4: Activity rate by age groups, males aged 15–64	232	Figure 9.5: The share of registered unemployed relative to the population aged 15–64, 1st quarter 2007	271
Figure K9.1.1: Spillover by gender material prosperity and flexibility of work	171	Figure 4.5: Activity rate by age groups, females aged 15–64, quarterly	233	Figure 9.6: The share of registered unemployed relative to the population aged 15–64, 1st quarter 2017	271
Figure K9.1.2: Parameters estimated for the path model	172	Figure 5.1: Unemployment rates by gender	234	Figure 9.7: The share of registered unemployed relative to the population aged 15–64, 3rd quarter 2007 ...	272
		Figure 5.2: Intensity of quarterly flows between labour market status, population between 15–64 years	237	Figure 9.8: The share of registered unemployed relative to the population aged 15–64, 3rd quarter 2017	272
		Figure 5.3: Unemployment rate by age groups, males aged 15–59, quarterly	239		
		Figure 5.4: Unemployment rate by age groups, females aged 15–59, quarterly	239		
		Figure 5.5: Registered and LFS unemployment rates	240		



9 771785 806286

18002