

IN FOCUS

**LABOUR MARKET EFFECTS
OF THE CRISIS**

Edited by
GYÖRGY MOLNÁR

PREFACE

The *In Focus* section of The Hungarian Labour Market usually examines one specific area of the labour market based on available Hungarian empirical research results. This time, we have expanded our perspective to a greater extent than usual, and have attempted to assess the effect of the crisis on the entire labour market, in fact including a survey of the effects on households as well.

Until now, the *In Focus* section has mostly presented well-developed research results that have been previously evaluated during academic debates. On the topic of the crisis, we cannot expect such a synthesis, since the processes under study have not yet reached completion and the longitudinal datasets necessary for the analysis are short, in actual fact, in the case of some topics (for example, household consumption), data covering the time period of the crisis are not yet available.

Despite these difficulties, more than two years after the beginning of the crisis, we must reflect on it in depth. An extraordinary situation demands unusual reactions in research and in publication as well. This is also why we feel that it is necessary to consider not only direct, short-term labour market effects, but also indirect, long-term processes that manifest themselves via the households and the reproduction of the workforce. The labour market phenomena of the crisis cannot be understood if we disregard the responses of firms and households.

In the first chapter of *In Focus*, *János Köllő* examines the evolution of employment, unemployment, and wages in the first year of the crisis. The study focuses on the changes in the number of employees, average monthly paid work hours, and gross hourly incomes – and the relationship between these – based on calculations using a panel sample comprised of more than five thousand firms that were observed in May of both 2008 and 2009 in the wage survey of the National Employment and Social Office. The most important result of this analysis is that in the first year of the crisis, Hungarian firms mainly responded to the fall in demand, the narrowing of loan opportunities, and the faltering of business confidence by downsizing employment. Based on data from the labour force survey of the Hungarian Central Statistical Office (HCSO), it can also be stated that the decrease in employment was primarily due to the deferred hiring of employees. The study concludes with a brief overview of the employment policy response to the crisis.

The *In Focus* section, in line with the practice that has evolved over previous years, briefly touches on a few topics related to the more detailed analyses. The study by *Péter Elek* and *Ágota Scharle* takes account of the European, and

within these, the Hungarian policy measures that were aimed at dampening the employment effects of the economic downturn. They find that the most important elements of Hungary's crisis management were the encouragement and protection of labour demand.

András Semjén and *János István Tóth* provide a brief overview, based on firm survey data, of the steps taken by firms in response to the crisis. The results of the survey suggest that firms typically combine several different reactive measures that are effective in the short-term, and proactive crisis management measures that lead to long-term adaptation – no single preferred corporate strategy for crisis management can be pinpointed.

Compared to comprehensive analyses based on data reflecting the entire firm sector, *Dorottya Boda* and *László Neumann* use a different methodology. The authors summarize the results of two empirical studies, which mainly examined the effect of the crisis on firm management based on firm interviews. The study shows, through telling examples, under which conditions, and as a result of which employment decisions, do the specific events that can be measured in the labour market evolve. During this analysis, they also make note of the symptoms of the crisis that are felt by firms, the crisis management measures that have employment effects, and the role of government supports and the representatives of employee interests.

The data-rich study of *Irén Busch* and *György Lázár* demonstrates the main characteristics of an important subset of firm human resource measures, major layoffs. Comprehensive data regarding this area are available via mandatory reporting-based datasets of the Public Employment Service. After an introduction of the legal background the authors compare the evolution of announced layoffs and registered unemployment over the last 10 years, then examine the developments between October of 2008 and June of 2010 in greater detail. The authors had the opportunity to link the data of workers affected by layoffs to the database of registered job seekers, so they were also able to track the evolution of the labour market status of affected workers.

The study by *Hajnalka Lőcsei* analyzes the effect of the crisis on regional inequalities in unemployment using the database of registered jobseekers. Based on the speed and type of the changes, she divides the time period between the fall of 2008 and the summer of 2010 into four sections, and describes the evolution of the spatial expansion of unemployment for each of these. She determines that during the first stage of the crisis, the number of job seekers increased significantly mostly in the districts with export-oriented firms, the most developed regions, and, within these, in the source locations of commuters. Later on, however, increasing unemployment became a regionally generalized phenomenon. Up until the lowest point of the crisis, the spatial duality of the labour market lessened somewhat and regional differences decreased, but this effect will probably only be temporary.

The regional analysis is completed by two short studies. The study by *Albert Faluvégi* examines in more detail how the crisis affected the most disadvantaged micro-regions. He demonstrates the procedure for selecting these areas as well as their main characteristics, of which the very high, more than double the national average, unemployment stands out. He shows that the unemployment rate of these areas continued to increase during the crisis, but the deviation from the average decreased somewhat – mostly due to the expansion of public employment.

The issue of commuting is an important component of the evolution of employment differences. *Tamás Bartus* analyses the relationship between commuting time and the rural-urban wage difference. The data needed for the calculations of the model are only available for the time period prior to the transition, but these also provide some important implications. The most important finding of the study is that in disadvantaged regions, the estimated costs due to time lost commuting reach and surpass the wage increases that can be achieved.

Due to the lack of recent data, the longer study of *András Semjén* and *János István Tóth* also attempts to draw conclusions based on earlier analyses regarding the effects of the crisis on unreported employment. Within unreported employment, they focus on two types: “under the table” payments and “billed payments”. Differentiating between 13 types, they review what kind of effects the crisis may have had on the ratios of reported and unreported employment, or employment concealed as entrepreneurial activity. Their conclusion is that the economic crisis probably led to unreported or concealed work spreading more widely, and increasing in volume over the last two years.

The effect of the crisis on households stands at the center of the following studies. The micro-simulation analysis of *Katalin Gáspár* and *Áron Kiss* examines how the income position of households in different situations changed as a result of layoffs in the first year of the crisis. Using different characteristics from the labour force survey of the HCSO, they estimate the likelihood of job loss of employees and then analyze the income effects of job loss based on household budget surveys. Among other conclusions, they find that the probability of job loss is two to three times higher in the case of employees in lower income groups compared to that observed in higher income groups. The absolute value of the average income loss due to job loss increases with income level, but the relative income loss is of similar magnitude for all income groups.

The study of *István György Tóth* and *Márton Medgyesi* is composed of two main parts. First, they demonstrate the long term evolution of the main indicators of the income distribution based on the Tárki household monitor survey, with a special focus on the changes between 2007 and 2009. These processes reflect not only the effects of the crisis, but also those of the consolidation measures of the earlier years. They find that in the last period, the situation of both

the rich and the poor has deteriorated, but that of the poor worsened significantly. Compared to the “depolarization” observed earlier, the most important change is the polarization that occurred at the bottom of the income distribution. When examining polarization in employment, they reach the conclusion that employment decreased most in the case of those groups that previously had two employed workers in their household. The second part of the study details subjective living difficulties, the indebtedness of households and their difficulties paying off their loans. The ratio of households that were in need and reporting financial difficulties increased between 2007 and 2009. Difficulties repaying debt increased, primarily in the case of lower income groups.

The brief study by *Zsuzsa Kapitány* is related to the latter topic and demonstrates the changing consumer behaviour of households in the real estate and mortgage market. The study discusses the effect of the crisis on households acquiring loans and specifically mortgage loans, the evolution of late payments, as well as the effects on the real estate market and real estate construction. She finds that households were forced to decrease their consumption sharply and to constrain acquiring loans, primarily mortgage loans, significantly as a result of the crisis, so the household sector as a whole became a net loan re-payer. At the same time, the ratio of those who made late payments or missed payments increased significantly.

Due to the unique nature of this year’s *In Focus*, we felt it necessary to include a non-traditional summary at the end of the section, which was prepared by the editor, *György Molnár*. In this, we aim to provide an overall picture of the most important results of the studies in the *In Focus* section, highlighting the relationships between the different studies as well as the differences that arise from the different approaches used by their authors.

1. EMPLOYMENT, UNEMPLOYMENT AND WAGES IN THE FIRST YEAR OF THE CRISIS*

JÁNOS KÖLLÖ

Introduction

In 2009, the average annual stock of employed persons fell by about one hundred thousand compared to 2008. In relative terms, the number of *employees* was cut by 3.6 or 3.7 per cent, depending on how employee status is defined, while *ILO-OECD employment* decreased by 2.5 per cent, as shown in Table 1.1.¹

Table 1.1: The number of employed persons and employees in 2006–2009 (thousands)

Year	Employed		Employees	Average annual number of persons participating in the activity of economic organizations
	Population aged 15-64	Population aged 15-74		
2006	3,906	3,930	2,790	2,829
2007	3,897	3,926	2,761	2,806
2008	3,849	3,879	2,762	2,812
2009	3,751	3,781	2,661	2,710
Change 2009/2008				
Thousand	-98	-98	-101	-102
Per cent	-2.5	-2.5	-3.7	-3.6

Source: Website of the Hungarian Central Statistical Office (<http://ksh.hu>). The first two columns are based on the Labour Force Survey while columns 3 and 4 are establishment-based.

Employment measured in hours fell by a slightly higher rate because the average monthly *working hours* of employees diminished by a little more than one per cent, as will be discussed later in more detail.

The *ILO-OECD unemployment rate* of prime age males (15–61 year olds) jumped from 7.8 per cent in July-December 2008 to 10.0 per cent in January-June 2009 while the respective figures were 8.1 and 9.4 per cent for women.² Alternative indicators of unemployment followed similar time paths as shown in Table 1.2, and continued to grow until the first quarter of 2010. At the peak, in January-March 2010, the ILO-OECD rate reached 11.9 per cent, a level unprecedented since 1995.³

The growth of unemployment was accompanied by a decline of the *real wage*. In 2009 the gross real wage fell by 3.4 per cent and the net real wage decreased by 2.3 per cent.⁴

* This chapter draws heavily from a study commissioned and published by the ILO and forthcoming at Edward Elgar (Köllő 2011). It also includes translated excerpts from Köllő (2010).

1 According to the ILO-OECD definition, a person is employed if she/he did at least one hour of gainful work in the week preceding the interview, or, was only temporarily absent from an existing job.

2 The data come from the Labour Force Survey, where individuals (i) out of work, (ii) ready to take up employment and (iii) actively searching for jobs are classified as unemployed, following the guidelines of the ILO and the OECD.

3 <http://portal.ksh.hu/pls/ksh/docs/hun/xfp/gyor/fog/fog21003.pdf>.

4 According to the HCSO's online Stadat data base (August 26, 2010) gross and net earnings increased by 0.6 and 1.8 per cent while consumer prices went up by 4.2 per cent.

Table 1.2: Unemployment rates^a using alternative definitions of joblessness

Definitions of unemployment	2006		2007		2008		2009	
	I.	II.	I.	II.	I.	II.	I.	II.
Male								
- Actively searching	7.3	7.2	7.2	7.2	7.6	7.8	10.0	10.8
- Registered	7.6	7.2	7.4	7.3	8.3	8.3	10.1	10.5
- Would like to work ^b	12.5	11.8	12.0	11.8	12.6	12.6	15.1	15.7
Female								
- Actively searching	7.7	8.1	7.4	8.0	8.2	8.1	9.4	10.2
- Registered	8.8	8.9	8.6	8.4	8.9	8.9	10.2	10.9
- Would like to work ^b	15.1	15.1	14.5	14.5	15.2	15.0	16.6	17.2

^a The unemployment rate is calculated as $U/(E + U)$, where E is employment according to the ILO–OECD definition and U is the number of unemployed according to the definition given in the respective row

^b Is not actively searching but wants paid employment

Note: The data relate to persons aged 15–61.

Source: Labour Force Surveys, author's calculations.

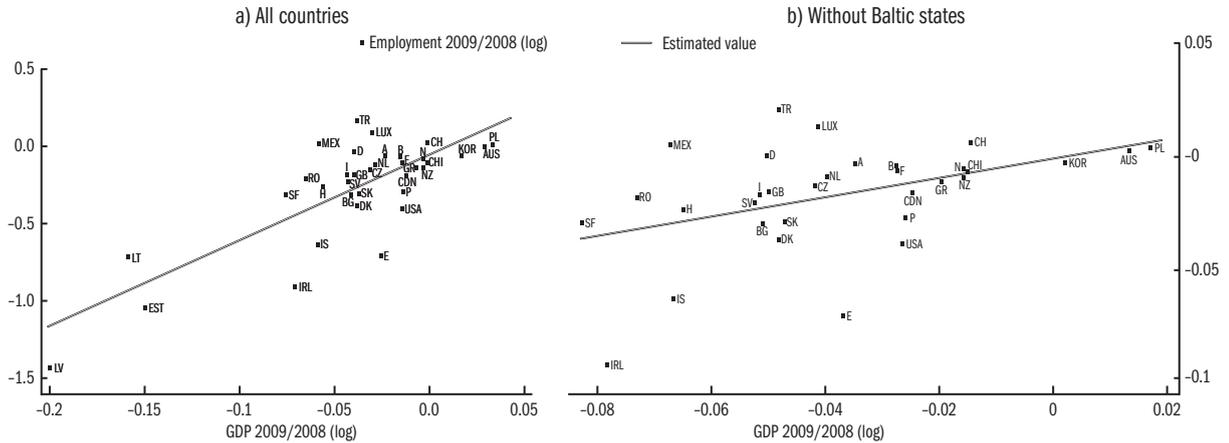
The most comprehensive international comparative survey of reactions to the crisis so far (*Verick–Islam, 2010*) ranks Hungary among countries including Finland, Croatia and Slovenia, where a substantial fall of GDP was associated with a moderate fall of employment. The paper also examined the role of working time adjustment within total employment adjustment in the manufacturing industry. In this respect, Hungary, Croatia and The Netherlands form a triad characterized by a substantial fall in the number of employees and minor cuts of working hours. Counter-examples are Germany, Austria, Island and Malta, where shortening the workweek made a decisive contribution. In Ireland, Estonia and Slovakia working time reductions played a less prevalent but still important role.

For the time being, there are several obstacles hindering a reliable cross-country comparison. Data on real wage evolutions during the crisis are still missing in several countries and time series distinguishing the public and private sectors are hardly available. The existing figures on wages and working time typically relate to the manufacturing industry while the data on employment and GDP cover the whole economy. For the moment, only the latter indicators can be used for meaningful international comparison.

Panels *a* and *b* of Figure 1.1 show the position of OECD member states (and some other European countries) in terms of changes of GDP and employment in 2009. The best-fitting regression lines are added. The output elasticity of employment (slope of the regression line) is 0.62 for all countries and 0.42 for countries excluding the Baltic states, which experienced an extreme, two-digit fall in their GDP. The respective indicator (log change of employment divided by log change of GDP) amounted to 0.35 in Hungary. Even though employment fell mildly *relative* to the fall of GDP, Hungary ranks among the big los-

ers of the crisis in terms of *absolute* change of employment: the vast majority of OECD countries (23 out of 35 shown in Figure 1.1) performed better in terms of employment change than did Hungary.

Figure 1.1: Changes of GDP and employment in 36 countries, 2008–2009



Abbreviations: A – Austria, AUS – Australia, B – Belgium, BG – Bulgaria, CDN – Canada, CH – Switzerland, CHI – Chile, CZ – Czech Republic, D – Germany, DK – Denmark, E – Spain, EST – Estonia, F – France, GB – United Kingdom, GR – Greece, HU – Hungary, I – Italy, IRL – Ireland, IS – Island, KOR – Korea, LT – Lithuania, LUX – Luxemburg, LV – Latvia, MEX – Mexico, N – Norway, NL – Netherlands, NZ – New Zealand, P – Portugal, PL – Poland, RO – Romania, S – Sweden, SF – Finland, SI – Slovenia, SK – Slovakia, TR – Turkey, USA – United States. *Source:* OECD and Eurostat on-line data bases, August 12, 2010

Figures similar to the ones presented in Figure 1.1 are to be interpreted with caution since they merge the public and private sectors, which followed rather different paths in many countries, including Hungary. The means relating to the whole economy are hotchpotch indicators that actually do not reflect the underlying processes taking place in either parts of the economy. As shown in Table 1.3, employment *grew* in the public sector while the real wage fell by two-digit percentages. By contrast, in the private sector, the real wage remained virtually unchanged and employment was cut substantially by 6.7 per cent.

Table 1.3: Changes of employment, wages and working hours, 2009

	Public sector ^a	Private sector ^b	Total
Number of employees	3.6	-6.7	-3.7
Real gross monthly earnings ^c	-11.6	0.1	-4.5
Average monthly working hours per employee ^d	-1.3	-1.1	-1.1

^a Nonprofits included. Employees include those doing public works.

^b Firms employing at least 5 workers.

^c Consumer price index: 1.042.

^d Annual mean of quarterly figures.

Source: *HCSO Stadat*, August 25, 2010 except for working time: June 8, 2010.

In the remainder of this chapter we study the dynamics and relation to each other of changes in employment, wages and working hours in the private sector. It seems that there is no point in repeating the analysis for the public sector, where the number of permanent employees did not change (fell by 0.4 per cent excluding people doing public works) and wages fell as a result of across-the-board measures such as the abolishment of the 13th month's salary and an (unofficial but effective) ban on pay rises. Therefore, in the public sector, we do not expect remarkable structural changes to be explained.

The study of the private sector is primarily concerned with the issue of "hard" versus "soft" adjustment. The countries of Europe reacted to the crisis in sharply different ways: in Germany, unemployment grew by 0.2 percentage points despite a 5 per cent fall of GDP while in Spain a recession implying a 3.6 per cent fall of GDP brought about a 6.7 percentage points increase in unemployment (*Verick-Islam*, 2010, 25). In Hungary, there was much talk about soft adjustment via shortening the workweek and pay cuts, but the actual contribution of these measures should be judged on the basis of data rather than media coverage.

Soft versus hard adjustment

In a competitive labour market with finitely elastic supply and demand, both employment and wages are expected to respond to a negative aggregate shock. Why the textbook predictions so often fail is an old and much debated question in labour economics. Several theories have been developed to understand why we observed large fluctuations in employment, and small ones in the real wage, over the business cycles of the US and some other developed market economies. In a monopoly union setting or in the case of efficient bargaining, for instance, we expect that the burden of adjustment predominantly falls on employment (McDonald and Solow 1982, Brueckner 2001). Similar conclusions follow from the theories of implicit contracts (Azariadis 1975, Feldstein 1976, 1978, Rosen 1985) and intertemporal substitution over the life cycle (Lucas and Rapping 1969).

Despite the theoretical predictions of strong cyclicity in employment and less in wages the recent empirical evidence is mixed. In a study of the cyclicity of manufacturing employment and wages between 1960 and 2004 Messina, Strozzi and Turunen (2009) find substantial cross-country variations even after controlling for the type of data and methods used in measuring cyclicity. They identify positive correlation between the cyclicity of real wages and the cyclicity of employment, but identify groups of countries having rather different positions along these dimensions. The available data on the current crisis also suggest high diversity across countries.

In a transitory downturn, reductions in hours and pay cuts may be attractive options if firing and hiring costs are high and firm-specific skills are important. When plant utilization is temporarily low, firms may also prefer training

their workers since the costs of accumulating firm-specific skills are lower. Reacting to a negative shock in ways other than dismissals is easier if institutions supporting the adjustment of hours and wages are at hand, as emphasized in Bellmann and Gerner (2009). One institution of this kind is *working time accounts* allowing that employees work longer or shorter hours than usual and thereby collect working time credits or debits in an individual account, which are later compensated for by additional leisure or work. Similarly, softer measures can be encouraged by *pacts for employment and competitiveness* in which employees accept lower wages and reduced working time and employers guarantee jobs, training, and offer financial participation (Bellmann, Gerlach and Meyer 2008). *Profit sharing* can also make wage adjustment easier since it establishes an automatic link between workers' pay and the fluctuations of business fortune.

The institutional features of the Hungarian labour market make the adjustment of both employment and wages relatively easy but there are few formal agreements and legal institutions explicitly encouraging a heterodox reaction to a negative shock.

Union coverage is low and has been declining since the start of the transition. According to the Labour Force Survey, the share of union members amounted to 20 per cent in 2001, 17 per cent in 2004 and 12 per cent in 2009. The proportion of workers employed in unionized firms fell from 38 per cent in 2001 to 33 per cent in 2004 and 28 per cent in 2008. The share of workers covered by collective agreements declined from 25 per cent in 2004 to 21 per cent in 2009. The agreements are typically concluded with a single-employer and are not extended. Furthermore, the unions seem to be relatively weak as suggested by estimates of a small (0–2 per cent) regression-adjusted union wage gap (Neumann 2002, Rigó 2009).

There are few *legal constraints* on employment and wage setting, with the most important one being the minimum wage. The minimum wage-average wage ratio (34.7 per cent just before the crisis) can not be considered high by international comparison but the real minimum wage has been constantly growing over the last ten years. The adjustment of the minimum wage is negotiated annually at the national level, by employer organizations and unions, allowing careful policies in hard times, but unions generally start the negotiations with ambitious goals and usually achieve at least modest increases in real terms.⁵ It was the case at the beginning of the recent crisis too, as will be discussed later.

Only a single estimate of *adjustment costs* is available (Körösi and Surányi 2003) suggesting that hiring and firing are relatively inexpensive by international comparison. *Training costs* probably do not play an important role in firms' decisions since the fraction of Hungarians participating in adult training is one of the lowest in Europe and on-the-job training is particularly infrequent (Bajnai et al. 2009). Hungary's *employment protection* (EPL) index

⁵ The real net minimum wage increased in all years between 1998 and 2008.

is the lowest in Central and Eastern Europe and one of the lowest in the EU (*Cazes and Nesporova 2007*).

Institutions encouraging the combination of employment, hours and wage adjustment are undeveloped in Hungary. Formal agreements similar to the pacts for employment and competitiveness do not exist to the best of the author's knowledge. Working time accounts have not been established as a legal institution, in contrast to the Czech Republic and Germany, for instance, where about half of the medium-sized and large companies are covered (*Bellmann and Gerner 2009*). The fraction of workers involved in profit sharing agreements is one of the lowest in Europe with Hungary preceding only Portugal and Cyprus (*European Foundation 2007*). Still, it would be mistaken to rush to the conclusion that these practices simply do not exist. We have ample anecdotal evidence that working time accounts are applied informally. Profit sharing also exists informally as suggested by a relatively high elasticity of wages with respect to the firm's productivity (*Mickiewicz and Köllö 2004, Com-mander and Faggio 2004*). Employer and employees may also conclude informal agreements on saving jobs by means of soft measures, and we hope to find the traces of such agreements when we look at how firms actually combined staff reductions, wage cuts and reductions in hours during the current crisis.

Firms' reactions to the crisis

In this section, we look at variations in the changes of employment, hours and wages using longitudinal firm-level data covering May 2008 and 2009. The estimation of a full causal model – explaining how the crisis affected firms' decisions on the level and composition of employment and wages – is beyond the capacity of the data at hand. We do not have, as yet, firm-level data on the changes of output and other variables capturing the size of the shock to which the firm had to respond. This will be approximated with two-digit industry-level data on the changes of output, which is an admittedly second-best solution. Equally important, the identification of causal effects in a system with several endogenous variables would require exogenous instruments having impact on particular outcomes without affecting others. Such instruments are not available in the data set. The available variables like firm size, industry, ownership, union coverage, exposure to the minimum wage and skill composition are likely to affect employment, hours and wages simultaneously. Therefore we use a descriptive three-equations model explaining the log change of employment (L), monthly working hours (H) and average hourly wages (\bar{w}).

$$\Delta \ln L_i = X_i \beta + u_i \quad (1a)$$

$$\Delta \ln H_i = X_i \gamma + v_i \quad (1b)$$

$$\Delta \ln \bar{w}_i = X_i \delta + \omega_i \quad (1c)$$

The equations have the same set of explanatory variables (X) so the coefficients and the standard errors are the same as if the equations were estimated one by one with OLS. By estimating (1a-1c) jointly as a system of seemingly unrelated regressions we can study the correlations between the residuals u , v and ω and test if the three equations are independent.

In a second step, we show that the changes of average wages were strongly affected by changes in the firms' skill composition. By regressing $\Delta \ln \bar{w}$ on changes in the demographic and skill composition of the workforce and taking the residuals (ζ) as in equation (2) we can get a measure that is controlled for compositional effects. (In the equation AGE stands for average age, EDU denotes average years in school and MALE relates to the share of men within the firm.) Then, after replacing $\Delta \ln \bar{w}$ with ζ in an equation similar to (1c), we can check how residual wages were affected by the X-s.

$$\zeta_i = \Delta \ln \bar{w}_i - \beta_1 \Delta AGE_i - \beta_2 \Delta EDU_i - \beta_3 \Delta MALE_i - c. \quad (2)$$

The analysis relates to 5,173 firms observed in 2008 and 2009 in the Wage Survey (WS). A description of the survey, analysis of selection to the panel and a comparison of descriptive statistics to published figures are presented in *Appendix 1*. Here we turn to the estimation results presented in Table 1.4.

As shown in the first row, *industry output* has a significant positive effect on both employment and hours and has no effect on wages. The estimated elasticity is rather weak (0.055) and most probably downward-biased since the industry's change of output measures the firm-specific shocks with a wide margin of error. Unfortunately, firm-level data and three or four-digit sector level data were not available at the writing of this text. The change in output had a weak effect on working hours (0.027) and no effect on wages.

Male-dominated firms lost more jobs and had worse-than-average wage records. Firms, in which the male's share was higher by one standard deviation (31 per cent) lost more by about 1 per cent in terms of employment and 0.7 per cent in terms of average wages. *Skills* also seem to matter: a one standard deviation (1.5 year) difference in workers' average years in school implied about 1 per cent higher employment and 1.1 per cent lower wage in 2009 relative to 2008. *Average age* had no effect on employment and hours but affected wages marginally: a workforce older by 6.3 years (one standard deviation) implied that wages grew slower by 0.6 per cent.

Firm size has a marked effect on employment and some impact on hours while its effect on wages is insignificant. Small and medium-sized firms lost less jobs than large ones (300+ employees) by 8, 4, 2 and 2 per cent, respectively, as we move from the bottom to the top of the size ladder. This pattern is probably explained by differences in exposure to exports: we find the advantage of the smallest firms to be much larger (12 per cent) in manufacturing, where larger firms tend to be either exporters or suppliers of exporters, than in the rest of the economy (5 per cent).

Table 1.4: Changes of employment, working hours and hourly wages – multivariate regressions (firm panel)

	Dependent: log change of					
	Employment		Working hours		Hourly wage	
	β	T	β	T	β	T
Log change of industry's output	0.0551	2.06	0.0265	4.00	-0.0198	-1.17
Share of men	-0.0289	-2.23	0.0029	0.91	-0.0256	-3.11
Average years in school	0.0047	1.69	0.0008	1.23	-0.0069	-3.90
Average age	-0.0002	-0.45	-0.0001	-0.83	-0.0009	-2.58
Fraction paid the base minimum wage	0.0039	0.22	-0.0054	-1.22	0.0418	3.65
Fraction paid the skilled minimum wage	-0.0400	-2.67	-0.0112	-3.03	0.0003	0.04
Covered by collective agreement	0.0196	2.24	-0.0003	-0.18	0.0081	1.46
Majority state-owned	0.0361	2.24	0.0057	1.44	0.0001	0.04
Majority foreign-owned	-0.0027	-0.24	-0.0049	-1.77	0.0030	0.42
0-10 employees	0.0845	5.27	0.0069	1.76	-0.0007	-0.07
11-20 employees	0.0431	2.59	0.0027	0.67	0.0161	1.53
21-50 employees	0.0235	1.47	0.0068	1.73	0.0036	0.35
51-300 employees	0.0188	1.33	0.0071	2.05	-0.003	-0.42
Personal services	0.1004	3.07	0.0028	0.35	-0.0165	-0.80
Water	0.0836	3.69	0.0072	1.30	0.0025	0.18
Health (private)	0.0758	3.38	0.0202	3.65	-0.0275	-1.93
Agriculture	0.0692	4.40	0.0122	3.15	-0.0058	-0.59
Energy	0.0594	2.08	0.0127	1.79	0.0155	0.86
Mining	0.0568	1.28	0.0069	0.63	0.0380	1.35
Finance, insurance	0.0535	2.35	0.0175	3.12	0.0050	0.35
Professional services	0.0529	2.57	0.0093	1.84	0.0240	1.85
Communication	0.0513	2.13	0.0075	1.26	0.0213	1.40
Transport	0.0428	2.50	0.0026	0.63	-0.006	-0.64
Culture (private)	0.0346	1.06	-0.0243	-3.00	0.0202	0.98
Hotels & Restaurants	0.0299	1.49	0.0088	1.78	-0.0066	-0.52
Real estate	0.0227	0.89	0.0034	0.54	-0.0032	-0.20
Trade	0.0225	2.01	0.0057	2.10	-0.0108	-1.53
Construction	0.0129	0.91	0.0060	1.71	-0.0075	-0.84
Administrative services	-0.0016	-0.09	-0.0011	-0.25	-0.0042	-0.36
Education (private)	-0.0807	-2.26	0.0098	1.12	0.0313	1.38
Constant	-0.1336	-2.99	-0.0248	-2.25	0.1606	5.68
R^2	0.0376		-0.0072		0.0173	

Correlation of the residuals:

Employment-hours: 0.0117. Employment-wage: -0.0072. Hours-wage: -0.3107

Breusch-Pagan test of independence: $\chi^2=500.185$ (0.0000)

Number of observations: 5,173

Reference industry: manufacturing. Industries are ordered by the size of the coefficients in the employment equation.

As far as *industry effects* are concerned, the employment records of manufacturing, construction and real estate appear to be statistically identical, while retail trade, hotels and restaurants seem to have lost fewer jobs. Three groups of sectors stand out (i) water, energy and transport (ii) personal services, finance and insurance and (iii) agriculture. In these sectors, employment fell less by 5–9 per cent relative to manufacturing (where it was cut by 12.2 per cent) even after controlling for the change in sales revenues. Inelastic domestic demand for some of the aforementioned services, market power and a high share of self-governing firms (family businesses, partnerships of friends and relatives) are factors potentially explaining why employment suffered less in these industries. We do not observe trade-offs between employment and hours and/or wages on the sector level: in sectors losing less jobs average working hours changed favorably, too, while the industry wage effects were insignificant with only two exceptions (agriculture and professional services, both weakly significant at the 5 per cent level).

State-owned firms lost fewer jobs than did domestic private ones by 3.6 per cent, and held average hours higher by 0.6 per cent. In terms of wages they did not differ from their private counterparts. The estimates relating to *foreign firms* are insignificant and hint at negligible difference between them and domestic private enterprises.

Exposure to changes in the minimum wage is measured with the fraction earning near the base minimum wage ($MW \pm 1,000$ HUF) and the skilled minimum wage ($SMW \pm 1,000$ HUF). More workers paid the MW in the base period predict faster average wage growth but having more SMW earners has no wage effect. A firm with only MW earners increased the average wage faster by about 4 per cent compared to a company with no MW earners, consistent with the fact that the base MW grew by 3.6 per cent. At the same time, we do not observe larger-than-average employment and hours cuts in firms with more MW earners. Firms with many SMW workers did lose more jobs and also cut working hours more than did their observationally similar counterparts. These cuts are hardly explained by the tiny (0.8 per cent) rise in the nominal SMW but the existence of a floor may have prevented enterprises from reducing the wages of skilled employees.⁶

Finally, the estimates suggest that firms covered by *collective agreements* valid for 2009 kept the level of employment higher by about 2 per cent compared to their observationally similar counterparts. The estimates relating to working hours are insignificant. It seems that wages grew slightly faster than elsewhere but the coefficients are not significant at conventional levels.

To summarize the regression results, the *employment* effects of the variables in equation (1) are mostly significant and often rather strong. The variations in average *working hours* seem much smaller while *wage* evolutions were largely unrelated to the variables in the model. Apart from the variables depicting

⁶ In 2008 the regulations distinguished three mandatory minima: the base minimum wage (MW), the skilled minimum wage (SMW=1.25MW) and a reduced minimum for younger skilled workers with less than 3 years experience (YSMW=1.2MW). In September 2008, the unions started the negotiations with the claim of a 15.9 per cent rise in the MW, 14.7 per cent rise in the YSMW and 10.1 per cent rise in the SMW starting from January 2009. Given a consensus inflation forecast of 4.2 per cent at the start of the negotiations these hikes would have implied 11.2, 10.0 and 6.3 per cent increase of the minima in real terms, respectively. Even at the end of November, two months into the crisis, the unions demanded a 10.9 per cent rise in the base MW in nominal terms, and insisted on their original claims regarding the SMWs. Finally, under the pressure of the crisis the parties agreed to a 3.6 per cent increase of the MW, 5.1 per cent rise in the YSMW and a mere 0.8 per cent rise in the SMW in nominal terms. More precisely, the negotiations resulted in the elimination of YSMW and the setting of a uniform SMW equal to 87,000 HUF, which implied the percentage changes quoted above.

the base-period composition of the workforce and the share of MW earners almost all the other variables in equation (1c) are statistically insignificant.

The only significant variable in the wage equation re-estimated with ζ rather than $\Delta \ln \bar{w}$ on the left hand is the base-period share of MW earners. (The coefficient is 0.053, significant at the 1 per cent level.) Since ζ captures the change in the cost of labour more precisely than $\Delta \ln \bar{w}$ we conclude that wage evolutions were unrelated to industry, firm size, ownership, union coverage and region.⁷ On closer inspection the same seems to apply to the effect of skill composition. The employment and wage equations (1a, 1c) give the impression that firms with a skilled labour force adapted to the crisis by cutting wages but keeping employment relatively high – an outcome consistent with expectations grounded in the theories of quasi-fixed costs and firm-specific skills. The re-estimated equation suggests that the cost of labour actually did not fall in these enterprises – this is a statistical illusion generated by the changing composition of the staff. Firms employing many skilled workers dismissed more skilled workers, even in relative terms, which led to lower average wages.

The close-to-zero correlations between the residuals u , v and ω of equations (1a-1c) suggest that the firm-specific changes of employment and hours, and employment and hourly wages, were independent of each other. By contrast, the residual changes of hours and hourly wages are relatively strongly correlated (-0.31). This result arises for two reasons. On the one hand, monthly earnings do not fall proportionately when working hours are cut therefore falling hours are associated with rising hourly earnings. On the other hand, errors in the reporting of hours can establish a spurious correlation between Δw and ΔH .⁸ In view of this risk, a system similar to (1a-1c) was estimated by dropping the hours equation and working with monthly rather than hourly wages. The residual correlation between the changes of employment and monthly wages amounted to -0.02 in this case, too, and the Breusch-Pagan test did not reject the independence of the two equations.

A note on union effects

The finding that employment fell less in unionized firms as in the rest of the private sector, all else equal, is an interesting one but needs further inspection. The OLS results can be biased for at least two reasons.

First, controlling the employment equation for firm size, industry and other variables is insufficient to ensure that we compare comparable firms. Therefore the employment effect of collective agreements is further analyzed with propensity score matching following Rosenbaum and Rubin (1983). We use Stata's *pscore* module developed by Becker and Ichino (2002) at this aim. As shown in Table 1.5 nearest neighbor matching suggests a statistically insignificant effect of 1.7 per cent while the stratification method and the kernel matching model results in significant effects of 1.9 and 2.0 per cent, respectively.⁹

⁷ The regional variables (NUTS-3 dummies, NUTS-4 unemployment rates) were insignificant in all specifications and dropped from the models.

⁸ Assume that all firms cut working hours but only some of them report it. Assume further that all firms hold genuine hourly wages constant. In the non-reporting group, the estimated hourly wages (monthly pay/observed hours) fall and observed hours remain constant. In the reporting group the calculated hourly wage rises and observed hours fall. At the end of the day we observe a negative correlation between the *observed* changes of hours and hourly wages.

⁹ Note that the estimated effects are "average treatment effects on the treated" (ATT), larger than the average treatment effects (ATE) capturing the returns to coverage for a randomly selected firm.

Table 1.5: Estimates of the effect of collective agreements on the changes of employment 2008–2009

Model	Effect	t
OLS	2.0***	2.24
ATT nearest neighbor matching ^b	1.7	1.44
ATT stratification method	2.0***	2.77
ATT kernel matching method	1.9***	2.26 ^c

^a The propensity score equation included firm size, size squared and size cubed, share of men, average age and average years in school.

^b The propensity score models were estimated for unweighted sample and excluding heavy outliers. ATT stands for average treatment effect on the treated.

^c Based on bootstrapped standard errors with 200 replications.

Second, selection to treatment (having a collective agreement in 2009) might be affected by *unobserved* characteristics simultaneously affecting the probability of concluding a collective agreement and the change of employment in 2009. It may be the case, for instance, that firms with a better outlook for 2009 were more likely to conclude an agreement with their unions or workers' councils – in this case their favorable employment records should be interpreted as a cause rather than an effect. For addressing endogeneity we would need instruments correlated with coverage but uncorrelated with unobserved factors implying better employment outcomes in 2009. Such instruments are not available in the WS data set. Therefore, we address endogeneity in an indirect way, by showing that firms foreseeing a larger decline in their industry's sales revenues were *more* likely to conclude an agreement in 2009. Likewise, firms operating in high-unemployment regions were *more* likely to extend their collective agreements to 2009.

Table 1.6: The effects of industry-level change of output and local unemployment on the probability of being covered by collective agreement in 2009 (firm panel)

Sample	Number of firms	Covered in 2009	Logit ^a marginal effect of	
			industrial output May 2009/May 2008 (log)	micro-region unemployment rate 2007 (log)
All firms	5,432	1,480	-0.5745*** (8.72)	0.0316*** (3.25)
Firms covered in 2008	1,407	1,067	-0.4694*** (4.01)	0.0685*** (3.70)
Firms uncovered in 2008	4,025	413	-0.5849 (1.02)	0.0295 (0.35)

^a Logit with a coverage dummy on the left hand and the two listed variables on the right-hand.

Results from our substitute for the study of endogeneity are presented in Table 1.6. The first column shows that a one per cent difference in the industry's output had a half per cent effect on the probability of concluding an agreement.

This result holds for all firms as well as firms having an agreement in 2008. The second column suggests that companies operating in high-unemployment regions were more likely to conclude a collective agreement in 2009. The coefficients are similarly signed and have similar magnitudes in the case of firms uncovered in 2008 but covered in 2009, but the effects are statistically insignificant. The data suggest that collective agreements were stimulated by hardships rather than expected improvements in the firm's environment and call into question if the gains estimated with OLS and propensity score matching are illusory.

While the presence of unions was conducive to smaller than average rate of job loss, it did not imply that wages and working hours fell more than elsewhere. The question of how profits and prices were affected remains a question to be addressed when financial data become available.

Rigidity of wages and working hours – further inspection using individual data

In evaluating the results presented in the previous section one has to consider that firm-level average wages and working hours had been calculated by aggregating individual data. The firm-level means are precise in the case of small firms (since the WS covers all of their employees) and sufficiently precise in the case of large firms (where the within-firm samples are large enough). However, in the case of medium-sized firms we generate the firm-level means using a small number of observations. The resulting measurement error leads to attenuation bias and leads to potentially mistaken conclusions concerning the impacts of firm-level attributes on wages and hours. In this section we study individual panel data, which confirm the conclusions drawn from the regression model in that they show the distribution of wages and working hours remarkably stable in 2008–2009. (See *Appendix 1* on how the individual panel was constructed.)

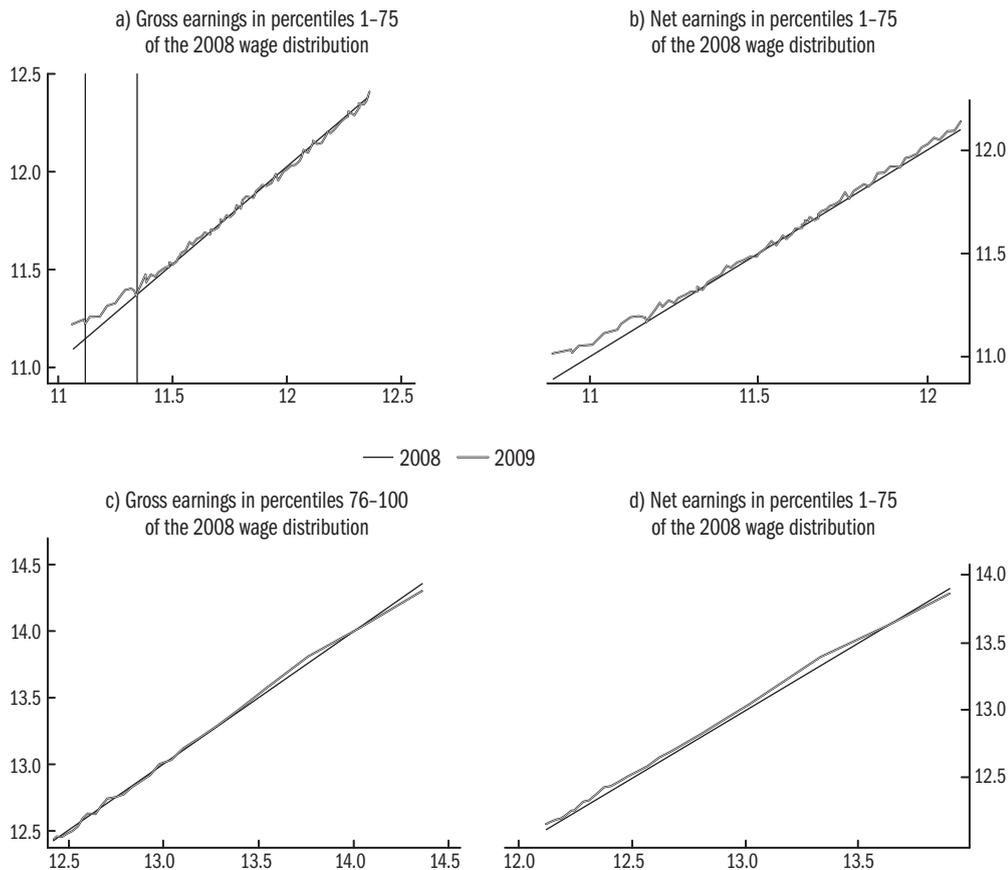
Wages

The four panels of Figure 1.2 show average wages in 2008 and 2009 in 100 percentile groups of the 2008 wage distribution. Members of the panel were sorted by their earnings in 2008 and were divided into 100 groups. The base-period average earnings of these groups are measured on the horizontal axis while their earnings in 2009 are shown on the vertical axis. Base period earnings are also indicated on the vertical axis by a 45° line. The closer a point to the 45° line the smaller the change in the wages of the respective group. Panels *a* and *b* relate to gross earnings while panel *c* and *d* show net figures. Wages in 2009 are expressed in real terms by discounting their values using the consumer price index (1.036 between May 2008 and 2009). In order to improve visibility the charts covering percentiles 1–75 and 76–100 are shown separately and logarithmic scales are applied. In chart *a*) the base minimum wage and the skilled minimum wage are indicated by vertical lines.

The charts suggest that real wages did not change in the middle and top of the distribution: in percentiles 12–100 the monthly gross real wage fell by 0.4 per cent while the net real wage grew by 1 per cent. By contrast, in percentiles 1–11 the gross and net real wage increased by 6.9 and 6.6 per cent, respectively.

Developments in this part of the distribution can not be explained by changes in the minimum wages since the base minimum wage did not change in real terms in 2009 and the skilled minimum wage actually decreased. Compositional effects can be ruled out as we compare groups of fixed membership. The observation is probably explained by random events: workers, who earned much less than their permanent wage in 2008 – for reasons of unpaid leave, sickness, or entry to the firm during May 2008 – returned to (or reached) their “normal” wage level in 2009. The conjecture that large increases at the bottom of the distribution are explained by such exceptional events is supported by the fact that *median* earnings did not rise in real terms in percentiles 1–11.

Figure 1.2: Individual earnings in 2008 and 2009



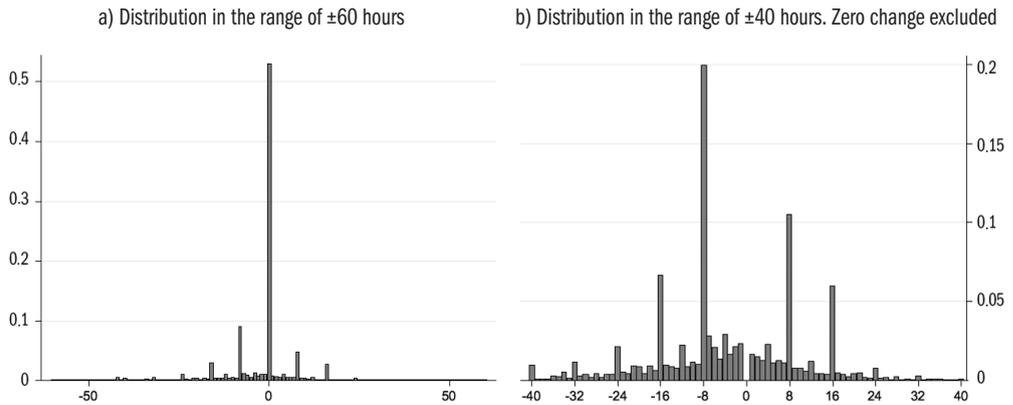
The individual data thus suggest that the insignificant, close-to-zero coefficients estimated in the wage regressions are explained by the stability of the wage distribution rather than measurement error. In the first year of the crisis Hungarian firms left wages virtually unchanged. Changes in enterprise average wages did occur but were unrelated to industrial and regional affiliation, firm size, ownership, union coverage and composition of the workforce.

Working time

Similar to the case of wages, our attempts at explaining the changes in working hours might have failed because of measurement error. Therefore, in this section we check how paid working hours changed on the individual level between May 2008 and 2009.

In the individual panel, the number of monthly paid working hours per employee decreased by 1.6 per cent. The distribution of the 52,409 observed workers by change of working hours is shown in Figure 1.3. Panel a covers the cases falling to the range of ± 60 hours per month. (Only 1.5 per cent of all workers fell outside this range). In order to improve visibility we add panel b that is restricted to changes in the ± 40 hours range, and ignores zero change accounting for more than 50 per cent of all observations.

Figure 1.3: The size distribution of members of the worker panel by change in their monthly paid working hours between May 2008 and 2009



In both the positive and negative domains changes amounting to 8, 16, 24, 32 and 40 hours a month (1, 2, ..., 5 days) occurred frequently and the columns indicating decreases are taller than those standing for increases. The difference is sizeable at 8 hours: people observing 8 hours fall in their monthly working time clearly outnumbered those having 8 hours increase. We conclude from these data that about 5 per cent of the total sample was affected by a typically minor shortening of working time.

Given that everybody working less than 40 hours a week is regarded as a part-timer in Hungary, the small change in working hours brought about a relatively large (5.5 percentage points) hike in the share of part-timers, as shown in the first row of Table 1.7. Further rows of the table help clarify how to evaluate this figure.

First, there is a striking difference between the data reported by firms and workers: the number of LFS respondents reporting less than 40 hours of gainful work in the reference week (second row) grew only by 1.3 per cent. This gap is probably explained by the working of a “4 days work + 1 day training” program that was subsidized using EU funds. The program required that firms classify the involved workers as part-timers for the duration of the program while workers probably interpreted their obligation to attend training as work.

Table 1.7: Changes in different measures of part-time employment, 2008–2009 (percentage points)

Concept	Data source	Respondents	Change
Actual paid hours in May fell short of 168 hours/month	Wage Survey	Firms	5.5
Actual hours in the reference week fell short of 40 hours	LFS ^b	Workers	1.3
Had part-time contract in May	HCSO ELS ^a	Firms	1.7
Had part-time contract in April-June	LFS ^b	Workers	1.2

^a Hungarian Central Statistical Office Establishment-based Labour Statistics 2008, 2009

^b Labour Force Survey, April-June, 2008, 2009

Secondly, it seems that the workweek was often shortened without re-writing the worker’s employment contract: the share of such contracts grew only by 1.7 and 1.2 per cent according to firms and workers, respectively.

Altogether we perceive that relatively few people were shifted from full-time to part-time jobs in the first year of the crisis, even less on a permanent basis, and even the seemingly large changes (as the 5.5 per cent figure in the first row of Table 1.5) hide small shifts in actual working hours. Predictably, a large part of these changes were accounted for by government-sponsored programs. According to establishment-based statistics¹⁰ the number of part-time employees in firms employing five or more workers increased by 36,800 in 2008–2009 while job retention subsidies affected 52,000 workers. These data lead us to think that working time reductions outside the subsidized firms occurred rather infrequently, if at all.

“Hard adjustment” – How hard it was?

Evidence based on the firm panel suggested that Hungarian businesses primarily reacted to the crisis by cutting employment. A net decrease in employment does not necessarily imply that firms fired their incumbent employees on a massive scale. The available data suggest that about 15 per cent of the workforce of Hungarian enterprises is accounted for by new recruitment at any point in time

¹⁰ http://portal.ksh.hu/pls/ksh/docs/hun/xstadat/xstadat_eves/tab12_01_20_02ib.html

(workers entering the firm in the preceding 12 months). Therefore, in a purely technical sense, the average firm is able to cut its staff by two digit percentages within a short time without dismissing any incumbent workers. It seems that Hungarian businesses indeed responded to the crisis by bringing hiring to a halt rather than dismissing an exceptionally large fraction of their workforce.

We study the contributions of firing and hiring to the net loss of jobs indirectly, using data on *flows in and out of employment* before and during the crisis. The discussion is based on panels built from the quarterly waves of the LFS. The Hungarian LFS follows workers for 1.5 years – households are interviewed six times and then replaced with a randomly selected new cohort. Utilizing the rotating panel structure of the LFS we can measure up the magnitude of job loss and job finding with some precision. Although we do not observe all flows in and out of employment we can observe if an individual was employed in quarter t and non-employed in quarter $t+1$, and vice versa. Many of the short spells of employment and non-employment remain unobserved with such data at hand – a deficiency we can not avert.

Following Jenkins (1995) we estimate discrete time duration models, in which members of two risk groups (employed and non-employed) are followed over time. The conditional job loss and job finding probabilities are estimated using constant and time-varying characteristics (X and Z) and time spent in the risk group (t) as explanatory variables. In equation (3) the term $f(t)$ stands for a set of dummy variables denoting that the person was employed (non-employed) for $1, 2, \dots, T$ periods. In the case of employment t is measured in years of tenure in the current job as a continuous variable while in the case of non-employed individuals t is measured with dummies standing for the months of joblessness. The function $g(\tau)$ collects the parameters of a set of dummies measuring calendar time (quarters).

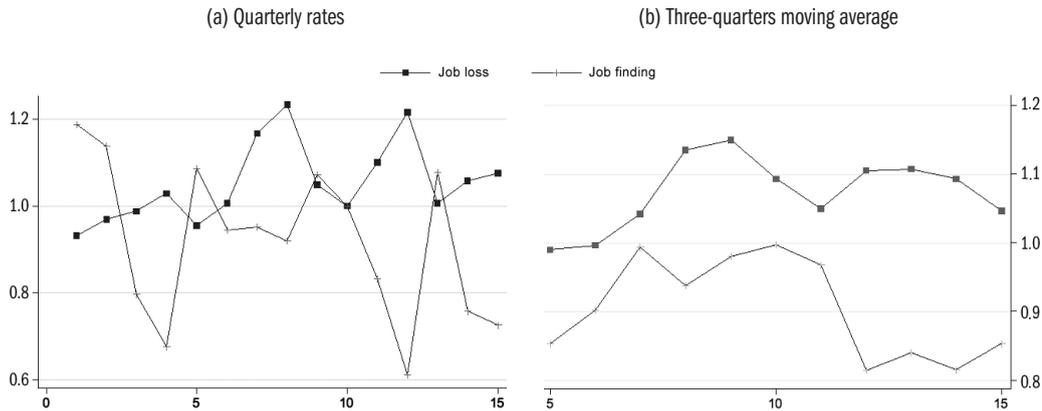
$$\Pr(\text{exit between } t \text{ and } t + 1) = \beta X + \gamma Z t + g(\tau) + f(t) \quad (3)$$

Model (3) is estimated for a pool of 1.12 million observations from 2006.Q1–2009.Q3. The 2010.Q1 wave of the LFS was not available at the writing of this text so we do not know the direction of exit from the populations observed in 2009.Q4. The observed period was split into two overlapping parts: one from 2006.Q1 to 2008.Q2 and another from 2008.Q2 to 2009.Q3. Splitting the period in this way has the advantage of observing if the parameters are the same before and during the crisis and ensuring that the calendar time effects can be connected using 2008.Q2. as the reference wave in both periods.

The estimation results are presented in *Appendix 2*. Here we start with the calendar time effects shown in Figure 1.4. Surprisingly, we do not see a large increase in the rate of *job loss* during the crisis – flows out of employment jumped high in 2008 October – December but a similar hike could be observed one year earlier. The job loss rate followed an increasing trend throughout 2006–

2009, and the period of the crisis seems to fit the trend. By contrast, the *job finding* rate followed a decreasing trend in 2006–2008, and deteriorated markedly during the crisis.

Figure 1.4: The impact of calendar time on the probabilities of job loss and job finding (Logit odds ratios. Reference period: 2008.Q2.)



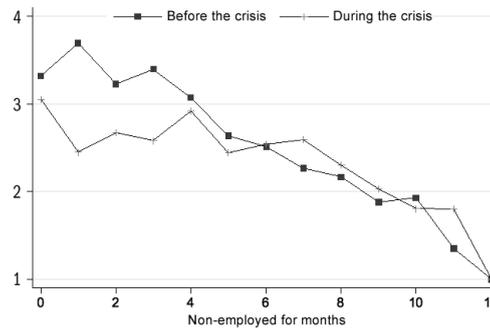
Looking back in time, we observe a dramatic slump in the job finding rate in July-December 2006 that was most probably associated with the announcing of a strict austerity program in June and the outbreak of political unrest in September-October (panel a). It seems that in 2008, too, enterprises reacted to the arising uncertainties by drastically cutting hiring: in October-December the probability of escape from unemployment dropped to an exceptionally low level. Parts of the vacancies left open at the end of 2008 were most probably filled in January-March 2009, when the job finding rate jumped high temporarily. If we smooth the zigzag by applying 3-quarters moving averages (panel b) the widening gap between the rates of job loss and job finding becomes easily observable.

The slump in hiring strongly affected the baseline hazard of exit from non-employment (Figure 1.5). The baseline hazard captures how the risk of exit is affected by the duration of joblessness holding other observed characteristics constant.¹¹ The anti-clockwise shift of the baseline hazard curve at $t=4$ indicates that workers in the first four months of unemployment were less likely to get back to employment, and more likely to become long-term unemployed, in the period of the crisis.

The observed slump in hiring provides part of the explanation of why wage cuts and working time reductions did not play an important role in the adjustment to the crisis. Negotiations leading to soft measures are likely to develop if the jobs of many incumbents are at risk. The motivation for such negotiations is obviously weaker if firms react to the crisis by not replacing those, who retire or quit.

¹¹ The hazard is also affected by unobserved attributes resulting in a gradually growing share within an unemployed cohort of people with poor chance of exit. Therefore the exit rate falls with the duration of joblessness even in the absence of “true” duration dependence.

Figure 1.5: The baseline hazard of exit to employment before and during the crisis (Logit odds ratios. Reference: non-employed for 12 or more months.)



Policy responses

The Hungarian government's policies were primarily aimed at keeping employment as high as possible. Actions included a two-digit, all-embracing real wage cut in the public sector, the preserving of the pre-crisis levels of employment in state-owned enterprises, the provision of job retention subsidies and the creation of public works opportunities. Apart from financing the benefits of a growing number of entitled job losers, the government cut all other programs aimed at assisting those, who actually became unemployed.¹² In this section we look at the nature and effects of these policies in more detail.

Job losers' access to passive support

The "improving" composition of flows out of employment (in terms of skills and labour force attachment) implied that a relatively large part of the new unemployed were entitled to benefits. The fraction of the short-term non-employed receiving insurance-based benefits (UI) or unemployment assistance benefits (UA) increased by 10 percentage points while at the same time the share of those receiving pension or childcare fell by a similar magnitude.¹³ The proportion of job losers registered at labour offices also grew by about 10 percentage points (Table 1.8).

Despite relative improvements in the receipt of unemployment compensation the share of job losers receiving no assistance at all (in the form of UI, UA, pension or childcare benefit) remained high: about 40 per cent of the job losers got no financial support in 2008–2009. The *absolute number of the unassisted non-employed grew substantially*, especially in July–December 2009 when many UI recipients exhausted their benefits (Table 1.9). Furthermore, the proportion of people, who either wanted a paid job, or were actively searching to find one, increased substantially among the unassisted unemployed.

12 Cutting the expenditures on training was all the more painful as enterprises cut their own outlays anyway. There was much talk about the need for training and retraining during the crisis but the number of people actually participating in training fell substantially. According to the LFS the annual average stock of participants in adult training fell from 92 to 73 thousand while the number of those receiving on-the-job training fell from 53 to 37 thousand.

13 The growth in benefit receipt came entirely from growing flows to UI. The absolute number of flows from employment to retirement and childcare did not fall in 2009.

Table 1.8: Registration and transfers received by workers non-employed for 0–3 months at the time of the LFS interview (LFS, per cent)

	2006		2007		2008		2009	
	I	II	I	II	I	II	I	II
Registered	49.7	49.6	49.5	48.0	47.2	51.2	54.5	58.7
Transfer status:								
UI, UA	38.3	38.8	39.6	38.7	37.6	40.5	44.1	47.3
Pension, child-care	19.5	20.5	26.2	21.9	22.3	17.2	14.5	12.0
None of the above	42.2	40.7	34.2	39.4	40.1	42.4	41.4	40.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 1.9: Selected indicators of the unassisted non-employed

	2008		2009	
	I	II	I	II
Average stock of the unassisted non-employed (thousand)	452.8	460.0	495.5	544.7
Wants a job/unassisted, by duration categories (per cent)				
Duration: 0–3 months	76.7	76.0	86.1	86.7
Duration: 0–6 months	77.8	77.3	84.9	86.7
All duration categories	61.7	60.2	63.4	64.9
Looks for a job/unassisted, by duration categories (per cent)				
Duration: 0–3 months	53.0	52.8	61.9	61.9
Duration: 0–6 months	53.9	55.4	62.4	64.5
All duration categories	36.8	36.8	39.4	42.1

Unassisted: received no UI, UA, pension or child-care benefit. The data relate to the population aged 15–61 excluding full-time students. Source: LFS

Access to active support

The direction of change in active labour market policies (ALMP) is easy to check in Table 1.10: resources were directed from the existing schemes to the provision of job retention subsidies and extension of the public works schemes. These programs involved an additional 110 thousand workers while all other programs were cut and the staff of the public employment service (PES) was curtailed by 5 per cent. The government's efforts were clearly directed at keeping employment as high as possible, even at the cost of reducing active support for the unemployed.

The costs of the job retention and public works programs are difficult to assess. According to the data summarized in Table 1.8 about 19 billion HUF (70 million €) was spent on job retention subsidies. The stock of workers in public works grew by 32,000 in 2008–2009 (KSH 2010) while the monthly cost of a job – assuming that the take-home pay was equal to the minimum wage – was estimated to be 89,000 HUF. This adds up to a total cost of at least 32 billion HUF. The additional costs of the two programs together thus amounts to a minimum of 51 billion HUF – a substantial amount equal to almost 2.5 times the total annual operative and development budget of the PES.

Table 1.10: Flows to ALMP^a and staffing of the PES 2006–2009

	2006	2007	2008	2009	Change in 2009
Job retention subsidies	7,390	3,843	3,040	52,027	48,987
Public works	66,403	63,098	63,100	123,754	60,654
Wage subsidies ^b	58,931	43,501	52,349	41,677	-10,672
Training, retraining	56,883	47,735	79,080	74,308	-4,772
Start your own business	5,667	4,861	7,127	5,607	-1,520
Other	7,235	4,336	13,764	3,354	-10,410
PES staff	4,306	3,931	4,017	3,825	-192
PES local office staff	3,946	3,624	3,688	3,518	-170

^a The figures relate to cumulative annual inflows to the given program. Data on stocks and/or the duration of support are not available except for public works.

^b These subsidies are targeted at the long-term unemployed, mothers returning from childcare leave and school leavers.

Sources: *KSH* (2010), p.27, data provided by the PES and the Treasury. Data on the PES staff were provided by the Budapest Institute of Public Policy Research, and are based on the annual budgets of Hungary

How many jobs were saved – Some back of the envelope calculations

As shown in Table 1.11, the National Development Agency and labour offices spent a total of 19 billion HUF for job retention – an amount sufficient to finance 23 thousand man-years if workers are paid the minimum wage. This is a *lower-bound* estimate since many jobs could have been maintained at the cost of partial contribution to wage costs. We may come to a naive *upper-bound* estimate by relying on the plans of enterprises applying for job retention subsidies, assuming away deadweight loss and crowding out effects, ignoring that the firm-reported data are obviously upward-biased, and presuming that each and every subsidized job survived until the end of 2009. Assuming further that the total number of saved jobs amounted to 1.76 times the number of subsidized jobs (as suggested by the first row of Table 1.11) we arrive at an estimate of 119 thousand jobs.

Table 1.11: Job retention programs in 2009

Program	Outlays (billion forint)	Affected firms	Affected workers	Jobs saved according to the subsidized firms
Preserving jobs (government)	10.2	921	30,365	53,461
Operative program TÁMOP 2.3.3	6.3	..	12,719	..
Preserving jobs (OFA)	7.3
Ministry of Labour and Social Affairs	0.6	23	2,201	..
Labour offices	..	418	3,473	..

Source: *KSH* (2010) pp. 25–27. and data provided by the National Employment and Social Office.

Finally, if we consider that the annual average stock of workers involved in public works programs increased by 32 thousand in 2009 we come to an estimate of 60 to 150 thousand jobs “saved” directly or indirectly by means of job retention subsidies and direct job creation. The upper-bound estimate is strongly upward biased and predictably has little to do with reality.

Closing remarks

The approach chosen by the Hungarian government seems rather unique by international comparison. A survey by the ILO (2009b) suggested that about $\frac{1}{4}$ of the countries created public employment opportunities and/or assisted working time reductions, but at the same time 54 per cent provided additional cash transfers, $\frac{1}{3}$ extended unemployment benefit, $\frac{1}{3}$ introduced additional social assistance and protection measures and 55 per cent increased their support to low-income households. Brazil extended the benefit payment duration of unemployment insurance by two months for formal-sector workers in the most crisis-ridden sectors. Chile expanded unemployment insurance to cover workers with fixed-term employment or service contracts. The Czech Republic increased the duration of unemployment benefits by one month and raised its amount. France extended unemployment benefits to those who have worked four months within the last 28 months, with a duration equivalent to the duration of work, up to 24 months. Romania extended unemployment benefits from six to nine months. The United States extended unemployment benefits for up to 33 weeks and increased the amount by \$25 per week.

Furthermore, in contrast to Hungary, where the capacity of the PES was further cut during the crisis, many countries involved in the ILO (2009b) survey increased their PES staff and/or extended opening hours, including Canada, Germany, Mexico, Cambodia and Spain. An extension similar to that carried out in Germany or Spain would have created 600–900 new jobs in the Hungarian PES (taking into account the size difference between Hungary and the two comparators) while the PES staff was actually cut by nearly 200.

The strong emphasis on public works as a remedy to the unemployment problem is also distinctive, at least within the EU-26, where only Ireland created public employment posts on a large scale according to ILO (2009b). (Among non-members in the survey Serbia, Ukraine and Turkey are mentioned).

While the government’s efforts at minimizing the loss of employment saved a minimum of 60 thousand jobs, registered unemployment grew relentlessly from 424 thousand in September 2008 to 659 thousand at its peak in February 2010 – a growth of 235 thousand. In the same period employment (as measured by the LFS) fell from 3,924 million to 3,719 million – a decline of 205 thousand. It seems that the majority of those at risk of job loss did lose their jobs, had poor prospects of finding new ones because of a slump in hiring, and many of them were left without social assistance.

Appendix 1

The Wage Survey and the firm panel of 2008–2009

The WS is carried out by the Public Employment Service annually, each May. All Hungarian firms employing more than 20 workers are obliged to fill in the WS questionnaire while in the case of smaller firms a 20 per cent random sample is selected and obliged to report. The firms provide enterprise-level data (size, industry, ownership, employment) and individual data on their workers. Firms employing less than 50 workers report on all employees while the larger ones report on a (roughly 10 per cent) random sample of their workers. The firms can be linked across waves directly while workers can be identified indirectly, with a margin of error, using data on their firm ID, date of birth, gender, education and job classification.

Out of the 9,054 enterprises reporting data in 2008, 5,428 were observed in 2009. Selection to the panel was mostly affected by the sampling design of the survey but firm exit and non-response could also play a role. A medium-sized or large firm can vanish from the WS if it goes bankrupt or drops below the 20 workers limit and is not selected to next year's randomly chosen small-firm sample. The probability that a small firm observed one year will also be observed next year is 0.2 if it continues to employ less than 20 workers, and 1.0 if it grows large enough to be included in the "medium-sized and large" category. Actually, out of the base period sample 39.5 per cent of the small firms and 71.7 per cent of the larger ones were observed in May 2009. Selection to the panel was analyzed with probit and the inverse of the estimated survival probabilities were used as weights in the forthcoming calculations. (See Köllő 2010 for the estimation results).

The most important indicators of firms in the panel are compared to the closest available figures of the HCSO in Table A1.1. We do not expect exactly the same indices since the published figures relate to April-June while the WS data compare May 2008 and 2009 and the wage concepts are slightly different, too. In the firm panel, compared to the published figures, employment fell more and hours fell slightly less. The rates of change in real earnings vary with the wage concept and also influenced by a small difference in the CPI relating to the reference periods (Q2/Q2 versus May/May). The data of the firm panel nevertheless follow the same pattern as the HCSO data, in suggesting a considerable loss of jobs, minor downward adjustment of working hours and slightly changing real wages.

Table A1.1: Changes in the firm panel versus the whole private sector

	Firms employing at least 5 workers	
	Private sector	Firm panel
	2009 Q2/2008 Q2	2009 May/2008 May
Employment	-7.6	-8.9
Average monthly working hours per worker	-2.6	-2.3
Real gross monthly earnings	1.4	
Real gross monthly base wage	..	1.5
- Regular supplements and bonuses included	..	0.0
- Monthly value of previous year's non-regular bonuses included	..	-0.9

Data on the entire private sector are drawn from the Statinfo data base available in the Central Statistical Office's homepage www.ksh.hu.

Before turning to the estimations, we identified heavy outliers using a procedure proposed in Hadi (1992). The procedure looks for one or more sub-populations where the linkages between some key variables follow a pattern sharply different from the one characteristic of the whole population. Search for such a sub-population in the space of $\Delta \ln L$, $\Delta \ln H$ and $\Delta \ln w$ resulted in 255 outliers. As shown in Table A1.2, these firms lost almost half of their staff in a year, their average working hours fell ten times faster than those of the non-outliers, and their hourly nominal wages went up by 16.5 per cent as opposed to 3.8 per cent with the non-outliers.

Table A1.2: Changes of employment, hours and wages with outliers and non-outliers

	Mean log change of		
	Employment	Hours	Hourly wage
Not outlier (5,173)	-0.058	-0.013	0.038
Outlier (255)	-0.467	-0.136	0.165

Note: Outliers were identified with Stata's *hadimvo* procedure in the space of the log changes of employment, hours and hourly wages

The outliers were more likely to be in construction and administrative services, and less likely to be state-owned and agricultural than the non-outliers were while other variables (size, ownership, and union coverage, exposure to the minimum wage, industry, and region) had no statistically significant effect. The outliers seem to be collapsing firms and/or ones where the company's structure changed considerably. In any case, their inclusion to a model looking at adjustment on the margin would hinder rather than help the analysis.¹⁴

In our estimations, the hourly wage figure relates to total monthly remuneration (last row in Table A1.2) divided by paid hours during the month. The data on industrial output (sales revenues deflated with the producer price index in the tradable sectors and the consumer price index elsewhere) relate to 82 two-digit sectors and have 33 distinct values.

¹⁴ The probit used to predict the probability of being an outlier and the regression results on all firms are available on request.

The descriptive statistics of the estimation sample are presented in Table A1.3.

Table A1.3: Firm panel – Descriptive statistics of the estimation sample

Variable	Mean	Std. Dev.
Log change of employment	-0.0590	0.3784
Log change of total labour input	-0.0782	0.3899
Log change of average gross monthly earnings	0.0284	0.2095
Share of men	0.6020	0.3165
Average experience	23.3124	6.7881
Average education (years)	11.6925	1.5085
1-10 employees	0.2386	
11-20 employees	0.1454	
21-50 employees	0.1634	
Fraction paid the minimum wage (base or skilled)	0.2119	0.3055
Collective agreement only in 2008	0.0517	
Collective agreement only in 2009	0.0638	
Collective agreement in 2008 and 2009	0.1454	
Foreign-owned	0.1592	
State-owned	0.0641	
Local unemployment rate (log)	-3.0280	0.6585
Agriculture	0.0567	
Mining	0.0061	
Water & Sewage	0.0310	
Construction	0.0892	
Trade	0.2214	
Transport	0.0493	
Hotels	0.0344	
Communication	0.0259	
Finance & Insurance	0.0278	
Real estate	0.0200	
Professional services	0.0370	
Administrative services	0.0432	
Education (private)	0.0095	
Health (private)	0.0370	
Culture (private)	0.0124	
Personal services	0.0121	

Finally, the estimate for Equation (2) is shown in Table A1.4.

**Table A1.4: Removing compositional effects: wage regression
(firm panel, unweighted sample, OLS)**

	Dependent: log change of the average hourly wage	
	β	T
Log change in average years in school	0.0422	15.92
Log change in average age	0.0034	6.07
Log change in the share of men	0.0931	5.82
Constant	0.0294	
aR-sq	0.0574	

Appendix 2

The estimates of discrete time duration models (logit form) for exit from and to employment are presented in Tables A2.1 and A2.2.

Table A2.1: Estimation of exit to non-employment (LFS panel) Discrete time duration model – Logit odds ratios

	2006. Q1. - 2008. Q2.		2008. Q2. - 2009. Q3.	
Male	0.98	-1.33	0.99	-0.64
Potential experience	1.00	0.01	0.99	-2.29
Vocational	0.93	-4.45	0.89	-5.40
Secondary	0.92	-4.61	0.87	-6.06
Higher	0.89	-4.13	0.85	-5.01
Tenure (months)	0.99	-2.92	0.99	-5.90
Size 0-4	1.10	4.24	1.06	2.29
Size 5-10	1.16	6.77	1.05	2.14
Size 11-50	1.19	7.84	1.03	1.16
Cleaners	1.09	2.15	1.05	1.10
Material handlers	1.31	6.24	1.40	6.89
Machine operators	1.02	0.47	1.06	1.42
Janitors, guards	1.08	1.58	0.94	-0.98
Drivers	0.96	-0.88	0.99	-0.31
Farmers & agric workers	1.08	2.00	1.03	0.63
Construction workers	1.05	1.34	1.03	0.71
Industrial workers	0.99	-0.07	1.00	0.14
Trade workers	1.07	2.11	1.03	0.78
Service workers	0.99	-0.19	0.99	-0.05
Office workers	1.03	0.85	0.98	-0.32
Technicians, assts	0.99	-0.05	1.02	0.52
Administrators	1.02	0.67	1.00	0.05
Managers	0.99	-0.33	0.94	-1.48
Professionals	1.00	0.20	0.98	-0.51
Teachers & Doctors	1.16	1.02	1.02	0.13
Number of jobs	248,841		152,250	
LR chi ²	700.15	0.0000	486.75	0.0000
Pseudo-R ²	0.0027		0.0030	

The calendar time effects are shown in Figure 1.4.

Table A2.2: Estimation of exit to employment (LFS panel) Discrete time duration model – Logit odds ratios

	2006. Q1. – 2008. Q2.		2008. Q2. – 2009. Q3.	
Male	1.29	7.32	1.19	3.92
Experience: 0–2 years	0.92	-0.50	1.32	1.53
Experience: 3–10 years	0.97	-0.58	1.00	0.08
Experience: 21–30 years	0.84	-3.61	0.93	-1.28
Experience: 31–40 years	0.73	-6.49	0.77	-4.28
Experience: 41+ years	0.43	-9.03	0.39	-8.08
Vocational	1.26	5.80	1.10	1.99
Secondary	1.23	4.48	1.24	3.78
Higher	1.30	3.59	1.25	2.63
Searching for a job	2.64	17.11	2.77	13.77
Wants a job but is not searching	1.90	11.51	1.98	9.36
Child care	4.14	16.70	4.47	14.04
UI	4.82	17.61	4.08	12.17
UA	3.86	14.83	4.25	12.58
Unassisted	4.85	21.60	4.19	14.82
Registered	1.32	5.55	1.35	4.72
Number of observations	235,973		136,165	
LR χ^2	13873.36	0.0000	7703.5	0.0000
Pseudo- R^2	0.2858		0.2752	

Reference: 11–20 years of experience, primary education, does not want a job, pensioner

Sample: aged 15–61, full-time students excluded

The calendar time effects are shown in Figure 1.4.

The coefficients of the duration dummies are shown in Figure 1.5.

1.A) CRISIS MEASURES ON THE LABOUR MARKET

PÉTER ELEK & ÁGOTA SCHARLE

All developed countries have adopted temporary or permanent policy measures in order to mitigate the employment effects of the recession that started in 2008.¹⁵ Such interventions may be justified by three basic goals: to strengthen the social safety net, to prevent long-term unemployment by sustaining active job-search, and more generally, to curb or prevent the increase of unemployment. The latter effort is justified especially at the beginning of the crisis as preventive measures may block the necessary adjustment in the structure of production during the upturn and thus may delay recovery.

Although unemployment benefits had been quite generous in the majority of EU-member states even before the crisis, a few countries still found it necessary to prevent mass impoverishment by temporary welfare measures. Such measures included the temporary extension of the duration of unemployment benefit or the temporary easing of eligibility criteria. Though the three-month maximum duration of the wage-related phase of the unemployment benefit is extremely short by European comparison, the Hungarian government did not extend it. Some welfare measures were introduced however: a *crisis management fund* was established to help families caught in a mortgage trap or other difficulty, and a moratorium was declared on evictions.

Central European countries and the post-socialist EU member states focused primarily on curbing unemployment and concentrated their efforts on increasing or sustaining labour demand. The Anglo-Saxon countries were concerned mainly with preventing long-term unemployment by encouraging job search and the training of the unemployed.

The same strategy was followed in the Scandinavian countries as well albeit less actively. Less action was needed in those countries that use strong feedback mechanisms in their unemployment provision systems, such as in Denmark, where the majority of labour market measures are decided upon locally, and central government funding is pegged in proportion to the unemployment rate.

Economic growth in Hungary had slowed down well before the beginning of the global crisis, hence crisis management had to tackle two challenges: 1. Find a rapid response to the external recession and at the same time take long overdue measures to correct structural distortions; 2. Stay within budget very tightly constrained by the high debt ratio and the high initial government deficit, practically ruling out anticyclical fiscal policy.

As in other countries in the region, crisis management in Hungary focused on the *increase and preservation of labour demand*.¹⁶ In 2009, more than one third of all expenditures, 60 billion HUF was spent on the *reduction of labour costs*: the employers' social security contribution rate decreased by 5 percentage points up to twice the minimum wage. The reduction was extended to all wage levels in 2010, which, together with the abolishment of the lump-sum health contribution, resulted in a revenue loss of around 225 billion HUF. Such an across the board cut in the social security rate is badly targeted, since by design it affects all jobs, not only those that need to be saved. Thus it implies a substantial deadweight loss and is extremely costly as well. However, it may be justified as a temporary crisis management tool or if it fixes a structural distortion (*OECD*, 2010b) – as in the case of Hungary.¹⁷ The 2009 and 2010 re-

15 This summary of measures is based on *OECD* (2009b).

16 The classification used here follows the questionnaire of *OECD* (2009a). Although they may indirectly contribute to the alleviation of employment decrease, we deal neither with measures to ease firms' liquidity constraints (amounting to tens of billions HUF) nor with the targeted subsidies for certain branches of industry (e.g. the introduction of the reduced VAT rate for tourism).

17 The evaluations of international organisations in the last four years have all concluded that the level of labour taxes is high, and this is the most important obstacle to economic growth (*World Bank*, 2006a, 2006b, 2007, *IMF*, 2007, *Ecfm*, 2007). The latest country report of the *OECD* and also the latest evaluation published by the Directorate General for Economic and Financial Affairs of the European Commission welcomed the 2009 reform but at the same time proposed further cuts in labour taxes and social contributions (*OECD*, 2010c, p. 11, *Ecfm*, 2010, p. 28).

ductions in labour costs together may increase employment by 0.3–2.8 per cent in the short run and by 0.5–1 per cent in the long run.¹⁸

Short time work schemes (such as the *Preservation* programme of OFA [National Public Employment Foundation] or SROP [Social Renewal Operation Programme] 2.3.3.) form another group of the measures which aim at increasing or preserving labour demand. According to the *OECD* (2010b), these forms of subsidy substantially moderated the layoffs in a number of countries. The magnitude of such schemes was around average in Hungary: slightly less than one per cent of workers took part in such a programme in 2009. However, their effectiveness was below average: the OECD estimated that around 0.1 per cent of all permanent jobs could be saved in this way, while in the best performing country, Belgium, the programme contributed to the preservation of 1.3 per cent of jobs with an almost 6 per cent participation rate (*OECD*, 2010c).¹⁹

The OFA *Back to Work* programme or the extension of SROP 1.1.2., which belong to *job subsidies* (job preservation and creation) also aim at increasing labour demand. These programmes subsidise firms for hiring employees who were laid off from elsewhere. The analysis of OECD (2010c) regards this form of subsidy to be most efficient at the end of the recession, at the beginning of the recovery, thus in 2010 and in the subsequent period.

¹⁸ According to *OECD* (2010b) a one per cent reduction of labour costs boosts employment by 0.6 per cent in the short run, while – due to the adjustment of nominal wages – by only 0.2 per cent in the long run. This yields a 2.8 per cent short term and a 0.9 per cent long term employment effect of the social contribution reduction in 2010. Calculations using Table 16 of *MKKT* (2010) imply a 0.3 per cent short run and a 0.5 per cent long run employment effect of the contribution cut, and the GDP effect may be 0.2 per cent in the short run and 0.4 in the long run. Simulations with the quarterly projection model of the national bank show a larger multiplier effect: GDP may increase by 0.4 per cent in the short run, while the long term increase may well be 1.9 per cent (*Horváth et al.*, 2006).

¹⁹ See also Chapter 1 about the effectiveness of employment preserving subsidies.

Table 1.A)1: Labour policy crisis measures in the EU member states in 2009

	More than one measure	One measure	No measure	Central government expenditure/ revenue loss in Hungary in 2009 (billion HUF)
Income support	11 members (including Hungary)	Austria, Czech Republic, Italy, Slovakia	Denmark, Ireland, Luxemburg, Netherlands	2.7
Labour demand	12 members (including Hungary)	Austria, Denmark, Greece, Ireland, Italy, Netherlands, UK	-	Reduction of labour costs: 60 Job subsidies:* 45 Public works:** 51
Measures to support job search and re-employment	14 members	Belgium, Czech Republic, Slovakia	Hungary, Luxemburg	0***
Training of employees and apprentices	Austria, Finland, France, Netherlands, UK	8 members	Belgium, Czech Republic, Hungary, Italy, Luxemburg, Portugal	0

Source: Based on Table 1 (page 3) of *OECD* (2009a), data from January-May 2009. Data on Hungary were obtained from the Public Employment Service. The table only contains the crisis-related measures taken, over and above regular provisions for the unemployed (thus in the case of public works, we present the additional funds made available on top of the regular budget). For all countries, training measures combined with reduced working hours are classified as measures for preserving labour demand, hence the *Preservation* programme of OFA and the SROP programmes are categorised this way in the case of Hungary. In the last column, the revenue loss caused by the social contribu-

tion reduction is calculated after consolidation with contributions paid by the government.

* OFA *Preservation* programme (7.3 billion HUF in 2009), OFA *Back to Work* programme (0.7 billion HUF), central programmes (10.8 billion HUF), SROP 2.3.3. programmes (6.3 billion HUF), extension of SROP 1.1.2. (20.2 billion HUF).

** Extension of funds made available for public works organised by local governments.

*** The *New Prospects* programme of OFA launched at the end of 2009 would belong to this category but it was not yet included in the OECD survey and no payment was made from it until the end of 2009.

Finally, direct *public sector job creation* is also categorised as a measure for increasing labour demand. In Hungary this was mainly implemented via the *Pathway to Work* programme which involved a redesign of the regular social assistance and increased funding and incentives for local governments to organise public works for the long term unemployed. In 2009, average participation in the scheme increased from around 20–30 thousand people to 90–100 thousands. Most countries sought to encourage the re-employment of the unemployed by increasing the administrative capacity of the public employment service and the funds for active labour market programmes, especially for training. These measures are particularly important in the case of the unskilled young, immigrants and low skilled workers, whose chances of re-employment are much smaller and who are more likely to leave the labour market for good. As the only country in the EU or OECD (apart from Luxemburg), Hungary did not extend these measures until the beginning of 2009, in fact funding had been cut to finance the increase in job preser-

vation subsidies. The only new activation measure, the *New Prospects* programme of OFA was introduced at a later stage and even then its significance was smaller by one order compared to the funds allocated to sustaining labour demand.

The capacities of the public employment service had been insufficient even before the crisis: their budget for operating costs was half of that in countries with a similar unemployment rate (e.g. in Finland and Sweden). Staff levels in the branch offices serving the unemployed barely changed between 2004 and 2007, and even decreased in 2009 – while the number of registered unemployed increased, and the scope of duties of the branch offices widened. The large majority of EU countries and all Eastern European member states chose the opposite strategy and increased government funding for the operation of the public employment service (Czech Republic, Poland, Latvia, Lithuania, Slovakia), or decreased funding at a lower rate than the decline in unemployment (Bulgaria, Romania, Slovenia) (*Cseres-Gergely–Scharle*, 2010).

1.B) CORPORATE REACTIONS TO THE CRISIS

ANDRÁS SEMJÉN & ISTVÁN JÁNOS TÓTH

In the second half of 2008 the unfavourable effects of the economic crisis appeared powerfully in the Hungarian economy, and they also became visible in the statistics. Findings of corporate climate surveys suggest that the crisis first reached the companies producing for export markets, and hit them more powerfully than the other firms, however, the companies producing mainly for domestic markets were affected by the crisis relatively quickly as well. Companies could react to the crisis in different ways: with *reactive* steps having a short-term positive effect (improving their liquidity position, cost-cutting, restructuring of credits etc.), or with *proactive* steps, more efficient in the long term (seeking new markets, organizational adjustments, transformation of the production structure etc). Reactions related to employment and wages, such as freezing wages, transforming employment and layoffs belong to corporate responses exerting a short-term effect.

Below we review the more important adaptive steps taken by the companies, and their changes in 2009–10, based on the experience of three corporate surveys.²⁰ The first data survey was carried out in March 2009, which also means that, unfortunately, we have no direct information about the initial stage of the crisis, in which the lay-off and joblessness figures already showed significant corporate adaptation.

Employment figures were between 10–19 individuals in 23 % of the firms surveyed, between 20–49 in 27 pc, between 50–99 in 21%, while 16 % of the

²⁰ The surveys were conducted by MKIK GVI in March 2009, June 2009 and March 2010, on a sample of 300 companies respectively, with the companies surveyed revisited a second time. This aim has not been achieved successfully in every case, so, in the end, the panel database contains the responses of 184 companies. For the summary of the survey findings see: *Bartha-Tóth*, 2009, *Bartha et al.*, 2009, *Czibik et al.*, 2009, 2010. Our paper outlines the more important statements of the above studies.

surveyed firms employed more than 249 people. The distribution of the sample by sector showed that 34 % of the enterprises were operating in manufacturing, 15 % in construction, 32 % in trade and 18 % in other service sectors.

In the survey the companies were asked which of several possible crisis management solutions they had applied during the last six months. The findings show that the companies typically combined different crisis management steps and applied them simultaneously, ie. we cannot find a *single* corporate strategy for handling the crisis [see *Table 1B)1.*]

In the six-month period preceding March 2009 most respondents chose seeking new sales markets (64%) and the taking of some steps to handle liquidity problems. Within this latter category the most frequently applied measures of crisis management were reducing receivables and reducing dependence on suppliers (46–46%), alongside the reduction of short-term debts (40%). The repeated surveys suggest that freezing or reducing wages and cutting down on temporarily dispensable services became dominant (80–81, 68 and 63 %) only in the later stages of the crisis (in the six-month periods preceding June 2009 and March 2010). The same period saw layoffs also becoming widespread (43 and 32% compared with the initial 21%). Reducing working hours and introducing part-time employment became twice as important within a year's time, though it was not yet typical even in the last survey (22%). Nevertheless, the application of proactive means strengthened, seeking new sales markets improved from 78 to 79%, while offering new products and services showed a change from 37 to 51 %.

From the reactive steps, companies mostly used cost-cutting measures first: 36 % postponed their investments, 30 % froze or reduced wages. In addition about 30% of the firms also cut down on buying several temporarily dispensable services.

Unfortunately, but quite understandably, the business climate surveys used here did not explicitly inquire about whether or not, simultaneously with the cost-cutting measures, some forms of black and grey employment (like paying partly or fully non

Table 1.B)1: Adaptive measures employed by enterprises in response to the economic crisis (% , N=916)

	% of firms applying different steps		
	March 2009	June 2009	March 2010
1. Reducing short-term debts	39.6	41.9	45.1
2. Reducing receivables	45.5	58.3	60.7
3. Postponing/slowing down planned investments	36.2	41.5	44.8
4. Layoffs (also of agency workers)	21.4	42.5	32.5
5. Switching to part-time employment or shorter working hours	10.3	16.9	22.5
6. Freezing/reducing wages/benefits	30.0	80.1	80.6
7. Cutting down on temporarily dispensable services	31.6	67.8	63.2
8. Seeking new sales markets	64.4	78.1	79.1
9. Offering new products and services	30.9	36.9	50.5
10. New suppliers/reduce dependence on suppliers	45.6	33.1	33.9
11. Use of government subsidies and EU funds	16.8	12.0	25.7
12. Preparing new long-term plan, modification of corporate strategy	32.7	35.8	39.5
13. Improving the safety of short-term finance, eg. extend bank loans	21.2	-	-
14. Cutting prices, applying new pricing	20.8	-	-
15. Selling some assets	8.3	-	-
16. Credit conversion (Foreign currency to HUF)	4.2	-	-
17. Other	17.0		

Explanation: Response options 13–17 did not feature in the June 2009 and March 2010 surveys.

disclosed income “cash in hand”, or masking employment as a contract with a subcontractor and paying contractual fees instead of wages) were also revived and applied more widely. On the basis of former surveys, however, it is justified to assume that some of the companies (primarily those that used layoffs and the reduction of working hours as a reactive step to a large extent) also applied this method

of cost-cutting in parallel with the strengthening of the effects of the crisis.

When analyzing the period following the transition to a market economy, *Laki* (1994) already pointed out that postponing or delaying tax payments or pecuniary obligations toward suppliers in order to gain time can be an important element of corporate survival strategy. *Tóth-Semjén* (1999) showed based on enterprise surveys that the legal and illegal reduction of the tax burden, i. e. tax avoidance and tax evasion become part of the companies' struggle for survival, especially among the more vulnerable small and medium-sized companies. At the same time their results also indicated that parallel with the improvements of economic environment and corporate prospects, tax discipline and the discipline of payments in general also improve and tax arrears and the default of payment to suppliers are driven back.

Based on a comparison of several empirical surveys *Semjén-Tóth* (2004) have confirmed, further elaborating the ideas presented already in *Tóth-Semjén* (1999), that economic environment and tax behaviour are closely interrelated: parallel with the improvement of economic environment and corporate prospects, companies will rely on strategies employing legally disputable, risky measures to a lesser extent, i.e. in other words, as economic stabilization proceeds, tax discipline will also improve *ceteris paribus*. It is presumable that these formerly well-documented relationships are also valid in the case of reverse changes.

Applying the conclusions of our former research to the period of economic crisis involving a significant and relatively lasting worsening of the economic climate and corporate prospects, we have good reason to presume that during the period of the crisis, with all conditions held unchanged, tax discipline and the discipline of payments will, by necessity, worsen, (statistical data unambiguously show the worsening of payment to suppliers). At the same time in companies producing not primarily for export markets and in which the rate of foreign ownership is not dominant the application of tax-saving and contribution-saving forms of employment (e.g. partly or fully pay-

ing on an invoice with pretended subcontracting) is likely to become more wide-spread again.

Of the proactive steps, seeking new sales markets was already detectable as early as March 2009, and later its rate continued to increase (from 64% to 78–79%), while the occurrence of steps taken to launch new products or services on the market grew significantly (to 51 %) only in the period covered by the last survey. Seeking new suppliers and reducing the dependence on suppliers also belong to proactive measures, and so does the application of government funds or EU subsidies, but these were only applied by a smaller part of the firms during the survey period.

Companies were usually compelled to apply several steps simultaneously during the crisis. Already the findings of the March 2009 survey suggested that Hungarian enterprises were dramatically hit by the crisis. This was reflected by the fact that 44% of the companies surveyed applied five or more measures out of the 12 types of reaction that were offered in all of the surveys. The fact that the companies were forced to apply newer and newer measures to handle the crisis as time passed by indirectly underlines the long-term nature of the crisis and the short-term ineffectiveness of the steps taken. While in March 2009 the companies named on average four types of reaction, in 2010 they already used on average 5.5 types of reaction to ward off the crisis.

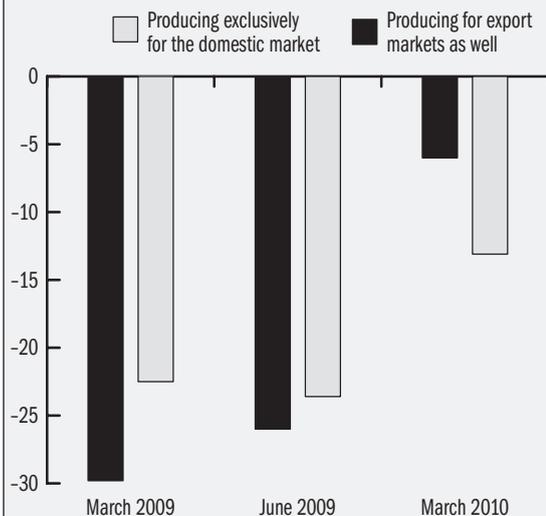
Our findings suggest that for exporting companies the first state of the crisis was a good deal more striking than for those producing exclusively for the domestic market. On the one hand, the business climate index measuring their position showed much lower values in March 2009 than for those producing only for domestic buyers [see Figure 1.B)1]. On the other hand, exporters, to respond to the crisis, were forced to apply more measures at the same time than those producing only for domestic markets. This relationship holds for all three surveys, but it appears especially powerfully in June 2009 [see Figure 1.B)2]. The rate of companies applying layoffs showed a fluctuation in the different sectors during the three surveys [see Figure 1.B)3]. While in March and June 2009 the rate of those forced to lay off staff was the

highest in enterprises operating in trade and commerce (28 and 48%), by March 2010 we found the lowest rate exactly in this sector (30%). The deep and lasting crisis of the construction sector is reflected by the fact that while in March 2009 the rate of companies applying layoffs in the sector was relatively low (10%), later, in spite of the fact that the spring and the summer are usually stronger in this sector due to seasonality, the number of firms applying layoffs grew to 40%, and probably stabilized later at this high level.

There are no data available regarding the effectiveness of the crisis management measures mentioned above. Company CEOs were asked in the March 2010 survey to name the most successful measures based on their company's experience. Their answers suggest that new sales markets may have had a deci-

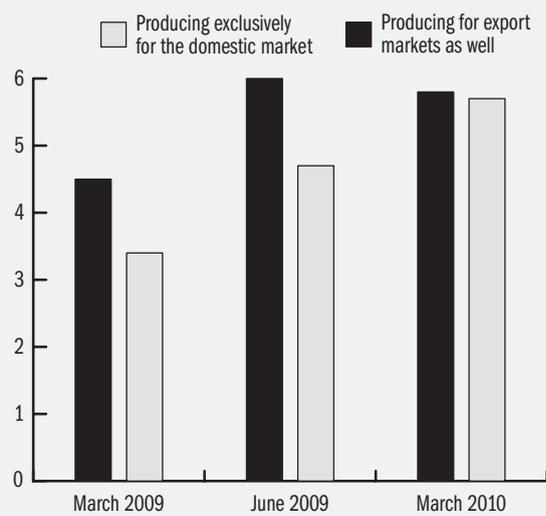
sive role in the adaptation to the crisis: 64 % of CEOs mentioned that seeking new sales markets proved useful in overcoming the effects of the crisis. In addition 41 % of CEOs mentioned freezing or reducing wages and other benefits among the more effective or successful measures, while 37 % of CEOs mentioned the reduction of receivables as successful in protecting the firm from the negative effects of the crisis. Cutting down on dispensable services or the postponement/slow-down of investments were mentioned as successful measures by 25–21 % of the respondents. Layoffs (the reduction of employment) proved even less effective as indicated by the relatively low 11 % share of CEOs mentioning it, while switching to part-time employment was mentioned only by 5 % of respondents as useful. [Cf. Figure 1.B)4].

Figure 1.B)1: The change of the Business Climate Index (BCI) for firms and companies producing exclusively for the domestic market and producing for export markets as well, % (March 2009 – March 2010, N = 916)*



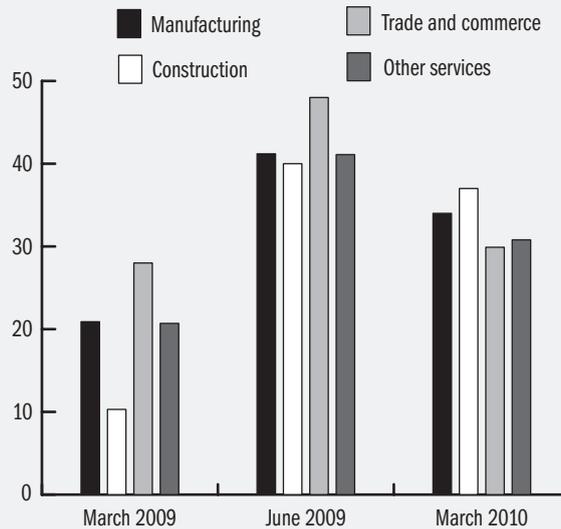
Note: The definition of the Business Climate Index is the following:
 $BCI = (\text{business climate at present} + \text{business prospects (expectations)} + \text{predicted investments} + \text{predicted employment} + \text{predicted wages}) / 5$. The value of BCI can be between -100 and + 100, where a -100 value of

Figure 1.B)2: The average number of measures taken as a response to the crisis for firms and companies producing exclusively for the domestic market and producing for export markets as well, % (March 2009 – March 2010, N = 916)



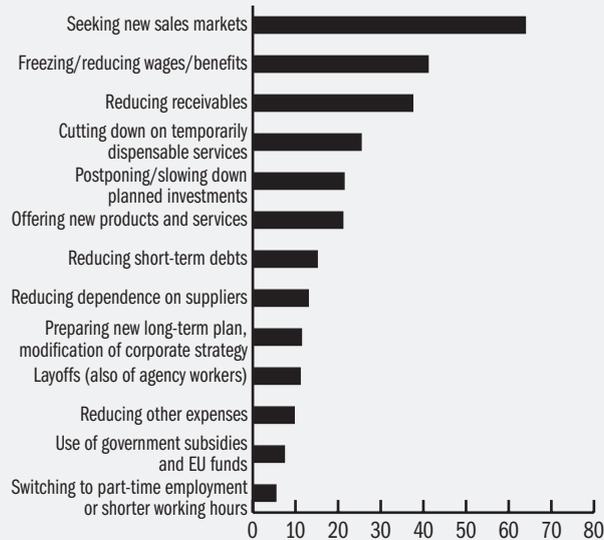
the index indicates that all the firms surveyed gave negative answers (“bad” or “deteriorating”) for every indicator, while an index value of +100 indicates that all the firms surveyed gave only positive answers (“good”, “improving” or “expanding”) for all the indicators covered by the index.

Figure 1.B)3: The share of firms applying layoffs as a response to the crisis by sector, %, (March 2009 – March 2010, N = 916)



Source: *Czibik – Makó – Tóth, 2010.*

Figure 1.B)4: Percentage of firms mentioning particular crisis management measures as successful in protecting the firm from the unfavourable effects of the crisis, % (March 2010, N = 299)



Source: *Czibik – Makó – Tóth, 2010.*

2. THE EFFECTS OF THE CRISIS ON COMPANY POLICIES

LÁSZLÓ NEUMANN & DOROTTYA BODA

Introduction

Being economists, we tend to take it for granted that a large share of companies will exhibit the behaviours predicted by models of labour economics. Relying on two empirical company studies, this paper endeavours to analyse the conditions and labour decisions lying behind one or another event with observable labour market consequences. At a micro-level, the responses to the crisis fit into a characteristic and unique corporate history: previous circumstances, long-term plans, ongoing development programmes and rapid market movements all make their contribution to the pattern of crisis symptoms.

Let us consider two extreme examples: One company is at the winning end of globalisation and gradually relocates its raw-material production to its joint venture set up in the Far East. The other company is at the losing end of the price competition sparked by globalisation and has been vegetating since 2005; it would have terminated long ago if the state owning it had not thrown a life belt to it under various pretences. What is common between the two is that in 2009, at the time of the crisis, both were among the very few companies that raised wages. To be fair, the wage increase was substantial at the consistently successful company, while the struggling firm only complied with the compulsory rise in the minimum wage.

Even the smallest company, one with a hundred-odd employees, reduced its workforce, but only the “peak time” unskilled temporary agency workers’ contracts were cancelled. Among the companies we analysed, permanent staff were only laid off at those employing unskilled labour and regularly exploiting the numerical flexibility. We also have to look closely to detect the advantages of the changes in workforce size: first, the oversupply of labour in the market allowed replacing low-performance workers by better ones, and second, under the pressure of staff rationalisation, employees of relatively insecure status were laid off (those on fixed term contracts, working pensioners and those past the statutory retirement age). What is more, workers newly employed once the economy was on the way to recovery were given fixed term contracts, since the future is still uncertain. The status of skilled workers who have had several years of experience and are qualified to perform a variety of tasks has been found to be secure: the restructuring of work organisation usually involved making the most of these employees’ skills and working hours. An empirical study of companies allows us to find out which strata of workers suffered the worst of the crisis.

The crisis presented a new type of challenge for trade unions and works councils. They clearly had to abandon the bargaining strategy they had been accustomed to since the mid-1990s focussing almost exclusively on pay rises

and employee compensation packages. The “protection of jobs” now came to the forefront. But just how pressing the need was, how much the unions were able to achieve, and what kind of deals they could make with the management varied from company to company depending on local conditions and on the bargaining power of the individual unions. This chapter undertakes to compare the behaviours exhibited by Hungarian trade unions during the crisis with typical union strategies in developed market economies.

The studies

This paper summarises the results of two empirical studies conducted in 2009.

1. The first project was funded by the National Public Employment Foundation (OFA) and involved case studies based on 5 or 6 interviews conducted at each participating company focusing on corporate wage systems, with special emphasis on the mechanisms of wage determination, and also extending to the crisis and its effects.²¹ The case studies cover 10 companies in nine branches of the manufacturing industry. The industries included are auto part and medical supply manufacturing, baking, meat, vegetable oil, and pharmaceutical industries and electronic goods, building material and porcelain manufacturing. Five of the ten companies are multinational, one of which is listed on the Hungarian Stock Exchange and the Hungarian state has a substantial share of ownership. The state has majority ownership in one of the companies, and the employees have majority ownership in two.

The multinational companies in the sample use the most modern technologies and are rich in capital. The Hungarian factories of the foreign multinational companies – with one exception – sell exclusively to their mother company. The one exception manufactures an end product and has a monopoly of sales. With one exception again, the companies with vested interests in Hungary are in a stable financial position, and most of them possess a fairly modern plant as a result of continual development. Two of these companies have substantial export revenue, while the others primarily deliver to Hungarian customers. Government (or local government) orders form a substantial share of the sales of the building material manufacturing firm.

Three of the companies are classified as large businesses by Hungarian standards. One of them, the contract manufacturer producing electronic goods and its management of human resources differs considerably from the other models: temporary agency workers are hired and fired as required by its continually changing orders. Three other companies are mid-sized enterprises with between 300 and 600 employees. The small businesses in the sample employ about 100 workers and are typically Hungarian owned companies with sales in the domestic market.

A criterion for inclusion in the sample was that the selected companies should not resort to illegal employment or wage practices. The case studies rely on

21 OFA Project No. 8341 entitled “Company wage and employment policies with special emphasis on the role of trade unions”. Researchers other than the present authors participating in the cases studies: *Balázs Hörich, Viktória Horváth, Noémi Imre, Zsófia Jenei, Lajos Kósa, Dániel Mester, Annamária Meszlényi, Péter Mód, Mercedes Obrítron, Anna Tobler and Enikő Tóth.*

interviews conducted with the managing director of the firm, the human resources manager, the shop-floor supervisor, the leader of the trade union or works council and one or more employees.

The project was met with even less enthusiasm than we had expected. The case studies were carried out during the most critical period of the crisis, between March and December 2009, and the managements were reluctant to discuss the position of the firm while temporary measures were in place. What was working in our favour was that the job preservation support programme was a tool of economic policy with special significance in crisis relief. Some of the companies had hopes that the presence of the research team would accelerate the support payment. As the large majority of the companies we approached refused cooperation, the final sample was largely a product of personal relationships. As a result, companies in employee ownership are overrepresented in the sample relative to their share of the private sector. Also, trade unions have a considerably stronger than typical presence: there are trade unions in all but one of the sample companies, and all of the trade unions have signed collective agreements.

2. In addition to the case studies for OFA, this paper also benefits from the industry-specific and corporate experiences of a survey of the automotive industry. The study commissioned by the Dublin based European Foundation for the Improvement of Living and Working Conditions (Eurofund) involved standardised interviews in eight countries with industry specialists, representatives of government organisations and trade unions.²² Unlike in the OFA project, corporate information came from the media and from a single internal source: interviews with the trade unions. We were turned away by the management of the sixth company we approached (Suzuki Hungary, a large company with no trade union). The inclusion of the automotive industry case studies in this paper allows us to illustrate the two extremes of soft *versus* hard adaptation within a single – and widely known – industry. Also, this is the industry in which we find Hungarian examples of the type of soft adaptation where “employment pacts” agreed between the management and the trade union played a significant role. Needless to say, the case studies can only serve illustrative purposes; they are unsuitable for drawing quantitative conclusions.

As the companies agreeing to the case studies were promised anonymity, only their industries are given in our report. Some of the companies participating in the automotive industry project are named, however, since they were widely discussed in the media – which was one of our sources of information.

The onset of the crisis and its spread

Most of our companies had to face the consequences of the crisis in autumn 2008 but the timing and extent of production slowdown and the symptoms of the crisis varied, mainly as a function of the specialised industrial activities

22 International research project entitled “Industrial relations in the automotive sector: How can social dialogue assist a sector in crisis” (Pedersini, 2010).

of the individual companies.²³ Most of the within-industry variation is explained by the destination of sales, i.e., whether the company's revenue comes from export or domestic sales. A further factor is whether the manufactured product is sold to end-users or to the mother company for further processing. These factors also play a crucial role in the local depth and channels of the crisis.

The companies faced with the greatest problems are those in the porcelain industry, which has been on the decline since the 1990s. In this sector the prolonged crisis is rooted in globalisation. Companies producing quality products with skilled labour can hardly compete with the combination of cheap and unskilled labour and modern and expensive computerised machines used by foreign mass producers. The decline of the industry was further accelerated first by the slump in Hungarian consumer purchasing power commencing in 2006, and then by the financial crisis of 2008. In the case of a company producing for the internal market, it is difficult, if not impossible, to separate these effects from the general management difficulties experienced by the struggling industry. Although the company's handling of the crisis was in many ways successful, what has allowed it to survive are the repeated cash injections from the state. In this industry, the direct effects of the global crisis are easier to measure with reference to the larger company, which produces for export: the demand for luxury goods plunged immediately and heavily in overseas markets.

The balance-sheet figures of the contract manufacturing company producing communication technology end products showed a loss in 2007, but – as the managing director claims – this was not the result of the general crisis but the consequence of the end of the mobile phone boom and that the company's largest customer had lost some of its market share. In the heavily export-oriented automotive industry, the decline of sales in Western Europe had an almost immediate effect on the production orders of the Hungarian companies. Adding to their problems, of the 75 thousand employees working in the industry (in 2008) at most 15 thousand work in end-product manufacturing, while the rest produce car components. Also, few of the companies have diversified their production; most of them are the suppliers of just one manufacturer and are therefore dependent on its orders.

Although the construction industry – which is regarded as a crisis barometer and where the slowdown started as early as 2006 because of the decline in government investment and the restrictions on subsidised mortgages – is not represented in our sample, but we have looked at a building material manufacturer in a similar position. This company was the first to face a decrease in orders, as early as 2007. It is only thanks to its diversified production structure and its wide customer base that it could pull through. The fall in the demand among direct consumers and companies was compensated for by government orders related to motorway construction. It is clear from our case study that

23 Our experiences are in line with HCSO data: The labour market effects of the crisis first appeared in manufacturing in autumn 2008. During the second half of 2009, the rate of job separations decreased. The decline in employment in manufacturing virtually came to a halt and the employment effects started appearing in previously less vulnerable sectors (KSH, 2010). In their analysis of Individual Wage Survey data, Köllő and Nacsá (2009) report that manufacturing suffered heavier job losses than any other industry, while the retail and the hospitality industries experienced the steepest wage reductions.

the construction industry or, specifically, the related building material industry, felt the combined and thus intensified effects of the crisis.

The position of companies producing for direct consumption depended on their sales destinations and on their position in the sales market. The pharmaceutical company, which produces necessity goods and realises most of its sales revenue outside of Hungary, experienced hardly any decrease in its orders. The problems it had to face came from the currency crisis that hit the country of its sales destination. The crisis had similarly mild consequences for the large food manufacturer, which has a monopoly on its product.

This contrasts with the vulnerable position of the smaller food manufacturers, which cater for the domestic market and are more threatened by the price competition. With the repressed wages, the already low demand for their quality products was further cut as real wages were falling.

Our sample also provides examples for companies “cashing in” on the crisis. One such opportunity is taking over the orders of a competitor. The building materials manufacturer, for instance, claims to have received unexpected orders when one of its competitors went bankrupt. The long struggling porcelain manufacturer is given a new chance, as a large foreign company manufacturing cheaper substitutes offers to hire it as a subcontractor because it does not have the capacity to meet the increased demand for its product while maintaining its efficiency. In another case the increase in labour supply provides an opportunity for a company to upgrade the quality of its staff. The managing director reports that as a result of the layoffs, they can not only pick and choose from unskilled workers but also easily find suitable staff to fill positions requiring higher qualifications.

Crisis channels, crisis symptoms

Due to their varying activities and markets, the companies were hit by the crisis through different channels and to different degrees. Before surveying the possible effects, let us discuss the cases in which the crisis was felt indirectly, through the difficulties or the decisions of the multinational mother company.

None of the subsidiary companies included in the sample were in danger of being closed down by the management of the parent company. This is because the productivity of all these factories surpasses the productivity of the mother companies' other European subsidiaries. This is the consideration that applies to the auto parts unit and the plant of the multinational food manufacturer. In tackling the crisis, the most common strategy used by the headquarters was the centralisation of decisions with the result that the autonomy of the subsidiaries – which had already been limited to cost and human resource management – was further restricted. The food manufacturer is a case in point, where the hiring of new labour has been subject to central approval since the emergence of the crisis. A second example of shifting in company-internal position is the case of

the electronic contract manufacturer, whose mother company closed down its Budapest-based European headquarters. The move was a part of a cost reduction strategy, whereby the former geographically organised (continent-based) management was replaced by product group based management.

Turning to the direct effects of the crisis, the most prevalent and most important of these was the decline in the volume of orders.²⁴ For most of the companies in our sample, the 2009 sales revenues were about 50 per cent down from the revenues realised in the previous year, even though the downturn in orders had already started in the second half of 2008. In the Hungarian market the decline in consumer purchasing power began in 2006, well before the global economic crisis. The volume of goods manufactured on order usually decreased by 30 per cent (the most frequent average value for individual companies). There is variation between and within the firms, however. While between 2008 and 2009 the building materials factory lost 70 per cent of its orders of concrete slabs used in hall construction, one of the automobile factories in effect increased its production of engine parts needed for the launch of a new subsidiary of the company in the Far East. Notwithstanding this occurrence, the automotive industry suffered an especially spectacular fall in the number of goods produced: Suzuki's output fell from 280 thousand before the crisis to 184 thousand in 2009, and Audi produced 48 thousand sports cars compared to the previous year's 60 thousand, while its engine output dropped from 1.9 million to 1.35 million.

A second factor contributing to loss of revenues are the depressed prices. Smaller companies selling to the domestic market are more threatened by the price competition and their position therefore became more sensitive than that of their export-oriented peers. The danger of the companies in the industry going bankrupt because of the depressed prices was raised by the managers of the meat factory and the building materials plant. The product composition of sales was also altered: the demand was lower for relatively high priced products with higher profit margins.

A further symptom of the crisis is the absence of the usual cyclic nature of production driven by sale waves. Especially the luxury good manufacturers report that the surge in production previously associated with gift shopping periods did not take place in 2008. The production cycles of the porcelain factory, which exports most of its products, were previously adjusted to holiday periods. The task of production scheduling was assisted by the fact that the orders arriving in the first quarter of the year took up the total annual capacity of the facility. Now, however, as a result of the decline in orders, production can only be planned for 30 to 45 days in advance.

The two smallest (with 100–200 employees), Hungarian-owned companies in our sample struggled with financial difficulties: one because of its connection with the construction industry, and the other because of the increased

²⁴ According to the results of the DSG Global Research questionnaire survey – involving the managing directors and HR managers of 180 Hungarian companies employing altogether more than 100 thousand workers – 70 per cent of companies experienced a decline in turnover and half of them were forced to introduce some sort of crisis-relief measure (*DSG Global Research, 2009*).

As a part of the project led by József Poór of the University of Pécs, questionnaires were sent out to companies at the end of November 2008, 86 of which returned valid responses. Almost all of the respondent companies were affected by the crisis: 3 out of 4 firms experienced a substantially slower increase in their turnover during the most recent period, and 40 per cent predicted a decline in their sales revenue by 2009 (*Poór, 2009*).

prices of its agricultural suppliers. These companies mention that banks introduced increasingly restricting conditions on their current asset loans. The financial position of the baking factory was also shaken by the crisis: while in 2008 it operated efficiently enough to be able to reduce its debts, its cash-flow indicators declined in 2009. The porcelain manufacturer had had enormous debts before and now the bank terminated its contract with the company. This opened a new chapter in the debt history of the firm: it only owed its suppliers before, now it cannot even pay its utility bills or taxes. What is worse, in February 2009 it could only pay its employees' wages in two instalments.

As most of the multinational companies are rich in capital, they have no difficulty repaying any loans they might have. One exception is the electronic contract manufacturing company, which needs more than usual current assets because of the high prices of materials and the relatively long payment deadlines. (In this case it was mainly the mother company that struggled with financial problems). The food factory, which had previously financed agricultural producers and stored the unprocessed food until needed, switched to a new financing system just before the crisis. Now that the food to be processed is bought at the actual day's stock market price, the company needs considerably fewer current assets.

Some of the company case studies also allow us to observe the spreading mechanisms of the crisis. While the Hungarian meat industry company has lost some of its previous orders because several of its non-end user customers have been wound up, the production at the building material manufacturer is held up because its suppliers cannot deliver on time. A typical adjustment strategy used by the companies in the automotive industry is insourcing, i.e., cutting down on their reliance of suppliers and third-party contractors (see later). These companies effectively choose to pass the burden of the crisis on to their subcontractors in order to be able to preserve their own labour.

Crisis-relief measures with indirect labour effects

The crisis-relief strategies of businesses have been studied in a number of surveys (*DSG Global Research*, 2009, *Poór*, 2009, *Bartha et al.*, 2009). Our projects focus on corporate decisions with relevance to employment. Besides measures specifically targeting staff size or wage rates, we have also encountered a number of – typically cost reducing – decisions that have an impact on employment or company wage structure in a different way.

One strategy used by some of the companies is to reduce the non-wage costs of labour. The auto parts manufacturer even introduced measures of a symbolic value: they revised the regulations on the use of protective clothing, for instance, in order to save on cleaning costs. A number of companies decided to reduce the costs of company transport for employees. The most widely known case is Suzuki's, which cancelled the bus service transporting employees living

at a longer than 30 kilometre from work. According to business newspapers, the cancellation of 13 buses in Hungary and 20 in Slovakia, and the offer of a cash bonus – worth three months’ pay – to those voluntarily quitting the company helped to dispose of 800 employees, mostly from Slovakia (*Renitenseket küldik el...*, 2008, *Kiutálják...*, 2009). (This is of course an example of a not-so-fair form of downsizing, and we are not convinced that it was a simple cost-cutting measure.) In addition to cutting overhead costs, the electronic contract manufacturer also reorganised the work environment by merging three production halls into two and transforming the third into a warehouse.

Although the meat industry company chose to outsource the operation of the boiler room at the time of the crisis, the companies more commonly terminated sub-servicing contracts and re-integrated previously outsourced activities into their structure. The same meat industry factory gave jobs to more than twenty people when the previously outsourced cleaning and janitor duties were moved back in-house. The reorganisation at Audi Hungária involved an even larger change in staff size when logistics was retrieved from third-parties creating 400 jobs. The balance of the employment effects of reorganisations is difficult to establish, however, since even the re-integration of old in-house activities may end in layoffs. At the porcelain factory, for instance, a function previously performed by four full-time staff in-house was later outsourced and then moved back to the company engaging only two part-time employees.

Changes in employment structure

The cut in production necessitated a revision of work organisation, especially of the allocation of working time. At the companies in the sample the method of adjusting the employment schedule to incoming orders is essentially technology dependent. During the initial phase of the crisis in autumn 2008, some of the companies suspended production in response to the decline in orders. The well-known automobile manufacturers (Suzuki and Audi) repeatedly halted production or extended the usual end-of-year production shutdown. At the end of the year the contact lens factory inserted a few days’ compulsory holiday into its normally non-stop work schedule: the holiday schedule was rearranged to allow for the shutdown between Christmas and New Year.

For most of our companies the winter and summer shutdowns have been normal practice for years and the current capacity reduction was achieved by the temporary closure of individual divisions or on occasion by dropping an entire work shift. Of the companies using technologies requiring a non-stop production schedule, the communication technology factory changed from a three-shift schedule to a two 12 hour shifts one at the beginning of 2008, and solved the problem of fluctuating production needs by a flexible number of weekly days off. The pre-production technology of the building material plant leaves more room for the scheduling of production. Under “normal” market

conditions, production is non-stop in the summer and the winter work schedule is shorter. In response to the crisis, the summer-time schedule was shortened. The company in the best position is the baking factory, where thanks to recent technological developments – allowing the use of frozen dough – the costs incurred are directly proportional to production volume. The crisis, however, demands “tight labour management”, meaning that they have fewer than optimal permanent staff and follow the fluctuation in production by shift management, overtime and holiday planning.

Most of the companies under analysis introduced a working time account (i.e. predetermined a reference period in which the average hours of work must correspond to the legal working week) even before the crisis, which allowed a drastic cut in the amount of paid overtime. The working time account system provides a formal framework for the flexible use of labour hours.²⁵ However, to what extent the possibilities it provides are and have been exploited by the companies cannot be clearly established from the official statistics.²⁶ During the crisis, overtime hours – trivially along with the drop in orders – decreased greatly, and there was an increasing number of cases when overtime was recompensed by time off in lieu of payment. In our case studies we have seen not only examples of informal agreements on changing the formal work schedule (e.g. taking a day off, to be compensated by an extra working day later on), on occasion but also signals suggesting downright illegal employment practices. A second strategy of adjusting labour utilisation is “functional flexibility,” i.e., the optimisation of the organisation of activities within a given working hour arrangement. Possible solutions are the merging of positions, formal on-the-job training covering more than one work activity, the reassignment of duties through job rotation and the transfer of employees between different departments. The smaller the company, the more likely it is to resort to these tactics. At larger companies, if workforce reduction takes place, relatively highly qualified, more valuable staff qualified to perform a variety of different tasks are more likely to be retained. Beyond the rational organisation of labour, this solution follows from experienced veteran workers’ strong ties with the company as much as it does from the management’s commitment to their staff.

At one of the porcelain manufacturers, job rotation was typically used on a temporary basis, i.e., rather than being transferred, employees were temporarily assigned to activities other than their regular duties. The regulations specified in the collective agreement limit this arrangement to 110 days a year and the employees are entitled to their original average wages. If an employee is kept in the new position beyond the 110 days, his or her work contract must be modified and the wages adjusted.

Making use of every single tool of organisational flexibility, the building materials factory endeavoured to increase the ratio of workers having multiple skills. The employment of these “all-purpose” workers across a range of activi-

25 Working time account system as one of the prerequisites of “soft adaptation” were also proposed by János Köllő in Chapter 1 in *In Focus*. However, previous case studies show that the Hungarian working time account system differs from its West European counterparts in that in almost all cases, its purpose is to unilaterally benefit the employer by allowing cost-effective working time flexibility, while the employees’ needs for flexibility (for reasons to do with family or private life, for instance) are almost completely disregarded (Neumann and Nacsá 2004). Another difference between the Hungarian and the West European or, especially, the American solutions is that credit hours are only redeemable for a relatively limited period and do not allow early retirement, for instance, at the end of an active career, or transfer to a new employer.

26 Both the HCSO Labour Force Survey and the Individual Wage Survey of the Public Employment Service include questions on regular working time and overtime but the number of hours worked and changes thereof cannot be determined unless the type of the employment contract (whether full or part-time) is known.

ties at this company to some extent stretches the boundaries of a traditional employment relationship. The activities performed by the employee tend to be entirely unrelated to the duties specified in the employment contract. The grounds and justification (or excuse) for this practice is provided by the employees' status as owners.

A strategy far more popular than functional flexibility was a reliance on numerical flexibility. The most common form of this strategy of capacity reduction was the compressing of the working week, which was applied at seven of the 15 companies studied in the two projects.²⁷ The specific solutions varied: the measure was in effect for periods of varying lengths, in some cases it only applied to white-collar workers and in other cases only to the rural packaging sites of the company or else to everyone except maintenance workers.

The most flexible scheme was observed at the auto parts manufacturer, where the minimum weekly working hours were specified by the agreement between the trade union and the management. The management of the firm has the right – on condition of giving advance notice – to declare days off for minor units or even certain jobs, and is given plenty of freedom to make decisions on the duration of shutdowns. It is also worth mentioning the case of the auto parts company, which introduced new models in preparation for the post-crisis market, and whose management scheduled training sessions for every fifth day of the working week. This period of working time is used to equip selected employees (almost half of the staff) with the skills and knowledge (in informatics and foreign languages) they would need in the future. While the general experience is that companies are unwilling to combine subsidised working time reduction with training, two of the automobile factories in our sample organised training sessions for the fifth day of the week. Of the seven companies that compressed the working week, only two received OFA job preservation support.²⁸ (The larger of the two, twice.) We will return to the details of the support scheme and its wage effects.

We will also discuss in more detail the agreements between the company managements and trade unions. It is clear from these agreements that the preservation of staff was a priority at the companies in the sample. This concern was especially evident at the companies in employee ownership. The building materials firm, for instance, introduced retired workers' continuing employment payments – contingent on sales revenues – among its owner-employees.

Workforce size

Based on the above, it is not surprising that in our sample layoffs only occurred at the companies employing unskilled labour, while the firms having a skilled workforce preferred the strategy of working time reduction.²⁹

Both our interviews and the published statistics show that the heaviest job losses were experienced in the automotive industry.³⁰ "Hard" adaptation was

27 Due mostly to the appearance of – partially subsidised – reduced-time employment, introduced as a cost saving measure, in 2009 the number of workers in part time employment increased by 17.3 per cent (31 thousand people) according to HCSO Labour Force Survey data.

28 Our results do not corroborate János Köllő's conclusion that working time was only reduced by companies receiving subsidies (see Chapter 1 by János Köllő in *In Focus*).

29 Our experiences are in line with the conclusions drawn from the Individual Wage Survey: although there was no downsizing at companies typically employing skilled-workers, there were moderate wage cuts while their preferred adjustment strategy was working time reduction (Köllő and Nacsá, 2009).

30 Based on the Index.hu Layoff Counter and the regular HCSO statistics on workforce size by industry covering companies with at least five employees, the crisis-period decrease in the workforce of automobile manufacturers is estimated at about 25,000 people. According to HCSO figures, the sectors of *Manufacture of motor vehicles, trailers and semi-trailers and Manufacture of other transport equipment (NACE C29–30)* experienced the heaviest job losses of all included sectors during the period between January and August 2009.

also the policy adopted by the contract manufacturing electronics factory, where the tools of numerical flexibility are also used under “normal” circumstances. The Human Resource Manager of the firm states that it is difficult to find a person in the county who has not worked for the company. During the crisis, a major downsizing was carried out in two steps in 2009. 450 employees and 900 temporary agency workers were laid off in January, and 400 employees and 350 temporary agency workers in September.

Table 2.1: Major layoffs in the automotive industry between October 2008 and August 2009

Company in Hungary	Place	Mother company	Total number of employees	Number of employees laid off
Suzuki	Esztergom	Suzuki	5900	1200
Ibiden Hungary	Dunavarsány	Ibiden Co. Ltd	1200	430
Videoton Car Electronics	Székesfehérvár	Videoton Holding	1300	400
Syncreon*	Győr	Syncreon	1400	400
Bosch Hungary	Hatvan	Bosch Group	3118	318
BPW	Szombathely	BPW Bergische Achsen Kommanditgesellschaft	986	270
Delphi Hungary	Szombathely	Delphi Corporation	1150	250
Bakony Préstechnika	Veszprém	Bakony Művek Autóalkatrész Gyártó Rt.	250	250
Rába Járműipari Holding	Győr		n. a.	250
Borg Warner Turbo System	Oroszlány	Borg Warner Inc	745	172
ZF Hungary-ZF Lenksystem	Eger	ZF Friedrichshafen	1700	160
Saia Burgess Ózd	Ózd	Saia Burgess Electronics	700	150
Knaus Tabbert	Nagyoroszi	Knaus Tabbert Gmbh	270	150

* Syncreon, Audi's logistics supplier

Source: Az *Index.hu* Layoff Counter (<http://index.hu/gazdasag/magyar/elbocs/>), and *European Restructuring Monitor* (<http://www.eurofound.europa.eu/emcc/erm/index.htm>).

One of the companies manufacturing simple auto parts is also characterised by high labour turnover, which – in contrast with the general trend – did not stabilise in response to the crisis. The firm laid off 29 employees in both January and February 2009, which is just below the collective redundancy threshold of 30 people. Finally, in March 2009 the firm announced plans of 293 job separations but half of these jobs were saved in the end thanks to an expansion in production. The upturn even allowed the company to hire new employees in April. The new staff were given fixed term contracts, which foreshadows the risk avoidance strategy of the post-crisis period: It will be easier to adjust workforce size to production in the future if permanent contracts are replaced by fixed term contracts matching the demands of secure orders.

The first and foremost form of labour capacity reduction in our case studies is the termination of the temporary employment contracts and/or that of agency workers.³¹ In terms of labour organisation the rationale behind this is

31 According to an on-line HCSO publication, the number of employees in this category decreased by about a quarter in Q4 2008, i.e., the first phase of the labour market crisis (*KSH*, 2010). According to the figures of the National Employment and Social Office, in 2009 temporary agency work (in terms of number of days) fell by 31.8 per cent compared to the previous year (*FSZH*, 2010).

that workers hired from agencies typically perform production or service activities – requiring low skills and a short training period – in units having the most variable labour demand. As it had a pile-up of stocks, the pharmaceutical company cut its packaging activity during the first two months of the year, and downsized its workforce by discharging temporary agency workers. Although the crisis did not demand layoffs at the small baking industry company, the 4 or 5 people who were hired from agencies had to be dismissed. The auto parts manufacturer also realised a radical reduction in the number of its temporary agency workers: between August and October 2008, 130 people were discharged. The company with the highest incidence of similar terminations was the electronics production plant.

Besides dismissing temporary agency workers, downsizing affected other types of temporary labour. Before the crisis, the meat industry factory had a subcontractor performing boning activities, while the building material and the baking industry firms regularly employed students as semiskilled labour. Such temporary workers have not been needed since the onset of the crisis.

The managements treated people employed on pensioner work contracts and those having fixed term contracts as the internal reserves of capacity reduction.³² The companies having an aging workforce were thus in a position to downsize (or at least constrain) labour capacity by sending employees into early retirement or terminating pensioner work contracts. The significance of this phenomenon is accurately illustrated by the pharmaceutical company, where compared to the 250 pensioners employed a few years ago, now there are only 120. The option not to renew fixed-term contracts (or not to replace them by permanent ones) was especially popular among the automobile manufacturers.

The intent to minimize the costs of downsizing is not the only motivation for terminating temporary employment. Every company's top priority is to retain skilled employees having substantial vocational experience. Also, thanks to the rationalisation measures of previous years, a number of the companies have already almost reached the limits of efficient workforce size minimally required for their technologies. In fact, as a result of the composition and ownership structure of our sample, at more than one of the companies the continued employment of their staff was an operational objective of special significance.

While only a few of the companies we interviewed put a freeze on employment, most of them move within strictly controlled limits. Some of these companies have experienced a decrease in labour turnover.³³ We encountered a number of cases where the increased supply in the labour market encouraged the company to upgrade the quality of its workforce. The managing director of the building materials factory reports that the company received job applications from the employees of competitors that were being wound up. Before the crisis, the contact lens factory had had great difficulty filling skilled positions and the work discipline of unskilled workers had also left something to

³² Köllő and Nacsá (2009) also arrive at the conclusion that marginal groups suffered especially heavy job and wage losses.

³³ Our experiences corroborate Köllő's results: The decrease in employment is primarily explained by the postponement of hiring rather than by job separations, and those who become jobless remain jobless longer than previously (see Chapter 1 by János Köllő in *In Focus*).

be desired. The crisis not only created an opportunity to say goodbye to the most unsuitable of the unskilled workforce but also allowed the company to hire valuable skilled workers.

Wage policy

Our companies only resorted to measures directly aimed at restructuring the wages system in exceptional cases. Pay decreases were far more likely to follow from changes in the work organisation and work scheduling. The basic wage rates, i.e., the general pay arrangement, did not change at any of the companies. The compression of working time, however, lowered the wages paid to the employees to varying degrees: there was variation in the number of hours worked as well as in the extent of compensation. At the companies included in our sample working time reduction typically took place without government support and the partial compensation was provided by the company in accordance with the collective agreement or at least with the trade union's silent approval. Only three of the companies received wage compensation support.

Added to the decrease in wages proportional to working hours, there were pay losses due to the cancellation of shift work compensation and the withholding of bonuses normally payable in addition to the basic wage.³⁴ Bonuses were withheld by two of the companies in the sample: one of the large auto part manufacturers and the meat industry factory. Non-monetary compensation may also decrease. Two of the companies, for instance, reduced their employees' meal voucher entitlement; one of them, in fact, completely stopped distributing the vouchers. (This decision was made before the new tax regulations declared the vouchers taxable from 2010. This cost reduction measure is now seen in a different light.)

As a result, the rate of pay reduction varied not only between companies but also between different groups (blue-collar vs. white-collar) and jobs. The companies implementing shorter working hours report a pay decrease of 10–20 per cent.

At most of the companies real wages declined in 2009 even if there was no reduction in working time because wage rates did not keep up with inflation. In an agreement with the trade union, the management of the large auto part manufacturer put a freeze on wages and in return granted their employees paid time off. The three companies that were able to maintain a sound profit margin raised wages by 3–4 per cent in 2009. Complying with a previous agreement, the auto part manufacturer and the meat industry company also raised wages, but at the same time negotiated a concession that there would be no increase in 2010. Wages were also raised at the other end of the corporate achievement scale: Owing to regulations compulsorily increasing the level of the minimum wage, skilled workers at the porcelain factory received a 0.6 per cent, and unskilled workers a 3.5 per cent pay rise. However, once the series of layoffs had

³⁴According to *KSH* (2010), the ratio of non-regular earnings to gross earnings was 0.6 per cent below the previous year's figure. We also know, however, that in private sector companies the share of basic pay in labour income was about 82 per cent in 2008. Previous studies further show that – in contrast with international trends – the proportion of variable wages somewhat decreased rather than increased during the past five years (*Neumann and Boda*, 2010). That is, the withholding of variable wages could constitute substantial savings for a company, while it may be barely perceptible for the Hungarian economy as a whole.

taken place, mostly skilled workers remained in the workforce, and a substantial proportion of unskilled positions were filled by them. Since – with the exception of the manufacturing of a single product with bright prospects – each blue-collar worker is paid either the minimum wage or the skilled workers' wage minimum according to the skill demands of the job he or she is employed in, this organisational policy directly saved wage costs or, more precisely, lessened the extra burden of the compulsory wage increases. In other words, following a transition period, the employees involved in the restructuring were paid the lower minimum wage matching their unskilled job specifications regardless of their qualifications as skilled workers.

The role of government support programmes

The crisis-relief measures of the government are customarily divided into two groups: economic stimulus packages (for product and service markets) and employment packages (for the labour market). The former type are usually industry-specific actions. The automotive industry is a good example, since several Western countries have introduced so-called scrappage programmes to stimulate demand.

Notwithstanding intensive lobbying by the Hungarian automobile retailers' association, the Hungarian government rejected the introduction of a scrappage programme, i.e., a demand stimulating programme modelled on the ones introduced in the United States and several Western European countries. The reason given for the decision was the low market share of Hungarian-made cars, since not even Suzuki Hungary, the largest end-product manufacturer can claim more than 17 per cent of car sales. Consequently – contends the government department – a scrappage programme would have assisted car retailers rather than the Hungarian automotive industry, and retailers have overdeveloped their capacities counting on the future stability of the cheap credit opportunities of previous years. In the summer of 2009, in parallel with the negative decision on the scrappage programme, the Hungarian Ministry for National Development and Economy issued its *automotive industry action plan*. This programme, however, focused on boosting the share of production with higher added value in accordance with the strategy of the industry, rather than on job preservation. The action plan therefore promised specifically R & D-type support and took steps to support the Mercedes-Benz investment in the town of Kecskemét. New resources were not allocated; the aims were meant to be realised through the subdivision of the existing sub-programmes and priorities of the National Development Plan and through the reallocation of the resources of the Labour Market Fund.

The following major “structure enhancing” actions were specified by the action plan:

1. Job preservation measures, including the programme with the title of “Support for the Employment of Highly Skilled Labour”, which was intended to allow the re-employment of former R & D professionals. The National Office for Research and Technology allocated HUF 1.6 billion for the call in 2009, or HUF 10 million for each research position, from the Research and Technology Innovation Fund.
2. Vocational training development programme of HUF 10 million from the Labour Market Fund, entitled “The Development of Goal Oriented Vocational Training and Higher Education with the Involvement of Large Employers Representing High Quality Technology”.
3. Investment incentive programmes, including the programme entitled “Investment Incentive through the Development of Supplier Skills”.
4. Programmes promoting R & D activities.³⁵

Since the Hungarian automotive industry is quite tightly integrated into European car manufacturing, the effects of the stimulus programmes implemented abroad were to a greater or lesser extent also felt by the factories in Hungary. The main beneficiaries of the foreign government support given – through the scrappage programme – to the mother company of our auto part factory were foreign plants with similar profiles manufacturing relatively small engines. Nevertheless, our interview reveals that during the summer months – partly thanks to the scrappage programmes abroad – the Hungarian factory could continue to operate at full capacity. As mentioned before, the other factory manufacturing simple parts (cable whips) observed an upturn in demand towards the middle of 2009, which is also explained by the spread of the effects of the artificial boost of the demand for the end product.

Although the labour market programmes of the crisis-relief package³⁶ were not industry-specific, the government made it clear that preference would be given to small and mid-sized companies. Some larger firms nevertheless received a share of the various job preservation funds. One of these was one of the porcelain factories included in our sample. Within the automotive industry support was given to Rába for 1,326 jobs, Knorr-Bremse for 587 jobs and General Motors Powertrain-Hungary for 530 jobs. It is evident that companies targeting the Hungarian market were not the only ones to benefit from job preservation programmes.

We should note that besides the current crisis-relief support programmes, the case studies also reveal a high pre-crisis incidence of making use of the government’s economic and active labour market policy tools. We have seen wage subsidies supporting the retraining and employment of unemployed workers provided by job centres, and, in a rather extreme move, government loans covering the costs of downsizing at the state-owned company. We have even encountered a case where some of the capital stock of a relatively small company in foreign ownership was provided by a substantial job creation aid. The

35 <http://nfgm.gov.hu/data/cms2013364/jarmuipari.pdf>

36 See Mária Frey’s study in the present volume for details.

company in 100 per cent government ownership struggling with a long-term recession specific to its industry was saved by the owner's financial reorganisation (debts written off and a successor company founded using the assets). The step was motivated by employment policy considerations, as there are virtually no other significant employers within a 50 kilometre radius of the company.

Our case studies also reveal, however, that some of the companies were excluded from the support programmes because of the programmes' eligibility conditions: either because they did not meet the requirement of "irreproachable employment conduct" (i.e., they had been fined by the Hungarian Labour Inspectorate at some point) or because they had received subsidies of a different type (e.g., for investment) or else because they found the conditions of the support (no downsizing for twice the duration of the subsidies) too constraining. The companies participating in the programme also voiced several criticisms of the schemes. A human resources manager observed that the government decree concerning subsidised working time cuts came with some delay. One reason for the delay, the manager believes, may have been that the actual conditions of the central support of working time reductions were not yet in place. The schemes that were finally introduced turned out to be rather inflexible. One company, for instance, would have needed flexibility in working hours so that they could match the orders received, but the OFA support contract required the applicant to specify the precise extent of the reduction for the full period of support. The firm winning job preservation assistance from the regional job centre thought the condition requiring the preservation of the job of each individual for six months was too inflexible. A further drawback mentioned by our case studies was that for the duration of the support, employment contracts could not be terminated even by mutual agreement at the employee's initiative. (This includes cases when an employee wanted to leave the company in the hope of better employment abroad, and the rule also applied to workers reaching the retirement age.)

Finally, the – partly temporary – amendment of labour laws also constitutes a special form of government support. Some of the amendments were intended to relax the eligibility criteria of the regulations tying government support and public procurement tenders to so-called irreproachable employment conduct, while others introduced flexibility into working time regulations.

The 2009 amendments to the Hungarian Labour Code allow the regular 40 hour working week to be extended to 44 hours during the period between 1st June 2009 and 31st December 2011 provided that the working week was compressed prior to this period. The Code does not specify the compensation payable in return for the extra hours. The introduction of a longer reference period of working time account is contingent on a written agreement between the employer and the employee, and the employment cannot be terminated either by regular discharge or as a part of collective redundancy for the duration of

the agreement. The reference period of working time account implementable in the absence of a collective agreement's stipulation was increased from three months to four months. The legal cap of annual overtime had been increased at an earlier date from 200 hours to 300 hours, but this was subject to complicated regulations: it was tied to an individual agreement with the employee while the labour requirements had to be reported to the authorities. These conditions were now relaxed by the 2009 amendments. We can see that the main consideration behind the temporary working time flexibility regulations is that businesses should be able to transfer the hours "saved" during the crisis to the boom period prognosticated for 2011 without any additional costs (updated Articles 117 and 127/A, Act XXII of 1992 and *Fodor & Neumann*, 2009).

The new regulations were put into practice at two of the automotive industry companies. At one of them, an agreement signed with the trade union extended the working hour account until 2011, that is, full wages are paid during shutdowns, and the lost hours will have to be worked when there is a demand for a greater capacity. (Incidentally, this company played a role in initiating the amendment to the Labour Code.)

The role of trade unions and works councils in tackling the crisis

When evaluating the bargaining power of trade unions, it is worth noting that the most typical corporate adjustment strategy, working time reduction, requires individual work contract amendments – as specified by the Labour Act – regardless of the outcome of any collective bargaining. This means that, unlike as in several Western European countries, managements intending to compress the working week do not necessarily need to hold negotiations with trade unions.

Among the case studies under discussion, regular consultations between the management and the trade union or works council were typical mainly at the foreign owned multinational companies. The success of these consultations is called into question, for instance, by the experiences of the electronic goods factory, where workforce size was continually matched to the volume of orders, the management deciding on downsizing as the most straightforward solution to the crisis. The works council claims to have suggested several improvements and believes that the efficiency of the company could have been increased even under "normal" market conditions, as far back as 2005, by employing 25–30 per cent fewer but better qualified staff. The company could have responded to the challenge of the crisis, the leader argues, by cutting working time and/or wages.

The weak bargaining power of the works council and the trade union at the Hungarian plant is not entirely the result of the relatively low level of workforce qualifications and the employment policy relying on the flexibility of workforce size guaranteed by the practice of hiring long-term labour from agencies. As has also been observed at several other multinational companies, the central man-

agement relies on “coercive competition” between the company’s factories with similar technologies and roughly equivalent expenditure.³⁷ Prior to the crisis, the factories had to compete for developments and major orders, and on these grounds the company has closed down a number of production sites in recent years. The crisis clearly raised the stakes: economical, flexible and quality production became the key to survival. This strategy has successfully constrained the freedom of trade unions, which have now accepted that a more assertive policy would endanger jobs. In theory, the solution to this strategy of “coercive competition” could come from international solidarity, i.e., an alliance between trade unions operating in the various countries. There is a reason why in the past decade the cross-country co-ordination of trade union actions and the setting up and support of European Works Councils have received special emphasis in the policy of the European Trade Union Confederation (ETUC and the industry based federations). Although a European Representative Forum was set up at the multinational electronics company in 2007, for reasons that cannot be detailed here, its activities were limited to providing – usually retrospective – information to trade unions, and it could not play a worthwhile role in the restructuring of the company.

The role of local trade unions in corporate crisis-relief measures varied between the companies. Although we did not hear of conflicts ending in legal action or being accompanied by strikes or demonstrations, it remains a fact that most of the trade unions envisaged goals and solutions differing from the ones advocated by the company management. Yet, companies where the trade unions could take an active part in developing recovery strategies were the exception rather than the rule, and in these exceptional cases the influence of the trade union was largely due to its connections with international labour organisations. The most typical attitude displayed by the trade unions was a clear focus on the preservation of employment (or, rather, the employment of core staff), in return for which they were prepared to make concessions on wages, working time and flexibility.³⁸ This attitude is not equivalent, however, to the concession bargaining³⁹ policy pursued by American and West European labour unions, since the unions in our case studies do not have the bargaining power to prevent the management from carrying through their intentions. What happened here was that the unions accepted their management’s crisis-relief measures – as a necessary evil – in order to preserve jobs. Even less similar is this way of operation to the “employment and competitiveness pacts” in Western Europe and especially in Germany, where the agreements not only include “wage restraint for jobs” deals but also extend to strategies of recovering from the crisis (e.g., financial consolidation, investment plans, site relocations, changes to work organisation and, most of all, to training programmes (Wever, 1995, Sission, 2005).

37 The phenomenon of “coercive competition” is usually presented as an alternative to hierarchical company management that acts as an incentive for local management and at the same time constrains trade union demands (Ferner–Edwards, 1995, Mueller–Purcell, 1992).

38 As we rely on a small number of case studies, we cannot make quantitative generalisations and we do not have any estimates of the probability of trade union agreements concerning job preservation. Even so, we should mention Köllö’s finding published in the current volume that “Finally, the estimates suggest that firms covered by *collective agreements* valid for 2009 kept the level of employment higher by about 2 per cent compared to their observationally similar counterparts”.

39 The term *concession bargaining* has been used since the crises of the seventies and eighties in the United States to describe a collective bargaining behaviour whereby trade unions make concessions, typically agreeing to wage cuts in return for job security. An early and well-known example is the agreement in 1979 between United Auto Workers (UAW) and Chrysler, which was facing bankruptcy, when employees agreed to 200 million dollars of givebacks in order to save the company (McKersie–Capelli, 1982).

The agreement reached at one of the porcelain factories appears to be a classic case of concession bargaining: The employees agreed to two unpaid days of work every month. The concession was made despite the fact that there had only been a minimal increase in wages between 2005 and 2008 because of various measures during that period. Knowing the balance of power, the events at the building materials company seem to be more typical: the management used the crisis as an excuse for scrapping the collective agreement.

In the automotive industry, the objective of the dominant Metalworkers' Trade Union (Vasasszakszervezet) declared at the onset of the crisis was to preserve jobs, and thus they were prepared to make wage concessions. Although this policy was met with greater or lesser resistance among the rank and file, it was finally accepted by the local unions, and their local negotiations were held in this spirit. While at the time of the crisis this was a reasonable political decision, it should be emphasised that it meant a drastic break with Hungarian trade union policies of the past decade and a half, which had always seen wage demands as an absolute priority. The crisis incidentally did not give rise to major conflicts in the industry, which was of course not so much an active achievement of the trade unions as it was a consequence of the rather weak bargaining power of the employees and their unions. (We should add that there had been no major strikes in the industry before the crisis, either.) There is a Sectoral Social Dialogue Committee in the automotive industry, but it did not play any role in the tackling of the crisis, and there is no industry-wide collective agreement either.

Several automobile companies signed agreements concerning the introduction of crisis relief measures. Audi Hungaria made all decisions in co-operation with its employees' representative organisations. At the end of 2008, a series of negotiations about wages and employment were launched between the trade union and the management and they successfully led to an agreement. The first step was to extend the Christmas shutdown, which was the result of two deals. Both deals concerned compulsory holidays in lieu of wages. In one, employees were given 10 days off in return for a wage freeze in 2009. The management preserved the right to specify the date of the holidays but they had to comply with certain provisions, e.g., 30 days' notice had to be given. In the second deal the end-of-year bonus was limited to one month's pay in return for 12 days off. The dates of these holidays were entirely the management's decision with no obligation of advance notice. As the union leader put it, this effectively meant that the shutdowns were financed by the employees. An agreement signed with a different trade union extended working time account's reference period until 2011, i.e., the full wages were paid during shutdowns, and the accumulated hours will have to be worked in the future when increased capacity is required. (This agreement was made possible by the amendment to the Labour Code discussed above.)

An agreement between one of the large auto part manufacturers and the trade union specified 50 per cent compensation for lost working time: that is, 90 per cent of the wages was paid for 80 per cent of the working week. The trade union of another automobile company signed a similar agreement. In both cases, however, the loss of some of the shifts meant a substantially greater decrease in earnings for blue-collar workers because they also lost the high rate of shift work compensation laid down in the collective agreement. The latter company also signed a wage agreement in 2009: on 1st January, employees were given a 3 per cent pay rise. This should be seen, however, as a concession on the part of the trade union, since the wage rises of previous years had always exceeded the inflation rate. It is worth noting that the above automotive industry agreements were almost without exception signed by multinational companies in German ownership, and the deals clearly correspond to the German pattern of pacts for employment and competitiveness. The labour organisations of these factories have established especially strong ties with the trade unions and works councils of the mother companies, and it is evident that the managements sat down at the negotiating table fully aware of the crisis-relief policies in Germany.

In these cases, therefore, the crisis had a positive impact on labour relations. This can be seen in the case of the automobile company where the crisis led to a substantial improvement in consultations between the management and the trade union: three managers and three employee representatives meet every Monday to evaluate the company's position and discuss the necessary actions.

The automotive industry not only offers examples of close co-operation between managements and trade unions but also illustrates tense relationships. The trade union at the cable whips manufacturer is generally critical of the company's employment standards (namely, a high incidence of infringements of rights, Labour Inspectorate fines, low wages, long working hours, etc.). A review of the collective agreement had been due for eight months at the time of the crisis, but the management failed to get trade union approval for their plans to introduce a flexible labour schedule that would have put an end to paid lunch time and non-monetary compensation too. The management tried to circumvent the trade union negotiators and turned directly to employee delegates, who, however, also rejected the plan. The company at the same time initiated internal job rotation to fill low qualification precarious positions, but the attempt failed because of a clause in the collective agreement specifying that the original wages had to be paid in such cases. It was this company that laid off 29 + 29 workers, the number just below the 30-person threshold of collective redundancies. Also, the management unilaterally terminated bonus payments, which meant a 20 per cent decrease in blue-collar workers' earnings, and refused to come to an agreement on the annual pay rise, which effectively constituted a freeze on wages.

Concession bargaining of some type was therefore typical of companies relying on skilled labour and yielding high added value. Their trade unions report several “positive compromises,” and the regularity of consultations increased at some of the companies. In some cases, the trade unions even became better organised during the crisis. One factor contributing to positive union outcomes was of course the circumstance that the layoffs were more likely to affect unskilled workers with insecure employment contracts, who were not trade union members, than older blue-collar workers, who typically were. Unskilled and relatively new staff were also more likely to be affected by alternative crisis-relief measures (in-sourcing, termination of temporary agency work and fixed-term contracts). Although these solutions do not appear to require active trade union interference, they were not introduced without (legally required or voluntary) consultations with the unions and/or works councils, i.e., they were approved by the labour organisations with the aim of protecting core staff. It seems reasonable to claim, then, that trade unions whose activities are successful follow a policy of “insider” privilege.

3. MAJOR LAYOFFS DURING THE CRISIS

IRÉN BUSCH & GYÖRGY LÁZÁR

Introduction

As a consequence of the financial market crisis, Hungarian employers were forced to resort to layoffs of an exceptional scale. A substantial proportion of employees were separated from their jobs through major layoffs. Planned group layoffs and downsizing decisions must be announced to the local public employment office in compliance with employment laws.

As the economic crisis intensified, at the beginning of 2009 the Hungarian Public Employment Service (PES) developed an on-line registration system allowing employers to comply with their notification obligations in a simple manner and in accordance with the formal regulations. This system at the same time benefits the Employment Service by giving easy access to the information needed to provide efficient assistance for displaced workers in finding re-employment, and to be able to register workers for job seeking services.

The database also constitutes a good resource for statistical analyses allowing analysts to reveal in more detail than was previously possible who were laid off by whom and with what attributes during a given period.

An important part of this study describes the status of displaced workers following the loss of their jobs: the layoff database was linked to the database of registered job seekers, which allowed us to establish which of the displaced workers registered as job seekers, and what kind of services or support they received.

Using the Hungarian Tax Agency's insurance declarations database in addition to the job seekers' database, the study investigates to what extent the victims of the series of layoffs triggered by the economic crisis could return to the active side of the labour market.

Finally, relying on the figures of the past ten years, it is shown whether the scale of announced major layoffs had an impact on employment indicators, and if so, how strong the effect was.

A brief overview of group layoff procedures

Employers are required by law to announce planned group layoffs and downsizing decisions to the appropriate local office of the PES to which the given business site belongs geographically.⁴⁰

Most employees are employed under the Hungarian Labour Code and the major layoffs of the economic crisis typically affected this group. A group layoff is defined with reference to the average workforce size during the six months preceding the decision. Downsizing is classified as a group layoff if the job separations are due to causes related to the operation of the company and:

40 Paragraphs 94/A-G of Act XXII of 1992 on the Labour Code; Paragraph 17/B of Act XXIII of 1992 on the rights of civil servants; Paragraph 38 of Act XXXIII of 1992 on the rights of public sector employees; Paragraph 59 of Act XCV of 2001 on the rights of regular and contract soldiers of the Hungarian Defence Forces and Act LVIII of 2010 on the rights of government officials.

- a) workforce size is more than 20 and fewer than 100 persons, and at least 10 jobs are terminated,
- b) workforce size is 100 or more but fewer than 300 persons, and at least 10 per cent of workers are displaced or,
- c) workforce size is 300 or more persons, and at least 30 workers are displaced – within a 30 day period.

If an employer is planning a group layoff, discussions must be initiated with the company council or in the absence thereof with a committee set up of representatives of the employees and delegates from trade unions with representation at the company (henceforth: employee representatives) at least 15 days in advance of making a decision, and the discussions must be continued until the decision is made or an agreement is signed. If the discussions end in a decision to implement the group layoff, the employer must specify

- a) the number of workers affected by the decision broken down to occupational groups,
- b) the start and end dates of the implementation and the schedule of the group layoff.

The employer must notify in writing the public employment agency of the *intent* to implement a group layoff and of the details of the planned downsizing as specified by the regulations. In parallel with the announcement, a copy of the notification must be given to the employee representatives, and an information session held.

The *decision* of a group layoff must be communicated in writing to the public employment agency at least 30 days in advance of terminating the contracts or making the legal statement. The communication must include the displaced workers' natural identifiers (name, date of birth, etc.) and – in order to secure job seeking services and the payment of related benefits – their social security number, last occupation, qualifications and average wages.

Major layoffs affecting *civil servants*, *public sector workers* or regular or contract *soldiers* of the Hungarian Defence Forces are regulated by *separate laws*. The size categories applying to them differ from those in the Labour Code.

Workers separated from their jobs through group layoffs are entitled to a notice period and a redundancy payment. These are fully specified by the regulations listed in Footnote 40. As we can see, a substantial proportion of employees are protected by legal regulations in the event of a major layoff.

For these cases, workforce reduction is classified as a *group layoff* if, within a period of 30 days the number of civil servants or other public sector workers separated from their jobs is at least

- 5 at an institution with fewer than 20 employees,
- 10 at an institution with more than 20 and fewer than 100 employees,
- 10 per cent of employees at an institution with 100 or more but fewer than 300 employees,

– 30 at an institution with 300 or more employees.⁴¹

The regulations on group layoffs do not apply to workers who

- work for an employer employing fewer than 20 employees (that is, it is considerably simpler for micro- and small businesses to discharge their workers);⁴²
- are self-employed;⁴³
- are smallholders;
- are employed on-call in semi-illegal or illegal arrangements on the fringes of the labour market. These typically unskilled workers are highly vulnerable as they are not protected by any legal regulations.

The major layoffs that are required to be announced and are regulated by laws account for far fewer than the total number of employment terminations. During a crisis, the level of employment is further reduced as employers fail to fill positions left vacant by workers leaving voluntarily, choosing retirement or losing their work capability.

Obtaining statistical data is not the primary purpose of the notification requirement. The strict order of the major layoff process is meant to protect workers and to ensure that they can be given assistance. The notification requirement also offers valuable information as regards the state of the economy and assists the statistical analysis of workforce reductions in terms of the sectoral and geographical distribution of downsizing companies and the socio-economic composition of the group of workers separated from their jobs.

Announced major layoffs and registered unemployment in the past ten years

The statistical details of announced major layoffs have been collected by the Hungarian Employment Service (and its predecessors) since the early 1990s. The current study explores the past ten and a half years, starting with the beginning of 2000 through to the summer of 2010. In the interest of comparability and clarity the layoff and unemployment data are aggregated into quarterly periods.

A set of time series have been constructed using the number of job separations in announced layoffs for 42 quarterly periods: 1) the inflow to registered unemployment (job seekers) for non-school-leaver participants broken down to a) first-time job seekers and b) all job seekers; and 2) quarterly average size of the registered unemployed (job seeker) population including school-leaver entrants (see the two graphs a) and b) in *Figure 3.1* and *Table 3.A1* in the Appendix).

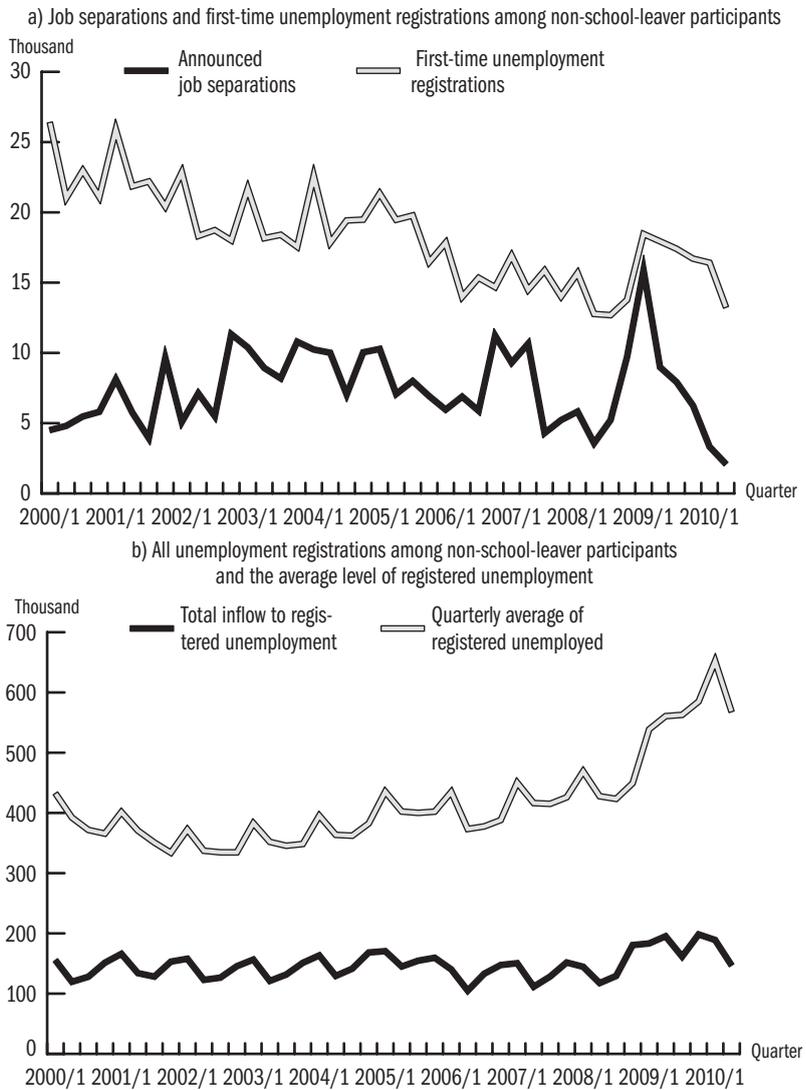
Looking at the time series of layoffs, there is considerable variation in the quarterly number of announced job separations during the period before the crisis (ranging from 4,500 to 11,300), and quarterly figures of 10–11 thousand are not exceptional. Aggregated over a whole year, we even see values as high as 37–38 thousand.

41 As the act on the rights of government officials came into effect on 6 July, 2010 and our database of mass layoffs had been closed on 31 December, 2009, our sample does not include job separations covered by the new act.

42 The Employment Service does not have information on possible job separations at the suppliers of large companies that “collapsed” and laid off a substantial proportion of their employees. These job separations are likely to have made a significant contribution to the slump in employment during the crisis.

43 The crisis also had an adverse effect on the position of the self-employed. Although self-employment is characterised by constant entries and withdrawals under non-crisis conditions, the number of withdrawals substantially exceeded the number of entries during the crisis.

Figure 3.1: Major layoffs and the registered unemployed by quarters (2000–2010)



As there is only one unusually high quarterly figure in 2009, the only complete year of the crisis (almost 16 thousand job separations were announced in the first quarter), the total number of announced job separations is “only” around 38 thousand in that year, which is not significantly higher than the figures of about 38 thousand observed in 2003 and 2004. It is also worth noting the final data points of the quarterly time series of layoffs: During the first two quarters of 2010 only a total of 5,414 job separations were announced by employers, which is considerably lower than the figures for the same period during the previous 10 years. This suggests that the decline in employment and the rise in unemployment are likely to have come to an end.

It is worth comparing the quarterly layoff time series with the time series figures of the flows to the unemployment registry (see *Figure 3.1 a*).

Despite the fact that not every displaced worker registers, the number of first-time registrations among non-new labour market participants is higher for each quarter than the total number of job separations for that quarter. In the early 2000s the former figure can be as much as five times as high as the latter. An obvious explanation for this phenomenon is that a substantial share of job separations are exempt from the notification requirement. The only period when the number of job separations approaches the number of registrations is the first quarter of 2009.

Looking at first-time registrations among non-new labour market participants in isolation, the following observations can be made. 1. In the early 2000s several of the quarterly figures are well above 20 thousand but none of them are for the quarters from 2006 onwards, not even for the worst period of the crisis. 2. The figures for 2009 show a clear increase relative to the data of the previous two years, and the level of the flow falls back to its previous lower value by the second quarter of 2010.

The decreasing trend displayed by the long time series of first-time registrations among non-new labour market participants – which is only interrupted for one year at the time of the crisis – is evidently related to the increase over the past twenty years in the number of people who have registered before. If this is the case, there should be an increase in the ratio of re-registrations among non-new labour market participants, since these include workers with previous registrations.

To explore this question, the distribution of registrations in 2008 and 2009 has been examined. Re-registrations are categorised according to the date of the last previous job seeker registration.

The results show that both in 2008 and in 2009, re-registrations after a period of at least four years since the previous registration are about two and half times as frequent as first-time registrations. This is a special group, since the great majority of people who had not had registered job seeker status for at least four years had with all probability been employed, and were separated from their jobs now – i.e., during and presumably because of the crisis – similarly to first-time registered job seekers (*Table 3.1*).

Table 3.1: Job seeker registrations by period of time since last previous registration (thousand people)

Year	First-time registrations	Re-registrations after less than four years	Re-registrations after four or more years
2008	54.9	372.3	144.8
2009	70.5	482.1	185.6

That is, in 2008 almost 200 thousand and in 2009 about 256 thousand people entered the job seekers' programme for the first time or after an at least four-year period of non-registration.

The time series of all registrations among non-school-leaver participants contains considerably larger figures than the number of first-time registrations [see *Figure 3.1 b*]). There are at least 100 thousand people per year here. For seasonal reasons, the first and last quarters of each year are characterised by a higher number of registrations than the third or fourth quarters. This data series also shows a surge during the crisis period, when in some quarters the number of people registering for the first time or re-registering after a period of some duration may almost reach 200 thousand. By the second quarter of 2010, however, this value also drops to a lower level.

The quarterly average of size of the total registered unemployed population displays a decreasing trend until the end of 2002, which is followed by an upward trend from the beginning of 2003 until the end of 2008 with a minor dip in 2006. Starting with the first quarter of 2009, there is a huge leap in the figures. Some improvement can be seen, however, in the second quarter of 2010, when the number of job seekers drops considerably more steeply than the usual seasonal drop of 30 thousand.

Layoffs and inflow figures can only account for some of this enormous increase in the number of registered job seekers. A decline in outflows contributes at least as much to the growing average size of the job seeker population as does the increase in inflows. The substantial drop in outflows is also a product of the crisis: the demand for labour greatly declined in the whole of the economy (cf. Chapter 1 by János Köllő).

A detailed analysis of major layoffs (October 2008 – June 2010)

Major layoffs can be analysed along a number of different dimensions, both in terms of company attributes (area, industry, extent and causes of layoffs, etc.) and in terms of redundant worker attributes (age, sex, education, occupation, category of activity, method of employment termination, nationality, etc.).

When the crisis emerged in the autumn of 2008, the Hungarian Employment Service made it a priority to develop a new computerised system recording all the legally required details of announced layoffs and organising them into a database that could be searched for all attributes and their combinations.

Let us first look at the geographical distribution of layoff announcements. *Table 3.2* shows the number of companies announcing group layoffs and the total number of job separations broken down to quarter and geographical region.

As can be seen in *Table 3.2* by far the largest number of announcements were made in Central-Hungary and these account for the highest share of all job separations. The second highest figures occur in Central-Transdanubia. That is, companies in relatively highly developed and industrialised regions made

more announcements and these tended to affect a higher number of workers. As regards the timing of the announcements, these regions were also the first to announce layoffs: The incidence of major layoff announcements was initially minimal in less developed regions, but at a later stage downsizing spread to these areas, especially to the North-Great Plains and North-Hungary. (For details on the geographical distribution of unemployment, see Chapter 4 by Hajnalka Lőcsei.)

Table 3.2: Number of companies announcing layoffs and number of affected workers (between 1st October 2008 and 30th June 2010)

Region/county	Number of companies	Distribution of companies (per cent)		Number of job separations	Distribution of job separations (per cent)		Average number of job separations per announcement	
		Region	County		Region	County	Region	County
Central-Hungary	246	27.7		14,400	27.3		59	
Budapest	189		21.3	10,670		20.2		57
Pest	57		6.4	3,730		7.1		65
Central-Transdanubia	169	19.0		11,748	22.3		70	
Fejér	54		6.1	3,770		7.2		70
Komárom-Esztergom	48		5.4	5,966		11.3		124
Veszprém	67		7.5	2,012		3.8		30
West-Transdanubia	104	11.7		7,174	13.6		69	
Győr-Moson-Sopron	30		3.4	1,893		3.6		63
Vas	30		3.4	2,372		4.5		79
Zala	44		4.9	2,909		5.5		66
South-Transdanubia	65	7.3		3,949	7.5		61	
Baranya	35		3.9	1,796		3.4		51
Somogy	20		2.2	1,221		2.3		61
Tolna	10		1.1	932		1.8		93
North-Hungary	93	10.5		5,112	9.7		55	
Borsod-Abaúj-Zemplén	43		4.8	2,681		5.1		62
Heves	33		3.7	1,512		2.9		46
Nógrád	17		1.9	919		1.7		54
North-Great Plains	125	14.1		5,507	10.4		44	
Hajdú-Bihar	57		6.4	2,365		4.5		42
Jász-Nagykun-Szolnok	38		4.3	2,029		3.8		53
Szabolcs-Szatmár-Bereg	30		3.4	1,113		2.1		37
South-Great Plains	87	9.8		4,830	9.2		56	
Bács-Kiskun	39		4.4	2,784		5.3		71
Békés	29		3.3	1,635		3.1		56
Csongrád	19		2.1	411		0.8		22
Total for all regions	889	100.0	100.0	52,720	100.0	100.0	59	59

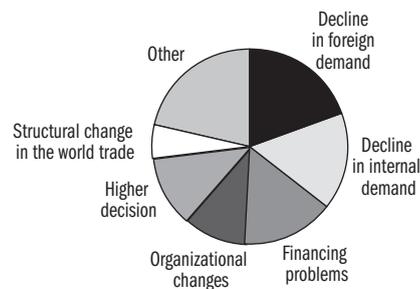
Unfortunately, barely more than half of the companies could be unequivocally classified for industry, as a new industry classification system was introduced by the Hungarian Central Statistical Office during the period under analysis, and some of the companies specified the old code while others used the new code.

Since the question is important, however, the 486 companies that could be identified and the 22,435 job separations they announced have been grouped according to their industry. More than a third of the 486 companies (35.8 per cent) are in the manufacturing industry, and the job separations announced by them constitute exactly half of all job separations successfully identified for industry. This ratio seems to be high in itself and becomes even more striking if we take into account the fact that according to Hungarian Central Statistical Office (HCSO) data – during the third quarter of 2008 (i.e., before the crisis) only 22 per cent of employees in the Hungarian economy were employed in manufacturing. It is also revealing that between Q2 2008 and Q2 2010 the number of manufacturing employees fell by 66.5 thousand people (7.8 per cent), while the total number of employees in the Hungarian economy decreased by 89.6 thousand people (2.3 per cent) over the same period. That is, the manufacturing industry accounts for three quarters of the total decline in employment in the Hungarian economy. This means that the manufacturing industry suffered the most from the crisis in terms of both announced and non-announced layoffs with the result that its 22 per cent share in the country's work force dropped to 20.8 per cent over the crisis period.

Within manufacturing, the industries accounting for the highest share of announced job separations are metal manufacturing (8.9 per cent), textile industry (6.7 per cent), automotive industry (6.5 per cent), electrical goods manufacturing (6.1 per cent) and the food, beverage and tobacco industry (5.6 per cent). Other than manufacturing, the industry group with the next highest share of job separations is transport, storage, postal services and telecommunications (12.3 per cent), with real estate and financial services (8.1 per cent), construction (5.9 per cent), retail and repairs (6.9 per cent) and financial broker services (5.8 per cent) not far behind.

When announcing the layoff, the companies had the opportunity to specify the reason. The most important reasons were the decline in foreign or internal demand (*Figure 3.2*).

Figure 3.2: Distribution of causes of major layoffs given by the employers (between 1st October, 2008 and 30th June, 2010)



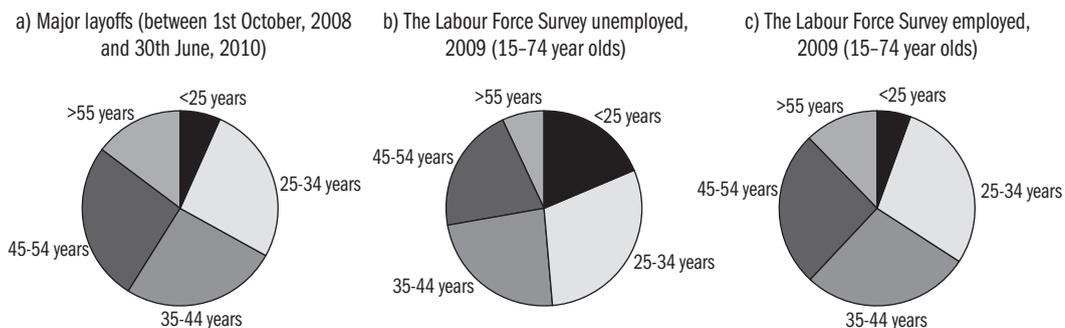
For most of the job separations (48,684) we can determine the method of terminating the employee's contract. The majority (84.5 per cent) of employees were discharged, the employment of one in seven workers (14.8 per cent) was terminated by mutual agreement and only 0.75 per cent were separated from their jobs when their fixed-term contract terminated.

Looking at the demographic features of the people separated from their jobs through the mass layoffs, the first figures that stand out are the 50.5 per cent share of men *versus* 49.5 per cent share of women. For the correct interpretation of the figures it should be taken into consideration that 51.8 per cent of all employees are men and only 48.2 per cent are women (in Q3 2008 data of the HCSO Labour Force Survey). That is, contrary to first appearances, women were slightly more likely to be affected.

The age distribution of displaced employees is similarly important information [Figure 3.3 a)]. We can assume that people over 55 will have the option of entering the pension scheme if they are still unable to find other employment after an extended period of time. The 45–54 year-old cohort appears to be in the most difficult position. Their age makes it difficult for them to find re-employment but they have 10–20 years before they reach the new, higher statutory retirement age. More than a quarter of job separations are among this age group.

Figures 3.3 a) and b) display the age distribution of the unemployed and the employed populations based on the 2009 data of the HCSO Labour Force Survey. The age distribution of the displaced workers is very similar to that of the employed population. This indicates that age discrimination does not play a role in employers' redundancy decisions. Comparing the age distribution of displaced workers with the HCSO Labour Force Survey unemployment figures, we can see that there are far more older workers and considerably fewer younger workers among those laid off than among the unemployed.

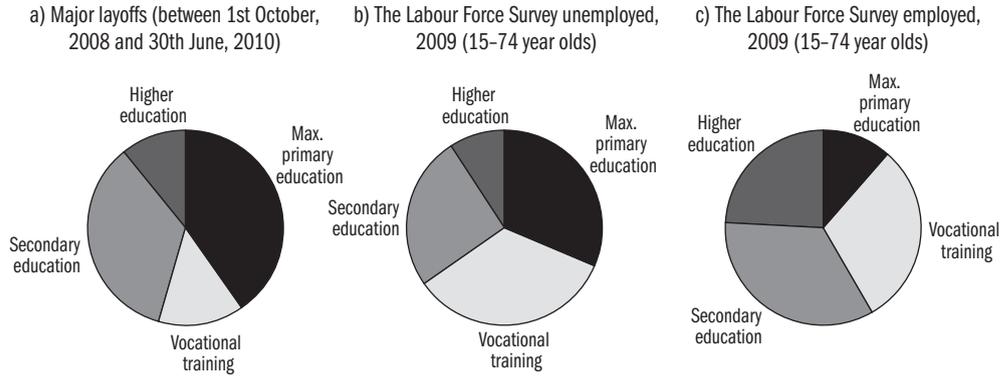
Figure 3.3: The age distribution of people separated from their jobs through major layoffs, of the unemployed and of the employed



From the point of view of future re-employment prospects, educational attainment is a further factor of special significance. An adverse result is that 40

per cent of those made redundant have no more than primary education [see *Figure 3.4 a)*], and 14 per cent of these did not even complete primary school.

Figure 3.4: The educational distribution of people separated from their jobs through major layoffs, of the unemployed and of the employed



Looking at the distribution by educational attainment [see *Figures 3.4 a), b)* and *c)*], what stands out is that the incidence of people with higher education or vocational qualifications is substantially lower among those displaced than among the employed population, while we find a much higher share of workers with no more than primary education. Workers having non-vocational secondary education are represented in about equal proportions among the displaced and the employed. These results suggest that employers attempt to retain higher education graduates and workers with vocational qualifications at the expense of workers with low educational attainment. Comparing the layoff figures with the educational distribution of the unemployed population, we find a far lower incidence of vocational qualifications and a higher incidence of general secondary education and primary education or less among the former than among the latter.

74.4 per cent of displaced employees are blue-collar workers and 25.6 per cent are white-collar workers. In this respect Central-Hungary significantly deviates from the national average in that the share of white-collar workers is 47 per cent in this region. The explanation is that in the capital city there are substantially more white-collar workers than blue-collar workers (57 vs. 43 per cent).

An important data point in group layoff notifications is the four-digit code of the redundant worker's last occupation. While a comprehensive list is beyond the scope of this study, *Table 10.11* of the *Statistical data* section of this volume lists the occupations in which a total of at least 50 job separations were announced. *Table 3.3* summarises the occupations in which at least 500 job separations were announced or, for occupations requiring higher qualifications, in which at least 100 employees were affected, grouping them according to the four-digit codes used in the Hungarian classification system (FEOR).

Table 3.3: The most frequent occupations in the layoff announcements, with four-digit FEOR codes

FEOR	Occupation	Number of employees
Occupations with at least 500 people in decreasing order		
8193	Assemblers	6785
9190	Other elementary workers (e.g., casual labourers)	1335
7321	Tailors, seamstresses and model makers	1242
8199	Manufacturing machine operators	1190
7490	Other iron and metal workers	1121
7530	Storage labourers	1114
7421	Smiths	955
7439	Other machinery mechanics and repairers	955
8129	Other light industry machine operators and assembly line labourers	890
8192	Metal processing machine operator	833
5231	Package deliverers	790
9131	Material handlers, hand packers	769
3612	Postal and communications clerks	723
8122	Garment machine operators and assembly line workers	684
8356	Truck drivers	589
3192	Quality control and security officers	579
3632	Bank teller clerks	553
8343	Fork lift truck drivers	516
Occupations requiring higher education degree, with at least 100 people		
2129	Other engineers	430
2910	Other highly qualified assistants	280
2529	Other finance professionals	241
2190	Other engineering professionals	151
2521	Market research, advertising and marketing professionals	126
2133	Software engineers	120
2117	Mechanical engineers	118
2139	Other IT professionals	115
2511	Economists	104
2522	Sales managers	104
2523	Human resource managers	101

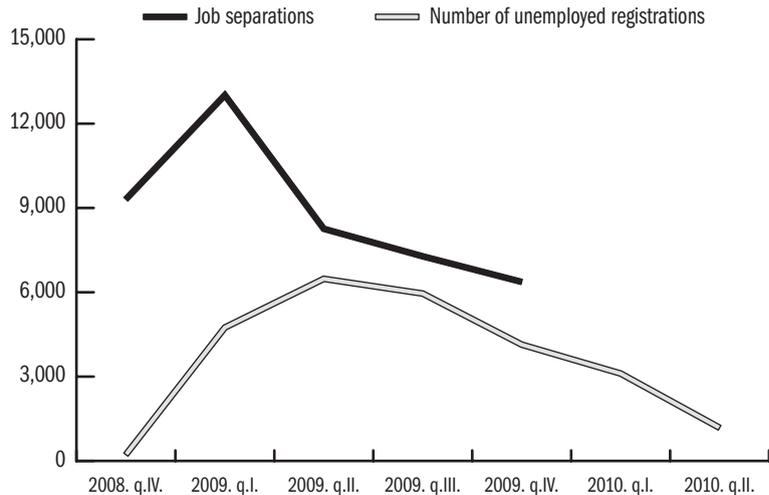
The final factor considered here is the nationality of the displaced workers: what share are not Hungarian citizens and from where these people come. 1,687 of the 52,720 employees specified in the announcements are not Hungarian citizens, which constitutes 3.2 per cent of the total. Almost all (1,501 people, or 89 per cent) of the foreigners are Slovak citizens. Looking at geographical areas, 84 per cent of the foreigners were employed at companies in Central-Transdanubia, specifically in Komárom-Esztergom county (cf. Chapter 2 by László Neumann and Dorottya Boda on layoffs in the automotive industry). Most (91.8 per cent) of the foreign citizens were laid off by companies in manufacturing, and within that in electrical machinery manufacturing (54.2 per

cent), automobile manufacturing (19.9 per cent) and rubber and plastic goods manufacturing (10.9 per cent).

A detailed analysis of displaced workers who registered as job seekers

Between the fourth quarter of 2008 and 2009, mass lay-off decisions affecting 48,751 employees were announced by employers at the regional centres of the employment agency. Of these, the details given for 44,231 workers are sufficiently specific to allow them to be identified in other databases. By the end of June 2010, 25,828 of these people registered as job seekers, which constitutes almost 60 (58.4) per cent of the total. The sample of our analysis was limited to announcements made between October 2008 and December 2009 because for a substantial share of the workers on these redundancy lists, the notice period ended before June 2010, and thus they had the opportunity to register with their employment centres before data collection if they did not find new employment.

Figure 3.5: Registered job seekers among those separated from their jobs through major layoffs between October 2008 and December 2009 by quarter of entry

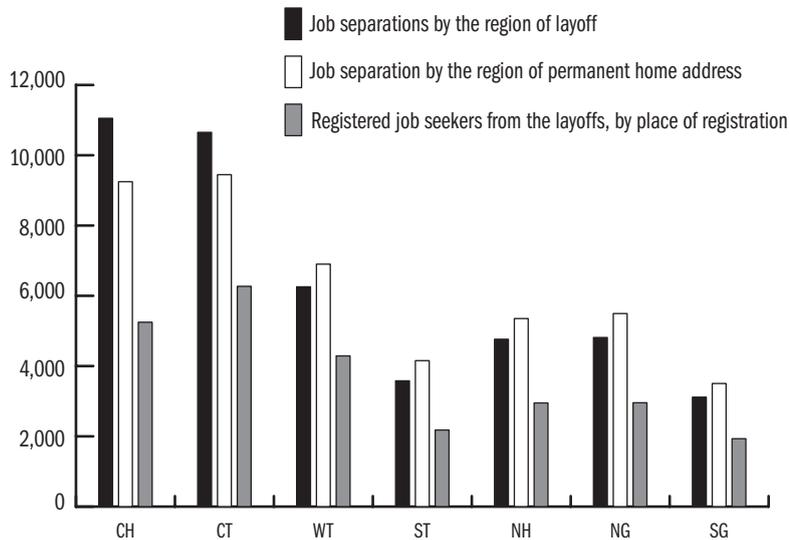


As we can see in *Figure 3.5*, there is a considerable time lag between the lay-off announcement and the unemployment registration. While the number of major layoff announcements peaks during the first quarter of 2009, job seeker registrations rise to their highest level in the second and third quarters of the same year.

As regards regional differences shown in *Figure 3.6*, Central-Hungary is the only area where the probability of displaced workers registering as job seekers is substantially lower (47.5 per cent) than average. (The regional pattern is difficult to interpret, however, as workers can register at the local job centre of

their permanent home address, at the place of their temporary residence or in the area of their former employment.)

Figure 3.6: Job separations by the region of job separation and by the region of permanent home address between October 2008 and December 2009, and the share of registered job seekers by place of registration



Abbreviations: CH: Central-Hungary; CT: Central-Transdanubia; WT: West-Transdanubia; ST: South-Transdanubia; NH: North-Hungary; NG: North-Great Plains; SG: South-Great Plains.

Further questions explored in our analyses are the benefits and services received by those who became registered job seekers (*Table 3.4*).

In total, 95.6 per cent of job seekers are entitled to a job seeker's allowance and South-Great Plains is the only region where this figure falls below 90 per cent. We may assume that in this region some of the job separations were induced by the crisis while others were the result of seasonal layoffs, and in the second case workers were typically not employed long enough to gain entitlement to job seeker's allowance.

Somewhat more than half of job seekers received operative services at their job centre potentially helping them to find employment.⁴⁴ Customers were especially likely to receive help in South-Transdanubia: two thirds were in this position.

The overall participation rate in Active Employment programmes is 13 per cent. There is, however, considerable variation across the regions: while about one in five job seekers participated in North-Hungary, only 6 per cent did so in Central-Hungary. The overall rate of participation in subsidised training programmes is 6 per cent, and South-Transdanubia stands out with 9 per cent of job seekers here starting their training by the end of the first half of 2010.

⁴⁴ Operative services include: labour, career, job search, rehabilitation and psychiatric counselling, mentor services and information provision on training and labour rights.

Table 3.4: People laid off between October 2008 and December 2009 and registering as job seekers between October 2008 and June 2010, receiving operative services or benefits, or participating in Active Employment programmes

	CH	CT	WT	ST	NH	NG	SG	Total
Number of job seekers	5,248	6,270	4,290	2,180	2,951	2,956	1,933	25,828
Receiving operative services (%)	44.9	52.2	50.9	66.6	52.1	42.9	59.1	51.2
Receiving successful re-employment services (%)	6.1	16.5	23.8	14.0	24.6	24.2	21.4	17.6
Participation in Active Employment programmes (%)	6.4	10.7	13.9	16.7	21.6	15.4	14.2	12.9
Receiving training support (%)	3.5	4.8	6.7	8.7	6.4	6.9	5.3	5.6
Having entitlement to job seeker's allowance (%)	96.5	96.9	95.9	94.8	94.7	96.1	89.8	95.6

Abbreviations: CH: Central-Hungary; CT: Central-Transdanubia; WT: West-Transdanubia; ST: South-Transdanubia; NH: North-Hungary; NG: North-Great Plains; SG: South-Great Plains.

We have also looked at the probability of a displaced worker exiting the job seeker's programme, and the causes of exits (*Table 3.5*).

Table 3.5: Re-employment among workers separated from their jobs between October 2008 and December 2009 and registering as job seekers up to June 2010 (per cent)

	CH	CT	WT	ST	NH	NG	SG	Total
Exits from the register	51.2	62.3	67.41	62.1	49.7	61.6	48.4	58.3
Exits to employment	47.2	60.2	64.1	55.9	54.3	61.7	49.6	56.5
Exits to non-subsidised employment	44.3	54.2	56.9	47.9	39.1	53.3	40.7	49.3
Exits to subsidised employment	2.9	6.0	7.2	8.0	15.2	8.5	8.9	7.3
Non-subsidised jobs among the re-employed	93.9	90.1	88.7	85.7	72.0	86.3	82.1	87.1
Subsidised jobs among the re-employed	6.1	9.9	11.3	14.3	28.0	13.8	17.9	12.9
Public work schemes among the re-employed	3.6	6.6	4.8	6.2	8.1	10.1	10.7	6.6
Starting subsidised business among the re-employed	0.7	0.4	0.6	0.8	0.4	0.4	0.3	0.5

Abbreviations: CH: Central-Hungary; CT: Central-Transdanubia; WT: West-Transdanubia; ST: South-Transdanubia; NH: North-Hungary; NG: North-Great Plains; SG: South-Great Plains.

By the end of June 2010, 15.1 thousand of the 25.8 thousand job seekers exited the system, 57 per cent of those through finding employment. The probability of re-employment is highest in West-Transdanubia and North-Great Plains, and is still slightly over 60 per cent in Central-Transdanubia. In Central-Hungary and the South-Great Plains, however, not even half of job seekers could find new employment.

As we can see, on the whole the developed regions are characterised by the best chances of re-employment, although Central-Hungary is left behind while the North-Great Plains is among the "high" re-employment group. These re-

sults are explained by various phenomena. In the North-Great Plains, which is in the best position, people were generally less inclined, or under less pressure, to register, i.e., only those entered the job seeker's programme who abandoned all hope of finding a job without help. Those who did register proved to be less "marketable." Although the labour markets of West- and Central-Transdanubia were hit especially hard by the crisis, these (especially West-Transdanubia) were also the first regions to show positive signs of recovery.

It is worth analysing the re-employment rates in more detail and looking at the types of employment offered to job seekers (bottom rows of *Table 3.5*). 13 per cent of the almost 15 thousand re-employed found jobs through some type of Active Employment programme. This indicates that job seekers separated from their jobs through major layoffs have better labour market prospects than registered job seekers in general: In 2009, 60 per cent of all registered job seekers found non-subsidised jobs and 40 per cent found subsidised employment, i.e., the likelihood of requiring assistance in finding a suitable job is considerably higher here. The ratio of non-subsidised to subsidised employment was 2 to 1 even during the "peacetime" years preceding the crisis.

Among the population of re-employed post-redundancy job seekers the share of re-employment in non-subsidised jobs is over 90 per cent in Central-Hungary and Central-Transdanubia, and it approaches 90 per cent in West-Transdanubia. The lowest rates are observed in North-Hungary and the South-Great Plains but even these are higher than the values characterising other groups of job seekers.

Overall, only 6.6 per cent of the re-employed were placed within one of the public employment schemes; the regions with the highest figures are the South-Great Plains and the two areas in the worst positions, North-Hungary and the North-Great Plains.

Based on the information in the job seekers' administrative database we can also find out how many customers start their own business with the support of the job centre. Of the 14,604 people finding re-employment, only 72 decided to start a business career. This solution was somewhat more frequent in Central-Hungary and South-Transdanubia but both remained below 1 per cent.

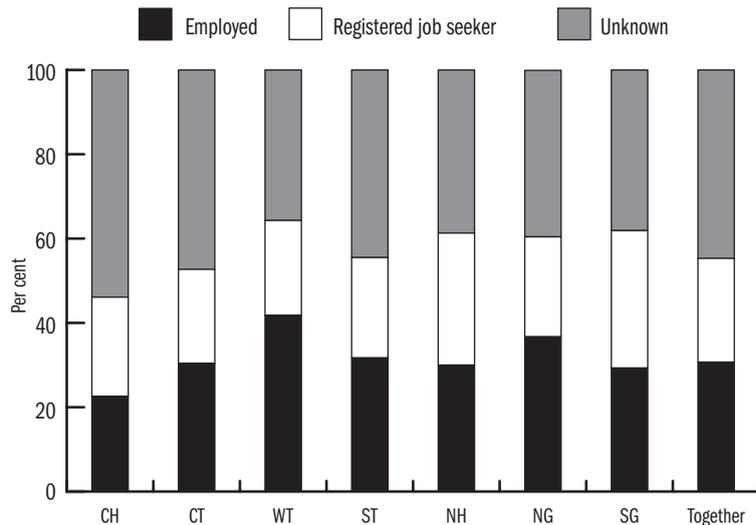
The labour market status of displaced workers in June 2010

Using the available administrative data sources, we attempt to map the labour market status of workers displaced through major layoffs between Q4 2008 and Q4 2009. We can establish legal employment status and official unemployment status from the insurance declarations filed with the tax authority and the database of registered unemployed workers. Any remaining workers are categorised as having unknown status, as the Employment Service does not have access to other data sources and thus no further breakdown is possible.

This section of the paper discusses the labour market position in June 2010 of the displaced workers recorded in the above two databases. The data are broken down by region, gender, age and educational attainment.

In June 2010, 30.7 per cent of the 44 thousand people in the sample are in employment, 24.6 per cent are registered job seekers and 44.7 have unknown status (*Figure 3.7*). The unknown group may comprise workers in undeclared employment, unregistered unemployed workers and various inactive populations: students, participants of childcare welfare schemes and pensioners.

Figure 3.7: The labour market status on 20 June 2010 of workers separated from their jobs through major layoffs between October 2008 and December 2010, by region

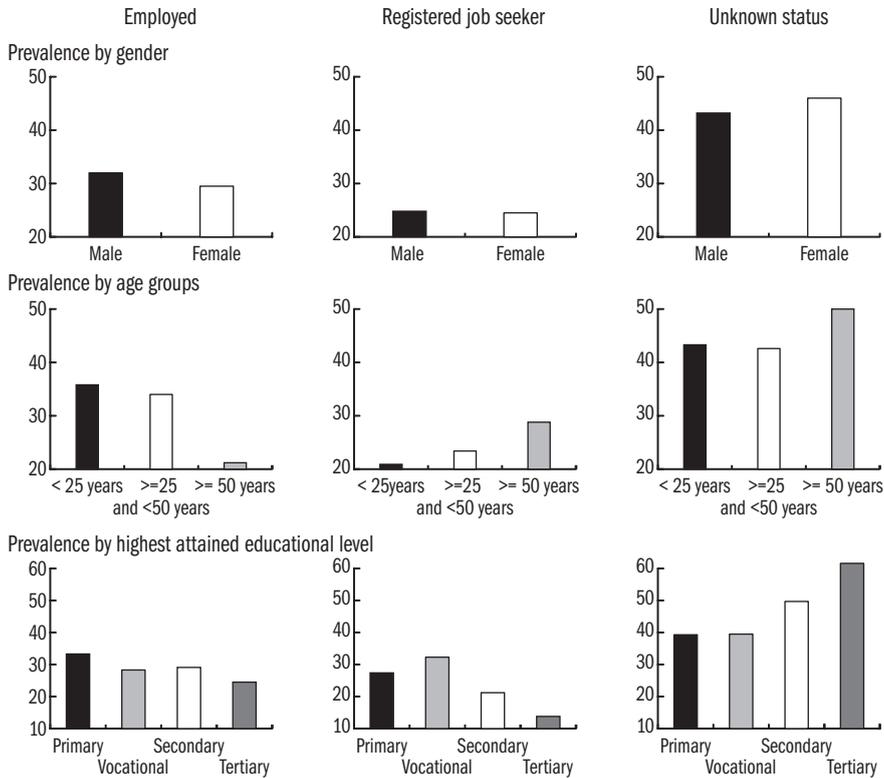


Abbreviations: CH: Central-Hungary; CT: Central-Transdanubia; WT: West-Transdanubia; ST: South-Transdanubia; NH: North-Hungary; NG: North-Great Plains; SG: South-Great Plains.

The highest share of workers with known employment is observed in West-Transdanubia and the North-Great Plains, i.e., the two regions where displaced job seekers display the highest probability of finding re-employment. At the other end of the scale, in Central-Hungary, 23 per cent of displaced workers work legally. The corresponding figure is around 30 per cent for the remaining regions. The South-Great Plains and North-Hungary have the highest incidence of registered job seekers, while in the remaining regions this figure is not far from the overall average. Unknown status is most likely to occur in Central-Hungary and least likely in West-Transdanubia.

The probability of employment is slightly more likely among men than women, registered unemployment occurs with about the same frequency for the two sexes, and women are marginally more likely to have unknown status than men, presumably more of them became inactive (*Figure 3.8*).

Figure 3.8: The labour market status on 20 June 2010 of workers separated from their jobs through major layoffs between October 2008 and December 2010, by demographic features (per cent)



The probability of job seeker status rises with the advance of age. The probability of finding re-employment is highest among under 25s, only marginally lower among the – 25–50 year old – population of the most productive working age, and lowest among people aged over 50 who are divided from the other two groups by a large margin. The latter group also has the largest proportion of unknown status, which is likely to indicate a high frequency of transitions to inactivity.

Looking at the educational attainment of displaced workers, it can be seen that workers with at most primary education have seemingly better chances of legal re-employment than do skilled workers or people with secondary education. An unpleasant surprise of the survey is that higher education graduates have the worst re-employment prospects among the displaced, although we should note that the incidence of unknown status is rather high here.

The probability of the transition to job seeker status among workers separated from their jobs through major layoffs is highest among those with vocational training, people with at most primary education come next, and they are fol-

lowed by workers having secondary education. Higher education graduates are the least likely to become job seekers (just as they are to find legal re-employment). Unknown status occurs with about 50 per cent higher frequency among these than among their primary or vocational school educated peers, and even people with secondary education are 10 percentage points less likely to have this status. That is, the probability of unknown status steeply rises with educational attainment.

Summary, main observations

1. The number of actual job separations is usually smaller than the number specified in major layoff announcements because the announcement must specify the upper limit of separations.
2. The regulations require major layoffs to be announced if more than 20 people are employed at the company and the layoff affects a pre-specified number or percentage of employees. (Different rules apply to the public sector). However, several of the suppliers and subcontractors of large Hungarian owned and multinational companies, which are typically small businesses, also laid off a substantial share of their employees, or changed full-time contracts to part-time contracts or other atypical forms of employment.
3. A non-negligible portion of displaced workers avoid the transition to unemployment either because they find re-employment (or possibly start a business) or because they become inactive (e.g., enter the pension scheme).
4. Nevertheless, the annual increase in the number of registered job seekers is well above the total annual job separations announced. While part of the explanation is that in the private sector layoffs affecting fewer than 20 people do not have to be announced, another important reason is that the crisis was accompanied by a marked decrease in the demand for labour. Layoffs therefore constitute only one aspect of the problem while the other is that the contraction of labour demand heavily constrained exits from registered unemployment.
5. As a result of the decline in demand, companies do not replace workers leaving, retiring, etc. (and several public sector institutions introduced a freeze on workforce size).
6. Companies do not, however, displace every worker that temporarily becomes redundant. Once the recession turns round, this reserve labour provides the foundations of renewed growth. As a result, the first phases of recovery are not accompanied by an expansion in employment or a decrease in unemployment.
7. A large share (about half) of all displaced workers are laid off by companies in the manufacturing industry. This ratio is well above the – fairly large, 22 per cent – share of manufacturing jobs in the Hungarian labour market. Job separations in the manufacturing industry account for almost three quarters of the overall decrease in employment in the Hungarian economy, with the result that the share of manufacturing dropped to 20.8 per cent.

8. Major layoffs in themselves cannot explain the striking increase in either the size of the registered unemployed population or the number of unemployed workers recorded in the HCSO Labour Force Survey. Nor can they explain the substantial decline in the level of employment.

9. Within the 44.2 thousand job separations, by 30 June 2010 almost six in ten displaced workers registered as job seekers at employment centres.

10. 96 per cent of registered job seekers were entitled to job seeker's allowance. Slightly more than half of job seekers received operative services at their job centre raising their chances of re-employment. 13 per cent of displaced job seekers participated in Active Employment programmes and 6 per cent attended subsidised training. Of those receiving operative services, 57 per cent exited the programme by 30 June 2010 due to re-employment.

11. The labour market status of displaced workers in June 2010 can be summarised as follows: 31 per cent had jobs, 25 per cent were registered job seekers and 44 per cent had unknown status. The latter group includes those having undeclared employment, unregistered unemployed people and various inactive groups: students, participants of childcare support schemes and pensioners.

Appendix 3

Table A3.1: Announced job separations and registered job-seekers

Year, quarter	Announced job separations	Job seeker registrations by non-school-leaver participants (inflow), in thousands		Average number of registered job seekers, in thousands
		First-time entrants	All entrants, in thousands	
2000 Q1	4,505	26,397	155.4	432.5
2000 Q2	4,811	21,027	119.6	392.3
2000 Q3	5,477	22,977	128.0	371.7
2000 Q4	5,807	21,087	151.3	365.7
2001 Q1	8,122	25,902	166.0	401.4
2001 Q2	5,753	21,858	134.0	370.6
2001 Q3	3,933	22,197	128.2	350.8
2001 Q4	9,645	20,412	153.1	333.9
2002 Q1	5,084	22,854	157.9	372.5
2002 Q2	7,123	18,321	122.8	337.2
2002 Q3	5,498	18,735	126.5	334.6
2002 Q4	11,331	18,006	145.5	334.5
2003 Q1	10,394	21,687	156.5	383.0
2003 Q2	8,929	18,162	121.1	351.9
2003 Q3	8,187	18,405	131.7	345.5
2003 Q4	10,795	17,550	151.1	348.4
2004 Q1	10,240	22,599	163.4	395.5
2004 Q2	10,012	17,838	129.4	363.6
2004 Q3	7,037	19,425	141.4	362.2
2004 Q4	10,041	19,482	168.3	382.5
2005 Q1	10,283	21,345	170.5	435.3
2005 Q2	7,072	19,473	145.0	402.3
2005 Q3	8,001	19,779	154.7	400.1
2005 Q4	6,921	16,458	159.5	402.1
2006 Q1	5,961	17,844	140.2	434.8
2006 Q2	6,887	13,983	104.9	373.3
2006 Q3	5,877	15,342	133.0	377.6
2006 Q4	11,228	14,679	147.5	388.1
2007 Q1	9,300	16,917	150.5	450.3
2007 Q2	10,650	14,487	111.4	416.3
2007 Q3	4,297	15,864	128.4	415.1
2007 Q4	5,219	14,013	151.7	425.9
2008 Q1	5,823	15,684	144.6	469.0
2008 Q2	3,575	12,771	117.5	427.7
2008 Q3	5,224	12,687	129.3	423.3
2008 Q4	9,708	13,779	180.6	449.3
2009 Q1	15,882	18,462	183.3	538.7
2009 Q2	8,982	17,937	195.2	560.7
2009 Q3	7,927	17,409	161.5	562.8
2009 Q4	6,252	16,707	198.3	584.9
2010 Q1	3,327	16,419	189.1	652.1
2010 Q2	2,088	13,242	146.9	567.9

Source: National Employment and Social Office, Hungary

4. THE INFLUENCE OF THE ECONOMIC CRISIS ON SPATIAL INEQUALITIES OF UNEMPLOYMENT

HAJNALKA LŐCSEI

Introduction

The global financial crisis also created turbulence in the Hungarian economy during the autumn of 2008. A significant and critical sign from society's point of view was the sudden increase in the number and share of jobseekers. The deterioration in the employment situation affected the regions unequally: the effect varied across regions with dissimilar socio-economic character or spatial location, and also appeared differently in time. The aim of the study is to explore these spatial and possibly temporal differences.

Today it is not necessary to explain the importance and aim of analyses which have regional aspects. Development and lagging behind appears specifically not randomly but is often concentrated spatially. In addition the regional aspect is not just a projection of socio-economic features, but also plays a role in the development and subsistence of inequalities, therefore it has substantive explanatory power.⁴⁵

The spatial duality of the Hungarian economy that emerged and stabilized following the regime change primarily due, as it was, to differences in entrepreneurial productivity, efficiency and foreign direct investments, also has a regional character (*Barta 2000, Kukely 2008*). Simply put, the country can be divided into two parts, one having a favourable position, competitiveness and ability to comply with the altered circumstances, and another having a much less favourable situation, hardly attracting FDI and continuously lagging behind. This is because FDI, which creates job opportunities, was not aimed at locations randomly, but preferred regions having an advantageous geographical location and agglomeration economies and which offered a skilled labour force that had experience in modern production techniques (*Fazekas 2000*). It follows that FDI flowing to backward regions with unfavourable labour conditions is still not to be expected.

Both the volume and structure of unemployment mirrors the spatial division of the economy and society. In contrast to the central and north-western part of the country with its favourable position, in East- and South-Hungary not only is the rate of unemployment higher but also the composition of unemployed people is more unfavourable (in terms of education or age structure), additionally the share of permanent and passive unemployment is higher. The examination of the recession-caused changes of the – at least decade long established – spatial structure of unemployment can provide useful information not only for the tools and institutions established to handle unemployment,

⁴⁵ Regional differences in development and the labour market are analysed by several Hungarian researchers (e.g. *Ábrahám–Kertesi 1996, Nemes Nagy–Németh 2005*), and in the background to these inequalities, in addition to structural factors, geographical location was also found. In chapter 1 Köllő used regional variables for the explanation of the decline in working hours, unemployment and wages in 2008–2009, but these variables did not prove to be significant.

but can also give general lessons. The main guideline of the study is therefore the question of what kind of effect the global economic crisis and the extreme recession had on the country's spatial structure of development. Additionally, can the initial apparent equalisation exist over a long period, or can a further sharpening of the already considerable economic and social conflicts generating differences eventually be expected?

To demonstrate the processes of the present and the rapidly changing recent past, the register of jobseekers happened to be the most appropriate vehicle.⁴⁶ The applied database was provided by the PES (Public Employment Service of Hungary) on a monthly basis and with just a couple of months delay. This served as a basis for aggregating data on a microregional level, where spatial processes are most suitable to be analysed. The study therefore takes into account the number of jobseekers and an indicator close to the unemployment rate, namely the changes in the share of jobseekers compared to the 15–64 years old population. In the following the rate of unemployment is identified by these indicators. In order to filter seasonal effects, changes are described in relation to the previous year (population numbers are presented in the ratio of the previous year, while the changes of the unemployment rate are interpreted in percentage point differences).

46 Public Employment Service (PES) registers unemployed persons according to prevailing Hungarian law. This registry was developed for operating and evaluating the toolkit established for dealing with unemployment, so the definition of unemployed workers (lately termed jobseekers) depends on the current employment policy and the rigour of the support system, so it results in higher values than the Labour Force Survey published by the Hungarian Statistical Office. (See Figure 16 in the introductory study of this volume written by Bálint-Cseres-Gergely-Scharle.) The frequency of rule changing causes problems in the temporal and spatial comparison of data, because increasing or decreasing the number of jobseekers depends not only on the demand for a workforce. Before the crisis the number of jobseekers in the PES' registry was increasing, while unemployment was stagnating according to the Labour Force Survey. This difference was obviously due to the change of regulation – e.g. the raising of the retirement age, increasing the severity of disabled superannuation, social security reform. (See also *AFSZ* 2008, pp. 15–16.)

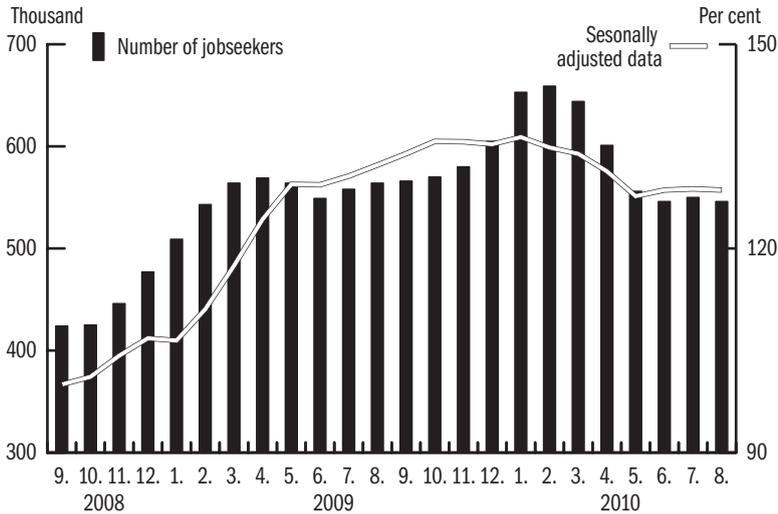
The new wave of unemployment – general trends and periods

There were approximately 424 thousand jobseekers in September 2008 in the registry of the PES, and the share of jobseekers in the 15–64 years old population was 6 percent. These data – not counting a shorter transitional period with seasonal reasons – were continuously in decay until February 2010, when cca. 659 thousand people had no job; this meant a 9.4 percent share. In the longer period commencing from the change in regime this can be named as the second large wave of unemployment, since the situation worsened the last time in the same rapid way at the beginning of the '90s. That time the number of registered unemployed people increased practically from zero (there were 23 thousand registered in January 1990) to more than 700 thousand.

It should be pointed out that the evaluation of “raw” data is difficult due to the in-year change of unemployment. The main reason is that the employment capacity of certain sectors, mainly agriculture, construction and tourism are seasonally fluctuating, and therefore it is a general phenomenon to see the number of unemployed persons increasing in February and March, decreasing in spring and summer, and then increasing again in the autumn and winter period. (Seasonality is in minor part explained by the appearance of entrants on the labour market in July and in January-February.) So the role played by seasonality in the increasing number of jobseekers in 2008–2009 and in the change for the better in spring 2010 cannot be exactly determined. From the pure changes in the number of jobseekers the development of trends can be

concluded only through prediction and care must be taken to eliminate the seasonal effects. The difference between raw and seasonally adjusted data, as well as the increase of unemployment can be seen on Figure 4.1.

Figure 4.1: The number of registered jobseekers in 2008–2010



Note: Seasonally adjusted data, September 2008 = 100%.

Seasonal adjustment is prepared with X-11/12 ARIMA procedure by MultiRáció Kft. on behalf of the PES.

Source of data: PES, <http://kisterseg.afsz.hu/index.php?ts=00&cam=1&kiigbtn=Rajta&chxs=1&mode=kiig>.

On the basis of the speed and nature of changes the past (from autumn 2008 until summer 2010) is divided into four periods.

1) From October 2008 to January 2009 seasonally adjusted data already increased to an appreciable extent, the increase of raw data therefore exceeded the volume normally available in previous years.

2) From January 2009 the growth rate dramatically increased, more and more people became registered by PES. This period lasted until May 2009. In May, though, a slight decrease was seen in the number of jobseekers – by 5000 people or rather 0.1 percentage point in under a month. After filtering out the seasonal effect it is obvious, however, that the trend of the rapid increase had still not been broken at this point. In May 2009 the number of jobseekers was already 33 percent (nearly 140 thousand people) higher than one year earlier.

3) From June 2009 until February 2010 the number of registered people was increasing, but the period of drastic changes had come to an end. Raw data hardly change during the summer, the seasonality caused a much smaller wave in the time series: the number of jobseekers decreased by a few thousand people in only two months (both in June and July). The stagnation in summer and the slight increase in autumn were again replaced by a large volume of in-

flows. During this period, however, the increase in the number of those on the register had rather been influenced by seasonal effects, although the role of the economic downturn was still not negligible.

4) From February 2010 the negative trend seems to turn: first, the seasonally adjusted, then also the raw numbers started to decline. Between March and June the number of registered jobseekers declined to about 100 thousand people. In contrast to the previous year the positive effects of seasonality were not extinguished in 2010 by a wave of dismissals in the other sectors. However the whole improvement cannot be explained by seasonality: in “no recession” years the outflow of only 50 thousand people is usual.

Favourable processes of the last period may warrant further explanation; the improvement, which was also significant apart from the seasonal effects, should be treated carefully. In fact, according to the labour survey of the HCSO there is a decrease in the number and rate of unemployed people, but this improvement is far from being of a great degree, as can be seen from PES data: 25 thousand people or 0.7 percentage points between the 1st and 2nd quarter of 2010. The decrease in the number of jobseekers registered by the PES was also potentially affected by the substantial intensity of the *Back to work* public employment programme.⁴⁷ (See the introductory study of this volume written by Bálint–Cseres–Gergely–Scharle on this programme and its effects.)

The programme, launched in 2009, aimed at improving the employability of a well determined – also incidentally spatially relatively concentrated – social group, the permanently unemployed, who receive regular social allowances. It can be assumed that as a result of the programme individuals have dropped out of the circle of registered jobseekers, which explains the greater part of the differences between the HCSO-ILO and PES registries: passive unemployed persons, who were counted as inactive in labour surveys. To sum up, the significant improvement of the seasonally adjusted number of registered jobseekers is not necessarily a sign of recovery from the crisis, but rather reflects the results of an attempt to solve a long-existing social and employment problem. Proof of this train of thought and the evaluation of the results of the programme is not a specific consideration in a study analysing the labour market effects of the global crisis, but even so cannot be ignored in the assessment of regional processes, since it is not possible to filter out the effect.

Regional diffusion of unemployment

After the infiltration of the global crisis into the Hungarian economy⁴⁸ unemployment – measured by the number and share of jobseekers – began to develop differently not only in time but also spatially. In the following section the regional differences of the effects of the crisis on the labour market are presented, acting upon the previously outlined periods, by comparing spatial pattern and disparities experienced before and at the deepest moment of the crisis.

⁴⁷ Public employment fluctuates seasonally due to the character of the works; during winters it is always less.

⁴⁸ An increase in the number of jobseekers followed the decline in production and output with some delay. Industrial production began to decrease in May 2008, but a increase in unemployment was only perceptible in October 2008, when jobseekers' numbers, over and above seasonal effects, also started to increase. Signs of improvement in the labour market also had a time-lag.

Initial state – regional pattern of unemployment before the crisis

The regional pattern of unemployment has been relatively stable since the second half of the 1990's. The observable regional structure (Figure 4.2) clearly reflects the spatial structure of development. In the triangle formed by the capital and its agglomeration, the M1 motorway, the western border of the country, Lake Balaton and the M7 motorway the rate of jobseekers is the lowest, under 5 percent. Unemployment constitutes the largest problem east of the so-called BB-line (an imaginary line between Balassagyarmat and Békéscsaba), as well as in South-Transdanubia and in micro-regions with no major cities. Particularly critical was (and remained) the state of the micro-regions along the north-eastern border and in a small cohesive zone in Somogy and Baranya along the border of the country, as well as in settlements of the inner periphery of the Közép-Tisza area. In these areas it was not simply the high rate of jobseekers which caused problems, but also its unfavourable structure (high rate of low-skilled and long-term unemployed people). In areas burdened by social and often ethnic tensions, and with low entrepreneurial activity the demand on labour due to the absence of large enterprises is very low, additionally these areas are far distant from cities that could offer job opportunities.

By further generalisation of the above detailed picture it can be concluded that at the turn of the millennium some convergence clubs had arisen among regions and counties: the difference between the group of the 8 counties in West-Transdanubia, Central-Transdanubia, Central-Hungary and the counties in the rest of Hungary became increasingly greater. The economic duality that can be derived from the location and agglomeration economies, and the significant spatial segregation of favourable and unfavourable regions is represented by the strong positive spatial autocorrelation of the rate of jobseekers (Moran's I was +0.73 in September 2008), and also by the spatial clusters outlined upon results of Local Moran's I⁴⁹ (Figure 4.3).

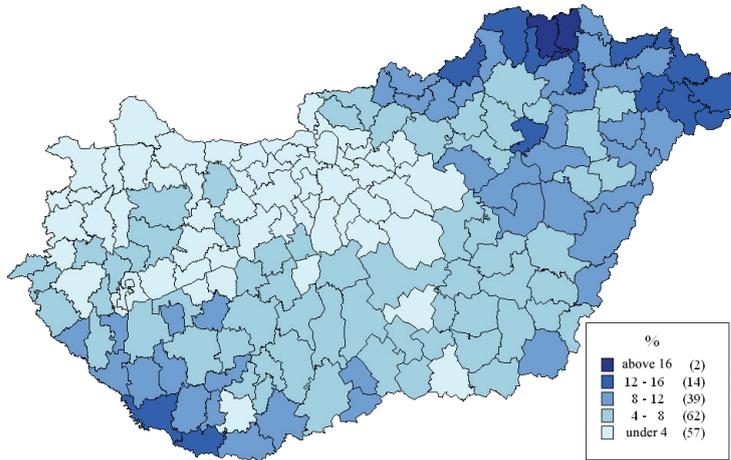
The regional character of changes

In the following we examine how general trends influence the previously presented stable spatial structure of the labour market. Since the shaping of the regional differences of unemployment is closely linked to the drop in economic performance as well as to cutbacks of companies,⁵⁰ it is no wonder that according to both PES statistics and press information *the number of jobseekers in the first period* (namely between September 2008 and January 2009) *increased the most in regions which were previously major centres of industrial production* – that is the northern and north-western part of Transdanubia (Figure 4.4, January). On figures, which exemplify the changes, the index of the *number of jobseekers* depends also on the initial basis [part a) on Figure 4.4]. Where the number of jobseekers was relatively low prior to the crisis, the value of the index has increased rapidly, since a smaller value can be doubled much easier.

49 Moran's I measures spatial autocorrelation, thus the proximity in space. A zero value indicates a random spatial pattern, negative values (up to -1) refer spatial dispersion and positive values (up to +1) mean that similar (high or low) values concentrating in space. Local Moran's I clustering spatial units with statistically significance spatial autocorrelation. (See Dusek 2004, Anselin 1995.)

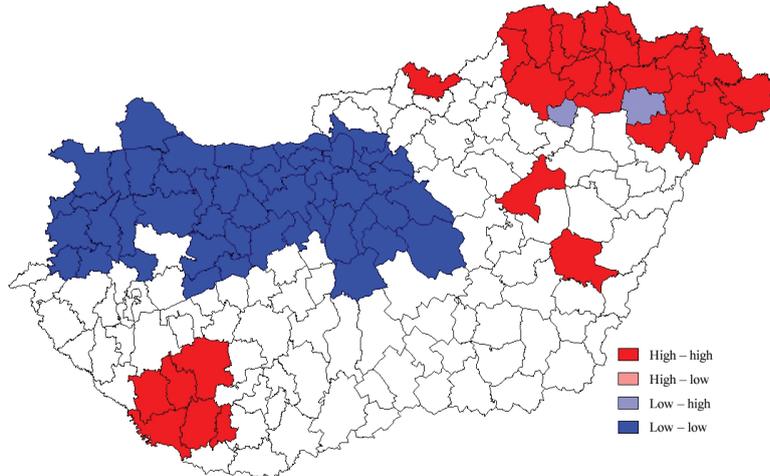
50 The public sector usually provides a safety net during a crisis. Köllő highlights in Chapter 1 that at the beginning of the recession initially wages were shrinking in the public sector, while the market sphere preferred layoffs. See more details concerning major layoffs in Chapter 3 written by Busch and Lázár.

Figure 4.2: The share of registered jobseekers in the 15–64 years old population, September 2008 (percentage)



Source of data: PES, http://www.afsz.hu/engine.aspx?page=full_afsz_stat_telepules_adatok_2008.

Figure 4.3: Regional clusters defined on the basis of the rate of registered jobseekers,* September 2008



* Rook-contiguity, 5% significance level.

The rate of jobseekers in the high-high category is generally high both in the micro-region and in its neighbourhood; in low-high category it is low in the micro-region but high in its surroundings, in low-low category it is low both in the micro-region and in its neighbourhood, and in high-low category it is high in the micro-region, while low on average in the neighbourhood.

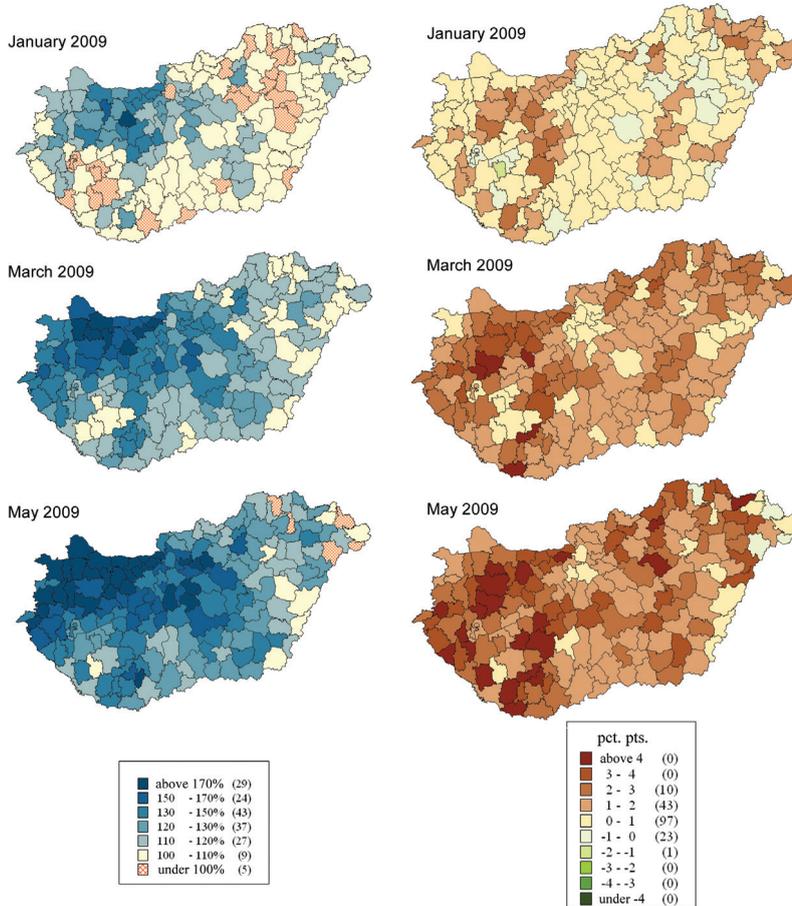
Rook-contiguity: the neighbourhood relation exists if regional units share a common border with non-zero length, since association of spatial units in only one point is less relevant in connection with socio-economic relations.

Source: Own construction by the application of Geoda programme

Figure 4.4: The change of the number (a) and share (b) of registered jobseekers in relation to the same period of the previous year

a) the same period of the previous year = 100%

b) in relation to the same period of the previous year in percentage points



Source of data: PES, http://www.afsz.hu/engine.aspx?page=full_afsz_stat_telepules_adatok_2009.

This approach well illustrates the spectacular and shocking changes. The annual change of the rate of jobseekers [part b) on Figure 4.4] shows a more factual regional image. The changes have begun to spatially concentrate primarily from November, most spectacularly so in the northwest. This may easily distract attention from other large loser micro-regions in the underdeveloped parts of the country.

In centres of manufacturing industry in Komárom-Esztergom, Fejér, Győr-Moson-Sopron and Vas counties (e.g. in Komárom, Esztergom, Tatabánya, Mór, Székesfehérvár, Győr, Szombathely) as a result of the large companies' holding back production and substantial layoffs, there were 1,5–2 times more

jobseekers registered in employment centres of the area prior to January 2009 than one year before. The record holder in January was the micro-region of Mór, where the volume of increase was 170 percent. On the contrary, if we were to look at a reverse map of development, the situation has deteriorated slightly in the poorer regions of the country and moreover the rate of jobseekers even decreased in 28 micro-regions. The strong impact of the crisis can be observed among those Northwestern-Transdanubian regions, where a major part of the workers were commuting to the nearby large cities' manufacturing companies, i.e. inside the triangle formed by the capital, the M1 motorway, western border, Lake Balaton and the M7 motorway.

The second period from February until May 2009 is *the phase of the diffusion of the crisis*. The number of job seekers increased from month to month, in May only very few regions remained in Hungary where the effects of the crisis were not perceptible through the significantly increasing number of registered jobseekers (Figure 4.4, March and May). The impact of the crisis was not limited to the environment of the export-oriented manufacturing facilities already affected, but became general and affected more and more sectors and regions. At the same time it was still perceptible the most in inner peripheries of the north-western part of the country.

The maps began to darken spectacularly from March, namely the one-year rate was significantly increasing in a growing number of micro-regions by more than 3 percentage points. In this phase of diffusion an important role was played by contiguity, since impacts of the layoffs of certain large companies extended throughout the whole economy, and in all agglomerations of micro-regions with close connections the rate of jobseekers increased. (This was proven by the Moran's I index calculated for the *change* of the rate of jobseekers. The index reached the annual maximum in June 2009 with a value of +0.37, and then began to decrease, and strengthened its role again only in the *fourth period*.)

The economic crisis did not cause too great a shock on the labour market in most parts of the regions which lagged behind (beside the eastern border of the country, in South-Transdanubia, in micro-regions of Bács-Kiskun country close to the Danube or to the border, or in the Central-Tisza area). In addition to the external and internal peripheries also less influenced were Paks and Tiszaújváros⁵¹ with industries of strategic importance, while in regions of Dunaújváros, Százhalombatta, Kazincbarcika and Diósgyőr the major factories made significant layoffs, or in some cases it was just delayed by the promise of state support.⁵²

The changes were slight in the capital and the agglomeration, however the "unaffected" zone was getting narrower. It seems that the economy and the labour market of Budapest were less shocked by the recession. Although the absolute number of jobseekers increased to a 1.5 times higher value prior to May 2008 compared to the previous year this resulted in only a minor increase in relative indices (the increase is from 2 to 3 percent, namely only 1 percentage

51 Another important company in Tiszaújváros is the Jabil Circuit, whose intention to make cutbacks became public in February 2009. It affected 900 workers.

52 E.g. in Kazincbarcika (Borsodchem – chemistry company) and in Dunaújváros (ISD Dunaferr – steel production).

point). Similarly the values were not increased significantly in the Balaton region; some surveys say this area could have been a temporary winner of the crisis, since instead of travelling abroad Hungarian tourists preferred to choose domestic destinations in 2009.⁵³

In the third period, when the number and the rate of unemployment were primarily determined by seasonal effects, the spatial pattern of the increase in unemployment remained stable. There were only slight changes regarding both indicators, but these alterations refer clearly on further diffusion of the crisis. On the labour market of almost all regions the processes having a negative direction became perceptible, in accordance with the preliminary expectations the number and the share of registered jobseekers increased from the autumn.

It should be noted among the changes that the crisis also appeared increasingly in Central-Hungary. The difference between the annual and previous year's rate of jobseekers compared to the employment age population was slowly but steadily increasing in Budapest and in the surrounding micro-regions. The main reason is that in the economy of Budapest the service sector is predominant suffering higher losses at a later time in comparison with the export-oriented industrial branches, additionally local companies were probably able to pass on unfavourable labour market effects of the crisis to the peripheries. (A good example is the bank sector, where offices in rural areas with fewer turnovers have been closed first.) The increase of the capital's and its neighbourhood's unemployment rate were also delayed by the fact that unemployed people in unfavourable regions attempt to find new jobs initially on their own, and only register themselves in labour offices when they are not successful after a couple of weeks. Here, the seasonally affected usual increase in July in the number of unemployed entrants was generally perceptible later, around September.

Starting from autumn the increase of the number of registered jobseekers was caused by the seasonal change in the labour needs of some economic branches, since the demand on the labour force decreases in the winter season in tourism, the construction industry and agriculture. It is a usual phenomenon that the number of jobseekers rises the most in late autumn particularly in the tourist region around Balaton and secondly in the agricultural areas of the Great Plain.

In this period there was no change except in the most underdeveloped external and internal peripheries of the country: the already very high values have not become worse. Moreover, the situation has improved in a couple of micro-regions (also perhaps as a result of public employment programmes).

The assessment of the data for 2010 is distorted by some methodological problems. The rate of jobseekers increased significantly from December 2009 to January 2010 (from 8.6 percent to 9.3 percent), although this was not only caused by the growing number of job-searching individuals, but also by the decrease in the 15–64 year old population.⁵⁴ Its effect was not the same in all regions: in areas with a migration surplus and with agglomerations with an

53 Press announcements concerning this at : <http://www.c-travel.hu/hirek/gorogbalatonc-travel2009>, http://www.vallalkozoinegyed.hu/20091002/megusza_a_valsagot_a_balaton

54 As a denominator the number of the population registered in January of the previous year is used.

increasing number of residents the above mentioned effect amends the unemployment indicator, while in regions that were losing population (e.g. in South-Transdanubia or North-Hungary) it fosters worsening tendencies.

After all, what kind of spatial processes can be discovered from 2010 data? By regional analysis of the layoffs in spring 2010 (Figure 4.6) it can be confirmed that the positive turn can be explained not merely by seasonal factors.

In the first quarter of 2010 the labour situation improved the most partly in areas of the Great-Plain having an agricultural character, as well as in micro-regions with a tourist profile around Lake Balaton. In April and May the rate of jobseekers surprisingly decreased in regions which were lagging behind the most and were affected the most by unemployment (Cserehát, Szatmár, Ormánság). This is also remarkable, since in these areas the number of registered jobseekers had previously not increased due to the crisis. It is unlikely that in these regions, which were beset by social problems and permanent unemployment, new job opportunities would have been created. The spectacular change may rather reflect the results of the endless intensity of public employment programmes. Beside the effects of seasonality and the results of public employment a third factor could have played a role in improving the national average. Primarily in May and June a positive shift can be noticed in micro-regions as well as in their labour agglomeration, where companies of export-oriented manufacturing are concentrated. Namely unemployment is also decreasing in West and North-Transdanubia. It has to be said however that the effects of the public employment programme, the seasonal factors and the market processes cannot unfortunately be separated.

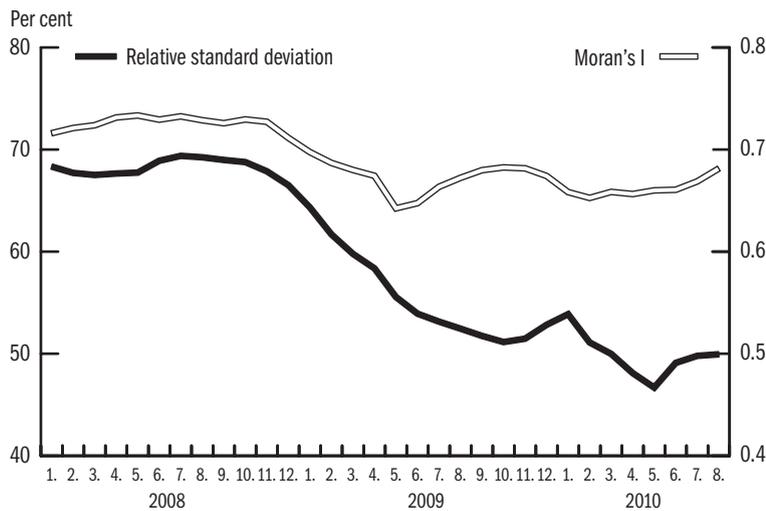
It seems however somewhat strange that the improvement can still not be perceived in the agglomeration of Budapest, since in this area the number and share of jobseekers were still growing in spring 2010 compared to the previous year. This is especially interesting in respect of the fact that it is about the most developed part of the country, where the labour market remained relatively stable even at the deepest point of the crisis, and the share of jobseekers in the employment age population has not reached even half the national average – not even exceeding 4%. It seems that the labour market of the agglomeration of Budapest reacts to boom and bust waves with something of a delay, and that the target group of the *Back to work* programme is represented by a relatively small weight in the region's population.

Temporary (?) regional equalisation and the altering of the spatial structure

By the summer of 2010 the recession had still not finished and the level of employment and unemployment did not even approximate the level before the crisis. It is, however, worth summing up the effects of the previously mentioned changes on the spatial differences and structures of the labour market.

Changes have led to a specific regional equalisation, since in a substantial part of the regions being in a favourable position and having previously low data, the rate of jobseekers has increased and got closer to the national average. The inequality indicator of relative standard deviation calculated on the rate of jobseekers, which was previously stabilized at a high level, was almost continuously decreasing from September 2009 (Figure 4.5). The crisis had an effect solely with regard to the direction of the priority of regional development policy by the reduction of inequalities. The only problem is that not the improvement of the situation in the underdeveloped regions is standing in the background. In spring 2010 regional equalisation continued, and in contrast with previous processes this was due to the improvement in the number of jobseekers of lagging regions and not of developed areas.

Figure 4.5: Spatial inequalities and autocorrelation of the rate of jobseekers at microregional level, January 2008 – August 2010



Source: own construction

In accordance with Figure 4.5 the Moran's I values that measure the stability of the spatial structure were also decreasing following the onset of the crisis, which refers to the dissolving of the strong spatial segregation of favourable and unfavourable regions. The extent was however meant not to be important: it decreased from the initial value of +0.73 to +0.64 prior to May 2009, but changed in the direction of stabilisation again after. The role of contiguity remained important.

Comparing the spatial image of the rate of jobseekers in August 2010 (Figure 4.7) with the maps of the initial states (Figure 4.2), it can be concluded that *the spatial structure of unemployment has not changed significantly*. It is still valid that the rate of unemployment is larger than average in the micro-regions of South-Transdanubia or east of the Balassagyarmat – Békéscsaba axis, the only exceptions being the micro-regions of large central cities. The number of re-

gions in a relatively good position sharply decreased, the rate remained under 4 percent only in micro-regions around Budapest, as well as near the western border of the country and in the micro-region of Balatonfüred. Despite the fact that the number of jobseekers increased significantly in more developed regions of Northwestern-Transdanubia, the rate was still a lot lower than in the already lagging regions of the country.

The maps of Local Moran's I refers also to the stability of the spatial structure (Figure 4.8). The spatial allocation of the clusters has not changed to any great extent since September 2008 (Figure 4.3).

Regional polarisation which is also perceptible by unemployment eventually dissolved to no great extent as a result of the crisis. There were changes particularly in the north-western part of the country, additionally by the end of the period examined (until August 2010) a kind of reordering could be observed.

Differences along the structure of settlements

In addition to geographical location the characteristics of the settlement network can also significantly affect the inequalities of the socio-economic features, although the role of the settlement structure is smaller than that of the geographical location (*Nemes Nagy–Jakobi–Németh* 2001). Within the framework of this examination 8 categories were created first of all based on the size and secondly on the central function of the settlements. The main characteristics of the categories are presented in Table 4.1.

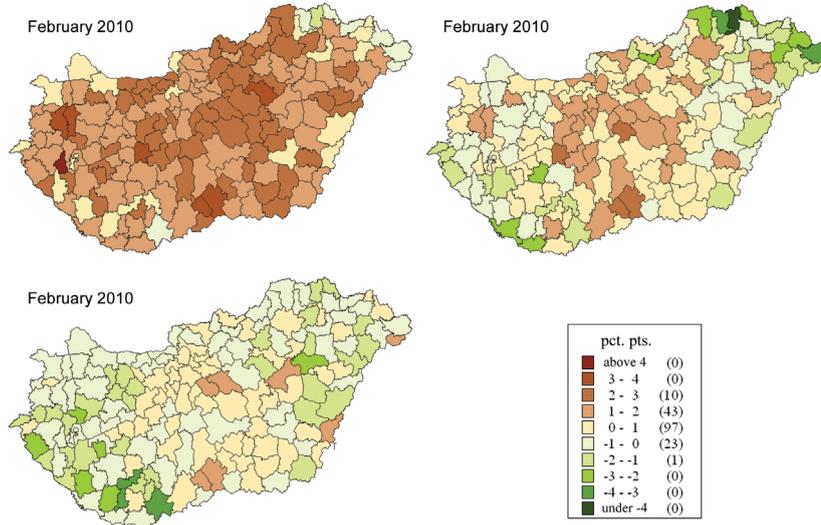
Table 4.1: Differences of unemployment according to regions and categories of settlements before the appearance of the crisis, September 2008

Settlement categories	Share of population (%)	Share of jobseekers in the 15–64 year old population (%)							
		Hungary	Central-Hungary	Central-Transdanubia	West-Transdanubia	South-Transdanubia	North-Hungary	North-Great Plains	South-Great Plains
Budapest	16.6	2.0	2.0						
Cities of county rank*	20.3	4.9	2.1	3.8	3.5	5.1	7.9	5.4	5.0
Population between 10–40 thousand	22.4	5.6	2.4	4.4	3.1	7.5	9.1	8.7	6.5
Population between 5–10 thousand	9.5	7.2	2.7	4.9	4.4	6.1	9.9	10.7	8.2
Population between 2–5 thousand	14.8	7.7	3.4	4.5	3.3	7.7	10.6	12.7	7.5
Population between 1–2 thousand	9.0	9.0	2.9	4.7	3.8	9.8	12.7	14.0	8.4
Population between 500–1000	4.7	10.3	4.0	5.4	4.7	11.7	14.2	17.4	10.7
Population under 500	2.7	11.6	3.2	6.9	5.9	15.2	16.2	18.4	9.8
Total	100.0	6.0	2.3	4.5	3.8	8.3	10.5	9.8	6.8

* Cities of county rank are all the 18 capitals of the counties and the cities that have larger than 50,000 residents (Sopron, Nagykanizsa, Érd, Dunaújváros, Hódmezővásárhely)

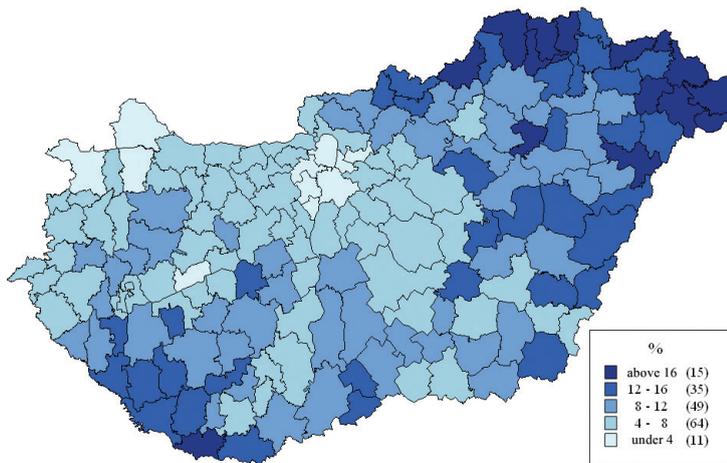
Source: Own construction based on PES data

Figure 4.6: The change in the rate of the number of registered jobseekers in relation to the same period of the previous year (in percentage points)



Source of data: PES, http://www.afsz.hu/engine.aspx?page=full_afsz_stat_telepules_adatok_2010

Figure 4.7: The share of registered jobseekers from 15–64 year old population, August 2010 (percentage)

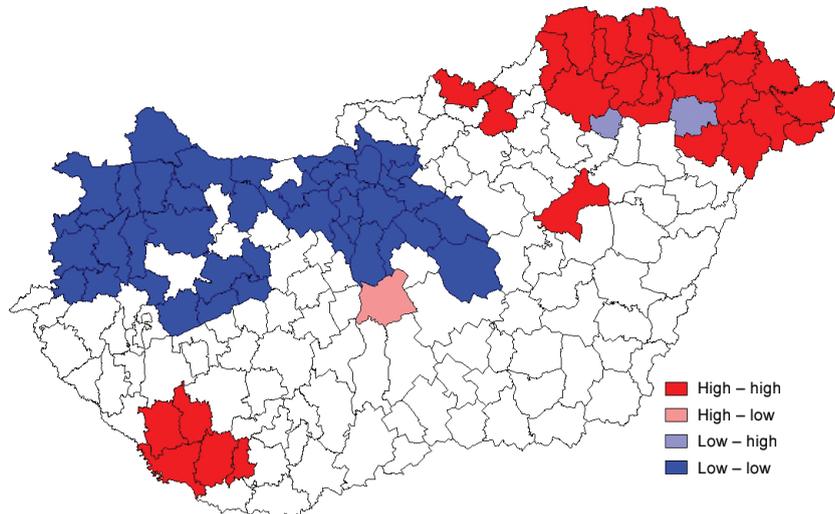


Source of data: PES, http://www.afsz.hu/engine.aspx?page=full_afsz_stat_telepules_adatok_2010.

It can be concluded that the higher the rate of jobseekers the smaller the population of the settlement appears to be. At the same time this rule prevails less in more developed regions (Central-Hungary, Central-Transdanubia, West-Transdanubia), while in lagging parts of the country the disadvantage of the

settlements at a lower level of the hierarchy and with less service functions is obvious. In addition, within the same settlement category there are much stronger differences among the regions than within a certain region among the different settlement types.

Figure 4.8: Regional clusters defined by the rate of registered jobseekers, August 2010



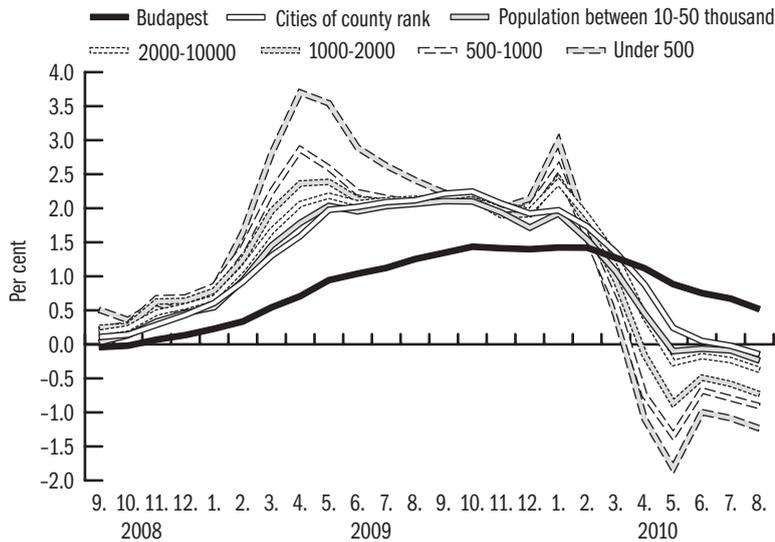
Source: Own construction by the application of Geoda programme. See also note for Figure 4.3.

Looking at Figure 4.9, which demonstrates changes of the rates for settlement categories in time, it can be concluded that there were larger differences among categories only in the period when the number of jobseekers rose suddenly or dropped significantly. In the period of regional diffusion – from January until May 2009 – the larger urban centres have consequently devolved the negative effects of the crisis onto smaller settlements, where the rate of jobseekers increased by 3–4 percentage points in one year, but this still means a lower increase in relation to the already high (typically 10–12 %) values. Later, during the period of slow growth, however, the differences between settlement categories have become blurred, and the effects of the crisis have also become general in this dimension; in the second half of 2009 the volume of the annual change was already around 2 percentage points in all categories. (The outstanding values in January 2010 can possibly be traced back to administrative and methodological factors.)

In spring 2010 a similar process can be observed as in the second phase, but this time the relationship is reversed: the smaller villages with an unfavourable position have improved their values the most. This of course is in connection with regional specificities of the country's settlement structure: the majority of the small and tiny villages and the lagging and disadvantaged labour areas are

concentrated in the same geographical spaces (North-Hungary, South-Transdanubia, as well as in the peripheries of Szabolcs-Szatmár-Bereg county), hence the beneficial effects of public employment programmes can be observed in both categories. (Note, however, that the relation between settlement size and development is not obvious, a counter-example can be the favourable position of small villages in Vas county or around Lake Balaton.)

Figure 4.9: The change of the rate of jobseekers between September 2008 and August 2010 (deviation from the same period of the previous year, percentage points)



Source: Own calculation based on PES data.

The settlement categories are tracking approximately the same path, namely that the increase and decrease of unemployment happens at a similar time, there are only differences at certain periods in the extent of the changes. A single, but more important exception is the special and differing character of Budapest, which can be also observed in calculations based on settlement hierarchy.

Summary

The impact of the crisis on the labour market appeared with a differing strength geographically. Initially, the number of jobseekers increased considerably in areas of export-oriented (industrial) enterprises, i.e. the most developed rural regions, among them the source areas of commuting experienced the most spectacular recession. Later, however, as a result of the common effects (forint crisis, lack of credits, decrease of domestic demand), the increase of unemployment also became a general phenomenon, and caused problems in regions characterised by poorer conditions and less favourable labour market posi-

tions. Geographical location and settlement structure already differentiated the changes to a small extent

Overall, the also spatially perceived duality of unemployment eased up somewhat until the deepest point of the crisis. In regions, which could be termed developed ones, the above average increase of unemployment or the so-called downward nivellation is partly observable, meanwhile the differences between the capital (together with its agglomeration) and the rest of the country have not been dissolved.

The group of jobseekers who lost their jobs as a result of the crisis is significantly different from the group of permanent jobseekers: newcomers are better educated and more likely to be traced back to the world of work (*Fazekas-Ozsvald* 2010). So the question is in which regions and with what speed the economic processes of increasing labour demand are able to be regenerated. In spring 2010 the signs of recovery in the industrial sector are perceptible, the value of orders or the level of exports and production have increased, and also the press were reporting continually about new investments and the creation of new workplaces. The habits of choosing the locations where foreign direct investment is made however have not changed; the previously evolved economic centres are still the prime destination areas of investments. In fact the most vulnerable areas are those where the effects of the crisis could be long lasting. There is little chance to complement large companies, which vegetated since the transformation of the regime and became bankrupt in 2008–2009. So not only a reversal to the former polarised structure, but also a strengthening of the differences are possible scenarios.

Previously no governmental instruments could have changed the stable spatial structure considerably, therefore it can be regarded as a positive process that in recent months the number of jobseekers has also been reduced in the poorest regions with the highest unemployment rate. This is particularly notable in respect of the fact that the most remarkable layoffs did not affect these peripheral regions. It is also known however that the improvement of these areas is not the result of the economic revival. It is to be feared that the positive phenomenon is temporary, and persists only until the funds of the programme are accessible. The easing of differences and tensions, which also appear spatially, cannot be attained in the short term, and not only requires the use of employment policy, but is also linked with the necessity and justification of regional development policy. Preserving jobs is also very important in a crisis, but the harder task – which was also urgent even before the crisis – is to “create” jobs and to stimulate the economy.

4.A) THE IMPACT OF THE CRISIS AMONG THE MOST DISADVANTAGED MICRO-REGIONS

ALBERT FALUVÉGI

Given the unbalanced nature of regional (socio-economic) growth, programmes aimed at regional development may at best moderate the processes that accentuate inequalities but cannot stop them. Regional divergence has grown to the point of creating an unacceptable degree of inequality of opportunity and, as such, hampering economic development.⁵⁵ The development programme targeting the most disadvantaged micro-regions warns that the developmental gap between micro-regions gives rise to social inequalities passed on from generation to generation. Several micro-regions have to face a growing problem of poverty, unemployment, an absence of operational businesses and quality public services and a lack of opportunity. These processes leave the Roma population especially vulnerable. In response to this problem, at the end of 2007 the government identified the 33 most disadvantaged micro-regions based on statistical indicators of underdevelopment.⁵⁶

The 33 micro-regions

The 33 most disadvantaged micro-regions are persistently underdeveloped areas, internal and external peripheries concentrated in Northeast and Southwest Hungary. In addition to their poor accessibility, their critical position also follows from the absence of regional centres capable of providing operative services for their area, the unfavourable age and educational composition of their populations, their inadequate economic structure and the scarcity of resources (a shortage of capital and the migration of trained labour).⁵⁷

These regions are essentially rural areas in the sense that their population density is well below the national average and a higher than average share of the population work in agriculture. These persistently underdeveloped micro-regions have been subject to socio-economic erosion with the risk of rural slum formation attracting social groups excluded from the labour market and from urban areas. The geographical isolation of their population constitutes a serious obstacle to their return to the labour market.

The population living in the settlements of these regions are typically inactive and financially dependent. The main threat is not so much ageing or depopulation but segregation and a high fertility rate coupled with a high proportion of young people having low educational attainment, which can lead to the intergenerational transmission of poverty.

Selection criteria for the 33 most disadvantaged micro-regions in Hungary

The 33 most disadvantaged micro-regions [Figure 4.A)1] of Hungary's 174 micro-regions are those accommodating ten per cent of the country's inhabitants in total and ranked lowest in a scale defined by the combination of five – economic, infrastructural, social, welfare and employment – indicators comprehensively measuring development/underdevelopment.⁵⁸ The task of narrowing the gap between these regions and the rest of the country requires a complex intervention programme.

According to the census of 1 January 2009, the total population of the 33 micro-regions was 931 thousand people, 31 thousand fewer than at the beginning of 2007. 55 of the 719 settlements located here are towns and the average size of settlements is 1,294 inhabitants.

Main attributes of the most disadvantaged regions

Of the 33 micro-regions that can benefit from a comprehensive programme 8 are situated in Southern Transdanubia, 12 in Northern Hungary, 8 in the Northeast and 5 in the Southeast. Their populations are highest in Northern Hungary followed by Northeast Hungary, Southern Transdanubia and Southeast Hungary.

⁵⁵ Hungarian Regional Development Plan, 2005. Hungarian Parliament Resolution 97/2005(25/12).

⁵⁶ Government Decree 311/2007 (17/12) based on Hungarian Parliament Resolution 67/2007 (28/6).

⁵⁷ According to Census data of 2001, 24 of the 33 most disadvantaged micro-regions had a significant Roma population.

⁵⁸ See *KSH* (2008) for details on the selection of micro-regions of special status.

On 1 January 2009, 13 of the most disadvantaged micro-regions had populations of fewer than 20 thousand people. 5 of these are situated in Northern Hungary, 4 in Southern Transdanubia, 1 in Northeast Hungary and 3 in the Southeast. In most of these micro-regions there are no population centres, or not sufficiently developed ones, that could provide adequate public services. One of the centres located in a micro-region with fewer than 50 thousand inhabitants is the town of Ózd, whose previous role as an industrialised, regional motor of development has withered spectacularly. With their agricultural background diminished, the micro-regions of Berettyóújfalu and Mátészalka are also unable to replicate their past achievements.

The lowest third of the 33 most disadvantaged micro-regions have a developmental complex indicator value of between 1.51 and 1.87, the micro-regions in the middle of the scale are characterised by values falling between 1.89 and 2.07, and the values for the top third range from 2.09 to 2.17. Among the most disadvantaged, the micro-region in Southern Transdanubia has the highest weighted indicator value, with the average of Northeast Hungary not far behind. After a longer gap comes Northern Hungary and the micro-regions in Southeast Hungary are in the worst position.

The impact on the economic crisis among the most disadvantaged micro-regions

As a result of their poor economic position and the large share of unskilled labour, the most disadvantaged micro-regions almost immediately responded to the crisis. The rate of employment among their population dropped by 1.9 per cent as early as the fourth quarter of 2008 and the decline continued from quarter to quarter in 2009 [4A) Table 2]. The steepest decrease is observed in the first quarter, when employment in the 33 most disadvantaged micro-regions fell by 4.8 per cent compared to the decrease of 4.5 per cent measured in the 61 disadvantaged regions and “only” 2.4 per cent observed in the 80 relatively developed micro-regions.

In the fourth quarter of 2008, the most disadvantaged micro-regions had an employment rate of 44.7

per cent among the 15–64 year-old population, and the average rate for 2009 remains below this figure. The steepest decline, 1.4 percentage points, is observed in the first quarter of 2009. During this period the lowest micro-regional employment level was less than half that of the highest. The highest values are observed in the micro-regions of Vác and Szob, while at the other end of the scale we find the micro-regions of Baktalórántháza and Hajdúhadház. In the fourth quarter of 2008, the 61 disadvantaged micro-regions had an employment rate of 51.4 per cent, and the corresponding figure is 59.7 per cent for the 80 relatively developed micro-regions. The decrease in employment in the first quarter of 2009 is, respectively, 1.6 and 1.4 per cent.

In the summer of 2009, the economic austerity measures put a freeze on hiring in the public sector but mass layoffs did not take place here. The workforce decreased by only 0.6 per cent in total, or even increased slightly taking into account those participating in subsidised public works programmes. Although the group of workers separated from their jobs in the private sector and the group of public works participants have markedly different characteristics, the negative labour market consequences of the crisis were nevertheless somewhat dampened by the intervention programmes.

The most disadvantaged micro-regions have had the highest unemployment rate for 10–15 years. This situation has been further exacerbated by the crisis [4.A) Table 3]. The negative effects of the crisis appeared earlier in the most disadvantaged micro-regions than they did in other areas and remained perceptible throughout 2009. In the third quarter of 2008 the average unemployment rate of the 33 most disadvantaged regions was 17.9 per cent, compared to 11.6 per cent for the 61 disadvantaged micro-regions and 5.6 per cent for the relatively developed micro-regions. Although by the fourth quarter of 2009 the most disadvantaged micro-regions had moved closer to the national average, their unemployment rate peaked in this period during the crisis. The highest unemployment rate of 26.4 per cent experienced in the Encs micro-region was ten times as high as the

lowest value of 2.5 measured in the Sopron-Fertőd micro-region.

The rise in unemployment among the micro-regions under analysis commenced in the fourth quarter of 2008, and it was exceptionally steep in the 33 most disadvantaged micro-regions: 3.8 percent-

age points. The upward leap in the unemployment curves for the other two groups of micro-regions appeared in the first quarter of 2009; the average rise was 1.5 percentage points for the relatively developed micro-regions and 2.2 percentage points for the disadvantaged micro-regions.

Table 4.A)1: The 33 most disadvantaged micro-regions by increasing order of complex indicator of development intervals

Region	1.51-1.87	1.89-2.07	2.09-2.17	Population weighted average of complex indicator
Southern Transdanubia	Selye	Sásd, Csurgó,	Szigetvár, Kadarkút, Barcs, Tamás, Lengyeltóti	2.07
Northern Hungary	Abaúj-Hegyköz, Bodrogköz, Mezőcsát, Encs,	Szikszo, Ózd, Edelény, Heves, Szerencs, Bátorterenyei	Tokaj, Sárospatak	1.92
Northeast Hungary	Csenger, Fehérgyarmati	Berettyóújfalú, Nyírbátor, Vásárosnamény	Baktalórántháza, Mátészalka, Tiszafüred	2.03
Southeast Hungary	Mezőkovácsháza, Sarkad, Jánoshalma, Bácsalmás,		Kistelek	1.83

Source: *KSH* (2008).

Table 4.A)2: Employment rates in the three groups of micro-regions by quarter

	2008				2009			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Relatively developed micro-regions	59.2	59.4	60.2	59.7	58.3	58.6	58.2	58.3
Disadvantaged micro-regions	50.9	51.5	52.4	51.4	49.8	50.5	50.8	50.7
The most disadvantaged micro-regions	44.3	44.8	45.6	44.7	43.3	44.2	46.9	44.2
Per cent of national average								
Relatively developed micro-regions	105.5	105.1	105.1	105.3	105.8	105.4	104.9	105.0
Disadvantaged micro-regions	90.7	91.2	91.4	90.7	90.4	90.8	91.5	91.4
The most disadvantaged micro-regions	79.0	79.3	79.6	78.8	78.6	79.5	84.5	79.6

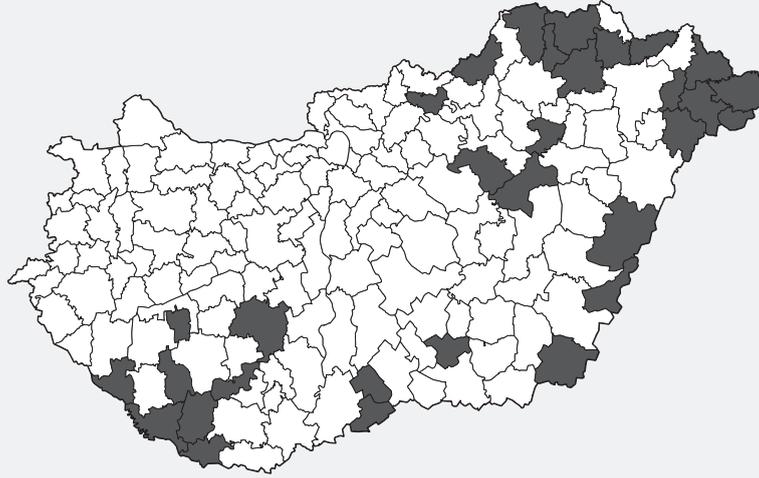
Source: Author's calculations based on *KMSR – Micro-regional Labour Statistics System*, micro-regional data estimates for 15–64 year-old population. Method: *MultiRáció Kft.* (2008).

Table 4.A)3: Unemployment rates in the three groups of micro-regions by quarter

	2008				2009			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Relatively developed micro-regions	5.9	5.5	5.6	5.8	7.3	7.4	8.3	8.5
Disadvantaged micro-regions	11.9	11.6	11.6	12.1	14.3	13.9	14.5	14.3
The most disadvantaged micro-regions	18.2	17.8	17.9	21.7	21.2	19.8	20.0	20.2
Per cent of national average								
Relatively developed micro-regions	73.5	72.2	72.5	72.5	75.0	77.0	79.6	80.8
Disadvantaged micro-regions	148.6	150.9	150.4	150.7	147.3	144.6	139.4	136.1
The most disadvantaged micro-regions	227.6	232.8	230.7	270.2	218.6	206.0	193.2	192.4

Source: Author's calculations based on *KMSR – Micro-regional Labour Statistics System*, micro-regional data estimates for 15–64 year-old population. Method: *MultiRáció Kft.* (2008).

Figure 4.A)1: The 33 most disadvantaged micro-regions



Source: KSH (2008).

4.B) TRAVEL TIME AND THE URBAN-RURAL WAGE DIFFERENTIAL*

TAMÁS BARTUS

In the previous chapter, Lócsei argued that the impact of the world economic crisis on unemployment was relatively large in the economically developed regions of Hungary, including Budapest and the adjacent micro-regions, as well as the north-west part of the country; however, the effect was small in the economically backward micro-regions, which are situated in north-eastern and southern Hungary. Why does the level of unemployment in backward micro-regions remain stable despite the economic crisis? One possible explanation stresses the fact that high costs of daily commuting might prevent rural residents from finding employment in urban areas (Köllő 1997, Kertesi 2000). Although there is some evidence that commuting costs are indeed high (Köllő 1997, 2002, Kertesi 2000, Bartus 2003, 2007), it is still unknown whether they are compensated by possibly higher urban wages. Obviously, commuting costs alone do account for rural unemployment, if they do not exceed the expected wage gain from commuting. In this chapter, we make an attempt to estimate the expected gains of commuting from villages to larger towns, and to compare those expected gains to estimated costs of commuting.

Methods

Our research describes the spatial distribution of settlement-level wages in six local labor markets. Each of the local labor markets consists of a city center and surrounding villages. The centers are large Hungarian towns, namely Pécs, Szeged, Debrecen, Nyíregyháza, Miskolc and Győr. The vast majority of villages having high unemployment rates are situated in the micro-regions surrounding the selected towns, with the exception of Győr, which was selected only for the purpose of comparison. In addition, with the exception of Debrecen and Nyíregyháza, the selected towns are far from each other, thus our setting is close to the classic monocentric model of urban economics, in which decisions about residential locations are assumed to be influenced by the distance to a single city center. We, however, do not assume that all jobs are located in the CBD (central business district); rather, we assume that “good” jobs are all in the CBD and “bad” jobs can be found everywhere in the labor market.

* The research was financially supported by the National Science Foundation (OTKA), grant number F 68693.

The boundaries of the local labor markets were defined in terms of travel time on public transportation. More specifically, the labor markets embrace villages from which the city center can be reached by traveling one hour or less on public transport.⁵⁹ The data on travel times come from time schedules of the state railway and bus companies in January 2006.⁶⁰ Our analyses focus on the commuting decision of people who completed a vocational secondary degree or less, and who seek full-time employment in the private sector. Therefore, during the calculation of settlement-level average wages, we only considered the wages of full-time employees who work in the private sector and have poor education. The focus on people with poor education is natural, since the vast majority of the unemployed completed only vocational secondary education or even less. We will ignore the public sector and the regulated wages therein, partly because private sector employees might be less willing to reimburse travel expenses of workers. Our focus on full-time employees is motivated by studying the possible effect of pure spatial mobility, without considering changes in working time.

The wage data were taken from the 2005 wave of the Hungarian Wage and Employment Survey (*Bértari-*

59 Using data from a survey which was conducted among unemployed people who happened to find a job and found a job in March 2001, we found that the vast majority, 80 percent of commuters travel one hour or less per day, and there are hardly any workers who spent two hours on commuting (Bartus, 2008). The one hour threshold therefore is very likely to guarantee the inclusion of villages from which travel to centers is very costly.

60 The time schedule data were kindly provided by the National Development Office. Although our wage data refer to May 2005, time schedule data collected in 2006 are very likely to be reliable measures of time schedules in 2005.

61 In 2005, the Hungarian Central Statistical Office carried out a micro-census which contains settlement-level information on the number of commuters. Using that data, it could be possible to assess the reliability of our estimates concerning the net gains from commuting. This is one reason that we use wage data which refer to 2005. Another reason is highway construction in the region of three of the selected towns, namely Nyíregyháza, Debrecen and Szeged, which might shorten the travel time from some villages to the center.

62 For each employee, either the hourly wage or the monthly wage is reported. If the latter occurs in the dataset, the hourly wage figure was calculated by dividing the monthly wage by 176, the number of working hours for full-time employees in May 2005, the month when the data collection took place.

fa). Although the data on travel times were collected in 2006, we believe that the use of wage data from 2006 or later might be biased.⁶¹ The settlement-level wages are means of the gross hourly wages reported by employees with the characteristics described in the above paragraph.⁶² We used settlement-level rather than individual-level wages since our purpose is to estimate the expected returns to commuting. The method of assessing the expected gains of commuting is as follows. Consider the individual who lives in a village at distance t from the city center. At their place of residence, the average wage is $W(t)$; in the city center, the average wage is $W(0)$. The expected gain of commuting to the city are reflected by the estimated coefficient $-b$ of the regression model

$$W(t) = a + bt. \quad (1)$$

(Changing the sign of the coefficient is necessary because b measures the expected *decrease* in the average wage when one leaves the center and travels time t .)

Provided that travel costs are the linear function of time, the comparison of the expected gains and commuting costs is as follows (Manning, 2003). Assume that utility of individuals depends on the sum of wage income and the income from household production. One hour unit of household production results in household income H . Let C be the monetary cost of traveling one hour. If residents of villages work in the place of residence, they get $8W(t)$ each day. If they commute, they earn $8W(0)$ each day. Commuting incurs the monetary costs Ct and time costs $2Ht$ (note that t refers to one-way trips). Living at distance t might have the additional gain of reducing housing costs by Lt each day. The spatial wage gradient $-b$ creates incentives to commute only if

$$8W(0) - 8W(t) \geq Ct + 2Ht - Lt. \quad (2)$$

The assessment of the inequality is difficult for two reasons. First, the monetary costs of travel on public transport actually depend on travel distance instead of travel time, but unfortunately, our data do not cover distances. (However, we could have estimated travel costs by using the information on prices and imputing distances from travel time using additional data sources.) Second, we are not aware of

datasets which could be used to estimate the coefficients H and L . The evaluation of the inequality is still possible if one is willing to make two assumptions. The first assumption is that monetary costs of commuting are of the same magnitude as the gains in housing costs. The second assumption is based on the idea of revealed preferences: employment reveals the fact that the income from household production does not exceed wage income (otherwise, unemployment was chosen). Assume that the income from household production equals the average wage at the settlement. Although this is a strong assumption, it enables us to rewrite (2) as

$$8W(0) \geq 8W(t) + 2W(t)t. \quad (3)$$

We estimate $W(t)$ using the regression equation $a + bt$. We will measure time in minutes. Fixing one-way travel time at 30 minutes, inequality (3) implies

$$-270b - a \geq 0. \quad (4)$$

If the inequality holds, the expected wage gain from one hour travel exceeds commuting costs. To summarize, we first estimate the regression model, as described in equation (1), then we proceed with interpreting the size of the estimated coefficient of travel time using inequality (4).

Results

The estimates of the linear regressions and the linear combinations of the form $-270b - a$ are presented in Table 4.B)I. We first estimated the regressions using all settlements of the local labor markets (*Panel A*), then we restricted the analyses to villages where the average wage is below the average characterizing the center (*Panel B*). In order to correct for heteroscedasticity arising from aggregation, the regression coefficients were estimated using weighted least squares, the weights being the number of individuals behind the settlement-level averages. The first row of the table displays the observed average wages in city centers because, due to weighting, the constants slightly differ from those averages.

Not surprisingly, the estimated returns to commuting in terms of wages are the largest in *Panel B*) of Table 4.B)I. Those results deserve special attention since commuting to towns is important for employees who earn less than employees in those towns.

The coefficient of commuting time is significant and negative in all of the local labor markets; this means that average wages fall with the distance of the village to the center.

The steepest wage gradient is found in the local labor market around Győr: one minute of additional traveling is associated with an 3.3 forint expected reduction in rural hourly wages. To interpret the effect size, consider a rural resident who should travel half an hour by train or bus in order to reach the city center (in this case, Győr). Half an hour's travel increases the expected wage by about 100 forints. This expected effect is substantial: since there are 176 working days per month, half an hour's travel increases the monthly net wage by 17,600 forints, which should compensate for the monetary costs of travel.⁶³

Let us continue with examining the wage gradient in labor markets where villages with extremely high unemployment are situated. The lowest rate of return to commuting is found in the local labor market around Pécs; here one minute of travel is associated with one forint change in expected wage. Half an hour's travel to Pécs is expected to increase the hourly wage of a rural resident by only 30 forints, which amounts to a 5,280 forint increase in the net monthly wage. Although this spatial difference might cover travel expenses, it is less by about 10,000 forints than the compensating wage differential in the labor market surrounding Győr. Finally, in the labor markets around Debrecen, Nyíregyháza and Miskolc we find an 1.3–1.55 forint increase in hourly wages associated with one minute of travel, which implies that a half an hour's travel to the center improves the expected net monthly wage by about 6,800–8,200 forints.

Depending on the local labor market we study, half an hour's travel to the center of the labor market is associated with a spatial wage premium ranging from 5,280 to 17,600 forints.

⁶³ According to our earlier estimates, traveling half an hour on public transport is equivalent to traveling 20 kilometers (*Bartus, 2007*). In 2007, a monthly bus ticket for a 20 km distance cost 12,000 forints. Employees, however, were expected to pay only 2,400 forints, the remaining amount being expected to be paid by their respective employers.

Table 4.B)1. Average hourly wages as a function of distance to centers: Weighted Least Squares estimates)

	Győr	Pécs	Szeged	Debrecen	Nyíregyháza	Miskolc
Hourly wage in the center (HUF)	489	415	421	436	433	423
Panel A) All settlements						
Travel time (b)	-1.8694*	0.0928	-0.741	-1.0484*	-0.8992*	0.389
	(0.001)	(0.417)	(0.104)	(0.004)	(0.034)	(0.26)
Constant (a)	483.6474	421.3153*	414.0869*	433.7648	429.1041*	423.6991*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
-270b - a	21.093	-446.373	-214.023	-150.686	-186.325	-528.74
	0.886	0.00	0.17	0.122	0.145	0.002
N	41	38	25	17	30	46
Panel B) Center plus villages where average hourly wage is smaller than that in the center						
Travel time (b)	-3.3202*	-0.9279*	-2.2053*	-1.5523*	-1.3043*	-1.4926*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)
Constant (a)	482.9393*	413.5731*	414.7616*	434.5032*	425.8602	421.1516*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
-270b - a	413.519	-163.045	180.67	-15.378	-73.712	-18.159
	(0.000)	(0.002)	(0.193)	(0.822)	0.523	(0.742)
N	32	23	17	15	24	29

Note: Weights are the number of individuals with valid wage data within settlements. Estimates marked with an asterisk are significant at 5 percent. Numbers in parentheses are *p* values.

Our next question is whether the spatial wage premium compensates for commuting costs. To answer this question, one should examine the linear combination of the parameters, namely $-270b - a$. There is only one local labor market, that around Győr, where the linear combination is positive and statistically significant, meaning that the spatial wage gradient is large enough to compensate for the time costs of commuting. A positive, but not significant result is found for the labor market around Szeged; this means that we cannot exclude the possibility that rural residents would be worse off when commuting to the center. The most hopeless labor market is that around Pécs. The linear combination is negative and significant, which implies that commuting costs exceed the urban-rural wage differences. The linear combination turns out to be negative, but not significant in the labor markets situated in the north-east part of Hungary. In these

labor markets, it is thus possible that urban wages are large enough to compensate for costly commuting.

Conclusions

We examined the spatial wage gradient in six local labor markets and we found that rural wages are a decreasing function of the distance to the center of the labor market. The difference in wages between centers and villages seems to be high enough to compensate for the direct costs of commuting, provided that employees receive the legally prescribed reimbursement for travel expenses. However, urban wages do not seem to compensate for the time costs of commuting. Our results therefore support the hypothesis that costs of commuting have a negative impact on labor-mobility, provided that we think of the time costs of commuting and we have made correct assumptions about other components of commuting costs.

5. POSSIBLE EFFECTS OF THE CRISIS ON UNDECLARED EMPLOYMENT

ANDRÁS SEMJÉN & ISTVÁN JÁNOS TÓTH

Introduction

In our analysis we examine the possible effects of economic crisis on both the degree and the different forms of undeclared employment. The difficulty of the work lies in the fact that there have been no empirical surveys or data that could enable us to directly examine the changes that have taken place in undeclared or informal employment in the labour market by regional or sectorial segments, or different types of labour force, since 2008. No empirical research referring to this subject has so far been started in Hungary either financed from government subsidy or from private funds. Consequently if we wish to investigate the effects of the crisis on the incidence of undeclared work and the socio-economic factors behind it, we are forced to rely on the data provided by two of our own empirical surveys made in the period immediately preceding the outbreak of the crisis (in autumn 2007 and spring 2008, see Appendix at the end of this chapter), and the findings of the analytic papers based on these data (*Fazekas et al.*, 2010, *Semjén et al.*, 2009a, 2009b, *Czibik-Medgyesi*, 2008, and *Tóth*, 2008). On the basis of the relationships explored in these works, we can then formulate hypotheses and draw speculative conclusions regarding the effects of the crisis. We hope that by way of the review and secondary analysis of pre-crisis data surveys, we have been able to arrive at seemingly trivial hypotheses referring to the possible effects of the crisis on the market of undeclared employment that, in the future, will be confirmed by empirical studies as well.

In reality, the forms of employment not fully bearing welfare charges (taxes and contributions), and thus classified as belonging to the grey economy, are of tremendous variety, and the widely used technical terms normally used to describe them, like eg. undeclared employment, black labour etc., are not entirely suitable to describe this highly complex reality. In the narrow sense we mean by undeclared work any, otherwise legal, income-earning activity that has not been reported to the authorities as legal employment, and thus evades the payment of income tax and social insurance contribution.

A special case “under the same heading” is when the employer reports the employee as someone earning a wage below the actual remuneration paid to him, and the difference is then paid directly to the employee as “cash in hand” (an “off the books” payment, known in Hungary as “payment into the pocket”). In such cases, employer and employee split between themselves the taxes and

social insurance contributions saved. The risk of getting caught at the labour check-up is obviously lower than in the case of classic, totally undeclared work.

Another tax- and contribution-saving form of employment that further reduces the risk of being caught is the so-called masked employment, when the employer enters into a pretended subcontractor's agreement with the employee and pays him on invoice. It may also happen that the employee at the same time is also registered as earning a lower income at the employer's firm, but this is not a necessary condition. As in such cases a part or the whole of the income earning activity is not registered as *employment*, in the broader sense we may also regard this as some form of undeclared employment. At the same time we can consider the use of this term to be a little misleading as the employee in such cases is usually reported as having some sort of income in his own enterprise or at the employer's firm. For this reason in our paper, for the sake of greater terminological precision, we usually call this situation masked employment. In some places, however, such as for example. in titles, subtitles or the introduction, for brevity's sake, we use undeclared employment or undeclared work in the broader sense as well.

Firstly we are going to deal with the pre-crisis size and social components of undeclared employment, then we discuss the possible changes that may have occurred on the market of undeclared work as a consequence of the crisis.

The effects of the crisis on employment, hidden employment and unemployment

The aggregate employment and unemployment data make it obvious that the economic crisis has induced deep changes on the Hungarian labour market. (Table 5.1).

Table 5.1: Changes in employment and unemployment, 2007–2010

Period	No. of employed (1000 people)	No. of unemployed (1000 people)	Rate of unemployment (%)
2007 August-October	3940.2	310.8	7.3
2008 August-October	3916.2	327.9	7.7
2009 August-October	3788.9	439.5	10.4
2010 May-June	3789.4	467.2	11.0

Source: KSH, <http://portal.ksh.hu/pls/ksh/docs/hun/xftp/gyor/fog/fog21007.pdf>

Reported employment fell by 150 thousand people between 2007 and 2010, while the number of unemployed grew even more than this, by 160 thousand people, and the unemployment rate rose from 7.3% to 11.0%. (For further details regarding the changes in employment and unemployment see the introductory chapter in this volume by Bálint–Cseres-Gergely–Scharle.)

However, there are also other, much more extreme changes underneath these rather gloomy aggregate data in certain regions and sectors, and it is exactly

these changes that lend this crisis its special character. Our former research suggests that the incidence and the different types of undeclared employment show significant territorial and sectorial differences: it is reasonable to think that these regional and sectorial effects are further strengthened by the crisis. *Lócsei* (2009) was the first to call attention to the peculiarities of the territorial effects; her analysis published as part 4 of the “In Focus” chapter of the current volume provides us with further valuable insight regarding the effects of the crisis. Hajnalka Lócsei has shown that the first period of the crisis mainly struck companies producing for export and concerned the labour market of the centre and the developed areas, mostly by reducing employment and increasing the number of job-seekers. Later, however, the crisis spread over to the less developed regions, further worsening the labour market situation, which in the pre-crisis times was not so rosy anyway. Another important observation of Lócsei is that while the former, more developed areas recover relatively quickly, in regions lagging behind only government intervention in the labour market (communal works) can somewhat moderate the effects of the crisis, while the deterioration in the competitive sector because of the crisis seems there to be rather more enduring.

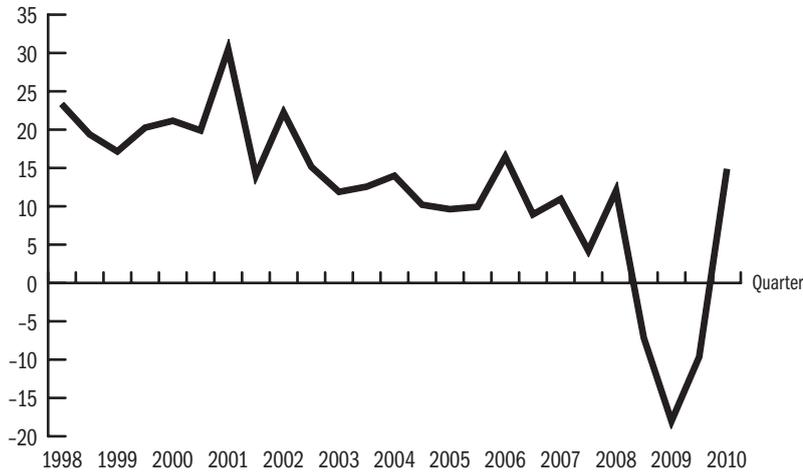
These territorial links can efficiently contribute to the analysis of employment shunning taxes and insurance contributions, as the two basic forms of the latter – paying cash in hand and paying the employee as if he were a subcontractor, i.e. paying a part of his wage for an invoice issued by the employee’s own enterprise – are popular with different social layers and with different sectorial and territorial proportions.

Another important consequence of the crisis on the labour market is freezing or reducing the wages for officially declared work. The former was rather characteristic of the competitive sphere, while the latter was typical mainly of the public sector. In 2009 consumers’ prices rose by 4.2 %; monthly net earnings in the competitive sector grew by slightly more than this, 4.4% over the year, while wages in the public sector decreased by 4.5% over the same period.⁶⁴

Besides layoffs and wage cuts, the third fundamental effect of the crisis from the point of view of our subject was the dramatic decline of business confidence, unprecedented since the slow-down following the transition (Figure 5.1). Its importance is also due to the fact that it radically influences both the companies’ short-term reactions, and their longer-term recruitment plans. In the short run companies react to the loss of their markets and the substantial fallback of orders by cutting down on production costs: besides inevitable staff reductions, further means of cost containment in such situations are offering only tiny wage increases, freezing, or even reducing wages. An interesting corporate cost-cutting technique from the aspect of our narrower subject can be shifting the internal proportion of tax compliance and tax evasion toward the latter.

64 Source of data: KSH, Stadat-system, http://portal.ksh.hu/portal/page?_pageid=37.592051&_dad=portal&_schema=PORTAL

Figure 5.1: Business confidence among Hungarian enterprises 1998–2010 (%)



Source: The GVI business climate index 1998–2010. GVI, <http://www.gvi.hu/index.php/hu/forecast/show.html?id=13>

The degree and forms of undeclared employment before the crisis

As the studies in *Semjén-Tóth* (ed.) (2009) showed from several aspects, a wide variety of declared and undeclared types of employment (from entirely legal employment to completely hidden forms involving tax evasion) are present in the economy simultaneously. Based on a study examining different forms and scenarios of tax evasion with agent-based models (Szabó et al., 2009), 23 types of payment packages can be distinguished (Table 5.2).

From this wide variety of forms, we will give a closer look at only two basic types of evading or avoiding taxes and contributions, paying cash in hand and “invoice-based payments” or “masking employment as subcontracting” (Figure 5.2). When the employees receive their pay from the employer directly as unreported cash payments in hand, both the employment and the payment remain totally invisible for the authorities. In the other case examined here the employees receive at least some part of their compensation not in the form of wages but as a subcontractor, “in return for an invoice”. In the short term this is a practice favourable both for the employer and the employee: for the employer the non-payment of taxes and contributions reduces the labour costs, and, provided that the two parties split the unpaid public dues, it may enhance the chance of employment and increase disposable income for the employee.

When examining the incidence of working in the hidden economy among adults in the 18–60 age-group one can find that the rate of those receiving cash in hand was about 15%, while those receiving at least part of their pay on an

invoice (pretended subcontractors) were around 13–14% in the years preceding the crisis.

Table 5.2: The 23 different types of payment combinations

No.	Paying reported wages	Fringe benefits	Paying on an invoice (pretended subcontracting)	Paying cash in hand	Paying in kind	Type
1	•					Legal
2	•	•				Legal
3	•		•			Mixed
4	•			•		Mixed
5	•				•	Mixed
6	•	•	•			Mixed
7	•	•		•		Mixed
8	•	•			•	Mixed
9	•		•	•		Mixed
10	•		•		•	Mixed
11	•			•	•	Mixed
12	•	•	•	•		Mixed
13	•	•	•		•	Mixed
14	•	•		•	•	Mixed
15	•		•	•	•	Mixed
16	•	•	•	•	•	Mixed
17			•			Hidden
18			•	•		Hidden
19			•		•	Hidden
20			•	•	•	Hidden
21				•		Hidden
22				•	•	Hidden
23					•	Hidden

Note: The dots in the cells of the table indicate the incidence of the given form of payment.

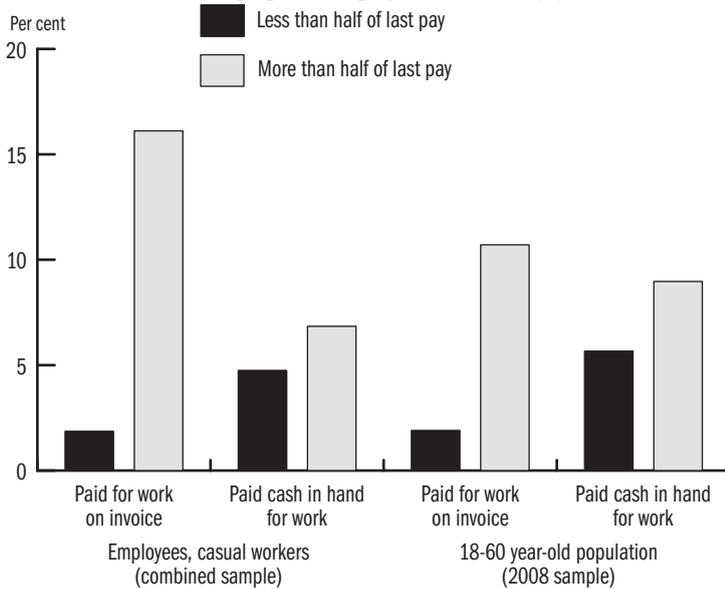
Source: Szabó *et al.*, 2009.

Among those paid cash in hand there were some who received only a smaller part of their pay in this way, while there were others, who received the greater part of the pay as black (unreported and untaxed) payment. 5% of all respondents received less than half of their pay as unreported cash payment the last time they used this method, while 7% of the respondents received more than half of their remuneration in this way when they last did any undeclared work as moonlighters. Those who did any work as pretended subcontractors, the last time typically received the larger part of their pay on invoice (16% of the age-group mentioned), while 2% received only a smaller part of their pay in this form.

The spring 2008 survey showed that over the two years preceding the survey 26% of the 18–60 age-group of the Hungarian population had at some point been paid either cash in hand, or on an invoice as pretended subcontractors. Projecting this ratio to the 15–64 population (4.2 million people), the number

of those in Hungary who had received any sort of undeclared labour income (more precisely, any labour income that was either totally unreported or registered not as labour income and thus completely or partly failed paying taxes and contributions) can be estimated at over 1 million people.

Figure 5.2: Incidence of labour related payments on invoice and as cash in hand payments among employees, casual workers and people of active working age in Hungary, 2007–2008 (%)



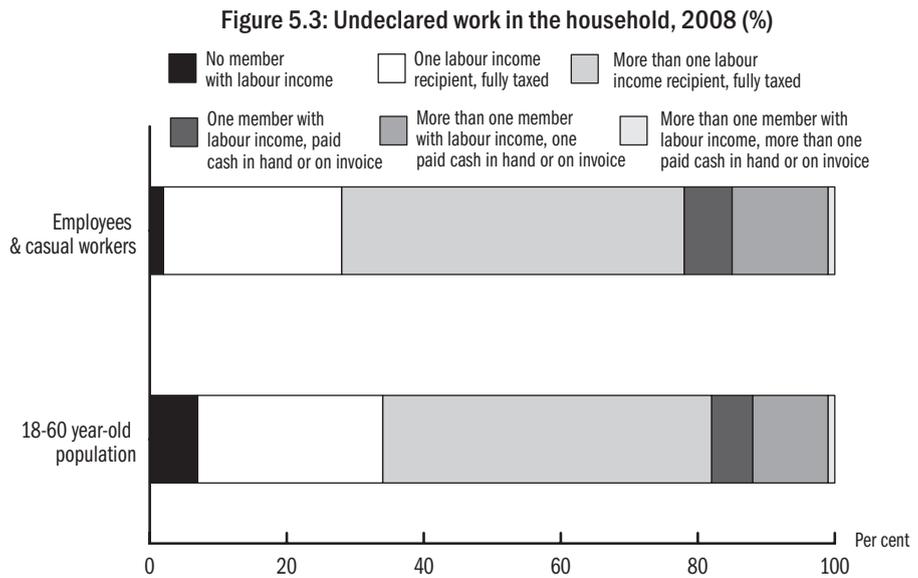
Source: Tóth (2008).

Considering the distortion of opinions obviously occurring during a data survey, i.e. that some respondents may have withheld the truth about their participation in hidden employment, this number is likely to be bigger and the number of those really concerned may significantly exceed 1 million people.

It can also be substantiated that the respondents with a first-hand experience either of undeclared employment or of employment masked as “pretended subcontracting” typically only used just one of these two methods to shun taxes and contributions, and only 2% of them used both types of tax- and contribution-saving solutions during the time surveyed.

We also asked the other members of the respondents’ households whether they had any labour income during the time of the survey, and if so, in what form they were paid: did they receive fully taxable reported income, unreported cash in hand, entrepreneurial income from “pretended subcontracting”, payment for temporary work registered in the casual work booklet, liable to reduced tax and contribution rates only. This also made it possible to examine whether the spouses of the respondents were also concerned by the hidden economy.

Examining the households of all respondents between 18–60, irrespective of their labour market status, in 7% of the households neither spouse had any kind of labour income (Figure 5.3). There was only one labour income recipient per household in 26% of the households, and these recipients received their pay as taxed income. In 6% of the households there was also only one labour income recipient, but they typically received the greater part of their pay as cash in hand or on invoice. In almost half of the households there was more than one labour income recipient, and all of them received their pay as taxed income. In 12% of the households there were more than one labour income recipient and at least one of those received the greater part of their pay on invoice or as cash in hand. However, in the sample one can find only a tiny part (1%) of households in which there are more than one labour income recipient, and where there are also at least two household members paid cash in hand or receiving income from pretended subcontracting.



Source: Tóth (2008).

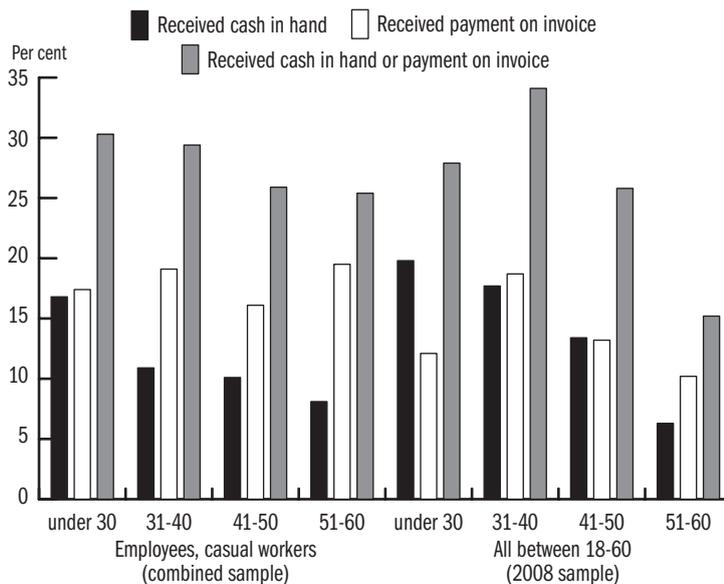
So the accumulation of undeclared employment (or employment masked as subcontracting) within a household is not typical. The households of employees and casual workers show a similar pattern to that of the households in the active working age, the only difference being that in the first group the rate of households with no employment income is obviously lower.

Below we examine how the probability of undeclared employment (or pretended subcontracting) varies in the different socio-economic groups of the Hungarian population. We analyse the incidence of undeclared employment first by demographic variables, then by labour market characteristics, eventually by the financial position of the households.

An important statement made by empirical studies is that in Hungary undeclared work is much more wide-spread among men than among women. (*Elek et al.*, 2009). The surveys analysed here confirm the above statement: the occurrence of cash in hand payments shows a higher frequency among men, eg. in the 2008 survey 19% of them received cash in hand, while for women the same proportion was only 11%. The occurrence of payment on invoice is also slightly higher among men.

We can also find substantial differences in undeclared employment according to age (Figure 5.4). Young employees are more affected, the cash in hand method of remuneration occurs more often among these than the average. Among employees and casual workers, 17% of those under 30 have received some remuneration as cash in hand, while in the other age-groups this rate is around 10%. The rate of those receiving their pay on invoice as pretended subcontractors does not show significant age differences, however, if both main forms of undeclared employment are considered, it is obvious that the young are more affected, as unreported labour income (paid cash in hand or on invoice) shows a higher than average incidence among them.

Figure 5.4: Undeclared work by age groups (%)



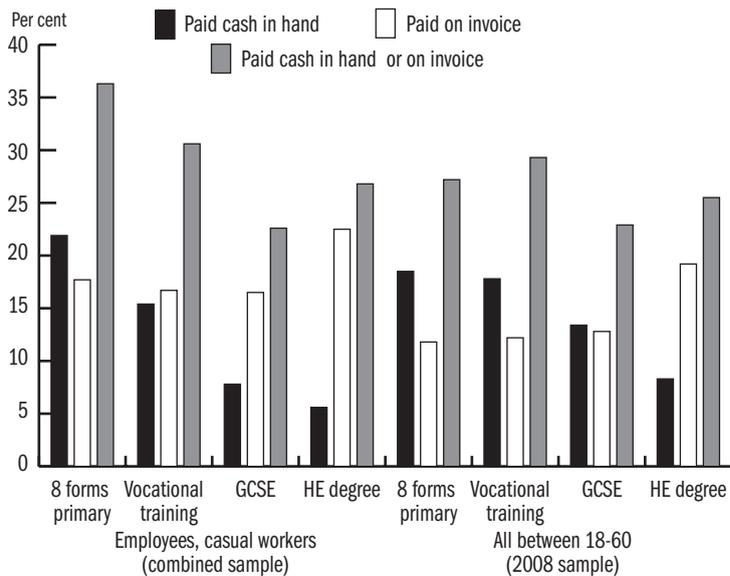
Source: Tóth (2008).

The two types of tax-saving employment (undeclared work or employment masked as subcontracting) show different patterns in relation to educational attainment. The frequency of receiving cash in hand payments decreases as school qualification increases. Among those employed regularly or working as casual workers 22% of those with only a primary school qualification received

cash in hand, compared to only 6% among those with a college or university degree. However, in the case of paying on invoice for pretended subcontracting, the situation proved to be the reverse: those with a degree show a higher incidence of receiving their pay in this form than those with lower qualifications. All in all, among employees the incidence of employment not bearing, or not fully bearing, taxes and contributions increases with the decrease of school qualification: Among those who attended a maximum of eight forms of primary school, 36% received cash in hand or payment on invoice, whereas among university graduates only 27% received such payments as remuneration.

These data (Figure 5.5) do not, however, reveal how wages paid for undeclared work would change the income differences between university graduates and those with lower qualifications, estimated from earnings stemming from declared employment. Recent research (Köllő, 2010b) have pointed out that while university graduates conceal 23–41% of their income, households where the head of the family has a lower school qualification hide only 8–13% of their income. This suggests that hiding income is more common among university graduates than among those with lower qualifications, so the actual income difference between the two categories can be greater than reflected by official statistics.

Figure 5.5: Undeclared work according to level of educational attainment (%)



Source: Tóth (2008).

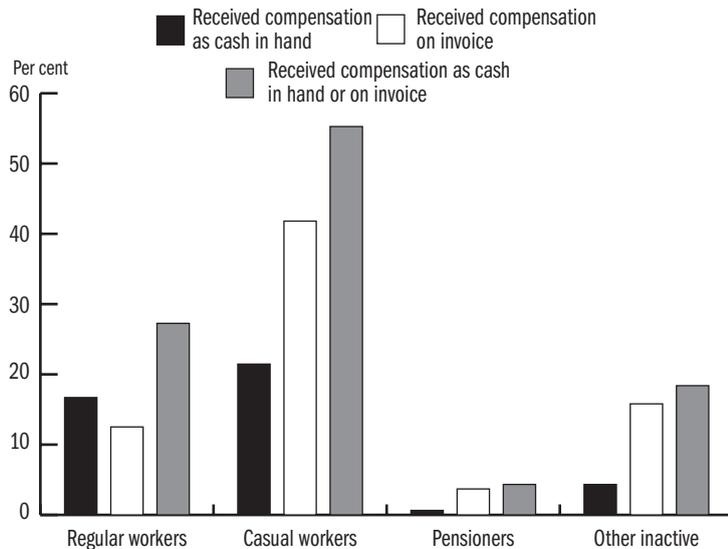
Undeclared employment is slightly more frequent than the average in Budapest and in the villages. Among employees and casual workers, 28% of those living in Budapest and 32% of those living in villages were paid on invoice or cash in

hand. We also found similar rates when examining the incidence of black and grey labour in the whole of the adult population.

Looking at the regional characteristics of hidden and masked employment (i.e. undeclared employment and employment masked as subcontracting), we can also find significant differences. In the counties of Eastern Hungary this type of work is much more common, while in Western Hungary it is less frequent than the average. Among employees and casual workers, in Eastern Hungary 40% of the surveyed population received cash in hand payments or was paid on invoice, while in Western Hungary this rate was only 16%. In central Hungary one can find average rates.

If we look at undeclared employment according to labour market status, it is clear that within the 18–60 year-old population undeclared employment is most common amongst those who are economically active but without regular employment (i.e. casual workers and the unemployed). 42% of the above group received cash in hand and 21% of them did work for payment on invoice in the two years preceding the survey, and in total 55% of them did some work shunning the payment of taxes and contributions. Among those having regular work, the rate of those paid cash in hand is roughly average, while the rate of those paid on invoice is somewhat higher (17%) than what is typical of the whole sample (14%) (Figure 5.6).

Figure 5.6: The share of those receiving labour compensation as cash in hand or on invoice according to labour market status in the 18–60 age group (%)



Source: *Semjén et al. (2009b)*.

We also examined among regular and casual workers, how the type of their occupation and the industry they worked in influenced the incidence of un-

declared work and employment masked as subcontracting. As to occupational categories, blue-collar workers, white-collar workers and managers were distinguished. Among white-collar workers the rate of those having received cash in hand payments was only 2%, which is considerably lower than the 8% observed among blue-collar workers. On the other hand, the rate of those receiving pay as pretended subcontractors was higher among white-collar workers: in total 22% of them received pay on invoice, while this rate was only 18% among blue-collar workers.

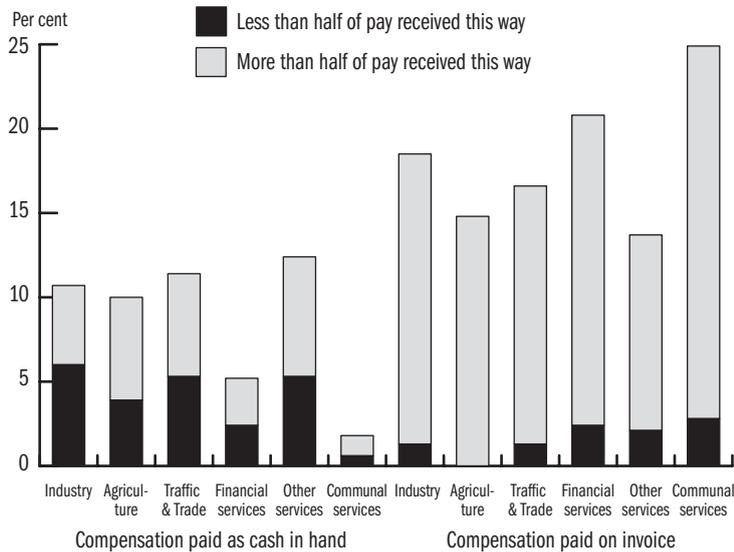
At the same time it came as a surprise that among managers the share of those receiving cash payments in hand was rather high (15%). However, due to the low number of observed cases in this category, this result does not allow us to form a robust conclusion.

Due to the low number of cases we had to reduce the number of sectors by merging some of them in order to be able to analyse the sectorial patterns of undeclared work. Apart from industry and agriculture, services were grouped in four categories. We drew together traffic, communications, telecommunications, and trade and created from them one complex category; financial services and other services were treated as separate categories, while the fourth category (communal services) was made up of public administration, education, culture and health care. The rate of those receiving payments as cash in hand was lower in financial services and especially in communal services, than in the other sectors (5% and 2% respectively). At the same time the rate of those paid as pretended subcontractors was the highest in communal services. In communal services 25% of workers received pay on invoice, compared with an overall average of 19% (Figure 5.7).

The research based on our previous survey results has also shown how the level of compensation received in the main job influenced the incidence of undeclared work among employees and casual workers, and to what extent the former determined whether the respondent had any second job or enterprise.

With those having a main job pay of less than 70,000 forints, the rate of those paid cash in hand was somewhat higher than the average. Those with low earnings showed a higher than average rate (13 %) of being paid black money. With those having a higher main job pay, however, payment on invoice had a higher frequency (23%). For those with no extra earnings beside their main job pay the incidence of cash payments in hand or pretended subcontracting did not differ from the values typical of the whole of the sample. The number of those mentioning any income from second or part-time jobs is rather low, but among those having a second source of labour income the incidence of cash in hand payments is especially high, which makes it likely that in the field of second and part-time jobs undeclared work or pretended employment may have an important role.

Figure 5.7: The share of those receiving labour compensation as cash in hand or on invoice according to economic sectors among employees and casual workers, 2007–2008 (%)



Source: *Tóth* (2008)

The 2008 survey made it possible for us to also analyse the incidence of casual work among those not working regularly at the time of the survey, i.e. among those who are registered as inactive or unemployed. Doing casual work characterized only 11% of those without regular work according to the survey, but it typically went together with receiving some part of labour income as cash in hand or working on invoice. Low case numbers make it impossible to carry out a more detailed analysis, but even this is enough to show that work among the officially jobless or inactive is usually related to the black or grey economy.

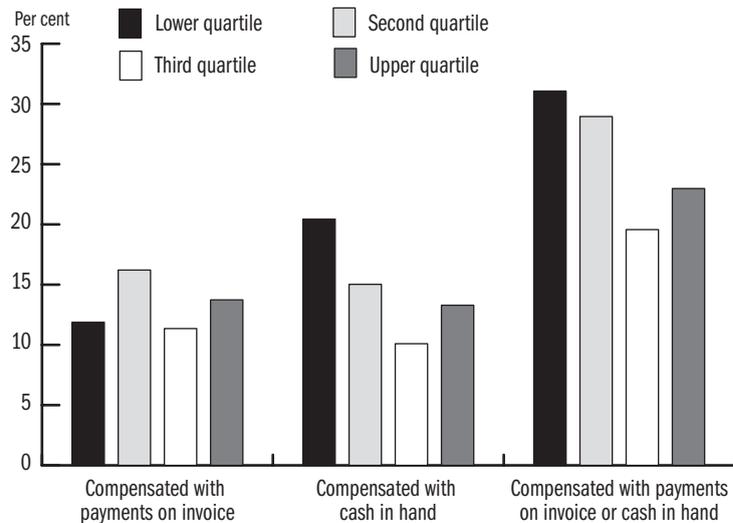
Unemployment, however, affects working in the hidden economy not only as a current state of affairs. Research in labour economics has shown that the longer someone has been unemployed, the more difficult it is for them to find new employment. On the basis of this, the number of months spent out of a job may forecast the individual's chances for finding a job, his or her labour market opportunities. Accordingly, those who have been unemployed for a longer time may show a higher rate of undeclared work (or pretended subcontracting), as they find it more difficult to find a job on the official job market.

The findings of our surveys corroborate this hypothesis: amongst those having been out of job for more than a year 25% admitted being paid cash in hand, which is ten percentage points higher than the average. For those with no previous unemployment spells, this rate was only 9%. However, the rate of those paid on invoice was the highest not among those who have been jobless for the longest time, but among those who were in this situation for shorter than half

a year. Since in this group the rate of those paid cash in hand is also relatively high, it is justified to consider this group to be the most affected by participation in the hidden economy.

The incidence of undeclared work and pretended employment varies not only according to regional, sectorial, qualification and labour market variables, but also according to the financial position of the households (Figure 5.8). On the one hand it is conspicuous that the incidence of undeclared work and pretended subcontracting is more typical of the less well-off households with lower incomes: while in 31% of the lowest quartile of households, from an income point of view, at least one active member of the household does undeclared work, this rate for the highest quartile is only 23%. At the same time, income per household and the incidence of shunning labour related taxes and contributions do not show a linear relationship: the lowest participation rate in work partly or fully shunning taxes and contributions can be observed not in the highest, but in the third quartile (20%). On the other hand, the incidence of the two types of undeclared work surveyed also shows a difference according to household incomes. While receiving cash in hand payments is rather characteristic of the poorer households (it can be observed in 20% of the households belonging to the lowest income quartile), the incidence of being paid on invoice does not seem to be correlated with household income in the same way.

Figure 5.8: The share of those compensated for work with payments on invoice or cash in hand according to the quartiles of per capita family income, 2008 (%)



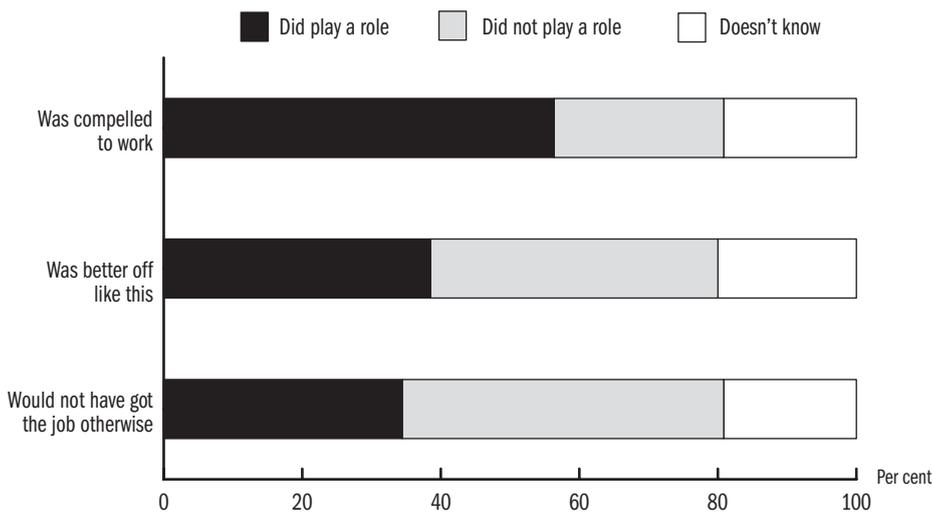
Source: *Semjén et al. (2009b)*.

The profile of those involved in undeclared work and pretended subcontracting can be summarized on the basis of *Semjén et al. (2009b)* as follows: the share of those paid cash in hand is the highest among those on the peripheries of the

labour market. People with lower school qualifications, casual workers, jobless people, and those, currently in employment, having formerly spent a longer period out of work all show a higher than average likelihood of being paid cash in hand. It is more typical of the poorer households that at least one family member takes undeclared work. On the other hand, the incidence of payments on invoice is undoubtedly higher than average among white collar workers. The occurrence of having been paid (also) on invoice during the last two years seems to be above average amongst people with a higher education degree, those working in public administration, health care, education and culture.

Aside from the incidence of work partly or fully avoiding or evading taxes and contributions, there is another aspect worth taking into consideration for our current subject. This is how employees justify taking job offers for undeclared work or pretended subcontracting. The responses highlight the employees' motivations concerning undeclared or masked work and can be helpful in pointing out the possible effects of the crisis.

Figure 5.9: Motives of accepting job offers involving cash in hand payments, 2008 (%)



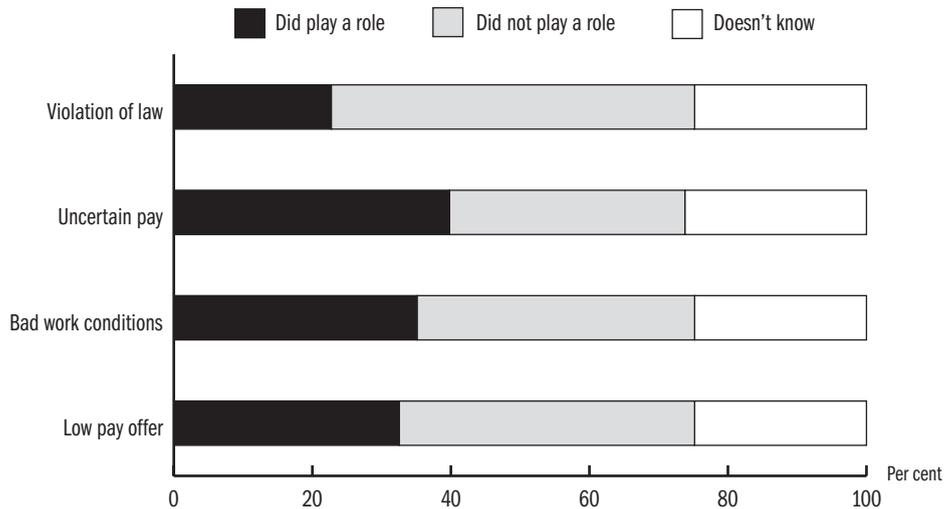
Source: Semjén et al. (2009b).

It can be seen from the survey results highlighted above that 15% of the respondents had done work for which they had been partly or fully paid cash in hand.⁶⁵ But also the respondents who had not received cash in hand payments could have come across such job offers. On the basis of the 2008 survey (Semjén et al., 2009b) we can see that 4% of those not receiving any pay as cash in hand had received job offers with such a payment arrangement, which they eventually turned down. The results also show that in total 18% of the respondents had come across job offers involving cash in hand payments. Looking at this from the other side, 29% of those having been offered work with cash in hand

⁶⁵ Besides this, Semjén et al. (2009b, pp. 238–239) also give a detailed analysis of the reasons for accepting or refusing offers for pretended subcontracting.

compensation turned down all these offers, while 56% accepted some of these offers (the remaining 14% could not answer the question).

Figure 5.10: Motives of refusing job offers involving cash in hand payments 2008 (%)



Source: *Semjén et al. (2009b)*.

We have analysed the motivations which lay in the background of accepting or refusing such job offers in the case of those who had already received (and at least once accepted or refused) such offers. In our survey we asked them about the reasons for their decision related to the last such offer they had received. Both for refusal and for acceptance, they could choose one or more motivations from several options (listed in the form of closed questions).

Those who accepted work offers involving cash in hand compensation mentioned most frequently the pressure of need (lacking means of subsistence) as the justification for accepting the offer (Figure 5.9): 56% answered that they had accepted the offer because they were compelled to work; 39% said they had accepted it because they were better off this way, while 34% replied that it also played a part in their decision that otherwise they would not have received the job.

Those who turned down job offers involving cash in hand mentioned most often the uncertainty of payment as the reason for their decision: this factor played a part in the negative decision of 40% of those refusing these offers. About one third was the share of those who mentioned low pay and bad working conditions, while 23% referred to the fact that black labour is illegal, that it involves violating the law and may entail punishment (Figure 5.10).

Possible changes occurring as a consequence of the crisis

Linking the main characteristics of undeclared work and pretended subcontracting to the documented effects of the crisis on the legal economy and de-

clared employment it seems to be safe to conclude that the economic crisis has, in all probability, increased the amount and the incidence of undeclared work. As we will see, however, the situation is far from being so simple.

Before going into details on these possible effects, let us have an a priori look at the changes the crisis could have induced in the first place in the incidence and the relative share of declared employment vs. undeclared employment or pretended subcontracting in a company or firm. *Table 5.3* provides a summary of the different types of such changes or reactions. We distinguished 13 different types of these in the table. Each of these starts out from the characteristics of the pre-crisis employment and the nature of the related payment packages chosen by the employer and accepted by the employee (this serves also as the basis for the division of the table into three main blocs). The outcome or result is the change: a shift or a modification of the type of employment relationship occurring as a result of the crisis (2nd column). In the table we have indicated separately (3rd column) how the given change appears – if it does at all – in the official wage and labour statistics reflecting declared work and reported income.

Table 5.3: Possible effects of the crisis on the choice between declared (reported) and undeclared (unreported) forms of payment

Type	Changes caused by the crisis	Change appearing in labour and wage statistics
Before the crisis: declared employment		
1.	Wage reduction in declared employment and paying on invoice appears	Reduction of gross wage
2.	Wage reduction in declared employment and cash in hand appears	Reduction of gross wage
3.	Wage reduction in declared employment, cash in hand and paying on invoice appear	Reduction of gross wage
4.	Layoffs, paying on invoice	Reduction of employment, impact on average gross wages uncertain
5.	Layoffs, cash in hand	Reduction of employment, impact on average gross wages uncertain
6.	Layoffs, paying on invoice and cash in hand	Reduction of employment, impact on average gross wages uncertain
7.	Layoffs	Reduction of employment, impact on average gross wages uncertain
Before the crisis: declared employment with payments avoiding/evading taxes and contributions (paying on invoice or paying cash in hand)		
8.	Wage reductions and a growing share of paying on invoice within all payments	Reduction of gross wage
9.	Wage reductions and growing share of cash in hand within all payments	Reduction of gross wage
10.	Wage reduction and growing share of paying on invoice and cash in hand within all payments	Reduction of gross wage
Before the crisis: undeclared work or employment masked as subcontracting		
11.	Decrease or cessation of cash in hand	Does not appear
12.	Decrease or cessation of pay on invoice	Does not appear
13.	Decrease or cessation of pay on invoice or cash in hand	Does not appear

All but the last three (types 11–13) of the types listed clearly indicate an increase of the share of undeclared or masked employment, either in such a way that the change in the payment package directly increases the share of undeclared or masked employment, or indirectly, so that it involves a reduction of declared employment, while at the same time it does not change the amount of undeclared work or masked employment (e.g. type 7).

We can distinguish three types of corporate decisions related to wages and employment, occurring as a result of the crisis, according to how deeply they affect the company's internal regulations and organization.

“Low intensity” adaptation. It does not affect either the size of the workforce or the internal proportions of the payment packages applied: *freezing or reduction of wages.*

“More intensive” adaptation that affects employment as well as the internal proportions of payment packages: *switching to part-time employment, and introducing payment packages that make undeclared work and pretended subcontracting possible.*

Adaptation having fundamental importance from the aspect of the company's internal organization and internal corporate regulations. *Layoff, followed by re-employment, this time completely as undeclared work or pretended subcontracting* belongs to this third type.

Hungarian companies under the influence of the crisis can take the above steps, or a combination of these steps, and thus can have an effect on the incidence and volume of undeclared work within the competitive sector.

If a company only used declared employment before the crisis, i.e. if employment in the company complied with the rules of paying taxes and contributions, then under the influence of the crisis, as part of the cost-cutting steps, the company may decide to freeze or reduce wages, while in order to cut down on payroll taxes, it may begin in certain groups of employees to apply payment packages involving cash in hand payments or payments on invoice. These forms of adaptation do not involve layoffs, but reduce gross wages that the Statistical Office can keep an eye on, thus distorting official wage statistics.

Company reactions can be represented as new types if these reactions include the dismissal and, in some form or other, the hidden re-employment of the same employee (types 4–6). At these times one can see a reduction of employment in the official statistics, while actual employment did not change: the same person continues to work in the same place, maybe for the same (net) wage, as earlier, only now they do this in the black market. However, the effect of this practice on the documented average wages is uncertain as we do not know whether these dismissals and hidden re-employments affected mainly employees with lower-than-average or with higher-than-average wages.

The weight of undeclared work and pretended subcontracting is increased by the 7th type of adaptation as well, although indirectly: if an employee in

declared employment is dismissed and then later does not find work either on the formal or the informal labour market, while everything else is held constant, the share of undeclared work or employment masked as pretended subcontracting within the total will increase in this case as well.

If a company also used the types of payment typical of undeclared work and work masked as subcontracting already before the crisis (as in adaptation types 8–10), it can increase the share of these kinds of tax- and contribution-saving payments within the labour compensation package under the influence of the crisis without ever changing the number of employees in any way. Then in the official statistics we can see a decrease or just a slight increase of wages, while, in fact, there could have been a wage increase larger than what could be seen in the statistics.

We left those types that do not increase, but decrease the share of undeclared work in the economy for the end. It is worth noting that the economic crisis does not only affect the market of declared labour. Why should we think that it leaves the market of undeclared work untouched? Of course, the crisis does not leave these markets unaffected either: the significant reduction of orders also reduces the business opportunities of companies that had also relied on undeclared work before the crisis, and typically paid the majority of the workers cash in hand or on invoice. For these firms cost-cutting means the decrease of sums paid out in an undeclared form, or the dismissal of unreported employees, i.e. on these markets the economic crisis leads to the reduction of undeclared work and its relative weight.

Let us just take the construction sector as an example, which, in Hungary, applies undeclared work and pretended subcontracting much more commonly than any other economic sector (*Semjén et al.*, 2009a). By the end of 2009, the production volume of the construction sector shrank to 77% of its 2005 level, and the declining tendency continued dramatically in the first six months of 2010, which saw another 14% reduction of the production volume of the previous year. The number of employees appearing in the official statistics also fell between 2007–2009 from 330,000 to 293,000, i.e. by nearly forty thousand people⁶⁶ – but we know that this decrease could also cover an actual increase of employment. The data describing the development of the production volume, however, suggest that undeclared employment or employment masked as subcontracting in the construction industry could have reduced at a much more rapid pace in consequence of the crisis than the pace of reduction shown in the official employment data. This means, had it depended on the construction sector alone, undeclared employment would have decreased in the Hungarian economy as a result of the crisis.

Presumably, however, a process with the opposite direction was taking place in the economy as a whole: we must unfortunately presume that, in consequence of the crisis, undeclared employment and pretended subcontracting became more wide-spread, and within the total remuneration received for works done, the share of cash in hand payments and payments on invoice increased.

⁶⁶ For data referring to production and employment in the construction industry see KSH Stadat-system, http://portal.ksh.hu/portal/page?_pageid=37,592051&dad=portal&_schema=PORTAL.

The reasons behind this hypothesis are basically the effects enumerated in the first part of our paper. In the centre of these effects we can find unemployment. Examining it from the employees' side, we can reach, through multiple cause and effect chains, from the fact of unemployment, or from its growing risk, to the growing probability and growing rate of accepting undeclared work.

Based on the findings of the population surveys made using questionnaires, employment involving cash in hand payments can be considered to be an intermediary position on the labour market between completely legal employment and unemployment. Together with the increase of the level of educational attainment the incidence of employment with cash in hand payments decreases, while it is also well-known that the risk of unemployment increases exactly with the decrease of educational attainment. The reverse correlation between educational attainment and cash in hand payments can be partly explained by the fact that payment packages involving cash in hand are often refused because of "uncertain pay" and "bad working conditions". Taking these aspects into consideration is more typical of people with higher qualifications than of those with a lower level of schooling. In this respect we may conclude that the higher level of educational attainment simultaneously diverts the employees from accepting compensation packages including cash in hand payments and helps reduce the risks of unemployment.

Unemployment, however, is also directly connected with the incidence of undeclared work and cash in hand payments or paying on invoice. We could see earlier that unemployed people and casual workers showed a higher propensity of accepting work offers with cash in hand payments or paying on invoice than employees. Thus it is obvious that the growth of unemployment raises the probability of accepting remuneration packages that include cash in hand payments or paying on invoice, and so it increases undeclared employment. In the broader sense, the risk of unemployment referred to by the former "experience of unemployment" makes the employee inclined to take undeclared work. It shows in the same direction if we extend the interpretation of the risk of unemployment from the employee to the employee's household. If one member of the household has already been out of job, this fact makes (black or on-invoice) employment in the form of undeclared work more likely. We can render these effects probable not only on the basis of logical considerations, their existence is also confirmed by more sophisticated mathematical-statistical analysis (*Semjén et al., 2009a, Fazekas et al., 2010*).

In harmony with the above, the demand for undeclared work and employment masked as subcontracting presumably increases in the first stage of the crisis in those economic sectors and local labour markets in which and where the crisis caused unemployment to grow – so primarily in the centre and in the developed regions of the Dunántúl. It seems also likely that later – when the orders of companies stopped falling or started to increase in these regions (late 2009 or early 2010), unemployment could not grow any higher and em-

ployment also increased slightly, and together with these the incidence of undeclared employment or pretended subcontracting also started to decline.

This is not the case, however, with the regions regarded as backward already before the crisis: here unemployment showed a high level before the crisis as well, and the crisis worsened this situation further with effects that could also lead to the reduction or the elimination of undeclared employment (this could be typical of the regions of North-West Hungary). Amidst the economic crisis, the labour market of these regions is (hardly) kept alive by public sector employment, state subsidies and communal works.

Appendix

The surveys

We have used findings from two questionnaire surveys in our analysis. One of the surveys referred to the savings behaviour of the population in relation to pensions, and was conducted using questionnaires during personal interviews taken between October and 9th November. This survey was prepared for the Economic and Enterprise Research Institute of the Hungarian Chamber of Commerce and Industry. The survey sample of one thousand people consisted of people in their active working age, and was representative in terms of their types of settlements, regions, gender and age group. The second survey was commissioned in 2008 by the Institute of Economics of the Hungarian Academy of Sciences, and it explicitly aimed at surveying the participation in the hidden economy and opinions about this. This research was also carried out on a sample of 1000 people representing the adult population of the country between 18 and 60.

Surveying undeclared employment was carried out using similar questions in both cases. In both surveys the respondents were asked whether they had ever received a part or the whole of their pay as cash in hand. They were then asked about the share of the payment they had received as cash in hand the last time as compared to the total remuneration for the job.

Similarly, the respondents were also asked whether they had ever received a part or the whole of their remuneration for their work on invoice, as a fee from pretended subcontracting. If the answer was “yes”, they were also asked what part of the total payment they had received was paid in this way. In spite of the similar formulation of the questions, however, there are also two differences between the two research projects in surveying employment in the hidden economy. On the one hand, in the 2007 survey the questions referred to the preceding one year (i.e. 2006), while in the 2008 survey the questions referred to the two years preceding the survey (i.e. 2006 and 2007). The other difference is that in the 2007 survey we asked these questions referring to undeclared employment only from those who were either under an employment contract at the time of the survey, or who worked as casual workers at that time. So here we did not receive responses from the self-employed, the unemployed and the economically inactive.

6. THE EFFECT OF THE ECONOMIC CRISIS ON HOUSEHOLDS: A MICROSIMULATION ANALYSIS*

KATALIN GÁSPÁR & ÁRON KISS**

Introduction

This study examines how job losses in the first year of the economic crisis affected the income position of households across the income distribution. We use two individual-level data sources. First we estimate the probability of job loss of individuals with different characteristics based on the Labour Force Survey (LFS) of the Hungarian Central Statistical Office (HCSO). Then we use the results to estimate the probability of job loss of individuals observed in the Household Budget Survey (HBS) of the HCSO and analyse the implications of job loss on household income.

Our research is based on two data sources, because only the LFS gives up-to-date information about the state of the labour market but only the HBS contains detailed information on households and their incomes.

Analysis

Probability of job loss

We model the job loss probability of employees based on the LFS. In the quarterly waves of the LFS each individual is surveyed for six consecutive quarters (save for attrition). Calculating the job loss probability of individuals from one quarter to the next, we use the panel structure of the survey: we look at those individuals who are observed for at least two consecutive quarters.

We observe a job loss if an individual of age 15 to 64 is employed in one quarter but unemployed in the next, according to the LFS definitions.⁶⁷ By defining job loss this way, we exclude those individuals who become inactive, as opposed to unemployed, after losing their job. The alternatives are, in our view, even more problematic: if we had taken into account those who had become inactive, we would have misclassified as unemployed those individuals who retire or take maternity leave, and this in turn could have biased our estimations. Figure 6.1 shows the ratio of job losses to employment for the age group 15 to 64 years and the period Q1–2003 to Q1–2010.

The figure shows the seasonality of job losses: the jump recurring every fourth quarter indicates that there are many individuals who are employed in the fourth quarter of a given year but unemployed in the first quarter of the following year. The figure also shows that job losses surged from mid-2008, the beginning of the global financial crisis. During the relatively stable period of Q1–2003 to Q2–2008 the share of quarterly job losses was between 0.5% and

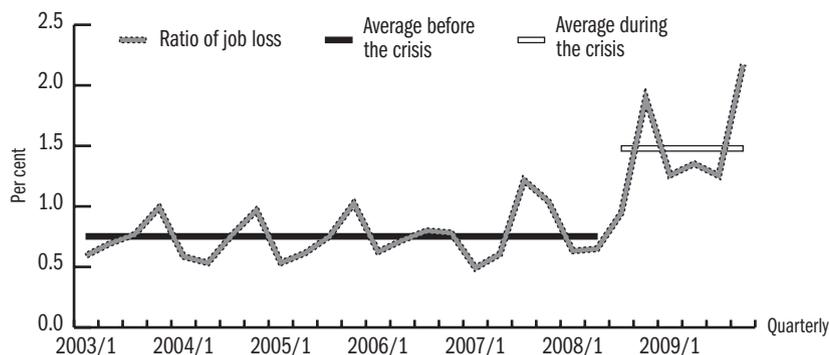
*The authors would like to thank Péter Elek and Péter Harasztosi for useful discussions. Any remaining errors are ours.

** Opinions expressed in this article are those of the authors and do not reflect the views of their institution.

⁶⁷ The LFS classifies the labour market status of individuals according to their activity during the week before the interview. (HCSO 2006, 2009). Individuals are *employed* if they have carried out at least one hour of paid work during the week surveyed or if they were temporarily absent from a workplace (e.g., because of sick leave). Individuals are *unemployed* if they (1) neither worked during the week surveyed, nor did they have a job from which they were temporarily absent, (2) if they searched for a job during the previous four weeks, and (3) if they could start working in the following two weeks provided they found a job, or they already have found a job where they will start working within 90 days.

1.2% of total employment, with an average of 0.75%. During the period starting with Q3–2008 the average share of quarterly job losses was about 1.5%, reaching 2% in the last quarter of both 2008 and 2009.

Figure 6.1: The ratio of job losses to employment, Q1–2003 to Q1–2010



Note: A job loss from quarter t to quarter $t+1$ is recorded as a period- t job loss. Individuals were weighted using the original LFS weights.

The econometric method

We estimate a probit model of job loss. The dependent variable is binary: individuals either lose their job or they remain employed. The event of job loss is explained by characteristics of the employees. These characteristics are sex, age, education, county of residence, and the industry of the employment.⁶⁸ Besides the obvious selection criterion of explanatory power, we had to select those explanatory variables that are observed in both data bases we use, because we are to estimate the probability of job loss for individuals observed in the HBS based on the model estimated in the LFS.

We base our study on the period in which, as can be seen in Figure 6.1, the economic crisis had the most serious effects on the labour market: this period is between Q3–2008 and Q1–2010. We thus use 7 consecutive waves of the LFS, observing 6 waves of labour market transitions in the rotating panel. The unit of observation is the transition: one observation is an individual who is employed in quarter t and is observed in period $t+1$. We use a pooled panel estimation, that is, individuals for whom we observe more than one transition are taken into account as multiple independent observations. We observe 86,076 transitions in total, with a uniform distribution among the quarters.

We define the control variables as follows. To control for age we define dummy variables of age groups 15–24, 25–34, ..., 55–64. In the estimation age group 15–24 serves as a comparison group. Another control variable is the highest attained education of individuals. Here we define four groups: those with primary school education; vocational training; high-school graduates (matura or, in Hungarian, “*érettségi*”); and finally those with completed tertiary education. In

⁶⁸ Similar calculations have been performed by Reizer (2009). His results have been reported in a publication by the Hungarian Ministry of Finance (2009, Annex 2).

the estimation, the first group serves as the reference group. Finally, we include control variables for the county of residence and for the industry of employment. Reference groups are Budapest and “Agriculture, forestry and fishing”.

The estimation results are shown in Table 6.1. The table shows not the estimated coefficients (as these alone do not have an economic interpretation in the probit model), but the marginal effects as calculated from the coefficients. Marginal effects of a dummy variable (e.g. one indicating that an individual works in “Manufacturing”) show by how much an otherwise average individual’s job loss probability differs from those belonging to the reference group (in this example, “Agriculture”). Marginal effects are thus interpreted as probabilities.

Table 6.1: The effect of individual characteristics on the probability of job loss, employees of age 15–64, results from a probit estimation

Individual characteristics	Marginal effect	Robust standard errors
Female	-0.001	0.001
Age 25-34	-0.006***	0.001
Age 35-44	-0.010***	0.001
Age 45-54	-0.011***	0.001
Age 55-64	-0.011***	0.001
Vocational training	-0.006***	0.001
High school graduate	-0.010***	0.001
Tertiary education	-0.012***	0.001
Békés county	0.010***	0.004
Borsod county	0.005*	0.003
Fejér county	-0.004***	0.002
Hajdú-Bihar county	0.008**	0.003
Heves county	0.007**	0.003
Nógrád county	0.006*	0.003
Pest county	-0.004***	0.001
Szabolcs county	0.010***	0.003
Szolnok county	0.005*	0.003
Manufacturing	0.009***	0.002
Construction	0.018***	0.004
Trade and repair of motor vehicles	0.006***	0.002
Accommodation and food service activities	0.014**	0.006
Financial and insurance activities	0.009**	0.004
Real estate activities	0.007*	0.004
Further county and industry dummies	not significant	
Constant	yes	
No. of observations	86,076	
Pseudo-R ²	0.058	

*** p<1% ** p<5% * p<10%

The table shows that the probability of job loss is affected by all factors except for sex. According to the estimation there is only a negligible (and statistically insignificant) difference between the job loss probability of men and women.

Looking at the age groups, the probability of job loss decreases with age (albeit to a decreasing degree).⁶⁹ There is a difference of 0.6% to 1.1% (strongly statistically significant) between those between 15–24 years and the older age groups. It is possible that our methodology underestimates the job loss probability of age group 55–64, since it does not take into account those who enter retirement earlier than they would have absent the crisis. Looking at education we see that individuals with primary education had the highest probability of job loss: those with vocational training had a 0.6% lower quarterly probability, while those with high school education or higher had a 1–1.2% lower quarterly probability (these effects are also strongly statistically significant).

Of the county and industry dummies Table 6.1 only shows the ones that are statistically significant, but all were included in the estimation. Looking at regional differences, 9 counties had a job loss probability that was statistically different from Budapest's on the 10% significance level. The probability of job loss was higher than Budapest in the counties of Eastern Hungary (i.e., Békés, Szabolcs, Hajdú-Bihar, Heves, Nógrád, Borsod and Szolnok); while it was lower in Central Hungary (counties Fejér and Pest). Looking at the differences among industries, very high job loss probabilities were measured in the construction industry as well as in "Accommodation and food services" (a quarterly probability 1.8% and 1.4% higher, respectively, than in "Agriculture"). High job loss probabilities were further measured (in decreasing order) in "Manufacturing", "Finance and insurance", "Real estate activities" and "Commerce".

Analyzing the probability and the effects of job loss using the HBS

After identifying what factors affect workers' probability of job loss using the LFS, we transfer the estimated coefficients over to the HBS in order to calculate the annual probability of job loss of each employed person in the HBS dataset.

The HBS is an annual survey which contains information regarding the personal characteristics of each household member. Also, households are asked to record their consumption and income in a diary. The dataset therefore can be used to analyze households' income distribution, as well as the effects of modifications in the tax and transfer system.⁷⁰ We use HBS data from 2007 for our analysis, since the structure of the latest version of HBS (from 2008) has changed and no longer includes income data. In our methodology, we attempt to simulate the effects of the recession on data that were recorded prior to the recession. Since the economic downturn was already noticeable at the end of 2008, HBS data from 2007 serves as a better base for our analysis than data from the following year would be.

The procedure for calculating households' net income and evaluating the effects of job loss is the following. Income data from the 2007 HBS is indexed ("aged") to 2009 levels. Individual net income is calculated from gross income using an algorithm following 2009 tax regulations, and household income is

⁶⁹ The job market position of the younger age groups is likely more severe than it appears in our estimations since we do not take into account their lower probability of entry into employment.

⁷⁰ See papers by Cseres-Gergely (2005), Firlé and Szabó (2007), Havasi (2007), and Gáspár and Kiss (2009). When using HBS data one must take into consideration the weaknesses of such questionnaire type surveys: the poorest and wealthiest households are underrepresented and the response rate is not independent of the level of education.

calculated by adding up the net income of individuals in the same household. Finally, income deciles are determined based on household's equivalent income. For this procedure we use a modified version of the HKFSZIM microsimulation program created by Benedek, Elek and Szabó (2009).

In order to analyze the effects of the crisis we first calculate the probability of job loss of an employed person in 2009.⁷¹ We then re-create the same explanatory variables we used in the LFS in the HBS database and recalculate the probability of job loss for each employed person. Since the result is a quarterly figure we use the following formula to convert it to an annual probability:

$$P_a = 1 - (1 - P_q)^4.$$

We simulate job loss by placing each employed person in one of two groups (employed or unemployed) based on the realization of a random variable that reflects the individual's probability of job loss. In every repetition of the simulation the group of the unemployed will be different; but in the average of several simulation runs the results approximate the underlying odds well. The results presented below reflect the average of 100 simulation runs.

In order to analyze the effects of job loss we compare three states: 1) without job loss: everyone is employed; 2) job loss has taken place; the newly unemployed receive neither income nor unemployment benefits; 3) job loss has taken place; those among the newly unemployed who are eligible receive unemployment benefit.

We use data regarding the length of employment and income (indexed to 2009) recorded in the HBS to determine the eligibility for unemployment benefit and the cash amount of benefits. To determine these exactly, we would need information on the individual's employment history for the last four years.⁷² Observing only one year, we fill the missing information by assuming that the individual had similar employment history during the three years prior to 2007.

Results

Figure 6.2 demonstrates the probability of job loss as an average of all simulations in each equivalent household income decile.⁷³ It is noticeable that job loss due to the recession affects each decile, but to a diminishing degree as income increases. About 8.5% of employed individuals who ranked in the lowest decile based on their equivalent household income lost their jobs, while this ratio was 3% in the highest income decile.

In line with the finding that families with many children are more common in the lower income deciles, our calculations – not illustrated here – show that individuals in households with three or more children have a higher probability (almost 7.1%) of job loss compared to households with no children, or one or two children (5.2–5.6%).

The picture is more complex when the average income change is analyzed across income groups. Moving towards groups with higher equivalent income

71 The one-year period is partly arbitrary, but its advantage is that it is easy to interpret and the results can be re-scaled depending on what one assumes about the length of the recession.

72 According to the unemployment regulations of 2009 an individual must have had at least 365 days of social security contributions within the four years prior to the job loss.

73 This method categorizes the entire population into equivalent income deciles (i.e. according to household consumption units). We used the weights available in the HBS when estimating our results.

the *absolute* loss of income increases, while the *relative* loss of income is similar in all deciles. Figure 6.3, which illustrates this relationship, does not take unemployment benefits into account, that is it compares stages 1 and 2.

Figure 6.2: Probability of job loss among employed persons per income decile

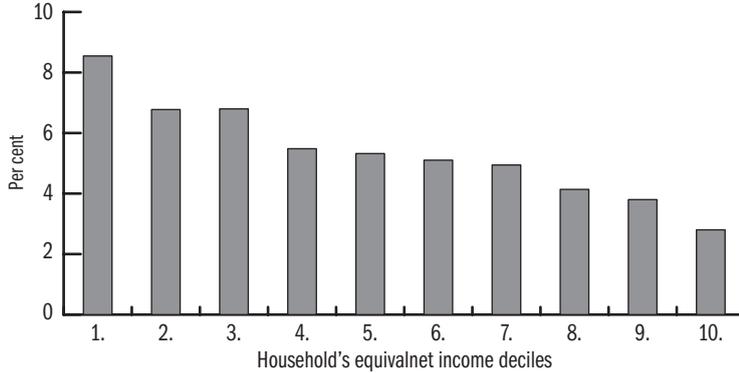
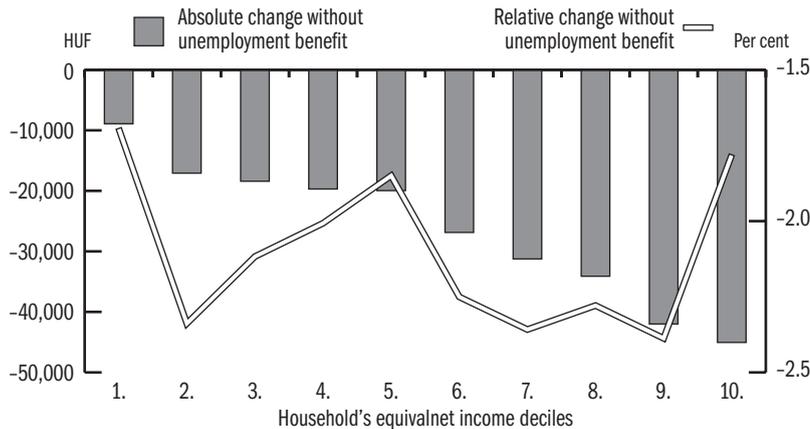


Figure 6.3: Changes in average income due to job loss according to equivalent income deciles



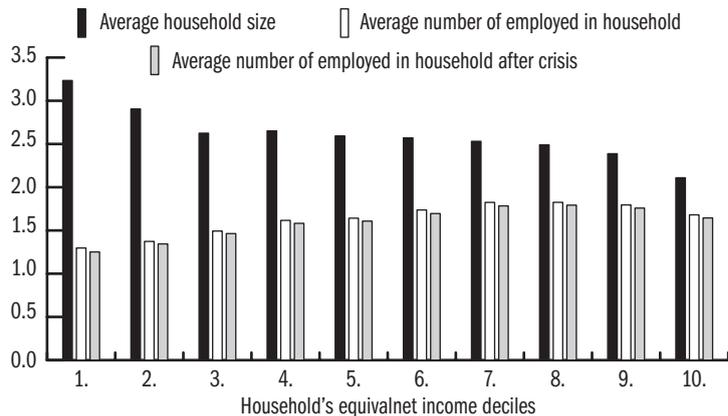
Note: The figure illustrates results for all individuals compared to others within the same equivalent household decile.

The figure indicates that while an average individual in the lowest decile loses HUF 9,300 annual equivalent income due to job loss, an average individual from the highest income decile loses up to HUF 50,000 (including households who do not suffer any job loss).⁷⁴ This is not only due to the fact that employed persons have higher income in the higher deciles, but also because higher income deciles also have higher employment rates (see Figure 6.4). Since the number of employed persons increases with household income the number of job losses per person declines at a slower rate than the probability of job loss. This partly explains why lost relative income is similar among the income deciles (and why it is not a monotonic function of income): as seen on Figure 6.3, in-

⁷⁴ To convert incomes denominated in Hungarian Forint (HUF) to Euro it is convenient to consider HUF 1000 to be equal to EUR 4. This exchange rate characterized most of 2007 before the Forint strengthened and then weakened against the Euro. As of January 2011, EUR 1 was worth about HUF 275.

dividuals in every decile lose about 1.7–2.4% of their equivalent income. The differences in average lost income between income groups are influenced by the household structure prevalent within the various income groups (i.e., the average number of employed and dependents). This is illustrated in Figure 6.4.

Figure 6.4: Average number household members and employed per household



In order to shed light on this relationship let us compare income deciles 5 and 6 in the last three figures. According to Figure 6.2 the probability of job loss among the employed is almost identical between these deciles. But since equivalent income in the 6th decile is higher, the average loss of *absolute* income is also higher than in the 5th decile (Figure 6.3). If the average makeup of households in the two deciles were the same, the loss of *relative* income would also be equal. In Figure 6.4 we see that this is not the case: while the household size is almost identical in the two deciles, the number of employed is higher in the 6th decile. Since employed persons have the same probability of job loss in these two deciles, this leads to more job loss and higher loss of *relative* income in the 6th decile.

Next, we analyze how unemployment benefits influence crisis-related income changes. In order to do this, we compute the probable amount of unemployment benefit for each simulated unemployed according to 2009 regulations and eligibility requirements mentioned above.

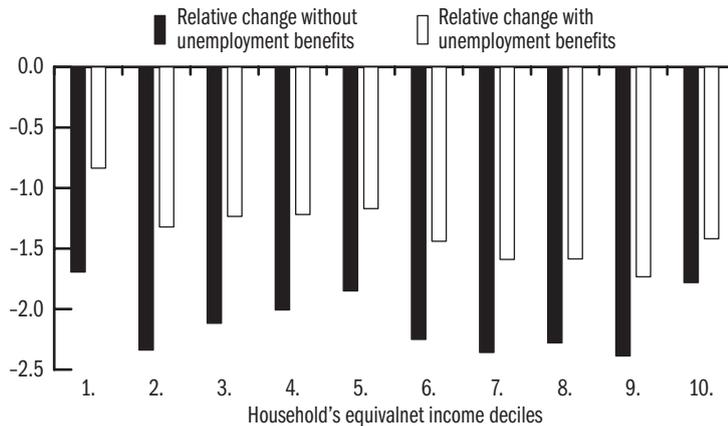
Figure 6.5 illustrates the effects of unemployment benefits on *relative* loss of income. The loss of relative equivalent household income decreases by 0.4–1.1% even though the compensation-ratio was relatively stable across groups. The compensation-ratio was only lower than 0.7 in the highest income decile.

The aim of this paper is to analyze the short-term effects of crisis: the unemployment benefits that we took into consideration on average cover the first year of unemployment, but they cannot be granted beyond that point.⁷⁵ Those who were not able to find employment within one year may be eligible for social welfare (of which there are two types since 2009: the one is conditional on being

75 For the long-term effects of unemployment on the income distribution see Kapitány and Molnár (2005).

prepared to undertake public work [“RÁT”] and the other – meant for those unable to work – is not [“RSZS”]) or they become inactive. The medium-term effect of the crisis on those who become inactive is illustrated in Figure 6.3, where we did not include unemployment benefits in our calculations. In addition to this income, those eligible for social welfare receive the legal minimum pension (HUF 28,500 in 2010), while those eligible for government subsidized work receive the minimum wage (and social security benefits).

Figure 6.5: The effect of unemployment on the relative loss of income



Note: The figure illustrates results for all individuals compared to others within the same equivalent household decile.

Flows into employment and counterfactuals

In the main analysis we simulated the flows into unemployment during the first year of the crisis. We used a “gross” probability of job loss, that is, we did not take into account the flows in the opposite direction. Thus, our estimation can be understood as an *upper bound* on the effect on household income. In this section we show two calculations that correct for this issue.

One way to correct the gross probabilities is to take into account that some individuals find employment quickly after a job loss (perhaps because their job loss is an instance of a “normal” labour market transition). To deal with the issue of the re-employed, we repeated our calculations with one difference in the procedure: we followed the individuals in the database for an additional quarter. A job loss occurs in this calculation if an individual is employed in quarter t , unemployed in $t+1$ and not employed in $t+2$. This procedure is more demanding on the data: we lose some observations in cases where an individual disappears from the data base directly after a job loss.⁷⁶ According to our calculations 22% of those individuals who lost their jobs in the first four quarters of the crisis found employment in the following quarter. Running the probit model to explain this alternative job loss event and applying the probabilities to individuals in the HBS we find that job loss probability decreases by a similar

⁷⁶ Sample selection may bias our results if attrition is correlated with employment status but not exclusively through observable individual characteristics. The decreasing number of observations and the potential bias were the main reasons why we did not choose this as our main specification.

amount in all income deciles, by 27% on average, as compared to the calculation without taking re-employment into account. Based on this, we conclude that re-employment diminishes the estimated effect by about a fourth, but it does not affect its distribution.

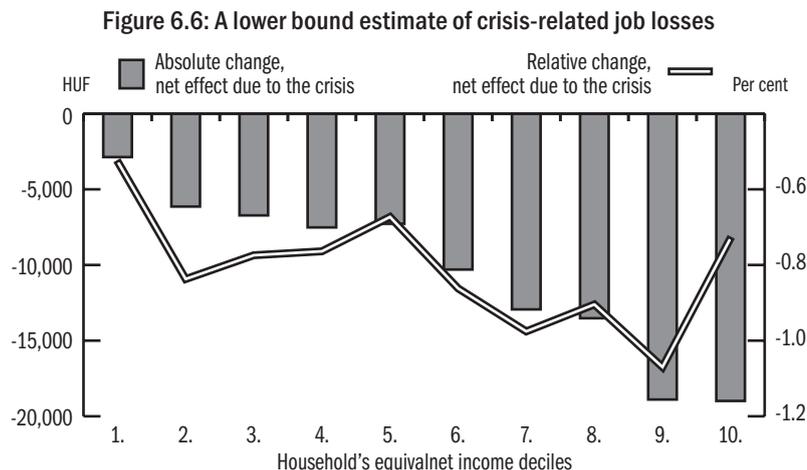
The other method is based on the question what share of the job losses would have occurred in the absence of the crisis. Our basic “gross” calculations would be exactly equal to the real (“net”) effect if we could assume that (1) before the crisis every single instance of job loss was counterbalanced by a labour market transition in the opposite direction (that is, an individual gaining employment), and that (2) during the crisis no individual gained employment at all to counterbalance job losses. Assumption (1) is plausible (and might even be too pessimistic as the economy was adding jobs in the period before the crisis. Assumption (2) is, however, clearly not fulfilled, even though the probability of finding a job decreased during the crisis. (According to our calculations, the probability with which an unemployed individual found employment decreased from 27% before the crisis to 22% during the crisis.)

As a second approximation we make a calculation that gives a *lower bound* estimation on the income consequences of job losses during the first year of the crisis. In this procedure we estimate the job loss probabilities (similarly to the results shown in Table 6.1) in the LFS for the pre-crisis period Q1–2003 to Q1–2008. Using these results we calculate the job loss probabilities of individuals observed in the HBS to see the income consequences of pre-crisis job losses. Finally, we calculate the difference between the crisis and pre-crisis effect. This procedure would provide the real “net” effect if flows *into* employment were unaffected by the crisis. Since the probability of finding employment decreased by a fourth during 2009, this condition is not fulfilled. Thus, the calculation underestimates the effect of the crisis. Results are shown in Figure 6.6.

The estimated effect shown in Figure 6.6 is about one-third to one-half of that obtained in our main calculations (Figure 6.3). Figure 6.6 shows also that the distribution of the income loss is similar to our main calculations, although there is a bigger difference between the methods for lower-income groups than for higher-income groups. This might reflect the fact that individuals in the lower income groups change their labour market status more often than those in higher-income groups even in normal times, and these “normal” labour market transitions appeared wrongly as crisis-related in our main estimation.

To place the real “net” effect between our upper- and lower-bound estimates we turn to macroeconomic aggregates. In our main estimation – calculating “gross” job loss probabilities – we obtain an average job loss probability of 5.5%, while we estimate the average pre-crisis job loss probability to be 3.6%. Figure 6.6 thus reflects the difference of these figures, a job loss probability of roughly 2%. Meanwhile, data published by Hungary’s Central Statistical Office show that employment declined by 4% between Q3–2008 and Q3–2009. This im-

plies that our lower-bound estimation underestimates the real effect by about one half, while our main estimate overestimates it by about one-fourth. Macroeconomic indicators are thus closest to the version of our results where we take into account re-employment after one quarter.



Concluding remarks

The aim of this study was to assess the impact of the first year of the crisis on the income of households in Hungary. We estimated, based on the LFS, how various individual characteristics affected the probability of job loss during that year and used the estimation results to assign job loss probabilities to individuals in the HBS. Based on this information, it was possible to estimate the change of household income of various income groups of the population.

The results showed that the probability of job loss was much higher for less educated and younger individuals, and in some regions and sectors. The education and regional effects seem to exacerbate the disadvantage of groups that were in a worse position in the first place. This conclusion is supported by the analysis in the HBS: according to our estimations the job loss probability in lower-income groups is two to threefold of that in higher-income groups. As a result income loss, in absolute terms, is higher for high-income groups while income loss, as a percentage of income, is fairly constant (between 1.7–2.4%) across income groups. Lost income is partly compensated by unemployment benefits: the replacement ratio (abstracting from the issue of take-up) is higher for lower-income groups.

Our calculation can be taken as an upper bound because they do not take into account flows into employment (and its changes during the crisis). We employed two methods to correct our “gross” effect to get the real (“net”) effect: both pointed to a conclusion that the “gross” effect exceeds the “net” effect by about a fourth.

7. INCOME DISTRIBUTION AND LIVING DIFFICULTIES IN THE MIDST OF CONSOLIDATION PROGRAMMES AND CRISES IN HUNGARY*

ISTVÁN GYÖRGY TÓTH & MÁRTON MEDGYESI

Introduction

In this paper the possible effects of the crisis on the Hungarian population are analysed, as far as the data allow, through the results of a survey conducted in 2010 (the latest wave of the Tárki Household Monitor Survey) with questions referring to 2009. Our latest volume of studies, based on 2007 Household Monitor Survey data, analysed the impact of the budget expansion of the period between 2003 and 2006 and then the fiscal consolidation of 2006–2007 (*Szivós & Tóth, 2008*). Some of the actual social effects of the fiscal consolidation programme, however, appeared after the publication of the volume in 2008 (i.e., in 2008–2009). It was this process with which the first wave of the global economic crisis (the onset of the financial market crisis and the real economy crisis) met in the summer or autumn of 2008. Some of the macro-economic crisis-relief measures introduced following the government crisis in spring 2009 already had their effects felt during the reference period of our analysis, but not all of them and not to their full extent. The effects of some other fiscal consolidation measures introduced in 2009, however, emerge gradually and cumulatively, and thus it would be too early to analyse them in this study.

With respect to the social effects of the economic crisis, its different phases should be distinguished.

1. In the second half of 2008, the crisis was primarily of a financial nature and affected those who had substantial savings. Some of the losses were “virtual” in the sense that those who could afford to keep their securities or savings thus avoided realising the loss. Those, however, who for some reason had no choice but to realise their loss suffered an effective loss of assets.

2. The next phase of the crisis essentially reached households through two channels. One was the volatility created by financial market processes, specifically related to Hungarian Forint exchange rates. The people affected by this before anyone else were those repaying foreign currency denominated (housing or car) loans. The unfavourable movement of Forint exchange rates led to an increase first in the interests on foreign currency loans and then in their repayment instalments. As a result, the living standards and consumption potential of affected households were substantially narrowed, but the effects were not directly reflected in income distribution statistics. Households were affected by another process through the plunge in employment and the rise in unemployment.

* This paper is a revised and extended version of Chapter 1 (*Tóth, 2010*) of the final Research Report (*Tárki, 2010*) of the Tárki Household Monitor survey series.

3. In the third phase, the effects brought on by the crisis were mediated by the crisis-relief programmes announced in spring 2009: cuts in government spending with social consequences and the scaling back of the welfare system. Specific measures include cuts in pension costs (the 13th month's pension was abolished), in family support (a freeze was put on child benefits) and in social transfers (an upper limit was introduced on the number of entitlements per household). Households responded to these measures by showing considerable, perhaps overcautious, restraint in spending, which further exacerbated the economic downturn.

Of all waves of the Tárki Household Monitor so far, the data for the latest was collected under the worst macro-economic circumstances (Tóth, 2010). In 2009 GDP plunged to a substantial extent (about 7 per cent in the first three quarters and about 4 per cent in the fourth quarter). Although inflation rates had been higher during previous data collection periods (at the time of the 2001 and 2007 surveys, for instance), the rate in 2009 showed a steady rising trend from one quarter to the next. The average inflation rate for 2009 was, however, below the rate observed during the previous survey (3–5 per cent compared to 5–8 per cent). In 2009 there was a substantial decline in household consumption. The decrease of consumption roughly corresponded to that of GDP. Interestingly, the saving behaviour of households did not mirror these downward trends. The rate of saving relative to GDP remained positive throughout 2009 in contrast with the (declining) figures for the first three quarters of 2008.

In 2007, the decrease in net real wages was far more pronounced than the decline in gross real wages as a combined effect of fiscal austerity measures and tax increases. In 2009, in contrast, there was a significant fall in gross real wages accompanied by a relatively moderate decline in net real wages. The plunge in net real wages experienced during the period of fiscal consolidation in 2007 was substantially greater than the decrease during the later period (of crisis-relief measures).

During these periods some of the social effects of the crisis concerned the distribution of incomes, while others bore on the use of incomes (consumption, savings and borrowing). The next section of this paper looks at the trends in income distribution during the different phases of the crisis. We then turn to the public perception of living difficulties. Finally, the level and structure of indebtedness of the various income groups are analysed using Tárki Household Monitor survey data.

Major indicators of income distribution

The ratio of the average of the highest to the average of the lowest income decile increased from 6.8 in 2007 to 7.2 in 2009 (Table 7.1). The increase is statistically significant but not especially large.⁷⁷ The Gini index calculated over income per capita characterising the overall income distribution increased slightly. The

⁷⁷ Cross-country comparisons of the breadth of the income distribution are discussed for the EU-27 in Ward *et al* (2009) and for the OECD countries in OECD (2008). The Tárki income distribution data is presented in more detail in the OECD publication although the occasional contradictions displayed by the Hungarian data are also analysed in the former volume. See also Medgyesi (2010).

data reveals a relatively significant drop (from 3.5 per cent to 3.1 per cent) in the share of the lowest decile in the total income. A drop of this magnitude was last measured during the period from 1992 to 1996. The share of the top decile also fell to some extent, effectively continuing the trend experienced starting with the period between 2003 and 2005.

Table 7.1: Major inequality indicators of the distribution of household income per capita* in Hungary, 1987–2009**

Indicator	1987	1992	1996	2000	2003	2005	2007	2009
P10/P50	0.61	0.60	0.48	0.51	0.49	0.51	0.50	0.46
P90/P50	1.73	1.83	1.91	1.93	1.92	1.92	1.78	1.89
P90/P10	2.81	3.07	3.95	3.78	3.90	3.78	3.53	4.11
S1	4.5	3.8	3.2	3.3	3.2	3.3	3.5	3.1
S5+S6	17.9	17.4	17.5	17.3	17.1	17.1	17.7	18.0
S10	20.9	22.7	24.3	24.8	25.7	25.1	23.6	22.6
S10/S1	4.6	6.0	7.5	7.6	8.1	7.6	6.8	7.2
Robin Hood	17.0	18.5	20.7	21.2	21.8	21.4	19.9	20.5
Gini	0.244	0.266	0.300	0.306	0.316	0.308	0.288	0.292
N	56459	5538	4972	5253	5909	5209	5054	4849

* P10 (P90): the ratio of the upper (lower) cut-off point of the lowest (top) income decile to the median (P50) income (per cent). S1, S5, S6 and S10: the shares of the lowest, the fifth, the sixth and the top income deciles in the total income; Gini index:

$$G = \frac{1}{2n(n-1)} \sum_{i=1}^n \sum_{j=1}^m |y_i - y_j|$$

(where n is the number of observations in the sample, y_i is the income of individual i), Robin Hood index: the sum of the deviations from the decile ratios of an equal distribution.

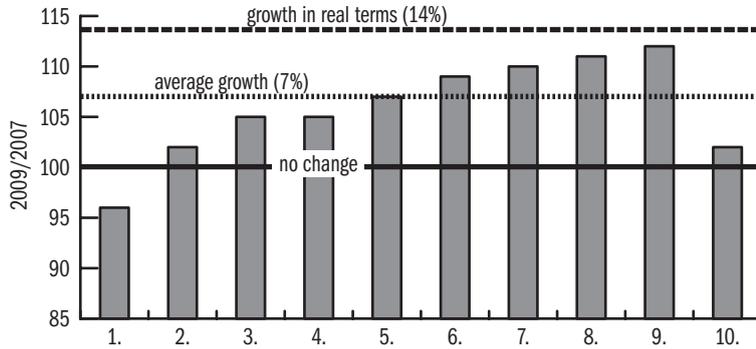
** For 1992–2007, the year shown corresponds to the year of data collection. For 1992–2001, each reference period covers the period from April in the previous calendar year to March in the current calendar year. For 2003, 2005 and 2007 the reference period starts in October and ends in September, and for 2009 data collection took place in February and March 2010.

Source: 1962–1990: *KSH*; 1991–1996: *Tárki Household Monitor Survey*; 1998–2009: *Tárki Household Monitor Survey*.

In 2009 the average net household income per capita was HUF 74 thousand across all persons. Compared to the average income measured in the 2007 survey (HUF 69 thousand), this constituted a nominal increase of about 7 per cent. The consumer price index for the period of somewhat less than two and a half years between the two data collection waves was about 114 per cent. Overall, therefore, average household incomes lost approximately 7 per cent of their real value with considerable variation across income deciles. In terms of nominal value, above average increases are observed in the incomes of the upper-middle strata (6th, 7th, 8th and 9th deciles), but even these are lower than the inflation index for the period (*Figure 7.1*). The two extremes of the income distribution deviate from the average trend in significantly different ways. While the average incomes of the lowest decile fell even in nominal value, the average nominal incomes of the top decile remained constant.⁷⁸

78 It should be noted that at the two extremes of the distribution, averages always cover (up) a much larger internal dispersion. This question should be specifically addressed when analysing inequality indicators asymmetrically sensitive to the two ends of the distribution. We should also note here that the Household Monitor survey certainly cannot capture the lowest or the top 3 per cent of the total Hungarian income distribution, which means that the dispersion values given here must be conservative estimates.

Figure 7.1: Evolution of mean incomes of equivalised income*
($e = 0.73$) deciles, 2007–2009



* See Footnote 79.

Source: *Tárki Household Monitor 2007 and 2009*.

The figure displays the growth curves of average incomes in the various deciles over the period between the surveys of 2007 and 2009. During the roughly two and a half years covered by the period, the inflation rate was 14 per cent (dashed line). If each decile had increased at the average rate during this period, we would see a uniform 7 per cent increase (dotted line). The solid line illustrates the stable curve of the nominal value.

The most recent figures therefore show that between 2007 and 2009, the relative share of the lowest decile decreased to a considerable extent. That is, during the latest period of analysis there was a decline in the income positions of both the rich and the poor, but the decline experienced by the poor was substantially steeper.

The general trends in income distribution discussed above are also reflected in the figures based on individual equivalised incomes (with an elasticity coefficient of $e = 0.73$)⁷⁹ rather than on per capita incomes see *Table 7.2* and *Tárki, 2010*).

These indicators do not always show consistent results. The indicators sensitive to the centre of the distribution and those symmetrically sensitive to the two extremes paint an ambiguous picture. The Atkinson index with its parameter set to 1, the Gini coefficient and the generalized entropy index with its parameter set to 0 [GE(0)] show essentially no change. The S10/S1 index measuring the ratio of the share of the top decile to the share of the lowest decile and the P90/P10 index measuring the ratio of the lower cut-off point of the 90th percentile to the upper cut-off point of the 10th percentile show an unequivocal increase. Finally, the generalized entropy index with its parameter set to 1, the so-called Theil index [GE(1)], decreased. The indicators sensitive to the upper end of the distribution show similarly contradictory results.

The value of the Atkinson index with its parameter set to 0.5 [A(0.5)] (i.e., showing special sensitivity to the highest incomes) did not change, the GE(2)

⁷⁹Household *equivalised income* refers to income per consumption unit, i.e., the equivalised income adjusts for differences in household size. This study uses an equivalence scale defined by the elasticity coefficient $e = 0.73$, which means that household total income is divided by $L^{0.73}$ where L stands for household size.

index (showing simple statistical variation) substantially decreased, while the ratio of the lower cut-off point of the 90th percentile to the median income (P90/P50) somewhat increased. The indicators sensitive to the lowest segment of the distribution once again show an unequivocal decline in the position of those at the lower end of the income scale. The ratio of the upper cut-off point of the top decile (P10) to the median income (P50) dropped from 55 to 51 per cent, and the value of the Atkinson index with its parameter set to 2 (i.e., showing special sensitivity to changes in low incomes) increased from 0.228 to 0.233.

Table 7.2: The distribution of equivalised (e = 0.73) incomes between 1987 and 2009 by inequality measures sensitive to the different segments of the income distribution*

Index	1987	1992	1996	2000	2003	2005	2007	2009
Indices sensitive to the upper end								
P90/P50	1.69	1.86	1.90	1.92	1.92	1.91	1.74	1.81
GE(2)	0.116	0.168	0.236	0.207	0.261	0.260	0.205	0.155
A(0.5)	0.046	0.059	0.071	0.072	0.078	0.073	0.064	0.062
Indices sensitive to the centre or symmetrically to the two extremes of the distribution								
S10/S1	4.55	5.52	6.62	6.63	7.30	6.68	6.00	6.35
P90/P10	2.8	3.1	3.6	3.5	3.58	3.42	3.16	3.53
GE(0)	0.092	0.119	0.143	0.147	0.156	0.145	0.127	0.128
GE(1)	0.097	0.127	0.156	0.155	0.175	0.163	0.140	0.128
Gini	0.236	0.263	0.290	0.292	0.302	0.291	0.271	0.272
A(1)	0.088	0.112	0.133	0.137	0.144	0.135	0.119	0.120
Indices sensitive to the lower end								
P10/P50	0.60	0.59	0.54	0.55	0.54	0.56	0.55	0.51
A(2)	0.164	0.219	0.244	0.294	0.259	0.243	0.228	0.233

* See Note to Table 7.1. and:

$$GE(\alpha) = \frac{1}{\alpha^2 - \alpha} \left[\frac{1}{n} \sum_{i=1}^n \left(\frac{y_i}{\mu} \right)^\alpha - 1 \right], \text{ if } \alpha \neq 0, 1,$$

$$GE(0) = \frac{1}{n} \sum_{i=1}^n \log \frac{\mu}{y_i}; \quad GE(1) = \frac{1}{n} \sum_{i=1}^n \frac{y_i}{\mu} \log \frac{y_i}{\mu} \text{ (Theil-index);}$$

$$GE(2) = \frac{1}{2n\mu^2} \sum_{i=1}^n (y_i - \mu)^2; \text{ Atkinson index: } A_\varepsilon = 1 - \left[\frac{1}{n} \sum_{i=1}^n \left(\frac{y_i}{\mu} \right)^{1-\varepsilon} \right]^{\frac{1}{1-\varepsilon}},$$

$$\text{if } \varepsilon \geq 0 \text{ and } \varepsilon \neq 1, A_1 = \exp \left[\frac{1}{n} \sum_{i=1}^n \ln \frac{y_i}{\mu} \right],$$

where n is the number of observations in the sample, y_i is the income of individual i , μ is the arithmetic mean of all y_i ; and α and ε are parameters set according to the weight placed on our observation units' level of well-being in different segments of the income distribution. Lower values of α increase the indicator's sensitivity to the lower end of the income distribution, while higher values of α increase the sensitivity of the indicator to the upper end of the income distribution.

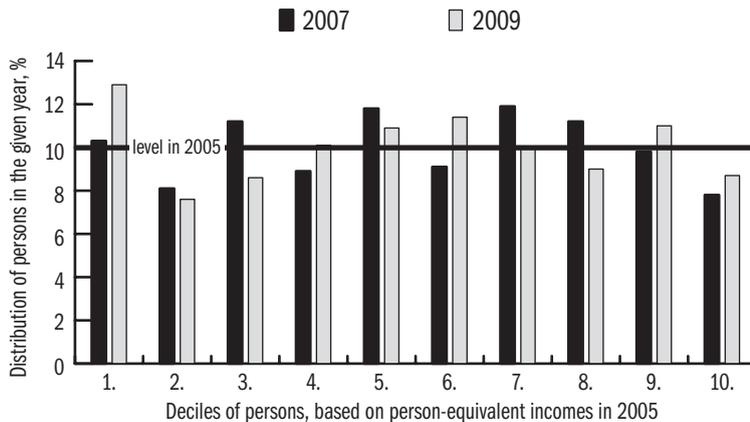
Source: 1987: *Hungarian Central Statistical Office Income Survey*; 1992, 1996: *Hungarian Household Panel*; 2001–2009: *Tárki Household Monitor*.

Polarization trends

Internal changes of distribution may be mapped through the analysis of polarization trends. Two types of analysis are performed here: First, income polarization across different income groups is shown and second, employment polarization is discussed in relation to the distribution of employment across households.

The process of income polarization involves social groups at the ends of the scale moving further away from the centre with the result that the relative shares of the poor and the rich increase in parallel. The phenomenon may be measured by ranking all respondents according their personal equivalised income at the beginning of the period under analysis in order to establish the incomes of those at the cut-off points of the various deciles. As the next step, the decile cut-off points are deflated (by the growth dynamics of median incomes, in our case), and we can look at the percentage of the population falling in between the boundaries of the various deciles defined this way. In *Figure 7.2* the decile cut-off points are deflated by the figures for 2005, which of course leaves exactly the same percentage (10 per cent) of people in each decile for 2005. If no change had taken place in the relative values of the decile boundaries, exactly 10 per cent of the population would remain in each of the 2005-based decile categories in 2007 and 2009.

Figure 7.2: Distribution of individuals in 2005, 2007 and 2009 across the income categories defined by the cut-off points of the 2005 decile distribution deflated by median income (per cent)



Source: *Tárki Household Monitor, 2005, 2007 and 2009*.

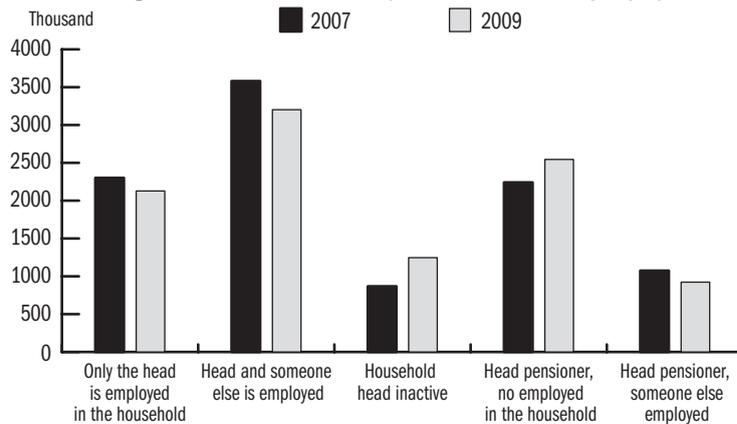
In our analyses of the surveys of 2007 (see *Szivós & Tóth*, eds., 2008), a process of depolarization was observed (i.e., the upper middle classes moved down while the lower middle classes moved up on the income scale), which was attributed to the combined effects of the so-called welfare regime change taking place around 2003 and the fiscal consolidation package of 2006–2007. The most significant change shown by our most recent data is polarization at the

lower end of the income distribution, i.e., an increase in the percentage of low-income households as defined by the deciles of 2005. *Figure 7.2* also reveals flows from the 7th and 8th deciles to lower income categories and – to a lesser extent – flows to the top two income categories.

In the analysis of employment polarization, households are categorised into five types according to their labour market ties. The first category comprises those where the head of the household is employed but other household members are not (either because there are no other adults in the household or because all other adult members are inactive). Households where both the head and one or more further members are employed belong to a second category. This is a heterogeneous category in the sense that the only criterion is the presence of at least two workers and the number of inactive members is unspecified, i.e., there may be any number of them. Households in the third category have an inactive head (either unemployed or economically inactive with no labour market ties). By definition, these households have no economically active members. The next two categories are both pensioner headed households but while there are one or more working members in one, there are none in the other.

According to our estimates, the percentage of households with working heads decreased between 2007 and 2009 among the population of Hungary. The decrease is especially marked for households where there were at least two workers in the first year of analysis (*Figure 7.3*).

Figure 7.3: Number of people living in households of various compositional categories in 2007 and 2009 (estimate, thousand people)



Source: *Tárki Household Monitor 2007 and 2009*.

80 There were also slight changes in the relative income position of the household types defined above. The relative income position of those living in a household with at least one employed worker improved slightly (or, looking at real values, declined less), while the position of the others (at least in a relative sense) remained essentially stable.

There is an increase, however, in the percentage of people living in households with no active workers (where the head is inactive or a pensioner). The employment effects of the crisis can therefore be summarised as follows: Households having at least two economically active earners were especially severely affected by the decline in the probability of living in a working household.⁸⁰

Low income, living difficulties and household indebtedness

As was mentioned in the Introduction, as a result of the crisis, household living difficulties, indebtedness and loan repayment problems were exacerbated through two channels: the decrease in incomes and the unfavourable changes in exchange rates. The decline in household labour incomes was the result of decreased employment levels and increased unemployment, while household welfare transfer incomes (pensions, family support and social security assistance) were reduced as a result of crisis-relief measures.

Reduced income levels and debts are both important factors in the impact of the crisis on household finances. Should a household need to face both, they will struggle both with meeting their consumption needs and with repaying their loans, and may even accumulate further debts with their banks or with their public utility providers. Other households take out bank loans or borrow from elsewhere (from family members, other private individuals, their employers, etc.) to help them overcome the financial difficulties brought on by the crisis. That is, household indebtedness (in the form of personal loans, unrestricted loans or informal loans) may even increase as a consequence of the crisis.

Repayment of foreign currency denominated loans may become especially difficult during the economic crisis. The steep rise in population debt starting with the middle of the decade was due to the extensive spread of foreign currency loans, which became so popular that by the end of 2007 the ratio of foreign currency consumer or other type of credit to GDP exceeded the ratio of Hungarian Foreign denominated credit. During the crisis the Hungarian currency fell compared to the foreign currencies in which household debts had typically been accumulated (Swiss Francs, for instance), which led to a significant increase in repayment obligations. With decreased incomes and increased repayment instalments, it becomes more difficult to repay existing foreign currency loans with the result that some households are in arrears with their loan repayments.

The next section of the study looks at the unfavourable changes triggered by the crisis in the proportion of households struggling with living difficulties, at the probabilities of household indebtedness during the past decade, and at the proportion of households having difficulties repaying their loans. Indebtedness and repayment difficulties are analysed by income group on the assumption that these problems are most likely to be experienced by low-income households. Our analyses divide households into five equal groups (quintiles) according to equalised household incomes.

Living difficulties

The Tárki Household Monitor surveys allow two different approaches to the analysis of changes in living difficulties over time. One measure concerns households' self-assessment of their financial situation, specifically, whether they re-

port that 1. they usually have no financial worries, 2. they make ends meet if they economise on their spending, 3. they can just make ends meet, 4. they have financial hardships, or 5. they live in financial need. The time series shown in *Table 7.3* indicate a stability in responses over time: Between 2001 and 2007, half of respondents chose the middle category (“they can just make ends meet”), with 26–28 per cent saying that they made ends meet if they economised, and only 1–2 per cent feeling that they were living without financial worries. Over this period almost one in five households said that they had financial worries and 4 per cent said they were living in need. The proportion of those reporting material deprivation grew from 4 to 8 per cent over the last two years of the time series, i.e., during the period encompassing the crisis. At the same time, the proportion of households having financial worries increased from 19 to 22 per cent. The frequencies of the responses “they make ends meet if they economise” and “they can just make ends meet” decreased accordingly.

Table 7.3: Households’ self-assessment of their financial situation (per cent)

Assessment	2001	2003	2005	2007	2009
They live without financial worries	2	2	3	1	2
They make ends meet if they economise	26	28	28	26	22
They can just make ends meet	49	49	48	50	47
They have financial hardships	19	17	18	19	22
They live in financial need	4	4	4	4	8
Total	100	100	100	100	100
N	5208	5917	5206	5056	4842

Source: *Tárki Household Monitor, 2001, 2003, 2005, 2007 and 2009.*

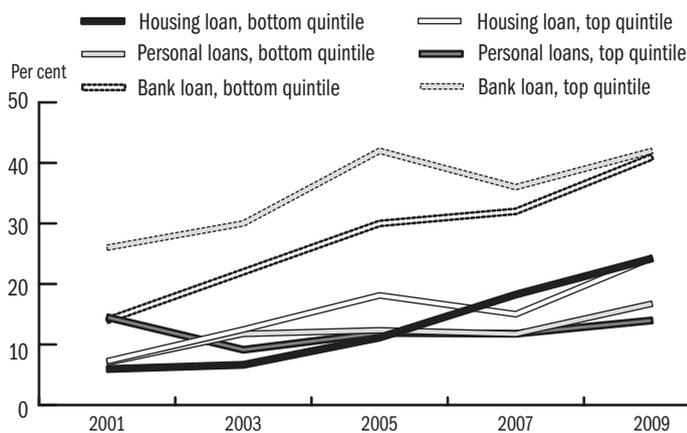
The effects of the crisis are therefore reflected in households’ subjective perception of their position. The second measure related to changes in living difficulties over time shows the proportion of households that could not afford to pay their rent or their public utility bills on at least one occasion during the year preceding data collection. In 2001, 15 per cent of households had this experience, and 12 per cent in 2007. In the last years of the decade, however, there was an increase in the proportion of these households. In 2009, 18 per cent of households said they had experienced difficulties of this type.

Indebtedness and difficulties with loan repayments

As indicated by the data of the annual Tárki Household Monitor survey of 2009, 35 per cent of households had debts with banks or other financial institutions, which constituted a 15 per cent increase compared to the beginning of the decade. A large part of the increase took place in the first half of the decade, when the proportion of households repaying bank loans rose from 19 to 31 per cent. The upward trend did not stop at this point, however, since by the end of the decade there was an increase of 4 percentage points compared to the figure for 2007.

In parallel with this process, we can observe a convergence in the frequency of debts between households at the extremes of the income distribution (*Figure 7.4*). At the beginning of the decade, the proportion of households repaying bank loans was substantially higher in the richest income quintile than in the lowest income quintile (29 *versus* 14 per cent). While for the lowest quintile, however, the increase characterising the first half of the decade continued after 2005, the figures for the top quintile show no significant change during this period. As a result, in 2009 the proportion of households repaying loans was slightly over 40 per cent for both ends of the income distribution. The corresponding figure for households in the middle quintile was lower, about 30 per cent.

Figure 7.4: Percentage of households repaying bank loans by income quintile*



* The quintiles are defined according to equivalised household income.

In addition to housing mortgage loans and personal loans, bank loans include current account credits, hire purchase credits, car loans, lombard loans, student loans and others.

Source: *Tárki Household Monitor, 2001, 2003, 2005, 2007 and 2009.*

We can distinguish three groups of bank loans: housing mortgage and other secured loans; car loans; and personal and hire purchase loans. The proportion of households having various housing mortgage and other secured loans rose from 7 per cent in 2001 to 15 per cent in 2007. The upward trend continued during the last two years with the proportion of households repaying loans of this type reaching 20 per cent in 2009. In the lowest income quintile of households, the increase in the incidence of mortgage loans commenced around 2003 and continued without interruption for the rest of the decade. During the last years of the decade, the proportion of households with mortgage loans in the lowest quintile rose from 18 per cent in 2007 to 24 per cent in 2009, which corresponds precisely to the figures observed for the top quintile. The proportion of households repaying car loans increased during the first half of the decade (from 2 per cent in 2001 to 7 per cent in 2005) and remained essentially

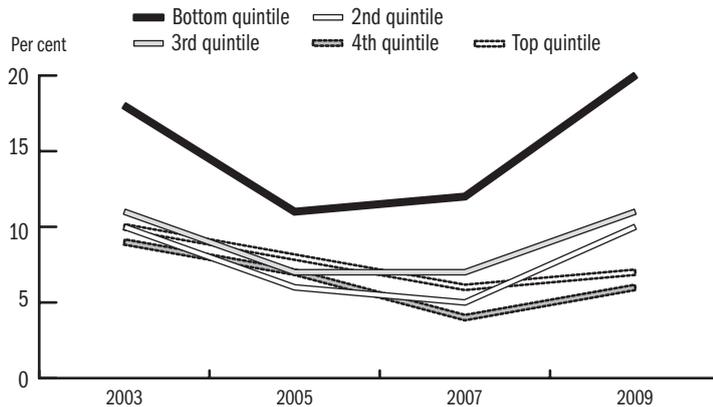
constant afterwards. At the beginning of the decade none of the households in the lowest quintile had debts of this type, while at the end of the decade the incidence of car loan debts was only marginally lower in the lowest quintile (7 per cent) than in the top quintile (9 per cent). The overall proportion of households with personal loans or hire purchase contracts did not show significant changes during the decade, although some increase can be observed towards the end of the period (from 11 to 14 per cent). The pattern for the lowest quintile deviates from the average curve: there was a strong increase during the decade, most of which occurred during the first years (from 7 to 12 per cent) and between 2007 and 2009, i.e., during the period encompassing the months of the crisis, when the proportion of households with personal or hire purchase loans rose from 12 to 17 per cent. In the top quintile, in contrast, the incidence of these loan types declined at the beginning of the decade and settled at about 12–14 per cent of households in the second half.

Household debts may be accumulated not only with financial institutions but also with other institutions or private individuals. Loans may be issued by local governments or employers, people may borrow from family members or other private individuals, and they may be in arrears with their payment of public utility bills (which is of course not a credit relationship). Overall, the proportion of households with non-bank debts did not show significant difference between the beginning of the decade and the end (12 per cent in 2001 and 11 per cent in 2009) but there was a considerable increase during the last few years (from 7 per cent in 2007 to 11 per cent in 2009). A large share of this increase is explained by the rising incidence of arrears in payments to public utility providers, which increased from 3 per cent to 8 per cent during the last two years of the period. Looking at non-bank debts by income group (*Figure 7.5*), we can see an increase during the last two years among the low-income quintiles: The proportion of households having regular repayment obligations for non-bank debts increased from 12 to 20 per cent in the lowest quintile, from 5 to 10 per cent in the second quintile and from 7 to 11 per cent in the middle quintile.

On the whole, therefore, the rising trend in the proportion of indebted households characterising the entire decade did not stop in the last two years whether we look at loans issued by financial institutions or debts accumulated in other ways. The various bank loans reached low-income groups as well. At the end of the decade the proportion of low-income households repaying various bank loans roughly corresponded to the average level. The increasing trend in the frequency of households with regular debt payment obligations continued over the last two years among those with low incomes: The incidence of non-bank debts displayed an unequivocally above-average increase, but even the proportion of households with bank loans rose at about the average rate (for mortgage loans) or more sharply than average (for personal loans and car loans). It could be the case, of course, that the explanation for this phenomenon is that

middle class families that had taken out loans at some earlier date experienced a substantial decline in their income level moving them to the lowest income quintile. It is also possible, however, that the explanation lies in households in the lowest income quintile taking out loans.

Figure 7.5: Percentage of households with regular non-bank debt repayment obligations by income quintile*



*The quintiles are defined according to equivalised household income.
Source: *Tárki Household Monitor, 2001, 2003, 2005, 2007 and 2009.*

The data from the Household Monitor survey of 2009 allows us to approach the question of households' difficulties with paying their debts in two different ways. First, we can look at the ratio of the monthly instalments paid by the households to household income, which gives us an indirect measure of the burden that the debts place on the households. Second, households were asked directly whether they were in arrears with their repayments at any time during the reference period.

Table 7.4 displays the average size of repayment instalments among households repaying bank loans, the average size of repayment instalments for foreign currency loans, and the average household income (regardless of household size). The figures show that households with bank loans paid on average about 20 per cent of their total income towards their bank loan debts in January 2010. There is considerable variation across income groups, however. In January 2010, households with loans in the lowest income quintile paid 29 per cent of their income towards their bank loan debts, while the corresponding figure is 14 per cent for households in the top income quintile. The indirect approach therefore indicates that bank loan repayment obligations place a substantially heavier burden on low-income households than on affluent households, even though in absolute terms, the former group pay lower instalments. Table 7.4 also reveals, however, that the share of foreign currency loan repayments is at about the average level among low-income groups, that is, the above-average dependence on exchange rates does not constitute excess risk among them.

Table 7.4: Bank loan repayment instalments and household income among households with bank loans, January 2010

Income quintile	Bank	Foreign currency	Share of foreign currency loan repayment instalments (per cent)	Total household income (HUF)	Ratio of instal- ments to house- hold income (per cent)	N
	Repayment instalments among bank loan households (forint)					
Lowest quintile	35,156	16,468	47	119,324	29	169
2nd quintile	44,501	22,966	52	173,828	26	104
3rd quintile	47,261	20,241	43	174,091	27	122
4th quintile	45,515	23,842	52	242,869	19	95
Top quintile	51,269	26,399	51	353,910	14	144
Total with bank loans	44,232	21,669	49	210,502	21	634

Note: The quintiles are defined according to equalised household income. The total household income (Column 5) is not, however, adjusted for household size.

Source: *Tárki Household Monitor, 2009*.

In terms of debt repayment burden, the gap between low-income and high-income groups is even greater if we look at households' repayment obligations for both financial institution loans and non-bank loans. In January 2010, households having regular repayment obligations of any type paid a quarter of their total income towards debts. The corresponding figure is 43 per cent for households in the lowest income quintile and only 15 per cent for the top quintile.

Besides the comparison of repayment instalments to household income, we also have direct information assessing households' difficulties with repayment obligations. *Table 7.5* displays the proportion of households that could not afford to pay their housing mortgage loan obligations on at least one occasion during 2009, and the proportion of those who had a similar experience with any of mortgage loan, hire purchase credit or other loan obligations. Mortgage loan arrears due to financial difficulties were experienced by 4 per cent of households, while arrears on loan repayment obligations of any type were reported by 9 per cent of households. In both cases, there is considerable variation across income groups. For housing mortgage loans, 8 per cent of households missed payments in the lowest income quintile, while only 1 per cent of households had this experience in the top quintile. The gap between income groups is even wider if all types of loan are considered. 17 per cent of households in the lowest quintile, 8–9 per cent in the second and third quintiles, and only a vanishingly low percentage of households in the top quintile struggled with their loan repayment obligations.

As was mentioned in the Introduction, households taking out foreign currency denominated loans are at even higher risk of repayment difficulties, since their repayment instalments may increase substantially with exchange rates fluctuations. As we can see in *Table 7.5*, 17 per cent of households had foreign currency loans at the time of data collection, and 5 per cent of all households experienced difficulties with paying their instalments on time. Once again, it

is clear from the data that the incidence of missed payments varies greatly with the income position of households. Making payments towards foreign currency loans places a perceptibly heavier burden on low-income families, since 9 per cent of these households were in arrears with their repayments at some point compared to 5 per cent of households in the second quintile and only 2 per cent of households in the top quintile.

Table 7.5: Percentage of households who could always afford to meet their repayment obligations and of those who could not always afford to meet their repayment obligations in 2009*

	Mortgage loans (N = 1956)		Mortgage, hire purchase or cash loans (N = 1957)		Foreign currency loans (N = 1901)	
	Could always afford to pay	Could not always afford to pay	Could always afford to pay	Could not always afford to pay	Could always afford to pay	Could not always afford to pay
Lowest quintile	23	8	35	17	10	9
2nd quintile	22	5	34	9	9	5
3rd quintile	22	4	37	8	11	4
4th quintile	30	1	41	5	10	3
Top quintile	34	1	51	2	19	2
Total sample	26	4	39	9	12	5

* Mortgage loans (Columns 1 and 2) and all loans (Columns 3 and 4) include both forint and foreign currency loans. The columns on foreign currency loan repayments (Columns 5 and 6) cover all loans denominated in a foreign currency, including housing mortgage loans and other foreign currency loans.

Source: *Tárki Household Monitor, 2009*.

We also looked at differences in the incidence of repayment difficulties across different demographic groups (*Table 7.A1*). With respect to age, households with heads under the age of 50 were more likely than average to miss a mortgage loan repayment because of financial difficulties, while older household heads were substantially less likely to have experiences of repayment difficulties. Among those having housing mortgage loans, 11 per cent of 51–60 year-olds, and 6 per cent of 61–70 year-olds experienced repayment difficulties compared to 18 per cent of 31–40 year-olds. A similar pattern can be observed for the sample of households with any type of loan (mortgage, hire purchase or other loan). The repayment of foreign currency loans is also less likely to pose problems for older people, although the difference is less pronounced. Among those having foreign currency loans, one in five 51–60 year-olds and a quarter of 61–70 year-olds missed repayments at some point because of financial difficulties.

Turning to household structure, the incidence of repayment difficulties is higher than average for large households and those with active heads. Among respondents having mortgage loans, repayment difficulties were reported by 30 per cent of households of five or more members compared to 9 per cent of single-person households. A similar gap can be observed when all types of loan

are taken into consideration. Large households also show higher vulnerability than all others to repayment difficulties with foreign currency loans: 38 per cent had experiences of this kind, while the corresponding figure is only 20–23 per cent among smaller households. A reasonable explanation for this pattern is that larger households tend to have more dependent (child) members.

Household heads' educational attainment and labour market status are strongly correlated with household income position and, consequently, with the incidence of repayment difficulties. Among mortgage loan repayers, 22 per cent of those with at most primary education missed repayments at some point because of financial problems. This contrasts with secondary school or higher education graduates, only 6–7 per cent of whom were in this situation. The pattern of differences by educational attainment is also observed for all loans and for foreign currency loans.

The labour market status of household heads is a further factor affecting the incidence of repayment difficulties. Jobless households are the most likely to experience repayment difficulties. Among households having housing mortgage loans, 31 per cent of jobless households reported repayment difficulties compared to 13 per cent of the total mortgage household sample. The unemployed are also about twice as likely to struggle with the repayment of any type of loan and of foreign currency loans. The incidence of mortgage loan repayment difficulties is lowest for employed and pensioner households. Pensioners, however, experienced difficulties with foreign currency loan repayments with a comparatively high frequency (30 per cent), although relatively few pensioner households had foreign currency loan repayment obligations. While we only have a small number of observations in the sample, it is a striking observation that the overwhelming majority (86%) of other inactive households were late with their repayments at some point.

The probability of having repayment difficulties also varies by settlement type and geographical region. Households in Budapest are somewhat less likely to experience repayment difficulties with either mortgage loans or all types of loan, while households in towns or villages had experiences of this kind with about average frequency. The pattern is slightly different for foreign currency loans, where Budapest households do not deviate significantly from the average (28 per cent had difficulties). With regard to region, among households with mortgage loans, those living in the South-Great Plains were the most likely to experience repayment difficulties (22 per cent compared to 13 per cent on average). Looking at all types of loan, however, the highest incidence of delays with repayments due to financial difficulties is observed in North-Hungary and in the North-Great Plains. Repayment difficulties with foreign currency loans are also more frequent among households living in North-Hungary than in any other region.

Summary

The factors shaping the patterns characterising the period analysed in our study are the fiscal consolidation programme of 2006, the increasingly heavy presence of the economic crisis starting with 2008, and the macro-economic crisis-relief policies of 2009. It is an exceptionally difficult task to separate these effects from each other, and our study only made limited attempts to do so.

Our analyses reveal that most indicators of income distribution show the growth of inequalities over the period between 2007 and 2009. As the gap between the two ends of the distribution widened, both households at the low end and those at the top end had to face losses, but the sharpest decrease in real incomes was suffered by the lowest decile of the population. Although the value of the usual Gini co-efficient did not change statistically significantly, several other indicators show an increase in inequalities.

The crisis was also accompanied by the polarization of income and employment or labour market positions. The extent of income polarization was intensified by the asymmetrical effects observed at the two extremes of the distribution. Employment polarization remained moderate, however. The increase in unemployment appears to be felt more by households that previously had at least two paid working members. In a separate analysis, we looked at the effects of the economic crisis on household living standards. The decline in incomes accompanying the crisis was most likely to cause financial difficulties for households having loan – especially foreign currency loan – repayment obligations. Household indebtedness was therefore analysed with reference to income position, and difficulties related to meeting repayment obligations were also examined.

Hungarian households could not avoid feeling the effects of the crisis. After a decade of stagnation, the last two years of the past decade (i.e., a period encompassing the crisis period) saw an increase in the percentage of households experiencing material deprivation or financial difficulties. Over these two years, the proportion of households having difficulties paying their rent or utility bills also increased (from 12 to 18 per cent). The rising trend in the frequency of households having loan repayment obligations characterising the entire decade continued during the last two years, both for bank loan debts and for non-bank loan debts. The various bank loans also reached low-income groups; the incidence of loan debts among them roughly corresponds to the average. The proportion of households with regular loan repayment obligations among low-income groups continued to grow during the last two years.

As expected, low-income households suffer the most from the burden of loan repayment obligations. The evidence for this claim is that indebted households in the lowest income quintile pay a higher share of their income towards their debts, and they are also more likely to be in arrears with their repayments because of financial difficulties. Our analysis of differences between various demographic groups also indicates that the incidence of repayment difficulties is higher for typically low-income population groups (those with low educa-

tional attainment, the unemployed, large households and households in disadvantaged geographical regions).

Appendix 7

Table A7.1: Percentage of households that could not afford to pay their loan repayment instalments on one or more occasions during the previous year

	N	Households with mortgage loans		Households with mortgage, hire purchase or cash loans		Households with foreign currency loans	
		Frequency (per cent)	Percent having repayment difficulties	Frequency (per cent)	Percent having repayment difficulties	Frequency (per cent)	Percent having repayment difficulties
Age of household head							
Under 30	164	40	12	62	17	28	34
31–40 years	348	44	18	64	21	33	27
41–50 years	322	32	22	59	25	27	35
51–60 years	482	26	11	46	17	16	20
61–70 years	291	22	6	38	12	8	26
Over 71	346			25	3		
Household type							
Active age head, Single person	257	26	9	40	12	11	22
Active age head, 2 persons	335	30	13	49	19	20	23
Active age head, 3 persons	318	34	12	60	17	29	20
Active age head, 4 persons	262	41	20	66	23	32	39
Active age head, 5+ persons	144	43	30	73	32	38	38
Older household, single person	315	18	5	25	11	2	15
Older household, more than one person	322	25	2	37	6	7	25
Educational attainment of household head							
At most primary school	509	22	22	37	27	9	45
Vocational training	738	28	16	50	21	21	33
Secondary school	445	36	7	52	12	21	22
Higher education	261	41	6	56	7	22	13
Labour market status of household head							
Employed	911	38	12	60	17	28	23
Unemployed	171	29	31	53	35	19	53
Pensioner	834	22	9	33	13	7	30
Other inactive	37	23	20	51	24	21	86
Settlement type							
Budapest	390	33	8	45	11	10	28
County seat	293	35	15	54	19	22	23
Town	656	30	15	49	21	21	33
Village	613	26	13	46	17	18	25
Region							
Central-Hungary	160	26	11	40	9	8	27
Central-Transdanubia	213	40	10	61	16	27	26
West-Transdanubia	194	32	8	50	11	20	19
South-Transdanubia	185	16	17	36	14	16	23
North-Hungary	239	25	14	43	26	22	41
North-Great Plains	301	28	16	49	28	19	30
South-Great Plains	270	35	22	54	22	23	28
Budapest	390	33	8	45	11	10	28
Total sample	1953	30	13	48	18	18	28

7.A) HOUSEHOLD CONSUMPTION BEHAVIOUR IN THE HOUSING AND MORTGAGE MARKETS

ZSUZSA KAPITÁNY

Over the past decade, the consumption behaviour of Hungarian households has been characterised by a strong preference for home ownership, a reluctance to move house, a high propensity to take out mortgages and a very low level of savings.⁸¹ With the restructuring of welfare programmes (pension, unemployment benefit and subsidy schemes), the fear of job loss and the importance of self-sufficiency have become increasingly dominant in households' lives. These concerns tend to encourage increased saving, reduced consumption and more restrained borrowing. Yet, at the beginning and in the middle of the 2000s household consumption behaviour was characterised by a low saving propensity coupled with a preference for consumption on credit and for home ownership investments. By international comparison Hungarian households have a very low level of monetary assets and an exceptionally high level of investment assets (*Vadas, 2007, Bethlendi, 2007*). To a significant extent, the continuance of this consumer behaviour has been shaped by the almost unlimited choice of mortgage loans and bank loans offered from the beginning of the decade, the rapid increase in household debts and the sudden rise in real wages in 2002. The surge in the demand for self-owned housing and mortgage loans coupled with a relatively inflexible supply of home construction programmes at the beginning of the decade led to a rapid rise in housing prices. Exploiting the highly favourable, or seemingly favourable, credit opportunities, households further increased rather than decreased their consumption spending and housing investments. As a result, savings were depleted and the self-financing and credit repayment ability of households greatly declined. These processes turned round in the middle of the decade, when government measures constraining the housing market

and mortgage lending in combination with insecurity about the future had the effect of decreasing the demand for residential housing. This in turn led to the stagnation or in some cases the decline of property prices.

The literature on the housing and the mortgage loan market usually relies on two methods of analysis: macro-models of household behaviour and micro-level household data analysis.⁸² Given the brevity of the period since the autumn of 2008 (the onset of the crisis), neither of these methods can be used here. Our study, therefore, relies on brief reports issued by the Hungarian National Bank, the Hungarian Financial Supervisory Authority and the Hungarian Central Statistical Office.

The effects of the crisis on household bank loans and mortgage loans

During the months preceding the crisis, almost 90 per cent of bank loans were denominated in Swiss Francs. In the first half of 2010, however, Hungarian Forint loans took over. According to Central Bank figures, in June 2010 most loans issued to households were denominated in Hungarian Forints, and the share of foreign currency denominated loans in all household loans dropped to below 70 per cent. In all housing related credit, the share of foreign currency loans was just over 50 per cent (*MNB, 2010a, 2010b*). For households living from one month to the next and lacking significant savings, it came as a shock when starting with the first half of 2009, foreign currency denominated loans were revalued to an unusual degree as a consequence of Forint exchange rate fluctuations. Just over the period between the end of 2008 and the end of the first quarter of 2009, the Hungarian Forint fell 15 per cent relative to the Swiss Franc and 17 per cent relative to the Euro, substantially increasing the nominal credit stock and creating household insolvency or near insolvency. Household insecurity further increased when in the second quarter of 2009 the reverse process was experienced, i.e., the Forint rose 12 per cent relative to the Euro and to the Swiss Franc,

81 In the literature analysing the housing market in combination with the housing mortgage credit market, some groundbreaking studies are *Hegedüs & Somogyi (2004)*, *Hegedüs & Struyk (2005)*, *Kiss & Vadas (2006)*, *Vadas (2007)* and *Bethlendi (2007)*.
82 *Holló (2007)*, *Holló & Papp (2007)*. See also the chapter preceding this brief report by István György Tóth and Márton Medgyesi.

which decreased the nominal value of credit stock. The insecurity did not end there: in 2010 changes in the exchange rate of the Swiss Franc effected another substantial increase in the nominal credit stock. Following a decline in 2008, the net monetary assets of households again increased in 2009 but this increase was simply a consequence of the subsidence of the extensive loan boom of previous years. In contrast with the trend of the previous years, in 2009 foreign currency nominated loans stopped growing and household credit levels remained essentially constant. The crisis had a dramatic effect on household mortgage loans in 2009 (*KSH*, 2010b). Similarly to bank loans, housing related credit also settled at an essentially constant level in 2009 following a two-digit increase during the previous years. At the end of 2009 housing mortgage loans amounted to 3,920 billion HUF, which is equivalent to 15 per cent of GDP for that year. 63 per cent of housing mortgage loans were denominated in a foreign currency. Compared to 2008, there was a 62 per cent decrease in the number of mortgage loan approvals and a 66 per cent decrease in their value. The number and value of mortgage loan payments also changed considerably: Half as many were paid in 2009 than in 2008, and their value dropped by almost two-thirds. While every household felt the negative effects of the crisis, the households that suffered most were those having loan repayment obligations and no savings. The crisis forced households to reduce substantially their consumption and to limit their borrowing, especially housing mortgage loan borrowing. In 2009, household loan repayments exceeded the value of new loans, and in terms of their nominal receivables and liabilities the household sector had a negative balance (*KSH*, 2010a). The repayment capacity of households continued to grow in 2010. Preliminary Central Bank figures (*MNB*, 2010c) put it at 4.7 per cent of GDP in the one-year period up to the second quarter of 2010 and at 7.2 per cent of GDP in the second quarter of 2010 [see *Table 7.A)1*].

What do the two time series of the changes of financial assets and liabilities mean at the micro-level of individual household finances? It simply means

that in some of the quarterly periods under analysis the balance of assets and liabilities was such that Hungarian households together were able and prepared to increase their debt repayment to a level exceeding their concurrent borrowing. We know little, however, about future changes in this capacity and readiness in the face of exchange rate fluctuations. For most households, the decline in their consumption and propensity to borrow does not guarantee that their saving and repayment capacity and propensity will increase. An increasing proportion of households having loans are struggling with serious repayment difficulties. According to the Hungarian Financial Supervisory Authority (*PSZÁF*, 2010) there is a growing number of people who cannot repay their debts or are in arrears with their repayments [see *Table 7.A)2*].

The incidence of delinquencies among residential housing mortgage loans shows a higher than average increase and this rises at an accelerating rate.⁸³ Delinquencies occur with a 26 per cent frequency among residential loans and a 22 per cent frequency among mortgage loans. For residential loans, 10 per cent of loan repayments are more than 90 days overdue, which is also a substantial increase compared to just 5 per cent observed in December 2008. For residential mortgage loans, the default rate is more than 7 per cent, which is almost two and a half times as much as the 3 per cent value measured in December 2008. At the end of March 2010, 97 thousand residential mortgage loan borrowers were classified as being at immediate risk as they were more than 90 days in arrears with their repayments. Although the government extended the moratorium on eviction until April 2011, this does not solve the problem of being unable to pay, since the banks cannot sell the property securing the mortgage loan, and thus the debts continue to accumulate. The causes of delinquency vary widely. Those repaying foreign currency denominated loans usually fail to repay their debts because of financial difficulties caused by ex-

⁸³ The effects of the crisis on residential incomes and savings/loans were also analysed by Tóth and Medgyesi. The authors found that already in 2009, 4 per cent of households were in arrears with their loan repayments at some point. Among households in the lowest income quintile, 8 per cent had this experience.

change rate fluctuations. Several borrowers, however, cannot meet their obligations because they are in long-term unemployment.

Crisis in the housing market and in home construction

The first signs of the crisis appear with a delay both in household statistics and in home construction figures, since the construction and sale of new housing take at least two years, and the average period from the issue of building permits to taking possession of the new home is almost three years. However, the most recent reports of the Hungarian Central

Statistical Office concerning housing construction and building permits in the first half of 2010 (*KSH, 2010d*) unequivocally show a marked slowdown in housing construction: In the first half of 2010, only 9 thousand homes were given occupancy permits, and building permits were issued for only 10 thousand new homes. New home occupations decreased by 30 per cent and the issue of new permits by 40 per cent compared to the first half of 2009. In the first half of 2010, approximately the same number of new homes were occupied as at the beginning of the 2000s, i.e., before the housing boom.

Table 7.A)1: Household net repayment capacity, percent of GDP

	2008				2009				2010	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Current quarter	-0.4	-0.8	-1.7	7.3	4.5	0.7	1.7	6.1	3.6	7.2
Past 4 quarters	1.1	1.0	0.8	1.2	2.3	2.7	3.6	3.3	3.1	4.7

Source: *MNB (2010c)*.

Table 7.A)2: Loan repayment arrears, 2008–2010

	December 2008		December 2009		March 2010	
	Billion HUF	%	Billion HUF	%	Billion HUF	%
Value and share of arrears						
All arrears	3,092	12.3	4,152	17.3	4,514	19.1
Residential loans	1,474	16.8	2,146	24.1	2,334	26.0
Of those: mortgage loans	765	12.5	1,282	20.0	1,409	21.8
Number and frequency of delinquencies						
	Thousand occurrences	%	Thousand occurrences	%	Thousand occurrences	%
All delinquencies	3,018	31.1	3,622	38.5	3,652	38.8
Residential loans	2,799	31.0	3,357	38.3	3,388	38.6
Of those: mortgage loans	190	15.1	246	19.2	258	20.3
Value and share of arrears overdue for over 90 days						
	Billion HUF	%	Billion HUF	%	Billion HUF	%
All arrears	967	3.9	1,875	7.8	1,972	8.3
Residential loans	420	4.8	829	9.3	908	10.1
Of those: mortgage loans	180	3.0	419	6.5	468	7.3
Number and frequency of delinquencies of over 90 days						
	Thousand occurrences	%	Thousand occurrences	%	Thousand occurrences	%
All delinquencies	1,710	17.6	2,183	23.2	2,154	22.9
Residential loans	1,590	17.6	2,022	23.1	2,001	22.8
Of those: mortgage loans	67	5.3	92	7.1	97	7.6

Source: *PSZÁF (2010)*.

Besides the marked decrease in construction projects, the slowdown in residential building construction is also indicated by the substantial decline in the number of completed and occupied housing units. Since 2007 the Hungarian Tax Authority has given the Central Statistical Office access to standardised and cross-system comparable databases of quarterly housing price figures. As shown in the *KSH* (2010c) report on the housing market and residential building construction, after a sharp rise of 15 per cent in 2002 and 21 per cent in 2003, the upward trend in housing prices slowed down considerably commencing with 2004, and the price level has since been essentially constant. In 2008, housing price indices corrected for composition effects still showed a slight (roughly 2 per cent each) annual increase in both new and used housing prices. In 2009, howev-

er, there was a 1.4 per cent drop in the price of new homes and a 5.2 per cent drop in the price of established housing, while the annual consumer price index was 6.1 per cent up in 2008 and 4.2 per cent up in 2009. As a result of the significantly tighter conditions of access to housing mortgage loans and the very high transaction costs, cash transactions not relying on loans have been at a clear advantage and in the majority on the buyer side of the housing market. Also, the number of sales has significantly decreased. Exploiting their bargaining advantage, potential buyers attempt to achieve drastic cuts in prices. For most households having a low level of financial assets and a relatively high level of real property assets, the steady devaluation of real property predicts a rapid and significant change in household consumption behaviour.

8. THE OVERALL PICTURE. MAJOR CONCLUSIONS OF “IN FOCUS”

GYÖRGY MOLNÁR

The seven extended and five brief studies included in *In Focus* undertook to map the labour market effects – in a broad sense – of the crisis relying on the available results of Hungarian empirical research efforts. The authors attempted to widen the scope of their inquiries with the aim of bringing into focus the group of households in the centre of the process of the reproduction of labour. Their efforts were to some extent constrained, however, by the criterion of evidence-based research. The most recent data available at the time of writing the papers covers the first half of 2010 for some of the topics, but only 2009 for most of them. In some cases the only information available is even older. In the absence of suitable data, we were forced to relinquish our original plans of discussing changes in household consumption and their relationship to the labour market. For some of our topics – the evolution of real wages, for instance – it was not possible to make evidence-based international comparisons. As the crisis is not quite over yet, it is often impossible to decide whether it is the crisis or the pre-crisis Hungarian fiscal consolidation measures that can be held responsible for the observed phenomena. We have similarly no way of knowing whether recent changes in various processes constitute a turn in the trend or are simply temporary fluctuations.

Despite having to face all these constraints, we are confident that our studies provide a reasonably comprehensive and diversified picture of the impact of the crisis on the Hungarian labour market. Rather than presenting new results, this closing chapter of *In Focus* attempts to sketch an overall picture by simply summarising the most important conclusions of the 12 studies and pointing out the links and parallels between them.⁸⁴

Labour market responses to the crisis

The public and the private sectors adjusted in diametrically opposed ways to the changes in the economy brought about by the crisis, i.e., the decrease in demand and the contraction of the credit market. While the public sector typically responded by wage cuts, the private sector tended to reduce the workforce (see the introductory chapter by Mónika Bálint, Zsombor Cseres-Gergely and Ágota Scharle; and Chapter 1 by János Köllő). That is, any figures applying to the economy as a whole aggregating the two sectors may be seriously misleading. The drop in public sector wages is primarily explained by the retraction of the 13th month pay and the suspension of pay increases. In this sector, therefore, there are no significant structural changes awaiting explanation (Köllő).

⁸⁴ In doing so, some sections of the original texts are cited word for word or almost word for word, but while the source of the ideas is mentioned, quotation marks are omitted for the sake of readability.

The studies in *In Focus* accordingly turn most of their attention to processes observed in the private sector.

János Köllő's model estimations based on corporate panel data lead to several interesting conclusions beyond the dominance of workforce downsizing. Decreases in staff size and wages were more pronounced than average among companies with predominantly male employees. This result suggests that companies involved in production and typically employing male workers fared worse than average both in terms of employment and with respect to wages. Interestingly, the data paints a different picture of major layoffs: women were marginally more likely to be affected by this form of job separation (Busch & Lázár, Chapter 3).

Returning to the results of János Köllő's models, changes in workforce size had a relatively strong, while changes in working time had a relatively weak relationship with company size. With the companies ranked from smallest to largest, there was a steady increase in the extent of workforce reduction. With respect to working time, only the largest companies stood out: they implemented more extensive cuts. One explanation may be that the extent of dependence on export demand varied with company size. (Let us remember that the estimations are based on data for the first year of the crisis.) The relative employment advantage of small companies was substantially greater in manufacturing than in other sectors. Citing, once again, the results of Busch & Lázár's study, half of the workers displaced through major layoffs, which typically affected large enterprises, were made redundant in the manufacturing industry, which is almost two and a half times the share of manufacturing in overall employment.

In terms of the changes in workforce size, the construction industry and real estate businesses did not differ significantly from manufacturing: these three experienced the heaviest cuts in employment. The labour force statistics were considerably more favourable for the water, energy and transport industries, financial services, personal services, private health care and agriculture. Workforce reductions were of a smaller scale at public sector companies than at private firms, and companies having collective agreements also lost fewer jobs than average.

Wages increased more at companies employing a larger share of workers on the minimum wage than at other firms. There was, however, virtually no change in real wages at wage levels unaffected by the regulations on the minimum wage. During the first year of the crisis, companies in the business sector left wages essentially untouched. In the rare cases where there was a change in the average wage, this had no systematic relationship with industry, geographical region, company size, ownership, labour force composition or the presence/absence of trade unions.

The analysis of working time cuts suggests that this tool of cost saving did not spread beyond the group of companies receiving job preservation support.

Within-company changes in employment and in wage rates were independent of each other, just as the changes in employment and in working hours were.

Further details are added to this picture – especially with respect to wages – by Semjén & Tóth in their brief report 1.B) supplementing Chapter 1. The authors discuss the results of a corporate survey conducted in three cycles (in March 2009, June 2009 and March 2010), in which company managers were interviewed about adjustment strategies in response to the crisis. These strategies of course include measures unrelated to the labour market. In the second and third cycles, around 80 per cent of companies mentioned the freezing or lowering of wages and other forms of labour compensation as crisis-relief measures. While at the beginning of 2009 relatively few companies resorted to job cuts, in July 2009 the proportion of companies implementing layoffs was over 40 per cent. The incidence of job cuts returned to a substantially lower level by January 2010. The option of part-time employment or reduced working hours was chosen by a relatively small, but gradually increasing, percentage of companies. Qualitative interviews cannot, of course, provide information as to the extent of any of the implemented measures. Comparing these observations with János Köllő's results, we may conclude that employment reduction measures affected a smaller number of the companies but were substantially more drastic than wage-related measures. It is also reasonable to assume that managers regarded the policy of keeping real wages level by suspending regular pay increases or reducing their usual rate as a crisis-relief measure. It is worth noting, however, that among the respondents of the 2010 cycle, the strategy of reducing wages and other compensation or keeping them level was, retrospectively, far more likely to be seen as an efficient measure than was downsizing (15 *versus* 4 per cent). Of all possible strategies, working time reduction was the least likely to be listed as an efficient measure, which may explain its infrequent incidence.

As a brief detour, it is worth mentioning that companies typically implemented a number of different crisis-relief measures in parallel (with non-labour market reactions included). The measures included quick solutions (such as improving liquidation indicators, cost reduction and credit conversion) as well as proactive actions with long-term effects (such as search for new markets, organisational restructuring or altering production structure). Companies did not seem to develop a special unified crisis-relief strategy. One pattern that emerged from the data is that export companies tended to introduce a wider range of measures than non-export firms [brief report 1.B) by Semjén & Tóth].

Returning to the question of employment, the data from the Hungarian Central Statistical Office (HCSO) Labour Force Survey shows that the key explanation for the decrease in employment rate is that companies did not hire new employees to fill positions vacated through a natural process. The probability of exiting employment displayed a rising trend between 2006 and

2009, but did not soar during the crisis. The not much faster than usual rate of job separations was accompanied, however, by difficulties with *fast re-employment*, which led to a substantial increase in unemployment. Presumably, this strategy of downsizing – i.e., avoiding major layoffs – was one of the reasons why the soft tools of adjustment, wage and working time reduction, were given less weight (Köllő).

The conclusions drawn from the labour survey are corroborated by Busch and Lázár's data in Chapter 3, which relies on obligatory announcements of major layoffs. In the time series of major layoffs, only one quarter stands out (the first quarter of 2009) while the total number of layoffs in 2009 is barely more than the values observed in 2003 and 2004. Also, there were fewer job separations during the first half of 2010 than there had been before the crisis. The sharp increase in the number of registered unemployed is explained at least as much by the decline in outflows than by the increase in inflows.

In their analysis of labour policy reactions to the newly emerged situation, both János Köllő's chapter and Elek & Scharle's associated brief report 1.A) come to the conclusion that the top priority of the Hungarian government – similarly to other countries in the region – was to prevent a surge in unemployment by preserving and boosting labour demand. Jobs in the public sector were protected by the introduction of wage reduction measures while in the private sector the primary means of supporting job preservation was the expansion of employment subsidies (Köllő). In 2009, the reduction of wage costs, specifically the lowering of employer contribution rates, constituted one third of government spending on labour demand stimulation. This tool has the disadvantage of overly broad targeting as it can affect jobs other than those that are at risk and are worth saving. It was, however, a necessary step in the restructuring of the Hungarian taxation system, which was needed independently of the crisis (Elek & Scharle).

The increase of about 110 thousand people in the number of workers benefiting from job preservation subsidies and public works programmes was achieved at the expense of other employment support programmes (wage subsidies for those returning to work from unemployment or from maternity leave and for new labour market entrants, training programmes and business start-up support) (Köllő). The neglect of these active employment tools – especially of training – was virtually unique to Hungary among both the EU and the OECD countries. Also unique was the Hungarian decision to reduce substantially the staff of the Public Employment Service. The strategy of short-time employment substantially reduced the number of job separations in several countries. In Hungary, slightly less than 1 per cent of employees participated in such a programme, which is about the average international level but the efficiency of this tool proved to be far lower in Hungary than its average efficiency in other countries. (Elek & Scharle).

It should be mentioned in this connection that about half of the workers displaced through major layoffs and participating in unemployment programmes received operative employment services. The share of those benefiting from active employment schemes was merely 13 per cent (Busch & Lázár).

The number of those becoming unemployed greatly exceeded the number of participants in job preservation or public works programmes (most of the latter having been unemployed for a while as specified by the conditions of participation in the *Back to Work* programme). Considering the social consequences, it is especially distressing that there was a significant increase in the number of unemployed workers not receiving individual support, when a growing proportion of the same population – especially recently displaced workers – wanted to return to work or were actively involved in job search (Köllő). In most EU member states, unemployment compensation was relatively high to begin with and was now further increased in some of the countries. The period of entitlement to wage-proportional unemployment compensation is exceptionally short in Hungary compared to the rest of Europe (Elek & Scharle).

Decisions in this area were heavily constrained by Hungary's poor budget position quite independently of the crisis. It remains questionable, however, whether the policy focusing on job preservation and public job creation was well suited to the task of minimising social losses.

Boda and Neumann's interview data on a small number of companies (Chapter 2) cannot be generalised to the entire private sector but the authors' findings provide illustrative examples for the conclusions of quantitative analyses, large-scale surveys and model estimations. They further have an exploratory value, providing ideas for future surveys. Among the companies included in the case studies, the majority of job separations were limited to temporary ancillary workers hired from agencies at "peak times". Permanent contract staff were only laid off at companies typically employing unskilled workers and regularly relying on the tools of quantitative flexibility. The oversupply of labour in the market allowed quality substitutions, and workers of relatively insecure status (those on fixed term contracts, working pensioners and those past the statutory retirement age) were the most likely to be discharged. At the same time, companies made better use of the skills of staff with several years' experience at the company and qualified to perform a variety of tasks. The case studies included large automobile manufacturers and it was these that implemented layoffs of the largest scale.

The analysis of corporate major layoffs supports these observations. More than 40 per cent of workers displaced through major layoffs had no more than primary education, which is 10 percentage points higher than their proportion among the unemployed and 30 per cent higher than their proportion among the employed population. While the probability of secondary school graduates being displaced through major layoffs corresponded to their share among

the employed population, the position of qualified skilled workers contrasted with that of primary school educated employees: the former were significantly underrepresented among major layoff job separations. Comparing occupations, assembly line assemblers were far ahead of all others in the major layoff ranking with other elementary workers coming next (Busch & Lázár).

The company case studies also reveal that the various forms and possibilities of working time management were strongly related to the technology used at the factories (Boda & Neumann). Most of the companies introduced a working time account system before the crisis, which – unlike in the case of American and West European examples – unilaterally benefits the employer. This tool permits the flexible use of working time but to what extent its possibilities are exploited is difficult to trace in official statistics.

The crisis presented a new kind of challenge for corporate trade unions and works councils. They had to abandon the bargaining strategy they had followed since the mid-1990s focussing almost exclusively on pay rises and employee compensation packages. The protection of jobs now came to the forefront. (As shown by János Köllő's chapter, they had certain success in this effort.) It is worth noting that, among the case studies, the practice of regular consultations between the management and the trade union or works council was only observed at multinational companies with foreign owners. The trade unions and works councils have relatively little power, i.e., they are in a weak bargaining position compared to their West European counterparts. At multinational companies, the central management coerces competition between the company's factories with similar technologies and roughly equivalent expenditure. "Positive compromises" were mainly reported by the trade unions of companies relying on skilled labour and yielding high added value (Boda & Neumann).

The impact of the crisis on regional inequalities

Several mentions have been made of the individual phases of the crisis as it spread in Hungary, and the evolution of unemployment figures. In Chapter 4, Hajnalka Lócsei discusses this question along the two dimensions of time and space. The duality of the Hungarian economy emerging in the wake of the system change, which manifests itself in corporate productivity and in the presence of foreign capital, also has some spatial implications. The country is divided into two parts: the one in the more favourable position is competitive, capable of adjusting to new circumstances and exploiting new possibilities, while the other is relatively underdeveloped, fails to attract significant foreign capital and falls further and further behind. The main thread running through the study is the question of the effects of the recession brought on by the crisis on the spatial developmental structure of the Hungarian economy.

The period from autumn 2008 to summer 2010 can be divided into 4 phases: 1. October 2008 – January 2009: onset of increase in (registered) unemploy-

ment; 2. January 2009 – June 2009: drastic rise in unemployment; 3. June 2009 – February 2010: continued but slower increase; 4. February 2010 – August 2010: gentle decline in unemployment.

During the first phase, the steepest increase in the number and percentage of job seekers was observed in the northern and northeastern parts of Transdanubia, which had previously been a stronghold of industrial production. Within this area, the crisis hit hardest in regions where the majority of workers commuted to manufacturing sites in nearby towns or cities. This phenomenon is related to the observation mentioned above that export-oriented companies were more likely to be affected by the crisis. (This is also corroborated by Busch and Lázár's data on major layoffs.) Some of the heaviest losses were, however, experienced by micro-regions situated in other, less developed parts of the country. This becomes especially clear if we replace the growth index of unemployment by a measure of changes expressed in percentage points, since underdeveloped micro-regions were characterised by a far higher initial unemployment level.

It is worth comparing these findings with the results of Albert Faluvégi's brief report 4.A) showing that between the third and fourth quarters of 2008, the 33 most disadvantaged micro-regions suffered a substantially steeper overall increase in unemployment (3.8 percentage points) than did the group of disadvantaged (0.5 percentage points) or the group of relatively developed (0.2 percentage points) micro-regions. This breakdown of the data shows that the marked increase in unemployment characterising the micro-regions of North- and West-Transdanubia was offset by the developed micro-regions in other parts of the country.

Returning to Hajnalka Lőcsei's study, in the next phase of the period the effects of the crisis were no longer limited to the surroundings of export-oriented manufacturing plants but spread to a growing number of industries and regions while still remaining concentrated along the internal periphery of northwest Hungary. During this phase, proximity played an important role as the effects of layoffs at one or another large company propagated throughout the area. There was little change in the capital city or its surroundings and the Lake Balaton area was also spared although the "untouched" zone steadily contracted.

During the third phase, when changes in the number and percentage of job seekers are primarily determined by seasonal effects, the spatial structure of the rise in unemployment remained relatively stable. The effects of the crisis were, however, increasingly felt in Central-Hungary, which is explained by the fact that the economy of the capital is dominated by the service sector, where most losses were suffered later than in export-oriented industrial sectors. The only areas not showing a decline were the most underdeveloped internal and external peripheries of the country, where unemployment figures were already very high at the start. In some micro-regions, in fact, there was an improvement, perhaps as a result of public works programmes.

In line with the above pattern, Albert Faluvégi's analysis, ending with December 2009, shows that while unemployment rose steadily throughout the year in the relatively developed regions of the country, some improvement could be observed in the most disadvantaged micro-regions in the first half of 2009 (although the figures did not reach their pre-crisis level) and the unemployment curve stabilised in the second half of the year. As a result of these processes the unemployment rate among the most disadvantaged micro-regions first increased from about 2.3 times to 2.7 times the national average by the end of 2008, and then decreased to 1.9 times the national average by the end of 2009.

During the fourth phase, starting in February 2010, partly owing to seasonal effects there was a decrease in the percentage of job seekers in the agricultural areas of Eastern Hungary, in the regions around Lake Balaton, and in the most disadvantaged regions with the highest unemployment levels (Cserehát, Szatmár and Ormánság). This phenomenon is best attributed to the effects of public works programmes (Lócsei).

All these changes together led to a distinctive regional convergence, which was effected not by an improvement in the circumstances of regions in unfavourable positions but by a steeper decline in the employment rates of relatively developed regions. The convergence process continued in spring 2010 but now, unlike before, the underlying cause was the improvement experienced by relatively underdeveloped micro-regions. Notwithstanding these changes, the spatial structure of unemployment was not significantly altered by the crisis. It remains a fact that unemployment rates are substantially higher than average in the micro-regions of South-Transdanubia and in the micro-regions located east of the Balassagyarmat-Békéscsaba axis, the only exceptions being the labour catchment areas of regional urban centres.

It remains an open question whether this convergence can be maintained in the long term or – since the improvement is not supported by an economic boom – we can expect the gap, which remains considerable and generates social tensions, to stretch further.

On the whole, the percentage of job seekers increases with a decrease in the population size of settlements, but this rule applies less strictly to more developed regions. The various categories of settlements only showed significant differences for the phases of the crisis characterised by either a sharp surge or a sudden dip in the number of job seekers. During the spreading phase, the relatively large regional urban centres typically “delegated” the negative effects to smaller settlements.

The issue of commuting is therefore a key factor in the evolution of regional employment differences. A likely explanation for the local labour market inflexibility of underdeveloped regions is that the populations of their villages incur high commuting costs if they take up employment in towns. The brief report by Tamás Bartus in Chapter 4.B) explores the wage advantage of unskilled workers

living at a given distance from the labour market of an urban centre. The study asks whether the wage returns to commuting cover the costs of travelling to work. The available data suitable for model estimations only covers the pre-crisis period but important conclusions can be drawn from the model nevertheless.

The study looks at the spatial distribution of paid labour opportunities in the local labour market areas of Pécs, Szeged, Debrecen, Nyíregyháza and Miskolc with Győr being used as a control town. The results of the model reveal that average hourly wage rates in villages decrease with the increase of the distance between the village and the regional urban centre. The effects of distance from the centre are strongest in the labour market of Győr, where the wage advantage fully compensates for the costs of even half an hour's journey. In disadvantaged regions, however, the estimated costs of time lost by commuting are equal to or exceed the accessible wage surplus.

Undeclared employment

The authors of the studies discussed so far drew their conclusions from employment and unemployment data provided by various statistical sources, which, necessarily, prevented them from including undeclared employment in their analyses. The available empirical evidence related to this question is unfortunately limited to the pre-crisis period. In Chapter 5 András Semjén and István János Tóth discuss the results of two population surveys, one ran in autumn 2007 and the other in spring 2008, and attempt to estimate the possible effects of the crisis in connection with undeclared employment. As such, the study raises some fundamental questions in this research area demonstrating the imperative need for repeated cycles of the previous surveys. There is also plenty to learn, however, from the information gained concerning the pre-crisis period.

Within undeclared employment, the authors focus on two types: “cash in hand” (non disclosed payment), which usually supplements legal pay and “invoice payment”, when some of the wages are paid into an employee's business account as if he or she was a subcontractor. Altering the internal structure of labour compensation packages containing both tax compliant and tax evasive elements in favour of the latter may constitute an interesting cost reduction strategy used by companies in addition to those discussed so far.

In spring 2008, one in four workers aged between 18 and 60 received cash in hand or invoice payments during the two years preceding the interview. Both types of payment, but especially cash in hand, were more likely to be received by men than by women. Cash in hand was substantially more frequent among young workers than among older people. In most cases either one or the other payment option was used and the targets of the two payment methods had characteristic distinguishing features: while cash in hand was typically given to workers with at most primary education, invoice payments tended to be made to higher education graduates.

The regional characteristics of undeclared employment show an interesting relationship with the geographical distribution of unemployment. Undeclared employment is considerably more frequent in the counties of eastern Hungary, while it is less frequent than average in western Hungary. In eastern Hungary, 40 per cent of employees and casual labourers received cash in hand or invoice payment. The incidence of undeclared employment is highest among workers performing non-regular jobs (casual labourers and the unemployed). More than half of this population had jobs involving tax evasion by one or another means (usually through cash in hand) during the two years preceding the interview.

Based on the results of their analysis, the authors distinguish a total of 13 categories of change in compensation packages and look at companies' possible responses to the crisis in terms of the ratios of declared versus undeclared employment or employment disguised as subcontracted services. The authors conclude that the economic crisis is highly likely to have been accompanied by an increase in the incidence and quantity of undeclared or disguised employment, as both the majority of viable corporate adjustment strategies and employers' interests point in this direction. There is no doubt, however, that not all evidence converges. In the construction industry for instance – where undeclared labour is far more frequent than in other industries – the volume of production fell substantially more sharply than did declared employment, which suggests that cuts were more likely to affect undeclared employment.

The effect of the crisis on households

The two closing chapters of *In Focus* and a brief report look at the impact of the crisis on households focusing, in the absence of consumption data, on household income. Chapter 6 by Gáspár and Kiss first analyses the panel data of the Labour Force Survey to identify the factors influencing the probability of becoming unemployed during the crisis period. The authors' results appear to show a greater crisis-induced increase in the incidence of job losses compared to János Köllő's figures (see Figures 1.4 and 6.1). As an explanation, we should point out an important methodological difference between the two studies, which follows from their differing aims. While János Köllő used employment to non-employment transitions as data, Katalin Gáspár and Áron Kis disregarded job losses where the worker became inactive rather than unemployed. The latter study therefore explores the income effects of entering unemployment. (Household incomes in 2009 are discussed in Chapter 8 by Tóth and Medgyesi).

Katalin Gáspár and Áron Kis's model includes gender, age, educational attainment, geographical location and economic sector as explanatory variables. The authors conclude that with the exception of the employee's gender, all of the factors have a strong effect on the probability of job loss. The youngest cohort are more likely to lose their jobs compared to older cohorts and the probability of job losses continues to decrease slowly with the advance of age. This

probability also decreases with higher educational attainment. Looking at economic sectors, the construction and the accommodation and food service activities show an outstandingly high job loss probability. The likelihood of job loss is also high in manufacturing.

In the next section of the chapter, the authors link the job loss probabilities among the employed population to the data of the Household Budget Survey of 2007, and using this pre-crisis data, ran a simulation of the rise in unemployment, which is – from the households' point of view – perhaps the most important consequence of the crisis. Household incomes were indexed to 2009 price levels and taxes corresponding to 2009 tax regulations were deducted.

Katalin Gáspár and Áron Kis conclude that the probability of job loss decreases with the increase in household income: job losses in the lowest income decile are almost three times as frequent as they are in the top decile. While the absolute value of the average income loss incurred with a job loss increases with income, the relative income loss is similar across the income groups. In another model, the data was corrected for the fact that job losses would have also occurred independently of the crisis. In this model there were weaker income effects but the distribution of the effect was essentially the same, with only one difference: the relative income loss was somewhat lower for lower income deciles compared to higher income deciles.

The authors also investigate to what extent unemployment benefits (specifically job seeker's allowance and job seeker's support) compensate for losses. The benefits lowered households' relative income losses by 0.4–1.1 percentage points; the level of compensation was relatively stable across the income groups with the exception of the top decile, where it was lower.

In Chapter 7, István György Tóth and Márton Medgyesi analyse Tárki Household Monitor Survey data to show the long-term evolution of the major indicators in income distribution, with special emphasis on the changes between 2007 and 2009. These processes reflect the effects of not only the current crisis but also the fiscal consolidation programmes of previous years. The first phase of the crisis in the second half of 2008 primarily affected those who had significant savings and for some reason had no choice but to realise losses in their savings. The next phase of the crisis reached households firstly through the increases in loan repayment instalments and in the interest on foreign currency denominated loans and secondly through the rise in unemployment. In the third phase of the crisis, the effects were mediated by the cuts in government spending which had public consequences and by the contraction of the government's welfare system.

Between 2007 and 2009, there was a decline in the income position of both the rich and the poor, and household incomes on average lost about 7 per cent of their real value. The decline was, however, substantially greater among the poor: even their nominal income showed a decrease, and the ratio of the top

to the lowest income decile average income grew from 6.8 to 7.2. The relative position of those in the 7th-9th deciles improved however. It is probably the complexity of the change that accounts for the fact that the various inequality indicators show some inconsistencies.

A previous analysis of 2007 data revealed a process of income depolarization whereby the upper middle classes moved down while the lower middle classes moved up on the income scale. The most significant change shown by the most recent data is polarization at the lower end of the income distribution, i.e., an increase in the percentage of low-income households as defined by the decile boundaries of 2005. Looking at employment polarization, the authors conclude that households having at least two workers in the previous period suffered more than any other type of household from the decrease in employment.

The second part of the study looks at household debts and repayment difficulties. One process to consider in this regard is the decrease in household income while the other process is the increase of loan repayment instalments due to exchange rate fluctuations. In her brief report 7.A), Zsuzsa Kapitány shows that in the early and mid-2000s, household consumption behaviour was characterised by a low propensity to save and a preference for consumption on credit and for home ownership investments. As a result, there was a surge in borrowing with an especially sharp increase in foreign currency loans.

The Tárki data reveal that following a period of stability, the proportion of households reporting that they were living in financial need or having financial difficulties increased between 2007 and 2009. Loan repayment difficulties became more frequent especially among comparatively low-income groups. In 2009, 35 per cent of households had debts with a bank or financial institution, which is a 15 per cent increase compared to the beginning of the decade. At the same time, there was a convergence between households at the two ends of the income distribution in terms of the likelihood of having bank loans. While in 2001, the gap between the top and the lowest income quintiles was more than 10 percentage points in terms of the likelihood of having bank loans, this difference completely disappeared by 2009. Among households in the lowest income quintile, the incidence of bank loans started increasing around 2003, and this trend continued uninterrupted for the remainder of the decade. That is, a considerable share of these households joined the loan fever just as the loan opportunities were coming to an end. The increase in the proportion of households taking out personal loans was higher than average among the poor, which is probably explained by their need to overcome financial difficulties.

It could be the case, of course, that the explanation for the convergence is that middle class families that had taken out loans at some earlier date experienced a substantial decline in their income level moving them to the lowest income quintile but it could also be the result of households in the lowest income quintile taking out loans.

Households with bank loans on average paid about a fifth of their total income towards bank loan debts in January 2010. For the lowest income quintile, however, the corresponding figure is 29 per cent. With non-bank loans taken into consideration, the gap between the income groups becomes considerably larger. On average, households paid a quarter of their income towards debts, while the lowest quintile spent 43 per cent of their income on repayment instalments.

In 2009, about 9 per cent of households with loans reported that they could not always afford to pay their instalments. The corresponding proportion was 17 per cent for the lowest quintile.

The Hungarian Financial Supervisory Authority data analysed in the brief report by Zsuzsa Kapitány indicates a substantially higher frequency of loan repayment arrears. The incidence of repayment delays of over 90 days increased from 17.6 per cent in December 2008 to 22.9 per cent in March 2010. There may be a number of factors accounting for the discrepancy between the results. First, a household may have more than one loan and those with more loans are more likely to be in arrears with their repayments. Second, while the Household Monitor Survey data applies to 2009, the Financial Supervisory Authority figures show cumulated values.

The crisis forced households to limit their borrowing substantially, especially their housing mortgage loan borrowing. In 2009, household loan repayments exceeded the value of new loans, and in terms of their nominal receivables and liabilities the household sector had a negative balance.

The credit crisis also led to a slowdown in residential building construction and by 2009 even nominal house prices were on the decline. For most households having a low level of financial assets and a relatively high level of real property assets, the steady depreciation of real property predicts a rapid and significant change in household consumption behaviour.

9. REFERENCES

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