THE HUNGARIAN LABOUR MARKET
REVIEW AND ANALYSIS
2005

THE HUNGARIAN LABOUR MARKET

REVIEW AND ANALYSIS

2005

EDITED BY

KÁROLY FAZEKAS, JÚLIA VARGA

Institute of Economics, HAS

Hungarian Employment Foundation

Budapest, 2005

EDITION AND PRODUCTION: Institute of Economics, HAS
& National Employment Foundation

TRANSLATED BY Zsombor Cseres-Gergely, Péter Galasi, Ágnes Hárs,
Zoltán Hermann, Gábor Kézdi, Ágnes Kozma, Péter Róbert, Júlia Varga

REVISED BY Stuart Oldham

DESIGN, PAGE LAYOUT: font.hu

TYPOGRAPHY: Franklin Gothic, Garamond

PRINTING: Oliton

ISSN 1785-8062

The publication of this volume has been financially supported
by the OFA Employment Promotion Foundation.

Copies of the book can be ordered from the Institute of Economics.

mailing address: H-1112 Budapest, Budaörsi út 45.

phone: (+36-1) 309 26 51

fax: (+36-1) 319 31 51

e-mail: titkarsag@econ.core.hu

web site: http://www.econ.core.hu

TABLE OF CONTENTS

FOREWORD BY THE EDITORS

The goal of our labour market yearbooks is to review annually the main developments on the Hungarian labour market and to give an in-depth analysis of the key issues. The subsequent chapters of this volume present "stylised facts" and recent research results, together with selected information and statistical data. Our further intention is to guide readers in finding other relevant publications and reliable statistical sources. Experiences accumulated through the publication of the previous volumes (five in Hungarian and three in English) and their reception in Hungary and abroad validated our original idea and gave us the encouragement and stimulation to enhance both the contents and the quality of the new volumes.

This year we put "in focus" the connection between education and the labour market. At the beginning of the 1990s there was a wide-spread opinion that Hungary had entered the transition with a large stock of human capital and that the educational attainment of the Hungarian population was very good by international comparison. In subsequent years the value of the different educational qualifications has changed dramatically. As a consequence expansion in education took place at upper secondary and higher level. Not only has the number and share of those studying at state education institutions risen considerably, but new participants have begun to take part in educational activity, and church-run and private institutions have enlarged the supply of educational institutions. From the mid 1990s the output from the education system of those with a higher qualification has also risen and this has consequently resulted in changes, regarding educational attainment, in the labour supply.

The related chapters collect the results of empirical research analysing the link between education and the labour market from different aspects. The first chapter investigates the labour market success of people with varied educational attainment in terms of earnings and employment and this chapter also deals with the question of how large the stock is of accumulated human capital of Hungary by international comparison. The second chapter describes the magnitude of educational expansion and its consequences. It presents research results which examine whether signs of over-

education can be observed or not and if the rise in the share of students studying in church-run and private institutions has resulted in a deterioration in quality. Following educational expansion the question of what is the role of labour market expectations in the individuals' schooling choices has also got become a focus of interest. The third chapter of the collection investigates the role of labour market expectations in the educational decisions of individuals at two turning points in their educational career: when individuals choose between upper secondary school programmes and when they decide on which studies to take at higher education. As there have been major changes in the school to work transition in recent years the fourth chapter is devoted to this question. The chapter presents changes in the structure of entry occupations and investigates the labour market success of recent graduates from upper secondary and higher education. Finally the last chapter investigates the connection between educational attainment and migration. Following accession to the EU by Hungary this question is becoming more and more important. Nevertheless the studies concerning this question – in a similar fashion to the other chapters – do not hide the research shortcomings and seek to identify those areas that are still to be investigated by empirical research in Hungary.

The aim of this collection of studies was to promote dialogue between science and policy by making research findings accessible to a broader audience, it does not seek to offer economic or social policy recommendations but rather presents the current situation and seeks to raise questions – as far as empirical research results makes that possible.

Similar to previous volumes the opening chapter gives an overview of recent labour market developments and employment policies. The authors analyse Hungarian labour market trends over the previous year, the factors shaping these trends and conclude by considering the top priority that national labour policy might follow. Their focuses are on the main aggregate variables of the Hungarian labour market, breaking down, through different dimensions (gender, regions, age and education), and also through international comparison. The brief analysis touches on the sectoral breakdown of employment and unemployment (industry, agriculture and services/public and private sector), the changes in unemployment duration and the working intentions of non-participants. In conclusion the authors try to capture the trends of gross and net wages in different dimensions (by sex, public and private sector, regions).

The third chapter provides an analysis of the causes and consequences of the legal and institutional changes that took place in employment policy last year. The first section gives an overview of measures that support the creation and maintenance of jobs. The second section presents the measures that promote the spread of non-standard forms of employment, and

the third section gives an overview of the main features of the Central Employment Register and the experiences so far. The fourth section tackles the measures aimed at promoting equal opportunities for disadvantaged people on the labour market. The fifth section summarises the changes in vocational training and adult training subsidies. The last, sixth section presents the new development opportunities and changes in the labour market institutions as a result of Hungary's accession to the European Union.

The closing chapter presents a statistical data set, and gives comprehensive information on the main economic developments, such as demographic trends, labour force participation, employment, unemployment and inactivity, wages, education, labour demand and supply, regional differences, migration, commuting, and labour relations, together with some international comparisons and methodological remarks. Data on wage and earning differentials are also presented, along with labour market developments at the level of seven regions and twenty counties. Considering that the "in focus" chapter of this volume analyses the connections between education and the labour market, we included some tables in this chapter describing the main developments both in education and in the educational attainment of the population.

LABOUR MARKET TRENDS IN HUNGARY, 2004

HEDVIG HORVÁTH — PÉTER HUDOMIET

INTRODUCTION

In 2004 Hungary made some steps to return to the path of sustainable economic growth. In transforming economies, the incalculable political decisions usually make the evolution of the economies more difficult, Hungary is a typical example of this. We can highlight three major periods in the trend of the Hungarian economy, as well as of the labour market:

1. Transformation and the stabilization package (1990–1997).
2. Boom of the Hungarian economy (1998–2000).
3. Slowing economy and deepening inequilibrium (2001–).

The first period can be characterized by the structural transition: the unemployment came to the surface, there was a sudden drop of employment, which at the end of the period began to rise slightly. First the GDP sharply decreased then started slowly increasing, and with the exception of 1994 (year of elections) and 1997 net real wages declined all along. The second period coincided with relatively high GDP growth, positive but lower growth rate of real earnings and a slightly more intensive increase in employment. In the third period, employment appears to stabilize and become fixed around an – by international comparison – extremely low rate of about 50–55 per cent.[1]

1. LABOUR FORCE ACTIVITY

After a slight increase in employment, from 2004 Hungary has again fallen to the 2000, 50 per cent employment level. The drop is mainly due to the change in the absolute number of jobs. At the same time, inactivity jumped up only temporary, and now seems to be stabilizing at around 46 per cent, which is extremely high. The decrease in employment, however, seems to precipitate in unemployment: the 1 per cent fall in employment rate resulted in a 1 per cent growth in unemployment rate, though this latter index, with its value of 6.1 per cent, is still low by international comparison. However, according to the latest data of the first quarter of 2005, unemployment has risen another 1 per cent to 7.14 per cent. Besides the extremely low level of employment, due to the great number of inactives, which is a well-known problem in Hungary, we face again, at the beginning of 2005, the possibility of growing unemployment.

1 Among the population aged between 15 and 74.

1.1 Employment

In comparison with the European Union Hungary lags behind as far as labour market activity is concerned. The former fifteen member states of the Union have an average of about 10 per cent higher employment rate than Hungary (*CSO* 2005a). Even the less developed countries do some several per cent better. The unemployment rates do not differ significantly,[2] so that the underlying problem is still the particularly low level of labour market participation, as this determines the competitiveness of a country.

Considering a comparison among the Visegrad countries, the performance of Hungary is still rather low. Hungary has an employment rate (56.8 per cent)[3] higher than Poland's (54 per cent), and a bit weaker than Slovakia (57.6 per cent) (*CSO* 2005a). However, the Czech Republic is doing much better: their employment level competes with the midfield of the EU–15 (64.4 per cent).

1.2 Unemployment

After the transition in 1989, Hungary was suddenly faced with rapidly growing unemployment. The peak was more than 12 per cent[4] in 1993, the rate then slowly but surely decreasing until 2002 when the trend again reversed.

The unemployment rate is characterized by strong seasonality: it is higher in winter, and is lower in summer. In addition, the latest data show an increase in the adjusted trend also, the average number of unemployed in Hungary was 6.1 per cent in 2004, and has an upward tendency. While the low rate of employment means low competitiveness, the high rate of unemployment rather means more serious inequilibrium. While the past years were characterized by a low rate of employment and a low rate of unemployment, the latter index is now slowly approaching the EU average (which is above 7 per cent) (*CSO* 2005a).

Moreover, there is a slight growth in the average duration of unemployment. While in 2003 the average duration was 16.5 months (which is still very high), in 2004 it grew to 17.7 months (*CSO* 2005a). This tendency also makes difficulties in the decrease of the inactivity rate: those, who cannot find a suitable job in a given period can easily decide to leave the labour market. In addition, it is an indication of the change of the structure of unemployment; the longer the duration, the higher is the non-frictional unemployment.

The 180 degree turn in the tendency of unemployment is partly caused by a global recession, and it is hard to prove that it has any Hungarian characteristics or if we converge to the "European natural rate". Later in this section, we will try to put special emphasis on this question.

2 The Hungarian rate is still a bit smaller then that of the EU–15.

3 Among the population aged between 15 and 64, in 2004 – third quarter of the year.

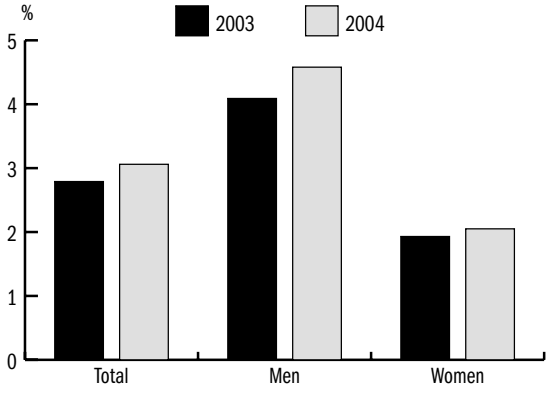
4 Among the population of working age (men: 15–59; women: 15–54).

1.3 Inactivity

The top priority for the labour market policy should be to help the inactive population of working age to return to the labour market. The Hungarian activity rate is really low by international comparison, which weakens the country's competitiveness, and causes other long term social problems.

The gender gap in labour force activity is spectacular (see Figure 5), we will analyse it further. The other important issue that needs to be discussed is the willingness to work of the inactive group. The vast majority of this large group do not even intend to work. This, per se, is not a problem, as pensioners, students and people on maternity benefit aged between 15 and 74 are involved here. A greater problem is that, for example, people working in the black economy are also involved here; they should be made to return to the legal labour market. (See later.) The ratio of the so called hopeless unemployed points out the most serious problem of inactivity: these people would like to work but do not search for a job because they think they would not find one appropriate for them. The number of these is of the order of 100,000 and in Figure 1, we can see that the proportion of them among the inactive population has grown somewhat, more among men than among women, which tendency should not be unobserved by policy makers.

Figure 1: Ratio of hopeless unemployed to the number of inactives, 2003 and 2004



2. LABOUR FORCE PARTICIPATION BY DIFFERENT DIMENSIONS

In the following paragraphs we break down the labour market aggregates by different dimensions and try to point out which of these are the most responsible for the changes, and which of these should draw the attention of labour policy.

2.1 Age and education

One major problem is revealed by looking at the diagrams of labour market status by age (Figure 2, 3). Our impression is ambivalent. On the one hand, we can see that the employment of the elderly (population aged between 60 and 74) is rising and the unemployment and inactivity of the same age group is declining. This might signal the normalization of the labour opportunities of the elderly: there are jobs created for "active" people beyond the working age and that treating unemployment by allowing the elder active population to retire before the commencement of the retirement age is becoming unnecessary. This is good news as after the transition governmental policy had no choice than to try this. Another less positive reason for the increasing level of elderly employment, however, is to do with the raising of the retirement age, which was unavoidable in order to maintain the retirement system mainly over the short term.

Figure 2: Unemployment rate by age, total population

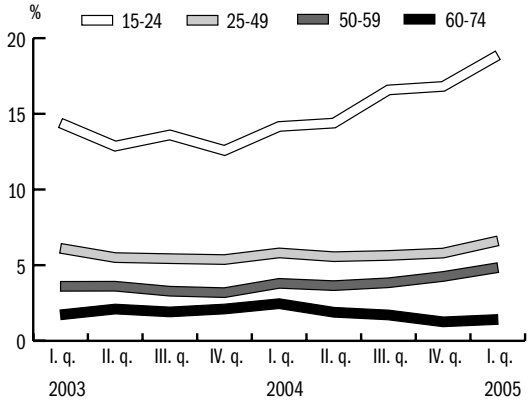
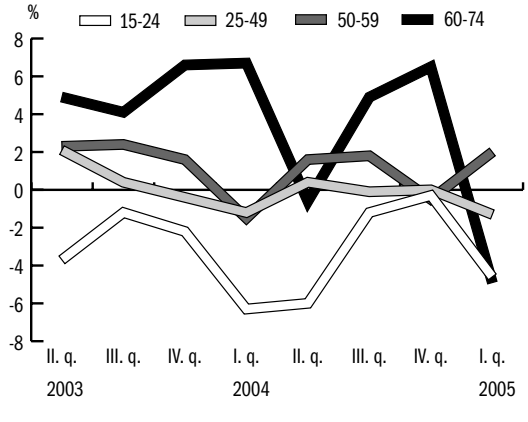


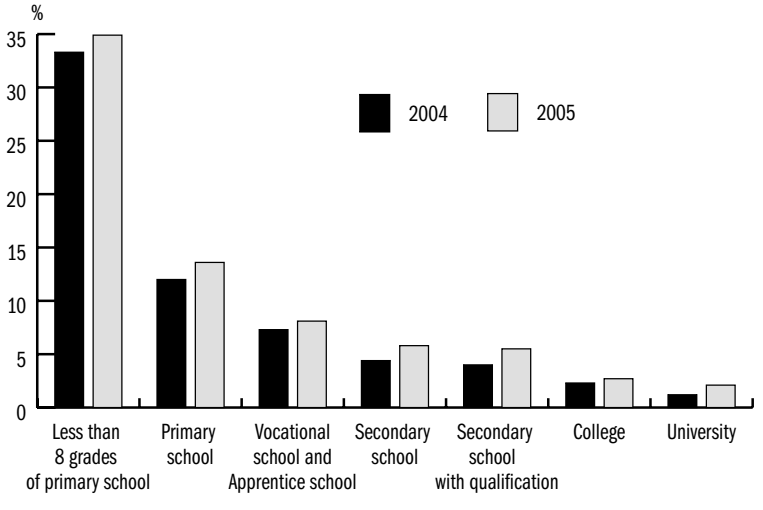
Figure 3: Quarterly change of employment, by age



Besides the positive tendencies of the elderly, however, the employment of the youngest (population aged between 15 and 24) has fallen some 6 per cent during the past two years, while their unemployment rate is increasing heavily (from about 14 per cent to almost 19). These facts draw a severely pessimistic picture of the young career starters.

What makes this picture more serious is that most of these career starters are, almost certainly, of a relatively low education level. Taking a look at the labour market status broken down by education we gain evidence of an additional problem relating to the previous one (Figure 4). As a clear piece of evidence of the knowledge-based society, the unemployment rate among those with at most primary school education is double that of the average (in the first quarter of 2004 it was 12.67 per cent vs. 6.09 per cent; in the first quarter of 2005 it was 14.22 per cent vs. 7.14 per cent) and is increasing.[5] What is striking is that people of less then secondary school education are far more exposed to unemployment than those of a higher education and even than those of the average.

Figure 4: Unemployment rate by education



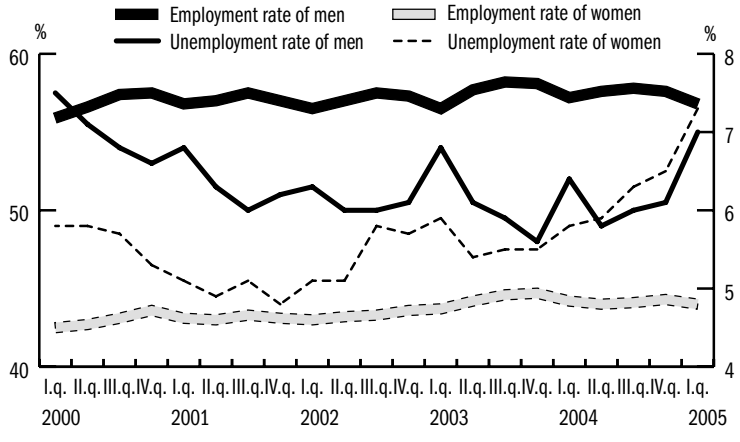
The greatest problem with the young unskilled, however, might go further. Though we do not have appropriate data, these layers might be the ones where the number or proportion of the "other inactives" (that is not students[6] and not individuals on child care allowance) is the highest. The characteristics of these might be that they want to work but can not find a job appropriate for themselves or are not satisfied with the wage they could earn. Therefore, they tend not to enter the legal labour market and search for alternative working opportunities in the black economy. In the long run, making them come back to legality may be a real challenge as

5 However, the same indices of other higher educated groups have grown even more rapidly during the previous year.

6 Though the number of students has also been heavily growing.

it is often hard for white economy employers to compete with black wages. Taking into account that according to a European Union estimate the proportion of the black economy was about 16–17 per cent of the GDP around the millennium in Hungary, and that with this Hungary is among the leaders in this aspect in the EU–25, the problem merits more attention (*FMM* 2004; *Sík* 2000).

Figure 5: Employment and unemployment rate by gender



2.2 Gender gap

Figure 5 suggests that the employment rate of men is about 15 per cent higher than that of women, and the situation is just the opposite as far as inactivity is concerned. There has been a long debate whether this huge difference is mainly due to women's discrimination in the labour market or to the gender specific preferences regarding the propensity to work.

A problem of great importance seems to be, however, the significant and continuous rise of women unemployment: while men's unemployment shows a strong seasonality, and the adjusted path looks stable,[7] the data for women give cause for serious concern (Figure 5). Their unemployment rate has been constantly rising since the second quarter of 2003 (from 5.4 per cent to 7.3 per cent in one and a half years).

Slight but qualitative differences can be captured looking at the time series of employment and inactivity by gender. In the case of men we again see strong seasonality but approximating the path by a trend of moving averages no significant change is observed. In absolute terms, it is not a cause for joy, of course, as it signals the stagnation of the economy. In the case of women, the tendencies are more positive, although it also seemed to stagnate during the previous year: the slightly growing employment seems to absorb the decline in inactivity though in fact unemployment has been seriously rising.

7 Though in the first quarter of 2005 the number of unemployed jumped by 1 per cent compared to the previous quarter.

2.3 Sectoral breakdown

Looking at the break down of the different sectors, only one significant change has occurred: after the public sector wage raises the share of public employment among all the employed started increasing slightly and from the second quarter of 2004 reversed. In absolute numbers this means an overall employment increase of 20,000 people in the public sector while in the private sector employment declined by some 7,000 people. This is surprising as it is widely known that in Hungary the size of the state bureaucracy is relatively large, which is valid also in the context of the number of the employed in the public sector. Cutting back the staff was planned for efficiency reasons and also to signal the state's intention to pull back from the economy. This perception does not seem to have been successful as the number of employed in the public sector – partly due to the wage rises – quickly grew back to the original level.

The share of agriculture and industry from total employment maintains a slight decline: during the past two years the employment share of both has fallen 0.6 per cent, so that at the beginning of 2005 less then 4.8 per cent of the working population made their living from agriculture and 32.7 from industry. At the same time, from the point of view of the number of unemployed by former work, the number of those losing their jobs in the service sector is growing the most heavily. In this aspect agriculture and – by another dimension – the public sector is stable; at the moment it is in the private sector where most people lose their jobs. (While among the employed 72–73 per cent work in the private sector, 82 per cent of the unemployed worked previously in the that sector. Moreover, the number of unemployed previously working in manufacturing has particularly increased – by some 24 per cent [*CSO* 2005a].)

Not surprisingly in a transition economy, the employment of blue-collar workers is declining in favour of the white-collar: blue-collar workers, those typically with lower education and skills, can witness the depreciation of their human capital and need to retrain themselves. Assisting with this, by active labour market programs, is an important priority of the governmental labour policy and as labour market and labour force is an accentuated field of European Union policy as well, Hungary also shares in European subsidies supporting the roll back of unemployment and inactivity. (See *Frey* 2004 for details.)

2.4 Regional differences

Even labour market aggregates can show that Hungary is sharply divided into two parts and these differences do not seem to be diminishing (Figure 6). The data of the first quarter of 2005 suggests that the separation might become even worse: the eastern regions of Hungary might divide

into two further parts, with Northern Hungary and the Northern Great Plain falling behind. These two regions are the ones which suffered the most at the transition and could not cope with the sectoral transformation and the declining industry. A major part of the population worked in the industrial sector as blue-collar workers and for them the problem of the depreciating human capital was more sharply felt. From a distance of 15 years these difficulties are still visible and are becoming relatively more and more significant. These regional differences put a terrible burden on the regional development policy of Hungary because if the situation is left unchanged these regions will become completely uncompetitive in the European Union.

Figure 6: Employment rate by region, 2000–2005

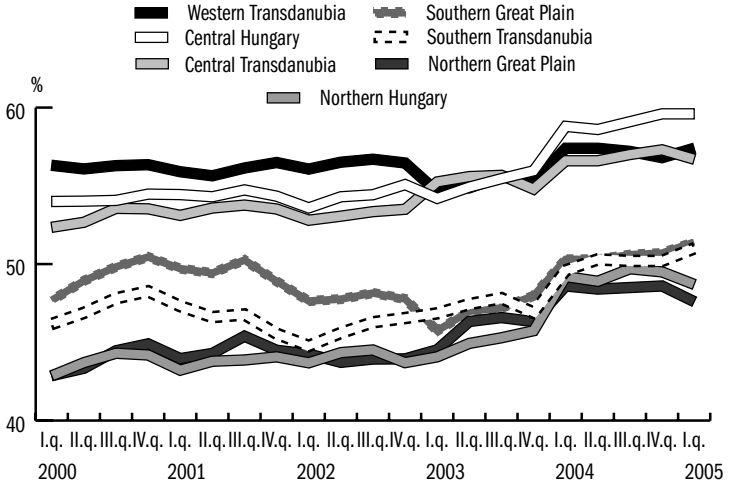


Figure 7: Sectoral transformation by regions, 2004. I. – 2005. I.

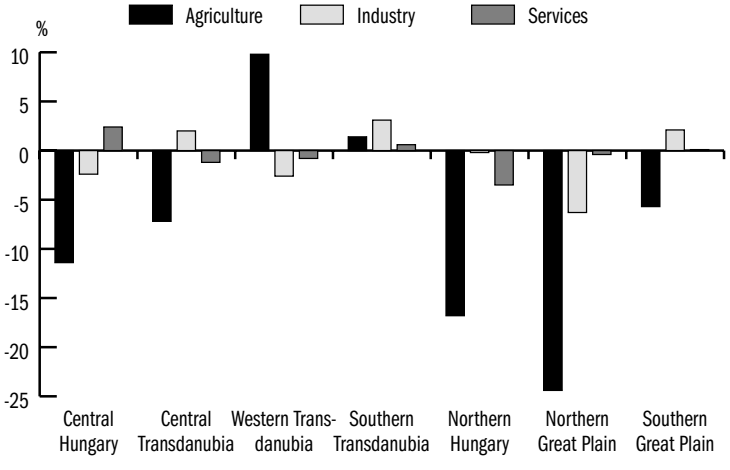


Figure 7 illustrates the change in employment level by sector in the first quarter of 2004 and 2005. In the figure we can discern that in most regions (with the exception of Western Transdanubia) opportunities in agriculture are limited and declining while the emergence of the service sector has hardly started. The unsatisfying and decreasing development of industry is also significant, and might be due to high taxation and the considerably increased wage costs caused by the 2001–2003 wage rises. Looking at the bars of Northern Hungary and the Northern Great Plain gives cause for serious concern. Here, large numbers of the low skilled and an underdeveloped infrastructure deter investments and this stagnation can only be reversed by governmental help.

3. WAGES

In 2004 Hungary took some steps to return to the sustainable path of economic growth, which in part needed to involve a discrete wage policy. In this chapter we will focus on the previous years' wage-trends, the sharp increase due to the wage rise in the public sector in 2002, and the sharp decrease in 2004.

Figure 8: Growth rate of real net wage and GDP, 1991–2004

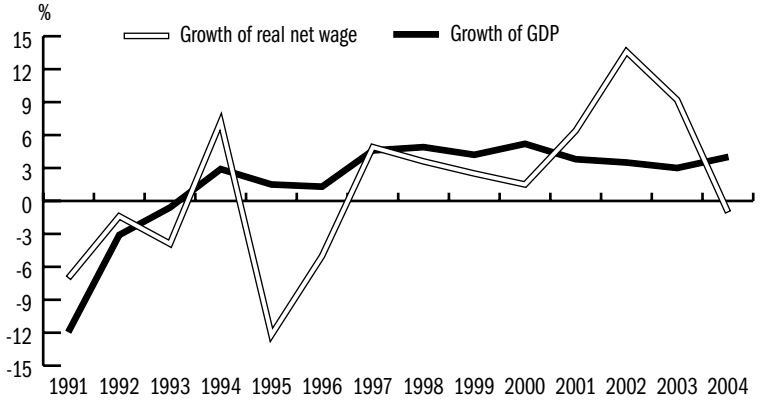


Figure 8 shows the annual growth rate of net real wages and GDP between 1991 and 2004. The first of the three major periods already mentioned, transformation and the stabilization package (1990–1997), can be characterized by decreasing GDP and continuously decreasing net real wages. The second period, the boom in the Hungarian economy (1998–2000), coincided with relatively high GDP growth and a positive but lower growth rate of real earnings. In the third period, of a slowing economy and deepening inequilibrium (2001–2003), as the figure suggests, wage rises were unsustainably high.

Economists widely agree that the major problems of the Hungarian economy following the millenium were the downturn in the external economic environment; instead of export, there existed an internal demand driven economy and an unsustainably high growth rate of wages, mainly due to wage rises in the public sector in 2002 (which extended to 2003) and partly to the rise of the minimum wage in 2001 and 2002.

These macro level problems, which strengthened the effects of each other, were the main causes leading to the current situation: The former 5.2 per cent GDP growth in 1999 dropped to 3 per cent in 2003 and 4 per cent in 2004, while the former 13.6 per cent (*sic!*) growth of net real wages in 2002 decreased to –1 per cent in 2004.

3.1 Sectoral differences[8]

The correlation between the GDP and real wages is surprisingly low in Hungary, which can be explained by the relatively large part played by the public sector where wages are mainly set by political interests.

In Figure 9 we can see the growth rate of real wages in the public and private sector between 2000 and 2004. This period was characterized by a relatively big variance of public sector wage growth, which strongly correlated with the private sectoral one. The linear model which represents the connection between the upper variables has $R^2 = 0.7$,[9] which is a really strong correlation: The public sector wage settings, which are mainly politically and not economically set strongly affect the wages in the private sector. The significantly increased wage level could be responsible for the worsening labour market indices (that is to say, for growing unemployment and decreasing employment). That is why the labour market downturn might partly be a Hungarian characteristic, a long run consequence of the minimum and public sector wage rise and is not solely due to global recession.

In 2003 the slowing economic growth and the increasing budget deficit forced the Hungarian government to change its labour market policy. The measures were postponed and the results surfaced only in 2004. The last year was characterized by continuously decreasing real wages in the public sector (5 per cent on average) and barely increasing real wages in the private sector (1.1 per cent on average), which means a total 1 per cent real wage-cut in the economy.

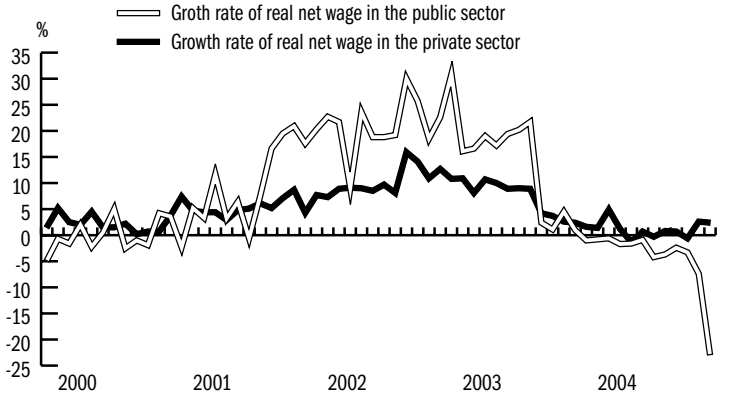
Transforming countries are usually characterized by incalculable political decisions; Hungary unfortunately is a good example of this: The government seems to rather slow down economic development. The effects of the public sector wage rises are really spectacular, while the previous political measures, the rise of the minimum wage in 2001 (by 60 per cent!) and in 2002 (by another 25 per cent reaching 50,000 HUF) are not that

8 The sources of data all along this subsection are CSO (2004b) and CSO (2005b).

9 $y = 0.2974x + 2.9122$; $R^2 = 0.7022$

evident. The value of the minimum wage compared to the gross average significantly grew in that two year period by up to 40 per cent, which was never seen before. In 2003 no rises were given, but in 2004 (by 6 per cent to 53,000 HUF), so the real value of the minimum wage has decreased in the past two years.

Figure 9: Growth rate of real net wage in the public and private sector



The average gross and net earnings by industry in 2004 highlight that the wage freeze in the public sector were global: nominal wages hardly increased in the health and education sectors and in public administration (so that the real wages decreased), while in the private sector the average nominal wage growth was marginally above the consumers' price index.

In the private sector the nominal gross and net wage growths were the highest in the financial intermediation sector (18.4 per cent – 16.4 per cent), and the lowest in the hotels-restaurants sector (3.5 per cent –3.9 per cent). Data evidently show, however, that the highest and lowest wage levels are in the same sectors: the conclusion is that wage inequalities have increased in 2004.

The gross wages increased more considerably than net wages (6.1 per cent – 5.7 per cent on average), which means that wages were overall more taxed in 2004 than in 2003. On the one hand this fact is surprising as the personal income tax rates decreased from 2003 to 2004[10] and also sets back job creation and the growth of employment, while on the other hand, taking the serious budget deficit into account, the phenomenon is not surprising.

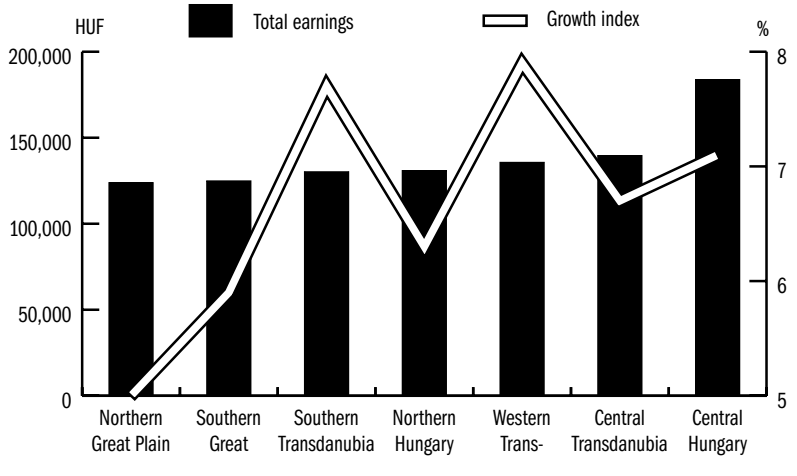
The growth rate of net wages in the white collar-blue collar comparison shows that overall blue-collar workers became better off (6.2 per cent compared to 5.2 per cent), while in the previously mentioned financial intermediation sector the opposite tendency took place (5.3 per cent – 16.4 per cent).

10 In 2003 the rates of the three-step personal income taxation were 20, 30 and 40 per cent while in 2004 they were decreased to 18, 26 and 38 per cent. (http://www.apeh.hu/informacio/sav.htm)

3.2 Regional differences

A previous chapter came to the conclusion that Hungary is sharply divided into a more and a less developed part in the context of economic activity. Figure 10 shows that regarding the earnings and their growth rate, the situation is more complicated. In Central Hungary the gross and the net wage level and earnings are about 40 per cent higher than in the average of the other regions, while in these other regions the wage rates are more or less similar. The growth rate of the factors mentioned supports our previous suspicion that the wage inequilibrium deepened in the previous year: the two regions with the lowest earnings level had also the lowest growth rate. What is more, we can see that regions with the worst employment situation are among those with the worst earnings possibilities (Northern Great Plain, Northern Hungary, Southern Great Plain, Southern Transdanubia), and the best is the best from both points of view (Central Hungary).[11] We conclude that higher wages coincide with higher employment. Economists might puzzle as to why the law of demand and supply does not solve this anomaly: people living in low employment and low wage level regions should move to live in high employment and high wage level regions. Hence the labour supply surplus would force down wages, while in the regions from which people have moved the lack of a labour force would push up wages.[12] This way migration would solve the problem.

Figure 10: Total earnings and the growth index in the 7 regions of Hungary, 2004



Nevertheless, the huge gap between the more and the less developed part of Hungary does not seem to diminish and the relatively low rate of domestic migration[13] also helps to maintain this difference. The main causes behind this fact are the regional differences between the prices of real estates and the low level and costliness of flat-renting and are of a cultural nature. As

11 We again gain evidence of Hungary being extremely concentrated in the centre with the capital, Budapest.

12 Of course, by this, we implicitly assumed that the migration causes labour force deficit in the underprivileged regions, which is not necessarily true.

13 According to the data of the 2001 census, a marginally more than 1 per cent of the population migrated between counties and only less than half of the migrants were active on the labour market. (EUROSTAT)

far as flat-renting is concerned, it is not common practice as Hungarian social culture has the ethos that everybody should have his/her own flat and therefore the ratio of tenant-owned flats is particularly high.[14]

In a word, Central Hungary is definitely the engine and the most booming region of the Hungarian economy at the moment, but the increasing inequalities cause associated political and economic problems and tensions that need to be solved.

4. MIGRATION AND THE EUROPEAN UNION AS AN OPPORTUNITY

On 1st May, 2004 Hungary entered the European Union. The population has positive expectations for a change in the standard of living, in which labour prospects and earnings play a key role. In the following paragraphs we make an attempt to surmise concerning the effect accession will have on the Hungarian labour market.

The general tendency among the less developed EU member states is that both their employment rate and their wages converge to the Union average by some measure. This convergence can be faster and may exceed the average (e.g. Ireland) while in other cases (e.g. Greece) can be much slower and it may even be doubtful whether we can call it a "convergence". The Hungarian path is similar to that of Spain and Belgium and is definitely among the worst. However, we must not forget that in 1994 Ireland had almost exactly the same employment rate as Hungary and that the more developed regions of Hungary are close to reaching the average of the Union (*CSO-Stadat*). Therefore, to move closer to the European level the development of Eastern Hungary is crucial. The improvement of infrastructure, taxation benefits (in times when the budget deficit can afford it) alone could work wonders in attracting investments and Hungary could follow the Irish path. A pessimistic scenario would emerge if the segregation of the two parts of Hungary were not to diminish and this would act as a block on the aggregate closing of the gap by Hungary. Unfortunately, our data up to the present supports this outcome.

Looking at accession from another point of view, there are some worries that because of wage disadvantage foreign migration will become more intensive and highly qualified people (who are definitely more mobile) will flow out to the west. *Fóti* (2000) sums up the results of some surveys. According to one survey from 1996, 20 per cent of the population considered the possibility of migration, only half took some concrete steps but the effective migration potential (the proportion of those applying for working permission or right to abode) is lower than in other Central European countries (below 1 per cent). At the same time, some two years later the ratio of effective migration potential in Hungary was already at 3 per cent. In the '90s Hungarian surveys and a survey made for the European Com-

14 See also *Cseres-Gergely* (2003).

mission found that 6 per cent of the population were considering leaving the country, which was, however, 1–2 per cent higher than in the neighbouring countries. The majority of these people consider a relatively short, 1–3 year stay in order to obtain higher wages, better job opportunities and are highly qualified, young men. (*Fóti* 2000) Unfortunately, no up-to-date data was available for us to see the present tendencies, that is to say, after accession to the Union. The potential might have increased significantly, nevertheless, as *Fóti* (2000) also mentions, foreign migration has its own rational and cultural determinants so just as internal migration is relatively low in Hungary, foreign migration may not change dramatically neither.

From all this and from the above data, we conclude that the most likely scenario at the moment is that Western Hungary will rapidly move closer to the European standard both in the aspect of employment and wages while the eastern part can easily fall behind. This puts a terrible burden on regional development policy (involving labour and social issues) and might cause serious budgetary tensions between the short and the long run, which can not be completely bridged by European Union sources and subsidies.

REFERENCES

Cseres-Gergely (2003) Gazdasági ösztönzők hatása a magyarországi munkaerő földrajzi mobilitására az 1990-es évtizedben. [The Effects of the Economic Incentives on the Geographical Mobility of Hungarian Labour Force in the 1990's.] In: Fazekas K. (ed) *Munkaerőpiaci Tükör 2003*. Budapest, MTA Közgazdaságtudományi Intézet, pp. 102–122.

CSO (2004a) Hungarian Central Statistical Office – Labour Force Survey, Quarter I., 2004., http://portal.ksh.hu/pls/ksh/docs/hun/xftp/idoszaki/munkero/munkero041.pdf. [downloaded: 12.05.2005, 12:00]

CSO (2004b) Hungarian Central Statistical Office – Labour Report, January-December, 2003., http://portal.ksh.hu/pls/ksh/docs/hun/xftp/idoszaki/fmf/fmf0312.pdf. [downloaded: 12.05.2005, 12:10]

CSO (2005a) Hungarian Central Statistical Office – Labour Force Survey, Quarter I., 2005., http://portal.ksh.hu/pls/ksh/docs/hun/xftp/idoszaki/munkero/munkero051.pdf. [downloaded: 12.05.2005, 12:20]

CSO (2005b) Hungarian Central Statistical Office – Labour Report, January-December, 2004., http://portal.ksh.hu/pls/ksh/docs/hun/xftp/idoszaki/fmf/fmf0412.pdf. [downloaded: 05.05.2005, 12:30]

CSO-Stadat (Internet database of CSO, http://portal.ksh.hu)

EUROSTAT-táblázatok. [EUROSTAT-tables.] http://www.nepszamlalas.hu/hun/egyeb/eurostat/tables/tabhun/load2_01_0.html [downloaded: 05.05.2005, 14:20]

FMM (2004) Foglalkoztatási és Munkaügyi Minisztérium. [Hungarian Ministry of Employment.] http://www.ofakht.hu/hirlevel/2004/tartalom66.jav.elf.htm. [downloaded: 10.02.2005, 16:30]

Fóti K. (2000) Az Unió félelmei – Várható-e kelet-európai migráció? [Fears of the Union – Can We Expect Eastern European Migration?] *Eszmélet*, 2000/48. downloaded: http://eszmelet.tripod.com/48/foti48.html#1. [29.04.2005, 10:10]

Frey (2004) A munkaerőpiac jogszabályi és intézményi környezetének változásai. [Changes of Juridical and Institutional Environment of Labour Market.] In: Fazekas K. (ed) *Munkaerőpiaci Tükör 2004*. Budapest, MTA Közgazdaságtudományi Intézet, pp. 195–216.

Sík (2000) KGST-piacok és feketemunka – Magyarország 1999. [Postsocialist Markets and Illegal Employment – Hungary 1999.] http://www.econ.core.hu/doc/HiddenEcon/Sik.pdf. [downloaded: 03.01.2005, 09:00]

INFOCUS

EDUCATION AND THE LABOUR MARKET

Edited by

JÚLIA VARGA

INTRODUCTION

Following the beginning of transition one of the key determinants of labour market changes has been the revaluation of education and experience. The upward shift in demand for educated labour has not only resulted in the rapid increase of the returns to education but it may explain – at least in part – the persistent low level of employment also. The increase in the returns to education has resulted in the demand for education showing considerable growth. There was an expansion in education and the number and share of students following their studies at the upper secondary and higher level of education has increased substantially. Recently anxiety concerning over-education has arisen with some arguing that the composition of graduates by level and field specialisation does not meet market demand.

The aim of the present set of studies was to collect the results of empirical research analysing the link between education and the labour market from different aspects. The collection allows us to adopt a position on different questions. Is the Hungarian labour force well educated by international comparison or not? What were the reasons for educational expansion? What are the labour market effects of the increase in educational participation? What kind of changes could be observed in the transition from to school to work? During recent years important achievements have been attained in analysing these questions, but this collection also reveals the questions about which we have insufficient knowledge. Analysing some important problems – first of all the effects of the transformation of the vocational training system – is affected by not only the lack of empirical research but also the lack of adequate data collection. Some sections of this chapter call attention to these problems.

The collection consists of five sections. Section 1 investigates the connection between educational attainment and labour market success in terms of earnings and employment. One of the most important developments of the last decade was the huge increase in participation in upper secondary and higher education and this is why three sections focus on the expansion of education and its consequences. Section 2 presents the magnitude of educational expansion and the results of research investigating if there is any observable evidence on over-education today in Hungary and if educa-

tional expansion has resulted in the distortion of quality. Section 3 presents findings on the role of labour market information and expectations on educational decisions. Section 4 focuses on different aspects of school to work transition and labour market success of graduates. Finally, Section 5 discusses connections between educational attainment and migration.

1. EDUCATION AND LABOUR MARKET SUCCESS

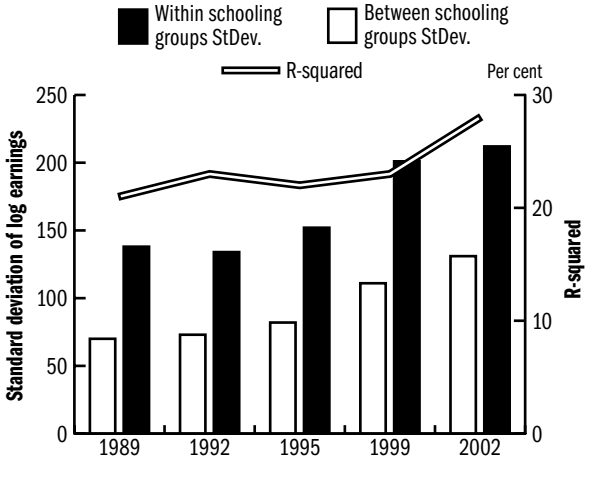
1.1 Education and Earnings

GÁBOR KÉZDI

This short study looks at the returns to education in terms of earnings in Hungary, between 1989 and 2002.[1] Since 1989, Hungary experienced not only a transition to a market economy but also an expansion in secondary and college education. Therefore, a particularly interesting question is how returns to education changed during this period.

Our measure of earnings refers to main job total yearly earnings including overtime and bonus payments. Education is measured in four categories: completed lower secondary school (*általános iskola*, 8 grades in Hungary) or lower; completed vocational training school without a baccalaureate exam (*szakmunkásképző*); completed upper secondary school with a successful baccalaureate exam (*középiskola*); and completed college or graduate school. Returns will also be estimated for education in years.

Figure 1.1: Schooling and standard deviation of log earnings



Earnings inequality has risen considerably since the fall of the communist system. Measured by the standard deviation of log earnings, inequality rose by more than 60 per cent between 1989 and 2002. Much of the increase

1 Source of the data is the Wage Surveys of the National Labor Center (NLC). NLC Wage Surveys ask detailed earnings questions of a sample of employees from firms and other establishments employing at least 5. Samples are large and the data contain basic demographics and can be matched with firm characteristics. See *Kertesi and Köllő* (1997) for details.

took place between 1995 and 1999. *Figure 1.1* documents the trends in the standard deviation of between-schooling level and within-schooling level log earnings. Both components increased for most of the period, but the former grew faster. As a result, the share of total variance explained by education (the R^2 of a simple variance analysis) increased from 21 per cent in 1989 to 28 per cent in 2002.

Conceptual problems

Returns to education will be measured by standard OLS Mincer-type earnings regressions run on cross-sections of employees (see, for example *Willis* 1986). Before turning to the estimates, however, we need to clarify some conceptual problems so that we can interpret the regression results and their year-to-year changes. The question of this section is whether our estimates are biased, and if yes, in what direction. Even more important is whether changes in the estimated returns are biased, and if yes, in what direction.

The first issue is the general identification problem of cross-sectional regressions. Ideally, one would like to measure returns to education in the following thought experiment. First, assign a certain level of education to an individual and measure her complete life-time earnings. Then, start the whole thing over, and assign a different level of education to the same individual and measure her lifetime earnings. The difference between the two earnings will then identify the causal effect of changing education level from the first to the second, the effect we conveniently call the returns to education. In this thought experiment we can make sure the difference between the two earnings levels are due to differences in education only. The thought experiment is, of course, impossible to carry out. The only way to identify returns to education is by comparing the earnings and education levels of different individuals. In such cases we would like to control for all other factors that affect earnings (but are not caused by education). It is, again, impossible to measure all such factors. Interpersonal comparisons can therefore identify the true effect of education on earnings only if those unmeasured characteristics are uncorrelated with education, i.e. if education is exogenous in the earnings equation. Without a controlled experiment (in which assignment of education would be properly randomized) we can never be sure of that.

In standard Mincer-type regressions estimated by OLS, one controls for all measured characteristics that could be correlated with earnings. Typically, 30 to 50 per cent of total (log) earnings variance can be explained by such regressions. The rest is due to unmeasured characteristics, luck, or measurement error in earnings. While the last two probably play an important role when we look at yearly earnings as opposed to complete lifetime earnings, unmeasured characteristics surely play a role. Unmeasured

factors that increase earnings (such as "ability" or "motivation") tend to increase education as well. This distortion is labeled as "ability bias" in the literature (*Willis* 1986; *Card* 1998). In plain words, it says that more educated people may earn more than others in part because they have unmeasured qualities that would make them earn more even if they had the same level of education. But since those unmeasured characteristics tend to help them attain higher education levels, it seems as though earnings differences were caused by to education. As *Card* (1998) showed, a reverse bias may also arise, especially if education is measured with some error. He reviews evidence showing that OLS estimates may actually be right on target or actually biased downwards. The direction of the bias is still in general an open question.

Our estimates are based on establishment-level data; therefore measurement error may be of a smaller importance. As a result, we can expect standard ability bias to dominate our OLS estimates, resulting in an upward bias in the estimated level of returns to education. On the other hand, the expansion of secondary, and especially, tertiary education led to a change in the ability distribution of more educated people, and this should have decreased the role of ability bias. When we look at changes in returns to education, therefore, our estimates probably underestimate the true increase. This is, at least, what we can expect from ability bias. But there are other measurement problems that may affect our estimates

The second important issue is selection into employment. Our estimates refer to the earnings of employed people. Communist countries tried to make sure all people were employed, but even they could not arrive at literally full employment. When profit motives and market forces took over however, many formerly employed people proved to be unemployable. The least educated saw their employment prospects deteriorate enormously, while the most educated, especially the most educated men, stayed at nearly full employment. If our goal is to estimate expected returns to education for all people, keeping all other things constant, we should take into account the effect of education on the probability of employment, again, keeping other things constant. OLS estimates of expected returns to education are biased if selection on unobservables is important ("selection bias"). If among the less educated people, only the more able are employed, whilst all of the better educated people are employed, earnings differences between the two groups underestimate the expected returns to education.[2]

Employment fell sharply in the early years of transition. As a result, selection bias is most important when we compare estimated returns for those years. Measured changes of the returns between 1989 and 1995 therefore most probably underestimate the true increase in expected returns to education in Hungary.

2 Section 1.2 addresses the effect of education on employment probabilities.

The third issue arises because we can measure total monetary earnings from the main job only. The data at hand does not allow the measuring of fringe benefits or earnings from secondary jobs. Using household survey data on more detailed labor income, *Horváth et al* (2004) reinforce what is both theoretically plausible and supported by anecdotal evidence. They show that in 2003, the better educated received a larger part of their labor income in non-monetary fringe benefits and they were also more likely to have a second job or additional sources of earnings.[3] As a result, this study most probably underestimates the effect of education on total labor income in post-communist Hungary. Unfortunately, we do not have comparable results for earlier years. Therefore, we cannot assess the resulting bias on changes in the estimated returns.

Taking the above three considerations together, we cannot tell for sure whether returns to education estimated in this study are biased upwards or downwards. But selection bias and the ignoring of important parts of total labor income probably balance ability bias, and therefore our results are more likely to underestimate the true effects. As for changes in returns to education, the picture is more complex. Expected returns to education most probably rose more from 1989 to 1995 than our estimates show. Changes after 1995 are probably a lot less biased.

Specification issues

The regressions are estimated by OLS, allowing for arbitrary form of heteroskedasticity and within-firm clustering. Dependent variable is log yearly earnings, which allows us to compare slope coefficients without having to worry about wage inflation. The NLC Wage Survey allows for controlling for a limited set of covariates. Besides education, the right-hand side variables include a gender dummy, industry, region, and settlement type dummies (of the firms), and estimated labor market experience and its square.[4] Regression estimates use the weights calculated by *Kertesi and Köllő* (1997). Un-weighted estimates are very similar.

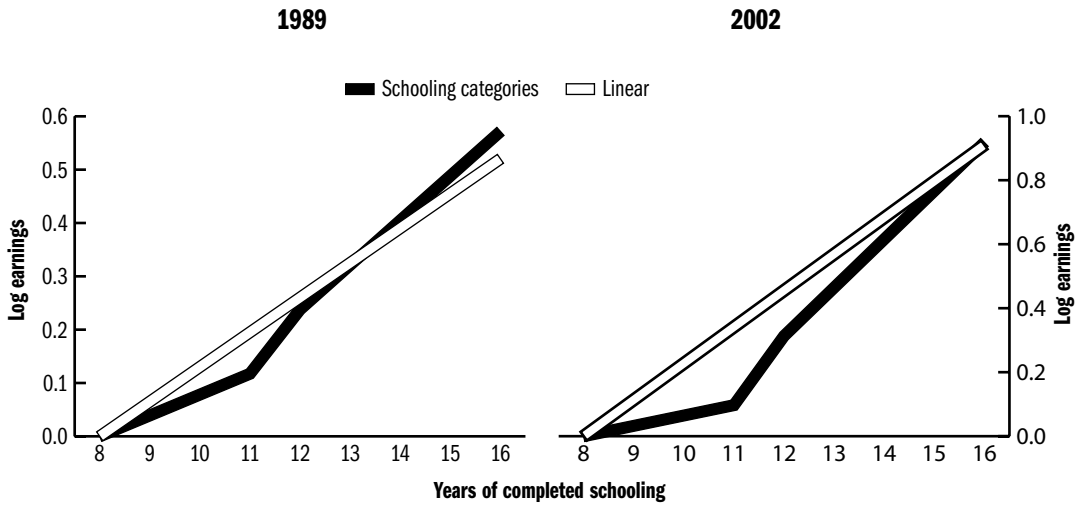
Based on human capital theory, standard earnings functions relate years spent in school to earnings, in a linear fashion. *Card* (1998) shows that in the U.S., the linear functional form is a good approximation of a non-parametric returns function. *Figure 1.2* shows that this is a bit less true for Hungary. The linear approximation was a bit off in 1989, and it became worse by 2002. It is the 11-year vocational degree that has been the important outlier. Already at the end of the communist system, but even more so by 2002, vocational training provided substantially smaller returns than what the 11 years completed would predict. We shall report results from both the linear and the 4 education category specification. The lat-

3 *Horváth* et al (2004) use a special labor incomes module from the 2003 TÁRKI Monitor Survey, a relatively small but very detailed household-level dataset. Their estimates are not directly comparable to the ones presented in this study, both because of different specifications, and more importantly, because the TÁRKI survey contains self-reported labor income measures.

4 Labour market experience is estimated by age minus modal age at highest completed education level. This overestimates actual labour market experience for those that had discontinued their employment career. Women and the least educated are considerably more likely to had done so. Therefore, returns to experience are estimated with a sizable bias for them.

ter is more correct a specification, while the former is useful for international comparisons.

Figure 1.2: Returns to schooling, different functional forms. 1989, 2002



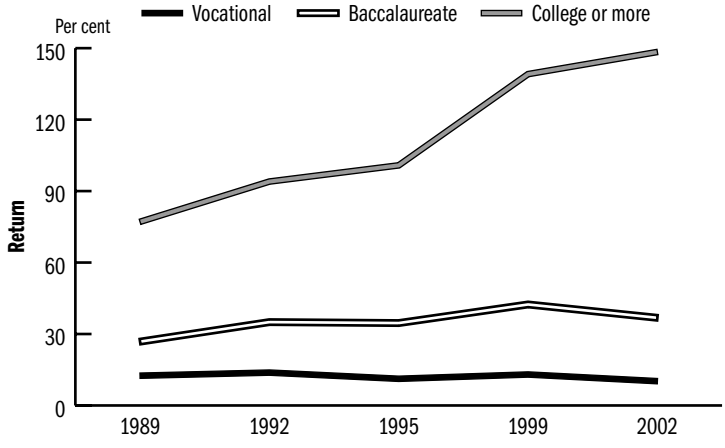
Dependent variable of Mincer-type regressions is log of earnings.[5] Coefficients from such regressions are easy to interpret if they are close to 0: and estimated 0.01 slope coefficient means a 1 per cent increase in earnings if the right-hand side variable in question increases by one unit. Larger estimates are more difficult to interpret. Let β denote the slope coefficient in which we are interested. The percentage effect then is $(e^{\beta} - 1) \times 100$ %, which is approximately 65 per cent if $\beta = 0.5$, and more than 170 per cent if $\beta = 1.0$. When interpreting the results, we shall convert all slope estimates to percentage returns based on the above formula.

Estimated returns to education in Hungary, 1989 to 2002

Figure 1.3 shows estimated returns to earnings of three education levels, relative to completed lower secondary (8 grades) or less, between 1989 and 2002. Detailed estimates are in *Annex A.1.* Percentage returns are estimated from dummy parameters on log earnings transformed the above mentioned way. Returns to completed vocational training has been 10 to 14 per cent, without a clear trend. Completed upper secondary school without further education increased from 30 per cent to 40 per cent. Returns to college or higher education increased dramatically: from 80 per cent in 1989, it initially increased to 100 per cent by 1995, and reached almost 150 per cent by 2002. Most of the increase concentrated on the late 1990's; the growth rate slowed down after 1999 but stayed significant.

5 There are at least two reasons for having a logarithmic left-hand side variable in earnings regressions. First, human capital theory interprets education as an investment. It relates opportunity cost of one more year in school to alternative investments. It is therefore the expected relative increase in future earnings that should be weighed against the returns to other investments, proxied by the interest rate. Relative returns are approximated in a logarithmic form in continuous-time decision morels. The other rationale for log earnings is a statistical one: earnings are close to lognormal, and therefore a regression on a logarithmic dependent variable is expected to produce more efficient estimates.

Figure 1.3: Returns to schooling levels, relative to 8 grades



Linear specification in years of schooling shows an increase from 7 per cent in 1989 to 12 per cent by 2002, an outstanding rate by international standards. The literature surveyed by *Card* (1998) estimates 6 to 8 percent returns. *Figure 1.4* shows the estimates based on the linear specification for the total population and also the youngest cohorts. Returns to education of the 30 to 34 year old group rose in accord with the overall increase. The 25 to 29 year-old group experienced an even more substantial increase, from 4 to 11 per cent.

Figure 1.4: Returns to completed years of schooling

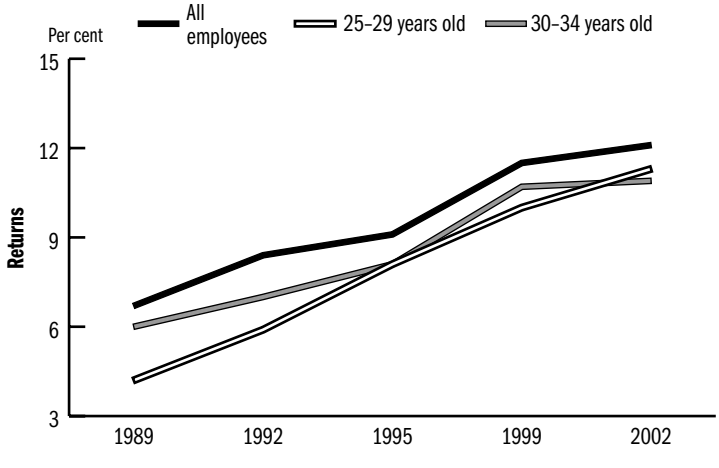
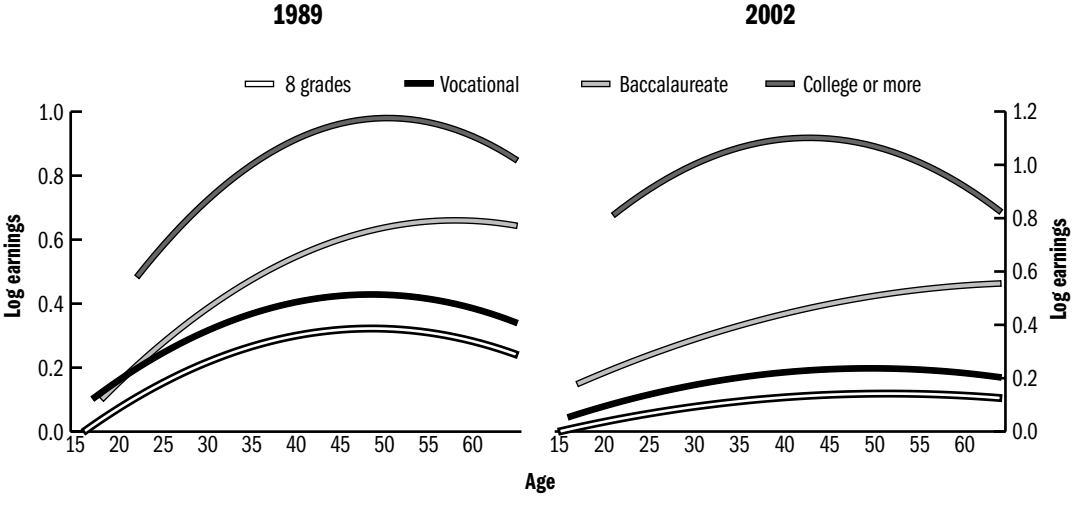


Figure 1.5 shows cross-sectional age-earnings profiles for 1989 and 2002. The figures are based on a quadratic specification, and they show earnings relative to the 16 year-old least educated employees. The figures highlight two striking phenomena. First, profiles of the different education levels

moved further away, in accord with the significant increase of the average returns to education. Secondly, the cross-sectional profiles have flattened considerably. The latter suggests another important consequence of transition: the dramatic improvement of the relative position of the youngest cohorts, especially among the most educated. This phenomenon is a common characteristic of most transition economies, as documented by *Kézdi and Köllő* (2000). It most probably reflects downgrading of experience accumulated in the communist economy.

Figure 1.5: Age-earnings profile by educational attainment, 1989, 2002



Summarizing the results returns to education increased substantially in Hungary between 1989 and 2002. Young cohorts experienced an even steeper increase, and intergenerational differences decreased substantially, especially among the most educated. Taking all shortcomings of the data and estimation method into account, the results most probably underestimate the true increase.

1.2 Employment and Educational Attainment in Hungary

GÁBOR KERTESI – JÚLIA VARGA

Although Hungary has successfully passed through the first period of transition and the economy has started to grow the employment level is still low and the rate of non-working (unemployed and inactive population) is extremely high by international comparison. There is a more than 10 percentage points lag behind the EU average in the employment rate. In this chapter based on the data of the 2001 census we will show that the main reason for the low level of employment in Hungary is that the low educated

have a larger share in the population than in the EU (15) average and that their employment probabilities are worse than in the EU.

It is very important both for employment and for education policy to determine the impact of the two components (the effect of the difference in the educational attainment of the population and the effect of the difference in employment probabilities for workers with the same educational attainment) on the overall lag in employment level. International comparison of the educational attainment of the population is hindered by the difficulties related to the classification of educational programmes. Classification can be made using different criteria.[6] As we want to analyse the connection between educational attainment and employment we have to classify educational programmes in such a way that within a group the accumulated human capital of individuals are comparable and so they are similarly employable as they acquire similar skills and competences. In the following we will distinguish three groups: (1) those whose educational attainment is less than upper secondary school; (2) those whose highest educational level is upper secondary school; (3) those who have at least college education.

There are differences in the educational systems of different countries at all educational levels, but the main differences can be observed at upper secondary level regarding the duration and content of studies. In Hungary – similarly to most of the post-socialist countries – a large part of secondary school graduates, graduates from vocational training schools (*szakmunkásképző*) and vocational schools (*szakiskola*) has studied for less years[7] and the content of their studies also differed from that of graduates from the other types of Hungarian secondary schools – gymnasiums (*gimnázium*) and vocational secondary schools (*szakközépiskola*). When we are forming internationally comparable groups by educational attainment the most important question is whether vocational training schools correspond to upper secondary level or not.[8]

Depending on the allocation of vocational training schools to upper secondary level or to less than upper secondary level educational attainment of the Hungarian population is very good in international comparison or on the contrary educational attainment falls behind the EU average (*Figure 1.6*). If we classify vocational training schools as upper secondary education, then the educational attainment of the 25–64 years old population is near to that of the most developed countries in the EU. Then the share of those who have attained at least upper secondary level is above the EU (15) average by 6 percentage points and only Germany, Norway, Denmark, Sweden and Finland have better results. If we use the opposite classification (that is we classify vocational training schools to less than upper secondary level) then Hungary is near to Italy concerning the share of popu-

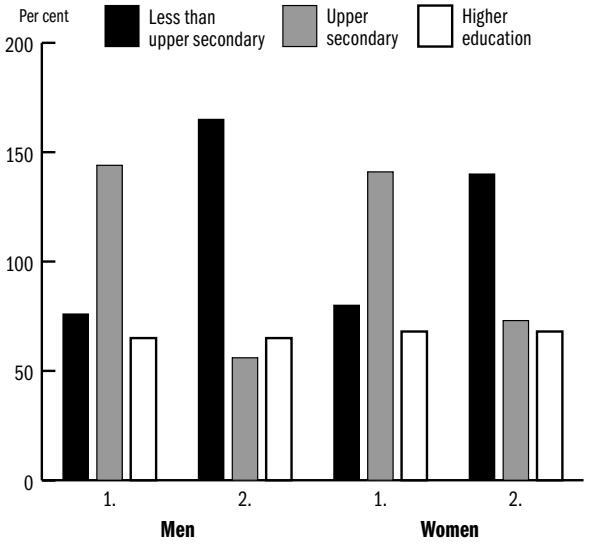
6 In the ISCED classification the level of an educational programme should be determined by its educational content. As it's very difficult to directly assess and compare the content of different educational programmes in an international comparative way ISCED–97 defines various criteria that should be used as proxies for the content of the programme. These include the duration of the programme, typical entrance qualification, type of subsequent education or destination, and programme orientation.

7 According to the data of the 2001 Census 6 per cent of those aged 25–64, who have vocational training school (szakmunkásképző) as their highest educational qualification have 10 years of schooling and 94 per cent have 11 years of schooling. In the same age group those whose highest educational qualification is (former type) vocational school (szakiskola) 12 per cent have 9 years of education, 32 per cent 10 years of education and the remaining part 11 years of education.

8 In the ISCED classification Hungarian vocational training schools are classified as ICED3C type of education, that is they are classified as upper secondary education. There is a wide variability in the duration and the level of content of ISCED 3C programmes and this leads to many problems in the international comparability on the educational attainment of the population. (See for example: *OECD* 1999:40–46.) In the following we argue that the classification of 3 years vocational training schools to upper secondary level distorts international comparability of educational attainment of the population and the investigation of the employment rate by educational attainment.

lation with at least upper secondary level and there are only two countries which have worse results: Spain and Portugal.

Figure 1.6: The proportion of those who have atteined different educational levels as a percentage of the EU average by both classifications by gender, aged 25–64, 2001



Source: EU-OECD Education at a Glance 2003; Hungary, Census, 2001.

The choice between the two classification possibilities shouldn't be arbitrary. One point of reference might be the comparison of completed years of education. Completed years of education is one of the measures of human capital.[9] If we compare cumulative years of schooling it turns out that for those who have finished Hungarian vocational training schools the cumulative years of schooling is below the average of upper secondary graduates in the EU (15) countries. For all EU countries the cumulative years of schooling for upper secondary education is at least 12 years[10] while for Hungarian vocational training schools graduates it's not more than 11 years (for the older age-cohorts only 10 years).

Figure 1.7 shows the average completed years of schooling and the share of those who have attained at least upper secondary education and the predicted years of schooling[11] in EU countries and in Hungary according to both classifications. It can be observed that using classification 1, that is if we classify vocational training schools as upper secondary education, then in Hungary the average actual completed years of schooling of the population are smaller by nearly one year than the predicted years of schooling. In contrast if we use classification 2, that is we classify vocational training schools as less than upper secondary education, then average completed

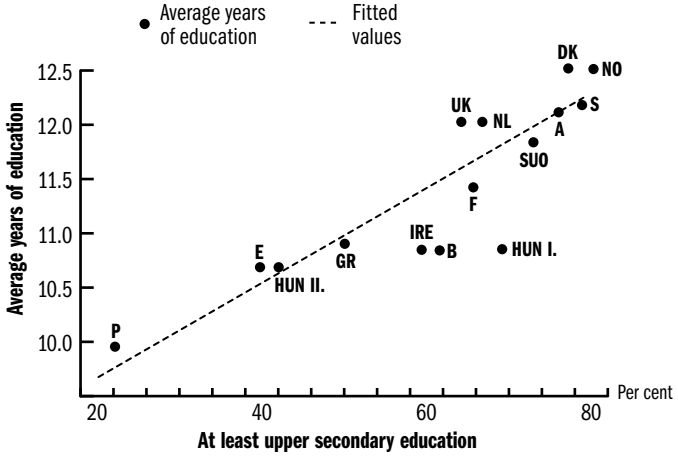
9 Assuming that human capital accumulation is linear and each additional year of education increases human capital by the same value. It is obviously a very restrictive assumption as school years at different levels and types of education might raise an individual's human capital differently, and might result in different returns. One solution for handling this problem is that the average level of human capital is related to the sum of years of schooling at different levels weighted by the return to that level of education. (See for example *Wossman* 2001.)

10 In Austria, Denmark Germany and Italy it's 13 years.

11 Predicted years of schooling are based on the ratio of the population who has attained at least upper secondary education.

years of education is near to the predicted years of education. In the case of the use of classification 1 the difference between actual and predicted years of schooling is about one, that is the difference corresponds to the difference in years of schooling between vocational training schools and other types of upper secondary education. In the average EU country human capital of individuals whose educational attainment is upper secondary school is greater at least by one year than that of individuals who have finished Hungarian vocational training schools. The comparison of the years of schooling attained and the share in the population who have attained upper secondary education seems to be an argument for classification 2 being better for international comparison.[12]

Figure 1.7: Average and predicted years of education and the proportion of the population aged 25–64 who have at least upper secondary education (per cent)



Source: EU-OECD Education at a Glance 2003; Hungary, Census, 2001.

For the decision between the two alternative classifications it's worth examining the judgement of the market, that is what is an upper secondary education worth in employment probability by international comparison. *Figure 1.8* displays the relative employment rate[13] of those who have less than upper secondary education, the share in the population of those who have attained at least upper secondary education and the predicted relative employment rate of the undereducated by gender.[14] The figure shows that where the better educated is the typical individual of a country (the higher the share of those who have at least upper secondary education) the worse is the employment probability of the undereducated. For example in Portugal, where the share of those who have attained at least upper secondary level is the lowest, the employment level of the undereducated is near to the average employment level, while in Germany where the share

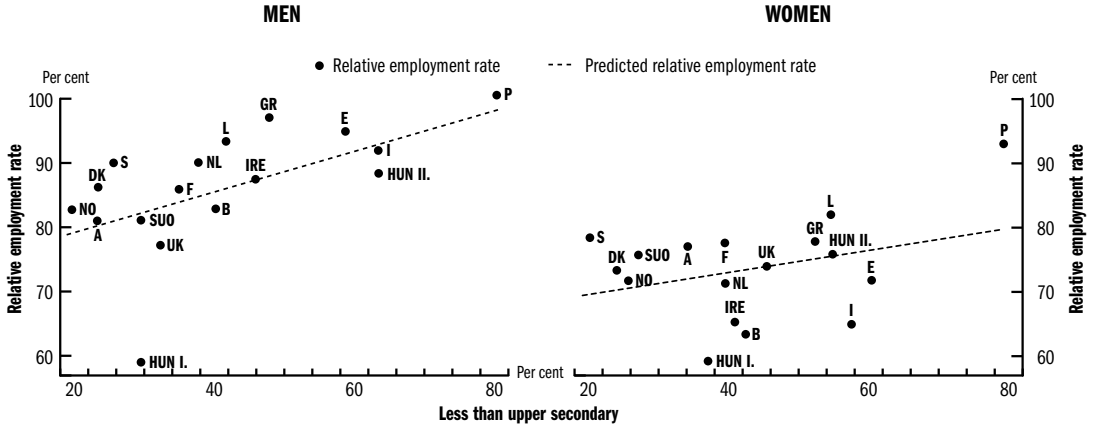
12 Difference in years of schooling seems to underestimate the difference in accumulated human capital between those whose highest educational attainment is upper secondary school or vocational training school as wage returns to upper secondary education are 40 per cent while for vocational training school it is 10 per cent. See *Kézdi, Section 1.1.*

13 Relative employment rate: employment rate of those who have less than upper secondary education (the under-educated) as a proportion of the average employment rate.

14 Employment rate of women differs substantially from that of men in several countries (excepting the highly educated) because of cultural reasons and because of differences in taking the responsibility for child care.

of those who have attained at least upper secondary education the employment probability of the undereducated is much worse than the average employment probability. (The connection between the relative employment level of the undereducated and the share of those who have at least upper secondary education is more pronounced for men but it can be observed for women as well.)

Figure 1.8: Relative employment rate of those who have less than upper secondary education (aged 25–64) and their share in the population by gender



Source:OECD Employment Outlook; OECD Education at a Glance; Hungary, Census, 2001.

In Hungary the relative employment level of the undereducated is lower than the predicted level of their employment, but in the case of using classification 1 the difference between the actual and predicted level of employment of undereducated is very large, while if using classification 2 the actual level of employment of the under-educated is much closer to the predicted level.

Both the average completed years of education and the relative employment level of the undereducated confirms that the allocation of Hungarian vocational training schools to upper secondary level causes a large distortion in international comparison.

Changes in the supply side of the differently educated labour are further points in favour of classification 2. These changes can be observed as changes in demand for the different educational programmes at secondary level. If there are no administrative restrictions in students' choices then students' will choose the secondary educational programme, which provides the highest private return for them (earnings, employment probability).[15] After the beginning of the transition[16] the share in applications to secondary education programmes providing baccalaureate exam (gymnasiums and secondary vocational school) required for college or university

15 On the role of labour market expectations in choice between different secondary educational programmes see *Hermann, Section 3.1.*

16 Administrative restrictions in enrolment to different secondary education programmes were terminated after 1989.

studies has increased considerably, while there has been a sharp decrease in applications to secondary training schools.[17] Changes in the composition of the different secondary education programmes have followed the changes of earnings gains and employment advantages of graduates from the different secondary education tracks.[18]

In sum, based on the average completed years of education and on labour market changes it seems a reasonable assumption that for international comparison classification 2 is more adequate, that is vocational training schools shouldn't be allocated to upper secondary level.[19] It means that the educational attainment of the Hungarian population lags behind the EU average both in average completed years of education and in the share of the population with at least upper secondary education. The proportion of individuals who have completed upper secondary education in the population aged 25 to 64 years is smaller by 17 percentage points and the proportion of individuals who have tertiary education in the same age-groups is smaller by 8 percentage points than the EU average. The drawback in skills and competencies which are essential for labour market success might be even larger as the results of international adult literacy surveys show. (See *OECD* 2000).

In order to determine how much of the differential in the employment level can be explained by the difference in the educational attainment, we decomposed the difference in the employment level of men aged 25 to 64 between the EU average and Hungary (using classification 2). Table 1.1 shows the results of the decomposition.[20]

Out of the 14 percentage points difference in the employment level between the EU and Hungary only 2.1–3.6 percentage points can be attributed to educated labour being less absorbed by the economy than in the EU. The bulk of the difference can be attributed to the employment problems of those who have less than upper secondary education. A 3.5–5.2 percentage points lag is due to the quantitative lag, that is the low educated having a larger share in the population than in the EU, and the remaining 5.3–8 percentage points lag can be attributed to the low educated being less employed than in the EU. It means that the major part in employment difference can be attributed to the employment problems of the low-educated. One of the main reasons for the worse employment probabilities of the low educated is the transport problems of Hungarian villages (see *Köllő* 1997; *Kertesi* 2000).

The lag in the educational attainment of the population aged 25 to 64 will have a long lasting effect in employment as individuals who belong to these age-groups will be in the labour market for a long time, the youngest of them for more than 30 years. During recent years major changes have

17 Concerning changes in applications to the different secondary educational programmes see *Lannert, 2.1.*

18 Returns to vocational training have been 10 to 14 per cent without a clear trend, returns to upper secondary education increased from 30 to 40 per cent. See *Kézdi, Section 1.1.*

19 Meantime programmes of vocational training schools have changed as has the name of that type of school. The new name of this type of secondary school is vocational school (*szakiskola* not to be confused with the old type of vocational schools which used to provide only 2-years vocational programmes). The duration of studies was extended to four years and the content of studies also has been changed. There has been no evidence on the effects of these changes yet. In this analysis we investigate the educational attainment of those aged 25–64 who had finished their studies before these changes.

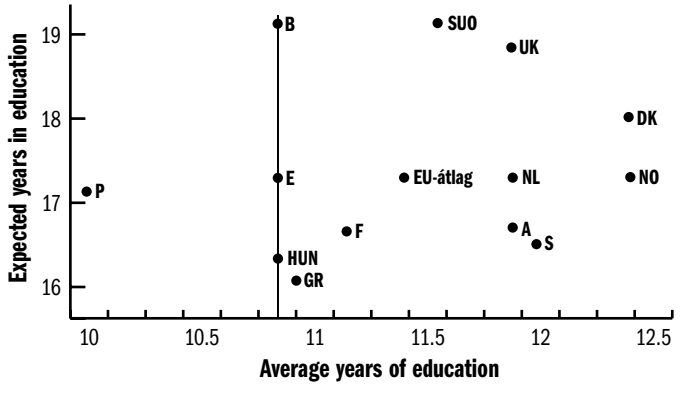
20 The standard Oaxaca-Blinder decomposition method was used. *See Annex A1.3.*

taken place in educational enrolment. A larger share of the younger age-cohorts has been enrolled to secondary schools which provide baccalaureate exam, the length of studies has been lengthened to four years in vocational training schools,[21] the ratio of students enrolled in higher education has increased and the expected years of education have also increased. *Figure 1.9* shows average completed years of education and the expected years of education based on the data of 2001. It turns out from the figure that in spite of the educational expansion Hungary is one of the countries where expected years of education are the lowest. Expected years of education are calculated using current enrolment levels and do not take into account drop-outs, so it does not show where the schooling career of a given cohort really ends. Using stock data the share of a given cohort entering the labour market with low education level can be shown. *Figure 1.10* shows the share of those who entered the labour market with no more than lower secondary education as the highest educational attainment in the succeeding cohorts.[22] For the calculation 2001 census data were used.

Table 1.1: Decompostion of the 14 percentage points difference in employment rate between the EU–15 and Hungary

Components	Education level	Weights			
		Hungarian employment rate EU educational attainment		EU employment rate Hungarian educational attainment	
		Difference percentage points	Difference %	Difference percentage points	Difference %
Composition effect		5.2	36.8	3.6	24.7
Parameter effect	Low	5.3	37.5	8.8	60.6
	High	3.7	25.7	2.1	14.7
Total		14.2	100.0	14.6	100.0

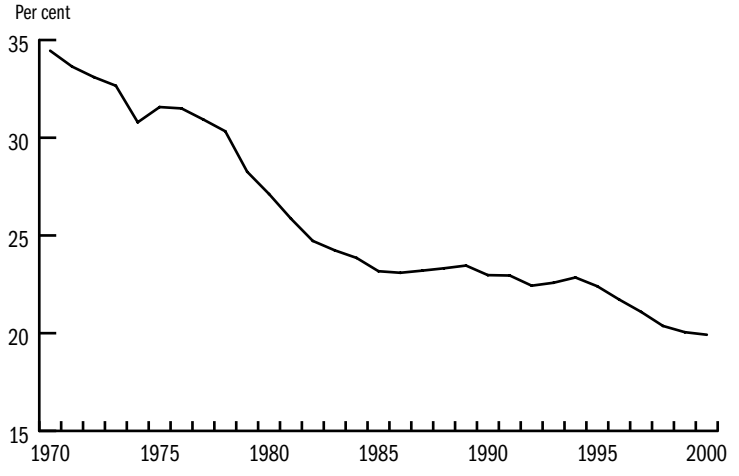
Figure 1.9: Average years of education and average expected years in education



21 Since 1998 at vocational training schools students were enrolled onto four-year programmes. The first classes of four-year programmes at vocational secondary schools finished their studies in the school-year 2001/2002.

22 Estimations were made for the 20 year olds in each cohort.

Figure 1.10: The share of under-educated (no more than old-type vocational education) in the population aged 20 (per cent)



Note: For example the estimation for 1981 was made with use of data of 41 year old in 2001.
Source: Census 2001.

The figure shows that the long-term trend of a decrease in the share of low-educated in the succeeding cohorts observed from the beginning of the 1970s came to an end in the mid 1980s. Between 1985 and 2000 at least 20 per cent of each cohort has entered the labour market without any qualification.[23] It means that the generation of the low educated still continues and the harmful consequences of this process will have an effect over at least the following thirty years.

1.3 Reallocation of Workers with the Higher Education Diploma, 1994–2002

PÉTER GALASI

The transition shock at the end of the '80s has had a long-lasting impact on the labour market tendencies of the '90s. At the beginning of the period – until 1993 – GDP and employment decreased, unemployment and inactivity increased. From the middle of the '90s to the end of the decade GDP started to grow and employment still stagnated whereas unemployment declined. At the end of the period, a slowing-down of GDP growth was coupled with decreases in both employment and unemployment.

Summarising the main results of papers studying the Hungarian labour market (*Kertesi – Köllő* 1995, 1997, 1999, 2002; *Kézdi* 2002; *Kőrösi* 1998, 2000, 2002), the transition process can be described as follows. The first phase (until 1995 or 1996) of the transition shock resulted in massive job

23 In 2001 there have been about 340 thousand aged 20–29 year old young people in Hungary who had no useful qualification (at least vocational training school). Of these 55 thousand were full-time students, 55 thousand are on maternity benefit grant. The remaining 200 thousand have already finished their studies. A quarter of them have been unemployed for at least 3 months and 87 thousand are jobless (unemployed and inactive).

destruction and a low level of job creation. A large number of older and less educated workers quit the labour market and the demand for educated workers did not increase either. The second phase (until the end of the '90s) was characterised by a massive restructuring of the economy, more and more modern jobs were created that represented a growing demand for educated workers. As a result, wage premiums for the young and better educated workers were considerably increased, and the labour market experience of older workers was devalued. An important fact is that in the second phase the labour demand for workers with the higher-education diploma and the wage premium for young and educated workers simultaneously increased, meaning that despite the growing higher-education output – observed throughout the period – the supply of young educated workers was still inelastic. These tendencies – described in the literature on the subject – could be observed up to the end of the '90s.

These tendencies are not consistent with the so-called qualification-inflation hypothesis (*Green – McIntosh – Vignoles* 1999) which states that employers are willing to hire more and more workers with the higher education diploma – due to their higher productivity and/or lower training costs –, and as a consequence of an elastic supply of the better educated young, the number of workers with a higher education diploma increases but the value of higher education diplomas decreases resulting in negligible (or no) wage premium.

On the basis of simple labour market statistics one can say that no change in trends detected by previous studies on the subject took place until 2002. Employment is still slowly increasing,[24] unemployment is declining,[25] the number of full-time students in higher education exhibits a 150 per cent level of growth from 1994 to 2002,[26] the proportion of better educated workers is still increasing while the proportion of poorer educated is decreasing,[27] the ratio of the monthly wages of those older workers with a higher education diploma to younger educated workers is declining, that of monthly wages of younger workers with higher education to those with high-school diploma is increasing – although the increases/decreases are slowing down over the last three years of the period in consideration.[28] There are some signs, however, that the position of the educated young would be deteriorating at the end of the period. The rate of unemployment of those 20 to 24 years old with a college diploma increased from 3 per cent to 7 per cent between 1999 and 2002, and that of the 20 to 29 year olds with a university diploma more than doubled (from 3 per cent to 7 per cent) between 2000 and 2002 (*KSH Labour Force Survey*). It is unclear whether this is due to the slowing down of the GDP growth, or a more elastic supply of, or a decreasing demand for, educated workers.

24 Annual increases in employment level are about 2 per cent in most of the years (*KSH LFS*).

25 5.8 per cent in 2002 from 10.7 per cent observed in 1994 (*KSH LFS*).

26 It amounts to 178 thousand in 1994, and 297 thousand in 2001(*Statisztikai tájékoztató. Felsőoktatás 2001/2002. Oktatási Minisztérium, Budapest 2002*).

27 The proportion of employees with at most primary education decreases from 23 to 17 per cent, that of workers with a higher education diploma increases form 16 to 21 per cent (*Wage Survey of the National Labor Center, ÁFSZ Bértarifa-felvétel*).

28 The ratio of monthly wages of 36 year and older workers with higher education diploma to those of 25 to 35 year old workers with higher education diploma is 42 per cent in 1994, and 13 per cent in 2002. The same ratio for 25 to 35 year old workers with higher education and high school diploma increases from 47 to 73 per cent (Wage Surveys of the National Labor Center).

The work in this section focuses on the redefinition of job requirements and the consequent reallocation of workers among jobs. Reallocation of workers due to increasing demand for educated workers might be detected if we simultaneously analyse changes in the wage premium for educated workers and their proportion among the employees. If both increase then it indicates inelastic supply of, and fixed or increasing demand for, educated workers, or relatively elastic supply of, and increasing demand for, educated workers. If one can observe this pattern on the labour market one would conclude that some exogenous technical change induces employers to hire more educated workers for new jobs or jobs designed previously for less educated workers. At the beginning of the process the supply of educated workers is relatively inelastic (it takes time for more educated cohorts to enter the labour market), this would result in increases in the wage premium for the educated workers, the number of jobs where a wage premium is paid for educated workers, and the proportion of educated workers employed in jobs requiring higher levels of education. A high or increasing wage premium for the educated workers induces then potential and actual workers to obtain more education thereby resulting in a more elastic supply of educated workers that might in turn slow down the increase in or diminish the wage premium whereas more and more educated workers would find jobs with higher-level education requirements.

We will analyse the reallocation problem between 1994 and 2002 on samples of workers with the higher-education and high-school diploma. We consider four indicators: the proportion of workers with the higher-education diploma, that of jobs requiring such diploma, the proportion of workers with the higher-education diploma working in jobs requiring higher education, and the wage premium paid for workers with the higher-education diploma in jobs requiring it.

In order to analyse workers' reallocation we have to classify jobs according to their skill requirements. Jobs and their skill requirements are however unobservable. We assume that occupations are good proxies to jobs[29] and that the occupational wage premium paid to workers with the higher education diploma in the given occupation captures the skill requirements of occupations. Occupations with a wage premium for workers with the higher education diploma are considered higher-education occupations (more exactly: occupations with higher-education requirements), otherwise the occupations are classified as high-school occupations. Here we follow *Gottschalk* and *Hansen* (2002) who assume that most occupations are heterogeneous in the sense that employers might hire workers both with higher-education and the high-school diploma for a given occupation depending on the actual state of the labour demand and supply. If workers with a given education are heterogeneous in terms of their produc-

29 Due to sample-size limits we will use a three-digit occupational classification. This amounts to 77 to 97 occupations in each of the years where workers with higher-education and high-school diploma are present.

tivity, then it might be that less productive workers with a higher-education diploma will be employed in occupations where they will obtain no wage premium as compared to workers with a high-school diploma. The same argument applies if the productivity of workers with a high-school diploma in a given occupation is higher than the average productivity of workers with a high-school diploma, since then workers with the higher education diploma might not realise any wage advantage in these occupations. In these occupations extra schooling does not produce a wage premium, thus they can be considered high-school occupations. If, however, employers pay more for workers with a higher-education diploma, this implies that extra schooling means additional skills and higher productivity, therefore employers will be willing to attract better educated workers. If the assumption of job-requirement redefinition holds and the elasticity of supply of workers with a higher education diploma is not zero, then we would expect more and more workers with a higher-education diploma in these occupations, and at the same time we would detect the presence of a wage premium for these workers. The redefinition of job-requirements might result in a reallocation process. Employers are more likely to hire workers with a higher-education diploma for these jobs. Whether they are able to realise this or not at a given wage premium would depend on the elasticity of supply of workers with a higher-education premium. If this supply is relatively inelastic, then increases in the number of workers with a higher-education diploma would be slow, and might be coupled with an increasing wage premium.

Another problem is the minimal wage premium to be applied. It would be obvious to choose some average observed value. *Gottschalk and Hansen* (*2002*) use a 10 per cent high minimum which is equal to the average returns to college education. By analysing returns to education in 28 countries, *Trostel – Walker – Woolley* (2002) find a 10–12 per cent high average wage premium. From papers examining the transition period of the Hungarian labour market we also know, however, that higher education yields much higher extra wages. We have chosen the average higher-education wage premium observed at the beginning of the period in consideration (1994) which amounts to 44 per cent. Thus occupations with at least a 44 per cent higher-education wage premium will be classified as higher-education occupations.

We use the annual samples of the Employment Office's wage survey.[30] In order to compute the occupational wage premium we have run earnings regressions for each of the occupations and for each of the years.[31] We have specified a simple, Mincerian-type earnings equation. Its dependent variable is the natural log of the monthly wage (before tax) that also includes one-twelfth of non-regular annual payments. The explanatory variables

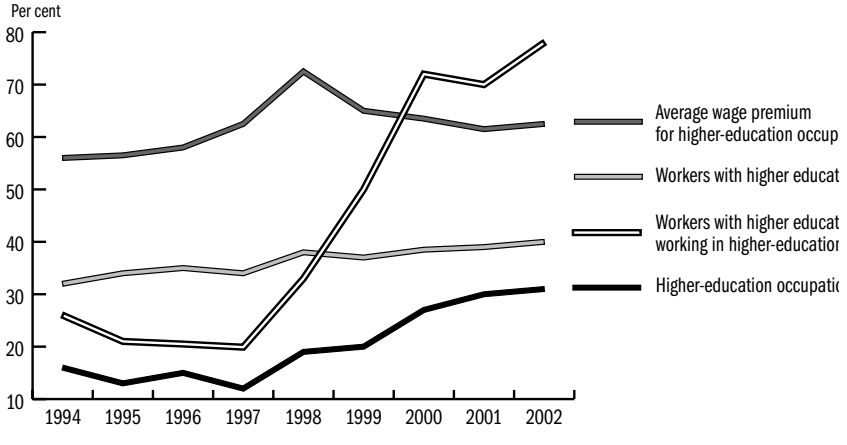
30 The original annual samples include all the employees of the public sector and a 10-per-cent random sample for business sector units with more than 10 employees. The original samples have been re-weighted and they are now representative of the employees by industry and firm size. The actual annual sample sizes include 74 to 103 observations. The author wishes to thank colleagues from the Institute of Economics of the Hungarian Academy of Sciences for making the data available.

31 Occupations with less than 100 observations have been excluded from the analysis. It affects 2 to 4 per cent of the observations of the annual samples.

are: a highest-degree dummy (high school = 0, higher education = 1), potential labour market experience and its square, and gender. The parameter estimates of the education dummy are then considered as the wage premium.[32] With parameter estimates at hand we have examined the coefficients of each of the equations, and on the basis of the 44 per cent threshold we have classified all of the occupations as higher-education or high-school occupations.[33] Finally all the observations have been classified as workers in higher-education or high-school occupations.

Results are displayed in *Figure 1.11.* Here one can find four indicators: (1.) the proportion of workers with a higher education diploma, (2.) the average wage premium for higher-education occupations – as a percentage, (3.) the proportion of higher-education occupations, (4.) the proportion of workers with a higher education diploma who are working in higher-education occupations.

Figure 1.11: The proportion of workers with higher education diploma, the average wage premium for higher-education occupations, the proportion of higher-education occupations, and the proportion of workers with higher education diploma working in higher-education occupations, 1994–2002 (per cent)



The results might be summarised as follows. The proportion of workers with a higher education diploma has continuously and slowly been increasing from 32 to 39 per cent. The proportion of higher-education occupations seems rather stable until 1997, and then it exhibits a quite rapid growth, the value of this indicator more than doubled between 1997 and 2002, from 12 to 31 per cent. Initially the wage premium associated with higher-education occupations was 55 per cent – a substantial extra pay for extra schooling –, then it starts increasing – first slowly then very rapidly – until 1998, when it peaks at 73 per cent. Between 1998 and 2002 the premium displays a ten-percentage-point high decrease, but at the end

32 Earnings equations have been estimated by OLS and robust standard errors. This might produce biased coefficient estimates, due to selectivity, endogeneity or simultaneity problems (S*ee Heckman* 1979; *Mroz* 1987; *Card* 1998, 2001).

33 We have used the standard – 5 per cent – level of significance for deciding whether the estimated coefficients are zero or not. At the same time we have examined the educational distribution of each of the occupations with non significant parameter estimates, since zero coefficients might be resulted from the distribution itself. We have found some occupations with non-significant parameter estimates where the proportion of workers with a higher education diploma has been 94 to 100 per cent, and these have also been classified as higher-education occupations.

of the period it still higher than 60 per cent. The proportion of workers with a higher-education diploma employed in higher-education occupations decreases between 1994 and 1997 (from 25 to 20 per cent), then it almost triples from 1997 to 2000, finally it hits its highest level in 2002 with 78 per cent.

Our results are in line with the findings of previous works on the subject referred to above. Between 1994 and 1997 growing higher-education output is coupled with a decreasing proportion of both higher-education occupations and workers with a higher education diploma employed in higher-education occupations, whereas the wage premium starts increasing in 1996. This implies increasing demand for more educated workers and inelastic supply. The supply becomes more elastic from 1997, and it results in increases in the proportion of both higher-education occupations, and workers with a higher education diploma employed in higher-education occupations. More elastic supply pushes down wages for higher-education occupations (from 1998), as well. At the end of the period one can observe a very high proportion of good occupation/education matches for workers with a higher education diploma, and a relatively high wage premium.

2. EDUCATIONAL EXPANSION

2.1 Facts on Expansion of Education

JUDIT LANNERT

The expansion of secondary education

The structure of public education and the possible ways of progression within the system have considerably changed in recent years. These changes in the horizontal structure of public education have been forced by the *expansion of upper secondary education*.[34]

A rapid increase in the number of full-time upper secondary school students started in the second half of the eighties. Between 1985 and 1990 the number of those continuing their studies in upper secondary education increased by nearly 20,000 – from 60,000 to 80,000. This increase in absolute numbers meant stagnation in relative terms, as there was, behind it, a growing population. Starting from the 90s the number of those enrolled in upper secondary schools barely changed nevertheless the rate of those enrolled grew while the student population rapidly fell.

The main engine of expansion was the growing interest in upper secondary schools. As a consequence of structural changes and the general crisis in the training sector and its restructuring, the number of those enrolled in vocational training schools has decreased considerably. In line with this the interest in upper secondary education leading to the baccalaureate exam (school-leaving certificate required for higher educational studies) has grown, the proportion of those entering education leading to the baccalaureate exam has increased, that is to say the expansion of secondary education got under way spontaneously. By the end of the nineties, as a result of restructuring, 70 per cent of those entering upper secondary education chose upper secondary schools with a programme leading to the baccalaureate exam.

In the early nineties only one fourth of upper secondary school students attended general secondary schools (gymnasiums) one-third attended vocational secondary schools and more than 40 per cent attended vocational training schools. In the school year 2002/2003 30 per cent of secondary school students attended general secondary schools (excluding students

34 Several interpretations of expansion of upper secondary education are possible. Expansion on one hand can be interpreted as an increase in the enrolment in upper secondary education or as an increase in the number of students in upper secondary schools, moreover of those with upper secondary qualification (baccalaureate exam). On the other hand expansion can have an absolute and a relative interpretation. In absolute terms it may be an increase like in upper secondary school enrolment while in relative terms there is no increase in the proportion of a given age cohort. The same may be true for the opposite case when enrolment does not increase in absolute terms but there is an increase in relative terms when a larger proportion of a given age cohort enters upper secondary education.

who are studying in gymnasiums with 6 or 8 grades),[35] 46 per cent attended vocational secondary schools and 24 per cent attended vocational training schools (see *Figure 2.1*). When those in the lower grades of structure-changing gymnasiums are also included, 34 per cent of upper secondary school students attended gymnasiums as opposed to 44 per cent attending vocational secondary schools. After 1990 not only the number but also the rate of those with a baccalaureate exam has increased in the group of 18-year-olds. In 1990 the proportion of those with a baccalaureate exam to all 18-year-olds was 36.9 per cent, while in 2001 it was 54.5 per cent (see *Table 2.1*). This proves that having a baccalaureate exam is becoming common, the lack of it is rather stigmatizing, therefore everybody strives to obtain it.

Table 2.1: Number of students graduating with a baccalaureate exam, number of students applying for admission to higher education 1990–2002 (in thousands)

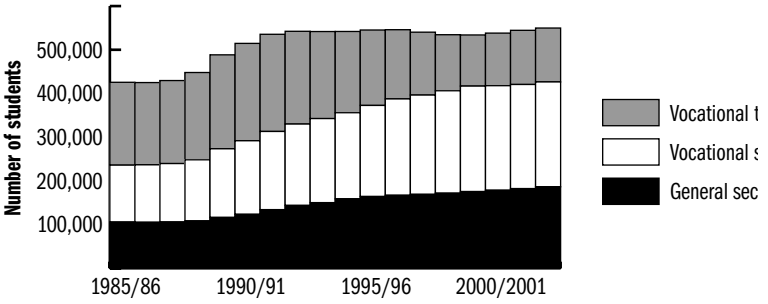
	1990	1995	2000*	2001	2002
Full-time students in gymnasium	24.1	31.2	32.2	32.5	33.5
All students in gymnasiums	27.2	34.6	37.1	38.0	40.0
Full-time vocational secondary school students	28.9	39.1	40.0	37.9	36.0
All vocational secondary school students	40.6	49.9	52.1	50.9	50.0
All full-time students	53.0	70.3	72.2	70.4	69.5
Number of students graduating with a baccalaureate exam at age 18-years	36.9	40.4	52.4	54.5	n/a
Number of students applying for admission to full-time higher education courses	46.8	86.5	82.9	84.4	89.0
Number admitted as full-time students	16.8	35.1	45.5	49.9	52.5
Number admitted as a percentage of applicants	36.0	40.5	54.9	59.1	59.1
Number admitted as full-time students as a percentage of those who graduated with a baccalaureate exam	31.7	50.0	63.0	70.8	75.5
Full-time students as a percentage of 18–22-year-olds	8.5	11.9	19.0	24.7	n/a
Number admitted to higher education, all students	32.1		103.9	112.9	124.9
Number of students graduated in higher education, full-time courses	15.9	20.0	29.8	29.7	30.8
Number of students graduated in higher education, all courses	24.1	26.2	46.9	47.5	50.5

* Public education data for year 2000 were estimated by the Ministry of Education based on a 98-per cent survey and trend.

Source: Magyar Statisztikai Évkönyv 1990–2001; OM Statisztikai tájékoztató, Oktatási Évkönyv 2001/2002 Oktatási adatok 2002/2003, KSH (Central Statistical Office, Hungarian Statistical Yearbook of Hungary 1990–2001; Ministry of Education Statistical information, Yearbook on Education 2001/2002 Data of Education 2002/2003, Central Statistical Office).

35 Since 1990 gymnasiums (general secondary schools) provide alternatively programmes from 5–12th grades (gymnasium 8 grades), 7–12th grades (gymnasium 6 grades) these are the so-called structure changing gymnasiums while the traditional gymnasiums still provide programmes for 9–12th grades (gymnasium 4 grades).

Figure 2.1: Total number of students in secondary education, by programme 1985/86–2002/2003



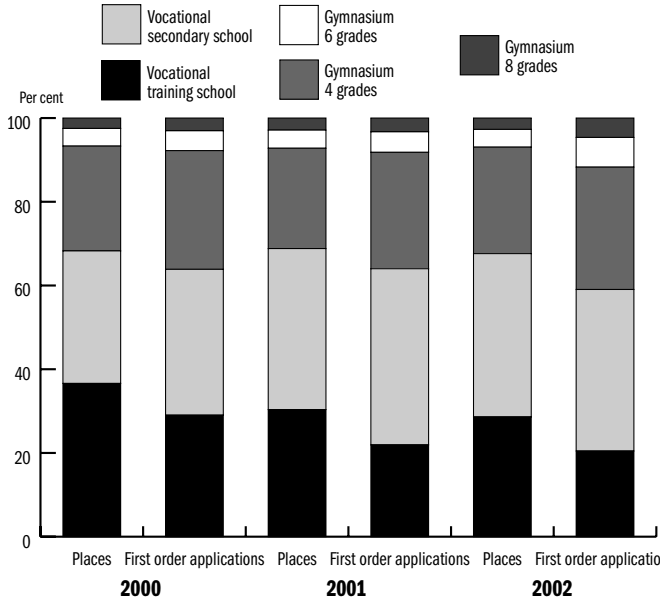
Supply of Upper Secondary Education

Data from the database of the *Information System on Upper Secondary School Entrance Exams* (KIFIR) indicate that on the whole the expansion of upper secondary education has no considerable quantitative limits moreover there is oversupply in nearly all types of secondary education, especially in programmes of vocational training. However, the inherited school network and the local social demands have produced a school supply that varies considerably by region.

The supply of institutions of secondary education exceeds the demand in all types of schools but not to the same extent. In 2000, 80 per cent of places available in 4-grade gymnasiums could be filled, while in 2002 this percentage was 85. In the gymnasiums (gymnasiums 8 or 6 grades) 90 per cent of places were filled in 2002, which may indicate a bottleneck. Regarding places available in vocational training, however, the rate of places filled did not change during the three years, less than 80 per cent of places available in vocational secondary schools and 65 per cent of places available in vocational training schools could be filled. Overall, the expansion of upper secondary education cannot be restricted by lack of places as supply well exceeds demand.

However, the analysis of supply and demand by various educational programmes shows that in certain areas there is a bottleneck. The demand for structure-changing (6 or 8-grade) gymnasiums exceeds supply (*Figure 2.2*). The expansion of this sector is restricted by the fact that on one hand county-level development plans do not opt for it and on the other hand the structure-changing (6 or 8-grade) gymnasiums are also interested in retaining the elite-type character of their education. The supply of 4-grade gymnasium places seemed to be sufficient in 2000 and 2001, by 2002 however, there were counties where demand, especially for programmes with extended foreign language teaching exceeded supply.

Figure 2.2: Rates of admission to higher education from different secondary education programmes, 1991–2001



Source: Calculations made by the author based on the database of Gábor Neuwirth.

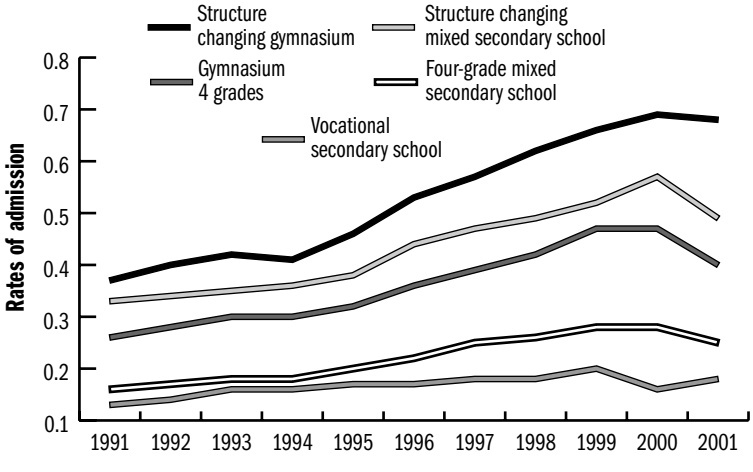
In spite of the expansion and the diversification of public education the Hungarian school system does not provide opportunities for upper secondary education for certain social strata. In the first round of applying for upper secondary school admission many (10 per cent) are unsuccessful. It is a warning signal that for the most part these students apply for vocational training where oversupply is the greatest. So these students are not welcomed by vocational training schools either, despite the fact that their admission would be in the financial interest of these institutions. Among those not admitted there are a lot of over-age children from Borsod and from Szabolcs counties and from Budapest, which shows that the expansion of upper secondary education is restricted not by quantitative but by qualitative obstacles, the Hungarian school system gives a lot of children up too early, which raises the issue of teachers' competence and motivation.

Vocational secondary education has proved to be the engine of upper secondary education expansion. Overall, the supply of vocational secondary programmes corresponds to the demand but its vocational composition does not follow the demand of the labour market dynamically enough, it rather reproduces the existing, often outdated vocational structure. The increase in the supply of vocational secondary schools was the result of restructuring within vocational training – in the counties places in voca-

tional training schools decreased by exactly the same figure as the one by which places in vocational secondary schools grew. This does not necessarily mean a qualitative shift, which is partly due to the fact that vocational training schools wanted to keep their trainers and school owners did not want to get into a sharp conflict with the school management. In some counties, however, a qualitative shift in secondary education has also taken place along with the changing supply.

Expansion was accompanied by the growth in differences between the most and the least effective groups of upper secondary schools; regarding the rates of admission to higher education the difference between the best and the worst groups of schools grew (*Figure 2.3*).[36] As of the mid-nineties the proportion of those admitted to higher education from the structure-changing gymnasiums has increased considerably while vocational secondary schools seem to have dropped behind.[37]

Figure 2.3: Supply and demand of secondary school places, by programme type 2000–2002 (in percentage)



Source: Calculated data based on KIFIR (Information System on Secondary School Entrance Exams).

Increase in the number of students in higher education

In the former socialist countries higher education was characterized by bottlenecks. Regarding the rates of participation in higher education of the 18–22 age cohorts these countries were considerably left behind as compared to the more developed states of Europe. Starting from the second half of the nineties – partly due to the increasing social demand generated by the growing number of those with the baccalaureate exam – there was an explosive expansion in higher education as well.

36 The first students completed their studies in structure-changing (6 or 8-grade) general secondary schools in 1996/97, as this type of programme was introduced in the early nineties. In the databases, however, the general secondary schools that introduced such programmes are classified as structure-changing ones retroactively as well and thus the indicators of admission to higher education show the results of students participating in 4-year programmes. In this period these indicators of such schools are only slightly higher than those of other secondary schools. In the mid-nineties, however, there was a sudden improvement, which may be due to the efficiency of this type of education or to the fact that education in structure-changing general secondary schools intensified selection mechanisms.

37 Regarding the average score of uniform written tests at the entrance examinations the difference between schools with the best and worst average also increased. Inequalities seem to have increased in other dimensions as well. The differences between counties with the best and worst admission average increased in ten years. Regional polarization can also be seen in average scores of written exams. In the last ten years the counties of Southern and Western Hungary performed the best at entrance tests while North Hungarian ones performed the worst (*Neuwrith* 2003).

As opposed to 1990 the number of full-time students admitted to higher education tripled by 2002. The number of students admitted to higher education of all types (full-time, part-time, correspondent courses) quadrupled. The expansion of higher education was of greater extent than that of secondary education, therefore the rates of continuing studies in higher education increased significantly. The number of full-time students admitted in 1990 was made up of one third of those who obtained their baccalaureate exam in the previous year, in 2002 it was three quarters. The rate of full-time students in the appropriate (18–22) age cohort also increased considerably. In 1990 full-time higher education students made up 8.5 per cent of the 18–22 age cohort, in 2002 this percentage was 25.

In this period the increase in the number of those who graduated from higher education was smaller. The number of full-time graduates and that of all graduates doubled. When the numbers of admitted and graduated students are compared it can be seen, however, that the smaller increase in the number of the latter cannot fully be explained by the fact that due to the length of study time the increase in the number of graduates follows the increase in the number of admitted students by delay. If the number of graduates is compared to the number of students admitted 4 or 5 years before, it can be seen that the total number of graduates is smaller by 25 per cent and that of full-time graduates is smaller by 20 per cent than could have been expected had all students completed their studies in due time. Whether this 20 or 25 per cent obtain their degree later or drop out of higher education altogether cannot be said on the basis of the available data.

2.2 Participation in Adult Education by Educational Attainment[38]

JÚLIA VARGA

This section, based on data of the averages of the 2002 Labour Force Survey simply describes the differences in participation rates in school-based adult education by educational attainment and age. The aim of such a descriptive subsection is to estimate the order of magnitude of education and training which leads to acquiring a formal qualification of the adult population outside of full time education and to call attention to the fact that although it would be essential to follow the educational career of drop-outs from full time school-based training in particular and participation in lifelong learning of the adult population in general the only existing data-collection which collects information on the participation in education and training of the adult population is the Labour Force Survey. We have still less information on the labour market experience of adults subsequent to participating in adult education or lifelong learning and there is no analysis which focuses on the outcome or labour market effects of adult training, except for higher education graduates (*see Section 4.4*).

38 Tables are based on estimations of *Gyula Nagy*.

In this assessment we take into consideration participation in formal education programmes leading to degrees, to learning activities that resulted in qualifications. We will distinguish basic and supplementary education. Basic education is defined as learning activities which lead to the acquiring of a first qualification or which can be regarded as usual progress in the school-system, while supplementary education is defined as learning activities which lead to the acquiring of a second or further qualification or which deviate from the usual progress in the school system.[39]

In 2002 participation rate in basic education of 15–74 year olds was 10 per cent and the participation rate in supplementary education was 3 per cent (*Table 2.2*). Only 15 per cent of those who have a less than lower secondary education were studying for a lower secondary degree and one fifth of those who have a lower secondary degree were studying for a higher degree. There are remarkable differences in participation rates among those whose highest educational attainment is more than lower secondary education by type of their secondary education. 28 per cent of those who had finished their studies in gymnasium (general upper secondary school with a baccalaureate exam) are studying for their first degree in higher education and 5 per cent of them are participating in supplementary education – that is the participation rate among them is outstanding. On the contrary the participation rate in basic education is only 2.4 per cent of those who have vocational training school qualification and 6.4 per cent of those who have vocational secondary school qualification (vocational secondary school with a baccalaureate exam).

Table 2.2: Participation in basic education and supplementary training by educational attainment (per cent) aged 15–74

Highest educational attainment	Not participating	Participating		Total
		Basic education	Supplementary training	
Less than lower secondary (8 grades)	85.2	14.7	0.1	100.0
Lower secondary (8 grades)	78.2	21.6	0.2	100.0
Lower secondary with vocational qualification	99.8	0.2	0.0	100.0
Vocational training school	97.6	0.0	2.4	100.0
Vocational school	93.6	0.0	6.4	100.0
Gymnasium	67.6	27.5	4.9	100.0
Vocational secondary school	89.3	6.1	4.6	100.0
College	92.5	0.0	7.5	100.0
University	92.7	0.0	7.3	100.0
Total	86.9	10.1	3.0	100.0

Sources: KSH Labour Force Survey 2002, I–IV. quarters.

The participation rate of those who are older than 30 is negligible both in basic and in supplementary education, but it is worth mentioning also that

39 It means that for those who have less than lower secondary education as the highest educational attainment participation in lower secondary education is basic education; for those who have lower secondary education participation in any form of upper secondary education and vocational training school is basic education, for those who have a baccalaureate exam participation in higher education is basic education. Education for obtaining a second qualification is supplementary education for all groups and also the uncommon tracks for instance when an individual who has vocational training school qualification is studying for a baccalaureate exam or another who has a baccalaureate exam is studying in vocational training school.

one quarter of the youngest age group (aged 15–20) do not participate in education or training and less than one fifth of those aged 21–30 had taken part in any form of education or training (*Table 2.3*).

Table 2.3: Participation in basic education and supplementary training by age-groups (per cent)

Age group	Not participating	Participating		Total
		Basic education	Supplementary training	
15–20	24.3	68.1	7.6	100.0
21–30	82.6	11.5	5.9	100.0
31–40	96.3	1.1	2.6	100.0
41–50	98.7	0.2	1.1	100.0
51–60	99.6	0.0	0.4	100.0
61–74	99.9	0.0	0.1	100.0
Total	86.9	10.1	3.0	100.0

Sources: KSH Labour Force Survey 2002, I–IV. quarters.

Table 2.4: Participation rate in basic education and supplementary training by highest educational attainment in age groups 15–20 and 21–30 (per cent)

Highest educational attainment	Not participating	Participating		Total
		Basic education	Supplementary training	
Aged 15–20				
Less than lower secondary (8 grades)	31.6	68.4	0.0	100.0
Lower secondary (8 grades)	16.6	82.9	0.4	100.0
Vocational training school	74.7	0.0	25.3	100.0
Vocational school	52.8	0.0	47.2	100.0
Gymnasium	15.4	67.4	17.2	100.0
Vocational secondary school	40.8	27.2	32.0	100.0
Total	24.3	68.1	7.6	100.0
21–30 years				
Less than lower secondary (8 grades)	98.5	1.1	0.5	100.0
Lower secondary (8 grades)	96.1	3.4	0.5	100.0
Vocational training school	96.3	0.0	3.7	100.0
Vocational school	93.5	0.0	6.5	100.0
Gymnasium	46.2	48.9	5.0	100.0
Vocational secondary school	80.0	13.8	6.2	100.0
College	81.5	0.0	18.5	100.0
University	80.6	0.0	19.4	100.0
Total	82.7	11.5	5.9	100.0

Sources: KSH Labour Force Survey 2002 I–IV. quarters.

Table 2.4 shows participation rates of the youngest age groups by educational attainment. Out of those aged 14–20 who have not finished lower secondary education (8 grades) more than one third does not learn anything and those aged 14–20 whose highest educational attainment is lower second-

ary school (8 grades) 16.7 per cent does not learn anymore. About half of those who have a vocational school qualification and a quarter of those who have a vocational training qualification are participating in supplementary education in the youngest age-group. In the same age group more than two-thirds of those who have finished gymnasium are studying in higher education and a further 20 per cent are in supplementary education. Participation rates of those who have finished vocational secondary school is lower, a third of them aged 15–20 are studying in higher education and another third takes part in supplementary training. About half of those aged 21–30 with a gymnasium qualification are still continuing studies in higher education, but only 10 per cent of those aged 21–30 with a vocational secondary school qualification. Participation in education and training in this age group is high for those who have a higher education qualification, one fifth of them are participating in supplementary education.

Table 2.5: Distribution of participants in supplementary education by highest educational attainment by types of education or training (per cent)

Type of education	Highest educational attainment					
	Vocational school	Vocational training school	Gymnasium	Vocational secondary school	College	University
Gymnasium	43.6	51.0	0.0	1.1	–	–
Vocational training school	7.7	1.8	3.3	–	–	–
Vocational training school	9.4	7.9	0.3	1.4	–	–
Vocational qualification listed in the NTR[a] (without baccalaureate exam)	9.4	14.7	1.1	3.5	0.2	–
Vocational secondary school	7.7	6.7	5.5	–		–
Vocational qualification following a baccalaureate exam	10.3	2.8	48.3	43.6	1.5	–
Post secondary vocational training	1.7	1.4	12.1	16.2	9.3	4.5
Accredited higher vocational training	6.8	0.3	5.8	5.5	4.8	3.5
College	–	–	–	–	31.2	9.8
University	–	–	–	–	31.0	33.7
PdD, DLA	–	–	–	–	0.5	21.9
Other	3.4	12.0	15.4	20.5	19.8	26.2
Non school-based training following baccalaureate exam	–	1.4	8.2	8.2	1.8	0.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

[a] NTR-National Training Register.
Sources: KSH Labour Force Survey 2002, I–IV. quarters.

Regarding the aim of the studies (*Table 2.5*) half of those who have a vocational training school qualification are studying to obtain a baccalaureate qualification the remaining half are studying to obtain a second vocational qualification. Out of those who have a gymnasium qualification and do not study in higher education the bulk want to obtain a vocational qualification.

Out of those who are participating in education and training with a college degree a third are following university studies, and another third are studying at college level for a second qualification. Of those university graduates who are studying one third want to obtain a second university level degree, 10 per cent a college degree and 20 per cent are participating in doctoral studies.

2.3. Over-education, Under-education and the Wage Premium on the Labour Market, 1994–2002

PÉTER GALASI

In Hungary, from the beginning of the nineties, a quite rapid higher education expansion has been taking place. This might lead to higher rates of unemployment for those with a higher-education diploma, or, if a crowding-out effect is present, more and more persons with a high-school diploma would quit the labour market. In addition it would result in decreases or the disappearance of a wage premium for educated workers.

The problem of over-education was first raised in a similar situation in the US in the mid-seventies. *Freeman* (1976) then argued that workers with a higher education diploma would work in jobs not requiring a higher-education diploma because of the expansion of higher education, this would produce lower returns to higher education resulting in less schooling investments, thus less students in higher education institutes. These expectations, however, were not fully realised, returns to higher education remained high, although participation in higher education decreased in the seventies (*Card – Lemieux* 2000). Higher education expansion in Britain has not produced a lower wage premium, either. Between 1978 and 1996 returns to higher education remained essentially the same (*Chevalier* 2003).

In Hungary a growing supply and demand for educated workers went hand in hand and this resulted in a high and increasing higher education wage premium in the nineties.[40] In this section we analyse the impact of under- and over-education on wages from the mid-nineties to the beginning of 2000. Over/under-education tries to capture an important element of the job/skill matching problem by using education as a matching indicator. The over-educated (under-educated) individual works at a workplace where the job requires less (more) education than they possess, whereas for the properly educated worker job and education make a good match in terms of required and possessed education. There has been a growing literature on the subject which is mainly concerned with returns to, and the extent of, over- and under-education. An important assumption of the recent over-education models is that matching has an impact on the wage premium (or returns to education), and consequently the same education

40 *Kertesi – Köllő* (1995, 1997, 1999, 2002); *Kézdi* (2002); *Kőrösi* (1998, 2000, 2002).

yields different wages depending on job requirements, that is job/education matching.

In order to examine the problem it is necessary to determine the education requirements of jobs, that is the education required in the job, then with the help of information about workers' schooling, all employees have to be classified as under-, over- or properly educated. This can be done in several ways.[41] Similar to other papers,[42] we use *Kiker – Santos – Oliveira*'s (1997) method. We assume that the recent occupation of the respondent is a good proxy for their job, and that modal years of education observed in a given occupation correctly represent the education requirement of that occupation. Modal years of education are then computed from the sample for each occupation, and these modal values are assigned to each respondent as years of required education. With observed and required education at hand, years of over- and under-education can also be computed. Then we will run wage regressions and we expect different returns to a year of over-, under, and required education.

The results of the empirical estimations mostly confirm the basic idea. The rate of return to years of education required by the job is normally positive and higher than the wage premium associated with over-education, whereas under-education produces wage penalties (negative estimated coefficients for a year of under-education).

The problem of over-education can be interpreted here in the context of an economy in transition. Some labour market consequences of the transition process were analysed in section 1.3. We have found that employers re-defined their job-requirements, that is they considered more and more jobs as requiring more educated workers than previously. Since the supply of educated potential workers became more elastic at the end of the nineties, employers were to a greater extent able to hire more educated workers needed for the jobs with re-defined requirements. This resulted in better education/occupation matches and a lower wage premium for the educated workers.

We consider three elements of the problem. First we analyse how required and observed education develop over time. If in Hungary – as others show[43] – the structure of labour market demand has been changing in favour of the better educated and the supply of educated workers has become more elastic, this might have resulted in increasing average required and observed education. Second we examine the extent of under- and over-education over time. Since both the demand for, and the supply of, educated workers has been growing over the period in consideration, one would expect an increase in the number of the over-educated, and a decrease in that of the under-educated over time if the proportion of good

41 See for example *Hartog* (2000); *Groot – Maassen van den Brink* (2000).

42 See *Cohn – Ng* (2000).

43 See *Kertesi – Köllő* (1995, 1997, 1999, 2002); *Kézdi* (2002); *Kőrösi* (1998, 2000, 2002).

matches remains stable. Finally we take a look at returns to over-, under-, and required education.

We use annual samples from the Employment Office's wage survey. This dataset allows us to capture only two elements of human capital: education (highest degree) and potential labour market experience.[44] Both are imperfect proxies to the given constituent of human capital, in addition we have no information of its other elements (tenure, job-training, abilities). For this reason our analysis might be considered as a first approximation to the problem.

The basic analytical tool is a wage regression, some extension of the Mincerian-type wage equation, that is able to simultaneously capture the gains and losses associated with over-, under- and required education. The individual's schooling is measured in terms of years of education and can be decomposed as follows:

$S = R + O - U$,

where S denotes the years of education the individual possesses, R stands for years of education required by the job, and O and U represent years of over- and under-education, respectively. If the individual has the required education, then $S = R$ ($O = U = 0$), if over- or under-education are present, then $S = R + O$ ($O > 0$, $U = 0$) and $S = R - U$ ($U > 0$, $O = 0$), respectively.

We assume that occupation is a good proxy for a job, and that modal years of schooling of an occupation might be considered as a fair indicator for the educational requirements of that occupation.[45] If one intends to examine over- and under-education over time and the labour market is not necessarily in equilibrium then it is not obvious whether modal years of education of a given year might be interpreted or not as the education requirement of an occupation for that year. This would be especially important for an economy in transition where the supply of educated workers is temporarily inelastic at the beginning of the transition, thus employers cannot hire all the educated workers they intend to at the going market wages. In this case using actual modal years of education would underestimate the actual educational requirements of an occupation, and therefore would overestimate the actual number of over-educated workers. This classification bias could be reduced if on the basis of findings of the literature on the subject referred to above, we assume that the supply of the educated workers becomes elastic by the end of the period in consideration, thus it is reasonable to use last year's (2002) modal years of education as the indicator for the "true" educational requirement of occupations.[46]

We expect the (almost) standard results for the estimated coefficients: positive coefficients for required and over-education, a negative one for the under-education variable. It is also expected that the return to a year of required education would be higher than that to a year of over-education,

44 The first element is years of schooling, the second one is computed as age-years of schooling – 6.

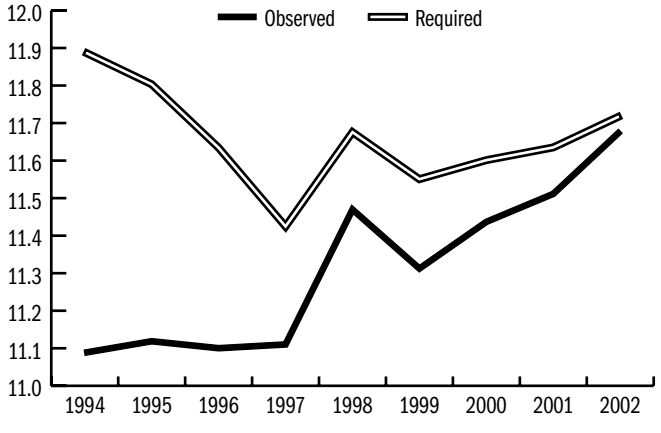
45 Due to sample-size limits we will use a three-digit occupational classification.

46 Estimations made with the help of actual modes also suggest that the 2002 mode might capture more correctly the educational requirements of occupations.

that is, that an over-educated individual would get lower wages than they would realise in an occupation requiring the years of education they have acquired, but obtain higher wages than other workers working in the same occupation with the required education. Finally, we expect wage penalties associated with under-education to be lower than the wage premium paid for a year of required education, implying that the under-educated worker gets higher wages than they would get in another occupation where they would be properly educated. (For the specification of wage equations see *Annex A.2.1.*)

The results show decreases in the average required education and no changes in the average observed education between 1994 and 1997. For these years the average observed education is lower than the average required education. This implies an inelastic supply of educated workers which induces employers to lower their occupational requirements. From 1997 to 2002 the value of both indicators increases, and this might result from a more elastic supply of educated workers and the parallel redefinition of educational requirements of occupations. The observed average education is growing faster over time than the required average education (*Figure 2.4*).

Figure 2.4: Observed and required schooling, 1994–2002 (years of schoooling)



As regards the proportion of under- and over-educated workers (*Figure 2.5*), at the beginning of the period about one third of workers were over- and every tenth of them were under-educated. The share of those under-educated has been continuously decreasing over the period and it amounts to less than 20 per cent in 2002. The proportion of the over-educated starts increasing in 1995, and it exceeds in number those under-educated at the end of the period (24 per cent). One of the consequences of the transition seems to be that over-education rather than under-education becomes the dominant form of occupation/education mismatch.

Figure 2.5: The proportion of the over- and under-educated, 1994–2002 (per cent)

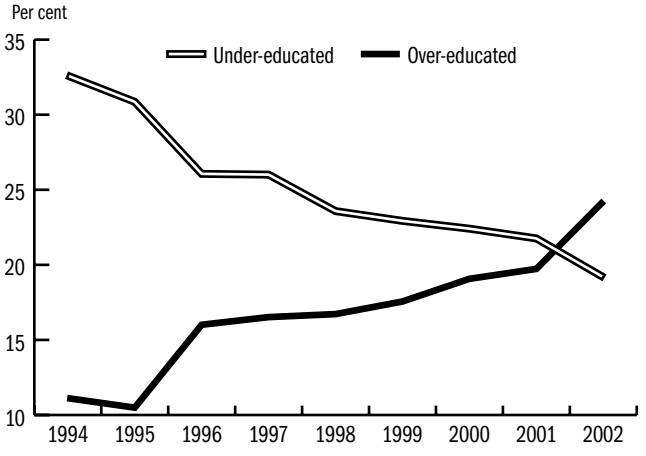
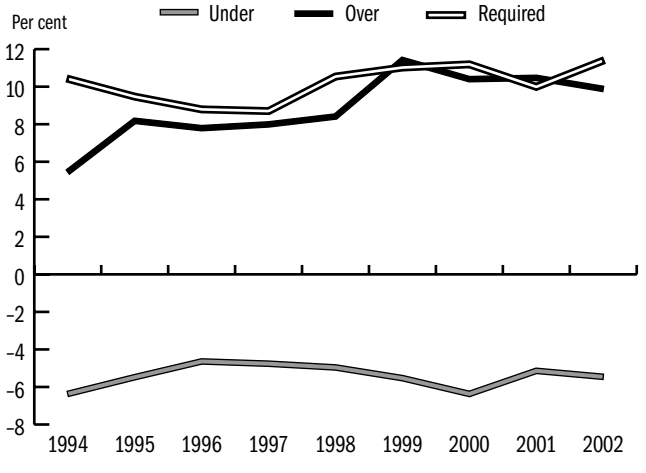


Figure 2.6: Returns to a year of over-, under- and required education, 1994–2002 (per cent)



The wage premium due to required education is relatively high (*Figure 2.6*): the return to a year of required education amounts to 9 to 11 per cent. It first decreases from 10 per cent in 1994 to 9 per cent in 1997, then increases to 11 per cent (2002). This suggests that employers are more and more willing to pay more for good matches, implying that a more elastic labour supply has been going hand in hand with raising the value of better matching.

The return to a year of over-education is always positive which is in line with the findings of the literature, and, except for two years, yields lower

returns than required education does. It increases or stagnates between 1994 and 1999, then starts decreasing. One detects a 1.5 percentage point decline between 1999 and 2002. It seems then that, at a given demand for educated workers, a less elastic supply of educated workers produces higher wages, and as the supply of educated workers becomes more elastic, the wage premium for over-education would be reduced.

The returns to a year of under-education are negative for each of the years. It oscillates between –5 and –6 per cent. Thus under-educated workers suffer from wage losses as compared to those possessing required education and employed in the same occupations. It also holds true that they realise higher wages than persons with the same education working in occupations where the education obtained by them is just the education required.

2.4 The Impact of Cost-priced Education on the Labour Market Situation of Higher-education Graduates

PÉTER GALASI

Since the second half of the '90s the system of Hungarian higher education has comprised public, church-run and private higher education institutions. In addition to state-funded places all the institutions may have cost-priced places meaning that students have to cover the whole costs of their schooling. Cost-priced education has been increasing since that time in terms of places to be offered, and the question arises whether growing demand for cost-priced education and higher-education institutes' motivation to cover the costs of their activities would lead to the worsening of the quality of cost-priced higher education. There are some signs that they would. First, the admittance scores for cost-priced places are lower than those for state-funded ones, and second the ratio of students admitted to students applying is higher in the case of cost-priced education. Both indicators suggest that entry requirements are lower with cost-priced higher education, thus its students are of lower quality in terms of skills and/or abilities. In addition, a number of cost-priced places are present at newly-founded higher-education institutes and it might be that it takes time to form a good quality staff of teachers.

In this section we examine the potential impact of cost-priced education on the labour market success of higher-education graduates. We consider two aspects of the problem: wages and labour market status.

We use the second wave of the so-called FIDEV survey, a dataset representative of the 1999 higher-education graduates, and containing information on their September 2000 labour market situation. One tenth of the sample studied at cost-priced places, a half of them were students at private, one third at church-run institutes, and two fifths graduated from

state-run higher-education institutions. Some 80 per cent of graduates from cost-priced education have a college degree, whereas the value of this indicator is only 60 per cent for the whole sample of graduates. In the case of some types of education (informatics, economics and business, technical) cost-priced students are over-represented.

Wage as a labour-market-success indicator might be interpreted in several ways. If profit-maximising firms are present on the demand side of the labour market, then observed wages can be considered as realised wage offers, reflecting employers' judgement about the productivity of would-be employees. If we assume that students from both cost-priced and state-funded education might be hired for a given job, then differences in wage offers imply differences in productivity, that is, if former cost-priced students get higher (lower) wages, then they are more (less) productive than those graduated from state-funded places. Note that the undeterminedness of relative wages is consistent with human capital models as well (*Becker* 1975; *Mincer* 1974).[47]

We have run wage regressions[48] with the natural logarithm of net (after-tax) monthly wages as the dependent variable. We have estimated three models with different specifications for cost-priced education. Model 1 only contains a dummy (cost-priced = 1, state-funded = 0), model 2 differentiates the three types of cost-priced education, state-run, church-run and private cost-priced education dummies are inserted into the equation. Finally, in model 3 three dummies for individual private institutes (Gábor Dénes College, Kodolányi János College, Modern Üzleti Tudományok College) are present in place of the private cost-priced dummy, in order to check whether these institutes differ in terms of wages.

47 Assume that the potential higher-education student maximises the present value of their life-time income, and – for simplicity – assume that they will be admitted to a higher education institution at the given probability of admission and the decision solely concerns the choice of a cost-priced or state-funded place. Then they will choose a cost-priced place if the present value of the lifetime wage gain due to the cost-priced diploma exceeds the additional costs of obtaining a diploma at a cost-priced place. The student will choose a cost-priced place (institution) if the following (in)equality holds:

$$\sum_{t=\mathrm{k}}^{T} \frac{(1-p)W_{CP} - pW_{SF}}{(1+i)^t} \geq \sum_{t=1}^{k-1} \frac{C_{CP} - C_{SF}}{(1+i)^t},$$

where C_{CP} and C_{SF} are the costs of a cost-priced and state-funded place for the potential student, respectively, W_{CP} and W_{SF} are the expected (annual) wage obtainable by graduating from a cost-priced or state-funded place, p denotes the probability of admission to a state-funded place, t is life-cycle time, the individual spends $k–1$ time periods on studies and k to T time periods on the labour market (with a final period of time T), and i is the individual's discount rate. By assumption. The potential student would choose a cost-priced place if; therefore the decision will depend on the wages and the admission probabilities associated with the two kinds of places. p is a function of the criteria of admission (entry exams, admission restrictions in terms of the number of students to be admitted, entry scores, etc.). If the criteria of admission are much stricter for state funded than cost-priced places ($1 - p > p$) then the student might end up with a choice. If the criteria of admission do not differ much or do not differ at all then choosing a cost-priced place will result in (*Galasi – Varga* 2002).

48 The estimated coefficients might be biased due to endogeneity, simultaneity or self-selection. We have run selectivity-bias corrected regressions following *Heckman*'s (1979) procedure.

All other independent variables are the same in all of the models. The working time variable is intended to control for the effect differences in hours of work might have on wages. We have an in-school labour market experience dummy (whether the respondents worked regularly for pay during their studies) which might capture the impact of labour market experience on wages. Education (college = 0, university = 1) and job training (whether the respondents participated in job training after graduation or not) dummies are inserted in order to consider two additional elements of human capital. Finally a series of type of education dummies might show whether they provide more or less opportunities in terms of wages.[49]

In order to see how cost-priced education influences labour market status, four states have been distinguished: employed, unemployed, full-time student and other inactive. Behaviourally the employed status means that the graduate wants to enter the labour market under the conditions it offers, and is successful given that employers are willing to hire her/him. The unemployed are also inclined to have a job but cannot find a proper one. The full-time student postpone their entry because the conditions wanted are not met, or because they expect better employment chances in the future. Finally, for an inactive person neither actual job-offers nor future ones seem attractive, and for this reason they do not enter the market and do not study.[50] The specification of cost-priced and state-funded education is the same as in the earnings equations.

One of the important problems of the estimation is that we have to separate the effect of cost-priced education from the impact of differences in labour market opportunities due to differences of education level and type of education. We have information about average wages and working time by types of education, and we also know in how many occupations a person with a given type of education can be employed. This is an occupational concentration index[51] showing the chance a person with a given type of education can be employed. Average wages and hours of work associated with a given type of education are interpreted as the mean wage and working-time offer a potential employee faces when considering entering the labour market.

49 For an analysis of other variables' impact on wages see section 4.3.

50 We have used multinomial logits for the estimations.

51 The index for type of education i with occupations o is as follows:

$$K_i^o = (1 - \sum_o p_{io}^2) \frac{N_o}{N_o - 1},$$

where p_{io} denotes the proportion of individuals with type of education i working in occupation o, N_o is the number of occupations, and $0 \leq KI_i^o \leq 1$. If it is zero, then individuals with a given type of education are concentrated in one occupation. If it is one, individuals with a given type of education are distributed evenly among occupations (*van Smoorenburg – van der Velden* 2000). When constructing the concentration index, we had 54 types of education and 117 occupations.

Table 2.6 displays the results.[52] Wages of former students graduated from cost-priced or state-funded places do not differ, and it also holds true if we distinguish state-run, church-run and private institutes. A significant wage dispersion is detected however among private institutes suggesting a considerable heterogeneity regarding the quality of education within cost-priced education provided by private colleges.

Career-beginners graduated from cost-priced education have better chances of being employees and they become full-time students with a lower probability than those graduated from state-funded education (model 1). This is also true of graduates from cost-priced education provided by state-run institutes (model 2 and 3). The chances of continuing higher education on a full-time basis are significantly lower for those who pay the full costs of education at church-run institutions, and for former-students of two of the three private colleges the probability of becoming inactive is lower than for those having been at state funded places of state-run institutions.

Table 2.6: The impact of cost-priced education on labour market status and wages*

	Wage	Labour market status**		
		Employee	Student	Inactive
Model 1				
Cost-priced		0.041	–0.052	
Model 2				
Cost-priced				
Church-run			–0.061	
State-run		0.042	–0.055	
Private				
Model 3				
Cost-priced				
Church-run			–0.064	
State-run		0.054	–0.059	
Private				
Gábor Dénes College	–0.156			
Kodolányi János College	0.287			–0.226
Modern Üzleti Tudományok College	0.353			–0.015

* Significant parameter estimates; ** multinomial logit, marginal effects.

All these suggest that in terms of wages and employment opportunities cost-priced places do not provide an education of worse quality than state-funded ones.

52 For detailed results see *Galasi – Varga* (2002) Tables A1–A9.

3. THE ROLE OF LABOUR MARKET EXPECTATIONS ON EDUCATIONAL DECISIONS

The increasing demand for upper-secondary education and for higher education seems to support that individual educational decisions take into account labour market returns to education. Using individual level data this section investigates determinants of individual educational decisions at the main ramifications of individuals' schooling career, first the choice between upper secondary programmes and the higher education decision.

3.1 The Impact of Labour Market Returns on Schooling Decisions after the Lower Secondary School

ZOLTÁN HERMANN

This chapter seeks to answer the question to what extent families consider the labour market returns when making schooling decisions after the lower secondary school. Since this decision has a long lasting effect on the entire educational career of students, it can be expected that labour market conditions may influence as early schooling decisions as those made at the end of lower secondary school[53] (*általános iskola*).

This analysis of schooling decisions builds on human capital theory. It is assumed, that families compare expected labour market returns to education with the direct and indirect (i.e. foregone earnings) costs of education. The larger the returns of education that a student may realise the higher is the likelihood of school continuation *ceteris paribus*. The most important factors affecting schooling decisions – according to both human capital theory and former empirical evidence – are the costs of education labour market returns to education, family income, the education of parents and individual ability (see for example *Becker – Tomes* 1986).

Since the previous studies on the impact of labour market returns have overwhelmingly focused on entering higher education (a notable exemption is *Micklewright – Pearson – Smith* 1990), it is especially interesting to analyse schooling decisions after the primary school. Moreover, the problem is also important in relation to regional disparities: the regional patterns of schooling decisions may enhance or mitigate these disparities.

The returns to schooling are not observable for the individual students. Thus, the analysis of the impact of returns to education can be built on

53 Choosing gymnasium (*gimnázium*), vocational secondary school (*szakközépiskola*) or vocational training school (*szakmunkásképző*) is assumed to reflect different strategies for the entire educational career of students and different levels of education to be achieved. Gymnasium can be considered as a step towards higher education, while choosing a vocational training school indicates that the student aims at gaining some qualification as fast and simply as possible. Vocational secondary school leaves open the route to higher education, though it may provide smaller chances for admission to the most popular universities compared to the gymnasium.

one of two approaches. The first approach uses the variation of individual expectations: if labour market returns of education have an impact on schooling decisions and students hold different expectations of the returns, these can be expected to affect schooling. The empirical evidence tends to confirm the positive effect of labour market returns – calculated from expected earnings and expected chances of employment at the individual level – on schooling (see e.g. *Kodde* 1998; *Varga* 2001). The other approach builds on regional or in time variation in returns to education, analysing these in relation to the demand for education (*see e.g. Fernandez – Shioj*i 2001; *Lauer* 2000; *Gianelli – Monfardini* 2000). If returns to schooling can be estimated at the regional level, it can be directly analysed whether larger returns really lead to a higher propensity for school continuation or not. Empirical evidence usually supports this hypothesis. A simplified version of this approach uses regional variations in unemployment instead of estimated returns to schooling (*Micklewright – Pearson – Smith* 1990; *Kodde* 1998; *Rice* 1999). In this context the impact of labour market returns on schooling decisions is interpreted assuming a correlation between returns to schooling and unemployment. If it is assumed that returns to schooling are increasing in line with unemployment than we can expect that the likelihood of further schooling is also increasing with unemployment. This paper builds on this approach: I analyse the impact of local unemployment on schooling decisions.[54]

Individual ability has an evident effect on the chance of further school success and the chance of getting the desired degree at the end of an educational career. Thus ability affects the expected value of earnings belonging to each schooling alternative. At the same time, if the cost of schooling can not be fully covered by education loans, families below a threshold income level are expected to face an effective budget constraint when making schooling decisions for their offspring. Furthermore, empirical evidence strongly suggests that the education of parents has an immense impact on schooling decisions. This impact may comprise several mechanisms. Better employment prospects and greater expected increments in earnings in the later stages of parents' careers ensure a more favourable future budget constraint for educated parents. Educated parents might be less risk-averse making schooling decisions for some reasons or they might have a better assessment of the ability of their children and – on the basis of their own former experiences – the requirements of schools at different levels. Finally, differences in preferences for education also provide a possible explanation.

This analysis is based on the data of the "9th grade survey" carried out by the National Institute of Public Education in 2003.[55] The probability of choosing gymnasium, vocational secondary or vocational training educa-

54 The first approach is hardly applicable in the case of schooling decisions after primary school since labour market entry belongs to the distant future for most of the students.

55 The survey covered all students studying at the 9th grade in Hungary, the number of respondents exceeded one hundred thousand, close to 80 per cent of the targeted student population. (For the data, non-response and the weights used to correct for this see *Hermann* 2003.)

tion was estimated at the individual level. The determinants of schooling in our model are gender, the average of grades at the 8th grade (as a proxy for ability and achievement), the education and employment status of parents, and finally two variables characterising the place of residence of students: settlement type and the local rate of unemployment (measured at the micro-region level).

Our results endorse former empirical evidence on the effect of parental education and individual ability as the major determinants of schooling decisions (see e.g. *Andor – Liskó* 2000). It is important to note that parental education has a strong net impact on the choice between general (gymnasium) and vocational secondary education, but not on the choice between vocational training schools and upper secondary education. This supports the hypothesis that the expansion of supply in secondary education in the 1990s has somewhat transformed social inequalities in education. While in the former period the accomplishment of upper secondary education (versus vocational training education) reflected the division between favourable and disadvantaged social background, now the social status of family seems to distinguish between vocational and general secondary education (where the latter reflects the intention to enter higher education). At the same time, the choice between vocational training and upper secondary education is mainly determined by achievement in the lower secondary school.[56] Altogether, vocational training education (versus upper secondary education) seems to be broadly determined by former achievement, while general and vocational secondary education provide a real alternative for students who are qualified for these and thus allowed to choose between the two. The better educated are the parents, the higher is the chance of choosing a general secondary school (gymnasium). Children of parents with upper secondary education have about a 20 percentage points higher probability of entering a gymnasium than students with less educated parents. A bachelor's and a master's degree adds a further 20–20 percentage points to this advantage, assuming an otherwise typical student, with a typical place of residence (*Figure 3.1*).

The appearance of new types of schools (e.g. six or eight grade gymnasiums) has led to the hypothesis – supported by anecdotal evidence –, that social background increasingly affects the choice of the actual school and less the choice between the broad types of general and vocational secondary education and vocational training education (*Andor – Liskó* 2000). However, detailed empirical results suggests that the education of parents still exerts a stronger impact on choosing between the broad types of education than on the choice among gymnasiums with low, medium and high prestige (*Hermann* 2003). In other words, the enrolment to a gymnasium represents a major social division. Inequalities related to the social background

56 An otherwise typical student with average grades in lower secondary school (about 3.5) chooses vocational training education only in a very few cases (see *Figure 3.1*), while a substantial share of low achievers in primary schools can later be found in technical schools. For example, assuming parents with secondary education, a boy with an average lower secondary school mark of 2.5 has a 40 per cent probability of choosing a technical school, while with an average mark of 2 this probability is 65 per cent.

of students have remained considerable in this respect, even compared to the choice among prestige groups of general secondary schools.

Figure 3.1: Estimated effect of parental education on the probaility of choosing different types of secondary schools

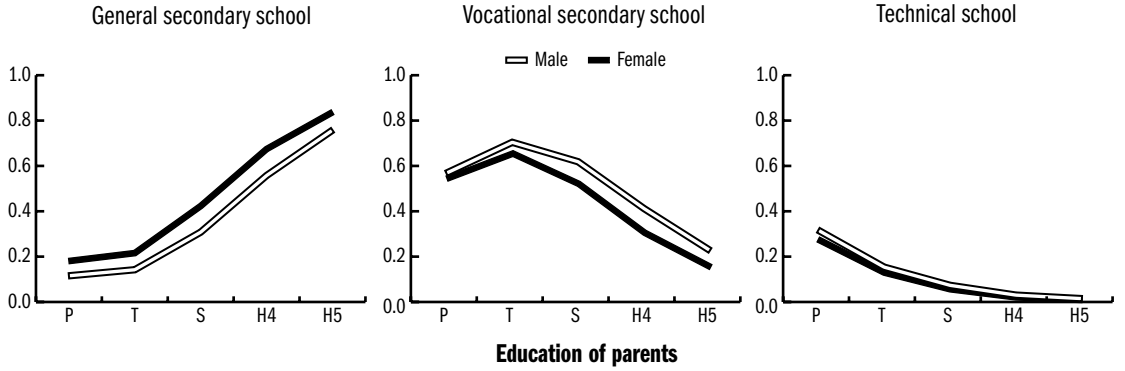


Table 3.1: The determinants of the schooling decision after primary school*

Independent variables	Marginal effects (dy/dx)		
	Gymnasium	Vocational secondary school	Vocational training school
Mother's education			
(reference category: baccalaureate exam)			
Lower secondary or lover	–0.129	0.042	0.087
Vocational training school	–0.124	0.080	0.044
Higher education BA	0.151	–0.128	–0.023
Higher education MA	0.258	–0.226	–0.032
Father's education			
(reference category: baccalaureate exam)			
Lower secondary or lover	–0.125	0.060	0.066
Vocational training school	–0.101	0.081	0.020
Higher education BA	0.108	–0.089	–0.019
Higher education MA	0.216	–0.187	–0.029
One or both parents unemployed	–0.028	0.001	0.027
Average grades in lower secondary school	0.283	–0.161	–0.122
Gender (reference category: female	–0.115	0.098	0.017
Rate of unemployment in the micro-region	0.521	–0.427	–0.095
Settlement type of the place of residence			
(reference category: town below 50,000)			
Budapest	0.053	–0.026	–0.026
Town above 50,000	–0.050	0.046	0.004+
Village	–0.073	0.051	0.022

* Multinomial logit estimation, marginal effects.
All variables are significant at the 1 % level, except those marked (+).
Number of observations: 99,828, count R^2: 0.655, adjusted count R^2: 0.410.
Right hand side variables not shown in the table (all dummies): mother's education missing, father's education missing, no gymnasium or vocational secondary school or

vocational training school in the micro-region, no respondent in gymnasium or vocational secondary school or vocational training school in the micro-region.
Source: calculated from the "9th grade survey" data file of the National Institute of Public Education.

The budget constraint seems to have only a minor impact on schooling decisions after the lower secondary school. For example, the unemployment of one or both of the parents in the previous year has a statistically significant, though rather weak effect on the schooling decision.[57] The wealth of the family exerts a somewhat stronger but still weak influence compared to parental education (*Hermann* 2003). Parents with a different level of education seem to follow different strategies in schooling their children and these strategies do not seem to depend on the wealth of the family or the employed/unemployed status of parents. Parents with a lower education tend to preserve a route for early labour market entry when they prefer vocational to general secondary education, while the children of better educated parents more easily make a commitment to higher education.

Gender differences are present though usually do not exceed 10 per cent in terms of probability of either option. Girls have a greater share in general education, while boys prefer vocational secondary education and to a certain extent technical schools as well, over general secondary schools relative to girls (*Figure 3.1*).

Comparing settlement types shows that students living in Budapest have the greatest share studying in a gymnasium, while, at the other extreme, students from villages are the least likely to choose this type of education. In the case of vocational training schools exactly the opposite pattern can be observed. When individual and family characteristics are controlled for, the choices of students from larger towns are similar to the choices of students from villages, while the effect of small and medium sized towns is closer to that of Budapest. However, the net impact of the place of residence is altogether quite weak; a typical student (with average grades and parents with secondary education) living in Budapest has a mere 10 per cent advantage in the probability of choosing a gymnasium relative to his fellow student with the same individual and family characteristics, but living in a village. Thus the impact of the place of residence is far below that which the directly observable differences might suggest.[58] Raw differences in schooling decisions are in part explained by the different composition of students with respect to the education of parents: in larger settlements parents are on average better educated, leading on average to higher shares of students choosing a gymnasium. Beside the composition of students settlement type differences in schooling decisions may reflect the lower cost of schooling (mainly lower transport cost) and the abundance in the supply of secondary schools in towns, while the choices of students from villages might be constrained by the limited set of schools accessible at low cost.

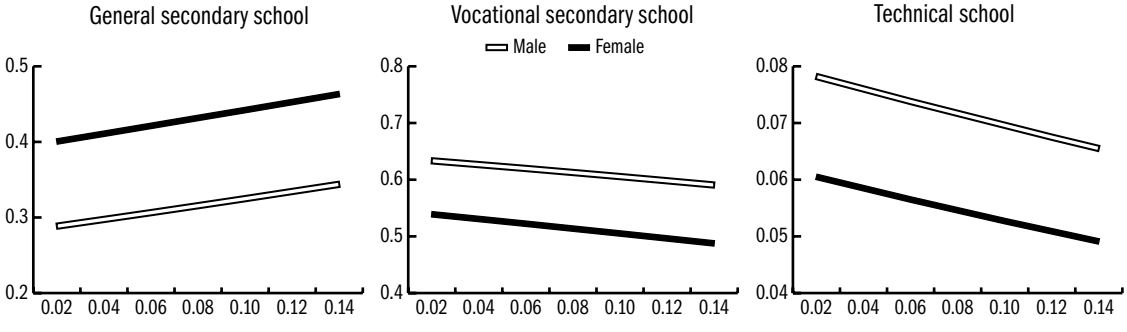
57 In the case of a typical student the unemployment of parents decreases the probability of choosing general secondary education by 3 per cent.

58 Raw differences (i.e. those not controlled for the composition effect) are at least twice as large (see e.g. *Lannert* 2003) as the estimated net impact.

I analysed the impact of labour market returns to education on schooling decisions according to the estimated effect of the local rate of unemployment (measured here by the number of unemployed relative to the 18–60 aged population). The results proved to be statistically significant; the rate of unemployment in the micro-region affects the probability of choosing any of the three school types. However, it has a stronger effect on the choice between general and vocational secondary education. The higher the rate of unemployment in a micro-region, the more likely it is that families decide to send their children to a general secondary school.

Nevertheless, the impact of local unemployment is rather weak compared to that of parental education or achievement in lower secondary school. The difference between the first and tenth deciles of students according to the local rate of unemployment (with a local rate of unemployment 2 and 14 per cent respectively) is just above five percentage points in terms of probability of choosing general secondary education (*see Figure 3.2*).

Figure 3.2: Estimated effect of unemployment rate of the micro region on the probability of choosing different types of secondary schools



The observed impact of local unemployment on schooling decisions can be explained by several mechanisms. First of all, the opportunity cost of education, i.e. the expected value of foregone earnings of the years spent in school is decreasing with an increase in the rate of unemployment. Where unemployment is high, students who decide to enter the labour market instead of school continuation are less likely to find a job than their counterparts living in regions with low unemployment.

Secondly, since unemployment at the local level is negatively correlated with the average education of the population (*Fazekas* 1997), it can be assumed, that in micro-regions with higher unemployment the returns to education in terms of employment exceed the return in low unemployment areas. If firms demand a similar mix of workers with high, medium and low level of education everywhere, then educated workers have better em-

ployment prospects relative to the less educated in regions with high unemployment, since the supply of educated workers is less abundant there due to the different composition of the population.

Local unemployment may have a positive impact on the schooling decision even if the returns to education are not related to the level of unemployment, assuming risk aversion (*Lauer* 2000). Education generally improves the prospect of employment but in regions with high unemployment the workers with a low level of education can have an extremely meagre chance of finding a job. In this case education yields more for risk averse individuals relative to regions with a low rate of unemployment.

Finally, education can be assumed to improve the opportunity to move to, and find a job in, another micro-region. Empirical analyses of migration behaviour unambiguously indicate that education increases the chance for migration, suggesting that better educated workers are more likely to take a job outside their micro-region of residence. If we assume that families compare the expected earnings with higher levels of education attainable by migration (i.e. either in the local labour market or elsewhere) with the expected earnings with lower levels of education in the local labour market, then schooling provides the highest returns for students living in regions with the highest unemployment.

At first sight the estimated impact of local unemployment on the schooling decision seems to be promising regarding regional inequalities in unemployment. Since high local unemployment is in part due to the lower average level of education of the population, the net impact of local unemployment on schooling tends to mitigate disparities in unemployment. This impact – *ceteris paribus* – urges students in regions with high unemployment to get a higher level of education than students in other regions. Unfortunately, the estimated impact of local unemployment is too weak to offset the effect of parental education which tends to maintain the regional disparities of unemployment. Since in regions with low unemployment parents on average are better educated, altogether more children choose general secondary schools than in regions with a high rate of unemployment. This composition effect dominates the net impact of local unemployment on the schooling decision. Thus we cannot expect the impact of the local labour market on schooling decisions to smooth regional inequalities in unemployment.

Our analysis concludes that upper secondary schooling decisions are in fact influenced by the labour market returns to education. The higher the local rate of unemployment, the higher returns education can be expected to yield and the lower the opportunity cost (i.e. foregone earnings) of education. Local unemployment has an impact on the choice between general and vocational secondary schools, since this is the alternative left

for individual decision – studying in vocational training schools is mostly determined by low achievement in the lower secondary school. However, the effect of local unemployment is not too strong, especially compared to the impact of parental education or former achievement.

3.2 The Role of Labour Market Information and Expectations on Students' Higher Education Enrolment Decisions

JÚLIA VARGA

During the last decade returns to higher education (in terms or earnings and employment probability increased considerably (see chapters 1.1. and 1.2) and there was a large increase both in the number of students applying for higher educational studies and in the number of students admitted to higher education. The upward shift in the number of applications is in line with human capital theory which states that expected labour market returns, net life-time wage-gain is the major determinant of individual choices on their optimal level and type of education and occupation. Although the expected returns to education have a decisive role in the human capital model there have not been any direct observations on earnings expectations until recently. There are two schools of thought in the economic literature regarding student's expectations. The first presumes that students base their expectations entirely on the present labour market situation that is their expectations are equal to earnings realized by an earlier age cohort (see for example *Freeman* 1971, 1976; *Lauer* 2000; *Gianelli – Monfardini*, 2000). The other assumption is that students, based on available information, forecast quite well future labour market changes, that is they have rational expectations (see for example *Siow* 1984; *Zarkin* 1985).

In recent years a growing number of studies have examined students' knowledge of current salaries, their earnings expectations and the economic rationality of students' choices on their level and type of education based on direct observations (*Smith – Powel* 1990; *Dominitz – Manski* 1996; *Betts* 1996; *Brunello – Lucifora – Winter – Ebmer* 2001; *Hartog – Webink* 2000). In the following, relying on the data of a survey carried out among Hungarian secondary school students[59] we will examine students' knowledge about current average earnings by educational attainment, students' earnings expectations and the role of expected returns in making an application decision regarding further studies.

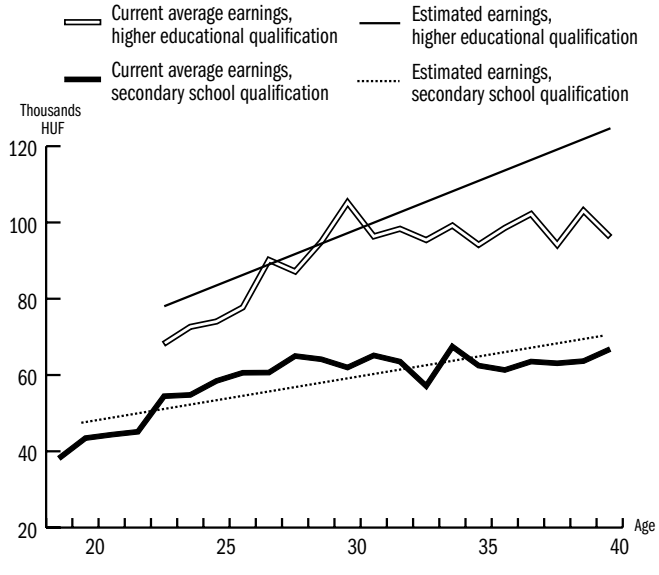
Students' knowledge on earnings

Students have surprisingly accurate knowledge concerning current average earnings by educational attainment and similarly they have good perceptions about the differences in earnings of highly qualified workers according

59 The survey was carried out in December, 2000. 60 secondary schools were randomly selected out of the total of 1,192 units in Hungary. In the selected schools all senior students were asked to answer the questions of the survey. The total number of observations was 4,954. In addition to questions about their personal and family background, their results in secondary schools, and plans about further studies students were asked to make estimations for three different points of time (starting salary, earnings at age 30, and earnings at age 40) on average earnings of people who have a secondary qualification and of those who have at least college education. Students were also asked to make estimations on the current average salaries of different higher educational occupations at age 30 and about their expectations on their employment probability and their future earnings expectations under different schooling scenarios. They were asked to state their expectations for the same three points of time as in the case of average salaries.

to qualifications. *Figure 3.3* shows the mean estimated wage profile and the real wage profile[60] both for workers with secondary school and higher educational qualification. The deviation of the mean estimated earnings from the true ones was about 10 per cent. The median of the estimations were even closer to the real earnings. The only exception was the earnings estimation for workers with a higher educational degree at age 40. The mean estimated earnings were 30 per cent; the median estimation was about 20 per cent higher than the actual mean earnings. As estimate errors for earnings with a secondary school diploma do not increase as we are moving to the upper end of the experience profile, it does not seem a likely assumption that the cause of the relatively high estimate error for earnings of workers with a higher educational qualification at age 40 is that students have less knowledge on earnings of the older age-groups in general. A more likely explanation is that students do not have information on the revaluation of experience after the transition. Students assumed that earnings increase with age and hence that earnings at age 40 are higher than at age 30 such assumption usually corresponding to the characteristics of age-earnings profiles, but in Hungary after the beginning of the transition the rise in the return to formal education was accompanied by a strong devaluation of market experience acquired during the socialist era, especially for workers with at least college education (see *Köllő* 2000) and this was overlooked by students when they made estimations for earnings of people with a higher education qualification at age 40.

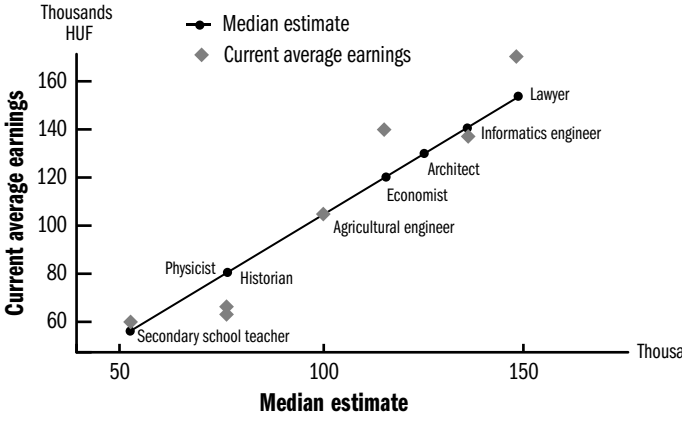
Figure 3.3: Estimated (median) and true wage profiles with secondary school and higher educational qualification



60 Data on actual earnings come from the Wage Survey conducted by the National Labour Center.

Students in general also made fairly accurate perceptions of average salaries by occupation at age 30 (*Figure 3.4*). The estimate error of the median was less than 10 per cent for all professions but for economists and lawyers. In the latter cases student's estimations were lower than current actual earnings by more than 10 per cent.

Figure 3.4: Estimated and current average earnings of different occupations at age 30 (1,000 HUF)



Students' earnings expectations

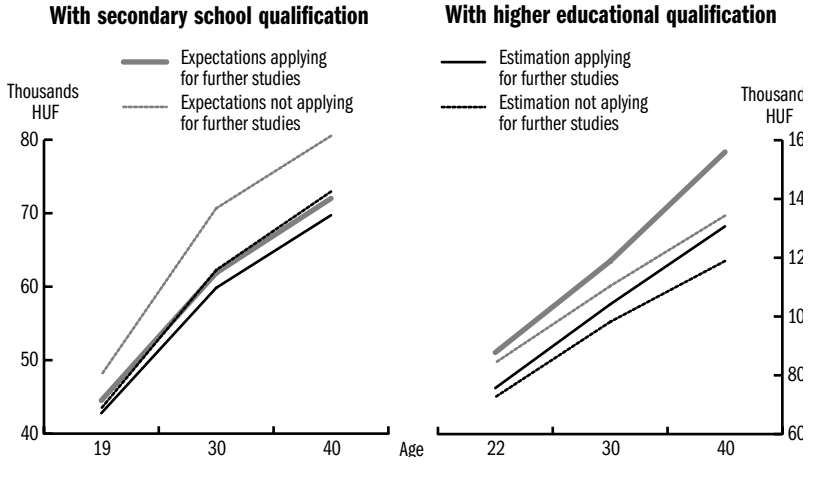
In schooling decisions it is not the beliefs about what current average earnings are which might have a role but the earnings expectations. Knowledge on current average earnings influences earnings expectations, but expectations may differ from wage beliefs for several reasons. First students' expectations reflect the assumption of the value of their schooling when they enter the labour market. Students may think that future relative earnings would differ from current ones, for example as a consequence of a shift in supply and demand for the differently educated labour. Furthermore there are very wide dispersions around the average in earnings. Students may think that because of their personal characteristics they have better labour market prospects than the average college/university graduate, for example by having better abilities, or finding an appropriate job in a better region, etc.

On average students earnings expectations were higher than their earnings estimations both for those with secondary school and with higher educational degree. Students' earnings expectations were about 5 per cent higher in the case of finishing their studies with a secondary school degree than their estimates for current earnings. Their expectations based on a higher educational qualification were about 20 per cent higher than their estimates. As students had good perceptions about current average earn-

ings the deviations of expectations from current average earnings are not likely to be caused by the lack of information. It may rather reflect the fact that students anticipate further increase in relative wage differences in the future or they may show that on average students assume that their own abilities and/or possibilities are going to be above the average.

The variety in students' earnings expectations was greater than in their earnings estimates, that is there are greater differences in students' judgment of their own possibilities than the average possibilities.[61] *Figure 3.5* displays earnings estimations and expectations of students by their intention of applying for higher educational studies. As far as wage profiles with secondary qualifications are concerned, students who don't want to continue their studies after finishing secondary school think the earnings possibilities of the average worker with a secondary school qualification are better than students who want to apply for further studies and the previous group think their own earnings potential with secondary school qualification to be the best. On the contrary students who will apply for further studies give higher estimations for average earnings with a higher educational qualification and are even optimistic concerning their own future earnings possibilities with a higher educational degree.

Figure 3.5: Estimations of current average earnings and wage expectations by intention to further studies



Students were also asked to evaluate their own chances of getting an appropriate job if they were to finish studying after graduating from secondary school and also in the event that they were admitted to college or university and they received their degree. The higher educational level students are of the view that there would be a greater increase in their employment probabilities expected from further studies. Students who are applying for

61 Standard deviation of earnings estimations were between 38 and 48 per cent, while that of earnings expectations was between 65 and 115 per cent.

higher vocational training expect a 7 percentage point increase in their employment probability, students who are applying for college an increase of 14, students who are applying for university studies an increase of more than 17 percentage points. Students' expected employment probability after graduation from higher education is lower than that of the current employment probability of graduates. The employment rate of graduates who have finished their studies in 1999 at universities was 78 per cent while for those who were studying in colleges it was 72 per cent one year later, in 2000 (the year when the survey of secondary school students were carried out). The reason for the relatively low expectations in employment probability might be that students don't have information on the employment prospects of graduates, but it also may reflect the fact that students take into account that as a consequence of the growing number of graduates employment prospects will worsen in the future for graduates with a higher educational degree.

Role of earnings expectations on application decisions

For analyzing the role of labour market expectations on application decisions we used a model[62] in which the probability of application was the function of labour market expectations, socio/economic status of students, type of secondary school, and ability. Three variables were used for describing labour market expectations: (i) the net present value of additional lifetime earnings with higher educational degree,[63] (ii) the expected probability of getting an appropriate job with a secondary school and (iii) with higher educational qualification. Socio/economic variables include per capita family income, highest educational qualification of father and mother, and a dummy variable indicating whether the student is studying at the same settlement where his or her family home is. Ability was measured by students' so-called "accumulated score".[64]

Table 3.2 reports the estimation results. Labour market expectations as far as the expected present value of net (additional) lifetime earnings are concerned have a significant effect on the probability of applying for further studies and on the decision as to which level of higher education to apply for. The higher the expected net lifetime earnings of a student the higher is the probability that they will apply for further studies. Expectations of job opportunities on the other hand have no significant effect on the educational decision of secondary school students. Neither those whose expected employment probabilities are higher with a secondary school degree apply for higher educational studies with a lower probability, nor those whose expected probability of finding a job are higher with higher educational qualification apply with greater probability for further education.

62 Ordered logit model. Dependent variable: 1 – not apply for further studies; 2 – apply in post-secondary vocational training; 3 – apply for college education; 4 – apply for university education.

63 For each student it was computed using their earnings expectations. It was assumed that earnings rise linearly between the points of time students made expectations for and the peak earnings occur at age 40 and then it is maintained until retirement. The estimated expected lifetime earnings were discounted with a discount rate of 10.

64 Accumulated score is based on students' secondary school achievement, grade point averages, language exams, etc.

Table 3.2: Determinants of application for further studies

Variable	Coefficient
Gender	
Male	0.5531[a]
Type of school	
Vocational secondary school	–0.7780[a]
Gymnasium 8 grades	0.3559
Gymnasium 6 grade	0.4964[a]
Labor market expectations	
Expected net lifetime wage gain	0.0004[a]
Expected probability of finding a job with a secondary school qualification	–0.0007
Expected probability of finding a job with a higher educational qualification	0.0022
Family background	
Studying at the same place where living	0.2255[a]
Father with secondary school qualification	–0.0711
Father with higher educational qualification	0.0172
Mother with secondary school qualification	0.0967
Mother with higher educational qualification	0.5401[a]
Per capita family income	
-30 000 HUF	–0.1575
31,000–50,000 HUF	–0.1733
51,000–100,000 HUF	–0.0838
Ability	
Accumulated score	0.1186[a]

Dependent variable: 1 = not apply for further studies; 2 = apply in post-secondary vocational training; 3 = apply for college education; 4 = apply for university education.
[a] Significant at 0.1 % level.
Cut 1: 0.1953; Cut 2: 1.8933; Cut 3: 6.2382.
R^2:0.2262; Number of observations 2141.

Two of the family background variables proved to have a significant effect on the probability of application. Students whose mother had at least a college degree apply for further studies with higher probability, furthermore students whose secondary school is on the same settlement where they are permanently living are also more likely to try entering a tertiary educational institution. The other variables indicating the educational attainment of parents have no significant effect on the probability of application, neither the secondary school qualification of the mother, nor the secondary nor the higher educational qualification of the father. The estimated coefficients of per capita family income were insignificant also, that is per capita family income not affecting directly the probability of application if other variables are controlled for. It seems that family income has an indirect effect on the probability for further studies by influencing earnings expectations. Students from lower income families expect a significantly lower wage-gain from higher educational studies,[65] a lower expected wage gain then decreases the probability of application.

65 Estimations regarding the determinants of earnings expectations see in *Varga* (2000).

The results highlight regional inequalities in application probability. There are secondary schools in all towns and cities in Hungary, therefore the majority of students studying at secondary level away from their family homes are from villages. These students are less likely to apply for further studies than the members of the reference group which may be the consequence of the considerably higher costs of further studies they have to bear.

Estimation results show that the type of secondary school also has a significant impact on the probability of a students' decision for application. Students who were studying in vocational secondary schools are significantly less likely to make an application than students who were studying in gymnasiums (4 grade) indicating that the stratified Hungarian secondary school system may increase the costs of further studies for students enrolled in vocational secondary schools. As expected, higher ability significantly increases the probability of application; more able students are more likely to continue their studies. There are significant gender differences also; men will apply for further studies with a greater probability.

Summary

In this chapter we first examined whether secondary school students have a good perception about wages by educational attainment in order to point out if when students earnings expectations deviate from current average earnings it can be put down to lack of information or might be caused by other reasons. We found that students in general have fairly accurate perceptions of current average earnings by educational attainment and field specialization when they form their expectations. The most important finding concerning students' earnings expectations was that students – whichever level and field specialization they apply for – expect much higher earnings with a higher educational qualification and slightly higher earnings with secondary school qualification than the current average earnings, that is they expected a wage gain higher than what can be observed currently. This may reflect the fact that students anticipate a further increase in relative wage differences in the future or it may show that students assume that their own abilities and/or possibilities are going to be above the average.

In the second part of the analysis we examined the role of labour market expectations in students' enrolment choices. The results confirmed that expected net life-cycle wage gain has an effect on educational decisions: on whether to apply for further studies and which level to apply for. It means that estimation results confirmed the assumptions of models which describe educational choices in a utility maximizing framework. The influence of expected employment probability proved to be insignificant. It suggests that the assumption that some may choose further studies simply to avoid becoming unemployed is not well-founded. It also turned out that most

of the family background variables do not have a direct effect on enrolment decisions, family background influences students' choices indirectly through earnings expectations.

4. TRANSITION FROM SCHOOL TO WORK

4.1 Changes in the Chances of Labor Market Entry and in the Structure of Entry Occupations

PÉTER RÓBERT

Structural changes in the economy have significantly affected the occupational structure as well as the labor market during the last one and half decades in Hungary. When analyzing changes over time and when the comparison goes back to the former state socialist times, the common experience indicates that "historical effects" generated by the political transformation have an especially strong impact on young cohorts. Accordingly, we assume that the economic processes in the nineties such as the shrinking of the labor force and increasing flexibility on the labor market had a stronger influence on the circumstances of labor market entry and more marked changes have appeared in the structure of the young labor market entrants. In fact, the entry occupations display the consequences of structural transformation in a pure form, while the distribution of the full occupational structure involves the results of further individual occupational moves during the life course.

Structural changes in the labor market entry

Table 4.1 displays the distribution of entry occupations in the light of two aspects. Data related to the nineties is compared to the earlier "socialist" data from the eighties, on the one hand, and, on the other hand, the changes in the time of labor market entry are compared to the modifications displayed by the complete occupational structure. Tendencies are investigated separately for men and women.

A relative majority of young men started to work as manual workers in both periods but there is a decline from 43 to 32 per cent over time. For the young women, the highest rates for entry jobs belong to the categories of low grade supervisors and routine non-manual workers. While the proportion of manual workers indicates a declining trend in the occupational structure between 1983 and 2000 (the Hungarian economy is becoming more post-industrial), it is noteworthy that a higher rate of men entered the labor force as unqualified workers in the nineties than in the eighties.

There are signs that more young people entered into the shrinking labor market in unqualified occupations – while the recent generation of youngsters is more educated than previous ones.

Table 4.1: Distribution of entry occupations by the time of labor market entry, and the distribution of the occupational structure in the same periods (per cent)

Category*	Labor market entry in the		Occupational structure in		
	1980s	1990s	1983	1992	2000
Men					
High supervisers	7.4	6.3	8.6	8.5	10.3
Low suprvisers	9.4	12.0	9.1	10.5	10.1
Routine non-manuals	2.0	3.4	2.6	1.9	2.3
Routine service	4.2	8.5	2.0	2.5	3.9
Self-employed with employee	0.5	1.3	–	–	2.4
Self-employed without employee	1.3	4.3	1.8	4.2	5.4
Self-employed in agriculture	1.1	0.7	0.9	1.1	1.9
Technician. foremen	7.0	4.8	2.5	1.7	7.5
Skilled worker	42.7	32.4	31.8	33.5	24.2
Semi-/unskilled worker	17.5	21.5	28.0	26.4	24.2
Agricultural laborer	6.9	4.8	12.5	9.7	7.8
Total	100.0	100.0	100.0	100.0	100.0
N	786	766	13,991	11,805	4,310
Women					
High supervisers	4.9	3.1	3.6	3.7	6.5
Low supervisers	22.8	21.8	15.7	17.6	19.7
Routine non-manual	20.6	20.3	12.9	15.4	14.5
Routine service	12.8	18.9	6.2	8.0	10.6
Self-employed with employee	0.5	0.4	–	–	0.8
Self-employed without employee	1.1	3.6	1.0	2.0	3.2
Self-employed in agriculture	0.2	0.3	0.3	0.4	0.4
Technician. foremen	3.3	2.1	0.4	0.4	3.8
Skilled worker	14.5	10.7	14.2	13.1	9.9
Semi-/unskilled worker	17.2	17.9	28.8	29.1	24.5
Agricultural laborer	2.1	0.9	17.0	10.3	6.1
Total	100.0	100.0	100.0	100.0	100.0
N	819	672	14,891	13,357	4,687

* Classification is based on the so-called EGP schema.

Source: Living conditions and time use survey, Central Statistical Office (CSO), for the labor market entry; Social stratification and life course survey, *CSO* (1983, 1992), and Living conditions and time use survey, *CSO* (2000) for the occupational structure.

The proportion of those who started to work in routine service jobs has doubled for men (4.2 vs. 8.5 per cent) between the eighties and the nineties, and almost every fifth of the young women had such an entry job in the nineties. There is a general increase for this occupational category (e.g. jobs in trade, catering), but the tendency is more marked for labor market entrants. A further typical feature of labor force entry is the decline

of numbers entering positions in high grade supervisor jobs between the eighties and nineties, and this holds for both young men and women. The percentage of the entry into low grade supervisor jobs has increased for men. Nevertheless, the proportion of high and low grade supervisors in the full occupational structure increased over time between 1983 and 2000. Thus, young people have probably a good chance to move upwards during their occupational career, they do not remain in their first, perhaps worst job forever. An important feature is that in the nineties more young people entered the labor market as self-employed than in the eighties. A similar trend in the increase of self-employment can be observed for the whole occupational structure. At the same time, the increase of self-employment also means that probably more young people enter into the labor force in more flexible and atypical jobs.

In sum, structural changes in entry jobs indicate unfavorable tendencies in comparison to the structural changes of the complete occupational structure. The latter one basically displays an increase in the post-industrial character, and an improvement of the occupational structure. This, however, is *not* a consequence of a cohort change, i.e. the labor market entrants start to work in higher status jobs. Their situation – at least in the short run, from the perspective of the "quality" of their first jobs – has become more difficult. As an explanation, we argue that transition from school to work has become a longer and more flexible and uncertain process in Hungary. An entry job means something different in the nineties than earlier because more youngsters start to work during their studies. This means that we can observe more "life-cycle jobs", using the term introduced by *Oppenheimer and Kalmijn* (1995), and this is a different and new situation in comparison to the earlier one when young people entered into fulltime jobs only when they completed their studies. Entry jobs are more temporary in the nineties than they used to be in the eighties. In the last decade of socialism the majority (about 60 per cent) of the labor market entrants spent more than two years in their first job. This percentage fell to 40 per cent in the nineties and the proportion of those who left their first job after 6 months doubled. In fact, one-fifth of the labor market entrants spent less than 6 months, another one-fifth 6–12 months and a further one-fifth 12–24 months in their first job in the nineties. Interestingly, those who started to work before completing their studies spent longer in their entry jobs, while the first job change occurred faster for those who started to work only after leaving education (*Róbert* 2003). As a general feature the Hungarian labor market is of greater assistance to the insiders, the prospects of the outsiders are always worse. Seemingly, the labor market requires more sacrifice from the outsiders for an entry than earlier.

Changes in the odds of labor market entry between the eighties and nineties

In order to analyze the changes in the odds of labor market entry, a dataset is used where youngsters were interviewed who have completed full-time education and tried to find a first job. We have three research questions (dependent variables). First, we investigate if one was able to enter the labor force at all; second we analyze how odds of labor market entry have changed for employees and self-employed and for employees in the public and private sector. Third, we focus on the odds of entering into a concrete occupational category (*see Table 4.2*).

Table 4.2: Changes in the odds for labor force entry and for the character of the entry jobs between the eighties and nineties*

Category	Odds**	
	Men	Women
Probability of entry into the labor force	0.8886[b]	0.9054[a]
Sector for labor market entry		
– self-employed	1.3834[a]	1.0685
– employee in private sector	1.1270[b]	1.2176[b]
– employee in public sector	0.5003[b]	0.6427[b]
Entry job		
– high supervisers	0.8122	1.4010
– low supervisers	1.2515	0.8019[b]
– routine non-manual	1.3467	0.9222
– routine service	1.3294[a]	1.5386[b]
– skilled worker	0.6840[b]	0.8457
– semi-/unskilled worker	1.1714[a]	0.9543

* Discrete event history analysis was performed. For labor market entry it is binary logit estimation, entered (1) or did not enter (0) into the labor force. For the sector or for the concrete entry job category it is multinomial logit estimation with the reference: did not enter into the labor market.

** If the odds is lower than 1, the probability of the event examined has declined, if the odds is larger than 1, the probability of the event examined has increased between the eighties and the nineties.

[a] Significant estimation at $p < 0.1$ level.

[b] Significant estimation at least $p < 0.05$ level.

Results indicate that labor force entry became more difficult for youngsters in the nineties than it used to be in the eighties. Statistical estimates show that the odds of successful labor market entry have declined by 11 per cent for men and by 9 and a half per cent for women from one decade to the other. The probability of labor entry as a self-employed person has increased for men to a considerable extent, by about 38 per cent. A rise appears for women, too, but it is not statistically significant. For a better interpretation of this finding, we ought to know more about the circumstances of labor market entry. We have no information on the op-

tions, whether young men used the new entrepreneurial and market opportunities, whether they entered the labor force as self-employed more frequently than earlier, or we are faced with the well-known phenomenon that employers tend to employ young people if they can provide an invoice for their work and the employer can thereby save on the additional labor costs and taxes in this way.

For labor force entry in the nineties, there is an increase in the odds of finding a first job in the private sector and a decrease in the odds of starting in the public sector in the case of both sexes, in comparison to the eighties. Odds of labor market entry in the private sector increased greater for women (22 per cent) than for men (13 per cent); the probabilities of having an entry job in the public sector decreased mostly for men (50 per cent) but also for women (36 per cent). One explanation is obviously the spread of the private employment in the nineties, as a consequence of the privatization of companies. At the same time, insiders have especially safe and favorable employment conditions in the public sector, thus outsiders such as labor market entrants have more difficulties in finding a job there because "there is no vacancy". Furthermore, the tendencies reveal that changes in the odds of labor force entry increased gender segregation among employees in the public and private sector.

A further characteristic change in labor force entry is that youngsters have much higher probabilities (men by 33, women by 54 per cent) of entering simple service jobs, which do not require high qualifications. A similar trend for men is that the odds of entering the labor market as a skilled worker declined by 32 per cent, while the odds of an entry job as an unskilled worker increased by 17 per cent. These tendencies are in line with our descriptive results but the present model gives us information about labor force entry after the completion of fulltime education, thus results are not affected by the less qualified "life-cycle jobs". For women, the probability of an entry job in the low service class has also decreased by 20 per cent. Changes for other occupational categories between the eighties and nineties are not statistically significant.

Level of schooling completed has evidently an impact on the odds of labor force entry. Estimates presented in *Table 4.2* are taken from such equations, where estimates are controlled for education. According to those results not presented here, higher educational investments increased the odds of successful labor market entry. The "most useful" qualification in the Hungarian labor market is the degree obtained through tertiary education, frequently not the university but the college degree. Not surprisingly, compulsory (primary) level of schooling is hardly enough for finding an entry job, but even a grammar school education has less value in the labor market in comparison to some vocational training. A higher level of school-

ing increases the odds of finding a higher status job as well; labor market entrants having a tertiary level of schooling have more chance of finding an entry job as managers or professionals in the nineties in comparison to the eighties. At the same time those youngsters without any qualification found themselves in a more disadvantaged situation; completion of some vocational training has increasingly become an entry requirement even for unskilled jobs, which do not require any qualification.

This short piece of writing does not allow for the presentation of all findings in detail. The complete model for labor force entry also took into account that a small number of young people who could not enter into the labor market have returned to school (*Róbert* 2002). A further characteristic of the entry process is that the search period has lengthened for the nineties in comparison to the eighties (*Róbert* 2003). However, if someone was not able to find a job within 1–2 years after completion of education, their chances have become worse as time has passed by (*Róbert* 2002). The value of the qualification (if any) has declined, on the one hand, and on the other employers tend to consider it a bad signal if somebody could not find any job for a lengthy period,. This means that accepting even a poor job offer can be a useful strategy for a young person because one can continue to search for a better job even while being in employment and employers appreciate more labor force experience. Finally, one more result shows that a significantly higher proportion of youngsters entered the labor force in jobs with fixed-term contracts in the nineties than in the eighties (*Róbert* 2003). This is also an indication of the increasing flexibility of labor market entry.

4.2 Ambitions and Chances of Secondary School Leavers

ILONA LISKÓ

In recent years the ambitions of secondary school pupils to continue their studies have increased substantially, while less school leavers plan to start working immediately after finishing school. This study presents the results of a repeated questionnaire-based survey on continuing education and labour market prospects provided by different types of secondary schools conducted among secondary school pupils.

At the time of the first survey one third of pupils in the last year of their secondary studies planned not to continue their education but to take up a job after leaving school. This ratio was lowest among students of gymnasiums (less than 10 per cent of those studying in 6 or 8-grades gymnasiums and slightly more than 10 per cent of those studying in regular 4 grades gymnasiums), but also applied to around half of secondary vocational secondary school students (42 per cent) and to vocational training

school trainees (56 per cent). Those planning to take up a job were those who were performing more weakly, moreover the larger the settlement and the higher the education levels of parents were, the lower was the propensity to find a job after leaving secondary school.

Table 4.3: Distribution of students according to their plans to start working/continue their education, and their labour market status after leaving school (per cent)

	Plans before			Labour market status after finishing secondary school				
	Start working	Continue education	Total	Student	Employed	Unemployed	Other	Total
Gender								
Male	38.6	61.4	100.0	69.0	15.5	6.5	9.0	100.0
Female	26.5	73.5	100.0	66.5	15.6	12.3	5.6	100.0
Type of settlement								
Budapest	28.1	71.9	100.0	70.7	14.7	7.3	7.3	100.0
County capital	26.1	73.9	100.0	71.7	16.6	5.0	6.7	100.0
Town	25.0	75.0	100.0	68.5	16.7	5.6	9.3	100.0
Small town	33.5	66.5	100.0	70.7	14.1	8.7	6.5	100.0
Village	41.1	58.9	100.0	59.0	16.7	16.7	7.7	100.0
Education levels of parents								
Lower secondary school	45.8	54.2	100.0	63.6	9.1	9.1	18.2	100.0
At least vocational training school	46.8	53.2	100.0	53.9	20.2	16.9	9.0	100.0
At least upper secondary school	33.1	66.9	100.0	66.7	19.2	8.3	5.8	100.0
At least higher education	25.1	74.9	100.0	86.7	2.2	4.4	6.7	100.0
Both higher education	12.5	87.5	100.0	86.0	8.0	2.0	4.0	100.0
Type of school								
Gymnasium 6 or 8 grades	9.4	90.6	100.0	97.1			2.9	100.0
Gymnasium 4 grades	13.0	87.0	100.0	88.9	4.9	1.3	4.9	100.0
Vocational secondary school	41.5	58.6	100.0	66.4	14.6	10.9	8.0	100.0
Vocational training school	55.7	44.3	100.0	35.4	35.4	19.5	9.8	100.0
Total	32.6	67.4	100.0	67.4	15.8	9.6	7.2	100.0
N			1,808					335

The results of the repeated survey show that 6 months after leaving secondary school more than two thirds (68 per cent) were full time students, thus previous plans on continuing education are fulfilled, and even exceeded because the share of actual full time students is higher than the ratio of those planning to continue education before finishing secondary school (*see Table 4.3*).

Considering the extent to which plans to continue education were realised in different groups of secondary school leavers, it can be concluded that among girls slightly less than those planning to do so actually did go on studying. Plans failed to the greatest extent among vocational training school leavers (instead of 44, 35 per cent continued their education).

Plans to take up a job were realised to a much lesser extent than those to take up further education. Only 16 per cent of those leaving secondary

or vocational school in the spring of 2003 started to work, another 10 per cent became unemployed and 7 per cent were in the so-called other inactive category, i.e. either they were doing their military service or were on maternity leave. According to the type of secondary school, plans failed to a greatest extent among vocational secondary school leavers. Among vocational training school leavers only slightly more than half of those who had previously indicated such intentions were in employment. Among vocational training school leavers the total share of the employed and the unemployed approximately equalled the percentage of those who planned to take up a job after leaving school. This suggests that their plans failed because of the shortage of adequate jobs. At the same time, among vocational secondary school leavers the total share of the employed and unemployed was 10 per cent lower, while the share of those continuing their education was 10 per cent higher than originally planned. Thus this group modified their plans to a greater extent and continued studying rather than entering the labour market.

Considering those in employment 34 per cent of vocational secondary school leavers worked in their original vocation, (15 per cent in non-blue-collar positions and 19 per cent as skilled workers but in their original profession), 7 per cent worked as skilled worker in other trades, and 22 per cent had to take up semi-skilled or unskilled jobs. Among those who finished vocational training school, 58 per cent worked in their vocation, and 32 per cent did semi-skilled or unskilled work. In conclusion, this means that 6 months after finishing school only 5 per cent of vocational secondary school leavers and 20 per cent of those who had finished vocational training school were in employment. This indicates a fundamental change and suggests that the times are past when young people could leave secondary school with clear career expectations and trust that their vocational qualifications would help them secure their existence.

Data on further plans of last year secondary school pupils suggest that their labour market position is very insecure. Most of them are still trying to find their place, thus their situation – regardless of whether they are in employment or unemployed – can not be considered stable or long-term. 40 per cent of vocational secondary school leavers and 50 per cent of vocational training school leavers who did not continue their education experienced unemployment in the previous six months.

80 per cent of the unemployed vocational secondary school and 64 per cent of the unemployed vocational training school leavers claimed that they had no possibility of taking up casual work. Those who do have, often have to accept jobs that are not related to their qualifications. Apparently, this also plays a role in the fact that 60 per cent of the unemployed vocational secondary school leavers and 56 per cent of the unemployed vocational

training school leavers said they wanted to find a job as soon as possible. Others planned to continue their education which they expect would improve their labour market situation. Entrepreneurship and starting up an own business appeared among the long term plans of only a few youngsters, possibly due to the lack of knowledge, skills and capital.

If not only full time students, but all those who continue their education after leaving secondary school are taken into account, then it can be concluded that only 20 per cent finished their education at the secondary level (*see Table 4.4*). Therefore, both the plans and the actual situation of young people show that for the majority of them finishing from secondary school does not mean the end of their schooling.

Table 4.4: Continuing education after secondary school by characteristics of students (per cent)

		Student					
		Higher education		Secondary level			
	No studies	Full time	Part-time	In vocation of the first qualification	In new vocation	Out of level	Total
Gender							
Male	18.7	31.6	1.9	19.4	21.9	6.5	100.0
Female	19.6	38.5	3.9	11.7	20.7	5.6	100.0
Type of settlement							
Budapest	12.2	31.7	9.8	17.1	22.0	7.2	100.0
County capital	15.0	55.0	1.7	15.0	8.3	5.0	100.0
Town	14.8	40.7	7.4	16.7	16.7	3.7	100.0
Small town	16.3	37.0	0.0	10.9	29.3	6.5	100.0
Village	30.8	16.7	1.3	17.9	25.6	7.7	100.0
Education levels of parents							
Both lower secondary school	18.2	18.2	0.0	27.2	36.4	0.0	100.0
At least vocational school	29.2	9.0	2.2	19.2	30.3	10.1	100.0
At least upper secondary school	21.7	33.3	5.0	15.0	18.3	6.7	100.0
At least higher education	0.0	64.4	0.0	17.8	15.6	2.2	100.0
Both higher education	6.0	74.0	2.0	2.0	16.0	0.0	100.0
Type of school							
Gymnasium 6 or 8-grades	0.0	80.0	2.8	5.7	8.6	2.9	100.0
Gymnasium 4-grades	4.9	74.1	4.9	3.7	11.1	1.3	100.0
Vocational secondary school	18.2	21.2	3.6	22.6	24.1	10.3	100.0
Vocational training school	43.9	1.2	0.0	18.3	31.7	4.9	100.0
Labour market status							
Student	0.0	52.2	0.9	17.7	26.5	2.7	100.0
Employed	69.8	0.0	5.7	5.7	11.3	7.5	100.0
Unemployed	68.8	0.0	0.0	3.1	3.1	25.0	100.0
Other	25.0	0.0	20.8	29.2	16.7	8.3	100.0
Total	19.4	35.2	3.0	15.2	21.2	6.0	100.0

School leavers continue their studies approximately equally at tertiary and secondary levels (38 and 36 per cent respectively). Over one third (35 per

cent) of the total is enrolled full time and 3 per cent part time in higher education. 15 per cent of school leavers continued their education in their original vocation and 21 per cent started learning a new trade at secondary level. In addition, 6 per cent of the school leavers participated in training. The choice between the different forms of further education is clearly related to the type of secondary school and the social status of the pupil. The percentage of those who did not continue their education was highest among vocational training school leavers (44 per cent) and those of lower social status.

Considering the type of secondary school, it can be concluded that the ratio of full-time tertiary education students is well above the average among graduates from gymnasiums. Secondary vocational school leavers tend to continue their vocational education at secondary level above the average, while vocational training school leavers often start to learn new vocations. Thus "re-training" immediately after leaving school – either as a result of previous wrong choice of vocation or lack of labour market demand – is most common among vocational training school leavers. Looking at the social status of the pupils, it can be argued that full-time tertiary education is predominantly an option for those with higher social status, while for those from a less favourable social background continued secondary education or training courses offer a possibility to pursue further studies. Considering participation in further education from the perspective of labour market status, we see that one third of those in employment are involved in education or training, mainly in some form of secondary education. Also one third of the unemployed are studying, most likely participating in training or labour market programmes, and 75 per cent of the other inactive category indicates involvement in some sort of education or training.

As far as motivation is concerned, nearly half of the secondary school leavers (45 per cent) who decided to continue their education hoped to have a better job as a result, and almost the same percentage (47 per cent) claimed that they wanted to learn more, gain new knowledge. One third of the school leavers (27 per cent) expect better payments, while nearly one fifth wanted to postpone entering the labour market. 7 per cent answered that they continued their education because they had no chances of finding a job after leaving secondary school. In conclusion, these figures show that most young people expect an improvement of their labour market prospects from further education.

In the autumn of 2003 only 49 per cent of secondary school leavers claimed to be fully satisfied with their own situation. Among them, full time students were over-represented. The majority of school leavers thought they could rely on the support of their families (87 per cent) and friends (60 per cent) in achieving their aims. However only 8 per cent expected

support from their school and nearly one third (31 per cent) claimed that besides their families they could rely only upon themselves. Taking into consideration other factors as well, it can be concluded that for pupils with more favourable social status (i.e. parents with higher education, secondary school pupils) both the personal social network and the institutional network (school) provided stronger support, and unemployed youth felt most of all that they could only count on their families and themselves to realise their ambitions. In other words, those secondary school leavers whose families can provide least help are most likely to be left without support.

4.3 Labour Market Success of Higher-education Graduates

PÉTER GALASI

In this section we focus on the labour market success of higher-education graduates by analysing their wages and labour market status on samples of the first and second FIDÉV surveys (FIDÉV1 and FIDÉV2).[66] We will use the pooled sample of these surveys as well (FIDÉV12). The two surveys differ in their variables, and for this reason some specifications are only run on FIDÉV1 or FIDÉV2.

Determinants of wages of higher-education graduates

One of the most important indicators for labour market success is the wage a person is able to obtain on the labour market. We consider the following elements: 1. whether university as compared to college education, and 2. in-school labour market experience produces any wage premium, 3. whether more diversified knowledge taught at the higher education institutes leads to higher wages, 4. whether some rather general skills such as knowledge of foreign languages and mastering IT have an impact on wages. (Section 2.4 focuses on the role cost-priced and state-funded higher education might play in wage formation).

The problem is treated in a simple Beckerian-Mincerian human-capital setting (*Becker* 1975; *Mincer* 1975), where earnings are related to two components of human capital: education and labour market experience. As a dependent variable the natural log of wage rate, constructed with the help of net monthly wage and working time, is used.

The average wage rates are 467 (FIDÉV1) and 621 HUF (FIDÉV2), respectively. For the pooled sample, where 1999 wages are converted to 2000 prices, this amounts to 566 HUF. Due to lack of comparable data it is hard to say whether these wage rates are high or low. In terms of net monthly wages, however, our career-beginners earn 11.8 per cent (FIDÉV1) and 16.5 per cent (FIDÉV2) more than the average Hungarian employee does in the same year.

66 The first survey contains information on the September 1999 labour-market situation of young career-beginners graduated from public higher education as full-time students in 1998 (FIDÉV1). The second one describes the 2000 labour market situation of persons graduated from higher education as full-time students in 1999 (FIDÉV2).

Education is measured by a dummy: whether the individual has a college or bachelor (= 0) or a university or master (= 1) degree. University diploma-holders constitute about 40 per cent of the samples. Labour market experience is in-school (*Light* 2001), it is also proxied by a dummy variable: whether or not the respondent worked regularly for pay during their studies (0 = no, 1 = yes). The proportion of persons having in-school labour market experience is 30 per cent in the sample (FIDÉV2). We insert a gender dummy in order to capture women's relatively disadvantageous labour market position (women = 1). The proportion of women in FIDÉV1 is about 54 per cent. The customary way of treating the gender wage-gap is to estimate earnings equations for men and women separately. Here we do not do this, because the persons in our samples are at the beginning of their labour-market life-cycle and all have higher-education diplomas. Differences attributable to either family division of labour or labour market discrimination are likely to be formed during later phases of the life cycle due to marriage and/or child rearing. The standard result is, however, a negative parameter estimate for the coefficient, although it might be that estimated gender differences will be zero, as the literature on the subject, at least for Central-European transition countries, detects a very important decline in the gender pay-gap (*Brainerd* 2000 *Hunt* 2002). In addition, we use two dummies for foreign language skills (whether the respondent speaks English or German, FIDÉV1), and a dummy that is intended to proxy the IT skills of the respondent (whether they regularly use the Web when working, FIDÉV1). If these skills become more valuable on the labour market of a transition economy in the '90s, as the stronger integration of Hungary as a small and open economy into the European economy and the direction of the so-called skill-biased technological changes suggest, we expect positive signs for these variables.

The diversity of initial skills might be important for higher-education graduates, since it can affect both their access to jobs and the returns to human capital on a labour market with heterogeneous jobs and skill requirements. Two variables, that might have something to do with skill diversity acquired in a higher education institution, are added to the wage equation. The first one is a dummy measuring that the graduate has one or two fields of study (0 = one, 1 = two); 16.5 per cent (FIDÉV1) and 21.1 per cent (FIDÉV2) of persons in the two samples have two fields of studies. The second one is an occupational concentration index[67] that shows how individuals with a given type of education are distributed among occupations. Some types of education provide skills that might be useful for a relatively large number of occupations – they are labelled "broad" fields of education by *van Smoorenburg and van der Velden* (2000) –, some prepare students for a small number of occupations ("narrow" fields of study).

67 For a detailed description of the index see section 2.4. footnote 51.

The concentration index is used to proxy this problem. Its value is zero if individuals with a given type of education are employed in only one occupation, it is unity if individuals with a given type of education are distributed evenly among occupations. A type of education with zero value is, in this sense, very "narrow", whereas a type of education with a unit value is very "broad". "Narrower" fields of study can assure an education/job match of better quality but with relatively high searching costs, that is, it might be costly to find a good match due to the "narrowness" of the type of education. "Broader" types of education might result in a match of worse quality but with relatively low costs of searching. The question is whether "narrower" or "broader" types of education provide advantages in terms of wages. They might work in both ways depending on the actual structure of labour demand and the resulting searching costs of finding a job with given skill requirements. If the parameter estimate of the variable is positive, that means that a person with a "narrower" type of education is worse off since they could not find a good education/job match. If the reverse holds true then an individual with a "broader" type of education will be worse off in terms of wage premium for the same reason. In the case of job-starters the type of education they have obtained might be important, that is why a series of type-of-education dummies is inserted into the models. In Hungary an important point of the debate on higher-education policy is the quality of cost-priced education. In order to see whether this results in higher or lower wages the equations include a cost-priced dummy (FIDÉV2).[68] Equations for the pooled sample also comprise a dummy (Wave) indicating that observations are from the first or the second surveys, that is, capturing changes in the labour situation of the young between the two surveys, if any.[69] The results of the most important parameter estimates of different specifications are displayed in Table 4.5.[70]

University education yields extra wages as compared to college education for all the samples and specifications: 19 and 22 (base and extended models, FIDÉV1), 25 and 27 (base and extended models FIDÉV2), and 20 per cent (pooled sample).[71] The estimates do not confirm that in-school experience has an impact on wages. Another important result is that cost-priced and state-funded students do not differ in terms of wage rate. Having one or two fields of study do not produce any wage advantage for the second wave, but leads to significant wage premium for the first one. As regards the occupational concentration index, the graduates differ in their accessibility to jobs, due to the skills embodied in the type of education they have. The results are mixed as to whether "broader" or "narrower" types of education lead to higher wages or not. As for the first wave the answer is that they definitely do not. However, this factor has an impact on wages for the second wave.

68 The impact of cost-priced education on the labour market success of graduates is discussed in section 2.4.

69 Due to endogeneity of education (*Card* 1998; *Bound – Solon* 1999), simultaneity of wages and working time (*Killingsworth* 1983 *Mroz* 1987), or ability bias (*Willis – Rosen* 1979; *Maddala* 1983), wage equations are estimated by 2sls with using instruments (*Bedi – Gaston* 1999; *Brunello – Miniaci* 1999; *Levin – Plug* 1999). We have checked both the endogeneity of variables and the validity of instruments (*Wooldridge* 2002).

70 The models also include variables capturing occupational and regional labour market effects. For detailed results see *Galasi* (2003a).

71 Note that returns to university education are higher if the wage equations are estimated by 2sls as compared to ols estimations. It is not an unusual result (*Card* 1998, *Trostel – Walker – Woolley* 2002).

Table 4.5: Parameter estimates from wage equations

	FIDÉV1 Coef.	FIDÉV2 Coef.	Pooled Coef.	FIDÉV1 Coef.	FIDÉV2 Coef.
Working time[b]	–0.267[a]	–0.237[a]	–0.254[a]	–0.407[a]	–0.276[a]
University	0.188[a]	0.247[a]	0.197[a]	0.223[a]	0.270[a]
Mark of GCE exam				–0.101	
Female				–0.015	
Cost-priced					0.436
Experience					0.068
Two fields of studies	0.101[a]	–0.043	0.013	0.097[a]	–0.021
Speaks English				0.059[a]	
Speaks German				0.040	
Uses the Web				0.064[a]	
Field of Study					
Agricultural	–0.028	–0.483[a]	–0.188[a]	0.012	–0.438[a]
Humanities	0.020	–0.320[a]	–0.060	0.027	–0.319[a]
Foreign languages	0.149[a]	–0.195	0.093[a]	0.143[a]	–0.219
Small languages	–0.067	–0.237	–0.058	–0.165	–0.195
Teacher	0.000	0.000	0.000	0.000	0.000
Physical education	0.031	–0.408[a]	–0.059	–0.016	–0.397[a]
Informatics	0.390[a]	–0.058	0.198[a]	0.404[a]	–0.215
Technical	0.099	–0.296[a]	–0.019	0.112	–0.262
Arts	–0.233[a]	–0.276	–0.034	–0.199	–0.236
Health care	–0.381[a]	–0.419[a]	–0.400[a]	–0.282[a]	–0.396[a]
Law, social public administration	–0.061	–0.453[a]	–0.233[a]	–0.005	–0.377[a]
Economics and business	0.263[a]	–0.157	0.130[a]	0.341	–0.144
Social sciences	–0.095	–0.492[a]	–0.222[a]	–0.088	–0.406[a]
Natural sciences	–0.060	–0.310[a]	–0.094[a]	–0.049	–0.287
Occupational concentration	–0.448	0.703[a]	0.137	–0.519	0.643[a]
Wave	–	–	0.080[a]	–	

[a] Significant at the p = 0.01 level.
Dependent variable: natural logarithm of net wage rate.
[b] Natural logarithm.

The results suggest that a "broader" type of education produces a wage premium for it leads to a better education/job match due to lower job-search costs resulting from accessibility to many jobs. It seems that some rather general (and "modern") skills (using the Web, knowledge of foreign languages) are coupled with wage advantages. Finally, there is no sign of significant gender wage difference in the samples.

Determinants of the labour market status of higher education graduates

Determinants of the labour market status of higher-education graduates are treated here in a supply-side framework that is we focus on factors influencing the choice of labour market status in which – as both classical labour-supply

and job search models emphasise (*Devine – Kiefer* 1991; *Heckman* 1979; *Killingsworth* 1983) – reservation wages play a major role. If wage offers exceed the reservation wage of the individual, then they are willing to accept a given job, if not they refuse working. In some models potential workers consider hours-of-work-wage offer packages (*Gørgens* 2002), thus both time preferences and reservation wages influence the labour market participation decision.

Reservation wages, however, are mostly unobservable in practice, therefore researchers have to work with offered and accepted wages, that might be interpreted as realised wage offers. Higher wages result in higher labour market participation probability at given hours of work. The effect of hours-of-work offers might have on participation depends on the time preferences of the potential workers. These, in turn, depend on the relative subjective value of consumption and leisure, the expected stability of the job – that is the expected risks associated with the job that would be influenced by the stability of the income stream which the job offers.

The literature does not always offer clear-cut answers to the question of the behavioural relevance of labour market states. Applied search models are mainly concerned with the unemployed, and it is not always clear whether the unemployed and the inactive differ or not behaviourally.[72] We distinguish five labour market states: employee, self-employed, unemployed, full-time student, other inactive.

The distribution of our samples by labour market status is as follows. The proportion of employees is 78 per cent that of self-employed is 4 per cent we have 6 per cent unemployed persons, 8 per cent students, and 3 per cent other inactive.

The dependent variable is the five labour market states.[73] We assume that the employees and the self-employed differ in their preferences *vis-à-vis* labour market risks (stability of wage and job) and autonomy of work. The self-employed are less risk-averse prefering more autonomy at work, including perhaps shorter working time. The unemployed are willing to accept a job at given market wages but they actually do not find one. It is assumed that potential wage offers have a greater influence on their decision than working time offers. Inactive persons cannot accept available wage and hours-of-work offers and for this reason they do not search for a job. It is an important empirical question whether they differ from the unemployed in this way. Finally, students do not enter the labour market after having obtained their first higher education diploma. They rather continue studying either because they cannot accept actual wage and/or hours-of-work offers, or because they expect better job offers by making extra human capital investments.

Our two most important explanatory variables are the wage and working time. We assume that the choices are influenced by the wage and working

72 See *Clark – Summers* 1982; *Flinn – Heckman* 1983; *Tano* 1991; *Gönül* 1992; *Micklewright – Nagy* 1999. As a rule classical labour supply models do not explicitly model participation decisions. Most of them consider the problem as a source of selectivity bias for wage and hours-of work equations.

73 The models are estimated by multinomial logits.

time that graduates with the same level of education and type of education might expect (both variables are computed from our samples).[74]

Higher wages would result in higher probability for becoming employee and self-employed, and cause the probability of being unemployed and inactive to decline. The relationship between wage level and the choice of status of students is not unambiguous. It might be that the individual finds the actual wage offers too low and rather opt for studying further. This would imply a negative relationship. But it also might be the case that they actually observe high wages but expect even higher wages in the future and thus decide to study further in the presence of high actual wages. Then higher wages would be associated with higher probability of being a student, implying a positive relationship between the two variables.

How working time affects the choice of the labour market status is theoretically undetermined, the available labour supply models do not produce any meaningful prediction in this respect. In addition, in our models, the working time effect is measured at fixed wages, thus its sign would depend on individuals' preferences about which no empirical findings are available.

Three additional variables, also used for wage equations, will be inserted into the models: level of education (college/university), occupational concentration, and number of fields of study (one or two). These variables are available for both samples thus this model – the base model – is estimated on the first, the second, and the pooled samples, as well. Equation for the pooled sample also comprises a dummy (Wave) indicating that observations are from the first or the second surveys, that is, capturing changes in the labour situation of the young between the two surveys, if any.

Extended models are also estimated with variables present only in one of the surveys including knowledge of foreign language (FIDÉV1), in-school labour market experience and cost-priced student (FIDÉV2).

Table 4.6: Determinants of labour market status, marginal effects

	Base model			Extended model	
	FIDÉV1	FIDÉV2	Pooled	FIDÉV1	FIDÉV2
1. Employee					
University	-0.015	-0.047[a]	-0.034[a]	0.010	-0.042[a]
Experience	–	–	–	–	0.035[a]
Cost-priced	–	–	–	–	0.034[a]
Two fields of study	0.042[a]	0.025	0.034[a]	0.041	0.022
Occupational concentration	-0.458[a]	-0.374[a]	-0.399[a]	-0.467[a]	-0.355[a]
Speaks English	–	–	–	-0.006[a]	–
Speaks German	–	–	–	-0.049	–
Working time	0.341[a]	0.171[a]	0.270[a]	0.333[a]	0.192[a]
Wage	0.079[a]	0.074[a]	0.091[a]	0.091[a]	0.063[a]
Wave	–	–	0.022[a]	–	–

74 The working time variable is the natural logarithm of the average hours of work a graduate with a given type and level of education might expect. This is interpreted as the average working time offer. The wage variable is the natural logarithm of the median wage a graduate with a given type and level of education might expect. This is thought of as the expected median wage offer.

	Base model			Extended model	
	FIDÉV1	FIDÉV2	Pooled	FIDÉV1	FIDÉV2
2. Self-employed					
University	0.016[a]	0.016[a]	0.015[a]	0.014[a]	0.014[a]
Experience	–	–	–	–	0.027[a]
Cost-priced	–	–	–	–	0.007
Two fields of study	–0.014[a]	–0.011[a]	–0.012[a]	–0.014[a]	–0.010[a]
Occupational concentration	0.082[a]	0.102[a]	0.101[a]	0.085[a]	0.096[a]
Speaks English	–	–	–	0.018[a]	–
Speaks German	–	–	–	0.003	–
Working time	–0.154[v]	–0.105[v]	–0.134[a]	–0.151[a]	–0.087[a]
Wage	–0.007	–0.005	0.002	0.004	–0.008
Wave	–	–	–0.008[a]	–	
3.Unemployed					
University	–0.022[a]	–0.015[a]	–0.020[a]	–0.020[a]	–0.013[v]
Experience	–	–	–	–	–0.023[a]
Cost-priced	–	–	–	–	–0.001
Two fields of study	–0.001	–0.016[a]	–0.009	–0.001	–0.016[a]
Occupational concentration	0.333[a]	0.141[a]	0.194[a]	0.327[a]	0.139[a]
Speaks English	–	–	–	–0.016[a]	–
Speaks German	–	–	–	–0.017[a]	–
Working time	–0.066	0.025	–0.034	–0.076[a]	0.012
Wage	–0.075[a]	–0.074[a]	–0.068[a]	–0.065[a]	–0.069[a]
Wave	–		0.000	–	
4. Student					
University	0.008	0.039[a]	0.021[a]	0.003	0.033[a]
Experience	–	–	–	–	–0.042[a]
Cost-priced	–	–	–	–	0.052[a]
Two fields of study	–0.023[a]	–0.003	–0.011	–0.022[a]	–0.002
Occupational concentration	0.068	0.163[a]	0.132[a]	0.050[a]	0.155[v]
Speaks English	–	–	–	0.027[a]	–
Speaks German	–	–	–	0.080	–
Working time	–0.107[a]	–0.084	–0.110[v]	–0.091[v]	–0.110[a]
Wage	0.038[a]	0.028	0.035[a]	0.020	0.036[a]
Wave	–	–	0.014[a]	–	–
5. Inactive					
University	0.012[a]	0.008	0.018[a]	0.013[a]	0.008
Experience	–	–	–	–	0.003
Cost-priced	–	–	–	–	0.013
Two fields of study	–0.004	0.005	–0.002	–0.004	0.006
Occupational concentration	–0.025	–0.032[a]	–0.028	–0.003[a]	–0.035[a]
Speaks English	–	–	–	–0.001	–
Speaks German	–	–	–	–0.026	–
Working time	–0.014	–0.007	0.008	–0.015	–0.007
Wage	–0.050[a]	–0.024[a]	–0.061[a]	–0.049[a]	–0.022
Wave	–	–	–0.027[a]	–	–

[a] Significant at the p = 0.01 level.

Table 4.6 presents estimation results (marginal effects).[75] Higher wage offers increase the probability of employment and decrease that of unemployment and inactivity for all equations. Chances of becoming self-employed are not affected by wage offers. The probability of being a student gets higher as wage offers increase, implying that students expect even higher wages after further studies. The results are essentially the same for both the base and the extended models. Longer hours of work lead to higher (lower) probability if becoming employed (self-employed), no working time effect is detected in the case of unemployment and inactivity. In two out of three equations increases in hours of work leads to a higher probability of being a student. All these suggest that self-employment is attractive for those who prefer higher risks and shorter working time, whereas choosing an employee status might be tantamount to obtaining more stable jobs with longer hours. As regards student status, some individuals prefer not entering the labour market but studying instead as a result of longer working time.

Education plays a role in the case of some labour market states. It holds for all the equations that persons with a university education have a higher probability of being self-employed. A higher degree thus means choosing higher risks at a given wage and working time. Persons with a university education would become inactive with a higher probability at given wages and hours of work than those with a college degree, implying that graduates with a university diploma value leisure more than those with a college diploma. A university degree has a favourable (negative) effect on becoming unemployed, whereas it does not affect the chances of employment. In some equations graduates with a university degree study further with a higher probability but the estimated coefficients are not significant in the case of the extended model.

As regards the occupational concentration index, the results suggest that graduates with "broader" types of education would have better chances for becoming self-employed, unemployed or students, whereas those with "narrower" types of education would rather be employees or inactive. Having one or two fields of study does not affect the choice of labour market status. Speaking English has a positive effect on becoming self-employed, or a student, and a negative one on employment and unemployment, whereas speaking German does not seem to matter. In-school labour market experience increases the chances of being self-employed, or an employee, and decreases the probability of becoming unemployed or a student. Persons graduated from cost-priced places are more (less) likely to be employees (students), thus higher educational costs might induce graduates to enter the labour market.

75 For detailed results see *Galasi* (2003c).

4.4 Job-training of Higher-education Graduates

PÉTER GALASI

Job training constitutes an important part of both the labour market and the educational system. A labour-market-centred human-capital approach to the problem has become an integral part of the labour economics since the mid 1960s (for theoretical summaries see *Becker* 1962, 1975; *Hashimoto* 1981; *Parsons* 1990; *Stevens* 1994). In the '90s, training seems to be more important than ever in Hungary, especially among young higher-education graduates. When leaving full-time education many higher-education graduates continue accumulating knowledge and skills through formal or informal, on-the-job or off-the-job training. Training might improve the productivity of young school-leavers, contribute to forming better job-employee matches, and ameliorate their opportunity for obtaining stable and higher-paid jobs.

Three elements of the problem are analysed here with the help of a survey representative of Hungarian higher education graduates:[76] the impact of education on participation in training, the length of training, and the share of training costs between employees and employers.

As regards the relationship of education level with training probability (occurrence and length, etc.) it is of great importance whether education level and training are positively or negatively correlated. If the former holds then differences in human capital between employees with lower and higher levels of education will widen on the labour market, and the less educated will have lower chances of ameliorating their labour market position by training, and the more educated will be able to accumulate even more human capital. If the reverse is true then differences due to in-school human capital will be diminished on the labour market. The literature provides no unambiguous answer to the problem, some papers arrive at a negative, others at a positive relationship between training and education.[77] This is not surprising since actual predictions and results depend on both the theoretical contexts of the models and the properties of data (especially the time horizon the samples cover). In a simple short-run setting, where more education implies higher job-productivity and the training is intended to provide workers with additional skills and knowledge so as to reach actual (fixed) job-productivity, more education is associated with lower training probability for a given job, and this is the case if more education indicates better learning abilities, as well. In a long-run utility- (profit-) maximisation model, where the more educated have better learning abilities thus lower marginal training costs and/or higher returns to training, workers with higher levels of education will experience more training, especially in the case of firms with long career ladders or "internal labour markets".

76 The survey contains information about the 2000 labour market situation of young persons graduating from Hungarian higher education in 1999.

77 The papers of *Lillard and Tan* (1992), *Lynch* (1992), *van Smoorenburg and van der Velden* (2000), *Goux and Maurin* (2000), *Ariga and Brunello* (2002), *Garcia, Arkes and Trost* (2002) assume/obtain either negative, or positive correlation, or both, and the values of the estimated coefficients also show a great variety of patterns. *van Smoorenburg and van der Velden* (2000), focusing on the training probability of Dutch career-beginners, argue that higher level of education implies higher ability and this reduces the costs of a given training, therefore level of education and training probability will be positively correlated. The estimated parameters support their hypothesis, and the result is robust to model specifications.

The second problem is how the employer and the worker share the costs of training. In the spirit of *Becker*'s (1962) fundamental model, training might be classified as perfectly general and specific. Training is (perfectly) general if worker's productivity (marginal product) increases by the same amount with many employers. It is (completely) specific if the increase of productivity with a given employer does not affect productivity with other employers. Since both parties can terminate the contract in the future, sharing the costs serves as an element of insurance against future losses in returns. One implication of the model is that general (specific) training is financed by the worker (the employer), and in-between (neither completely specific, nor perfectly general) training implies cost sharing between the parties.

The sample includes young workers with a higher education diploma, some 53 per cent of them took part in training and, on average, spent 61 days on training between graduation (summer of 1999) and September 2000.

Three equations will be estimated: a training-participation-probability, a training-length, and a cost-sharing equation. Let us first see the training-probability equation.[78] A key explanatory variable – as we have seen in the literature – is human capital. In the spirit of the standard, Mincerian human capital model (*Mincer* 1974), it has two components: one accumulated by attending school and one on the labour market (labour market experience). In our case both components are initial, pre-labour market and pre-training human capital endowments. We know the highest educational degree of the respondents, and we use this as a proxy for human capital accumulated by attending school. Since our workers are all higher-education graduates, this results in a dummy variable: college (or bachelor) degree (with 2–4 years of higher education = 0) and university (or master) degree (with 5 to 7 years of higher education = 1). The proportion of university diploma-holders is 39 per cent. For the other component (labour market experience) we use in-school labour market experience. This is measured by a dummy: whether the respondent regularly worked for pay during their study (no = 0, yes = 1), and almost one third of the respondents possess in-school experience. As regards the expected sign of the coefficient the problem is similar to that of education. In a short run setting where training is intended to bridge the gap between initial human capital and actual productivity requirements in the job, if in-school experience leads to higher productivity at the work place, the correlation will be negative, and this would be the case if in-school experience indicates good abilities/skills required by the job. In a life-cycle model if in-school experience results in higher productivity, and/or indicates better learning skills in training, then the more experienced will be more likely to be trained.

78 Since only employees can participate in training, and they might constitute a non-random sample of the population of working age, some sample-selection bias might be present. For this reason in estimating participation probability we use probit with sample selection. This is a two-equation estimator. The first equation is a labour market participation probit (dependent variable: whether the person is employed or not) in which education, in-school labour market experience, type of education, and the rate of unemployment of the types of education are inserted as explanatory variables. The second one is the training participation equation with variables mentioned in the text. Having made use of probit with sample selection seems to be justified for the error terms of the training probability and employment probability equations are correlated. For detailed results see *Galasi* (2003b).

In addition to variables proxying human capital endowments, two other variables have been inserted in the model in order to capture the effect of workers' heterogeneity on training probability. A series of dummies has been included so as to detect how types of education might affect training probability (reference category: teachers in primary schools). These variables might reflect differences in labour demand for skills embodied in types of education. A type of education represents a special combination of skills learned in school, and the marketability of a given combination of skills depends on the actual state of the labour market. This might influence the quality of education/job match, and a better-quality match might lead to a lower training probability. An occupational concentration index[79] – already used in section 2.4. – is also inserted into the equation. It shows how individuals with a given type of education are distributed among occupations. Its value is zero if individuals with a given type of education are employed in only one occupation and it is one if individuals with a given type of education are distributed evenly among occupations. A type of education with zero value is, in this sense, very "narrow", whereas a field of study with a unit value is very "broad". "Narrower" fields of study can assure education/job match of better quality but with relatively high searching costs, that is, it might be costly to find a good match due to the "narrowness" of the type of education. "Broader" fields of study might result in a match of worse quality but with relatively low costs of searching. If an individual with a "narrow" type of education can find a job with a good quality match, they need little or no training. If not, then much training will be necessary in order to bridge the gap between actual skills and job requirements. Individuals with "broader" types of education can be employed in many occupations but need some training due to the relative worse quality of the match. The sign of the estimated coefficient can be either positive or negative. A negative sign means that individuals with "broader" ("narrower") types of education are less (more) likely to be trained, thus "broader" types of education produce a better education/job match than the "narrower" ones, and consequently "broader" fields of study imply less training costs. With a positive sign the reverse holds.

Finally, a series of firm-size dummies is included (firms with more than 1000 employees as reference). One can argue that a firm's size affects training costs. There are some signs that larger firms train their employees to a greater extent than smaller ones (*van Smoorenburg – van der Velden* 2000), and this can be attributed to the economies of scale which larger firms might have in providing and/or purchasing training services. As for the costs of training they can be spread over a larger number of employees with larger firms and/or larger firms can purchase training courses at lower prices. One can also argue that larger firms provide more stable and bet-

79 For a detailed description of the index see section 2.4 footnote 62.

ter job opportunities so that it is more advantageous for workers in larger firms to participate in training. If this is so, training probability and firm size will be positively correlated.

As regards the training-length equation, the dependent variable is the natural log of the length of training measured in days.[80] Here a sub-sample of employees is considered, namely, those having received training. The same explanatory variables are used as in the training probability equation, for similar reasons and their interpretation is also similar.

The dependent variable of cost-sharing equation is a dummy: whether the training is financed entirely by the firm (= 1) or otherwise (= 0). For 46 per cent of the participants training is financed entirely by the firm, and the costs of training are covered by the worker in 45 per cent of the cases.[81]

The explanatory variables include two dummies proxying the general/specific nature of the training, the two human capital indicators (education and experience), the length of training (in days, natural log), the post-training wage (wage rate, natural log), and a series of firm-size dummies. We have two kinds of training programmes that might be considered as general: foreign language and computer skills. Foreign language and computer skills are more or less transportable, that is, they can be utilised at many firms. Strictly speaking no information can be obtained from the data on whether the training is firm-specific or not. Rather, some training programmes seem to be job-specific, namely, special and supplementary skills needed in the actual job. Although these are not necessarily firm-specific training programmes, one can argue that the knowledge and skills accumulated with the help of these programmes are less transportable than foreign language and computer skills, thus in the spirit of the Becker's model we can expect that firms will be more likely to finance these programmes, than those providing general knowledge and skills. We have then included two dummies one for general and one for job-specific training programmes, and the reference is the dummy representing all the other programmes being assumed to be a mixture of not perfectly specific and not completely general programmes. If the classification works and the assumptions are correct, we expect a positive sign for the specific, and a negative one for the general dummy.

Education and in-school labour market experience might play a role in cost-sharing decisions. If more education and experience indicate better abilities, learning skills and higher productivity in the job, then, from long run profit-maximisation considerations, it might be advantageous for the firm to cover the training costs for the better educated and more experienced to a greater extent.

Higher post-training wage implies higher post-training costs, that is, less expected profit at fixed expected post-training productivity. This might

80 It is very likely that the schooling variable is endogenous, due to the unobserved heterogeneity of individuals in terms of productivity or/and ability needed in the job and also to the heterogeneity of jobs in terms of firm-specific skills. Levels of education and (unobserved) productivity/ability and/or firm-specific skill requirements might be correlated, and as a consequence ols would produce biased parameter estimates for the schooling variable. The empirical model will be estimated by 2sls with one IV. Both endogeneity of schooling and the validity of the instrument have been confirmed (see *Galasi* 2003b).

81 Since participation in training might be non-random another sample selection problem would be present. Here we also use probit with sample selection. The auxiliary equation is the training participation equation we have used. The assumption of sample selection seems to be justified for the error terms of the training and the cost-sharing equations are correlated. For detailed results see *Galasi* (2003b).

induce firms to cover smaller proportions of the training costs in order to minimise their losses for the training and post training period. If this is so, then higher post-training wages would result in smaller firm's shares. At the same time the post-training wage may reflect a firm's expectations as regards the post-training productivity of the trainee. If the firm expects a high productivity increase due to training, that is, high post-training productivity, then it would be willing to cover a greater proportion of the training costs, than in the case of lower post-training productivity and wage. Then higher post-training wage results in a more intensive participation in financing the training programme on the part of the firm. Training length is also included in the equation so as to control for differences in the amount of training workers need. Firm-size dummies are inserted in the equation, and it is assumed that due to economies of scale, lower fixed per capita training costs, and better intra-firm job-mobility opportunities, larger firms cover the costs of training with a higher probability than smaller ones. Results are summarised in *Table 4.7.*

A brief summary of results is as follows. Graduates with a university diploma are less likely to participate in training than those with a college diploma. This is consistent with a short run fixed-productivity requirements model where training is intended to increase the productivity of the career-beginners in order to reach the level of productivity needed in the job. In-school labour market experience leads to a higher participation probability. If experience indicates higher productivity and/or better abilities/skills, then this would be consistent with the assumption that for graduates with labour market experience marginal training costs are lower, and/or increases in productivity are higher at fixed training costs, therefore the profit-maximising employer are more likely to train them than graduates with no experience. University education reduces the length of the training, as well. Thus school-leavers with a university diploma have shorter training programmes than those who have graduated from colleges. In-school labour market experience has no effect on the length of job-training.

Another important result is that school-leavers holding diplomas with "narrower" types of education are more likely to obtain training. This implies a more severe matching problem in the case of "narrower" types of education, possibly due to prohibitive searching costs for finding a good-quality match.

Results for the cost-sharing decision are in line with Becker's idea, since the firm is less likely to entirely cover the costs of general training and more likely to finance job-specific training programmes. As regards the relationship between education and training costs, the firm is rather more willing to cover the costs of training for the better educated (university degree) than those with college education. This suggests that higher schooling implies

better abilities/skills, thus more rapid increases in productivity. In-school experience does not affect cost-sharing.

Table 4.7: Determinants of training participation, training length and cost-sharing of training

	Participation*	Length**	Cost-sharing***
	Marginal effect	Coefficient	Marginal effect
Length of training	–	–	-0.080[a]
Wage	–	–	0.014
Job-specific training	–	–	0.034[a]
General training	–	–	-0.048[a]
University	-0.030[a]	-0.582[a]	0.057[a]
Experience	0.084[a]	-0.096	0.006
Type of education			
Agricultural	0.215[a]	1.980[a]	–
Humanities	0.215[a]	2.151[a]	–
Foreign language	0.189[a]	1.967[a]	–
Small language	0.199	1.414	–
Physical education	0.230[a]	1.511[a]	–
Teacher	0.000	0.000	–
Informatics	0.194[a]	0.733	–
Technical	0.208[a]	1.412[a]	–
Arts	0.055	0.491	–
Health care	0.193[a]	-0.379	–
Law	0.193[a]	1.607[a]	–
Business/economics	0.220[a]	1.256[a]	–
Social sciences	0.219[a]	1.338[a]	–
Natural sciences	0.093	2.128[a]	–
Occupational concentration	-0.423[a]	-3.663	–
Firm size			
10 or less	-0.129[a]	0.504[a]	-0.162[a]
11–50	-0.092[a]	0.334[a]	-0.162[a]
51–100	-0.093[a]	0.002	-0.125[a]
101–500	-0.039	0.190	-0.064[a]
501–1000	-0.059[a]	-0.033	-0.061[a]
More than 1000	0.000	0.000	3,590[a]
Constant	–	4.925[a]	–

[a] Significant at the p = 0.01 level.

* Estimator: probit with sample selection. Dependent variable: whether the individual participated in training. Selection equation: whether the individual is employed (dependent variable), schooling, in-school labour market experience, 14 type of education dummies, rate of unemployment of types of education.

** Estimator: 2sls. Dependent variable: length of training (days, natural log). Endogenous variable: schooling. Instrument: date of admission to the higher education institute (year).

*** Estimator: probit with sample selection. Dependent variable: whether the firm covers all training costs. Selection equation: the participation equation.

5. EDUCATION AND MOBILITY

5.1 Mobility and Schooling in Hungary at the Beginning of the 2000s

ZSOMBOR CSERES-GERGELY

Human capital can be compared to physical capital in many ways: it can be accumulated, it depreciates and it can be relocated.[82] Similarities between the two types of capital lead to similar conclusions in terms of optimal management, both in the case of accumulation or renting out of the capital. One can show that both actions can be represented as a function of different parameters describing the environment of an actor, and the underlying rule can be studied to extract an optimal decision. An important question that arises when harvesting the benefits from capital is: in what economic surrounding – geographically speaking: where – it should be used. In what follows we take a look at whether relocation of human capital, mobility and migration in Hungary after 2000 can be connected to its optimal use.

Empirical researchers dealing with mobility have to make similar assumptions as do others dealing with data and the number of assumptions to be made is in inverse proportion to the information content of the data at hand. Without going into very much detail, we have to mention that modelling mobility has no sophisticated economic theory which would be agreed upon by many researchers. Empirical investigation usually amounts to formulating the decision in terms of a binary outcome, which depends on the costs and benefits of the move considered. Differences between empirical implementations usually boil down to the use of different types of data, econometric methods and explanatory variables. Specifications of costs and benefits are usually motivated by the portability of human capital and by the fact that holding everything else constant, the act of mobility "transports" human capital to a location where it is best put into use.

Recently I have carried out research that was similar in spirit to the above logic (*Cseres-Gergely* 2003b, 2004) – the resulting papers followed immediately the one by *Kertesi* (1997), which was the first study of Hungarian migration that used micro-data and economic reasoning. Mainstream migration research concentrates on two main areas: the measurement of the effect of economic and in particular labour market related pull and push

82 Let us abstract from the otherwise not negligible fact that human capital normally can not be sold.

forces on mobility and migration (see *Böheim – Taylor* 2000 as an example), and the question of whether mobility is able to equilibrate regional inequalities and if yes, what is the time horizon of such a change (see *Pissarides – McMaster* 1990, for example). Considering that the rate of mobility and migration is much lower in Hungary than in the western part of Europe or in the US, the relevant question in this context is why this low rate prevails, especially when regional dispersion in wages and unemployment rates are not negligible. Do economic incentives have any effect on mobility, or are they swept away by other, non economic motivations?

Research results considering Hungary present mixed evidence on the role of economic incentives. My investigation failed to show such an effect using macro-level data[83] and although they were present in the results from individual-based models, their effect is diminishing. In the latter type of models however, schooling and age exerted a consistently positive and negative effect, respectively. The age effects can quite plausibly be attributed to different positions within the life-cycle, but one might want to ask the question what really is the effect, whose impact on the probability of moving the schooling variable measures? The trivial explanation is, in line with the simple theoretical model, that schooling measures human capital alone. The results however hint towards the possibility that there is some uncontrolled heterogeneity present to which schooling serves as a proxy, confounding the effect of human capital to something else. The most important uncontrolled effects are possibly the following.[84]

Schooling is merely a proxy to wealth. The effect we see is actually driven by the fact that more affluent families are more likely to move simply because they can afford to finance a desired move. Moving house is also a risk, in which a great amount of money can be lost (see *Hegedűs* 2003 on this) – it is again possibly the wealthy that can bear such loss more than others.

Schooling is a proxy to "experience in moving". Moving house requires certain skills in organisation, and migration also requires a great degree of adaptability. Those who lack such experience might also be hindered by a kind of perceived uncertainty. Those with more schooling however are relatively likely to have already moved, as education, especially higher education is usually only available in larger towns. If the movement of boarders near a school or back home is a major cause of migration, and the respective population is not isolated, schooling can be found to be a very strong predictor of migration.

Schooling is a proxy for organisational skills. The situation described above can arise even if the skills for organisation are not obtained through a move, but are acquired through schooling itself. It is well known that schooling does not only transmit specific knowledge, but generic skills as

83 In the meantime, I run a new macro-data based research, using county-to-county migration data (*Cseres-Gergely* 2005). As opposed to previous results which were based solely on migration outflows from micro-regions, a gravity model estimated does show an effect of both wages and employment rate on migration and mobility.

84 Let us sidestep the possibility of agglomeration effects here. Such an effect is present if similar people tend to move to the same place, possibly because there is abundant supply of an amenity. Although we have only limited knowledge about such tendencies in the case of Hungary, recent suburban developments make them likely. *Hermann* (2002) shows that the availability of primary schooling in villages does not count as a substantial pull force for migration. *Dövényi – Kok – Kovács* (1998) points out that those moving to suburban belts around greater towns, primarily those around Budapest, have not yet developed their local infrastructure, or shaped the one present to their own needs.

well. Because of this link, schooling can have a positive effect on the propensity to migrate.

Schooling is a proxy to special human capital. The more schooling one has, the more specialised one's knowledge is, which can not be sold anywhere easily. Because people in Hungary are usually not mobile, and the distribution of ability is probably uniform in space, migration of those with more schooling can be explained by a process matching specific skills and the demand for them.

Schooling is a proxy to general human capital. Demand for educated labour has been high for more than a decade now, and such labour easier to put into use on better working labour markets. Because of this, educated workers in depressed regions can obtain jobs in better labour markets more easily, hence are more likely to move.

Finding out which of the above is the actual driving force behind the strong relation of migration and schooling is not an easy task. Firstly, one has to have a large number of observations to tell apart the behaviour of movers with different ages, family background, or coming from different places (labour markets). Secondly, personal characteristics are also needed to control for effects that are correlated with individual characteristics that might affect both the migration decision and correlated with the key explanatory variables in our model. Unfortunately, there is no such database available in Hungary. There do exist databases which however do not make it possible to look at individual mobility decisions, or are not accessible to the public. Unfortunately most individual-level survey data are not suitable for the analysis of mobility and migration either.[85]

In what follows, I shall illustrate the problems raised by the confounding nature of the schooling variable through a simple estimation using the *2003 Survey of Living Conditions* conducted by the *HCSO*.[86] This data source has the advantage that even if we can not follow individuals over time, we have at least partial information on what happened to them: for every person who moved after 1996, we know when and from where they moved into their present apartment, and also from which settlement they moved. Individual characteristics are known but unfortunately only at the moment of collecting the survey data, in 2003. These include education, and age of the respondent, characteristics of their job (including the "*FEOR*" job identifier), and there is also information on family income. Those who did not want to give an outright answer to the latter questions were presented with intervals to choose from – in such cases I used the interval midpoints and inserted them into the continuous variable.

Because data were not collected at the end of the year and the number of observations is not large, I used *spells*, rather than individuals as a unit of observation, pooling data from 2002 and 2003.[87] Because of this, if a

85 Macro-level data include the "TSTAR" database of the HCSO and the IE, HAS. Individual data are collected by the Home Office, but not disclosed to the public. The 1996 Microcensus of the HCSO and the 1999 and 2003 survey of living conditions are examples of data that could in principle be used to study migration. These contain retrospective information on the last move of a person, but are not of true longitudinal nature. Being able to follow a person over time is nevertheless crucial, since one has to control for important transitions in life, such as going to school and marriage.

86 I am greatful to *József Hegedűs*, who pointed out this survey and made it accessible to me.

87 Those who are worried because of the independence of these two parts of the sample are right in principle, but actually such dependence is taken care of in the estimation. It is important however that the estimates would be consistent even without this measure.

change of residence occurred between 2002 and 2001, the value of the "migrant" indicator variable is 1, and it is 0 if there was no such change. The same rule applies to those observed in 2003, independently of their previous migrant status. I consider two types of moves: every mover including those within settlements (versus non-moves) and longer distance movers including those within counties, but between settlements and "longer" distance movers (versus shorter distance movers and all non-moves).[88] Because there is no real temporal information available, explanatory variables are the same in both cases: schooling, age, income per household member. Auxiliary explanatory variables include: occupational code of the household-head and identifier of the micro-region.

The decision to move is modelled with a logit model, in which the outcome is the "migrant" indicator, whereas schooling, age, age squared, and household income per head are explanatory variables. Properties of the previous settlements are taken into account as fixed effects: this way I treat data as a panel of micro-regions and spells as their individual realisations.

Estimation results concerning the working age population are shown in *Table 5.1*: the top part of the table shows effects on the probability of a move using the broader, the bottom using the narrower definition of mobility, with results from different specifications in the columns. The first column replicates already known results in the case of both forms of migration (every mover and migrants across micro-regions): the propensity to move diminishes with age and increases with higher education.[89] Based only on this evidence, we can not tell apart the possible hypotheses concerning the role of schooling in determining migration.

Focusing on hypothesis 1, we might want to separate the effect of income by including a direct measure for it. Entering per capita income as a regressor, results change quite remarkably. In the model considering both short and long range moves, income clearly captures the effect formerly attributed to schooling: the parameter on higher education shrinks to a fourth of its previous value and becomes insignificant. Such an effect is absent in the case of long-range moves: the parameter value of higher education increases a little bit, but that of income is not significant. It seems therefore that in the case of short range moves, schooling acts merely as a proxy for income (hypothesis 1), while over longer ranges, it seems that it is really more educated people who move (hypothesis 2–5).

The above results were obtained using working age, 16–65 year old population. This raises the question, whether or not the large number of students in secondary and higher education – many of them moving to dormitories for their period of study – changes the results in a way suggested by hypothesis 2. To look at this effect, I restricted the sample to persons over the age of 24. While significant parameters of the first estimate did

88 Actually I experimented with two other definitions, long-distance movers between micro-regions but within regions (versus shorter distance movers and non-movers) and movers between counties (versus shorter distance movers and non-movers). These however yield results that are direct extrapolation of the first two models and hence were omitted.

89 Schooling was measured on a finer scale in a previous version, but I omitted insignificant indicators in due course.

not change considerably, schooling becomes insignificant in the second model. If we do not believe that moving over long-distances is a peculiarity of young age,[90] then this evidence points towards the conclusion that schooling influences migration mainly through the spatial structure of the schooling system.

Table 5.1: A simple model of migration probability – fixed effect logit estimates

	Coefficients		
	Aged 15–64	Aged 15–64	Aged 25–64
All moves			
Higher education	0.251[a]	0.099	0.028
Age	–0.258[b]	–0.230[b]	–0.269[b]
Age squared	0.002[b]	0.002[b]	0.002[b]
Income per household member		0.003[b]	0.003[b]
N	11,740	11,157	10,247
Number of micro-regions	108	108	101
Log-likelihood	–1872	–1771	–1479
Moves between small regions			
Higher education			
Age	0.690[a]	0.824[b]	0.431
Age squared	–0.477[b]	–0.476[b]	–0.604[b]
Income per household member	0.005[b]	0.005[b]	0.006[b]
N	–0.000	0.001	
Number of micro-regions	7,665	7,094	5,467
Log-likelihood	47	45	34
–317	–291	–213	

[a] Significant at 5 per cent; [b] significant at 1 per cent.

Source: Spell database generated from the cross section of the 2003 Living conditions survey, HCSO

Although parameters of the variables of interest vary over a somewhat wide range depending on the parameter chosen, the effect of age seems to be insensitive to such changes. This confirms previous results which stress that even though labour-market related motivations do have their effect on migration in Hungary, other forces seem to dominate them. Whether these are of demographic or some other nature is impossible to tell confidently on the basis of the data at hand. Answering this question would require panel data that documents demographic, education and labour market related events on the individual level. Once such data become available, one might ask the question again: do economic considerations, income and schooling in particular, have an effect on the migration decision: But one has to wait most probably until then.

90 Although in Hungary this is not completely impossible.

5.2 Effect of Education on Migration Decisions

ÁGNES HÁRS

According to the neo-classical theory potential migrants make their decisions on the basis of the profit which they hope to obtain in a certain period of time and they also take into consideration the costs measurable in cash and other (cultural, social, etc.) commodities. In this model migration probably concerns those people who may expect the biggest potential gain or who may suffer the smallest potential loss during migration.

Return of human capital in migration decisions

The probability of migration grows with greater human capital – higher level of education, qualification – if it may be presumed that the receiving labour market – similarly to the home market – pays more to the qualified labour or if the probability of employment is higher in the receiving country (*Massey et al* 1993). It is frequently suggested that the labour market situation of foreigners is more disadvantageous than that of domestic labour, their unemployment rate is higher and there is a wage discrimination against them so their incomes are substantially lower (e.g. *OECD* 2003). However, this discrimination is not justifiable if their unemployment rate and wages are compared to the domestic labour force of similar composition. In a simple comparison the analyses are frequently devoid of aspects (e.g. knowledge of language, acclimatisation, etc.) which can explain the differences. The acclimatisation of foreigners needs a relatively long period (10–15 years) and by the time they assimilate into the receiving country their wages and unemployment rate are less different and the return of human capital can be more easily proven (*Borjas* 1994; *Constant – Massey* 2002).

The expected wage gain of migrants is not explicit in the receiving labour market and those who seek jobs abroad return to their home country. Returning is not accidental because contradiction effects of selection can be observed. On the one hand, those return who could gain the least through their emigration decisions, i.e. the less qualified (*Borjas – Bernt* 1996), on the other hand, the higher qualification and the access to the social and information networks enhance returning home (*Bauer – Gang* 1998). According to *Stark* (1991) in the first period the receiving environment pays for the *supposed* performance of the foreign group so the wage expectations of the educated and highly qualified are less realised than those of their fellows with lower qualifications. The income expectations of more qualified foreigners are less paid by the receiving labour market so return migration of the more qualified is considerable and this fact results in lower qualification of foreigners participating in the receiving labour market.

Discrimination against foreigners can be observed in the access to the individual jobs: their chances to obtain certain jobs are less than those of domestic labour. Often they enter a segmented labour market where they accept unqualified, temporary jobs with bad working conditions, without any hope of advancement in the secondary market of the receiving country, and their aim is to receive the highest possible income in the shortest possible time (*Piore* 1979). The traditional guest-worker type of the 60s and 70s can essentially be described in this manner. Until the middle of the 70s immigration was determined by the mass recruitment of partly temporary labour, in the 70s and 80s the control of migration and the settlement of the already emigrated population were characteristic, and by the late 90s the recruitment of different well defined migrant groups took place.

Factors influencing the labour migration of Hungarians

In the section below we are going to examine what kind of selection mechanisms are present in the migration decisions in Hungary and, primarily, to what extent education influences the migration decision.

In the course of the Labour Force Survey (LFS) of the Hungarian Central Statistical Office (CSO) in the first quarter of 2003 the respondents were also asked about their *migration ideas*, and close to 6 per cent of 15–49 years old have already been considering the possibility of working abroad. One half of this group has also taken steps (collected information about the possibilities, at least) but at the time of questioning only one in ten has had the actual possibility of obtaining a job.

Up to university graduation, the higher the level of education the more frequent is the inclination to work abroad. Taking all migration plans, in the case of those with vocational training school graduation, compared to the share of those who consider the possibility the ratio of those is higher who have serious intentions to work abroad, that is, they have already collected information about the potential jobs. The ratio is also somewhat higher in the group of university educated people. In the case of those, however, who attended only elementary or secondary school there is only the phrasing of the possibility and their ideas are uncertain, their ratio is lower the seriousness of their plans is questioned (*Table 5.2*). Examining by gender the ideas strongly depend on the level of education. In the case of both sexes it is unambiguous that those of low qualification have less plans for migration. The return of higher qualification (secondary school, university) abroad is expected to a certain extent more by women, than by men, in the case of men, however, the expectations of those who attended vocational training school are the highest – similarly to a U-curve – and the ratio of this group significantly exceed the number of those who refuse the possibility of migration.

Table 5.2: 15–49 years old population and education of those who consider migration (per cent)

Education	Do not plan	Plan	Collected information	Together
Men				
Less than lower secondary	2.0	0.6	0.7	1.9
Lower secondary	24.5	15.6	11.6	23.7
Vocational training school	39.3	42.3	48.5	39.6
Upper secondary school	23.5	30.8	28.1	24.1
Higher	10.7	10.7	11.1	10.7
Total	100.0	100.0	100.0	100.0
N (pers.)	2,272,909	191,841	99,062	2,464,750
Women				
Less than lower secondary	1.9	0.7	0.4	1.9
Lower secondary	26.3	18.1	12.6	26.0
Vocational training school	23.9	21.5	23.8	23.8
Upper Secondary school	33.9	43.8	42.8	34.3
Higher	14.0	15.9	20.4	14.0
Total	100.0	100.0	100.0	100.0
N (pers.)	2 ,397,376	94,663	48,614	2,492,039
Together				
Lower than lower secondary	2.0	0.6	0.6	1.9
Lower secondary	25.4	16.4	12.0	24.9
Vocational training school	31.4	35.4	40.4	31.6
Upper secondary school	28.8	35.1	32.9	29.2
Higher education	12.4	12.5	14.1	12.4
Total	100.0	100.0	100.0	100.0
N (pers.)	4,670,286	286,503	147,679	4,956,789

Source: CSO Labour Force Survey 2003, 1. quarter.

In order to examine the role of the factors which influence the human capital in migration decisions we set up models in which we explained the decision of foreign job-seeking by looking at the respondent's age, sex and education, both for the possibility if the migration intention is only verbally expressed and for the possibility if the person in question has already taken some positive steps to become more familiar with the possibilities of employment (*see Table 5.3*). The estimation confines itself to the age-group 15–49 years old.

The role of age decreases the formulation of the migration decision by a small extent but the case that the potential migrant is female to a much greater extent. In the case of education we see that – considering the elementary school as the base category of comparison – the education lower than 8 classes decreases the probability of the migration decision to a very large extent, education at vocational school level and secondary school with vocational qualification increases it to a similar extent, the secondary school increases it a little more than that, and university graduation

increases the probability of the migration decision similarly to the education of secondary school.

Table 5.3: Effect of education, age and gender on the probability of migration decisions

Variable	Considered migration Coefficient	Have more serious migration intention Coefficient
Age	-0.064	-0.057
Woman	-0.765	-0.716
Education		
Less than lower secondary	-0.679	-0.446
Vocational training school	0.983	1.363
Upper secondary school + vocational qualification	0.936	1.183
Upper secondary school	1.058	1.172
Higher education	1.074	1.436
Constant	-1.330	-2.520

All evaluated parameters are significant at 1 % level.
Base category: lower secondary education.

The possibility of migration can be considered to be more serious if the person in question has already had a look around and collected information about the prospects. Examining the more serious intentions we see that the decreasing role of age is somewhat lesser which refers to the fact that the conceptions of the younger ones may be more uncertain. Considering the more serious decision intentions the women, however, also seek foreign jobs with less of a probability than men. The role of education in migration plans referring to more serious migration decisions is somewhat different: in comparison to those who attended only elementary school in every higher educational group the probability of the migration decision increases, and in comparison to those with secondary school graduation the probability of formulating a more serious intention is greater in the case of those with secondary school graduation with a vocational qualification.

All in all, we can see (*Table 5.4*) that in the decisions determining foreign job-seeking higher education unambiguously increases the probability of the migration decisions, age decreases it, and females want to seek jobs abroad to a lesser extent. In formulating the more serious intentions, however, the role of secondary level education (secondary school or secondary school with vocational graduation) is essentially bigger.

Migration decisions are not independent of the expected job abroad, demand of the receiving labour market determines the migration of a labour force and the receiving countries usually control their labour market, they motivate the desirable labour force with strict selection and bilateral contracts, and limit the inflow of non-desirable ones. For that reason we have

examined to what extent the actual professions influence the migration plans, and whether certain professions substantially increase the probability of foreign job-seeking. For the answer we have used the one-digit occupational groups of FEOR categories as variables.

Table 5.4: Effect of actual profession, education, age and sex on the probability of migration decision

Variable	Considered migration coefficient	Have more serious migration intention coefficient
Age	-0.068	-0.062
Woman	-0.718	-0.646
Education		
Lower secondary	-0.656	-0.381
Vocational training school	0.856	1.098
Upper secondary school + vocational qualification	0.953	1.094
Upper secondary school	1.128	1.211
Higher education	1.218	1.453
FEOR categories		
Managers	-0.177	0.058
Independent professionals with higher education	0.025[a] (0.025)	0.251
Non-independent professionals with higher/secondary education	0.007 (0.391)	0.155
Office clerks	0.028	0.117
Employed in services	0.176	0.465
Employed in industry/construction industry	0.422	0.713
Machine operators. assembly workers. drivers	0.312	0.407
Unskilled workers	0.506	0.516
Constant	-1.369	-2.579

Base category: lower secondary school. agricultural skilled worker
[a] Significant at 5 % level. All the other evaluated coefficients are significant at 1 % level.

Results show that the probability of migration is largely decreased by age, female status, low education (8 classes or less) and high labour market status (working as a manager in public administration or the competitive sector). In comparison to the agricultural profession every other profession increases the possibility of migration (with the exception of managers). The probability of migration is much stronger if the person in question is a manual worker in the industry or construction industry, or assembly worker, machine operator or driver. In addition, it is very strong in the case of the migration decisions of unskilled workers.

According to our earlier considerations if we take into account whether the migration intention is more serious (did the person in question take steps to get to know the possibilities of work) the role of the factors influencing the decision is different. The role of age and sex is fundamentally

unchanged but the explanatory power of vocational training becomes more important in the decision. As compared to formulating the possibility of migration, among the actual occupations there are the professions in industry/ the construction industry, machine operation and services which have an important role in the decisions, and similarly unskilled status has a substantial explanatory effect.

So in the conceptions referring to migration we may well identify, on the one hand, the expectations concerning the anticipated return of the education or, on the other hand, the driving effect of limited sectors which offer potential jobs for foreigners. The potential migrants have experience and knowledge concerning it. Earlier experience of jobs abroad has been gained by more than one quarter of skilled workers who formulate migration plans, one fifth of those who attended secondary school and are skilled, close to one third of those who have graduated from university, but only 7 per cent of those with secondary school graduation and barely 10 per cent of those who have primary education (in the case of more serious conceptions every ratio is higher by 3–5 per cent).

In our study we examined the factors determining the migration *concepts*; because of lack of data our analysis cannot say anything about the motivating factors of *real* migration decisions and the anticipated (expected) return of education in the migration decisions.

6. ANNEX

A.1 Tables

Table A1.1: Detailed OLS results. Dependent variable: logarithmic earnings. Education entered years completed

	1989	1992	1995	1999	2002
Female	–0.21423	–0.137898	–0.114109	–0.118123	–0.101109
Experience	0.02729	0.024385	0.020623	0.020405	0.014123
Experience^2	–0.00039	–0.000326	–0.000241	–0.000268	–0.000171
Education	0.06504	0.080326	0.086729	0.108630	0.113805
2-digit industry dummies	Yes	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes	Yes
City-town-village dummies	Yes	Yes	Yes	Yes	Yes
Constant	8.22843	7.614628	7.642688	9.130891	9.913645
Observations	145198	131745	153112	164706	137713
R^2	0.43	0.44	0.41	0.42	0.42

All variables are significant at 0.01.
Standard error estimates are robust to heteroskedasticity and firm-level clustering.
Own regression estimates based on NLC Wage Surveys, employees between 16 and 65 years of age.
Left-hand side variable: log of deflated after-tax earnings. Right-hand side variables: female dummy; potential labour market experience (difference of age and modal age at highest completed education) and its square; education (computed years completed: 8 if 8 grades or less; 11 if vocational school, 12 if secondary school with a baccalaureate, 16 if college or more). All regressions contain 2-digit industry dummies, 7 region dummies, and 4 city-size dummies (Budapest, other city, small town, and village).

Table A.1.2: Detailed OLS results. Dependent variable: logarithmic earnings. Education entered in three categories (reference: 8 grades or less)

	1989	1992	1995	1999	2002
Female	–0.221833	–0.15396	–0.13249	–0.14249	–0.12743
Experience	0.027930	0.02491	0.02059	0.02162	0.01687
Experience^2	–0.000427	–0.00036	–0.00026	–0.00031	–0.00025
Vocational sch.	0.117344	0.12931	0.10610	0.12195	0.09701
Secondary sch.	0.237784	0.30011	0.29741	0.35363	0.31321
College	0.571678	0.66290	0.69716	0.87188	0.91789
2-digit industry dummies	Yes	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes	Yes
City-town-village dummies	Yes	Yes	Yes	Yes	Yes
Constant	8.770922	8.30731	8.40765	10.10147	10.95878
Observations	145198	131745	153112	164706	137713
R^2	0.44	0.45	0.43	0.45	0.44

All variables are significant at 0.01.
Standard error estimates are robust to heteroskedasticity and firm-level clustering.

Own regression estimates based on NLC Wage Surveys, employees between 16 and 65 years of age.
Left-hand side variable: log of deflated after-tax earnings. Right-hand side variables: female dummy; potential labor market experience (difference of age and modal age at highest completed education) and its square; categories of highest completed education level (reference: 8 grades of primary school or less). All regressions contain 2-digit industry dummies, 7 region dummies, and 4 city-size dummies (Budapest, other city, small town, and village).

Decomposition

Table A1.3: Employment rate and educational attainment of men aged 25–64 in Hungary and in the EU (15), 2001

Educational attainment	Emplyment rate		Ratio in population	
	Average of EU (15) countries	Hungary	Average of EU (15) coutries	Hungrary
Less than upper secondary education	0.71	0.57	0.38	0.63
Upper secondary education*	0.82	0.75	0.39	0.22
At least college	0.88	0.84	0.23	0.15
Total (unweighted)	0.79	0.65	1.000	1.000

Unweighted difference: 0.14.
* For Hungary Classification2 is used: upper secondary education includes gymnasiums and vocational secondary schools.
Sources: Employment rate of EU countries: OECD Employment Outlook 2003. Statistical Annex Table D., Educational attainment of the population: OECD Education at a Glance. OECD 2003.
Hungarian data are estimations based on data of 2001 Census.

Let denote employment rate by F, employment rate of those whose educational attainment is i by f^i, and ratio of population whose highest educational attainment is i by s^i. Let use EU és M indexes for the average of the EU countries and Hungary respectively. We can decompose the difference in two ways:

$$F_{EU} - F_M = \sum_i f^i_M (s^i_{EU} - s^i_M) + \sum_i s^i_{EU} (f^i_{EU} - f^i_M)$$
$$= \sum_i f^i_{EU} (s^i_{EU} - s^i_M) + \sum_i s^i_M (f^i_{EU} - f^i_M) .$$

In the first case – see the first line of the equation – using the Hungarian employment rates of educational categories and the EU ditribution of the population by educational categories for weighting. In the second case – see the second line of equation – using the EU employment rates of educational categories and the Hungarian distribution of the population by educational categories for weighting.

A.2

The earnings function we have used:

$$W = \alpha_0+\alpha_1 R+\alpha_2 0+\alpha_3 U+\alpha_4 E+\alpha_5 E^2+\alpha_6 R\times E+\alpha_7 O\times E+\alpha_8 U\times E+\alpha_9 SEX\,,$$

where W is the natural logarithm of the monthly (before tax) wage, E stands for (potential) labour market experience, inserting variable SEX (male = 1, female = 0) is intended to control for potential disadvantage of women.

Interaction terms $R\times E,\ O\times E,\ U\times E$ are inserted to see whether the impact of under- or over-education on wage is independent of labour market experience or not. From our point of view the following partial derivatives are relevant:

$$\frac{\partial W}{\partial R} = \alpha_1 + \alpha_6 E\,,$$

$$\frac{\partial W}{\partial O} = \alpha_2 + \alpha_7 E\,,$$

$$\frac{\partial W}{\partial U} = \alpha_3 + \alpha_8 E\,,$$

We will focus on α_1,α_2, α_3.

The wage regressions were run on nine annual samples of Employment Office's wage survey for the period 1994 to 2002. They were estimated by ols with robust standard errors that might produce biased coefficients due to endogeneity, simultaneity or selectivity bias. Detailed estimation results are found in *Galasi* (2004b).

REFERENCES

Andor M. – Liskó I. (2000) Iskolaválasztás és mobilitás. [School choice and mobility.] *Iskolakultúra,* No. 2.

Ariga, K. – Brunello, G. (2002) Do the more educated receive more training? Evidence from Thailand. *IZA Discussion Paper,* No. 566.

Bauer, T. – Gang, I. (1998) Temporary Migrants from Egypt: How Long Do They Stay Abroad ?. *IZA Discussion Paper Series,* No. 3.

Bauer, T. – Zimmermann, K. F. (2000) Immigration Policy in Integrated National Economies. *IZA Discussion Paper* No. 170.

Becker, G. – N. Tomes (1986) Human capital and the rise and fall of families. *Journal of Labour Economics*, No. 4. S1–39.

Becker, G. S. (1962) Investment in human capital: A theoretical analysis. *Journal of Political Economy*, 70(10).

Becker, G. S. (1975) *Human Capital*. Chicago, University of Chicago Press.

Bedi, A. – Gaston, N. (1999) Using variation in schooling availability to estimate educational returns for Honduras. *Economics of Education Review,* No. 18.

Belzil, C. – Hansen, J. (2002) Unobserved ability and the return to schooling. *Econometrica*, (70):2075–2091.

Betts, J. (1996) What Do Students Know about Wages? Evidence from a survey of under-graduates. *The Journal of Human Resources,* 31(1):27–57.

Borghans, L. – de Grip, A. (1999) Skills and low pay: upgrading or over-education? *ROA-Research Memorandum*, 5E.

Borjas, G (1995) The Economics of Immigration. *Journal of Economic Literature,* No. 4.

Borjas, G. (1999) Economic Research on the Determinants of Immigration: Lessons for the European Union. *World Bank Technical Papers,* 438.

Borjas, G. – Bernt, B. (1996) Who Leaves ?: The out-migration of the foreign-born. *Review of Economics and Statistics,* No. 1.

Bound J. – Solon, G. (1999) On the value of twins-based estimation of the return to schooling. *Economics of Education Review,* 18:169–182.

Böheim, R. – Taylor, M. (2000) *Residential mobility, housing tenure and the labour market in Britain*. Essex, Institute for Social and Economic Research, University of Essex. (Manuscript.)

Brainerd, E. (2000) Women in transition: Changes in gender wage differentials in Eastern Europe and the former Soviet Union. *Industrial and Labor Relations Review*, 54(1):138–162.

Brunello, G. – Miniaci, R. (1999) The economic returns to schooling for Italian men. An evaluation based on instrumental variables. *Labour Economics,* (6):509.

Brunello, G. – Lucifora, C. – Winter-Ebmer, R. (2001) The Wage Expectations of European College Students. *IZA Discussion Paper Series,* No. 299.

Bulmahn, G. – Kräkel, M. (2000) Overeducated workers as an insurance device. *Labour,* 16: 383–402.

Büchel, F. (2000) The effects of over-education on productivity in Germany – the firms' viewpoint. *IZA Discussion Paper,* No 216.

Büchel, F. – Mertens, A. (2000) Over-education, under-education and the theory of career mobility*, IZA Discussion Paper,* No 195.

Büchel, F. – Pollmann-Schult, M. (2001) Over-education and skill endowments. The role of school achievement and vocational training quality. *IZA Discussion Paper,* No. 337.

Card, D. (1998) The causal effect of schooling on earnings. In: Ashenfelter – Card (eds) *Handbook of labor economics.* Amsterdam, North-Holland.

Card, D. (2001) Estimating the Return to Schooling: Progress on Some Persistent Econometric Problems. *Econometrica,* 69.

Card, D. – Lemieux, T. (2000) Dropout and enrolment trends in the post-war period: what went wrong in the 1970s? *NBER Working Paper* No. 7658.

Chevalier, A. (2003) Measuring Over-education. *Economica,* (70):509–531.

Clark, K. – Summers, L. (1982) The dynamics of youth unemployment. In: Freeman, R. – Wise, D. (eds) *The Youth Labor Market Problem: Its Nature, Causes and Consequence.* Chicago, University of Chicago Press.

Cohn, E. – Khan, S. P. (1995) The wage effects of overschooling revisited. *Labour Economics,* l(2):67–76.

Cohn, E. – Ng, Y. C. (2000) Incidence and wage effects of over-schooling and under-schooling in Hong Kong. *Economics of Education Review,* (19):159–168.

Constant, A. – Massey, D. S. (2002) Self-Selection, Earnings, and Out-Migration: A Longitudinal Study of Immigrants to Germany. *IZA Discussion Paper Series,* No 672.

Cseres-Gergely Zs. (2004a) Theoretical background to the causes and effects of the regional mobility of the labour force. In: K. Fazekas – J. Koltay – Zs. Cseres-Gergely (eds.) *The Hungarian labour market: Review and analysis*. Budapest, Institute of Economics, HAS – Hungarian Employment Foundation.

Cseres-Gergely Zs. (2004b) The effect of economic incentives on regional mobility in the 1990s in Hungary. In: K. Fazekas – J. Koltay – Zs. Cseres-Gergely (eds.) *The Hungarian Labour Market: Review and Analysis.* Budapest, Institute of Economics, HAS Hungarian Employment Foundation.

Cseres-Gergely Zs. (2005) *Mobilitás, migráció és a munkaerőpiac Magyarországon az Európai Unióhoz való csatlazást megelőzően.* [Mobility, migration and the Hungarian labour market prior to the EU accession.] (Manuscript.)

Daly, M. C. – Büchel, F. – Duncan, G. J. (2000) Premiums and penalties for surplus and deficit education. Evidence from the United States and Germany. *Economics of Education Review,* 19:169–178.

Devine, T. J. – Kiefer, N. M. (1991) *Empirical labour economics: The search approach*. New York-Oxford, Oxford University Press.

Dolton, P. – Vignoles, A. (2000) The incidence and effects of over-education in the U.K. graduate labour market. *Economics of Education Review,* 19:179–198.

Dominitz, J. – Manski, C. F. (1996) Eliciting Student Expectations of the Returns to Schooling. *The Journal of Human Resources,* 31(1):1–26.

Dövényi, Z. – Hermann, Z. – Kovács, Z. (1998) A szuburbanizáció, a lokális társadalom és a helyi önkormányzati politika összefüggései a budapesti agglomerációban. [Connection between sub-urbanisation, the local society and local governments in the Budapest conurbation.] In: Illés, S. – Tóth, P. (eds) *Migráció.* [Migration.] Budapest, KSH NKI.

Fazekas K. (1997) *Válság és prosperitás a munkaerőpiacon.* [Crisis and Prosperity on the Labour Market.] *Tér és Társadalom*, 11(4).

Fernández, R. M. – E. Shioji (2001) Human capital investment in the presence of unemployment: application to university enrolment in Spain. *Oxford Department of Economics Discussion Paper,* No. 66.

Flinn, C. J. – Heckman, J. J. (1983) Are unemployment and being out of the labor force behaviorally distinct labor force states? *Journal of Labor Economics*, (1):28–42.

Freeman, R. (1971) Training Lags and the Cobweb Pattern in Engineering. In: Burton – Lee – Vaughn – Flanagan (eds) *Readings in Labor Market Analysis.* Chicago, Holt, Rinehart and Winston.

Freeman, R. (1976a) A Cobweb Model of the Supply and the Starting Salary of New Engineers. *Industrial and Labor Relations Review,* 29(2):236–248.

Freeman, R. (1976b) *The over-educated American*. New York, Academic Press.

Fuente, A. – Donenech, R. (2001) Human capital growth regressions: How much difference does data quality make? *CEPR Working Papers,* 2466.

Galasi, Péter (2003a) *Estimating wage equations for Hungarian higher-education graduates*. Budapest, MTA KTK-BKÁE. (Budapest Working Papers on the Labour Market [BWP] 2003/4.)

Galasi, Péter (2003b) *Job-training of Hungarian higher education graduates*. Budapest, MTA KTK-BKÁE. (BWP No. 5.)

Galasi, Péter (2003c) Labour market status of Hungarian higher-education graduates. GRC III. Final-report: http://www.cerge-ei.cz/pdf/gdn/RRCIII_103_paper_02.pdf.

Galasi, P. (2004a) *Valóban leértékelődtek a felsőfokú diplomák? A munkahelyi követelmények változása és a felsőfokú végzettségű munkavállalók reallokációja Magyarországon 1994–2002.* [Have higher education degrees really devalued? Changing of jobs' requirements and the reallocation of workers with a higher education diploma in Hungary 1994–2002.] Budapest, MTA KTK-BKÁE. (BWP No. 3.)

Galasi P. (2004b) *Túlképzés, alulképzés és bérhozam a magyar munkaerőpiacon 1994–2002.* [Over-education under-education and wage premium on the Hungarian labour market 1994–2002.] Budapest, MTA KTK-BKÁE. (BWP No. 4.)

Galasi P. – Varga J. (2002a) Does private and cost-priced higher education produce poor quality? Budapest, MTA KTK-BKÁE. (BWP No. 1.)

Galasi P. – Varga J. (2002b) Does private and cost-priced higher education produce poor quality? *Society and Economy*, 24(3):333–361.

Garcia, F. – Arkes, J. – Trost, R. (2002) Does employer-financed general training pay? Evidence from the US Navy. *Economics of Education Review,* 21:19–27.

Gianelli, G. – Monfardini, C. (2000) Joint decisions on Household Membership and Human Capital Accumulation of Youths – The role of expected earnings and local markets. *IZA Discussion Papers,* No. 191.

Gottschalk, P. – M. Hansen (2003) Is the Proportion of College Workers in Non-college Jobs Increasing? *Journal of Labor Economics*, 21:449–471.

Goux, D. – Maurin, E. (2000) Returns to firm-provided training: evidence from French worker-firm matched data. *Labour Economics*, 7:449–471.

Gönül, F. (1992) New evidence on whether unemployment and being out of the labor force are distinct states. *Journal of Human Resources*, 27:329–361.

Green, F. – S. McIntosh – A. Vignoles (1999) "Over-education" and Skills – Clarifying the Concepts. *Centre for Economic Performance Discussion Paper,* No. 435.

Groot, W. (1996) The incidence of, and returns to, over-education in the UK. *Applied Economics*, 28:1345–1350.

Groot, W. – Maassen van den Brink, H. (2000) Over-education in the labor market: a meta-analysis. *Economics of Education Review,* 19:149–158.

Hartog, J. (2000) Over-education and earnings: where are we, where should we go? *Economics of Education Review,* 19:131–147.

Hartog, J. – Webbink, D. (2000) Can students predict their starting salary? Yes! *Scholar Working Paper Series,* Universitait van Amsterdam Faculty of Economics and Econometrics, No. 10.

Hashimoto, M. (1981) Firm-specific Human Capital as a Shared Investment. *The American Economic Review,* 71(3):465–482.

Heckman, J. (1979) Sample Selection Bias as a Specification Error. *Econometrica*, 47:153–161.

Hegedűs, J. (2004) The housing market and residential regional mobility in the 1990s – the case of Hungary. In: K. Fazekas – J. Koltay – Zs. Cseres-Gergely (eds) *The Hungarian Labour Market: Review and Analysis.* Budapest, Institute of Economics, HAS – Hungarian Employment Foundation.

Hermann, Z. (2002) *A helyi iskola működésének hatása a migrációra a kistelepüléseken.* [The effect of local schools on migration in small villages.] Budapest, Institute of Economics HAS. (Discussion Papers, No. 12.)

Hermann Z. (2003) *Továbbtanulási döntés az általános iskola végén: a kulturális és a jövedelmi tényezők szerepe.* [Educational choice after lower secondary education: the effects of income and culture.] Budapest, Corvinus University. (Ph.D. Dissertation.)

Horváth, H. – P. Hudomiet – G. Kézdi (2004) *Munkaerőpiaci folyamatok.* [Labor market trends.] In: Szívós, P. – Tóth, I. Gy. (eds) *Stabilizálódó társadalomszerkezet.* [Stabilizing social structure.] Budapest, TÁRKI. (TÁRKI Monitor reports.)

Hunt, J. (2002) The transition in East Germany. When is a ten point fall in the gender wage gap bad news? *Journal of Labor Economics*, 20(1(1):148–169.

Kertesi, G. (1997) A gazdasági ösztönzők hatása a népesség földrajzi mobilitására 1990 és 1994 között. [The effect of economic incentives on regional mobility.] *Esély*, No. 2.

Kertesi, G. (2000) Ingázás a falusi Magyarországon (egy megoldatlan probléma). [Commuting in villages. An unresolved issue.] *Közgazdasági Szemle*, No. 10.

Kertesi, G. – Köllő, J. (1995) *Kereseti egyenlőtlenségek Magyarországon*. [Income inequality in Hungary.] Budapest, MTA KTI.

Kertesi, G. – Köllő, J. (1997) Reálbérek és kereseti egyenlőtlenségek, 1986–1996, (Real wages and income inequality,) *Közgazdasági Szemle*, No. 7–8.

Kertesi, G. – Köllő, J. (1999) *Economic Transformation and the Return to Human Capital*. Budapest, MTA KTK-BKÁE. (BWP No. 6.)

Kertesi, G. – Köllő, J. (2002) Economic Transformation and the Revaluation of Human Capital – Hungary 1986–1999. In: de Grip, A. – Van Loo,J. – Mayhew K. (eds) *The Economics of Skills Obsolescence, Research in Labor Economics JAI*, Oxford 21: 235–273.

Kézdi, G. (2002) Two Phases of Labor Market Transition in Hungary: Inter-Sectoral Reallocation and Skill-Biased Technological Change. Budapest, MTA-KTI-BKÁE. (BWP No. 3.)

Kézdi. G. – Köllő, J. (2000) Életkor szerinti kereseti különbségek a rendszerváltás előtt és után. [Age-earnings profiles before and after transition.] In: Király J. (et al) (eds) *Racionalitás és méltányosság: Tanulmányok Augusztinovics Máriának*. [Rationality and fairness: Studies for Maria Augusztinovics.] Budapest, Közgazdasági Szemle Alapítvány.

Kiker – Santos – Oliveira (1997) Over-education and under-education: evidence for Portugal. *Economics of Education Revi*ew, 16:111–125.

Killingsworth, M. R. (1983) *Labor Supply*. Cambridge, Cambridge University Press.

Kodde, D. A. (1988) Unemployment expectations and human capital formation. *European Economic Review,* 32(8):1645–1660.

Köllő, J. (1997) A napi ingázás feltételei és a helyi munkanélküliség Magyarországon: számítások és számpéldák. [Conditions of commuting and local unemployment in Hungary. Some numerical examples.] *Esély,* No. 2.

Köllő, J. (2002) Differences by Education and Age: The Revaluation of Human Capital. In: Fazekas, K. – Koltay, J. (eds) *The Hungarian Labour Market 2002*. Budapest, Institute of Economics, HAS – Hungarian Employment Foundation.

Kőrösi, G. (1998) *Labour Demand During Transition in Hungary.* Budapest, MTA-KTI-BKÁE. (BWP No. 5.)

Kőrösi, G. (2000) *A vállalatok munkaerő-kereslete.* [Firms' labour demand.] Budapest, MTA-KTI-BKÁE. (BWP No. 3.)

Kőrösi, G. (2002) *Labour Adjustment and Efficiency in Hungary*. Budapest, MTA-KTI-BKÁE. (BWP No. 4.)

Laki, L. – Szabó A. – Bauer B. (eds) (2001) *Ifjúság 2000. Gyorsjelentés.* [Youth 2000. A Report.] Budapest, Nemzeti Ifjúságkutató Intézet.

Lannert J. (2003) Középiskola-választás a kilencvenes évek végén. [Secondary school choice at the end of the 1990s.] In: Nagy M. (ed) *Mindenki középiskolája. Középfokú képzés az ezredforduló Magyarországán.* [Secondary education for all: Secondary school education at the end of the century in Hungary.] Budapest, Országos Közoktatási Intézet.

Lauer, C. (2000) Enrolments in higher education in West Germany: the impact of social background, labour market returns and educational funding. *ZEW Discussion Paper*, No. 59.

Levin, J. – Plug, E. J. S. (1999) Instrumenting education and the returns to schooling in the Netherlands. *Labour Economics,* 6:521–534.

Light, A. (2001) In-school work experience and the returns to schooling. *Journal of Labour Economics,* 19(1).

Lillard, L. A. – H. W. Tan (1992) Private sector training: who gets it and what are the effects? *Research in Labor Economics*, 13(1).

Lynch, L. M. (1992) Private-sector training and the earnings of young workers. *American Economic Review*, (82):299–312.

Maddala, G. S. (1983) *Limited-dependent and qualitative variables in econometrics*. Cambridge, Cambridge University Press.

Massey, D. S. – Arango, J. – Hugo, G. – Kouaouci, A. – Pellegrino, A. – Taylor, J. E. (1993) Theories of International Migration: A Review and Appraisal. *Population and Development Review*, No. 3.

Mendes de Oliveira, M. – Santos, M. C. – Kiker, B. F. (2000) The role of human capital and technological change in over-education. *Economics of Education Review,* (19):199–206.

Micklewright, J. – M. Pearson – S. Smith (1990) Unemployment and early school leaving, *Economic Journal*, 100(4):163–169.

Micklewright, J – Nagy, Gy. (1999) *The informational value of job search data and the dynamics of search behaviour: evidence from Hungary*. Budapest, MTA-KTI-BKÁE. (BWP No. 1.)

Mincer, J. (1974) *School, Experience and Earnings*. New York, NBER.

Mroz, T. A. (1987) The Sensitivity of an Empirical Model of Married Women's Hours of Work to Economic and Statistical Assumptions, *Econometrica*, (55):765–799.

Neuwirth, G (2003) A középiskolai munka mutatói. [*Indicators of upper secondary schools*.] Budapest, Országos Közoktatási Intézet.

OECD (1999) *Classifying Educational Programmes.* (Manual for ISCED-97. Implementation in OECD countries.) Paris, OECD.

OECD (2000) *Literacy in the Information Age*. (Final Report of the International Adult Literacy Survey.) Paris, OECD.

OECD (2001) The Employment of Foreigners: Outlook and Issues in OECD Countries. In: *OECD Employment Outlook. Chp. 5.* Paris, OECD.

OECD (2003a) *Employment Outlook*. Paris, OECD.

OECD (2003b) *Education at a Glance*. Paris, OECD.

OECD (2003c) *Trends in International Migration*. Paris, OECD.

Oppenheimer, V. K. – Matthijs, K. (1995) Life-Cycle Jobs. *Research in Social Stratification and Mobility,* (14):1–38.

Parsons, D. O. (1990) The firms' decisions to train. *Research in Labor Economics,* (11):53–75.

Piore, M. (1979) *Birds of Passage: Migrant labour and industrial societies*. Cambridge.

Pissaride, C. A. – McMaster, I. (1990) Regional migration, wages and unemployment: Empirical evidence and implications for policy. *Oxford Economic papers*, (42):812–831.

Rice, P. (1999) The impact of local labour markets on investment in further education: evidence from the England and Wales youth cohort studies. *Journal of Population Economics*, 12(2):287–475.

Róbert, P. (2002) *Changes over time in transition from school to work in Hungary: The effect of system transformation and globalization*. Paper presented at the meeting of the ISA RC28 Social Stratification, Integrating Theory and Research, April 10–13, 2002, Oxford.

Róbert, P. (2003) *Átmenet az iskolából a munkaerőpiacra 1960 és 2000 között.* [Transition from school to work between 1960 and 1980.] Budapest, Hungarian Central Statistical Office.

Róbert, P. – Bukodi, E. (2002) The Effects of Globalization Process on the Transition to Adulthood in Hungary. Bamberg, *GLOBALIFE – Life Courses in the Globalization Process, Working Paper* (27).

Róbert, P. – Bukodi, E. (2004) The Effects of Globalization Process on the Transition to Adulthood in Hungary. In: Blossfeld – Klizjing – Mills – Kurz (eds) *Globalization, Uncertainty and Youth in Society*. Oxford, Oxford University Press, pp, 177–214.

Rubb, S. (2003a) Post-College Schooling, Over-education, and Hourly Earnings in the United States. *Education Economics*, (11):53–72.

Rubb, S. (2003b) Over-education in the labor market: a comment and re-analysis of a meta-analysis. *Economics of Education Review*, (22):621–629.

Rubb, S. (2003c) Over-education: a short or long run phenomenon for individuals. *Economics of Education Review*, (22):389–394.

Siow, A. (1984) Occupational Choice under Uncertainty. *Econometrica,* 52(3).

Sloane, P. J. – Battu, H. – Seaman, P. T. (1999) Over-education, under-education and the British labour market. *Applied Economics*, (31):1437–1453.

Smith, H. L. – Powell, B. (1990) Great Expectations: Variations in Income Expectations among College Seniors. *Sociology of Education*, (63):194–207.

Stark, O. (1991) International Migration under Asymmetric Information. In: Stark, O. (ed) *The Migration of Work.* Cambridge, Basil Blackwell.

Stevens, M. (1994) A theoretical model of on-the-job training with imperfect competition. *Oxford Economic Papers,* (46):537–562.

Tano, D. K. (1991) Are unemployment and out of the labor force behaviourally distinct labor force states? *Economics of Education Review,* (19):219–227.

Trostel P. – Walker, P. I. – Woolley, P. (2002) Estimates of the economic return to schooling for 28 countries. *Labour Economics*, (9):1–16.

Vahey, S. P. (2000) The great Canadian training robbery: evidence on the returns to educational mismatch, *Economics of Education Review,* 19:219–227.

van der Velden, R. K. W. – van Smoorenburg, M. S. M. (1997) The Measurement of Over-education and Under-education: Self-Report vs. Job-Analyst Method. *ROA-Research Memorandum* – 2E.

Van Smoorenburg, M. S. M – Van der Velden, R. K. W. (2000) The training of school-leavers: Complementary or substitution? *Economics of Education Review,* (19):207–217.

Varga, J. (2001) *Earnings Expectations and Higher Education Enrolment Decisions in Hungary*. Budapest, MTA-KTI-BKÁE. (BWP No. 10.)

Willis, R. J. (1986) Wage determinants: a survey and reinterpretation of human capital earnings functions. In: Ashenfelter – Layard (eds) *Handbook of labor economics*. Amsterdam, North-Holland.

Willis, R. – Rosen, S. (1979) Education and self-selection. *Journal of Political Economy, Supplement,* 87(S7).

Wooldridge, J. M. (2002) *Econometric analysis of cross section and panel data.* Cambridge, The MIT Press.

Wossmann, L. (2001) *Specifying human capital: A review and some extensions*. Kiel, Institute of World Economics.

Zarkin, G. A. (1983) Cobweb Versus Rational Expectations Models: Lessons from the Market for Public School Teachers. *Economic Letters,* (13):87–95.

CHANGES IN THE LEGAL AND INSTITUTIONAL ENVIRONMENT OF THE LABOUR MARKET

MÁRIA FREY

INTRODUCTION

The main objectives of the employment policy of the Hungarian Government are raising the employment rate and addressing inactivity. To attain these goals concerted and coordinated government actions are needed that tackle both social and economic objectives: fighting unemployment, insecurity and social exclusion, strengthening human dignity and promoting a better use of available human capital and thus increasing performance. Improving the employment situation assumes increasing labour demand and a growing supply, and that expanding businesses find employees with the knowledge and skills they need. To this end, employees and job-seekers should have the opportunity to acquire the knowledge and skills that they need on the labour market (*Ministry of Employment and Labour* 2004a).

In the light of the above, the Ministry of Employment and Labour (MoEL) set its own objectives as follows:

– Promoting the creation of new jobs and employment opportunities, enhancing foreign direct investment, a gradual reduction of labour costs, strengthening the employment capacity of small and medium-sized enterprises, creating a stable financial and legal environment to enhance the security of smaller employers.

– Reducing the costs of employing disadvantaged people and low-wage earners by cutting employers' contributions: new forms of employment subsidies to non-standard forms of employment (i.e. part-time work, telework, etc.) are introduced to promote the employment of people at a disadvantage on the labour market, with special attention to those combining family and working life.

– Promoting adaptability to changes on the labour market so that both workers and firms can respond in a flexible manner to economic challenges (this involves the subsidies, services and programmes of the Public Employment Service, a comprehensive review and amendment of the legal framework, most importantly the Labour Code and the Act on Promoting Employment and Support for the Unemployed).

– Promoting human resources development to ensure quality labour supply for the knowledge-based economy, an on-going adaptation to economic, social and technological changes. This includes the continuous development of human capital, lifelong learning, and the improvement of the labour market information system, as well as planning and forecasting.

– Improving availability and access to training, services and employment subsidy schemes for people excluded or at a risk of exclusion from the labour market, improving the efficiency of labour market measures.

1. SUPPORT FOR JOB CREATION AND JOB MAINTENANCE

As of 2004 new tax incentives have been available for business development and investment, which also contribute to raising the employment level. Eligibility criteria for the tax relief for business development and investments were reduced from 10 billion HUF to 3 billion (in disadvantaged regions from 3 to 1 billion). The same tax relief applies for job creation regardless of the amount of investment if at least 300 new jobs are created (150 jobs in disadvantaged regions) and at least 20 per cent of the new employees are career starters.

The Ministry of Employment and Labour also takes part in directly generating employment. In February 2004, with funding from the central budget of the Employment Sub-fund of the Labour Market Fund, the Ministry published a call for proposals to support job creation investments. The non-refundable subsidy supported investment in infrastructure, purchase of machinery, equipment, technology, and the acquisition of real estate. The amount of the investment subsidy for a new job was 0.8 million HUF, 1 million HUF if the vacancy was filled by an unemployed person, and 1.2 million HUF in disadvantaged regions if an unemployed person was hired for the job. The basic amount of subsidy was 80 million HUF, for investments in disadvantaged regions or regions undergoing economic restructuring, the maximum amount was 160 million HUF. In the case where more than 300 jobs were created these amounts were increased by 10 million HUF.

According to article 18, section (4) c of 6/1996 (VII. 16.) Ministry of Labour decree on job creation subsidies, one of the eligibility conditions for the subsidy is that the beneficiary accepts the proviso to maintain the jobs created with the subsidy together with the jobs registered the month prior to the application on a continious basis, for a minimum of 3 years.

The 31/2004 (XII. 21) MoEL decree restricted the eligibility for the job creation subsidy: those employers who have been found guilty of breaching the provisions of the regulation on labour inspection regarding the establishment, termination and cancellation of employment contracts and have been subject to a penalty of more than 100,000 HUF are excluded from the subsidy.

The decree also modified the obligations related to job maintenance. Rules already require that recipients of the support maintain the subsidized jobs for the duration of the subsidy and the following period of equal duration. This amendment introduces further restrictions by prescribing that

not only the subsidized jobs should be maintained during this period but all jobs, in the case of firms with more than one division, jobs in all divisions in the given county. This prevents the situation where employers lay off workers in other jobs or divisions for operational reasons during the disbursement of the subsidy.

2. PROMOTING THE SPREAD OF NON-STANDARD FORMS OF EMPLOYMENT

In the old Member States of the European Union nearly half of the employees work in non-standard forms of employment, including self-employment, part-time and fixed-term employment. This figure was approximately 40 per cent ten years ago. In Hungary, similarly to the other new Member States, these forms of employment are less widespread (around 25 per cent). The gap is widest in part-time employment that is explained on the supply side by the low earnings, and on the demand side by the relatively higher labour costs in comparison to full-time employment. For the time being fixed-term contracts that provide an opportunity to avoid severance payments are less prevalent, however this gap is closing rapidly. In most new Member States the share of agriculture in employment is significant which results in a relatively high proportion of private entrepreneurs. It is a generally observed trend that the share of private entrepreneurs (micro enterprises, self-employed) among those in employment is higher in less developed economies, and with the growth of GDP/capita it begins to decline in correlation with an increase in wage- and salary earners. There is a contrary process however: the replacement of employment contracts by lower-cost service contracts with self-employed (often hiding "real" employment) in certain professions and sectors; also a widespread practice in Hungary.

2.1 Tele-work

The most recent form of non-standard employment is tele-work. The characteristics of tele-work are that work is carried on outside of the firm's premises, using information technology and equipment (computers) and the employer and employee are in contact using IT. In 2002 in the EU15 10 million people, 13 per cent of those in employment worked in tele-work: half of these as employees and the other half as self-employed. Certainly the fact that on average 40 per cent of the EU15 population use the Internet plays a role in this. In Hungary however, according to the Labour Market Survey carried out by the Central Statistical Office (CSO) 24.5 thousand people or 0.6 per cent of those in employment did tele-work on a regular basis, and another 41.5 thousand or 1.1 per cent of those in employment occasionally.

This form of employment is still at an initial phase in Hungary, which is also indicated by the fact that Parliament adopted the legislation of tele-work on 26 April, 2004. This added among others a new chapter on tele-work to the Labour Code.[1] According to the new legislation a tele-worker can be defined as an employee who carries out activities that fall within the scope of the enterprise, outside the premises of the employer, using ICT tools for both producing and sending the output. The Act stipulates the issues to be covered in the employment contract for tele-work.

Moreover, the amendment of the act on personal income tax defines the deductible expenses for tele-work with a view to promoting its spread, additionally special provisions on tele-work are added to work safety regulations.

In the information society, an increasing share of jobs is based on information and communication technologies, which favours the spread of tele-work. Why is tele-work beneficial for employers? It is fast and economical to operate; allows cost-cutting (overhead costs); ensures better organisation, an optimal use of resources, and a wider pool of expertise; has the potential to improve competitiveness and quality of service by allowing a 24-hour (virtual) stand-by.

The Chamber of Commerce and Industry of Veszprém County converted four regular positions into tele-work jobs with a Government grant designed to promote tele-work in 2002. The programme led to the conclusion that if a job is carried out by tele-work it means a reduction of the annual operating cost by 553 thousand HUF/employee. To install a new standard job with the latest IT equipment costs approximately 580 thousand HUF, while a new tele-work job costs 850 thousand HUF. The extra costs for the latter include the cost of individual internet connection and internet-based phone calls, the installation of a virtual private network and higher printing costs in the absence of network printing options. However, transforming an existing job into a tele-work job costs only 270 thousand HUF, an investment that provides a return in 6 months (*Kiss* 2004a).

Based on the positive experiences, the Ministry of Employment and Labour launched a grant programme for complementary wage subsidies for firms creating new tele-work jobs and for public administrative bodies transforming regular jobs into tele-work jobs as part of the administrative reform process. The pilot programme targeted the creation of 1,400 tele-work jobs with a total available funding of 300 million HUF provided by the 2004 central budget of the Labour Market Fund.

What are the advantages of tele-work for employees? The individualised working conditions; flexibility and independence; the possibility to balance private life and work; and a better access to employment for people

1 Act XXVIII of 2004 on the Amendment of Employment-related Legislation (Labour Code, Act on the Personal Income Tax, Act on Labour Inspection, Employment Act), in force as of 1 May, 2004.

with disabilities. Probably this explains that the demand for tele-work jobs is roughly five times higher than the supply.

2.2 Seasonal Employment

In Hungary each year a considerable number of migrant workers – mainly ethnic Hungarians from the Trans-Carpathian region of Ukraine and Transylvania region of Romania – find seasonal employment in labour-intensive agricultural activities. Last summer opposition members of the Hungarian Parliament put forward to the Government a legislative proposal on promoting the seasonal employment of migrant workers in order to alleviate seasonal labour shortages.

Behind this proposal was an existing demand by farmers and agricultural enterprises for seasonal labour. Even though they regularly reported the vacancies to the Public Employment Service, they had difficulties finding workers because unemployed people were reluctant to take the jobs they offered. At the same time contracting a migrant worker was rather lengthy because of work permit and visa applications. Often by the time all documents were obtained the season was over and the workers were no longer needed.

The Government however did not accept the opposition's legislative proposal, but came up with an own solution. The Minister for Employment and Labour as of May 1, 2004, the date of Hungary's accession to the EU eased the conditions for the seasonal employment of migrant workers in the agricultural sector.[2] The deadline for issuing a work permit is reduced to 15 days, and the vacancy has to be reported 15 days prior to the application for the permit. The permit can be issued upon an assessment of the labour market situation (needs-test). The visa and work permit are issued for a certain period within which the seasonal migrant worker is allowed to take up employment more than once, for limited periods. With the seasonal work permit for agriculture migrant workers can work altogether up to 150 days per year, and with the seasonal residence visa they are entitled to multiple entries. The permit indicates the employer, the job and the duration of employment. Seasonal work permits for the agricultural sector are registered by the Employment Office. Seasonal work can also be carried out as temporary agency work.

2.3 Temporary Agency Work

Until this year temping could be carried out only by profit-oriented firms. While at the same time experience in developed market economies has proved that temporary agency work can be effectively used as an active labour market measure to facilitate the integration of the long-term unemployed into the world of work (*Storrie* 2002:59).

2) 21/2004 (IV. 28.) MoEL decree on the Amendment of 8/1999. (XI. 10.) Ministry of Family and Social Affairs Decree on the Issue of Work Permits for Foreign Workers in Hungary.

The first steps have been taken towards the implementation of this approach in Hungary as well. First, in April 2004 the Labour Code, the Act on Public Interest Organisations and the Act on Promotion of Employment and Support of the Unemployed (Employment Act) were amended to allow non-profit, public interest organisations to offer temporary agency work for disadvantaged people.[3] The act in question added a new subheading to the Employment Act (16/B §) laying down the legal basis for supporting the employment of unemployed people in the framework of temporary agency work.

The detailed provisions were laid down in article 16–17 of the amended 6/1996 (VII. 16.) MoEL decree, which entered into force at the beginning of 2005.[4] This stipulates that public interest organisations are entitled to support if, according to their founding document, they provide training and employment services for disadvantaged people, and hire unemployed people for temporary agency work. A further condition is that at least 50 unemployed persons (school leavers or unemployed persons registered by the PES for at least three months or older than 50) are hired for a minimum period of 200 days. In the case where the organisation cannot organise their leasing during this period, it must provide training upon agreement with the labour centre. The subsidy covers up to 50 per cent of the total wage costs (including contributions) as specified in the fixed-term contract, but cannot be higher than the 150 per cent of the minimum wage and statutory social insurance contributions.

3. CENTRAL EMPLOYMENT REGISTER

To replace the so-called "labour certificate" (service log) abolished in the early 1990s, the Ministry of Employment and Labour has long envisaged the creation of a central employment register. The database became operational as of May 1, 2004 with the simultaneous amendment of various acts.[5]

The Central Employment Register was established with a view to increasing the legal security of employees, improving the transparency of the labour market, strengthening labour inspection, and producing the data required by Community legislation.

The register is directed at recording the forms of employment that fall within the scope of the Labour Code together with the related employer and employee data. To ensure the adequate operation of the register, the establishment or termination of the employment relationship must be immediately reported to the body administering the register, namely to the Employment Register Centre of the Employment Office.

The Government adopted the decree on the reporting obligations of employers on April 15, 2004. The register includes the following:

3 Act XX. of 2004 on the Amendment of Certain Acts Related to Temporary Agency Work. In force from May 20, 2004.

4) 31/2004 (XII. 21) MoEL Decree on the Amendment of Certain Ministerial Decrees Related to Employment, in force from May 1, 2005.

5 Act XCIV of 2003 on the Amendment of Acts Related to the Establishment of the Central Employment Register, adopted by the Hungarian Parliament on November 11, 2003, entered into force as of May 1, 2004.

– personal data of the employee (name, name at birth, sex, mother's name, place and date of birth), social security number, citizenship, and a personal password to access the data account;
– the tax number of the employer or, in the case of private entities, the tax identification code, name, address, and a password to access the data account;
– start date and end date of the employment contract.

The data in the register can be accessed by the following bodies and authorities:

– the pension and health care fund bodies in order to inspect the compliance of employers with the reporting obligations of the social security legislation, and to decide about entitlements, payments and review;
– social administration bodies in order to decide eligibility for the allowance of the long-term unemployed;
– the national tax authorities in order to inspect the declaration and payment of taxes and contributions, such as the pension, the health-care, the social security, the employees' and employers' contributions;
– the National Labour and Work Safety Chief Inspectorate and its county (and Budapest) inspectorates to check employers' compliance with the reporting obligations on establishment and termination of employment relations;
– the offices of the Public Employment Service to check eligibility for unemployment benefits;
– the Immigration Authorities and the Immigration Authorities for the verification of data required for certain tasks prescribed by the law.

Moreover, the data can be used for statistical purposes and both employers and employees can access their own data account with the personal passwords, or can request information. The regulations on the generation and distribution of passwords are laid down in 18/2004. (IV. 25.) MoEL decree.[6]

In principle, both the employers' and the employees' side of the National Interest Reconciliation Council supported the idea of creating a central employment register. "However, Ferenc Rolek the vice president of the National Association of Employers and Industrials claimed that the register only increases the administrative burden of businesses because they have to continue separate reporting for social security. He considers it unnecessary to create a new, parallel register, and argues that restricting the inspection of existing reporting obligations towards social security would have been sufficient (initially the Central Employment Register imports relevant data from the 2002–2004 databases of the National Directorate for Pension and the National Health Insurance Fund)" (*Vitéz* 2004).

[6] 18/2004. (IV. 25.) Ministry of Employment and Labour Decree on the Rules of the Generation, Distribution and Use of Passwords for the Central Employment Register, in force since May 1, 2004.

It is envisaged that the CER will be an effective tool to combat undeclared work (*MoEL* 2003).

To this end, when the Register was launched the Government offered the possibility for the regularisation of undeclared workers.[7] The legislation provides that in the event that employers who employed undeclared workers between January 1 and April 30, 2004 decide to regularize their contracts (i.e. report them to social security and start paying contributions) by July 31, 2004 they are exempt from the payment of fines. This period was extended until mid-2005 by an almost unanimous (with one abstention) decision of Parliament on the amendment of the Act on taxes and contributions on June 14, 2004.[8] It was claimed that the period originally given for regularisation was too short and did not leave enough time for employers to prepare for increased costs. Therefore the new deadline was expected to encourage more employers to "legalize" their employees. In the situation where they declared their workers – except those whose employment terminates by June 2005 – to the relevant authorities and start paying the required taxes and contributions, they are exempt from fines for illegal employment and the retrospective payment of taxes and contributions.

4. MEASURES TO IMPROVE THE LABOUR MARKET SITUATION OF DISADVANTAGED GROUPS

In the short run, employment can be boosted by the labour market integration of those groups of working age that are not present on the labour market. One of these groups are persons on parental leave. Even though child care allowance and child care support recipients are allowed to take up part-time employment up to an average of 4 hours/day on a yearly basis, most of them do not use this possibility. A main reason is the lack of part-time positions since this type of contract is relatively more costly for the employer than full-time workers. This is primarily the result of the flat-rate health care contribution which does not take into account working hours. Nevertheless this obstacle was dismantled as of January 1, 2004 when employers were exempted from the payment of the monthly amount of 3,450 HUF of the flat-rate health contribution in the situation where they hire child care allowance or child raising support recipients for part-time work. The same incentive applies for the hiring of the long-term unemployed over the age of 50.[9]

In 2004, another new legislation entered into force as well, which provides significant incentives – also retrospectively – for active ageing, namely prolonging employment after reaching the statutory retirement age.[10] Those remaining in employment were previously entitled to a bonus however it was considerably less generous: they had to spend at least a full year in employment after reaching the retirement age of 62 to become entitled to a 0.3

7 Article 12 of Act XXVIII of 2004 on the Amendment of Employment-related Legislation. Adopted by Parliament on April 26, 2004, in force since May 1, 2004.

8 Act LVIII.of 2004 on the Amendment of Act XCI. of 2003 on Taxes, Contributions and Other Budgetary Payments. The act was adopted by Parliament on June 14, 2004.

9 See Article 7, points (1) a), c) and h) of Act LXVI of 1998.

10 See article 12 and 21 of Act LXXXI. of 1997 on Social Security Pensions and article 12. of the 168/1997. (X. 6.) Government Regulation.

per cent monthly pension rise. As a result of the new rules the monthly rise increased to 0.5 per cent. Thus, as of January 1 2004, those who continue working after reaching the retirement age are entitled to a pension rise of 0.5 per cent following each period of 30 days spent in employment.

As of January 1 2004 the tax relief for firms with less than 20 workers and employing people with disabilities has increased considerably: the amount which can be deducted from the tax base doubled compared to the previous year and currently is equal to the amount of the minimum wage.[11]

The same amendment also modified the regulations on the value-added tax (VAT) refunds of purchases from state subsidies or normative support. This adversely affected around 100 special firms – where at least 60 per cent of the employees are disabled – that are entitled to state subsidies based on their revenues. According to the new VAT regulations, only 50 per cent of the previous VAT refund can be claimed.

The sheltered organisations, in cooperation with relevant trade unions, announced the establishment of a strike committee with the purpose of calling attention to the problem and to initiate negotiations with the representatives of the Government.

The Government was willing to tackle the problem, but the amount necessary for the compensation of the social firms, approximately 3–4 billion HUF, could not be made available before the end of the first quarter. Based on these resources, a new regulation was accepted that provides the possibility for the financial compensation of losses arising from the new VAT rules for firms with altogether nearly 40 thousand employees with disabilities by the end of 2004.[12]

Based on Article 19 of the Employment Act, the Rehabilitation Sub-fund of the Labour Market Fund provides subsidies for investments related to the employment of people with disabilities, or the expansion of existing facilities, or other developments. Funding is awarded through open competition. Funding can be obtained for the following purposes:

– the creation, upgrading or maintenance of workplaces for vocational rehabilitation in a regular work setting, or
– the creation, upgrading or maintenance of sheltered workplaces in special firms, or
– the purchase and upgrading of equipment facilitating the employment of people with disabilities.

These subsidies enjoy considerable popularity: last year 542 firms applied for funding, out of which labour centres approved 349 applications, which created altogether 2461 new jobs (*MoEL* 2004:6).

Although the general objectives of the subsidy are still valid for the future, certain modifications are necessary to define more clearly the aims and the activities for which the support can be used. The following requirement

11 See article 7 (1) v) of Act CXVII. of 1995. on Personal Income Tax.

12) 12/2004. (IV. 16.) joint MoEL-Ministry of Health, Social and Family Affairs-Ministry of Finance Decree on the Amendment of 8/1983. (VI. 29.) Joint Ministry of Health-Ministry of Finance Decree. In force since April 1, 2004.

seems crucial: that it directly helps the employment of persons with a disability, takes into account individual needs, complies with regulations on the accessibility of the built environment, takes into account up-to-date workplace safety regulations and that it has a significant impact on production, services or working procedures.

These criteria appear in Article 8 of the MoEL decree which entered into force at the beginning of 2005.[13] It replaces the previous system of funding for the maintenance of workplaces with a dual subsidy scheme:

– Limited (so-called *de minimis*) subsidies can be provided for firms on the open jobs market that employ people with disabilities in mainstream settings. This subsidy is easy to access with a low own contribution. The upper limit of funding does not concern non-profit employers.[14]

– Employers creating or upgrading sheltered workplaces can receive high intensity employment creation subsidies on the basis of Article 6 of the 2204/2002/EC regulation. Facilities and investments should nevertheless be maintained on a permanent basis and operated according to the original objectives for at least 5 years.

The Government adopted a programme for the social integration of the Roma population in the spring of 2004 which also stipulates objectives for the Ministry of Employment and Labour.[15] These include among others the launch of labour market insertion programmes that combine training and work practice for the young unemployed, the positive discrimination of Roma applicants in labour centres when hiring new staff, and the improvement of the public work programmes to help participants to enter and remain on the open labour market.

For public work programmes a total funding of 4 billion HUF was available in 2004 which covered the employment costs of 12–13 thousand persons along the following objectives:

– improvement of the employment situation and living conditions of the long-term unemployed and disadvantaged people, particularly the Roma population – a national programme with a budget of 1.306 billion HUF;
– public work programmes in the seven disadvantaged regions with a total budget of 1.08 billion HUF (Nógrád and Bács-Kiskun counties took part in the national programme, while Borsod-Abaúj-Zemplén, Szabolcs-Szatmár-Bereg, Békés, Jász-Nagykun-Szolnok and Somogy counties designed joint programmes with the participation of the county territorial development councils and the MoEL. Development councils supplemented the funding with their own resources.);
– public work programme within the framework of Vásárhelyi-Plan with a budget of 0.5 billion HUF;[16]

13) 31/2004 (XII. 21.) MoEL decree on the Amendment of Certain Ministerial Decrees in Relation to Employment, in force from 06. 01. 2005.

14 According to 69/2001/EC Regulation by the European Commission on the Application of the Articles 87 and 88 of the EC Treaty to *de minimis* State Aid, the maximum amount of subsidy for enterprises cannot exceed the equivalent of 100,000 Euros over a period of three years. International transport, and agriculture and fisheries companies are not eligble for *de minimis* funding for the production, processing and sales of products.

15) 1021/2004. (III. 18.) Government Resolution on a Government Strategy and Action Plan to Promote the Social Integration of the Roma Population.

16 The Vásárhelyi-Plan aims at the improvement of the flood-protection system of the Tisza-river through major infrastructural developments.

– public work to support the motorway construction programme with a budget of 0.25 billion HUF (which was supplemented by the National Motorway Holding with an additional 0.3 billion HUF).

Furthermore, in May 2004 a forestry public work programme was launched that carries out the maintenance of hiking trails, pruning, waste collection and general forestry works in the 19 state-owned forestry companies supervised by the National Privatisation and State Holding Company. The programme gave priority to those forestry companies that are located in the Eastern part of the country. It provided temporary employment for nearly 1500 long-term unemployed persons from mid-June until November. The forestry companies applying for funding were obliged to organize preparatory training for the participants and maintain some of the jobs for at least 3 months after the end of the programme. Workers were recruited mainly among Roma people between the ages of 25 and 45 who were registered as unemployed for at least 6 months and lived in under-privileged settlements. The forestry public work programme received a total of 0.75 billion HUF public funding out of which 0.56 billion was provided jointly by the Ministry of Employment and Labour and the Ministry of Agriculture and Rural Development, and 0.2 billion HUF by the National Privatisation and State Holding Company. Public funding was supplemented by the resources of the forestry companies. (*Muhari* 2004).

5. VOCATIONAL TRAINING AND ADULT TRAINING

Lifelong learning (LLL) is one of the priority areas of the European Union with a dual objective: on the one hand promoting education for active citizenship and, on the other, improving employability. The link between competitiveness and high quality human capital as a precondition of strong economic performance is universally acknowledged. The following data give a good illustration of the Hungarian labour market:

– Each year approximately 140 thousand young people leave the education system and enter the labour market. The number and share of those in secondary and tertiary education has increased significantly. Compared to the 56 per cent of a decade ago, currently 77 percent of pupils in the adequate age groups study in secondary schools that allow them to continue their studies at the tertiary level.

– There is a considerable and unmet demand for skilled labour, whilst the share of those in vocational training has dropped from 44 to 23 per cent. The drop-out rate is highest among vocational school pupils, and even those who finish school successfully often lack adequate professional skills and knowledge. The drop in student numbers was not followed by a decline in the number of institutions, vocational training is fragmented, difficult to manage and does not respond to the needs of the labour market.

– At the same time the number of full time tertiary students has increased by more than 150 per cent since 1990. Currently 22 per cent of the cohort between 18–22 is enrolled in tertiary education, nevertheless the age of students increasingly goes beyond 30. The programme offerings of the higher education institutions do not respond to the demand of the economy and the labour market, and there are considerably more students in academic than in practice-oriented programmes.

– The role of evening, part-time and distance education has gradually decreased in primary education, and has changed in secondary education as they are more widely used for second qualifications. They are however very popular in higher education.

– One third of qualifications prepares the individual for blue-collar jobs, two thirds for white-collar jobs, while the jobs market demand is exactly the opposite.

5.1 Changes in the Financing of Adult Training

In response to the above issues the Government introduced the normative funding of adult training with the amendment of Act CI. of 2001 on Adult training (Adult Training Act) as of January 1, 2004.[17] According to the provisions of the Act, the normative state subsidy – the amount of which is defined in the act on the annual state budget – is provided to adult training institutions for the following activities:

a) the training of adults acquiring their first qualification, but only if it is listed in the National Qualifications Register;
b) the general, vocational and language training of adults with disabilities.

Only those adult training institutions are entitled to the normative state subsidy that have accreditation and a valid funding agreement with the Ministry of Employment and Labour.[18] In the situation where the target groups are disabled adults, not only the institution but also the training programme should be accredited in order to qualify for the normative funding.[19]

The amendment of the Adult Training Act introduced some further changes as of January 1, 2004:

– defined the composition of the National Adult Training Council and the Adult Training Accreditation Committee;
– transferred the task of the registration of adult training institutions from the National Public Education Evaluation and Examination Centre of the Ministry of Education, to the Public Employment Service;[20]
– included lifelong learning and human resources development activities both at regional and national levels among the competences of the regional training centres with a view to promoting equal opportunities.

17 Act CVI. of 2003 on the Amendment of Act CI. of 2001 on Adult Education. In force since January 1, 2004.

18 The rules of the accreditation of adult training institutions and programmes are laid down in Government Decree 22/2004. (II. 16.).

19 The detailed rules of the procedures and requirements of accreditation are stipulated in MoEL Decree 24/2004. (VI. 22.); the accreditation fees are regulated in MoEL Decree 23/2004. (VI. 22.)

20 The detailed provisions on the registration of adult training institutions are laid down in 48/2001. (XII. 29.) Ministry of Education Decree as amended by the 5/2004. (II. 24.) MoEL Decree.

Regional training centres are public bodies financed from the central budget and under the direction of the Minister for Employment and Labour.

As a result regional training centres:

– take part in the implementation of training programmes to promote employment and support the creation of new jobs;
– participate in international adult training programmes and in the preparation and implementation of human resources development programmes supported from European funds;
– organise and design training courses to improve the employability of adults at a disadvantage;
– create networks of distance learning to facilitate access to non-formal education.[21]

5.2 The Employment-focused Strategy of Adult Training

The Government adopted the Employment-focused Strategy of Adult Training on June 10, 2004. The main objective of the strategy is to support workers who seek to renew their knowledge and skills so as to keep their jobs or acquire new qualifications that are demanded on the jobs market. In trades characterised by labour shortage, adults can obtain their first qualifications free of charge. People above 50 can additionally obtain a second qualification free of charge. The Government set the target of having 1 million adults/year involved in some form of adult training by 2006. Hungary is considerably lagging behind in language and IT skills, and in the management and problem-solving competences of the labour force. These problems however should be tackled in order to remain competitive in the enlarged European Union. It is not acceptable that merely 14 per cent of the adult population can speak English and 13 per cent German. There are approximately 2 million personal computers in the country, and even though the number of those with access to the Internet increased by 50 per cent in the past two years, it is still not sufficient because in a few years most of the workplaces will be digitalized.

5.3 Changes in the Financing of Vocational Training

Act LXXXVI. of 2003 on Vocational Training Contribution and the Development of Education entered into force on January 1, 2004.[22]

The Act has increased the monthly stipend for apprentices in firms from 30 per cent of the minimum wage to 50 per cent. The objective is to create incentives for vocational school pupils to do their apprenticeship in a real industrial environment, because currently the majority spend their apprenticeship period in school workshops where they encounter simulated

21 Non-formal education is defined as education or training organized by the employer, social or other organisations that takes place outside the institutional framework of education, by the initative of the individual, and not leading directly to any formal qualification.

22 Adopted by Parliament on November 10, 2003.

circumstances. The amendment of tax provisions also serves this purpose by increasing the tax relief for enterprises taking on apprentices: their tax base can be reduced by 20 per cent of the statutory minimum wage as of January 2004 for each apprentice. This is a considerable increase in comparison to the 6000 HUF allowed in previous years.[23]

There are also incentives for vocational schools to allow their pupils to undertake, at least partly, their apprenticeship at enterprises following the completion of general introductory courses. Therefore as of September 2004, vocational schools are entitled to 140 per cent of the previous normative state subsidy for each pupil in the first year, and 60 per cent in the second year of apprenticeship, paid from the state budget. In addition, schools are entitled to 20 per cent of the normative subsidy even when pupils do their apprenticeship at enterprises and not at school workshops.

6. DEVELOPMENT OPPORTUNITIES AND INSTITUTIONAL CHANGES FOLLOWING ACCESSION TO THE EUROPEAN UNION

After accession to the European Union on May 1, 2004, Hungary became eligible to Structural Funds assistance as well. Funding can be used for the objectives set out in the National Development Plan, the strategic document for the period of 2004–2006. The Ministry of Employment and Labour coordinates the implementation of the Human Resources Development Operational Programme (HRDOP), one of the five operational programmes. The Programme was drawn up by the MoEL in cooperation with the Ministry of Education, Ministry of Health, Social and Family Affairs, the Ministry of Children, Youth and Sports Affairs, and the Ministry of Informatics and Telecommunications.

The HRDOP, which has the largest share of funding among the operational programmes, supports the development of employment, education, training, social services and the health care system. The HRDOP has a total budget of 191 billion HUF, which equals to 750 million Euros (*MoEL* 2004a).

6.1 The Human Resources Development Operational Programme

The strategic objectives of the Human Resources Development Operational Programme are threefold: raising the level of employment, improving the competitiveness of the labour force and the promotion of social inclusion. These include the following priorities:

1) Active labour market policies

Objectives: to help the unemployed to return to the labour market, to prevent long-term unemployment, and to promote the labour market integration of young people and women.

23 Act XCI. of 2003 on the Amendment of Legislation on Taxes, Contributions and Other Payments into the State Budget. Adopted by Parliament on November 10, 2003.

Available budget: 41 billion HUF.
Intervention fields:
– supporting active labour market policies;
– modernisation of the Public Employment Service;
– promotion of the labour market participation of women and the reconciliation of work and family life.

2) Fight against social exclusion by promoting access to the labour market

Objectives: improving the employment opportunities and labour market situation, and promoting the social inclusion of disadvantaged people (Roma people, the long-term unemployed, people with disabilities, early school leavers, people with low levels of education, addicts and those living in the most disadvantaged areas.
Available budget: 22 billion HUF.
Intervention fields:
– ensuring equal opportunities for disadvantaged pupils in education;
– promoting social inclusion through the training of professional working in the social field;
– improving the employability of disadvantaged people, including the Roma.

3) Promoting Lifelong Learning and Adaptability

Objectives: supporting different forms and level of education and training, including pre-school, elementary, secondary and adult training as well.
Available budget: 58 billion HUF.
Intervention fields:
– promoting the development of skills and competences necessary for lifelong learning;
– developing the content, methodology and structure of vocational training;
– developing the structure and content of higher education;
– training promoting job-creation and the development of entrepreneurial skills;
– developing the system of adult training.

4) Developing the infrastructure of education, social services and health care

Objectives: to promote the development of the infrastructure of education, social services and health care.
Available budget: 60 billion HUF.
Intervention fields:
– developing the infrastructure of education and training;
– developing the infrastructure of services supporting social inclusion;
– development of health care infrastructure in disadvantaged regions;
– IT development of health care in disadvantaged regions.

The Operational Programme complements national funding and programmes. It is implemented predominantly through open grant programmes and so-called central programmes carried by centrally appointed public bodies. The first calls for proposals were published during February-March in 2004 and following this are published each year once or twice until 2006. The central programmes were launched in the first half of 2004.

The institutions responsible for the utilisation and management of the European Union Structural Funds and the Cohesion Fund assistance and their tasks are laid down by 1/2004. (I. 5.) Government decree.[24]

The HRDOP is implemented by the HRDOP Managing Authority (MA) set up within the Ministry of Employment and Labour. The MA is responsible for the adequate implementation of the OP in accordance with the regulatory framework, and the efficient and concentrated use of financial resources based on sectoral and inter-sectoral partnership. To ensure effective implementation and transparency, the MA cooperates with stakeholders, social partners and representatives of the target groups. It ensures compliance with Community policies and horizontal principles both by the bodies involved in the implementation and the recipients of Structural Funds assistance. Furthermore, in close cooperation with its partners, it strives to ensure coherence between Community and national policies. The MA designs and introduces one- and multilevel grant schemes, organizes training, provides consultancy and technical assistance for project generation and implementation, and enhances sectoral absorption capacity through the thorough implementation of its communication strategy. It is responsible for the overall financial management and implementation of the three-year programme, and also for any modifications of the budget based on the decision of the Monitoring Committee and in accordance with relevant regulations[25] (*MoEL* 2004d).

The Managing Authority delegates certain tasks to the so-called intermediary bodies. The intermediary bodies involved in the implementation of the Programme are the European Social Fund Department of the National Employment Office, the European Social Fund National Implementing Agency Public Company (ESF NIA), the Ministry of Education Fund Management Directorate, the Ministry of Health, Family and Social Affairs Structural Funds Programme Office and the Hungarian State Treasury. The 1/2004 (I. 5.) Government decree confers the right of appointment of intermediary bodies and the delegation of tasks into the scope of joint decrees of relevant ministries.

24) 1/2004. (I. 5.) Government Decree on the Institutions Responsible for the Utilisation and Implementation of Structural and Cohesion Funds Assistance.

25 The main decision-making body of the Operational Programme is the Monitoring Commitee that is comprised of government and non-governmental representatives. The Monitoring Committee supervises the effective and efficient implementation of the Programme.

6.2 EQUAL Community Initiative Programme

The EQUAL Community Initiative Programme offers the opportunity to develop innovative labour market policy approaches and tools in the Mem-

ber States of the European Union in line with the European Employment Strategy. EQUAL aims to combat all forms of discrimination and inequalities in connection with the labour market through developing and testing innovative approaches and methods in trans-national cooperation.

Between 2004–2006 the Hungarian EQUAL Community Initiative Programme supports innovative initiatives which foster the training, job access and employment of disadvantaged people – those who are excluded from the labour market or experience difficulties in accessing employment due to discrimination related to gender, ethnic origin, disability or age, low schooling, lack of qualifications or lack of job experience.

Priority themes:

1) Facilitating access or return to the labour market for people at a disadvantage (available budget: 3.7 billion HUF).
2) Promoting lifelong learning and inclusive work practices which encourage the recruitment and retention of those suffering discrimination and inequality in connection with the labour market (available budget: 3.4 billion HUF).
3) Reducing gender gaps and supporting job desegregation (available budget: 0.716 billion HUF).
4) Supporting the social and vocational integration of asylum-seekers (available budget: 0.268 billion HUF).

The Hungarian EQUAL Programme is implemented by the Managing Authority established within the Ministry of Employment and Labour (also responsible for the HRDOP). The work of the Managing Authority and the elaboration and implementation of development partnerships is assisted by a national support structure, the EQUAL National Programme Office set up within the National Employment Public Foundation.[26]

6.3 Alignment with EU regulations

Three of the employment subsidies set out in the 39/1998. (III. 4.) Government decree on the compensation of costs of commuting and support to workforce recruitment qualify as state aid according to articles 87. and 88. of the EC Treaty. These are the following:

– commuting costs,
– the recruitment of workers, and
– the transportation of workers.

Accordingly, the provisions of the 69/2001/EC (12. 01. 2001) Commission regulation on the *de minimis* state aid should be applied for these subsidies. The Government decree 256/2002. (XII. 13.) and its subsequent amendment stipulated all three of them as *de minimis* state aid.[27] Therefore recipients of these subsidies should submit a written declaration on the total amount of transfers received during the previous three years.

26 See 9/2004. (IV. 7.) joint MoEL Decree on the Tasks of the Employment Office in the Implementation of the Human Resources Development Operational Programme between 2004–2006 and its Appointment as Intermediary Body, and the Appointment of the National Employment Public Foundation (OFA) as National Support Structure in the Hungarian EQUAL Community Initiative. In force since April 12 2004.

27) 230/2004. (VII. 31.) Government Decree on Assistance to Compensate Commuting Costs and on the Amendment of 39/1998. (III. 4.) Government Decree on Assistance for the Recruitment of Workers. In force as of April 2004.

Given the fact that state aid legislation concerns enterprises only, the provisions of the 69/2001/EC regulation should not be applied in the case where the recipients of employment subsidies are public bodies financed from the state budget or non profit organisations (foundations, associations, public companies, public foundations, public boards).

The amendment of the 30/2000 (IX. 15.) Ministry of Economy decree took place in 2004[28] with the aim of reviewing the statutory cost categories for the outsourcing of services by the Public Employment Service. This was justified by the fact that these categories were already well below real prices when they were adopted in 2000 and were further devalued by the inflation and new VAT regulations.

28 Article 2 of the 31/2004. (XII. 21.) MoEL Decree on the Amendment of Certain Ministerial Decrees in Relation to Employment, entered into force on May 1, 2005.

REFERENCES

Czauner, Péter (2004) Hiányzik az agrármunkás. [There is a Shortage of Agricultural Workers.] *Népszabadság*, July 27.

Hámor, Szilvia (2004) Jutalmazott továbbdolgozás. [Reward for Continuing Work.] *Népszabadság*, April 23.

Kiss, Melinda Katalin (2004a) A távmunkával mindenki jól jár. [Tele-work is Advantageous for All.] *Népszabadság*, June 15.

Kiss, Melinda Katalin (2004b) Munkakönyv egy szezonra. [Service-log for One Season.] *Népszabadság*, May 25.

Kun J. Erzsébet (2004) Kompenzált fogyatékosok. [Compensation for People with Disabilities.] *Népszabadság*, April 21.

Ministry of Employment and Labour (2003) *Előterjesztés a Munkaerő-piaci Alap Irányító Testülete részére egyes törvényeknek az egységes munkaügyi nyilvántartás létrehozásával összefüggő módosításáról*. [Proposal for the Management Board of the Labour Market Fund on the Amendment of Certain Acts in relation to the Establishment of the Central Employment Register.] Budapest, July.

Ministry of Employment and Labour (2004a) *Tárcatükör*. [Annual Report of the Ministry of Employment and Labour.] Budapest, February.

Ministry of Employment and Labour (2004b) *Előterjesztés a Munkaerő-piaci Alap Irányító Testülete részére távmunkahelyek létesítésének támogatására*. [Proposal for the Management Board of the Labour Market Fund on Promoting the Creation of New Tele-work Jobs.] Budapest, May.

Ministry of Employment and Labour (2004c) *Előterjesztés a Munkaerő-piaci Alap Irányító Testülete részére egyes miniszteri rendeletek módosítására*. [Proposal for the Management Board of the Labour Market Fund on the Amendment of Certain Ministerial Decrees.] Budapest, June.

Ministry of Employment and Labour (2004d) *Beszámoló a Humánerőforrás-fejlesztési Operatív Program indításáról. Előterjesztés a Munkaerő-piaci Alap Irányító Testülete részére*. [Report on the Start of the Human Resources Development Operational Programme. A Proposal for the Management Board of the Labour Market Fund.] Budapest, March.

Muhari, Judit (2004) Segély helyett fizetést kap 1500 munkanélküli. [Work instead of Welfare for 1,500 Unemployed Persons.] *Népszava*, May 18.

Storrie, D. (2002) *Temporary Agency Work in the European Union*. Dublin, European Foundation for the Improvement of Living and Working Conditions.

Vitéz F. Ibolya (2004) A jótékony emma. [The "Caring" Emma.] *Heti Világgazdaság*, April 10.

STATISTICAL DATA

Edited by
KÁROLY FAZEKAS
JÁNOS KÖLLŐ
JUDIT LAKATOS
GYÖRGY LÁZÁR

Statistical Data

Data Sources

FH BT	NLC Wage Survey
FH REG	NLC unemployment register
FH SREG	NLC unemployment benefit register
FH PROG	NLC Short-term Labour Market Forecast Survey
KSH	Table compiled from regular publications
KSH IMS	CSO institution-based labour statistics
KSH MEF	CSO Labour Force Survey
KSH MEM	CSO Labour Force Account
MC	Microcensus
MNB	Hungarian National Bank
NSZ	Population Census
NYUFIG	Pension Administration
OM STAT	Ministry of Education, Educational Statistics
TB	Social security records

Table 1.1: Main economic indicators 1.*

Year	GDP	Industrial production	Exports	Imports	Real earnings	Employ-ment
1989	100.7	95.0	100.3	101.1	99.7	98.2
1990	96.5	90.7	95.9	94.8	94.3	97.2
1991	88.1	81.6	95.1	105.5	93.0	92.6
1992	96.9	84.2	101.0	92.4	98.6	90.3
1993	99.4	103.9	86.9	120.9	96.1	93.8
1994	102.9	109.7	116.6	114.5	107.2	98.0
1995	101.5	104.6	108.4	96.1	87.8	98.1
1996	101.3	103.2	104.6	105.5	95.0	99.1
1997	104.6	111.1	129.9[a]	126.4[a]	104.9	100.1
1998	104.9	112.5	122.1[a]	124.9[a]	103.6	101.4
1999	104.2	110.4	115.9[a]	114.3[a]	102.5	103.2
2000	105.2	118.1	121.7[a]	120.8[a]	101.5	101.0
2001	103.8	103.6	107.7[a]	104.0[a]	106.4	100.3
2002	103.5	102.8	105.9[a]	105.1[a]	113.6	100.1
2003	103.0[b]	106.4	109.1[a]	110.1[a]	109.2	101.3

* Previous year=100.
[a] Including free trade zones.
[b] Preliminary.
Source: Employment: 1989–1991: KSH MEM; 1992–: KSH MEF. Other data: KSH.

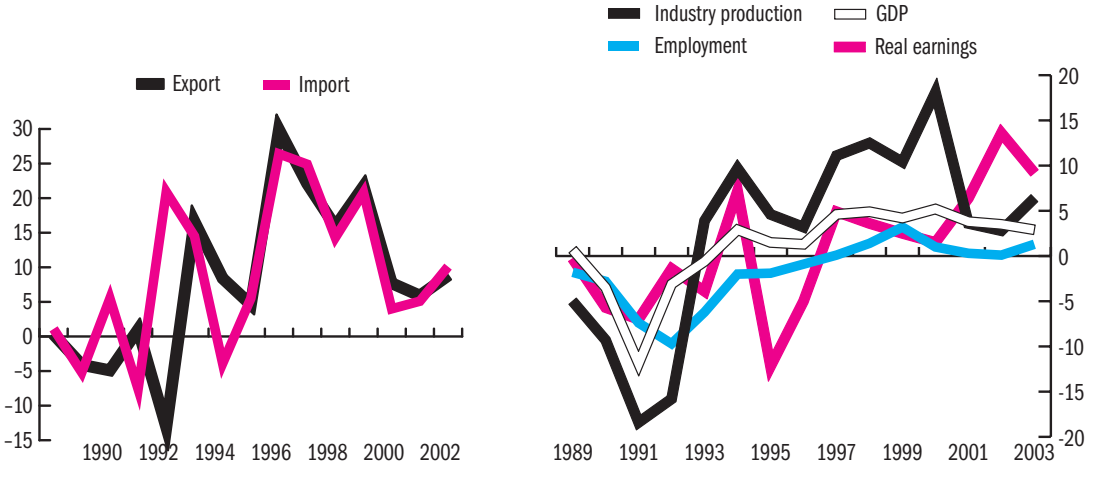


Figure 1.1: Annual changes of main economic indicators 1.

Table 1.2: Main economic indicators 2.

Year	GDP deflator index*	Consumer price index*	Trade balance[1]/ GDP	Balance of current account[2]/ GDP	General government deficit[3]/ GDP	Gross foreign debt/ GDP[4]
1989	118.8	117.0	...	...	2.8	...
1990	125.7	128.9	+2.6	+0.4	0.0	60.7
1991	125.4	135.0	-1.0	+0.8	2.1	62.7
1992	121.6	123.0	-0.3	+0.9	6.0	61.7
1993	121.3	122.5	-8.2	-9.0	4.2	66.6
1994	119.5	118.8	-6.5	-9.4	3.9	66.5
1995	125.5	128.2	-1.3	-5.5	6.6	71.5
1996	121.2	123.6	-1.1	-3.7	3.1	62.4
1997	118.5	118.3	+0.3	-2.1	4.8	54.6
1998	112.6	114.3	-2.1	-4.8	6.3	55.8
1999	108.3	110.0	-2.7	-5.1	3.7	64.2
2000	109.9	109.8	-3.8	-8.6[b]	3.6	64.9
2001	108.6	109.2	-1.5	-6.2	3.0	65.6
2002	108.9	105.3	-2.3	-7.1	10.1	56.6
2003	107.6[a]	104.7	-4.2[a]	-8.9	5.9[a]	62.4[a]

* Previous year=100.

1 Goods and services. – 2 1989–94: in convertible currency; 1995–: in convertible and non-convertible currency. – 3 1995–98: excluding revenues from privatization. – 4 Including owner credit.

[a] Preliminary.

[b] From 2000: reinvestment of DFI are included.

Source: KSH. Balance of current account; MNB.

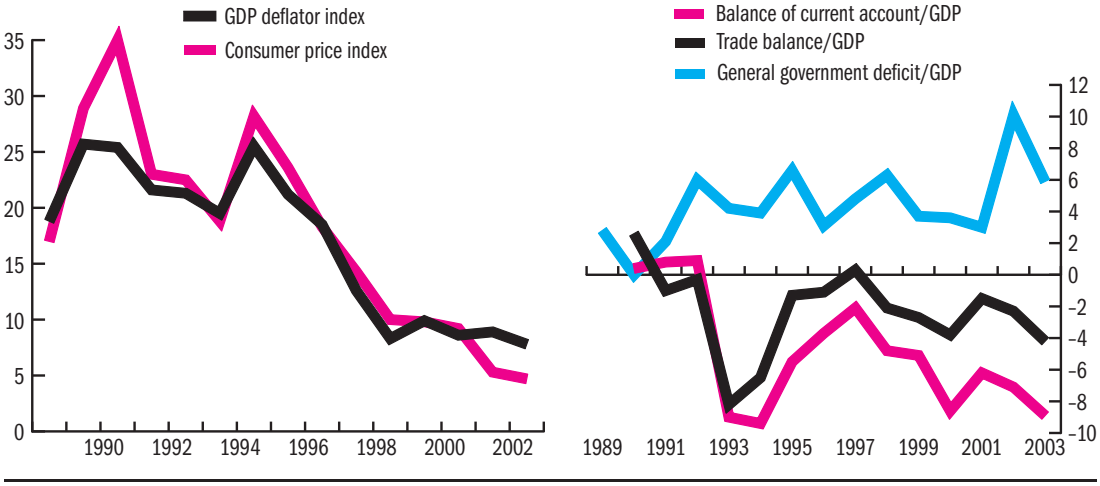


Figure 1.2: Annual changes of main economic indicators 2.

Table 2.1: Population*

Year	In thousands	1992 = 100	Annual changes	Population 15–64 age	Dependency rate
1980	10,709	103.6	–	6,500.0	0.58
1989	10,421	100.8	–	...	...
1990	10,375	100.4	-0.2	6,870.4	0.51
1991	10,373	100.0	0.0	6,909.5	0.50
1992	10,374	100.0	0.0	6,940.2	0.49
1993	10,365	99.9	-0.1	6,965.8	0.49
1994	10,350	99.8	-0.1	6,978.2	0.48
1995	10,337	99.6	-0.1	6,986.9	0.48
1996	10,321	99.5	-0.1	6,984.2	0.48
1997	10,301	99.3	-0.2	6,986.3	0.47
1998	10,280	99.1	-0.2	6,980.0	0.47
1999	10,253	98.8	-0.3	6,969.6	0.47
2000	10,221	98.5	-0.3	6,961.3	0.47
2001	10,200	98.3	-0.2	6,963.3	0.46
2002	10,175	98.1	-0.2	6,962.8	0.46
2003	10,142	97.8	-0.3	6,949.4	0.46
2004	10,117	97.5	-0.3	6,943.5	0.46

* 1st January.
1 (population age 0–14 + 65 and above) / (population age 15–64)
Note: Recalculated on the basis of Population Cenzus 2001.

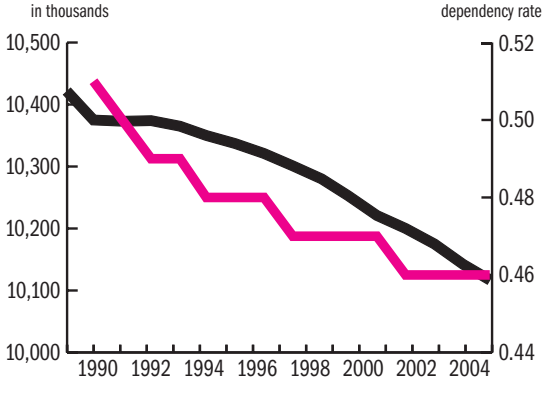


Figure 2.1: Population on 1st January

Table 2.2: Population by age groups – in thousands*

Year	0–14	15–24	25–54	55–64	65+	Total
	years old					
1980	2,341.2	1,464.4	4,399.8	1,054.7	1,449.4	10,709.5
1990	2,130.5	1,445.5	4,231.4	1,193.5	1,373.9	10,374.8
1991	2,068.0	1,510.3	4,223.1	1,176.0	1,395.7	10,373.2
1992	2,018.7	1,558.1	4,222.6	1,159.4	1,414.7	10,373.6
1993	1,972.3	1,587.0	4,230.4	1,148.5	1,426.9	10,365.0
1994	1,929.6	1,601.5	4,240.6	1,136.2	1,442.2	10,350.0
1995	1,891.7	1,610.1	4,250.6	1,126.2	1,458.0	10,336.7
1996	1,858.8	1,609.7	4,253.6	1,120.8	1,478.3	10,321.2
1997	1,824.4	1,607.2	4,260.3	1,118.9	1,490.5	10,301.2
1998	1,792.8	1,593.0	4,262.6	1,124.4	1,506.9	10,279.7
1999	1,762.4	1,573.2	4,268.5	1,127.9	1,521.4	10,253.4
2000	1,729.2	1,526.5	4,291.4	1,143.4	1,531.1	10,221.6
2001	1,692.0	1,480.1	4,338.5	1,144.7	1,545.0	10,200.3
2002	1,660.1	1,436.9	4,378.0	1,147.9	1,551.9	10,174.9
2003	1,633.7	1,392.5	4,390.8	1,166.1	1,559.2	10,142.4
2004	1,606.1	1,355.0	4,401.6	1,186.9	1,567.1	10,116.7

* 1st January. Based on the Population census 2001.

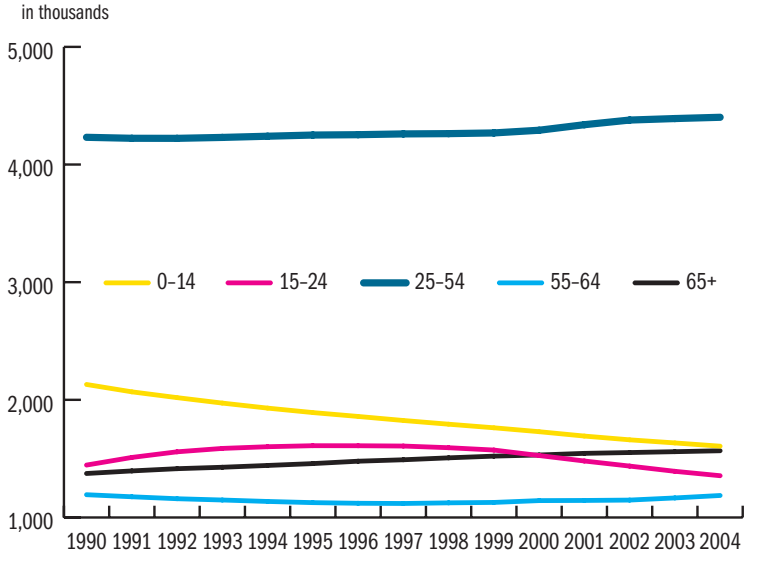


Figure 2.2: Population by age groups

Table 2.3: Male population by age groups – in thousands*

Year	0–14	15–24	25–59	60–64	65+	Total
	years old					
1980	1,205.4	749.9	2,475.6	170.5	587.3	5,188.7
1990	1,090.4	740.3	2,366.9	259.9	527.5	4,984.9
1991	1,057.9	773.4	2,355.5	258.5	534.5	4,979.8
1992	1,032.3	797.7	2,350.4	255.5	539.8	4,975.7
1993	1,008.7	812.2	2,349.0	253.9	542.5	4,966.3
1994	986.8	819.9	2,350.3	250.5	546.0	4,953.4
1995	967.4	824.0	2,353.3	246.1	550.8	4,941.6
1996	950.5	823.7	2,358.3	239.5	557.2	4,929.2
1997	933.0	822.4	2,366.2	233.9	560.5	4,916.0
1998	916.8	815.4	2,375.5	229.3	564.7	4,901.8
1999	901.5	805.0	2,383.2	226.1	568.6	4,884.4
2000	885.0	780.9	2,403.8	224.8	570.8	4,865.2
2001	865.7	757.0	2,425.2	228.9	574.2	4,851.0
2002	850.1	733.9	2,446.1	233.0	573.8	4,837.0
2003	836.8	711.3	2,456.5	239.9	574.0	4,818.5
2004	823.0	691.9	2,470.3	244.4	574.5	4,804.1

* See: Table 2.2.

Table 2.4: Female population by age groups – in thousands*

Year	0–14	15–24	25–54	55–59	60+	Total
	years old					
1980	1,135.8	714.5	2,232.8	365.3	1,072.4	5,520.8
1990	1,040.1	705.2	2,144.4	327.6	1,172.5	5,389.9
1991	1,010.0	737.0	2,139.8	321.3	1,185.3	5,393.3
1992	986.5	760.4	2,138.1	318.1	1,194.9	5,397.9
1993	963.6	774.8	2,141.2	314.4	1,204.7	5,398.7
1994	942.8	781.6	2,146.2	313.1	1,212.9	5,396.6
1995	924.4	786.2	2,151.0	312.6	1,221.0	5,395.1
1996	908.3	786.0	2,152.4	316.4	1,228.8	5,392.0
1997	891.4	784.8	2,155.6	318.3	1,235.1	5,385.3
1998	876.0	777.6	2,156.0	324.4	1,243.9	5,378.0
1999	861.0	768.2	2,159.3	326.7	1,253.8	5,369.0
2000	844.3	745.6	2,170.5	334.8	1,261.3	5,356.5
2001	826.3	723.1	2,193.4	330.4	1,276.1	5,349.3
2002	810.0	703.0	2,211.6	328.6	1,284.7	5,337.9
2003	796.9	681.2	2,217.4	330.7	1,297.8	5,323.9
2004	783.1	663.1	2,220.8	338.5	1,307.1	5,312.6

* See: Table 2.2.

Table 3.1: Labour force participation of the population above 14 years*

Year	Population at working age								Population above working age			
			Inactive population									
	Employed	Unemployed	Pensioner	Full time student	On child care leave	Other inactive	Inactive total	Total	Employed	Unemployed	Pensioner, inactive	Total
1980	4,887.9	0.0	300.8	370.1	259.0	339.7	1,269.6	6,157.5	570.3	0.0	1,632.1	2,202.4
1990	4,534.3	62.4	284.3	548.9	249.7	297.5	1,380.4	5,977.1	345.7	0.0	1,944.9	2,290.6
1991	4,270.5	253.3	335.6	578.2	259.8	317.1	1,490.7	6,014.5	249.5	0.0	2,045.2	2,294.7
1992	3,898.4	434.9	392.7	620.0	262.1	435.9	1,710.7	6,044.0	184.3	9.8	2,101.7	2,295.8
1993	3,689.5	502.6	437.5	683.9	270.5	480.1	1,872.0	6,064.1	137.5	16.3	2,141.2	2,295.0
1994	3,633.1	437.4	476.5	708.2	280.9	540.7	2,006.3	6,076.8	118.4	11.9	2,163.8	2,294.1
1995	3,571.3	410.0	495.2	723.4	285.3	496.1	2,000.0	5,981.3	107.5	6.4	2,180.6	2,294.5
1996	3,546.1	394.0	512.7	740.0	289.2	499.4	2,041.3	5,981.4	102.1	6.1	2,184.6	2,292.8
1997	3,549.5	342.5	542.9	752.0	289.0	499.9	2,083.8	5,975.8	96.9	6.3	2,189.0	2,292.2
1998	3,608.5	305.5	588.8	697.0	295.5	565.7	2,147.0	6,061.0	89.3	7.5	2,197.6	2,294.4
1999	3,701.0	283.3	534.7	675.6	298.5	549.8	2,058.6	6,042.9	110.4	1.4	2,185.2	2,297.0
2000	3,745.9	261.4	517.9	721.7	281.4	571.4	2,092.4	6,099.7	130.3	2.3	2,268.0	2,400.6
2001	3,742.6	231.7	516.3	717.9	286.6	601.6	2,122.4	6,096.7	140.7	2.4	2,271.8	2,414.9
2002	3,719.6	235.7	507.1	738.3	286.8	593.0	2,125.2	6,080.5	164.1	3.2	2,263.9	2,431.2
2003	3,719.0	239.6	485.0	730.7	278.2	603.7	2,097.6	6,056.2	202.9	4.9	2,245.6	2,453.4

* In thousands. Annual average figures.

Till 1999 updated figure based on 1990 population census since 2000 based on 2001 population census.

Note: 'Employed' includes conscripts and working pensioner. Data on students for 1995–97 have been estimated using projected population weights. 'Other inactive' is a residual category.

Source: Pensioners: 1980–91: NYUFIG, 1992–: KSH MEF. Child care recipients: TB. Unemployment: 1990–91: FH REG, 1992–: KSH MEF.

Table 3.2: Labour force participation of the population above 14 years – males*

Year	Population at working age								Population above working age			
			Inactive population									
	Employed	Unemployed	Pensioner	Full time student	On child care leave	Other inactive	Inactive total	Total	Employed	Unemployed	Pensioner, inactive	Total
1980	2,750.5	0.0	173.8	196.3	0.0	99.1	469.2	3,219.7	265.3	0.0	491.8	757.1
1990	2,524.3	37.9	188.4	284.2	1.2	80.3	554.1	3,116.3	123.7	0.0	665.5	789.2
1991	2,351.6	150.3	218.7	296.5	1.5	115.0	631.7	3,133.6	90.4	0.0	700.7	791.1
1992	2,153.1	263.2	252.0	302.4	1.7	174.8	730.9	3,147.2	65.1	3.2	722.1	790.4
1993	2,029.1	311.5	263.2	346.9	2.0	203.3	815.4	3,156.0	47.9	4.5	735.7	788.1
1994	2,013.4	270.0	277.6	357.1	3.7	239.6	878.0	3,161.4	41.6	3.8	740.0	785.4
1995	2,012.5	259.3	282.2	367.4	4.9	237.8	892.3	3,164.1	37.1	2.1	742.6	781.8
1996	2,007.4	242.4	291.9	372.8	3.3	248.3	916.3	3,166.1	28.9	1.3	746.3	776.5
1997	2,018.0	212.2	306.0	377.6	1.5	251.6	936.7	3,166.9	25.5	1.9	743.5	770.9
1998	2,015.5	186.5	345.4	350.4	1.0	264.2	961.0	3,163.0	26.2	2.8	737.3	766.3
1999	2,068.4	170.3	312.7	338.8	4.2	261.5	917.2	3,155.9	34.7	0.4	727.2	762.3
2000	2,086.0	158.2	315.2	358.2	4.1	261.7	939.2	3,183.4	39.8	0.7	758.8	799.3
2001	2,087.6	141.6	311.0	353.4	4.3	283.2	951.9	3,181.1	41.1	0.9	763.0	805.0
2002	2,080.4	137.3	307.5	370.3	5.0	273.4	956.2	3,173.9	45.2	0.7	764.4	810.3
2003	2,073.5	137.6	293.6	367.9	4.3	288.1	953.9	3,165.0	53.0	0.9	762.5	816.4

* See: Table 3.1.

Table 3.3: Labour force participation of the population above 14 years – females*

Year	Population at working age								Population above working age			
			Inactive population									
	Employed	Unemployed	Pensioner	Full time student	On child care leave	Other inactive	Inactive total	Total	Employed	Unemployed	Pensioner, inactive	Total
1980	2,137.4	0.0	127.0	173.8	259.0	240.6	800.4	2,937.8	305.0	0.0	1,140.3	1,445.3
1990	2,010.0	24.5	95.8	264.7	248.5	217.3	826.3	2,860.8	222.0	0.0	1,279.4	1,501.4
1991	1,918.9	103.1	116.9	281.8	258.3	201.9	858.9	2,880.9	159.1	0.0	1,344.5	1,503.6
1992	1,745.3	171.7	140.8	317.6	260.4	261.1	979.9	2,896.9	119.2	6.6	1,379.6	1,505.4
1993	1,660.4	191.1	174.3	337.0	268.5	276.8	1,056.6	2,908.1	89.6	11.8	1,405.5	1,506.9
1994	1,619.7	167.4	198.9	351.1	277.2	301.1	1,128.3	2,915.4	76.8	8.1	1,423.8	1,508.7
1995	1,558.8	150.7	213.0	356.0	280.4	358.3	1,207.7	2,917.2	70.4	4.3	1,438.0	1,512.7
1996	1,538.7	151.6	220.7	367.2	285.9	351.1	1,224.9	2,915.2	73.2	4.8	1,438.3	1,516.3
1997	1,531.5	130.3	236.9	374.4	287.5	348.3	1,247.1	2,908.9	71.4	4.4	1,445.3	1,521.1
1998	1,593.0	119.0	243.4	346.6	294.5	301.5	1,186.0	2,898.0	63.1	4.7	1,460.3	1,528.1
1999	1,632.6	113.0	222.0	336.8	291.1	288.3	1,138.2	2,883.8	75.8	1.0	1,458.0	1,534.8
2000	1,659.9	103.2	202.7	363.5	277.3	309.7	1,153.2	2,916.3	90.5	1.6	1,509.2	1,601.3
2001	1,655.0	90.1	205.3	364.5	282.3	318.3	1,170.4	2,915.5	99.6	1.5	1,508.8	1,609.9
2002	1,639.2	98.4	199.6	368.0	281.8	319.6	1,169.0	2,906.6	118.9	2.5	1,499.5	1,620.9
2003	1,645.6	102.0	191.4	362.8	273.9	315.6	1,143.7	2,891.2	149.9	4.0	1,483.2	1,637.1

* See: Table 3.1.

Table 3.4: Labour force participation of the population above 14 years – per cent*

Year	Population at working age								Population above working age			
			Inactive population									
	Em-ployed	Unem-ployed	Pen-sioner	Full time student	On child care leave	Other inactive	Inactive total	Total	Em-ployed	Unem-ployed	Pen-sioner, inactive	Total
1980	79.4	0.0	4.9	6.0	4.2	5.5	20.6	100.0	25.9	0.0	74.1	100.0
1990	75.9	1.0	4.8	9.2	4.2	5.0	23.1	100.0	15.1	0.0	84.9	100.0
1995	59.7	6.9	8.3	12.1	4.8	8.3	33.4	100.0	4.7	0.3	95.0	100.0
1996	59.3	6.6	8.6	12.4	4.8	8.3	34.1	100.0	4.5	0.3	95.3	100.0
1997	59.4	5.7	9.1	12.6	4.8	8.4	34.9	100.0	4.2	0.3	95.5	100.0
1998	59.5	5.0	9.7	11.5	4.9	9.3	35.4	100.0	3.9	0.3	95.8	100.0
1999	61.2	4.7	8.8	11.2	4.9	9.1	34.1	100.0	4.8	0.1	95.1	100.0
2000	61.4	4.3	8.5	11.8	4.6	9.4	34.3	100.0	5.4	0.1	94.5	100.0
2001	61.4	3.8	8.5	11.8	4.7	9.9	34.8	100.0	5.8	0.1	94.1	100.0
2002	61.2	3.9	8.3	12.1	4.7	9.8	35.0	100.0	6.7	0.1	93.1	100.0
2003	61.4	4.0	8.0	12.1	4.6	10.0	35.0	100.0	8.3	0.2	91.5	100.0

* See: Table 3.1.

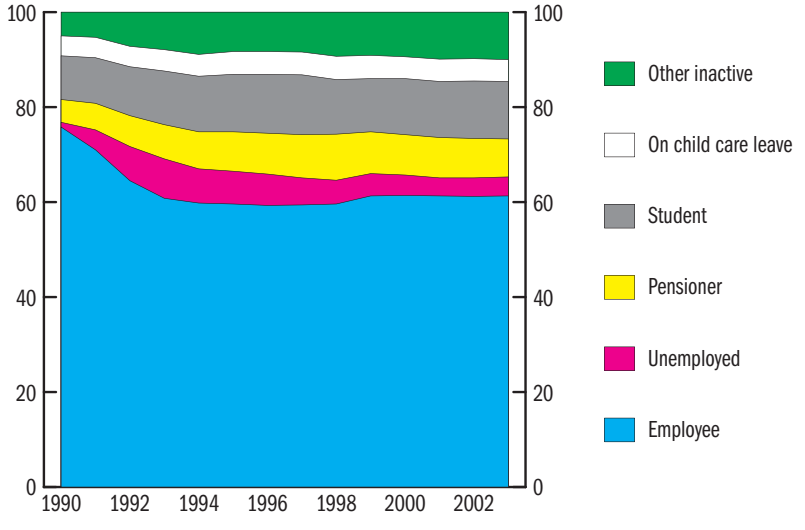


Figure 3.1: Labour force participation of population at working age, total

Table 3.5: Labour force participation of the population above 14 years – males, per cent*

Year	Population at working age								Population above working age			
			Inactive population									
	Em-ployed	Unem-ployed	Pen-sioner	Full time student	On child care leave	Other inactive	Inactive total	Total	Em-ployed	Unem-ployed	Pen-sioner, inactive	Total
1980	79.4	0.0	4.9	6.0	4.2	5.5	20.6	100.0	25.9	0.0	74.1	100.0
1980	85.4	0.0	5.4	6.1	0.0	3.1	14.6	100.0	35.0	0.0	65.0	100.0
1990	81.0	1.2	6.0	9.1	0.0	2.6	17.8	100.0	15.7	0.0	84.3	100.0
1995	63.6	8.2	8.9	11.6	0.2	7.5	28.2	100.0	4.7	0.3	95.0	100.0
1996	63.4	7.7	9.2	11.8	0.1	7.8	28.9	100.0	3.7	0.2	96.1	100.0
1997	63.7	6.7	9.7	11.9	0.0	7.9	29.6	100.0	3.3	0.2	96.4	100.0
1998	63.7	5.9	10.9	11.1	0.0	8.4	30.4	100.0	3.4	0.4	96.2	100.0
1999	65.5	5.4	9.9	10.7	0.1	8.3	29.1	100.0	4.6	0.1	95.4	100.0
2000	65.5	5.0	9.9	11.3	0.1	8.2	29.5	100.0	5.0	0.1	94.9	100.0
2001	65.6	4.5	9.8	11.1	0.1	8.9	29.9	100.0	5.1	0.1	94.8	100.0
2002	65.5	4.3	9.7	11.7	0.2	8.6	30.1	100.0	5.6	0.1	94.3	100.0
2003	65.5	4.3	9.3	11.6	0.1	9.1	30.1	100.0	6.5	0.1	93.4	100.0

* See: Table 3.1.

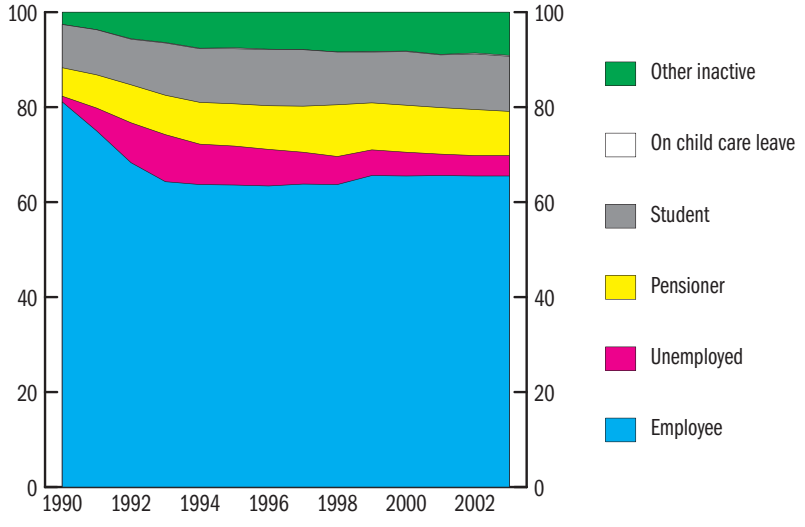


Figure 3.2: Labour force participation of population of working age, males

Table 3.6: Labour force participation of the population above 14 years – females, per cent*

Year	Population at working age								Population above working age			
			Inactive population									
	Em-ployed	Unem-ployed	Pen-sioner	Full time student	On child care leave	Other inactive	Inactive total	Total	Em-ployed	Unem-ployed	Pen-sioner, inactive	Total
1980	79.4	0.0	4.9	6.0	4.2	5.5	20.6	100.0	25.9	0.0	74.1	100.0
1980	72.8	0.0	4.3	5.9	8.8	8.2	27.2	100.0	21.1	0.0	78.9	100.0
1990	70.3	0.9	3.3	9.3	8.7	7.6	28.9	100.0	14.8	0.0	85.2	100.0
1995	53.4	5.2	7.3	12.2	9.6	12.3	41.4	100.0	4.7	0.3	95.1	100.0
1996	52.8	5.2	7.6	12.6	9.8	12.0	42.0	100.0	4.8	0.3	94.9	100.0
1997	52.6	4.5	8.1	12.9	9.9	12.0	42.9	100.0	4.7	0.3	95.0	100.0
1998	55.0	4.1	8.4	12.0	10.2	10.4	40.9	100.0	4.1	0.3	95.6	100.0
1999	56.6	3.9	7.7	11.7	10.1	10.0	39.5	100.0	4.9	0.1	95.0	100.0
2000	56.9	3.5	7.0	12.5	9.5	10.6	39.5	100.0	5.7	0.1	94.2	100.0
2001	56.8	3.1	7.0	12.5	9.7	10.9	40.1	100.0	6.2	0.1	93.7	100.0
2002	56.4	3.4	6.9	12.7	9.7	11.0	40.2	100.0	7.3	0.2	92.5	100.0
2003	56.9	3.5	6.6	12.5	9.5	10.9	39.6	100.0	9.2	0.2	90.6	100.0

* See: Table 3.1.

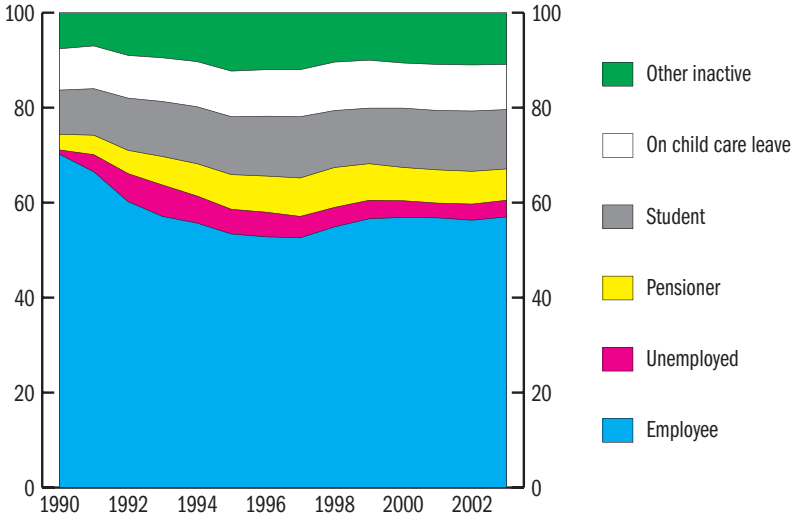


Figure 3.3: Labour force participation of population of working age, females

Table 3.7: Labour market status as reported by Labour Force Survey Respondents

	1999	2000	2001	2001[a]	2002[a]	2003[a]
Total						
In work	3,710.8	3,778.9	3 804.1	3,827.4	3,827.1	3,843.6
Unemployed	473.5	448.1	411.6	414.5	410.4	431.8
Student (pupils)	753.9	749.9	716.4	739.9	763.1	767.7
Pensioner	1,079.7	991.8	968.9	990.8	940.4	856.4
Disabled	195.5	223.8	245.4	251.0	284.4	338.3
On child care	289.0	272.4	280.1	272.3	278.3	281.7
Dependent	167.5	165.9	168.9	170.7	160.4	181.7
Out of work for other reason	113.1	133.6	181.8	184.7	185.7	181.7
Total	6,783.0	6,764.4	6,777.2	6,851.3	6,849.8	6,836.3
Males						
In work	2,042.7	2,075.4	2,091.8	2,089.5	2,090.2	2,087.3
Unemployed	286.1	270.4	255.7	255.2	239.3	244.2
Student (pupils)	375.9	371.4	353.0	363.6	380.9	383.7
Pensioner	426.4	388.6	377.3	386.3	368.1	337.4
Disable for work	106.0	120.4	133.1	134.2	148.1	169.9
On child care leave	3.9	3.8	4.0	4.0	4.9	4.7
Dependent	6.5	5.3	6.3	6.3	5.1	5.3
Out of work from other reason	67.4	77.6	99.9	100.8	101.2	97.5
Total	3,314.9	3,312.9	3,321.1	3,339.9	3,337.8	3,330.0
Females						
In work	1,668.1	1,703.5	1,712.3	1,737.9	1,736.9	1,756.3
Unemployed	187.4	177.7	155.9	159.3	171.1	187.6
Student (pupils)	378.0	378.5	363.4	376.3	382.2	384.0
Pensioner	653.3	603.2	591.6	604.5	572.3	519.0
Disabled	89.5	103.4	112.3	116.8	136.3	168.4
On child care leave	285.1	268.6	276.1	268.3	273.4	277.0
Dependent	161.0	160.6	162.6	164.4	155.3	129.8
Out of work for other reason	45.7	56.0	81.9	83.9	84.5	84.2
Total	3,468.1	3,451.5	3,456.1	3,511.4	3,512.0	3,506.3

[a] Marked data are weighted on the basis of the 2001 Population Census. 2001 is existing as a "Janus year".
Source: KSH MEF.

Table 4.1: Employed of working age*

Year	1000 prs	1992=100	Annual change	Empl. ratio[1]
1980	4,887.9	125.4	...	79.4
1990	4,534.3	116.3	...	75.9
1993	3,689.5	94.6	-5.4	60.8
1994	3,633.1	93.2	-1.5	59.8
1995	3,571.3	91.6	-1.7	58.7
1996	3,546.1	91.0	-0.7	58.3
1997	3,549.5	91.1	0.1	58.4
1998	3,608.5	92.6	1.7	59.5
1999	3,701.0	94.9	2.6	61.3
2000	3,721.7	95.5	0.6	62.1
2001	3,719.2	95.4	0.0	...
2001[a]	3,742.6	96.0	0.0	61.4
2002[a]	3,719.6	95.4	-0.6	61.2
2003[a]	3,719.0	95.4	0.0	61.2

* Female aged 15–44, uncorrected for changes in the retirement age.
1 Per cent of the same age group.
[a] See note of Table 3.7.
Source: 1980–91: KSH MEM, 1992– KSH MEF

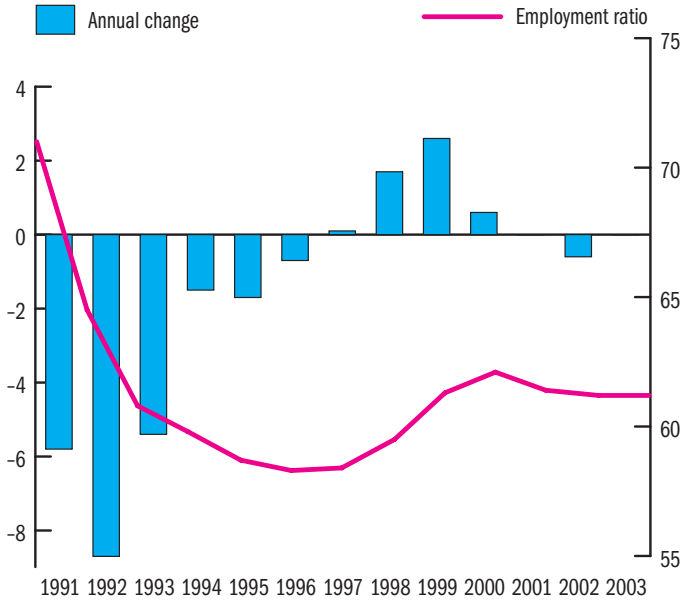


Figure 4.1: Employed of working age

Table 4.2: Employed above working age

Year	1000 prs	1992=100	Annual change	Empl. ratio[1]
1980	570.3	309.4	...	25.9
1990	345.7	187.6	...	15.1
1993	137.5	74.6	-25.4	6.0
1994	118.4	64.2	-13.9	5.2
1995	107.5	58.3	-9.2	4.7
1996	102.1	55.4	-5.0	4.5
1997	96.9	52.6	-5.1	4.2
1998	89.3	48.5	-7.8	3.9
1999	110.4	59.9	23.6	4.8
2000	127.4	69.2	15.3	5.5
2001	140.3	76.1	10.2	...
2001[a]	140.7	76.3	10.2	6.2
2002[a]	164.1	89.0	16.6	6.7
2003[a]	202.9	110.1	23.6	8.3

1 Per cent of the population above working age. Working age defined ad females aged 15–54 and men aged 15–59.

[a] See note of Table 3.7.

Source: 1980–91: KSH MEM, 1992– KSH MEF

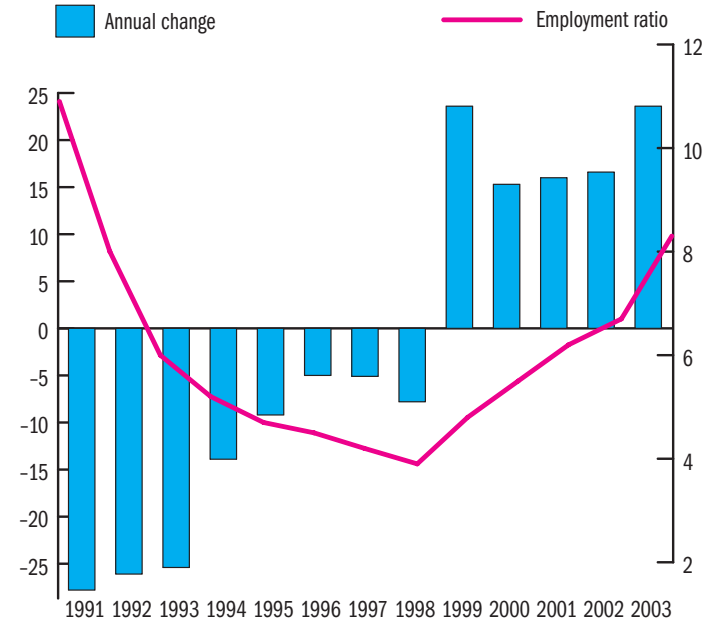


Figure 4.2: Employed above working age

Table 4.3: Employed

Year	1000 prs	1992=100	Annual change	Empl. ratio[1]
1980	5,458.2	133.7	...	65.3
1990	4,880.0	119.5	...	59.0
1991	4,520.0	110.7	-7.4	54.4
1992	4,082.7	100.0	-9.7	49.0
1993	3,827.0	93.7	-6.3	45.8
1994	3,751.5	91.9	-2.0	44.8
1995	3,678.8	90.1	-1.9	43.9
1996	3,648.2	89.4	-0.8	43.6
1997	3,646.4	89.3	0.0	43.6
1998	3,697.8	90.6	1.4	44.3
1999	3,811.4	93.4	3.1	45.7
2000	3,849.1	94.3	1.0	46.2
2001	3,859.5	94.5	0.3	...
2001[a]	3,883.3	95.1	0.3	45.6
2002[a]	3,883.7	95.1	0.0	45.6
2003[a]	3,921.9	96.1	1.2	46.2

1 Per cent of the population above 15 year.
[a] See note of Table 3.7.
Source: 1980–91: KSH MEM, 1992– KSH MEF.

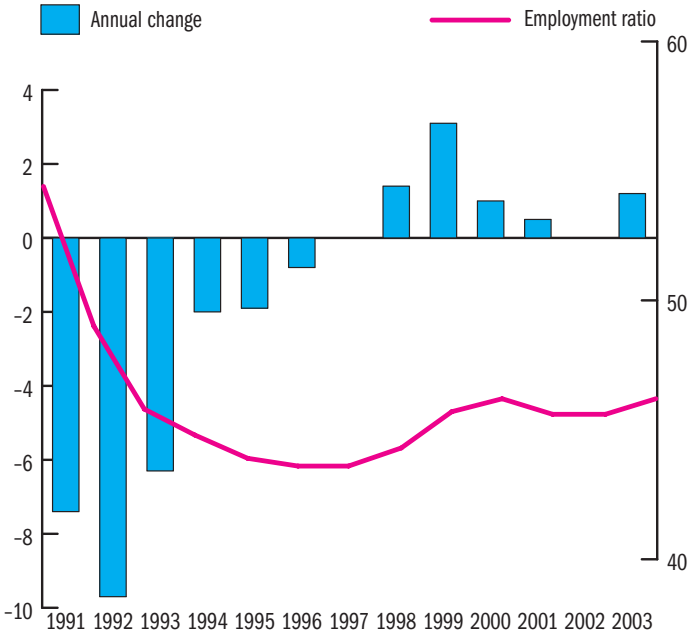


Figure 4.3: Employed

Table 4.4: Employed by gender

Year	Males		Females		Share of females
	1000 prs	1992 = 100	1000 prs	1992 = 100	per cent
1980	3,015.8	136.0	2,442.4	131.0	44.7
1990	2,648.0	119.4	2,232.0	119.7	45.7
1991	2,442.0	110.1	2,078.0	111.5	46.0
1992	2,218.2	100.0	1,864.5	100.0	45.7
1993	2,077.0	93.6	1,750.0	93.9	45.7
1994	2,055.0	92.6	1,696.5	91.0	45.2
1995	2,049.6	92.4	1,629.2	87.4	44.3
1996	2,036.3	91.8	1,611.9	86.5	44.2
1997	2,043.5	92.1	1,602.9	86.0	44.0
1998	2,041.7	92.0	1,656.1	88.8	44.8
1999	2,103.1	94.8	1,708.4	91.6	44.8
2000	2,122.4	95.7	1,726.7	92.6	44.9
2001	2,130.6	96.1	1,728.9	92.7	44.8
2001[a]	2,128.7	96.0	1,754.6	94.1	45.2
2002[a]	2,125.6	95.8	1,758.1	94.3	45.3
2003[a]	2,126.5	95.6	1,795.4	96.2	45.8

[a] See note of Table 3.7.
Source: 1980–91: KSH MEM, 1992– : KSH MEF.

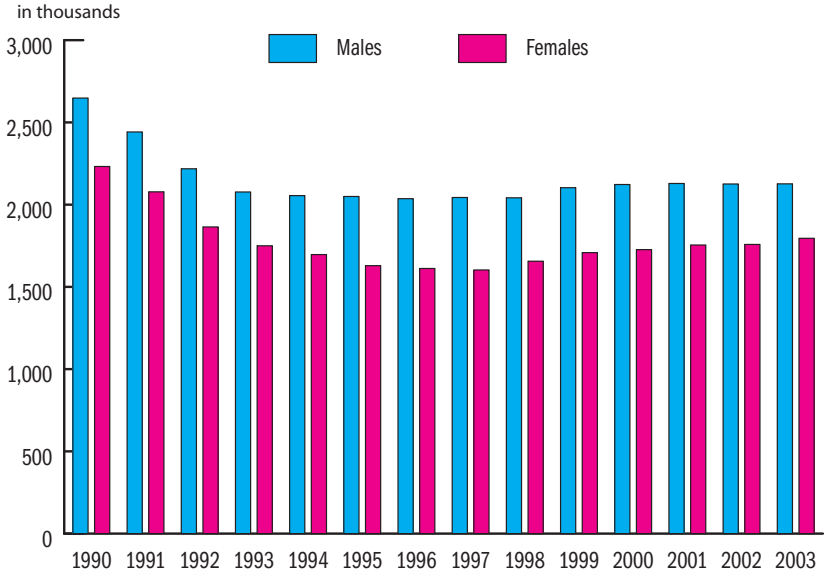


Figure 4.4: Employed by gender

Table 4.5: Composition of the employed by age groups – males, per cent

Year	15–19	20–24	25–49	50–54	55–59	60+	Total
	years old						
1980	5.1	12.6	55.4	10.2	8.0	8.7	100.0
1990	5.0	10.8	64.1	8.6	6.8	4.7	100.0
1991	4.5	10.9	65.3	8.9	6.7	3.7	100.0
1992	3.3	10.9	67.2	9.1	6.5	2.9	100.0
1993	2.9	11.1	68.3	9.2	6.1	2.3	100.0
1994	2.9	11.3	68.7	9.5	5.5	2.0	100.0
1995	2.8	11.3	68.8	9.7	5.6	1.8	100.0
1996	2.5	11.6	69.3	9.6	5.6	1.4	100.0
1997	2.3	12.3	68.9	9.9	5.4	1.2	100.0
1998	2.3	13.4	67.6	10.3	5.1	1.3	100.0
1999	1.9	13.2	67.1	10.5	5.6	1.6	100.0
2000	1.5	12.4	67.3	10.6	6.4	1.8	100.0
2001	1.1	10.9	68.3	11.0	6.9	1.8	100.0
2001[a]	1.2	10.4	68.6	11.1	6.7	2.0	100.0
2002[a]	0.9	9.4	69.4	11.3	6.9	2.1	100.0
2003[a]	0.7	8.6	69.1	11.8	7.3	2.5	100.0

[a] See note of Table 3.7.
Source: 1980–91: Census based estimates. 1992– : KSH MEF.

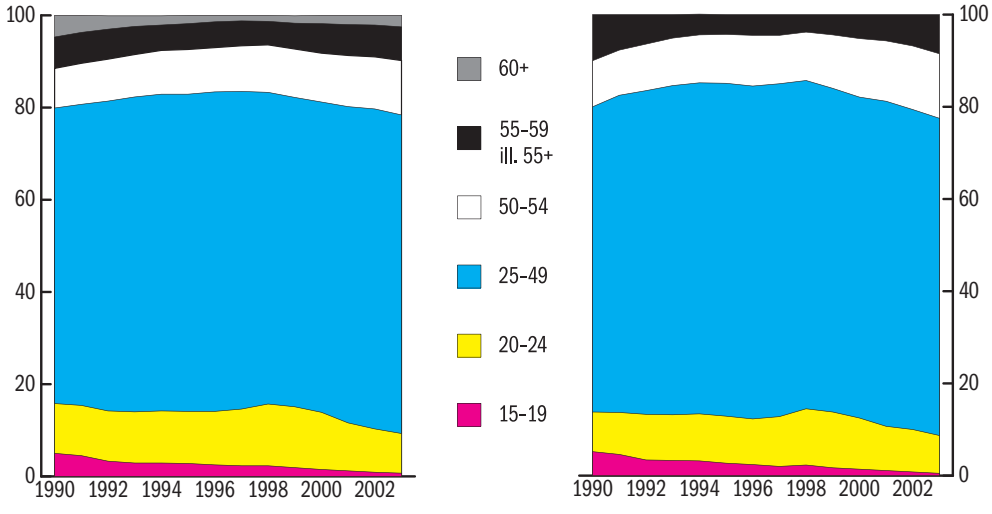


Figure 4.5: Employed by age, per cent

Table 4.6: Composition of the employed by age groups – females, per cent

Year	15–19	20–24	25–49	50–54	55+	Total
			years old			
1980	5.3	9.7	61.8	10.7	12.5	100.0
1990	5.2	8.6	66.2	10.0	10.0	100.0
1993	3.3	9.9	71.4	10.3	5.1	100.0
1994	3.2	10.2	71.8	10.4	4.5	100.0
1995	2.7	10.2	72.2	10.6	4.3	100.0
1996	2.4	9.9	72.2	11.0	4.5	100.0
1997	2.0	10.8	72.2	10.5	4.5	100.0
1998	2.3	12.2	71.2	10.5	3.8	100.0
1999	1.7	12.1	70.2	11.6	4.4	100.0
2000	1.4	11.1	69.6	12.7	5.2	100.0
2001	1.1	10.1	70.0	13.0	5.8	100.0
2001[a]	1.1	9.6	70.5	13.1	5.7	100.0
2002[a]	0.8	9.2	69.4	13.8	6.8	100.0
2003[a]	0.5	8.2	68.8	14.0	8.5	100.0

[a] See note of Table 3.7.
Source: 1980–91: Census based estimates. 1992–: KSH MEF.

Table 4.7: Composition of the employed by level of education – males, per cent

Year	8 grades of primary school or less	Vocational school	Secondary school	College, University	Total
1980	40.8	32.3	18.2	8.7	100.0
1990	37.6	30.5	20.1	11.8	100.0
1993	24.0	36.2	25.1	14.7	100.0
1994	22.5	38.1	25.2	14.2	100.0
1995	21.3	38.5	25.5	14.7	100.0
1996	20.2	39.3	25.3	15.2	100.0
1997	20.1	39.4	26.5	14.1	100.0
1998	20.3	39.4	25.7	14.7	100.0
1999	16.8	41.5	26.8	14.9	100.0
2000	16.1	41.6	26.7	15.6	100.0
2001	15.7	42.7	26.0	15.6	100.0
2001[a]	15.6	42.8	26.0	15.6	100.0
2002[a]	14.6	43.2	26.4	15.8	100.0
2003[a]	14.0	41.3	27.7	17.0	100.0

[a] See note of Table 3.7.
Source: Census based estimates. 1992– : KSH MEF. Since 1999 slight changes carried out in the categorisation system.

Table 4.8: Composition of the employed by level of education – females, per cent

Year	8 grades of primary school or less	Vocational school	Secondary school	College, University	Total
1980	53.1	12.3	27.5	7.2	100.0
1990	43.4	13.4	31.4	11.8	100.0
1995	26.5	20.1	37.1	16.3	100.0
1996	25.6	19.6	37.3	17.6	100.0
1997	25.1	20.6	37.9	16.4	100.0
1998	23.6	20.2	38.2	18.0	100.0
1999	20.6	20.3	40.6	18.5	100.0
2000	19.1	20.9	40.8	19.2	100.0
2001	19.0	21.2	40.4	19.4	100.0
2001[a]	19.1	21.3	40.3	19.3	100.0
2002[a]	18.5	21.5	40.2	19.8	100.0
2003[a]	16.4	21.5	40.9	21.2	100.0

* See note of Table 3.7.
Source: Census based estimates. 1992– : KSH MEF.

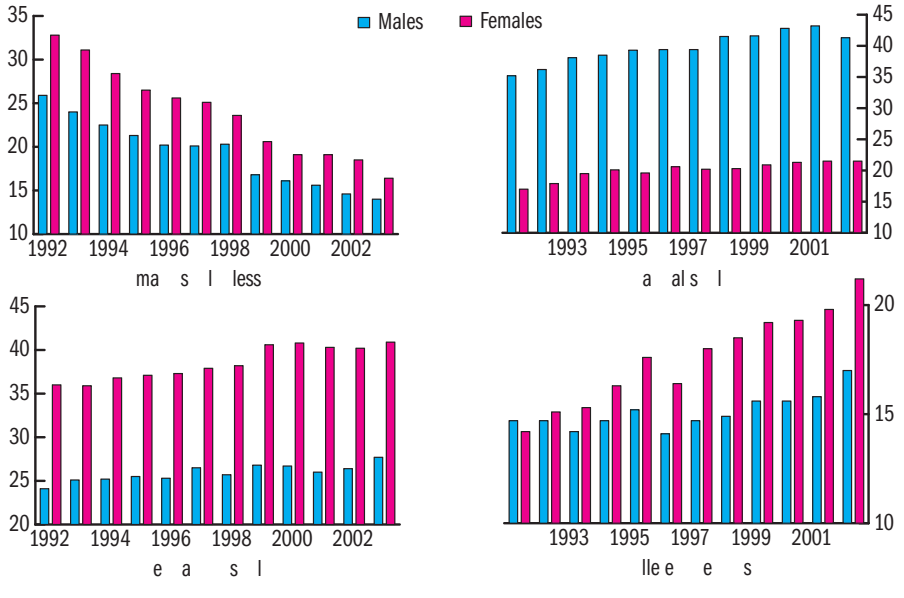


Figure 4.6: Employed by highest educational attainment and gender, per cent

Table 4.9: Employed by type of employment

Year	Employees	Member of cooperatives	Member of other partnerships	Selfemployed and assisting family members	Total
1994	3,045.2	103.3	174.7	369.3	3,692.5
1995	2,978.9	84.2	167.9	391.8	3,622.8
1996	2,961.2	79.0	151.8	413.1	3,605.1
1997	2,989.7	68.9	137.4	414.3	3,610.3
1998	3,088.5	55.8	132.5	397.9	3,674.7
1999	3,201.3	42.5	111.8	435.9	3,791.5
2000	3,255.5	37.1	129.4	407.1	3,829.1
2001	3,296.3	30.7	119.1	398.4	3,844.5
2001[a]	3,313.6	31.4	118.9	404.4	3,868.3
2002[a]	3,337.2	22.5	109.9	401.0	3,870.6
2003[a]	3,399.2	8.6	114.7	399.4	3,921.9

[a] See note of Table 3.7.
Note: Conscripts are excluded.
Source: 1980–91: KSH MEM, 1992– KSH MEF.

Table 4.10: Composition by type of employment – per cent

Year	Employees	Member of cooperatives	Member of other partnerships	Selfemployed and assisting family members	Total
1994	82.5	2.8	4.7	10.0	100.0
1995	82.2	2.3	4.6	10.8	100.0
1996	82.1	2.2	4.2	11.5	100.0
1997	82.8	1.9	3.8	11.5	100.0
1998	84.0	1.5	3.6	10.8	100.0
1999	84.4	1.1	2.9	11.5	100.0
2000	85.0	1.0	3.4	10.6	100.0
2001	85.7	0.8	3.1	10.4	100.0
2001[a]	85.7	0.8	3.1	10.5	100.0
2002[a]	86.2	0.6	2.8	10.4	100.0
2003[a]	86.7	0.2	2.8	10.3	100.0

[a] See note of Table 3.7.
Note: See Table 4.9.

Table 4.11: Employees by industry, per cent*

	1980	1990	1993	1994	1995	1996	1997	1998	1999	2000	2001[a]	2002[a]	2003[a]
Agriculture	18.0	15.8	8.2	7.6	6.9	7.1	6.6	6.3	5.8	5.2	4.9	4.8	4.4
Mining and quarrying	2.2	1.8	1.2	1.2	1.0	1.0	0.8	0.7	0.7	0.7	0.4	0.4	0.4
Manufacturing	29.2	29.5	25.9	24.7	24.3	24.7	25.1	26.0	26.0	25.9	26.5	26.4	25.2
Electricity, gas, steam, water supply	2.9	3.0	3.1	3.2	2.9	2.7	3.0	2.9	2.6	2.3	2.3	2.1	1.9
Construction	7.0	5.9	5.3	5.0	5.5	5.5	5.5	5.7	6.0	6.4	6.5	6.4	7.0
Wholesale and retail trade	8.7	8.9	10.8	10.9	10.7	11.5	12.0	11.4	12.3	13.0	13.1	13.1	13.2
Hotels and restaurants	2.3	2.4	2.6	2.5	2.9	2.8	3.0	3.0	3.3	3.2	3.5	3.4	3.4
Transport, storage, communication	7.4	6.7	8.9	8.4	8.6	8.6	8.4	8.3	8.3	8.3	8.3	8.1	7.8
Financial intermediation	1.1	1.4	2.1	2.1	2.5	2.5	2.5	2.3	2.2	2.2	2.1	2.0	1.9
Real estate, renting, business activities	3.2	2.9	3.7	3.2	3.4	3.2	3.7	4.0	4.5	5.0	5.4	5.5	6.1
Public administration and defence; compulsory social security	4.0	5.6	8.7	9.4	9.6	9.4	9.0	8.8	8.4	8.1	7.9	8.1	8.4
Education	6.0	7.1	10.0	9.9	10.1	9.8	9.1	9.2	9.0	9.1	8.9	9.1	9.2
Health and social work	5.3	5.5	7.1	7.0	6.9	6.8	7.1	7.1	6.9	6.8	6.6	6.7	7.3
Other	2.7	3.4	4.2	4.8	4.7	4.1	4.2	4.3	4.0	3.9	3.7	3.7	3.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* Includes members of cooperatives and partnerships.
[a] See: Table 4.1.
Source: 1980 –1990: 1980–1990: Census based estimates.; 1992–: KSH MEF.

Table 4.12: Employees of the corporate sector by firm size, per cent

Year	less than 20	20–49	50–249	250–999	more than 1000
	number of employees				
1998	8.2	5.8	25.1	26.4	34.4
1999	8.9	7.7	25.6	25.5	32.3
2000	20.2	7.0	23.5	22.5	26.8
2001	18.5	7.5	24.3	23.0	26.7
2002	21.6	14.0	21.5	20.1	22.9
2003	23.0	15.3	20.5	19.3	21.8

Note: –1999: firms employing 10 or more workers; 2000–2001: firms employing 5 or more workers.
Source: FH BT.

Table 4.13: Employees of the corporate sector by the share of foreign ownership, per cent

Foreign Ownership	1997	1998	1999	2000	2001	2002	2003
100%	12.2	14.4	17.1	17.5	19.0	17.7	16.5
Majority	12.3	13.9	13.5	11.7	11.0	9.2	8.8
Minority	7.3	7.6	6.0	5.3	4.9	3.6	3.9
0%	68.2	64.1	63.4	65.5	65.1	69.5	70.8

Note: See Table 4.12.
Source: FH BT.

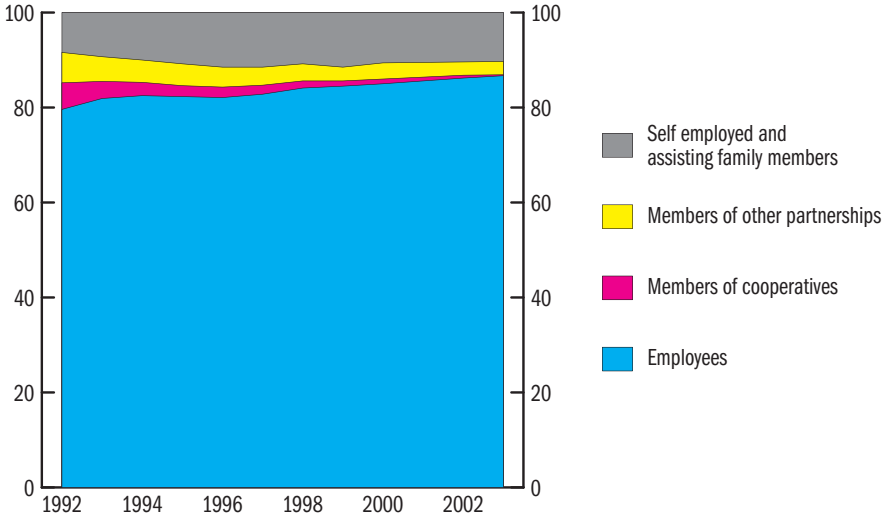


Figure 4.7: Ratio of employees, members of cooperatives, members of other partnerships, self-employed and assisting family members, per cent

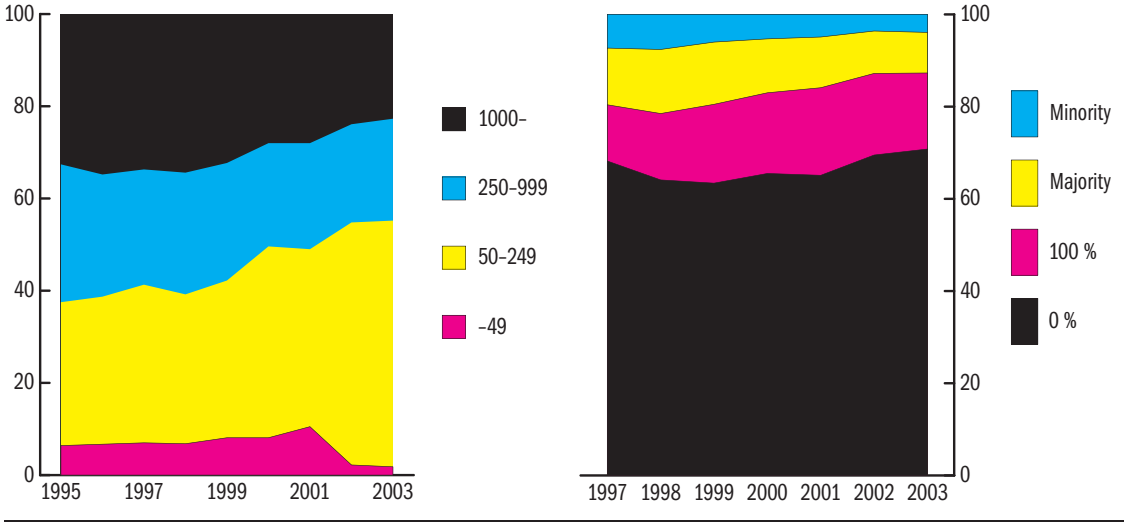


Figure 4.8: Employees of the corporate sector by firm size and by the share of foreign ownership

Table 5.1: Unemployment rate by age and gender and % of long term unemployed

Year	Unemployment rate				Share of long term unemployed[1]
	Males	Females	Together	Of which: 15–24 ages	
1992	10.7	8.7	9.8	17.5	...
1993	13.2	10.4	11.9	21.3	...
1994	11.8	9.4	10.7	19.4	43.2
1995	11.3	8.7	10.2	18.6	50.6
1996	10.7	8.8	9.9	17.9	54.4
1997	9.5	7.8	8.7	15.9	51.3
1998	8.5	7.0	7.8	13.4	48.8
1999	7.5	6.3	7.0	12.4	49.5
2000	7.0	5.6	6.4	12.1	49.1
2001	6.3	5.0	5.7	10.8	46.7
2001[a]	6.3	5.0	5.7	10.9	46.7
2002[a]	6.1	5.4	5.8	12.3	44.9
2003[a]	6.1	5.6	5.9	13.4	43.9

[1] Long term unemployed = 12 or more months without job.
[a] See note of Table 3.7.
Source: KSH MEF.

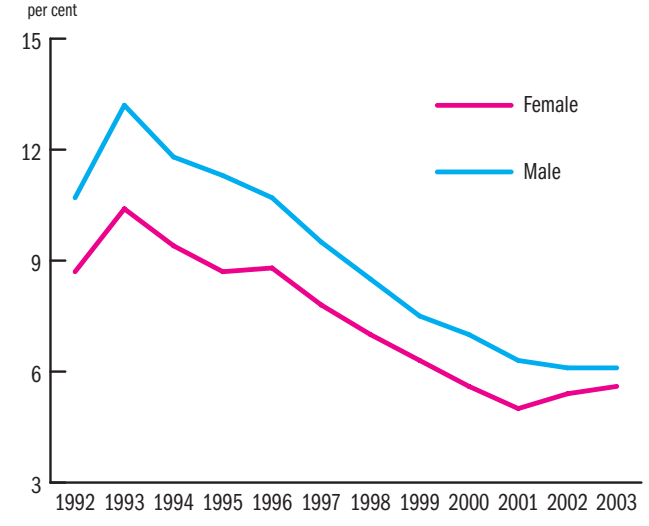


Figure 5.1: Unemployment rate by gender

Table 5.2: Composition of the unemployed by level of education – females

Year	8 grades of primary school or less	Vocational school	Secondary school	College, University	Total
1993	45.8	22.6	27.4	4.2	100.0
1994	44.4	23.1	29.4	3.1	100.0
1995	41.0	24.3	29.7	5.0	100.0
1996	38.2	24.9	31.6	5.4	100.0
1997	44.2	23.2	28.4	4.2	100.0
1998	41.6	22.7	31.4	4.3	100.0
1999	36.2	26.2	33.8	3.8	100.0
2000	31.8	28.2	35.0	5.0	100.0
2001	33.3	28.2	32.5	6.1	100.0
2001[a]	33.7	28.0	32.2	6.1	100.0
2002[a]	33.2	26.0	32.2	8.5	100.0
2003[a]	32.7	28.3	32.0	7.0	100.0

[a] See note of Table 3.7.
Source: KSH LFS.

Table 5.3: Composition of the unemployed by level of education – males

Year	8 grades of primary school or less	Vocational school	Secondary school	College, University	Total
1993	39.0	40.8	17.3	2.8	100.0
1994	37.3	42.7	15.8	4.3	100.0
1995	37.7	44.0	14.7	3.6	100.0
1996	37.6	44.0	15.1	3.3	100.0
1997	38.9	43.7	15.4	2.0	100.0
1998	37.4	42.0	17.2	3.4	100.0
1999	34.5	45.3	17.4	2.8	100.0
2000	32.9	45.8	17.9	3.4	100.0
2001	36.8	42.9	17.4	2.9	100.0
2001[a]	36.5	43.2	17.5	2.8	100.0
2002[a]	36.7	43.3	16.7	3.3	100.0
2003[a]	34.0	44.7	17.2	4.1	100.0

[a] See note of Table 3.7.
Source: 1992–: KSH LFS. Since 1999 slight changes carried out in the categorisation system.

Table 5.4: The distribution of unemployed by duration of job search, in thousands*

Year	Length of job search								Total
	1–4 [<1]	5–14 [1–3]	15–26 [4–6]	27–51 [7–11]	52 [12]	53–78 [13–18]	79–104 [19–24]	105– [>24]	
	weeks [month]								
1992	43.9	90.9	96.4	110.7	10.6	41.7	38.4	–	432.6
1993	36.2	74.8	87.9	120.5	14.7	75.1	83.7	–	492.9
1994	30.5	56.5	65.0	91.9	8.4	63.0	73.8	40.4	429.5
1995	23.0	51.0	56.5	69.4	20.2	57.2	34.3	93.2	404.8
1996	19.9	46.4	49.3	61.5	18.2	56.1	37.1	100.2	388.7
1997	16.1	43.7	45.9	54.4	15.7	44.5	31.1	77.3	328.7
1998	12.9	44.2	44.5	45.7	16.0	39.0	27.6	63.5	293.4
1999	15.4	44.1	38.8	46.0	13.2	38.1	26.8	62.3	284.7
2000	16.7	38.5	35.1	42.8	12.7	36.9	23.6	55.4	261.3
2001	14.7	36.9	33.1	38.3	11.3	31.4	20.9	44.1	230.7
2001[a]	14.9	37.0	33.2	38.6	11.5	31.6	20.9	44.2	231.9
2002[a]	15.5	39.4	34.8	40.7	11.6	32.7	19.8	42.5	237.0
2003[a]	15.9	42.1	38.9	42.0	14.5	27.6	17.6	43.0	241.6

* Without those unemployed who will get a new job within 30 days.
[a] See note of Table 3.7.
Source: KSH MEF.

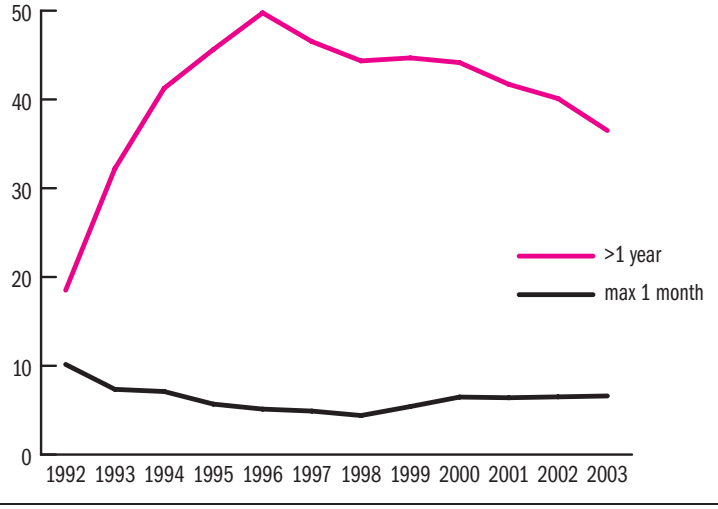
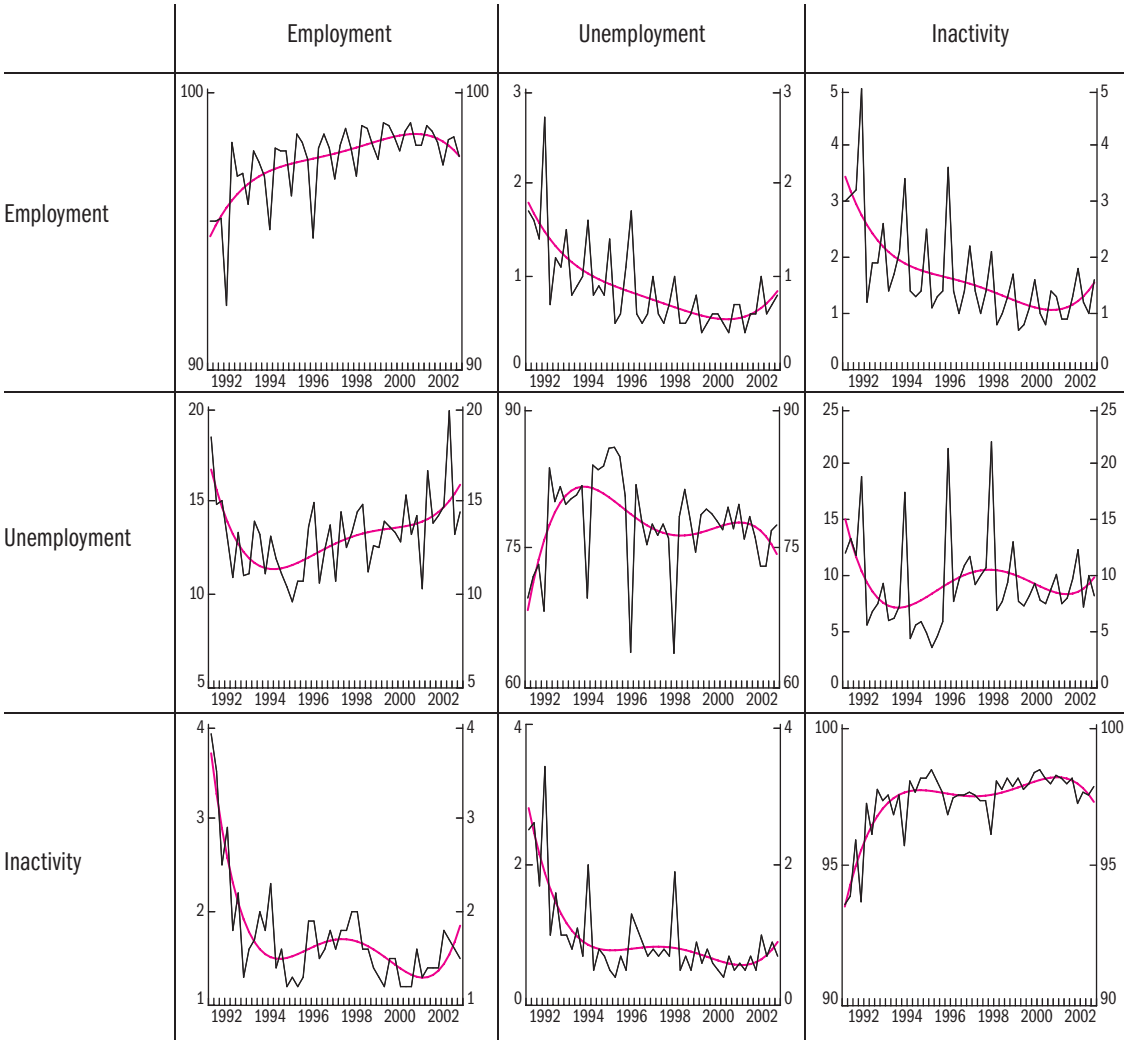


Figure 5.2: The distribution of unemployed by duration of job search, in thousands

Figure 5.3: Quarterly flows between labour market states, population between 15–74 years



The data refer to 15–74 aged cohorts observed in the LFS in two consecutive quarters.
Red curves: smoothed with fourth degree polinomial.
Source: KSH MEF.

Table 5.5: Registered and LFS unemployment

Year	Registered unemployed		LFS unemployed total		LFS unemployed 15–24 age	
	in thousands	rate in %	in thousands	rate in %	in thousands	rate in %
1990	47.7	–	...	...	...	...
1991	227.3	4.1	...	...	...	...
1992	557.0	10.3	444.2	9.8	120.0	17.5
1993	671.8	12.9	518.9	11.9	141.3	21.3
1994	568.4	11.3	451.2	10.7	124.7	19.4
1995	507.7	10.6	416.5	10.2	114.3	18.6
1996	500.6	11.0	400.1	9.9	106.3	17.9
1997	470.1	10.5	348.8	8.7	95.8	15.9
1998	423.1	9.5	313.0	7.8	87.6	13.4
1999	409.5	9.7	284.7	7.0	78.6	12.4
2000	390.5	9.3	262.5	6.4	70.7	12.1
2001	364.1	8.5	232.9	5.7	55.7	10.8
2002	344.7	8.0	238.8	5.8	56.5	12.3
2003	357.2	8.3	244.5	5.9	54.9	13.4

Note: The denominator of the unemployment rate is the economically active population on 1st January of the previous year.
Source: Registered unemployed: FH REG; LFS unemployed: KSH MEF.

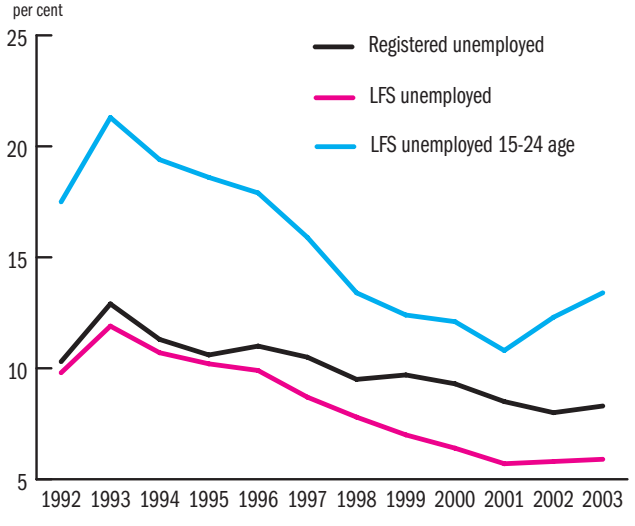


Figure 5.4: Registered and LFS, LFS 15–24 age unemployment rates

Table 5.6: Unemployed by economic activity as observed in the LFS

Year	Employed	Unemployed	Inactive	Total
1992	5.1	71.6	23.3	100.0
1993	10.0	63.6	26.4	100.0
1994	14.4	54.5	31.1	100.0
1995	11.8	53.7	34.5	100.0
1996	13.7	51.8	34.5	100.0
1997	18.7	44.1	37.2	100.0
1998	24.8	35.1	40.1	100.0
1999	6.7	55.8	37.5	100.0
2000	4.7	54.3	41.0	100.0
2001	6.5	45.2	48.3	100.0
2002[a]	4.4	47.4	48.2	100.0
2003[a]	9.4	44.1	46.5	100.0

[a] See: Table 4.1.

Note: The data refer to the population observed as registered unemployed in the LFS. Since 1999 serious methodology changes: people whose last contact with employment office was more then two months before the interview were excluded.

Source: KSH MEF.

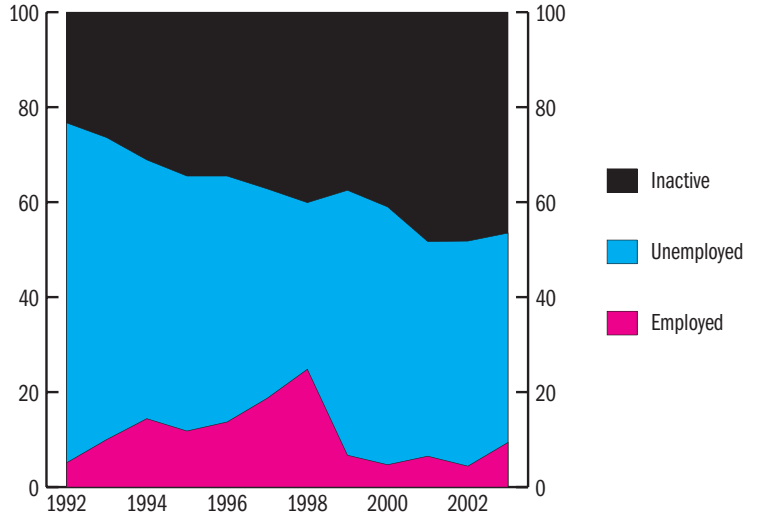


Figure 5.5: Registered unemployed by economic activity

Table 5.7: Selected time series of registered unemployment, yearly average, in thousands, per cent

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Registered unemployment	671.7	568.4	507.7	500.6	470.1	423.1	409.5	390.5	364.1	344.7	357.2
Of which:											
School-leavers	59.7	62.1	54.5	46.2	42.4	32.5	29.9	26.0	26.8	28.5	31.3
Non school-leavers	612.0	506.2	453.2	454.4	427.7	390.6	379.6	364.4	337.4	316.2	325.9
Male	395.3	333.0	293.8	284.1	267.1	233.4	221.4	209.7	196.4	184.6	188.0
Female	276.4	235.3	213.8	216.5	203.0	189.7	188.1	180.8	167.7	160.1	169.2
25 years old and younger	174.8	153.3	134.2	124.0	105.8	89.9	85.4	79.1	75.6	71.1	71.6
Manual workers	556.0	467.6	414.3	407.4	386.3	349.0	336.8	321.2	302.0	286.3	296.2
Non manual workers	115.8	100.7	93.4	93.2	83.8	74.1	72.7	69.3	62.1	58.4	61.0
Unemployment benefit recipients	404.8	228.9	182.8	171.7	141.7	130.7	140.7	131.7	119.2	114.9	120.0
Unemployment assistance recipients	89.3	190.3	210.0	211.3	201.3	182.2	148.6	143.5	131.2	113.4	116.2
Shares within registered unemployed											
Unemployment rate	12.9	11.3	10.6	11.0	10.5	9.5	9.7	9.3	8.5	8.0	8.3
School-leavers	8.9	10.9	10.7	9.2	9.0	7.7	7.3	6.7	7.3	8.3	8.8
Male	58.8	58.6	57.9	56.7	56.8	55.2	54.1	53.7	53.9	53.5	52.6
25 years old and younger	26.0	27.0	26.4	24.8	22.5	21.3	20.9	20.3	20.8	20.6	20.0
Manual workers	82.8	82.3	81.6	81.4	82.2	82.5	82.3	82.2	82.9	83.1	82.9
Inflow to the Register	48.6	42.3	45.7	52.8	56.1	55.4	57.2	54.1	57.0	56.0	54.8
Of which: school-leavers	7.6	7.8	8.0	7.5	9.2	9.8	9.3	8.0	7.8	7.8	7.7
Outflow from the Register	51.2	51.7	47.6	54.3	57.3	60.4	57.2	56.8	59.4	55.8	53.5
Of which: school-leavers	6.6	7.9	8.5	8.9	9.0	11.0	9.4	8.2	7.7	7.5	7.6

Note: Recipients of job search assistance benefit included. From 2001 together with regular social allowance recipients.
Source: FH REG.

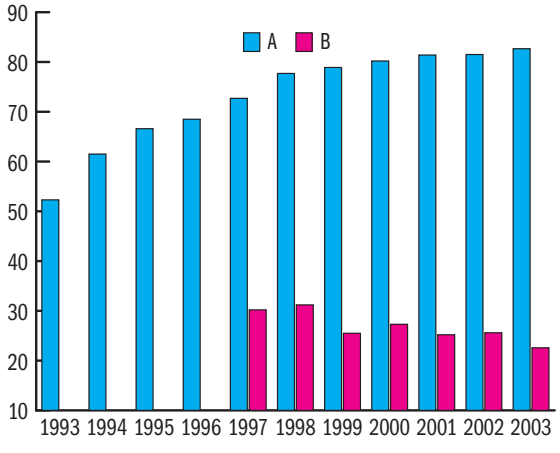


Figure 5.6: Long-term registered unemployment
A: Time since first registration exceeds 1 year; per cent of total registered unemployment.
B: Time since last registration exceeds 1 year; per cent of total registered unemployment.

Table 5.8: First-time entrants and re-entrants to the unemployment register, in thousands

	January	February	March	April	May	June	July	August	September	Oktober	November	December	Monthly average
1995													
First-Time Entrants	20.0	18.5	15.6	15.8	13.8	17.9	27.9	16.9	16.4	15.5	12.9	12.4	17.0
Re-Entrants	36.3	24.6	18.8	20.8	18.0	23.3	35.3	24.8	35.2	27.3	40.3	40.0	28.7
Total Number of Entrants	56.3	43.0	34.4	36.6	31.8	41.2	63.2	41.7	51.6	42.8	53.2	52.4	45.7
1996													
First-Time Entrants	18.6	20.3	18.3	17.0	16.2	21.8	34.7	18.5	21.6	14.6	16.2	12.7	19.2
Re-Entrants	38.9	30.9	25.2	22.9	31.5	34.0	37.5	31.2	38.3	37.8	38.0	37.4	33.6
Total Number of Entrants	57.4	51.1	43.4	40.0	47.7	55.7	72.1	49.7	59.9	52.4	54.2	50.2	52.8
1997													
First-Time Entrants	18.1	20.7	15.3	13.6	13.7	20.6	27.2	17.6	18.3	13.6	14.5	10.5	17.0
Re-Entrants	56.7	47.5	36.3	32.5	30.0	32.5	34.3	32.5	36.9	36.9	47.5	46.5	39.2
Total Number of Entrants	74.8	68.3	51.6	46.1	43.7	53.1	61.4	50.1	55.2	50.5	62.0	57.0	56.1
1998													
First-Time Entrants	13.8	14.9	11.8	10.4	10.6	12.2	21.9	15.1	15.7	12.9	12.2	9.2	13.4
Re-Entrants	58.9	46.3	39.1	35.0	35.5	32.9	36.1	34.6	38.4	44.4	50.9	52.0	42.0
Total Number of Entrants	72.7	61.2	50.9	45.3	46.1	45.1	58.0	49.7	54.1	57.3	63.1	61.1	55.4
1999													
First-Time Entrants	12.7	12.5	11.1	10.2	10.3	10.6	21.0	14.7	16.9	12.3	11.6	9.8	12.8
Re-Entrants	59.7	47.2	42.4	39.8	38.7	35.9	40.2	39.8	42.5	43.3	49.6	53.9	44.4
Total Number of Entrants	72.4	59.6	53.5	50.0	48.9	46.5	61.2	54.5	59.4	55.7	61.1	63.7	57.2
2000													
First-Time Entrants	11.9	12.0	9.9	9.7	7.4	9.6	18.1	12.3	14.9	10.7	9.6	8.8	11.2
Re-Entrants	57.4	46.3	39.9	39.2	32.0	37.9	41.1	35.0	42.9	43.4	45.8	53.9	42.9
Total Number of Entrants	69.3	58.3	49.8	48.9	39.4	47.5	59.2	47.3	57.8	54.1	55.4	62.7	54.1
2001													
First-Time Entrants	11.2	12.9	9.9	9.7	8.3	10.9	15.8	11.5	15.9	10.6	9.6	8.7	11.2
Re-Entrants	57.5	53.7	42.0	42.9	38.5	42.3	52.7	22.9	46.6	45.8	46.1	57.7	45.8
Total Number of Entrants	68.7	66.6	51.9	52.6	46.8	53.2	68.5	34.4	62.5	56.4	55.7	66.4	57.0
2002													
First-Time Entrants	9.9	12.5	8.9	8.2	7.2	9.9	15.1	11.6	14.0	9.6	9.6	7.7	10.4
Re-Entrants	54.3	57.4	42.0	41.0	39.4	40.9	42.3	39.5	45.2	43.6	48.1	54.3	45.6
Total Number of Entrants	64.2	69.9	50.9	49.2	46.6	50.8	57.4	51.1	59.2	53.2	57.7	62.0	56.0
2003													
First-Time Entrants	9.1	12.4	9.5	8.3	7.5	9.1	15.0	11.3	12.6	9.3	9.2	7.1	10.0
Re-Entrants	56.7	51.3	43.9	38.3	37.6	37.6	42.6	40.4	43.7	42.9	48.8	53.3	44.8
Total Number of Entrants	65.8	63.7	53.4	46.6	45.1	46.7	57.6	51.7	56.3	52.2	58.0	60.4	54.8

Source: FH REG.

Table 5.9: Monthly average of inflow of first time registered unemployed in 2003 by occupation, 2 digit FEOR code

Code	Occupational groups	Average monthly inflow		
		School-leavers	Non school-leavers	Together
1	Occupations of armed forces requiring higher (third-level) qualification	5.8	4.8	10.6
2	Occupations of armed forces requiring secondary-level qualification	10.3	14.2	24.4
3	Occupations of armed forces not requiring secondary-level qualification	2.6	3.4	6.0
11	Legislators, senior gov. officials, senior officials of nation-wide spec.-interest org.	0.7	0.6	1.3
12	Senior officials of reg. and loc. self-gov., public adm., jurisdiction and spec.-int. org.	0.8	4.1	4.8
13	Managers of businesses and budgetary institutions	53.9	138.5	192.4
14	General managers of small enterprises and budgetary institutions	4.4	15.4	19.8
21	Engineering and natural science professionals	173.3	98.8	272.0
22	Health professionals	6.8	12.1	18.8
23	Welfare and labour market service professionals	13.5	4.4	17.9
24	Teaching professionals	167.0	145.7	312.7
25	Business, legal and social science professionals	155.8	81.5	236.6
26	Cultural, sport, artistic and religious professionals	15.1	19.3	34.4
29	Professionals N.E.C.	1.3	4.3	5.6
31	Technicians and related associate professionals	190.0	168.5	358.5
32	Health associate professionals	22.4	103.1	125.5
33	Welfare and labour market services occupations	11.3	13.2	24.5
34	Teaching associate professionals	26.0	16.3	42.3
35	Legal, life and property protection services associate professionals	4.6	7.8	12.4
36	Business and financial intermediation clerks	123.5	252.8	376.3
37	Cultural, sport, artistic and religious associate professionals	11.2	17.6	28.8
39	Clerks N.E.C.	4.2	28.6	32.8
41	Office clerks	542.5	447.5	990.0
42	Management (consumer services) clerks	76.3	97.9	174.3
51	Wholesale and retail trade, hotels and restaurants workers	357.7	811.8	1,169.5
52	Transport, postal and communications workers	3.0	37.3	40.3
53	Non-material service workers	90.0	154.6	244.6
61	Skilled agricultural workers	40.3	90.2	130.4
62	Skilled forestry and game farming workers	6.2	11.8	18.0
63	Skilled fishery workers	0.2	1.2	1.3
64	Plant protection, plant health protection and soil conservation workers	0.6	0.9	1.5
71	Extraction workers	2.3	20.6	22.9
72	Food processing and related trades workers	32.5	108.8	141.3
73	Light industry workers	137.6	458.2	595.8
74	Steel and metal trades workers	152.9	466.8	619.7
75	Handicraft, miscellaneous industry and warehouse workers, laboratory assistants	13.3	101.8	115.1
76	Construction workers	137.3	283.2	420.4
81	Manufacturing machine operators	30.3	367.3	397.5
82	Other stationary-plant operators	17.3	46.3	63.5
83	Mobile-plant operators	23.2	252.3	275.5
91	Elementary services occupations (without agriculture)	950.1	1,343.0	2,293.1
92	Agricultural and forestry labourers	6.5	13.8	20.3
	Unfilled	59.9	46.9	106.8
	Total	3,683.1	6,316.8	9,999.9

Source: FH-REG.

Table 5.10: Benefit receipt and participation in active labour market programs

Year	Unemployment benefit	Unemployment assistance	UA for school-leavers	Do not receive provision	Public work	Retraining	Wage subsidy	Other programmes	Total
1990									
In thousands	42.5	–	–	18.6	...	...	...	...	61.0
Per cent	69.6			30.4					100.0
1994									
In thousands	160.3	202.4	24.5	142.4	28.7	31.2	23.9	61.7	675.1
Per cent	23.7	30.0	3.6	21.1	4.3	4.6	3.5	9.1	100.0
1995									
In thousands	150.8	192.9	26.3	109.1	21.7	20.4	10.9	64.7	596.8
Per cent	25.3	32.3	4.4	18.3	3.6	3.4	1.8	10.8	100.0
1996									
In thousands	145.4	218.5	2.6	127.8	38.5	20.6	16.4	74.5	644.3
Per cent	22.6	33.9	0.4	19.8	6.0	3.2	2.5	11.6	100.0
1997									
In thousands	134.1	193.5	0.1	121.8	38.9	25.1	29.7	95.7	638.9
Per cent	21.0	30.3	0.0	19.1	6.1	3.9	4.6	15.0	100.0
1998									
In thousands	123.9	158.6	0.1	109.4	37.4	24.5	30.9	86.7	571.5
Per cent	21.7	27.7	0.0	19.1	6.5	4.3	5.4	15.2	100.0
1999									
In thousands	135.5	146.7	0.0	107.1	35.7	28.0	31.1	60.6	544.7
Per cent	24.9	26.9	0.0	19.7	6.6	5.1	5.7	11.1	100.0
2000									
In thousands	117.0	139.7[a]	0.0	106.5	26.7	25.3	27.5	73.5	516.2
Per cent	22.7	27.1	0.0	20.6	5.2	4.9	5.3	14.2	100.0
2001									
In thousands	111.8	113.2	0.0	105.2	29.0	30.0	25.8	37.2	452.2
Per cent	247	25.0	0.0	23.3	6.4	6.6	5.7	8.2	100.0
2002									
In thousands	104.8	107.6	–	115.3	21.6	23.5	21.2	32.8	426.8
Per cent	24.6	25.2	–	27.0	5.1	5.5	5.0	7.7	100.0
2003									
In thousands	105.1[b]	109.5	–	125.0	21.2	22.5	20.1	36.6	440.0
Per cent	23.9	24.9	–	28.4	4.8	5.1	4.6	8.3	100.0

[a] Together with the number of regular social allowance recipients.
[b] Recipients of job search assistance benefit included.
Note: October. The percentage ratios refer to the combined number of the registered unemployed and program participants.
Source: FH.

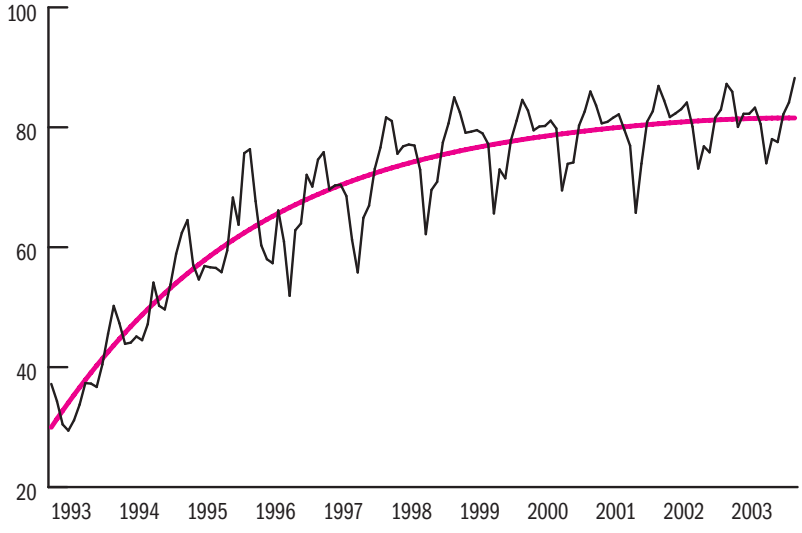


Figure 5.7: Ratio of re-entrants within the total inflow to the register

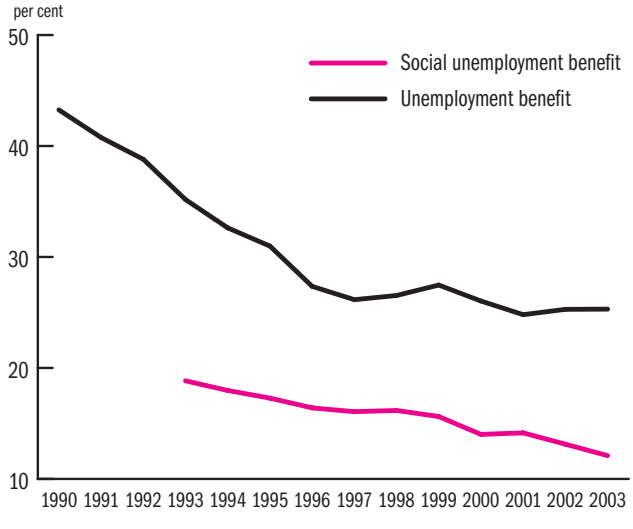


Figure 5.8: The ratio of average unemployment benefit, unemployment assistance and regular social allowance to average gross earnings

Table 5.11: Distribution of registered unemployed, unemployment benefit recipients and unemployment assistance by educational attainment

	Registered unemployed				Unemployment benefit				Unemployment assistance[1]			
Educational attainment	1995	1998	2001	2004	1995	1998	2001	2004[2]	1995	1998	2001	2004
Max. 8 classes of primary school	43.6	40.9	42.3	42.7	36.9	32.0	29.7	28.9	56.8	50.0	55.5	61.1
Vocational school	34.5	36.0	34.2	32.2	36.6	39.5	40.7	39.2	30.6	34.3	30.0	27.6
Vocational secondary school	11.7	12.8	13.0	13.4	14.9	16.0	16.7	17.7	6.9	8.7	7.4	6.1
Grammar school	7.9	7.8	7.7	7.8	8.3	9.0	9.0	9.3	4.5	5.7	5.1	4.2
College diplom, BA	1.5	1.8	2.1	2.8	2.2	2.6	2.9	3.6	0.8	1.0	0.9	0.8
University diplom, MA	0.7	0.6	0.7	1.0	1.0	0.9	1.0	1.3	0.3	0.3	0.3	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	482.7	406.4	359.6	350.7	164.1	121.3	110.3	100.3	220.7	186.6	136.9	114.6

1 Recipients of regular social assistance are included since 2001.
2 Recipients of unemployment allowance before retirement are excluded.
Note: On the closing date of June in every year.
Source: FH.

Table 5.12: The ratio of those who are employed among the former participants of ALMPs*

Active labour market programmes	1996	1997	1998	1999	2000	2001	2002	2003
Suggested training programmes	44.5	46.3	46.8	46.8	48.4	45.4	43.3	43.0
Accepted training programmes	50.2	51.1	51.5	50.0	52.0	49.3	45.8	46.0
Retrainig of those who are employed	92.8	90.4	94.7	94.8	94.9	94.2	92.7	93.3
Support for self-employment	90.2	88.1	91.7	90.5	89.4	89.2	90.7	89.6
Wage subsidy programmes	70.1	66.3	59.1	59.7	62.3	59.7	62.9	62.0
Work experience programmes	–	65.7	59.1	55.8	57.9	64.5	66.9	66.1
Further employment programme	–	72.1	75.1	68.5	73.8	71.6	78.4	78.2

* Three months after the end of programmes.
Source: FH.

Table 5.13: Employment ratio of former participants of ALMPs* by sex, age and education for the programmes finished in 2002

	Non-employed participants			Supported self-employment[1]	Wage subsidy programme	School leavers	
	suggested training	accepted training	together			work experience programme	further employment programme
By gender							
Male	42.6	48.2	45.0	91.8	59.3	66.6	73.9
Female	43.8	44.3	44.0	88.7	66.3	67.2	83.3
By age groups							
–20	33.0	39.3	35.4	87.5	44.9	61.4	78.3
20–24	46.7	47.5	47.0	92.4	56.1	68.8	79.0
25–29	46.8	47.4	47.1	88.0	62.8	70.6	
X–29 together	43.8	46.0	44.7	89.5	59.2	66.9	78.4
30–34	43.8	46.9	45.2	91.1	65.0		
35–39	42.2	44.1	43.0	92.6	64.9		
40–44	43.1	47.4	44.8	92.9	65.6		
45–49	41.3	45.0	42.8	88.3	64.6		
50–54	44.0	42.5	43.3	94.2	65.8		
55+	35.8	38.1	36.8	81.5	58.2		
By educational level							
Less than primary school	17.6	33.3	17.9	100.0	38.1	35.3	
Primary school	39.2	38.8	39.1	84.8	52.0	55.1	
Vocational school for skilled workers	45.5	48.0	46.8	90.5	64.0	65.2	78.1
Vocational school	42.1	41.7	41.9	83.9	62.1	66.7	80.0
Special vocational school	36.8	42.9	38.5	100.0	40.0	40.0	
Vocational secondary school	45.7	46.8	46.2	91.0	70.5	69.1	
Technicians secondary school	48.5	48.9	48.7	91.9	71.2	74.1	
Grammar school	41.0	44.3	42.4	92.9	67.9	63.8	
College diploma	50.8	51.6	51.1	91.1	70.1	71.3	
University diploma	46.5	52.6	49.3	94.4	72.6	71.7	
Total	43.3	45.8	44.4	90.7	62.9	66.9	78.4

* 3 months after the end of each programme.
1 Survival rate.
Source: FH.

Table 5.14: Employment ratio of former participants of ALMPs by sex, age and education for the programmes finished in 2003*

	Non-employed participants			Supported self-employment[1]	Wage subsidy programme	School leavers	
	suggested training	accepted training	together			work experience programme	further employment programme
By gender							
Male	44.0	50.1	46.5	91.6	57.8	65.0	75.6
Female	42.7	43.8	43.2	86.4	66.0	66.9	83.0
By age groups							
–20	34.3	38.0	35.6	80.0	38.8	60.7	75.7
20–24	45.1	48.4	46.5	89.2	58.9	66.7	90.5
25–29	46.9	47.6	47.2	89.8	61.1	75.5	100.0
X–29 together	43.5	46.5	44.8	89.5	59.4	66.1	78.2
30–34	42.9	46.5	44.5	90.9	64.5		
35–39	43.1	48.5	45.4	88.1	62.7		
40–44	44.5	45.1	44.8	90.0	63.9		
45–49	41.6	41.5	41.5	91.2	62.4		
50–54	40.9	39.9	40.5	87.4	65.1		
55+	39.5	45.5	42.0	82.1	57.6		
By educational level							
Less than primary school	29.4	0.0	28.9		33.2	12.5	
Primary school	40.2	38.6	39.6	81.7	50.4	52.8	66.7
Vocational school for skilled workers	46.8	46.8	46.8	91.0	62.7	64.7	75.2
Vocational school	40.4	39.4	39.9	90.9	60.3	50.0	100.0
Special vocational school	31.3	42.9	34.8	100.0	70.2	62.5	
Vocational secondary school	44.1	48.4	46.1	89.1	70.1	66.2	100.0
Technicians secondary school	40.4	52.2	45.6	89.6	68.5	68.9	100.0
Grammar school	40.2	44.6	42.1	89.1	67.5	62.4	100.0
College diploma	50.8	51.3	51.0	89.3	65.2	72.9	100.0
University diploma	52.2	52.5	52.3	91.1	75.0	78.6	
Total	43.2	46.0	44.4	89.6	62.0	66.1	78.2

* See notes of Table 5.13.

Table 5.15: The distribution of the total number of labour market training participants

Goups of labour market training participants	1996	1997	1998	1999	2000	2001	2002	2003
Participants in suggested training	49.3	59.2	61.0	61.4	59.2	58.4	56.5	54.6
Participants in accepted training	43.3	34.9	33.8	33.4	35.1	35.7	38.5	34.5
Non-employed participants together	92.7	94.1	94.8	94.8	94.3	94.2	95.0	89.1
Of which: school-leavers	23.4	28.5	30.6	29.8	25.1	22.5	23.5	22.1
Employees	7.3	5.9	5.2	5.2	5.7	5.8	5.0	10.9
Participants of labour market training total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: FH.

Table 5.16: The distribution of labour market training participants by the type of training

Types of training	1996	1997	1998	1999	2000	2001	2002	2003
Approved qualification	80.4	77.9	79.8	79.6	78.8	78.7	77.6	78.3
Non-approved qualification	15.8	16.0	14.4	14.7	14.7	14.0	13.6	12.6
Foreign language learning	3.8	6.1	5.7	5.7	6.5	7.3	8.8	9.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: FH.

Table 5.17: The distribution of those entering into the training programmes by age groups and educational level for male and female participants

	2002			2003		
	Male	Female	Together	Male	Female	Together
Total nomer of entrants	18,901	27,088	45,989	17,901	27,191	45,092
Entrants distributon by gender	41.1	58.9	100.0	39.7	60.3	100.0
Distribution by age groups						
–20	12.9	10.0	11.2	12.9	8.7	10.4
20–24	28.5	23.1	25.3	28.1	21.5	24.1
X–25	41.4	33.0	36.5	41.0	30.2	34.5
25–44	47.0	57.7	53.3	47.6	59.3	54.7
45–49	6.6	6.4	6.4	6.2	6.7	6.5
50+	5.0	2.9	3.8	5.2	3.7	4.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
By educational level						
Less than primary school	0.9	0.4	0.6	1.9	0.8	1.3
Primary school	27.5	17.7	21.7	29.0	19.2	23.1
Vocational schools	36.7	23.1	28.7	33.5	22.5	26.9
Vocational and technical secondary schools	21.3	29.5	26.1	21.1	28.7	25.7
Grammar school	8.9	20.9	15.9	8.8	19.9	15.5
College, university	4.8	8.5	6.9	5.6	8.9	7.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: FH.

Table 6.1: Inactive population by gender*

Year	Males			Females		
	In thousands	1992 = 100	Inactivity ratio[1]	In thousands	1992 = 100	Inactivity ratio[1]
1980	961.0	66.1	24.2	1,940.7	82.3	44.3
1990	1,219.6	83.9	31.2	2,105.7	89.2	48.3
1993	1,551.1	106.8	39.3	2,462.1	104.3	55.8
1994	1,618.0	111.4	41.0	2,552.1	108.2	57.7
1995	1,634.9	112.5	41.4	2,645.7	112.1	59.7
1996	1,662.6	114.4	42.2	2,663.2	112.9	60.1
1997	1,680.2	115.6	42.7	2,692.4	114.1	60.8
1998	1,698.3	116.9	43.2	2,646.3	112.2	59.8
1999	1,644.4	113.2	42.0	2,596.2	110.0	58.8
2000	1,700.9	117.1	42.7	2,687.9	113.9	59.5
2001	1,718.7	118.3	43.1	2,707.3	114.7	59.8
2001[a]	1,714.9	118.0	43.0	2,679.2	113.6	59.2
2002[a]	1,720.6	118.4	43.2	2,668.5	113.9	58.9
2003[a]	1,716.4	118.1	43.1	2,626.9	111.3	58.0

* Population above 15 years of age.
1 Per cent of the population above 15 years of age.
[a] See note of Table 3.7.
Note: See notes at table 3.1.
Source: 1980–91: KSH MEM; 1992– KSH MEF.

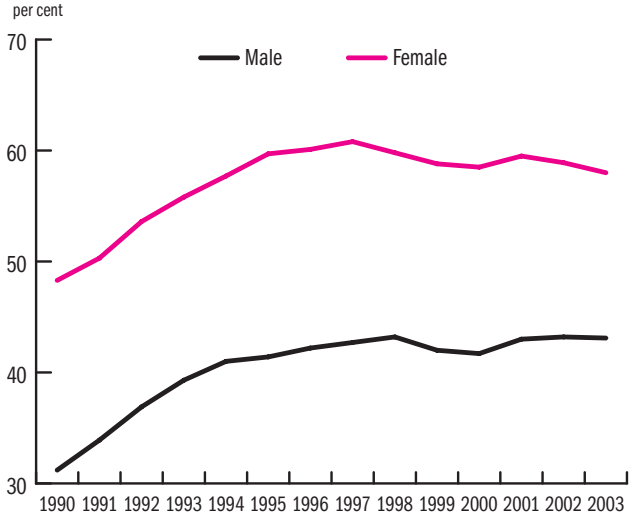


Figure 6.1: Inactive ratio by gender

Table 6.2: 15–54/15–59 years old inactive population by gender

Year	Males			Females		
	In thousands	1992 = 100	Inactivity ratio[1]	In thousands	1992 = 100	Inactivity ratio[1]
1980	469.2	64.2	14.6	800.4	81.7	27.2
1990	554.1	75.8	17.8	826.3	84.3	28.9
1993	815.4	111.6	25.8	1,056.6	107.8	36.3
1994	878.0	120.1	27.8	1,128.3	115.1	38.7
1995	892.3	122.1	28.2	1,207.7	123.2	41.4
1996	916.3	125.4	28.9	1,224.9	125.0	42.0
1997	936.7	128.2	29.6	1,247.1	127.3	42.9
1998	961.0	131.5	30.4	1,186.0	121.0	40.9
1999	917.2	125.5	29.1	1,138.2	116.2	39.5
2000	940.5	128.7	29.5	1,177.3	120.3	40.3
2001	949.2	129.8	...	1,199.7	122.4	...
2001[a]	951.9	130.2	29.9	1,170.4	119.4	40.1
2002[a]	956.2	130.8	30.1	1,169.0	119.3	40.2
2003[a]	953.9	130.5	30.1	1,143.7	116.8	39.6

1 Per cent of the working age population.
[a] See note of Table 3.7.
Source: 1980–91: KSH MEM; 1992– KSH MEF.

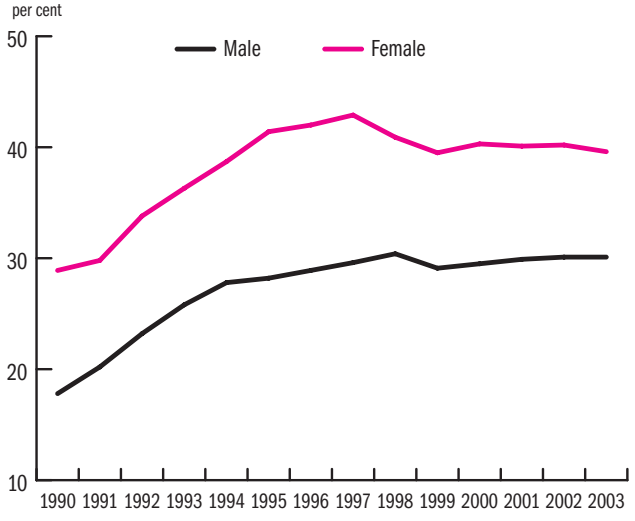


Figure 6.2: Inactivity ratio of working age population by gender

Table 7.1: Nominal and real earnings

Year	Gross earnings	Net earnings	Gross earning index	Net earnings index	Consumer price index	Real earnings index
	HUF		previous year = 100%			
1989	10,571	8,165	117.9	116.9	117.2	99.7
1990	13,446	10,108	128.6	121.6	128.9	94.3
1991	17,934	12,948	130.0	125.5	135.0	93.0
1992	22,294	15,628	125.1	121.3	123.0	98.6
1993	27,173	18,397	121.9	117.7	122.5	96.1
1994	33,939	23,424	124.9	127.3	118.8	107.2
1995	38,900	25,891	116.8	112.6	128.2	87.8
1996	46,837	30,544	120.4	117.4	123.6	95.0
1997	57,270	38,145	122.3	124.1	118.3	104.9
1998	67,764	45,162	118.3	118.4	114.3	103.6
1999	77,187	50,076	116.1	112.7	110.0	102.5
2000	87,645	55,785	113.5	111.4	109.8	101.5
2001	103,553	64,913	118.0	116.2	109.2	106.4
2002	122,482	77,622	118.3	119.6	105.3	113.6
2003	137,187	88,751	112.0	114.3	104.7	109.2

Source: KSH IMS.

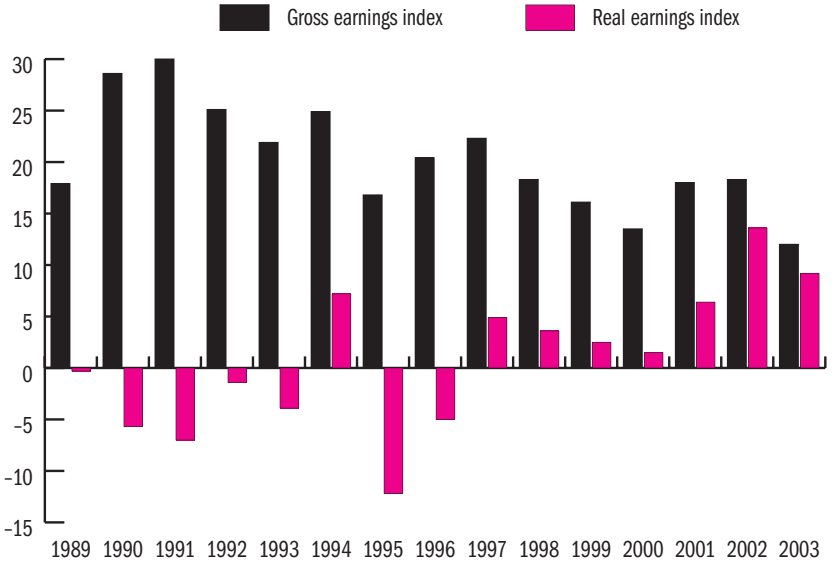


Figure 7.1: Change of gross real earnings and net real earnings

Table 7.2: Gross average earnings by industry – total*

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Agriculture	24,641	29,873	35,073	42,216	48,762	53,521	59,246	72,116	84,240	89,273
Mining and quarrying	43,245	50,765	60,102	76,952	84,977	95,762	112,914	126,796	138,578	149,076
Manufacturing	32,500	38,797	47,178	57,597	67,169	76,335	88,136	101,119	113,659	124,076
Electricity, gas, steam and water supply	41,958	50,805	62,525	75,729	90,305	104,543	119,539	135,682	155,404	174,165
Construction	30,301	32,544	38,407	46,884	54,123	56,753	64,259	79,719	86,191	93,810
Wholesale and retail trade	32,930	36,311	45,463	53,733	62,688	66,913	77,758	90,596	106,530	115,551
Hotels and restaurants	28,040	29,370	35,267	41,012	46,437	50,067	56,593	68,120	81,069	87,475
Transport storage and communication	35,511	41,437	51,513	63,288	76,108	88,238	98,815	114,447	130,582	142,546
Financial intermediation	62,643	71,194	88,759	114,083	142,432	165,327	189,444	215,970	241,273	273,784
Real estate, renting, business activities	38,275	41,716	51,733	61,146	81,125	89,399	101,019	121,821	133,762	145,085
Public administration and defence; compulsory social security	40,048	45,861	53,523	65,329	75,671	92,821	103,428	131,724	167,841	180,837
Education	31,912	34,866	38,996	49,460	59,822	72,869	81,204	97,647	128,665	162,380
Health and social work	29,446	32,462	37,530	45,376	52,781	59,105	68,304	78,850	103,188	129,956
Other	34,635	39,884	47,857	54,533	63,896	71,199	79,820	91,677	111,567	129,235
Total	33,939	38,900	46,837	57,270	67,764	77,187	87,645	103,553	122,453	137,187

* HUF/month, per capita.

Note: The data refer to full-time employees in the budget sector and firms employing at least 20 workers (1993–94), 10 workers (1995–98) and 5 workers (1999–), respectively.

Source: KHS, IMS.

Table 7.3: Gross average earnings by industry – manual workers*

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Agriculture	20,988	25,085	29,679	35,667	41,115	45,548	50,256	61,628	72,104	75,754
Mining and quarrying	37,057	43,054	50,888	64,751	72,065	80,365	93,827	105,141	117,031	125,498
Manufacturing	26,451	31,454	38,280	46,254	53,908	60,846	69,644	79,701	89,693	96,120
Electricity, gas, steam and water supply	34,482	41,551	50,979	61,586	72,890	83,874	94,811	107,785	122,014	134,698
Construction	24,689	26,760	31,257	37,174	42,937	45,069	50,995	60,880	70,060	74,637
Wholesale, retail trade	21,821	24,041	29,279	34,502	39,344	42,105	47,097	57,977	69,861	74,850
Hotels and restaurants	20,547	21,590	26,124	30,560	34,683	37,460	43,185	52,903	63,693	67,350
Transport storage and communication	29,976	34,087	41,678	49,879	59,222	66,555	72,989	83,995	94,609	103,238
Financial intermediation	36,944	41,443	47,583	65,962	75,118	78,210	80,054	91,678	106,423	127,135
Real estate, renting, business activities	23,015	25,760	31,604	36,083	43,468	46,486	52,693	63,414	73,224	76,597
Public administration and defence; compulsory social security	28,200	31,101	35,276	41,341	47,429	59,498	62,460	78,548	104,885	112,642
Education	18,068	19,758	23,129	28,262	33,886	40,759	45,125	53,943	69,468	85,120
Health and social work	20,776	22,649	26,566	32,264	37,308	42,211	49,029	57,046	74,167	88,561
Total	25,507	29,203	35,305	42,419	49,423	55,218	61,930	72,626	84,696	91,396

* See Table 7.2.

Table 7.4: Gross average earnings by industry – non-manual workers*

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Agriculture	37,213	46,536	54,398	66,041	77,811	83,534	92,018	108,454	125,076	135,845
Mining and quarrying	72,363	86,851	101,708	130,340	138,398	158,687	186,241	210,590	220,839	240,556
Manufacturing	53,464	64,638	79,225	99,868	118,989	135,325	158,394	183,055	203,115	225,610
Electricity, gas, steam, water supply	61,254	73,525	89,634	107,484	128,646	147,268	168,042	187,650	213,493	239,186
Construction	51,837	54,733	64,371	80,924	92,179	97,216	109,064	138,896	138,765	153,841
Wholesale and retail trade	46,808	54,043	67,030	81,262	97,009	102,890	123,195	139,124	158,593	172,952
Hotels and restaurants	42,503	46,812	54,839	66,337	76,985	88,168	97,173	112,104	130,510	148,598
Transport storage and communication	45,380	54,068	67,556	84,329	101,707	120,085	136,670	158,007	181,799	199,041
Financial intermediation	64,137	72,644	90,338	115,222	143,947	167,244	192,129	218,801	244,252	276,108
Real estate, renting, business activities	53,550	57,607	72,247	88,999	118,360	127,674	142,280	170,435	180,997	198,365
Public administration and defence; compulsory social security	47,769	55,321	66,081	82,634	98,028	117,573	129,679	165,102	206,680	223,466
Education	36,792	40,092	44,196	54,448	64,813	79,344	87,983	105,549	139,017	175,516
Health and social work	34,238	37,488	43,046	51,704	60,113	66,801	76,896	88,339	115,463	146,862
Other	46,722	53,381	62,830	71,432	83,599	94,482	108,976	123,172	150,961	175,451
Total	45,336	52,250	62,309	77,202	92,711	106,962	121,779	143,753	169,862	193,274

* See Table 7.2.

Table 7.5: Gross average earnings distribution by industry*

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Agriculture	72.6	76.8	74.9	73.7	72.0	69.3	67.6	69.6	68.8	65.1
Mining and quarrying	127.4	130.5	128.3	134.4	125.4	124.1	128.8	122.9	113.2	108.7
Manufacturing	95.8	99.7	100.7	100.6	99.1	98.9	100.6	97.7	92.8	90.4
Electricity, gas, steam and water supply	123.6	130.6	133.5	132.2	133.3	135.4	136.4	131.0	126.9	127.0
Construction	89.3	83.7	82.0	81.9	79.9	73.5	73.3	77.0	70.4	68.4
Wholesale and retail trade	97.0	93.3	97.1	93.8	92.5	86.7	88.7	87.5	87.0	84.2
Hotels and restaurants	82.6	75.5	75.3	71.6	68.5	64.9	64.6	65.8	66.2	63.8
Transport, storage and communication	104.6	106.5	110.0	110.5	112.3	114.3	112.7	110.5	106.6	103.9
Financial intermediation	184.6	183.0	189.5	199.2	210.2	214.2	216.1	208.6	197.0	199.6
Real estate, renting, business activities	112.8	107.2	110.5	106.8	119.7	115.8	115.3	117.6	109.2	105.8
Public administration and defence; compulsory social security	118.0	117.9	114.3	114.1	111.7	120.3	118.0	127.2	137.1	131.8
Education	94.0	89.6	83.3	86.4	88.3	94.4	92.7	94.3	105.1	118.4
Health and social work	86.8	83.4	80.1	79.2	77.9	76.6	77.9	76.1	84.3	94.7
Other	102.1	102.5	102.2	95.2	94.3	92.2	91.1	88.5	91.1	94.2

* National average = 100.
Note: See the note of Table 7.2.
Source: KHS, IMS.

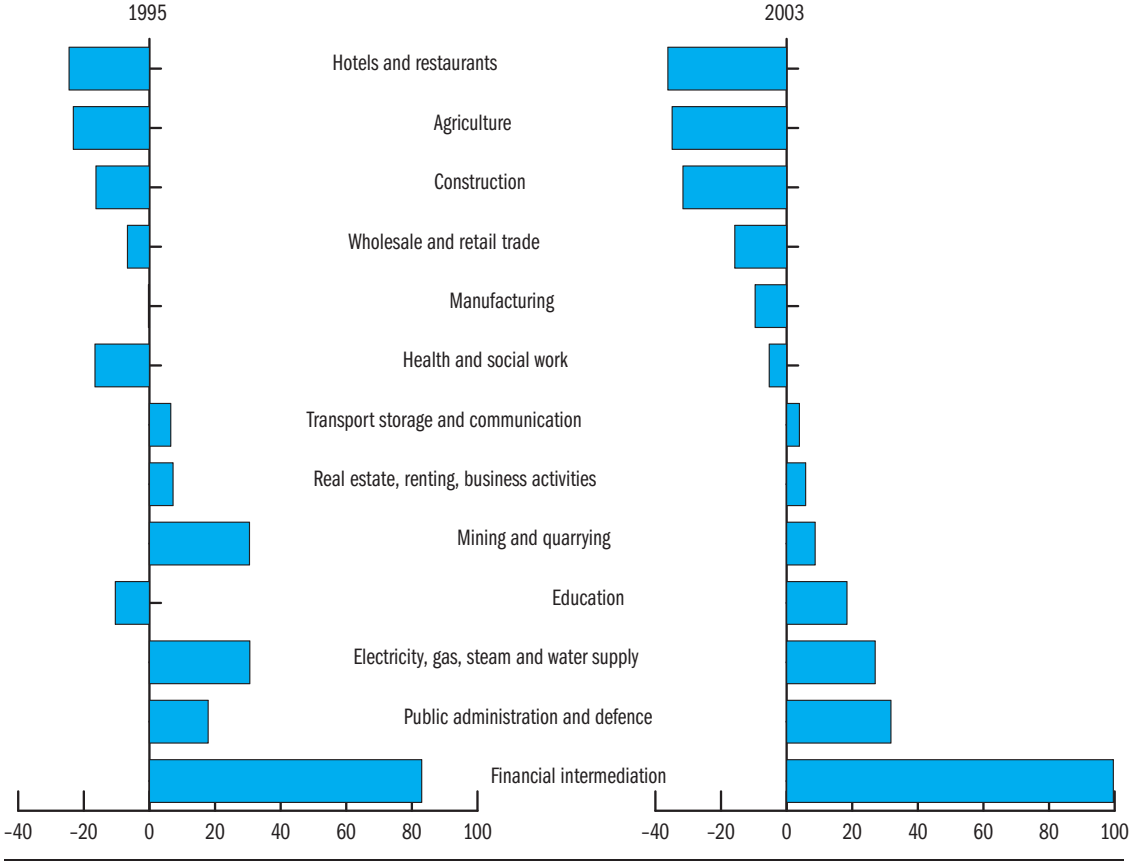


Figure 7.2: Gross real earnings as a percentage of national average, by industry, 1995, 2003

Table 7.6: The composition of full-time employees and average earnings by gender in major branches of the economy in 2003

Industries	Males		Females		Together		Female/ male earnings ratio
	Composition	Average earning	Composition	Average earning	Composition	Average earning	
	%	HUF/person, month	%	HUF/person, month	%	HUF/person, month	
Agriculture	6.9	93,280	2.0	84,563	4.5	91,374	90.7
Fishing	0.1	71,254	0.0	69,179	0.0	71,085	97.1
Mining and quarrying	0.6	148,024	0.1	126,358	0.3	145,785	85.5
Manufacturing	31.2	137,198	21.3	103,562	26.4	123,808	75.5
Electricity, gas, steam, water supply	4.0	177,755	1.4	148,701	2.7	170,539	83.7
Construction	7.8	96,602	1.1	108,013	4.5	97,988	111.8
Wholesale and retail trade	11.3	133,989	10.9	103,590	11.2	119,399	77.3
Hotels and restaurants	1.7	109,315	2.5	81,444	2.1	92,883	74.5
Transport, storage and communication	12.3	151,478	5.8	139,400	9.1	147,693	92.0
Financial intermediation	1.0	374,566	3.0	207,629	2.0	252,335	55.4
Real estate, renting, business activities	5.9	164,938	5.2	137,650	5.5	152,365	83.5
Public administration and defence, compulsory social security	5.1	187,193	12.4	148,943	8.7	160,335	79.6
Education	5.1	182,553	18.3	148,469	11.6	156,136	81.3
Health and social work	4.0	153,726	13.4	128,077	8.6	134,807	83.3
Other	2.8	139,190	2.5	124,970	2.6	132,544	89.8
Total	100.0	143,290	100.0	127,939	100.0	135,742	89.3

Source: FH-BT.

Table 7.7: The composition of full-time employees and average earnings in the economy by gender and level of education in 2003

Level of education	Males		Females		Together		Female/ male earnings ratio
	Composition	Average earning	Composition	Average earning	Composition	Average earning	
	%	HUF/person, month	%	HUF/person, month	%	HUF/person, month	
Primary school 0–7 classes	0.6	86,933	0.6	83,287	0.6	85,007	95.8
Finished primary school (8 classes)	14.2	90,192	18.2	79,756	16.2	84,409	88.4
Vocational school (2 yrs)	2.6	88,539	2.4	86,882	2.5	87,747	98.1
Vocational school (3 yrs)	38.9	99,650	14.8	81,124	27.0	94,655	81.4
Vocational secondary school	15.2	134,636	22.5	119,232	18.8	125,562	88.6
General secondary school	5.6	132,184	14.7	118,828	10.0	122,590	89.9
Technical secondary school	5.1	155,856	2.2	138,591	3.7	150,753	88.9
College	8.9	259,501	17.6	187,489	13.2	212,264	72.2
University	9.0	333,561	6.8	268,243	7.9	305,903	80.4
Total	100.0	143,290	100.0	127,939	100.0	135,742	89.3

Source: FH-BT.

Table 7.8: The composition of full-time employees and average earnings in the budgetary sector by gender and level of education in 2003

Level of education	Males		Females		Together		Female/ male earnings ratio
	Composition	Average earning	Composition	Average earning	Composition	Average earning	
	%	HUF/person, month	%	HUF/person, month	%	HUF/person, month	
Primary school 0–7 classes	0.5	101,055	0.7	96,070	0.7	97,079	95.1
Finished primary school (8 classes)	11.7	96,123	15.5	83,999	14.6	86,513	87.4
Vocational school (2 yrs)	1.0	102,951	1.6	106,935	1.4	106,214	103.9
Vocational school (3 yrs)	17.0	103,899	6.9	96,857	9.3	100,111	93.2
Vocational secondary school	11.6	127,248	19.8	120,017	17.7	121,237	94.3
General secondary school	7.7	130,020	13.8	119,733	12.2	121,392	92.1
Technical secondary school	1.9	140,014	1.0	145,436	1.2	143,236	103.9
College	21.5	211,225	30.6	178,486	28.3	184,889	84.5
University	27.0	278,471	10.1	242,622	14.4	259,831	87.1
Total	100.0	178,539	100.0	142,966	100.0	152,113	80.1

Source: FH-BT.

Table 7.9: The composition of full-time employees and average earnings in the competitive sector by gender and level of education in 2003

Level of education	Males		Females		Together		Female/ male earnings ratio
	Composition	Average earning	Composition	Average earning	Composition	Average earning	
	%	HUF/person, month	%	HUF/person, month	%	HUF/person, month	
Primary school 0–7 classes	0.6	84,566	0.6	70,256	0.6	78,940	83.1
Finished primary school (8 classes)	14.6	89,342	20.5	77,091	16.9	83,632	86.3
Vocational school (2 yrs)	2.8	87,638	3.1	78,562	2.9	83,972	89.7
Vocational school (3 yrs)	42.7	99,348	21.4	76,949	34.6	94,014	77.5
Vocational secondary school	15.9	135,602	24.8	118,713	19.3	127,259	87.5
General secondary school	5.2	132,757	15.3	118,154	9.1	123,280	89.0
Technical secondary school	5.7	156,823	3.3	136,873	4.8	151,586	87.3
College	6.7	287,206	6.9	220,664	6.8	261,224	76.8
University	5.8	379,540	4.1	320,474	5.1	361,395	84.4
Total	100.0	136,990	100.0	115,504	100.0	128,734	84.3

Source: FH-BT.

Table 7.10: Wages, sales prices and productivity in industry

Year	Average gross earnings	Producer price index	Index of productivity	Real earnings deflated with the producer prices
1989	118.6	115.4	100.7	102.8
1990	123.0	122.0	95.0	100.8
1991	127.6	132.6	93.7	96.2
1992	124.4	112.3	95.3	110.8
1993	124.9	110.8	113.4	112.7
1994	123.3	111.3	115.7	110.8
1995	121.1	128.9	110.9	93.9
1996	121.7	121.8	107.5	99.9
1997	121.8	120.4	113.8	101.2
1998	116.6	111.3	111.9	104.8
1999	115.5	105.1	109.9	109.9
2000	115.0	111.7	116.7	103.0
2001	114.4	105.2	105.5	108.7
2002	112.5	98.2	104.2	114.8
2003	109.3	102.4	110.2	106.7

Source: KSH IMS. Prices and productivity: KSH.

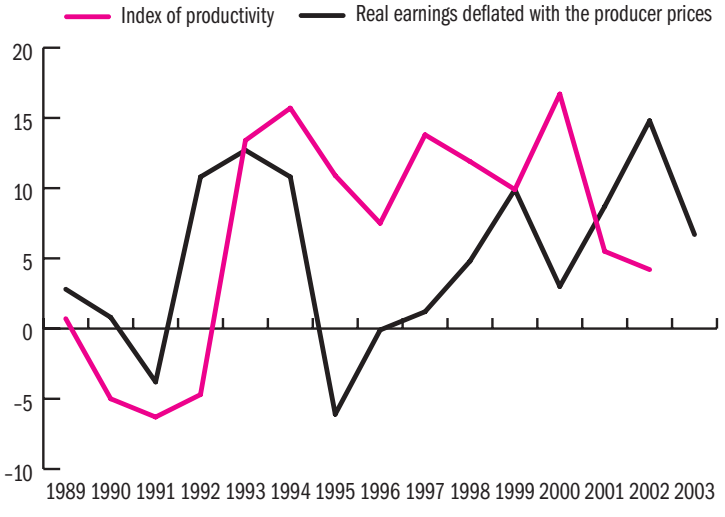


Figure 7.3: Index of productivity and real earnings deflated by the producer price index

Table 7.11: Minimum wage

Date	Monthly average (HUF)	Average gross earnings = 100
1992. I. 1.	8,000	35.8
1993. II. 1.	9,000	33.1
1994. II. 1.	10,500	30.9
1995. III. 1.	12,200	31.4
1996. II. 1.	14,500	31.0
1997. I. 1.	17,000	29.7
1998. I. 1.	19,500	28.8
1999. I. 1.	22,500	29.1
2000. I. 1.	25,500	29.1
2001. I. 1.	40,000	38.6
2002. I. 1.	50,000	40.8
2003. I. 1.	50,000	36.4
2004. I. 1.	53,000	37.2[a]

[a] January-July monthly averages.
Source: KSH.

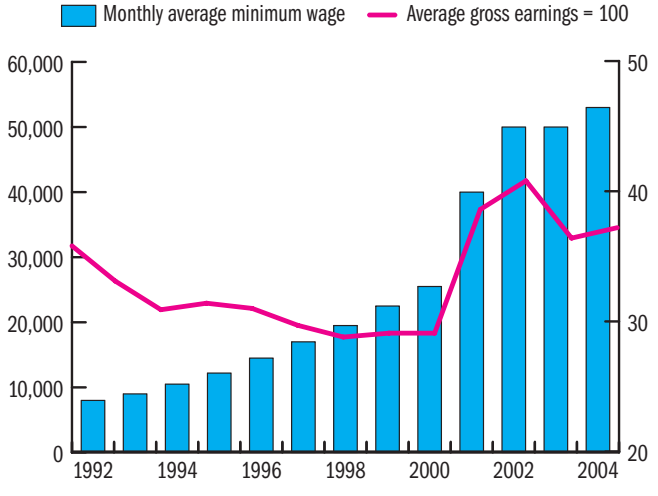


Figure 7.4: Minimum wage, average gross earnings = 100

Table 7.12: National wage agreements*

Year	Recommendation		Actual indexes	
	Minimum	Maximum	Public sector	Corporate sector
1992	113.0	128.0	120.1	126.6
1993	110.0–113.0	125.0	114.4	125.1
1994	113.0–115.0	121.0–123.0	127.0	123.4
1995	–	–	110.7	119.7
1996	113.0	124.0	114.6	123.2
1997	114.0	122.0	123.2	121.8
1998	113.5	116.0	118.0	118.5
1999	112.0	115.0	119.2	114.8
2000	108.5	111.0	112.3	114.2
2001	...	...	122.9	116.3
2002	108.0	110.5	129.2	113.3
2003	...	...	117.5	108.9

* Gross average wage increase: actual rates and recommendations by the Council of the Reconciliation of Interests.
Source: KSH, Ministry of Employment Policy and Labour.

Table 7.13: Industrial and firm-level wage agreements

Year	Branch		Corporate	
	Number	In thousand (prsn)	Number	In thousand (prsn)
1992	24	874.5	391	567.0
1993	12	232.1	394	592.4
1994	12	207.6	490	555.6
1995	7	88.0	816	490.9
1996	12	201.0	594	512.7
1997	12	210.0	598	488.3
1998	33	342.0	843	651.0
1999	41	328.8	827	387.5
2000	n.a.	n.a.	n.a.	n.a.
2001	n.a.	n.a.	n.a.	n.a.
2002	18	76.1	532	280.0
2003	22	88.9	545	316.6

Note: 1992–97: reported wage agreements; 1998–1999: collective agreements containing wage agreements.
Source: Ministry of Employment Policy and Labour.

Table 7.14: Percentage of low paid workers* by gender, age groups, level of education and industries

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
By genders											
Males	16.93	16.05	15.20	15.55	18.08	18.11	18.84	22.06	20.65	22.28	24.75
Females	21.27	25.63	24.75	26.46	25.72	25.86	26.41	26.81	24.96	22.46	21.59
Together	19.22	20.78	19.94	21.01	21.87	22.00	22.67	24.39	22.79	22.37	23.20
By age groups											
-24	39.59	42.41	40.18	37.78	39.14	37.71	37.91	37.01	35.47	37.58	39.90
25-54	16.85	18.65	17.96	19.43	20.19	20.57	21.32	22.84	21.93	21.78	22.28
55+	12.74	11.38	10.27	11.00	11.84	12.68	17.18	19.84	18.08	16.21	15.31
By level of education											
1-8 classes of primary school	...	40.37	37.60	40.12	40.60	42.94	43.94	43.40	40.36	38.30	37.10
Vocational schools	...	25.85	24.66	23.74	27.01	26.91	28.64	31.20	29.35	32.14	35.39
Secondary schools	...	12.02	12.93	13.08	13.97	14.16	15.41	18.82	17.96	16.47	17.73
Higher education	...	1.93	3.09	3.21	3.03	3.41	3.22	4.67	4.66	3.58	3.54
By industries											
Agriculture	31.94	38.42	32.10	30.06	36.65	36.67	38.08	38.02	34.27	37.88	37.26
Manufacturing	16.35	18.92	16.35	15.82	18.53	18.91	18.91	20.02	19.14	19.41	25.43
Construction	15.70	23.27	23.52	26.73	32.73	32.61	36.67	42.93	41.65	44.84	49.81
Trade	25.09	30.41	31.92	31.68	35.96	37.72	36.78	42.78	41.27	43.96	49.04
Transport and communication	8.61	10.33	8.58	8.48	8.76	8.82	8.98	11.33	10.58	10.46	13.58
Finance and business services	14.17	16.43	17.94	17.04	19.88	19.92	21.08	25.26	22.57	20.69	23.08
Public administration	17.54	16.40	17.00	25.93	18.98	15.54	15.98	13.69	13.79	9.27	6.60
Education	21.23	19.02	20.62	25.55	21.69	23.19	23.83	21.49	22.62	16.03	4.77
Health	28.94	21.64	25.15	25.93	24.13	25.78	28.04	26.72	19.92	16.11	6.28

* Percentage of those who earn less than 2/3 of the median earning.
Source: FH-BT.

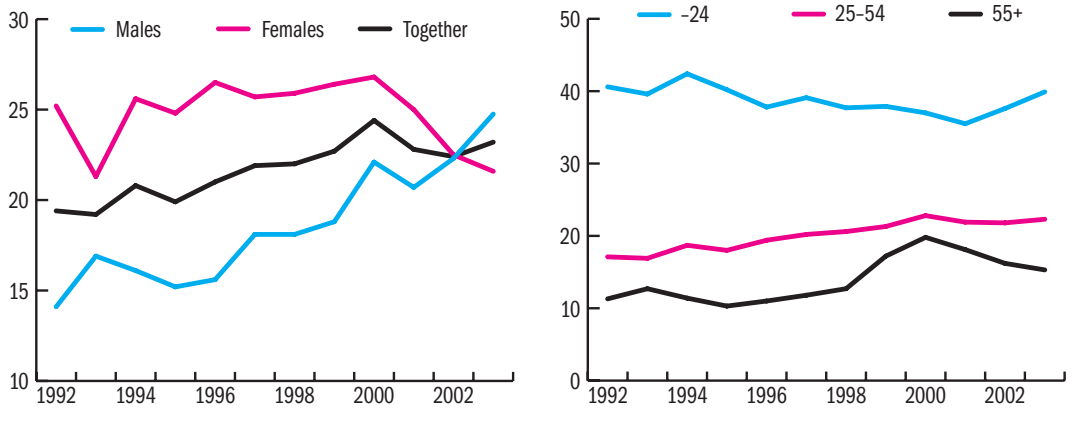


Figure 7.5: The composition of low paid workers by gender and age groups

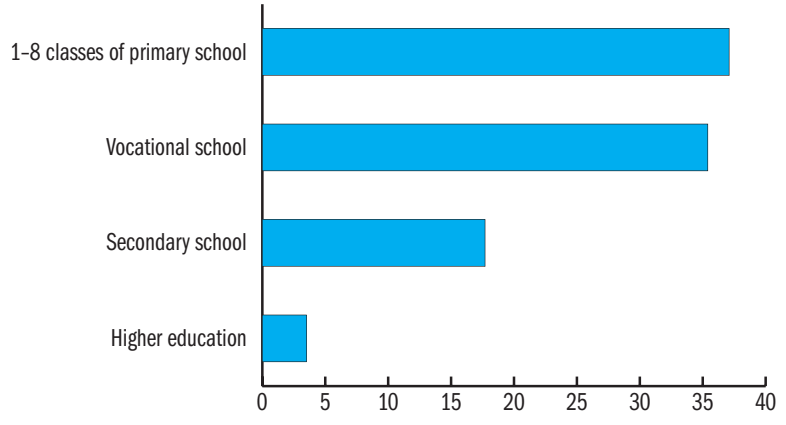


Figure 7.6: The composition of low paid workers by education

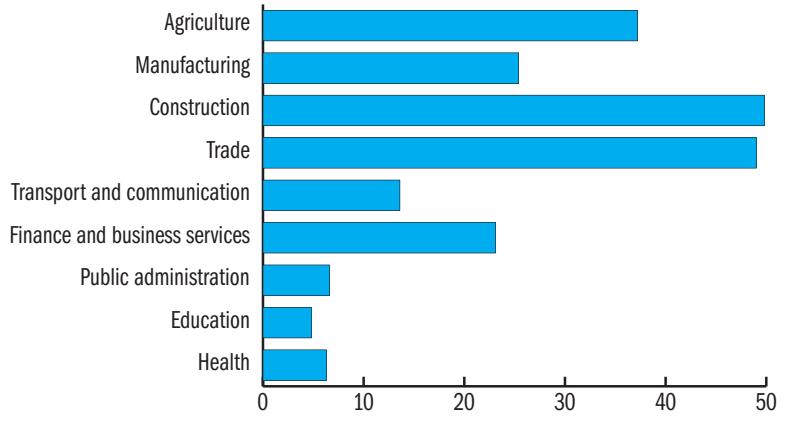


Figure 7.7: The composition of low paid workers by industries

Table 7.15: The differentiation of gross monthly earnings by gender, ratios of deciles, 1992–2003

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Males and females together												
D9/D5	2.00	2.04	2.08	2.08	2.10	2.17	2.18	2.22	2.29	2.26	2.33	2.29
D5/D1	1.79	1.77	1.88	1.86	1.90	1.92	1.93	1.97	2.15	1.87	1.75	1.98
D9/D1	3.58	3.61	3.91	3.88	4.01	4.17	4.21	4.38	4.92	4.24	4.09	4.55
Males												
D9/D5	2.00	2.07	2.13	2.12	2.14	2.23	2.25	2.32	2.13	2.40	2.50	2.53
D5/D1	1.80	1.81	1.88	1.86	1.89	2.01	2.00	2.08	2.39	2.04	1.81	2.06
D9/D1	3.59	3.74	4.00	3.93	4.04	4.48	4.50	4.82	5.08	4.89	4.52	5.22
Females												
D9/D5	1.93	2.00	2.00	1.99	2.00	2.02	2.03	2.04	2.09	2.03	2.15	2.10
D5/D1	1.71	1.73	1.81	1.82	1.83	1.82	1.83	1.87	1.97	1.75	1.70	1.89
D9/D1	3.31	3.47	3.63	3.61	3.66	3.66	3.71	3.80	4.12	3.56	3.66	3.97

Source: FH-BT.

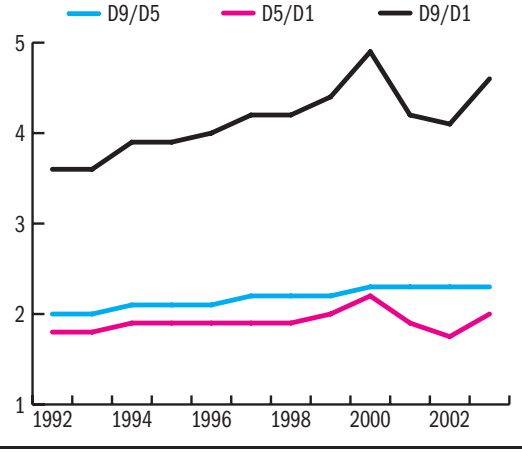


Figure 7.8: The differentiation of gross monthly earnings, 1992–2003

Table 8.1: School leavers by level of education

Year	Primary school	Vocational school[1]	Secondary school	College and university
1980	119,809	49,232	43,167	14,859
1989	170,891	53,724	52,573	15,699
1990	164,614	54,933	53,039	15,963
1991	158,907	59,302	54,248	16,458
1992	151,287	66,261	59,646	16,201
1993	144,200	66,342	68,607	16,223
1994	136,857	62,902	68,604	18,041
1995	122,333	57,057	70,265	20,024
1996	120,529	54,209	73,413	22,128
1997	116,708	46,868	75,564	24,411
1998	113,651	42,866	77,660	25,338
1999	114,302	38,822	73,965	27,049
2000	114,250	35,500[a]	72,200[a]	28,300[a]
2001	114,200[a]	33,500[a]	70,441	29,746
2002	113,923	26,941	69,612	30,785
2003	117,747	26,472	71,944	31,911

1 Vocational and specialized secondary schools.

[a] Estimated data.

Note: Primary school: completed the 8th grade. Other levels: received certificate. Excludes special schools.

Source: OM STAT.

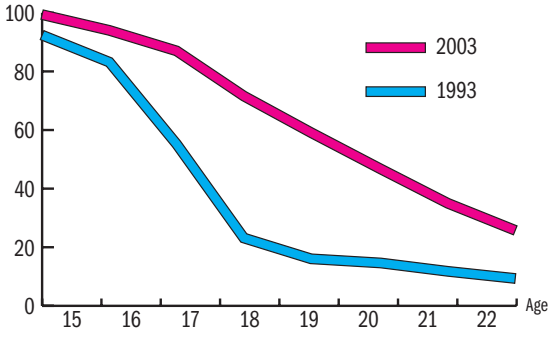


Figure 8.1: Full time studens as a percentage of the different age groups

Table 8.2: Pupils/students entering the school system, by level of education

Year	Primary school	Vocational school[1]	Secondary school	College and university
1980	171,347	60,865	57,213	17,886
1989	128,542	91,767	84,140	20,704
1990	125,665	87,932	83,939	22,662
1993	125,679	76,977	87,657	35,005
1994	126,032	77,146	87,392	37,934
1995	123,997	65,352	82,665	42,433
1996	124,554	58,822	84,773	44,698
1997	127,214	53,083	84,395	45,669
1998	125,875	39,965	86,868	48,886
1999	121,424	33,570	89,184	51,586
2000	117,000	33,900[a]	90,800[a]	54,100[a]
2001	112,144	34,210	92,393	56,709
2002	112,345	33,497	94,256	57,763
2003	114,020	33,394	92,817	59,699

1 Vocational and specialized secondary schools.
[a] Estimated data.
Note: Excludes special schools.
Source: OM STAT.

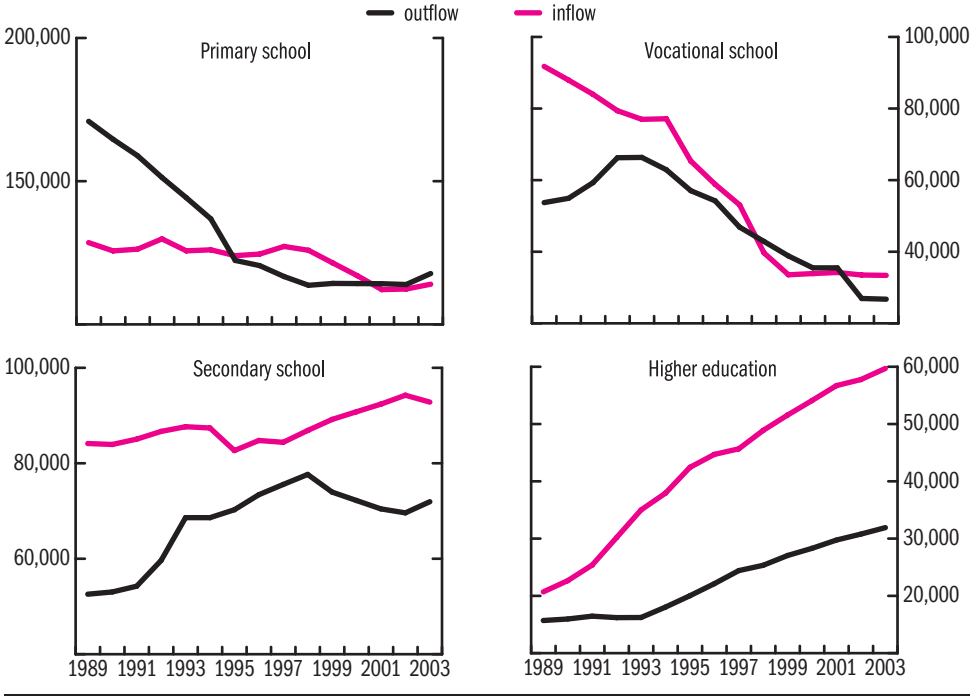


Figure 8.2: Flows of the educational system by level

Table 8.3: The number of full time pupils/students by level of education

Year	Primary school	Vocational school[1]	Secondary school	College and university
1980/81	1,162,203	162,709	203,238	64,057
1989/90	1,183,573	213,697	273,511	72,381
1990/91	1,130,656	222,204	291,872	76,601
1993/94	1,009,416	198,859	330,586	103,713
1994/95	985,291	185,751	337,317	116,370
1995/96	974,806	172,599	349,299	129,541
1996/97	965,998	158,407	361,395	142,113
1997/98	963,997	143,911	368,645	152,889
1998/99	964,248	128,203	376,626	163,100
1999/00	960,601	117,038	386,579	171,516
2001/02	905,932	123,954	420,889	184,071
2002/03	893,261	123,341	426,384	193,155
2003/04	874,296	123,206	437,909	204,910

1 Vocational and specialized secondary schools.
Note: Excludes special schools.
Source: OM STAT.

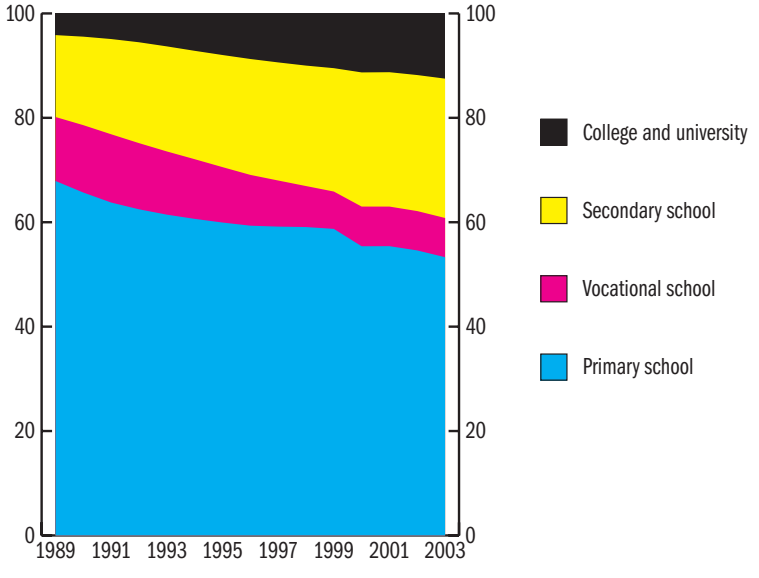


Figure 8.3: The percentage of sharing the pupils/students in the educational system

Table 8.4: The number of pupils/students not in full time by level

Year	Primary school	Vocational school	Secondary school	College and university
1980/81	15,627	–	130,332	37,109
1989/90	13,199	–	75,581	28,487
1990/91	11,536	–	68,162	25,786
1991/92	11,724	–	66,204	23,888
1992/93	10,944	–	70,303	25,078
1993/94	8,982	–	76,335	30,243
1994/95	6,558	–	81,204	38,290
1995/96	5,205	–	75,891	50,024
1996/97	4,099	–	74,653	56,919
1997/98	3,165	–	78,292	80,768
1998/99	3,016	–	84,862	95,215
1999/00	3,146	–	88,462	107,385
2000/01	2,940	–	91,700	118,994
2001/02	2,793	2,453	95,231	129,167
2002/03	2,785	3,427	93,172	148,032
2003/04	3,190	3,216	93,322	162,037

Source: OM STAT.

Table 8.5: Number of secondary school pupils by type of school and field of training

Field of training	Vocational school		Secondary vocational school	
	enrolled	passed vocational exam	enrolled	passed vocational exam
1990/1991				
Teacher training and education	–	–	5,052	1,168
Arts	–	–	2,628	462
Business and administration	31,279	8,700	41,996	7,242
Engineering, manufacturing and construction	153,213	37,636	82,754	13,297
Agriculture	18,586	4,226	7,281	1,677
Healht and welfare	6,549	..	17,163	3,202
Services	11,893	3,060	11,478	1,821
Total	221,520	53,622	168,352	28,869
2002/2003				
Teacher training and education	119	48	520	282
Arts	3,044	1,271	7,233	756
Social sciences	66	–	558	53
Business and administration	8,220	3,977	22,620	10,315
Science	–	–	579	145
Informatics	1,012	733	11,411	4,510
Engineering, manufacturing and construction	37,816	14,118	12,832	7,876
Agriculture	5,784	1,950	2,057	1,654
Healht and welfare	2,345	981	8,056	3,456
Services	15,795	6,031	14,475	5,821
Total	74,201	29,109	80,341	34,868
2003/2004				
Teacher training and education	135	36	600	291
Arts	3,047	1,019	8,669	1,258
Social sciences	89	6	953	108
Business and administration	8,109	3,417	25,322	10,045
Science	–	–	533	226
Informatics	886	608	11,416	4,490
Engineering, manufacturing and construction	37,784	13,510	15,144	5,601
Agriculture	5,330	2,102	1,430	404
Health and welfare	2,578	770	8,464	3,557
Services	16,641	6,083	15,966	6,007
Total	74,599	27,551	88,497	31,987

Source: OM STAT.

Table 8.6: Number of students by field of training

Field of training	1990/1991		2002/2003		2003/2004	
	Enrolled	Of which: full time	Enrolled	Of which: full time	Enrolled	Of which: full time
Teacher training and education	37,571	26,891	49,938	26,853	50,685	26,014
Arts	1,213	1,065	4,819	4,298	4,836	4,402
Humanities	1,992	1,182	23,941	19,370	25,375	20,335
Social sciences	4,381	3,170	33,854	22,147	42,112	27,170
Business and administration	9,471	4,755	78,301	26,990	87,057	29,814
Law	4,738	3,128	17,935	9,423	18,096	9,643
Science	1,647	1,617	5,917	5,836	6,338	6,217
Informatics	2,662	1,823	13,048	8,227	14,346	9,136
Engineering, manufacturing and construction	20,223	16,685	50,590	33,791	50,368	34,584
Agriculture	5,032	4,416	12,434	6,962	12,623	7,045
Health and welfare	9,960	9,222	27,106	16,998	30,363	18,123
Services	3,497	2,647	23,304	12,260	24,748	12,427
Total	102,387	76,601	341,187	193,155	366,947	204,910

Source: OM STAT.

Table 8.7: Number of high school applicants, full time

Year	Applied	Admitted	Admitted as a percentage of applied	Applied	Admitted
				as a percentage of the secondary school graduates in the given year	
1980	33,339	14,796	44.4	77.2	34.3
1989	44,138	15,420	34.9	84.0	29.3
1990	46,767	16,818	36.0	88.2	31.7
1991	48,911	20,338	41.6	90.2	37.5
1992	59,119	24,022	40.6	99.1	40.3
1993	71,741	28,217	39.3	104.6	41.1
1994	79,805	29,901	37.5	116.3	43.6
1995	86,548	35,081	40.5	123.2	49.9
1996	79,369	38,382	48.4	108.1	52.3
1997	81,924	40,355	49.3	108.4	53.4
1998	81,065	43,629	53.8	104.4	56.2
1999	82,815	44,538	53.8	112.0	60.2
2000	82,957	45,546	54.9	114.9	63.1
2001	84,380	49,874	59.1	119.8	70.8
2002	88,978	52,552	59.1	127.8	75.5
2003	87,110	52,703	60.5	121.1	73.3

Source: OM STAT.

Table 8.8: Life-long learning (LLL) by gender and labour market status

Labour-market status	Participation in LLL		Of which:				
	persons	per cent	school based education	out-of-school education	informal learning	both out-of-school and informal learning	any other combinations of education
Male							
Employed	298,280	14,0	52,190	81,052	115,165	32,612	17,261
Unemployed	14,273	10,3	4,605	4,611	3,253	599	1,205
Inactive not in full time education	21,764	2,2	3,068	992	16,580	366	758
Female							
Employed	325,560	18,2	70,205	93,374	99,159	38,463	24,359
Unemployed	18,440	18,1	5,272	7,767	2,452	1,136	1,813
Inactive not in full time education	41,703	2,5	3,744	5,943	30,129	1,435	452
Together							
Employed	623,840	15,9	122,395	174,426	214,324	71,075	41,620
Unemployed	32,713	13,6	9,877	12,378	5,705	1,735	3,018
Inactive not in full time education	63,476	2,4	6,812	6,935	46,709	1,801	1,210

Source: LFS LLL ad-hoc modul.

Table 8.9: Population aged 7 years and over by highest education attained and gender, per cent

Year	Total	Primary school	Secondary school without general certificate, without profession			Secondary school			University, high school, etc.	
		less than the 8th grade completed	8th grade completed	9–10th grade completed	11–12th grade completed	Completed without general certificate	completed with general certificate	completed with professional qualification	without diploma	with diploma and higher qualification
Male										
1930	100.0	88.0	6.2	..	..	–		3.7		2.1
1980	100.0	37.2	24.3	2.9	0.8	14.6	5.1	7.9	0.9	6.4
2001	100.0	17.7	23.9	2.7	1.8	23.5	6.1	11.7	2.2	10.3
Female										
1930	100.0	89.8	8.6	..	..	–		1.4		0.2
1980	100.0	44.5	27.7	2.7	0.9	5.2	7.4	6.9	0.8	3.9
2001	100.0	22.0	28.4	2.7	1.5	10.5	11.1	11.9	2.3	9.4
Total										
1930	100.0	88.9	7.4	..	..	–		2.6		1.1
1980	100.0	41.0	26.1	2.8	0.8	9.7	6.3	7.4	0.9	5.1
2001	100.0	20.0	26.3	2.7	1.7	16.7	8.7	11.8	2.2	9.8

Source: CSO Census.

Table 8.10: Population by education and age groups, as a percentage of the population in the same age group

Age group	Not even the first grade of primary school completed						At least the 8th grade of primary school completed					
	1930	1960	1970	1980	1990	2001	1930	1960	1970	1980	1990	2001
10–11	1.8	1.9	1.3	1.1	1.7	0.9	–	–	–	–	–	–
12–14	2.5	1.3	0.7	0.8	1.2	0.8	–	–	–	–	–	–
15–19	4.1	1.4	0.6	0.7	0.6	0.6	14.7	72.3	90.4	93.6	94.0	93.7
20–24	6.3	1.9	0.8	0.6	0.7	0.4	14.6	61.9	90.9	95.1	96.8	97.9
25–29	5.1	1.9	1.0	0.5	0.8	0.5	15.5	47.8	81.9	95.7	96.5	97.9
30–34	5.0	1.6	1.5	0.6	0.7	0.5	15.3	37.0	69.7	94.0	96.3	97.8
35–39	6.6	1.5	1.5	0.8	0.7	0.6	14.1	26.5	57.5	87.9	96.4	97.5
40–44	8.1	1.8	1.3	1.1	0.8	0.7	13.6	26.9	46.6	77.5	95.2	97.0
45–49	9.5	3.4	1.2	1.1	1.0	0.6	12.1	20.0	34.7	65.3	90.6	97.4
50–54	12.4	5.1	1.4	0.9	1.4	0.6	11.2	16.7	31.5	49.7	81.2	96.7
55–59	16.4	4.1	2.9	0.9	1.4	0.8	9.5	16.2	22.0	36.2	67.5	93.7
60–64	22.2	4.8	4.4	1.1	1.3	1.0	8.0	15.0	17.6	32.3	50.3	86.7
65–69	26.6	6.6	3.6	2.1	1.2	1.0	7.2	13.6	16.5	22.9	36.7	73.7
70–74	32.1	8.2	4.3	3.3	1.6	0.8	6.1	12.6	15.4	18.5	33.2	60.8
75–	37.0	10.9	6.6	3.2	4.1	1.2	5.2	10.8	14.1	17.3	23.0	40.5
Total	9.3	3.2	1.9	1.1	1.2	0.7	12.9	32.8	51.3	66.1	78.1	88.8

Source: CSO Census.

Table 8.11: Population by education and gender

Age group	Male	Female	Male	Female	Male	Female	Male	Female
	Not even the first grade of primary school completed		At least the 8th grade of primary school completed		At least secondary school with general certificate completed		University, high school, etc. with diploma completed	
7– 9	29.4	26.8	–	–	–	–	–	–
10–14	0.9	0.8	5.1	6.6	–	–	–	–
15–19	0.6	0.5	92.7	94.8	13.6	17.6	–	–
20–24	0.5	0.4	97.7	98.0	43.5	58.7	4.2	7.1
25–29	0.5	0.4	97.9	97.9	37.1	53.1	12.2	17.4
30–34	0.6	0.5	98.0	97.7	37.4	52.5	13.3	17.3
35–39	0.6	0.6	97.8	97.1	37.3	51.9	14.0	18.1
40–44	0.6	0.7	97.5	96.6	34.9	49.3	13.4	16.4
45–49	0.5	0.6	97.7	97.1	35.9	48.7	14.0	14.7
50–54	0.5	0.7	97.0	96.4	40.2	48.5	15.8	12.9
55–59	0.6	0.9	94.7	92.9	38.3	38.6	16.6	11.6
60–64	0.8	1.0	89.3	84.8	31.8	27.4	13.4	6.6
65–69	0.9	1.2	80.8	68.8	28.8	18.6	13.9	4.7
70–74	0.7	0.9	71.3	54.3	29.3	13.9	14.0	3.5
75–79	0.7	0.9	55.4	36.2	25.3	10.0	11.5	2.3
80–84	0.7	1.1	51.7	34.5	24.6	9.3	11.2	2.0
85–	1.6	2.7	43.5	30.5	20.5	7.8	10.4	1.8
Total	1.8	1.7	82.3	78.0	30.3	34.8	10.3	9.4

Source: CSO Census.

Table 8.12: Persons in employment by highest education obtained, per cent

Educational attainment	1980	1990	2001
Primary school less than the 8th grade completed	18.5	5.2	0.8
Primary school 8th grade completed	35.4	33.4	19.6
Together	53.9	38.6	20.4
Secondary school without general certificate, with professional qualification completed	16.9	24.4	28.8
Secondary school with general certificate completed	21.1	24.8	32.5
Together	38.0	49.2	61.3
University, high school, etc. completed	8.1	12.3	18.3
Total	100.0	100.0	100.0

Source: CSO Census.

Table 8.13: Economic activity by highest education level and gender

	Persons in employment as a percentage of the given group of population			Persons in employment as a percentage of the given group of population	
	1980	1990	2001	1990	2001
0–7 grades of primary school completed					
Male	22.0	8.3	1.5	9.1	2.6
Female	15.3	4.4	0.8	4.7	1.3
Together	18.4	6.2	1.1	6.7	1.9
Primary school 8th grade completed					
Male	72.2	55.5	28.1	58.2	35.7
Female	56.5	44.7	22.3	45.9	25.9
Together	63.6	49.6	24.8	51.5	30.2
Secondary school without general certificate, with professional qualification completed					
Male	99.2	95.2	71.7	97.6	81.2
Female	75.6	76.7	58.5	78.3	65.5
Together	92.7	89.4	67.3	91.6	76.0
Secondary school with general certificate completed					
Male	82.1	75.2	59.5	76.8	63.7
Female	73.6	70.8	52.4	71.8	56.3
Together	77.5	72.7	55.4	73.9	59.3
University, high school, etc. completed					
Male	86.1	78.1	72.6	78.8	74.3
Female	83.3	75.2	72.1	75.6	73.7
Together	85.0	76.7	72.4	77.3	74.0
Total					
Male	**55.3**	**50.4**	**41.3**	**52.1**	**46.6**
Female	39.9	37.4	31.6	38.1	34.6
Together	47.3	43.6	36.2	44.9	40.3

Source: CSO Census.

Table 8.14: Persons in employment by major groups of occupations and highest education

Major groups of occupations	Total	Primary school		Secondary school		College or university completed
		less than the 8th grade completed	8th grade completed	without general certificate, with professional qualification	with general certificate	
1980						
Legislators, senior government and NGO officials	100.0	2.7	15.7	5.6	43.9	32.1
Professionals	100.0	0.4	4.8	1.5	26.0	67.4
Other occupations requiring higher or secondary education	100.0	1.8	15.4	3.8	73.3	5.7
Office clerks	100.0	2.2	38.5	7.7	50.3	1.3
Services workers	100.0	15.1	46.7	25.4	12.5	0.3
Agricultural and forestry workers	100.0	52.3	38.8	5.8	2.9	0.2
Craft and related trades workers	100.0	14.3	37.3	35.7	12.5	0.3
Machine operators, assemblers	100.0	19.7	54.0	18.9	7.2	0.2
Unskilled labourers	100.0	49.3	43.8	4.6	2.3	0.1
Armed forces	..	..	..	..	..	..
Together	100.0	18.5	35.4	16.9	21.1	8.1
1990						
Legislators, senior government and NGO officials	100.0	0.2	8.2	6.5	40.2	44.9
Professionals	100.0	0.0	1.6	0.8	19.2	78.4
Other occupations requiring higher or secondary education	100.0	0.3	10.4	7.0	74.1	8.1
Office clerks	100.0	0.3	28.2	14.7	55.1	1.6
Services workers	100.0	2.3	37.7	36.8	21.5	1.7
Agricultural and forestry workers	100.0	19.2	53.8	18.6	7.4	1.1
Craft and related trades workers	100.0	3.7	35.2	45.9	14.5	0.7
Machine operators, assemblers	100.0	5.6	53.1	30.3	10.4	0.6
Unskilled labourers	100.0	20.9	64.2	11.2	3.4	0.2
Armed forces	100.0	1.0	19.4	20.7	34.3	24.5
Together	100.0	5.2	33.4	24.4	24.8	12.3
2001						
Legislators, senior government and NGO officials	100.0	0.1	4.0	10.0	40.0	45.9
Professionals	100.0	0.0	0.2	0.3	15.4	84.1
Other occupations requiring higher or secondary education	100.0	0.0	8.6	11.0	65.2	15.3
Office clerks	100.0	0.2	12.3	11.4	69.7	6.5
Services workers	100.0	0.5	20.9	38.9	35.9	3.9
Agricultural and forestry workers	100.0	4.1	42.5	31.6	17.8	4.1
Craft and related trades workers	100.0	0.6	20.7	56.9	20.6	1.1
Machine operators, assemblers	100.0	0.8	37.1	44.5	17.0	0.6
Unskilled labourers	100.0	5.1	60.3	24.7	9.4	0.5
Armed forces	100.0	0.1	6.1	20.7	44.5	28.6
Together	100.0	0.8	19.6	28.8	32.5	18.3

Source: CSO Census.

Table 8.15: Employees by selected groups of occupations and highest education level, as a percentage of total number of persons employed

Selected groups of occupations	1980			1990			2001		
	Primary	Sec-ondary	Higher educa-tion	Primary	Sec-ondary	Higher educa-tion	Primary	Sec-ondary	Higher educa-tion
General managers of business and budgetary organisations	19.0	50.3	30.7	8.7	47.4	44.0	3.6	47.6	48.8
General managers of small enterprises	..	..	..	..	..	..	5.7	59.8	34.5
Natural science and engineering	2.7	25.3	72.0	1.9	17.5	80.7	0.0	14.0	86.0
Human health	20.8	30.5	48.7	0.4	4.3	95.4	0.0	8.4	91.6
Welfare and labour market	..	..	..	..	..	..	0.0	30.0	70.0
Teaching	1.4	24.2	74.4	0.5	11.0	88.4	0.0	8.3	91.7
Law, social science professionals	5.8	36.0	58.3	3.9	36.8	59.3	0.0	28.4	71.6
Technicians	15.0	75.3	9.7	9.8	76.6	13.6	7.0	75.3	17.7
Personal care workers, medical assistants	18.6	79.1	2.3	12.2	83.4	4.4	14.3	82.2	3.5
Welfare and labour market services occupations	..	..	..	..	..	..	22.6	60.3	17.0
Teaching associate professionals	13.2	72.8	13.9	11.4	75.1	13.5	12.2	70.3	17.5
Legal, life and property protection services ass. professionals	39.6	46.1	14.3	22.8	57.9	19.3	6.4	59.9	33.7
Clerical occupations in business and finances	19.1	77.9	3.0	11.0	82.5	6.6	5.7	77.5	16.8
Office and management clerks	39.0	59.5	1.5	27.4	70.9	1.7	..	..	..
Management clerks	49.7	49.8	0.6	33.3	65.5	1.2	10.5	82.2	7.3
Trade and restaurant workers	50.4	49.1	0.4	33.8	64.1	2.1	18.4	77.5	4.1
Transport, postal services, communication	83.0	16.8	0.2	62.7	36.8	0.4	27.1	70.0	2.9
Non-material services' workers	74.7	25.1	0.2	48.1	50.7	1.2	26.0	70.3	3.7
Skilled agricultural workers	91.9	7.9	0.2	73.7	25.2	1.1	47.2	48.7	4.1
Skilled forestry, farming, fishery, etc.	80.4	19.3	0.3	66.5	33.0	0.5	41.1	56.5	2.3
Miners	77.8	21.9	0.2	55.5	44.0	0.5	28.4	70.4	1.2
Food- processing occupations	71.6	28.3	0.1	60.3	39.4	0.4	38.6	60.6	0.9
Light-industrial occupations	64.7	35.1	0.2	46.4	52.9	0.7	25.4	73.1	1.5
Ferrous and metal processing workers	41.4	58.2	0.4	31.1	68.1	0.8	17.1	81.8	1.1
Handicrafts and miscellaneous industry, warehouse workers, laboratory assistants	73.9	25.8	0.3	63.0	36.2	0.8	29.9	68.3	1.8
Construction workers	42.3	57.5	0.2	30.1	69.4	0.5	18.2	81.2	0.6
Machine operators in manufacturing	76.3	23.5	0.2	63.3	36.1	0.6	44.3	55.2	0.5
Plant operators	81.8	17.8	0.3	61.2	37.9	0.9	36.8	62.1	1.1
Mobile machine operators, drivers	70.3	29.5	0.2	55.4	44.0	0.6	32.1	67.2	0.7
Elementary service occupations	91.9	8.0	0.1	84.7	15.1	0.2	65.4	34.1	0.5
Agricultural and forestry elementary occupations	97.7	2.3	0.1	90.9	9.0	0.1	65.2	34.3	0.5

Source: CSO Census.

Table 8.16: Persons in employment by industry and highest educational attainment

Major groups of occupations	Total	Primary school		Secondary school		College or university completed
		less than the 8th grade completed	8th grade completed	without general certificate, with professional qualification	with general certificate	
1980						
Agriculture, hunting, forestry, fishing	100.0	36.2	37.2	13.6	9.5	3.6
Mining, quarrying	100.0	19.5	39.2	19.1	17.8	4.5
Manufacturing	100.0	16.1	40.4	18.1	20.6	4.8
Electricity, gas and water supply	100.0	16.1	34.8	19.0	24.5	5.5
Construction	100.0	18.6	32.3	30.4	15.6	3.2
Wholesale and retail trade, repair	100.0	11.1	33.4	23.5	27.3	4.8
Hotels and restaurants	100.0	16.1	36.6	21.0	22.1	4.3
Transport, storage and communication	100.0	13.4	40.3	17.5	24.9	3.9
Financial intermediation	100.0	4.0	14.2	1.8	69.3	10.7
Real estate, renting and business activities	100.0	9.6	24.2	10.3	34.5	21.5
Public administration and defence, compulsory social security	100.0	9.8	27.7	9.1	35.1	18.4
Education	100.0	8.2	18.2	2.8	25.6	45.3
Health and social work	100.0	10.7	33.6	8.2	31.2	16.3
Other community, social and personal service activities	100.0	17.9	28.5	14.7	25.1	13.8
Total	100.0	18.5	35.4	16.9	21.1	8.1
1990						
Agriculture, hunting, forestry, fishing	100.0	11.4	43.9	24.8	14.4	5.5
Mining, quarrying	100.0	5.1	36.1	31.9	20.7	6.2
Manufacturing	100.0	5.0	39.4	26.2	22.9	6.6
Electricity, gas and water supply	100.0	4.2	31.2	28.1	28.0	8.6
Construction	100.0	6.0	31.2	39.9	17.4	5.6
Wholesale and retail trade, repair	100.0	2.4	27.4	30.6	31.8	7.8
Hotels and restaurants	100.0	3.5	32.7	29.2	27.8	6.9
Transport, storage and communication	100.0	3.7	34.9	25.9	29.4	6.0
Financial intermediation	100.0	0.7	10.3	4.3	68.6	16.1
Real estate, renting and business activities	100.0	2.8	22.4	14.5	32.9	27.5
Public administration and defence, compulsory social security	100.0	2.6	21.8	16.2	35.6	23.8
Education	100.0	2.3	18.7	5.6	18.3	55.0
Health and social work	100.0	3.3	29.4	15.1	32.4	19.7
Other community, social and personal service activities	100.0	7.1	27.5	20.9	27.9	16.7
Total	100.0	5.2	33.4	24.4	24.8	12.3

Major groups of occupations	Total	Primary school		Secondary school		College or university completed
		less than the 8th grade completed	8th grade completed	without general certificate, with professional qualification	with general certificate	
2001						
Agriculture, hunting, forestry, fishing	100.0	3.0	36.2	33.2	20.2	7.4
Mining, quarrying	100.0	0.9	23.6	41.0	26.3	8.2
Manufacturing	100.0	0.9	26.4	37.8	26.6	8.4
Electricity, gas and water supply	100.0	0.4	15.7	35.7	35.6	12.6
Construction	100.0	0.9	20.2	50.9	20.1	7.9
Wholesale and retail trade, repair	100.0	0.4	14.5	33.1	40.7	11.3
Hotels and restaurants	100.0	0.5	21.8	36.1	35.7	6.0
Transport, storage and communication	100.0	0.7	19.0	32.5	38.5	9.4
Financial intermediation	100.0	0.1	4.6	5.2	59.5	30.6
Real estate, renting and business activities	100.0	0.4	14.4	18.3	36.4	30.5
Public administration and defence, compulsory social security	100.0	0.9	12.2	15.5	42.8	28.6
Education	100.0	0.3	13.7	8.2	17.6	60.2
Health and social work	100.0	0.6	20.3	15.4	40.7	23.0
Other community, social and personal service activities	100.0	1.3	15.7	22.2	37.4	23.3
Total	100.0	0.8	19.6	28.8	32.5	18.3

Source: CSO Census.

Table 8.17: Persons in employment by status of employment and highest education attained

Status in employment	Total	Primary school		Secondary school		College or university completed
		less than the 8th grade completed	8th grade completed	without general certificate, with professional qualification	with general certificate	
1980						
Employee	100.0	15.0	35.0	17.2	23.4	9.3
Member of co-operative	100.0	32.0	39.2	16.4	10.0	2.4
Entrepreneur, assisting family member	100.0	49.9	31.7	10.6	6.8	1.0
Total	100.0	18.5	35.4	16.9	21.1	8.1
1990						
Employee	100.0	4.7	32.7	23.8	25.6	13.2
Member of co-operative	100.0	10.1	42.9	25.4	16.1	5.4
Entrepreneur, assisting family member	100.0	5.0	28.7	32.3	26.1	7.9
Total	100.0	5.2	33.4	24.4	24.8	12.3
2001						
Employee	100.0	0.8	20.6	28.8	31.8	18.0
Member of co-operative	100.0	2.3	33.8	33.0	23.5	7.4
Entrepreneur, assisting family member	100.0	0.6	13.1	29.0	36.5	20.8
Total	100.0	0.8	19.6	28.8	32.5	18.3

Source: CSO Census.

Table 8.18: Number of registered unemployed by educational level, yearly averages

Highest education level	1996	1997	1998	1999	2000	2001	2002	2003
Max. 8 classes of primary school	41.2	40.8	40.6	40.4	41.0	42.0	42.4	42.7
Vocational school	35.1	35.6	36.0	35.7	34.9	34.1	33.5	32.9
Vocational secondary school	12.7	12.8	12.9	13.2	13.2	13.1	13.2	13.1
Grammar school	8.3	8.0	7.9	8.0	8.0	7.7	7.6	7.5
College diploma, BA	2.0	2.0	1.9	2.0	2.1	2.2	2.4	2.7
University diploma, MA	0.8	0.7	0.7	0.7	0.7	0.8	0.9	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: FH.

Table 8.19: Number of registered unemployed school-leavers by educational level, yearly averages

Highest education level	1996	1997	1998	1999	2000	2001	2002	2003
Max. 8 classes of primary school	4.6	20.2	23.4	25.3	26.8	31.1	33.7	34.7
Vocational school	41.9	35.7	34.1	30.9	27.8	23.7	20.6	20.4
Vocational secondary school	27.0	23.9	24.2	25.0	25.4	25.3	25.5	23.2
Grammar school	21.8	15.5	14.0	13.6	13.7	12.6	11.6	10.8
College diploma, BA	3.6	3.5	3.4	4.0	4.8	5.5	6.2	7.7
University diploma, MA	1.1	1.1	1.0	1.2	1.5	1.8	2.4	3.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: FH.

Table 8.20: Persons in employment working on site of domicile and daily commuters by highest education attained

Highest education level	1980			1990			2001		
	Total	Working on site of domicile	Daily commuter	Total	Working on site of domicile	Daily commuter	Total	Working on site of domicile	Daily commuter
Primary school less than the 8th grade	18.5	18.2	19.2	5.2	4.7	6.7	0.8	0.9	0.7
8th grade of primary school	35.4	34.8	37.2	33.4	32.4	36.3	19.6	18.8	21.3
Secondary school without general certificate, with professional qualification	16.9	15.2	22.2	24.4	22.4	30.3	28.8	25.9	35.7
Secondary school with general certificate	21.1	22.5	16.7	24.8	26.5	19.7	32.5	34.0	28.9
College or university	8.1	9.2	4.6	12.3	14.0	7.1	18.3	20.4	13.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: CSO Census.

Table 9.1: Registered vacancies*

Year	Number of vacancies at closing day	Number of registered unemployed at closing date	Vacancies per 100 unemployed
1989	60,429	23,760	254.3
1990	31,228	47,739	65.4
1991	14,343	227,270	6.3
1992	21,793	556,965	3.9
1993	34,375	671,745	5.1
1994	35,569	568,366	6.3
1995	28,680	507,695	5.6
1996	38,297	500,622	7.6
1997	42,544	470,112	9.0
1998	46,624	423,121	11.0
1999	51,438	409,519	12.6
2000	50,000	390,492	12.8
2001	45,194	364,140	12.4
2002	44,603	344,715	12.9
2003	47,239	357,212	13.2

* Monthly average stock figures.
Source: FH.

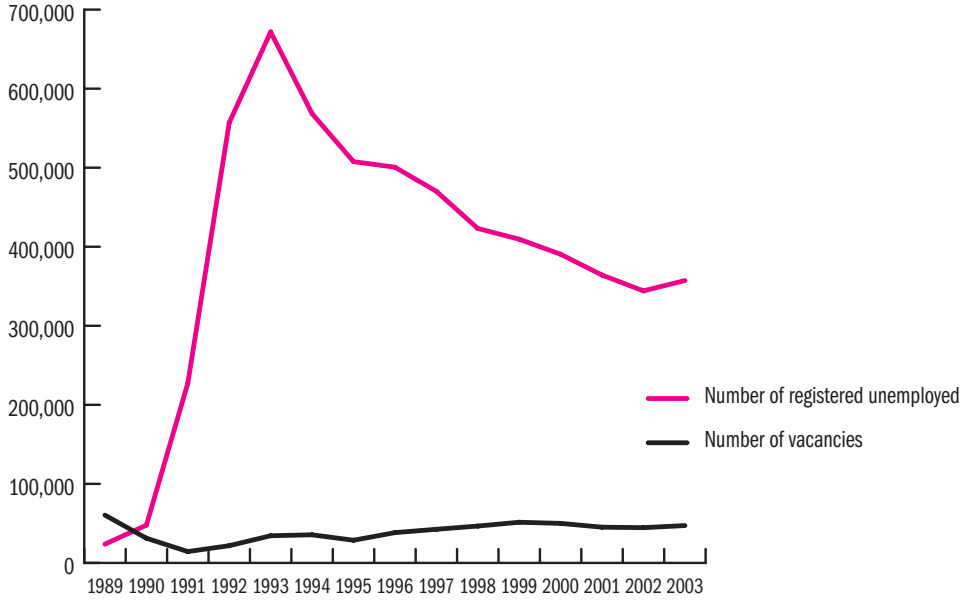


Figure 9.1: Number of registered vacancies and registered unemployed

Table 9.2: Average monthly inflow of reported vacancies in 2002 and 2003 by occupation, 2 digit FEOR code

Code	Occupational groups	2002	2003	Index, 2003/2002
01	Occupations of armed forces requiring higher (third-level) qualification	0,3	1,2	468,0
02	Occupations of armed forces requiring secondary-level qualification	53,6	526,0	981,7
03	Occupations of armed forces not requiring secondary-level qualification	105,8	11,1	10,5
11	Legislators, senior government officials, senior officials of nation-wide special-interest organisations	0,3	0,1	32,0
12	Senior officials of regional and local self-government, public administration, jurisdiction and special-interest organisations	0,1	1,1	13,5
13	Managers of businesses and budgetary institutions	88,0	81,2	93,0
14	General managers of small enterprises and budgetary institutions	7,5	5,1	67,7
21	Engineering and natural science professionals	97,4	115,3	118,4
22	Health professionals	27,8	23,3	84,1
23	Welfare and labour market service professionals	7,7	11,2	145,6
24	Teaching professionals	126,8	100,9	79,6
25	Business, legal and social science professionals	204,9	184,8	90,2
26	Cultural, sport, artistic and religious professionals	9,7	10,5	108,6
29	Professionals N.E.C.	3,3	9,1	272,7
31	Technicians and related associate professionals	154,1	146,7	95,2
32	Health associate professionals	153,6	99,2	64,6
33	Welfare and labour market services occupations	44,4	41,8	94,2
34	Teaching associate professionals	24,3	20,3	83,8
35	Legal, life and property protection services associate professionals	7,1	8,8	124,7
36	Business and financial intermediation clerks	255,7	236,4	92,5
37	Cultural, sport, artistic and religious associate professionals	13,6	7,6	55,8
39	Clerks N.E.C.	7,4	18,4	248,3
41	Office clerks	385,3	344,3	89,4
42	Management (consumer services) clerks	182,1	174,9	96,1
51	Wholesale and retail trade, hotels and restaurants workers	1,131,2	1,111,5	98,3
52	Transport, postal and communications workers	46,8	24,4	60,7
53	Non-material service workers	352,9	297,9	84,4
61	Skilled agricultural workers	304,3	197,6	64,9
62	Skilled forestry and game farming workers	18,1	18,6	102,8
63	Skilled fishery workers	0,8	2,6	310,8
64	Plant protection, plant health protection and soil conservation workers	1,0	0,9	92,0
71	Extraction workers	41,8	3,5	8,4
72	Food processing and related trades workers	820,7	733,7	89,4
73	Light industry workers	1,467,8	997,0	67,9
74	Steel and metal trades workers	1,297,4	1,466,0	113,0
75	Handicraft, miscellaneous industry and warehouse workers, laboratory assistants	265,3	202,3	76,2
76	Construction workers	1,229,7	1,395,8	113,5
81	Manufacturing machine operators	1,331,6	1,599,9	120,2
82	Other stationary-plant operators	125,1	121,8	97,4
83	Mobile-plant operators	633,0	691,9	109,3
91	Elementary services occupations (without agriculture)	4,035,6	4,316,7	107,0
92	Agricultural and forestry labourers	94,3	105,7	112,1
	Total	15,157,7	15,471,5	102,7

Source: FH-REG.

Table 9.3: Firms intending to increase/decrease their staff*

Year	Half year	Intending to decrease	Intending to increase
1993	I.	34.7	23.6
	II.	28.5	22.3
1994	I.	24.5	29.1
	II.	21.0	29.7
1995	I.	30.1	32.9
	II.	30.9	27.5
1996	I.	32.9	33.3
	II.	29.4	30.4
1997	I.	29.6	39.4
	II.	30.7	36.8
1998	I.	23.4	42.7
	II.	28.9	37.1
1999	I.	25.8	39.2
	II.	28.8	35.8
2000	I.	24.4	41.0
	II.	27.2	36.5
2001	I.	25.3	40.0
	II.	28.6	32.6
2002	I.	25.6	39.2
	II.	27.9	35.4
2003	I.	23.6	38.5
	II.	32.1	34.3

* In the period of the next half year after the interview date, in the sample of FH PROG.
Source: FH PROG.

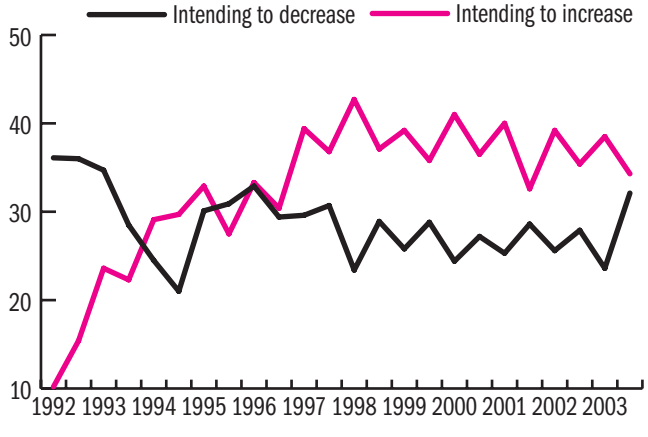


Figure 9.2: Firms intending to increase/decrease their staff

Table 9.4: Firms expecting increasing/decreasing orders*

Year	Half year	Orders	
		increasing	decreasing
1993	I.	31.8	36.0
	II.	35.9	33.0
1994	I.	38.7	24.8
	II.	45.6	21.7
1995	I.	40.9	23.8
	II.	47.2	20.7
1996	I.	39.8	24.4
	II.	45.5	21.0
1997	I.	42.7	19.4
	II.	47.5	16.7
1998	I.	46.1	15.2
	II.	47.5	18.0
1999	I.	38.7	21.9
	II.	42.2	20.2
2000	I.	38.9	18.3
	II.	49.1	14.9
2001	I.	44.1	16.2
	II.	44.4	19.1
2002	I.	39.5	18.8
	II.	40.2	19.5
2003	I.	36.2	22.3
	II.	49.0	13.8

* In the period of the next half year after the interview date, in the sample of FH PROG.
Source: FH PROG.

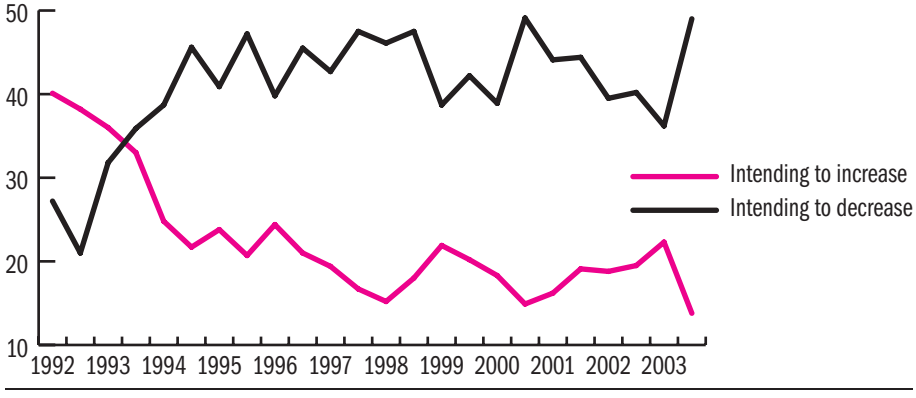


Figure 9.3: Firms expecting increasing/decreasing orders

Table 9.5: Firms activating new capacities*

Year	Half year	Building only	Building and/or machinery	Total
1992	I.	...	10.2	10.2
	II.	3.0	11.4	14.4
1993	I.	3.4	14.1	17.5
	II.	3.0	14.7	17.7
1994	I.	3.6	17.7	21.3
	II.	4.1	17.4	21.5
1995	I.	4.2	18.4	22.6
	II.	4.4	18.8	23.2
1996	I.	3.6	20.2	23.8
	II.	4.2	19.5	23.7
1997	I.	3.9	19.2	23.1
	II.	4.7	21.1	25.8
1998	I.	4.4	20.9	25.3
	II.	5.4	23.6	29.0
1999	I.	4.7	20.5	25.2
	II.	5.2	20.9	26.1
2000	I.	4.6	21.1	25.7
	II.	4.4	23.9	28.3
2001	I.	4.0	21.9	25.9
	II.	4.7	22.9	27.6
2002	I.	3.4	22.6	26.0
	II.	3.3	22.8	26.1
2003	I.	3.4	21.9	25.3

* In the period of the next half year after the interview date, in the sample of FH PROG.
Source: FH PROG.

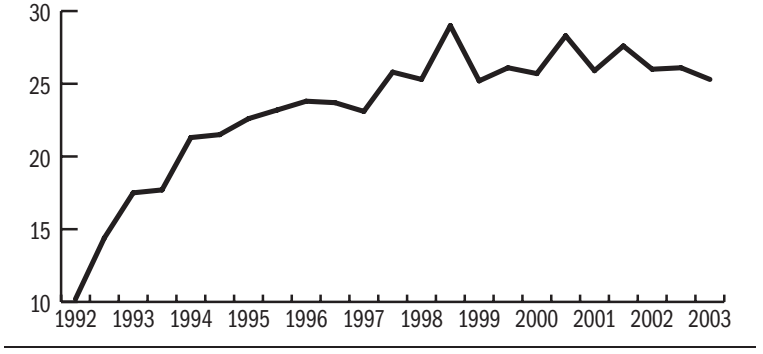


Figure 9.4: Firms activating new capacities

Table 10.1: Regional inequalities: Labour force participation rates*

Year	Central Hungary	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
1992	74.4	72.5	75.1	71.8	68.4	67.1	71.9	71.8
1993	71.7	70.3	74.4	68.7	66.6	63.6	68.5	69.3
1994	69.5	68.5	72.9	67.2	63.8	61.8	66.6	67.3
1995	68.3	67.0	70.6	62.5	62.8	60.1	65.8	65.6
1996	68.4	65.8	71.4	62.7	61.4	58.8	64.5	65.0
1997	67.2	65.1	70.8	62.5	60.0	57.3	64.6	64.1
1998	67.2	66.8	72.5	63.5	59.6	57.9	64.7	64.7
1999	69.3	69.3	72.8	64.2	61.3	60.0	65.1	66.2
2000	69.8	69.2	72.5	64.9	61.5	59.8	65.1	66.4
2001	69.9	69.2	71.9	63.5	60.8	59.6	65.7	66.2
2001[a]	69.8	68.8	71.8	63.3	60.9	59.4	65.3	66.0
2002[a]	69.7	69.5	72.5	62.4	61.1	58.8	64.2	65.4
2003[a]	70.5	71.1	70.6	64.1	62.3	60.2	63.0	66.3

* Comparable working age population. Male: 15–59, female: 15–54 years.
[a] See note of Table 3.7.
Source: KSH MEF.

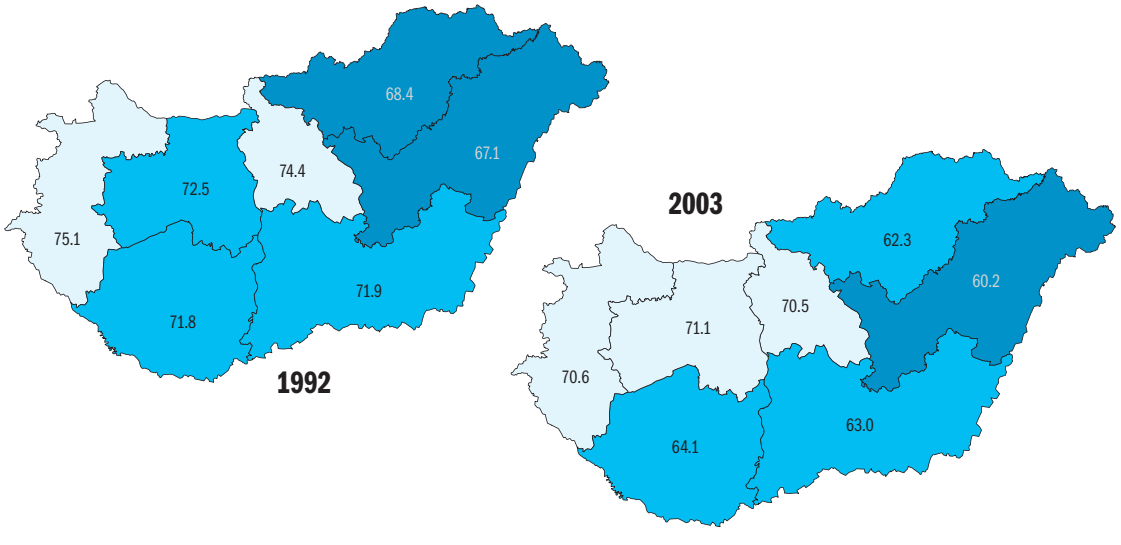


Figure 10.1: Regional inequalities: Labour force participation rates in NUTS-2 level regions

Table 10.2: Regional inequalities: Employment ratio*

Year	Central Hungary	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
1992	68.7	63.9	69.5	64.7	58.6	58.6	64.4	64.5
1993	64.6	61.4	67.9	59.8	55.7	54.0	60.0	60.8
1994	63.3	61.0	67.3	59.1	54.0	53.2	59.6	59.9
1995	63.1	59.5	65.6	54.5	52.5	51.7	59.6	58.7
1996	62.7	58.8	66.3	56.7	51.7	51.0	59.1	58.3
1997	62.5	59.7	66.5	56.3	51.5	50.4	59.8	58.4
1998	63.4	62.3	68.2	57.5	52.3	51.4	60.1	59.6
1999	65.6	65.0	69.5	58.8	54.1	53.7	61.3	61.5
2000	66.0	65.8	69.4	59.7	55.1	54.2	61.7	62.0
2001	66.8	66.1	68.8	58.5	55.5	54.8	62.0	62.3
2001[a]	66.5	65.1	68.9	58.5	55.8	54.8	61.8	62.1
2002[a]	66.9	65.9	69.5	57.3	55.6	54.1	60.1	61.9
2003[a]	67.5	67.7	67.3	59.0	56.1	56.0	58.7	62.3

* Working age population.
[a] See note of Table 3.7.
Source: KSH MEF.

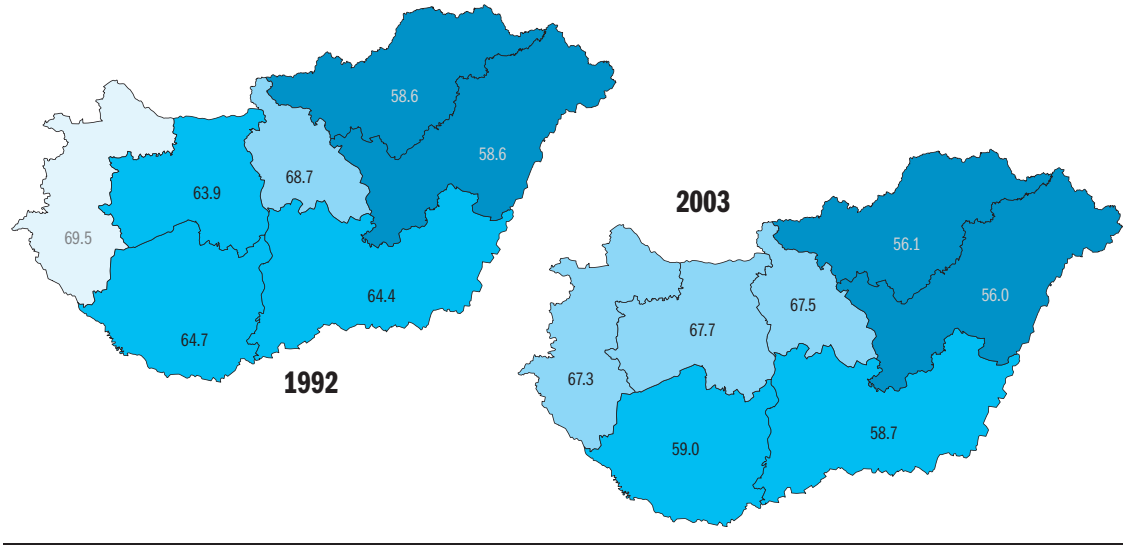


Figure 10.2: Regional inequalities: Employment ratio in NUTS-2 level regions

Table 10.3: Regional inequalities: LFS-based unemployment rate*

Year	Central Hungary	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
1992	7.4	11.7	7.3	9.6	14.0	12.5	10.2	9.9
1993	9.9	12.6	9.0	12.8	16.1	14.8	12.4	12.1
1994	8.8	10.7	7.7	12.0	15.2	13.8	10.5	10.8
1995	7.4	11.0	6.9	12.1	16.0	13.8	9.3	10.3
1996	8.2	10.4	7.1	9.4	15.5	13.2	8.4	10.0
1997	7.0	8.1	6.0	9.9	14.0	12.0	7.3	8.8
1998	5.7	6.8	6.1	9.4	12.2	11.1	7.1	7.8
1999	5.2	6.1	4.4	8.3	11.6	10.2	5.8	7.0
2000	5.3	4.9	4.2	7.8	10.1	9.3	5.1	6.4
2001	4.3	4.3	4.2	7.8	8.5	7.8	5.4	5.7
2001[a]	4.3	4.3	4.1	7.7	8.5	7.8	5.4	5.7
2002[a]	4.1	5.2	4.1	8.0	9.0	8.0	6.4	6.0
2003[a]	3.9	4.5	4.4	8.0	8.6	6.0	6.6	5.9

* Population.aged 15–74. Excluding conscripts.
[a] See note of Table 3.7.
Source: KSH MEF.

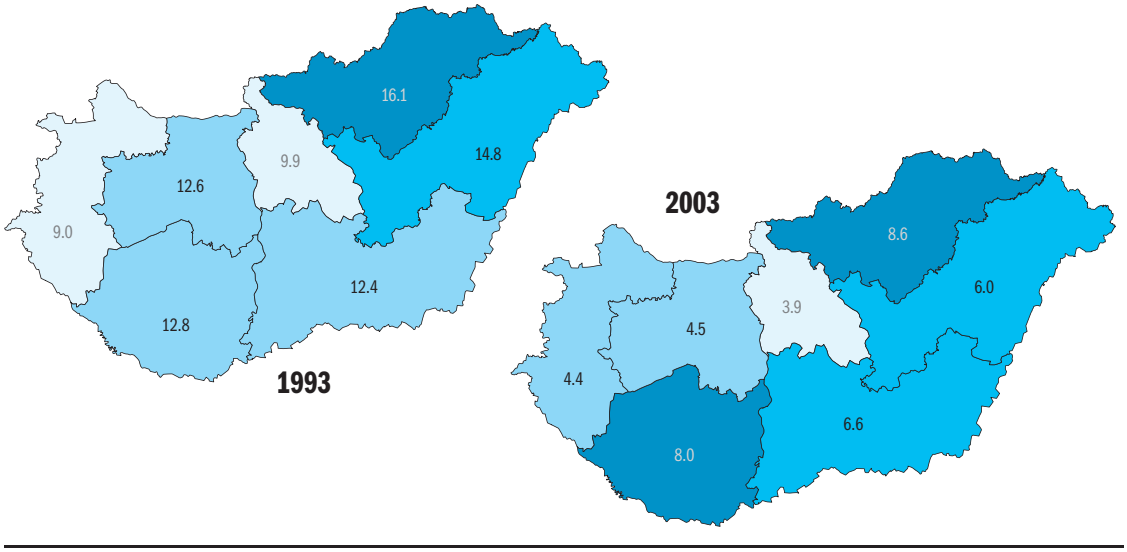


Figure 10.3: Regional inequalities: LFS-based unemployment rates in NUTS-2 level regions

Table 10.4: Regional inequalities: Registered unemployment rate*

Year	Central Hungary	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
1991	1.7	3.7	2.8	4.8	7.0	6.5	5.2	4.1
1992	5.7	10.4	7.2	10.8	15.7	15.0	12.2	10.3
1993	8.0	12.8	9.1	13.1	19.1	18.2	14.7	12.9
1994	6.6	11.5	8.5	11.9	16.6	16.9	12.9	11.3
1995	6.3	10.6	7.6	11.7	15.6	16.1	11.5	10.6
1996	6.4	10.7	8.0	12.6	16.7	16.8	11.3	11.0
1997	5.6	9.9	7.3	13.1	16.8	16.4	11.0	10.5
1998	4.7	8.6	6.1	11.8	16.0	15.0	10.1	9.5
1999	4.5	8.7	5.9	12.1	17.1	16.1	10.4	9.7
2000	3.8	7.5	5.6	11.8	17.2	16.0	10.4	9.3
2001	3.2	6.7	5.0	11.2	16.0	14.5	9.7	8.5
2002	2.8	6.6	4.9	11.0	15.6	13.3	9.2	8.0
2003	2.8	6.7	5.2	11.7	16.2	14.1	9.7	8.3

* The denominator of the ratio is the active population on January 1st of the previous year.
Source: FH REG.

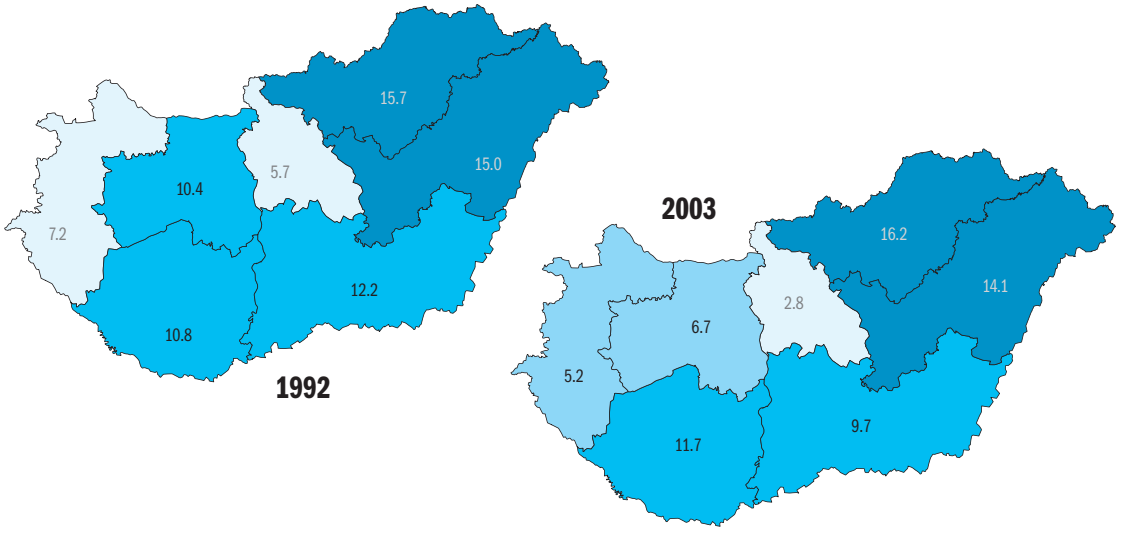


Figure 10.4: Regional inequalities: Registered unemployment rate in NUTS-2 level regions

Table 10.5: Annual average registered unemployment rate by counties

County	1990	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Budapest	0.1	4.6	6.6	5.9	5.7	5.7	4.8	4.0	3.7	3.0	2.6	2.2	2.4
Baranya	1.1	11.2	13.2	11.7	11.8	12.2	13.3	11.8	11.6	11.6	11.1	11.2	11.9
Bács-Kiskun	1.1	13.4	16.0	13.1	11.0	10.9	10.7	9.7	10.0	10.0	9.3	8.8	9.4
Békés	1.1	13.3	16.3	15.1	14.0	14.0	13.5	13.0	13.0	13.1	11.9	11.2	11.5
Borsod-Abaúj-Zemplén	2.3	16.7	20.2	17.5	16.7	18.0	19.0	17.9	19.5	20.3	19.0	19.1	19.6
Csongrád	1.0	9.8	11.7	10.8	9.9	9.3	9.2	8.1	8.5	8.6	8.3	8.1	8.5
Fejér	1.0	10.1	12.5	11.3	10.6	10.4	9.4	8.4	8.3	7.2	6.4	6.4	7.1
Győr-Moson-Sopron	0.5	6.9	8.2	7.7	6.8	7.4	6.4	5.1	4.8	4.6	4.1	4.0	4.1
Hajdú-Bihar	0.9	11.5	16.6	15.3	14.2	15.6	15.0	14.0	15.6	14.7	13.6	12.8	13.1
Heves	1.6	12.7	15.2	13.9	12.5	13.6	12.1	11.7	12.3	12.0	10.6	9.8	10.0
Jász-Nagykun-Szolnok	1.6	14.4	17.1	15.8	14.6	14.8	14.8	13.5	13.7	13.4	11.5	10.2	10.7
Komárom-Esztergom	1.0	11.5	14.4	12.6	11.3	12.0	11.4	9.8	10.1	8.3	7.0	6.7	6.0
Nógrád	2.4	16.8	21.3	17.2	16.3	17.0	16.3	15.6	16.2	14.9	14.3	13.8	14.6
Pest	0.5	8.1	11.0	8.1	7.6	7.8	7.3	6.3	6.0	5.2	4.4	3.7	3.7
Somogy	1.4	9.2	11.6	10.9	11.2	12.5	12.7	11.3	12.2	11.9	11.6	11.5	12.2
Szabolcs-Szatmár-Bereg	2.6	18.9	20.6	19.3	19.3	19.7	18.9	17.2	18.7	19.5	17.8	16.7	17.7
Tolna	1.6	12.1	14.7	13.4	12.2	13.4	13.5	12.3	12.9	11.8	11.0	10.0	10.7
Vas	0.4	7.3	9.1	8.3	7.2	7.2	6.7	5.6	5.6	5.2	4.9	4.5	5.0
Veszprém	0.9	9.9	11.9	10.9	10.0	9.9	9.2	7.9	8.2	7.2	6.9	6.6	7.0
Zala	0.8	7.7	10.3	9.8	9.2	9.8	9.2	8.1	7.7	7.2	6.5	6.4	7.0
Country	1.0	10.3	12.9	11.3	10.6	11.0	10.5	9.5	9.7	9.3	8.5	8.0	8.3

Source: FH REG.

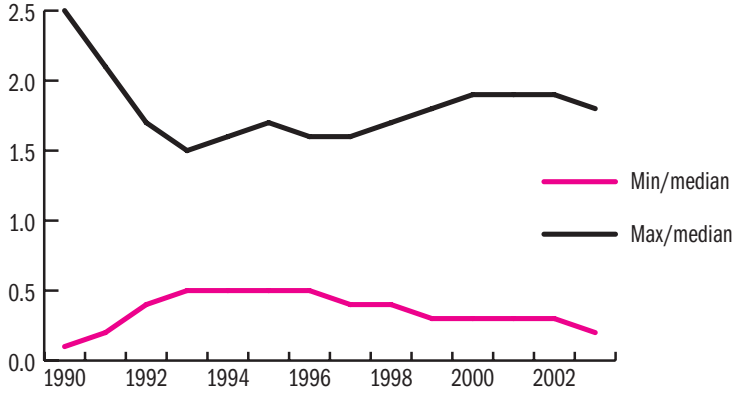


Figure 10.5: Regional inequalities: unemployment rates in the counties

Table 10.6: Average monthly earnings in Budapest and the counties

County	1994		1998		2000		2001		2002		2003	
	HUF/ month	%	HUF/ month	%	HUF/ month	%	HUF/ month	%	HUF/ month	%	HUF/ month	%
Budapest	45,180	126.8	90,949	131.0	121,450	134.4	140,312	135.4	157,624	134.0	180,811	133.2
Baranya	32,445	91.1	63,391	91.3	76,243	84.4	89,479	86.4	100,142	85.1	118,218	87.1
Bács-Kiskun	30,124	84.6	57,325	82.6	71,141	78.8	83,432	80.5	97,645	83.0	113,129	83.3
Békés	30,725	86.3	57,433	82.7	69,552	77.0	79,718	76.9	93,643	79.6	108,338	79.8
Borsod-Abaúj-Zemplén	32,260	90.6	61,295	88.3	78,136	86.5	89,223	86.1	102,497	87.1	119,033	87.7
Csongrád	33,057	92.8	60,780	87.6	79,857	88.4	90,367	87.2	100,371	85.3	118,308	87.2
Fejér	37,068	104.1	73,592	106.0	94,758	104.9	108,290	104.5	119,613	101.7	137,704	101.4
Győr-Moson-Sopron	34,666	97.3	68,684	98.9	87,334	96.7	103,371	99.8	116,470	99.0	128,681	94.8
Hajdú-Bihar	31,978	89.8	58,907	84.9	74,922	82.9	87,352	84.3	98,118	83.4	117,859	86.8
Heves	33,033	92.7	62,163	89.6	83,440	92.4	92,861	89.6	106,287	90.3	119,423	88.0
Komárom-Esztergom	33,648	94.5	66,564	95.9	84,382	93.4	98,494	95.1	109,108	92.7	125,579	92.5
Nógrád	29,023	81.5	53,855	77.6	67,368	74.6	80,158	77.4	94,603	80.4	110,666	81.5
Pest	32,417	91.0	67,768	97.6	87,311	96.6	103,871	100.3	117,276	99.7	130,325	96.0
Somogy	29,791	83.6	56,888	82.0	68,725	76.1	80,440	77.6	90,561	77.0	111,752	82.3
Szabolcs-Szatmár-Bereg	30,675	86.1	56,218	81.0	71,403	79.0	79,937	77.2	95,491	81.2	112,163	82.6
Jász-Nagykun-Szolnok	30,554	85.8	59,441	85.6	75,121	83.2	89,393	84.3	100,761	85.6	115,301	84.9
Tolna	33,729	94.7	61,594	88.7	78,544	86.9	90,583	87.4	106,992	90.9	122,549	90.3
Vas	30,443	85.5	60,840	87.6	83,040	91.9	92,492	89.3	101,461	86.2	116,429	85.8
Veszprém	33,142	93.0	63,474	91.4	79,868	88.4	91,189	88.0	100,040	85.0	117,553	86.6
Zala	32,307	90.7	61,866	89.1	78,237	86.6	89,252	86.1	97,372	82.7	114,811	84.6
Total	35,620	100.0	69,415	100.0	90,338	100.0	103,610	100.0	117,672	100.0	135,742	100.0

Source: FH BT.

Table 10.7: táblázat: Regional inequalities: gross monthly earnings*

Year	Central Hungary	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
HUF/person								
1989	11,719	10,880	10,108	10,484	10,472	9675	9841	10,822
1992	27,172	22,174	20,975	19,899	20,704	19,563	20,047	22,465
1993	32,450	26,207	24,627	25,733	24,011	24,025	23,898	26,992
1994	43,010	34,788	32,797	31,929	31,937	31,131	31,325	35,620
1995	46,992	38,492	36,394	35,383	35,995	34,704	33,633	40,190
1996	58,154	46,632	44,569	43,015	41,439	41,222	41,208	47,559
1997	70,967	56,753	52,934	51,279	51,797	50,021	50,245	58,022
1998	86,440	68,297	64,602	60,736	60,361	58,208	58,506	69,415
1999	101,427	77,656	74,808	70,195	70,961	68,738	68,339	81,067
2000	114,637	87,078	83,668	74,412	77,714	73,858	73,591	90,338
2001	132,136	100,358	96,216	86,489	88,735	84,930	84,710	103,610
2002	149,119	110,602	106,809	98,662	102,263	98,033	97,432	117,672
2003	170,280	127,819	121,464	117,149	117,847	115,278	113,532	135,472
Per cent								
1989	108.3	100.5	93.4	96.9	96.8	89.4	90.9	100.0
1992	121.0	98.7	93.4	88.6	92.2	87.1	89.2	100.0
1993	120.2	97.1	91.2	95.3	89.0	89.0	88.5	100.0
1994	120.7	97.7	92.1	89.6	89.7	87.4	87.9	100.0
1995	116.9	95.8	90.6	88.0	89.6	86.4	83.7	100.0
1996	122.3	98.1	93.7	90.4	87.1	86.7	86.6	100.0
1997	122.3	97.8	91.2	88.4	89.3	86.2	86.6	100.0
1998	124.5	98.4	93.1	87.5	87.0	83.9	84.3	100.0
1999	125.1	95.8	92.3	86.6	87.5	84.8	84.3	100.0
2000	126.9	96.4	92.6	82.4	86.0	81.8	81.5	100.0
2001	127.5	96.9	92.9	83.8	85.6	82.0	81.8	100.0
2002	126.7	94.0	90.8	83.8	86.9	83.3	82.8	100.0
2003	125.4	94.2	89.5	86.3	86.8	84.9	83.6	100.0

* Gross monthly earnings, May.

Note: The data refer to full-time employees in the budget sector and firms employing at least 20 workers (1992–94), 10 workers (1995–99) and 5 workers (2000–), respectively.

Source: FH BT.

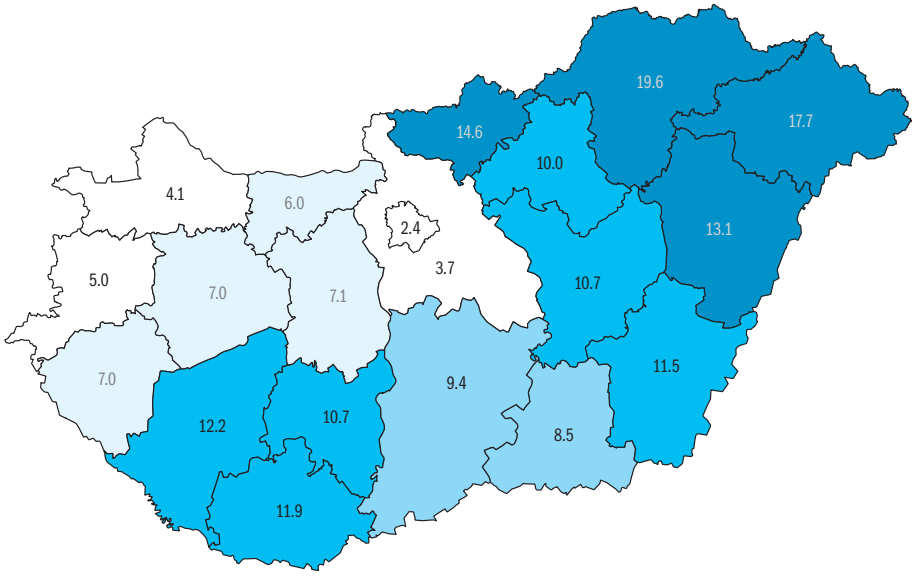


Figure 10.6: Average of registered unemployment rate by counties, 2003

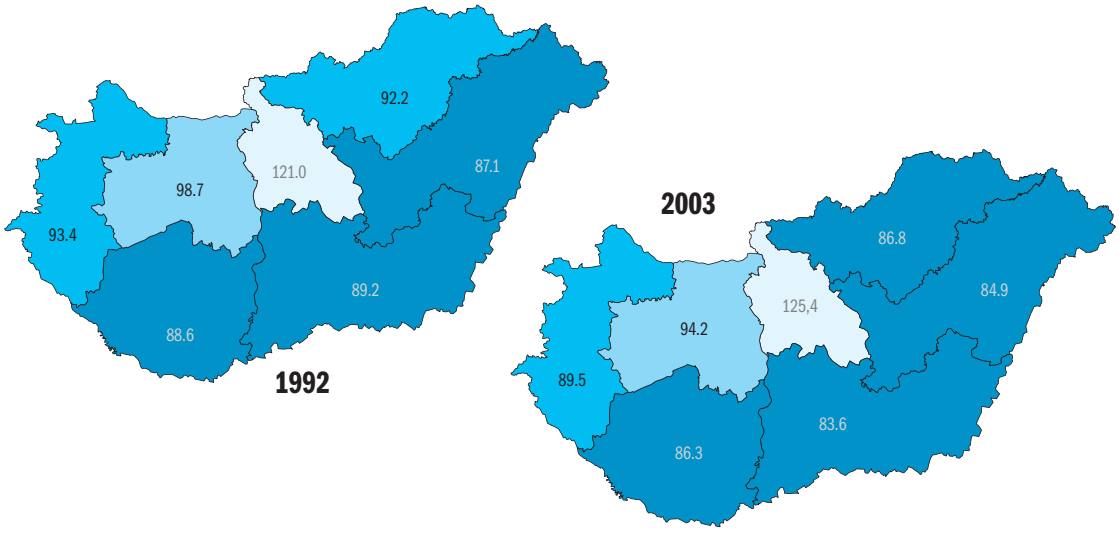


Figure 10.7: Regional inequalities: gross monthly earnings

Table 10.8: Regional inequalities: gross domestic product

Year	Central Hungary	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
1000 HUF/person								
1994	619	365	424	353	292	311	350	422
1995	792	494	559	442	394	386	449	544
1996	993	617	701	532	459	468	539	669
1997	1,254	801	871	641	554	569	640	830
1998	1,474	969	1,083	754	662	660	742	983
1999	1,710	1,051	1,275	859	731	707	819	1,113
2000	2,014	1,255	1,468	957	827	815	918	1,290
2001	2,311	1,372	1,539	1,074	947	965	1,031	1,458
2002	2,701	1,462	1,703	1,204	1,050	1,062	1,136	1,648
Per cent								
1994	145.6	86.4	100.7	84.0	69.6	73.9	83.3	100.0
1995	144.3	90.5	102.9	81.6	72.9	71.2	83.2	100.0
1996	146.9	91.9	105.0	80.0	69.1	70.4	81.2	100.0
1997	149.1	96.0	105.2	77.6	67.3	69.1	77.9	100.0
1998	147.8	98.1	110.5	77.2	68.0	67.7	76.3	100.0
1999	151.1	93.7	114.9	77.7	66.3	64.1	74.5	100.0
2000	152.2	97.3	113.9	74.8	64.6	63.4	71.8	100.0
2001	158.5	94.1	105.6	73.7	64.9	66.2	70.7	100.0
2002	163.9	88.7	103.4	73.0	63.7	64.4	68.9	100.0

Source: KSH.

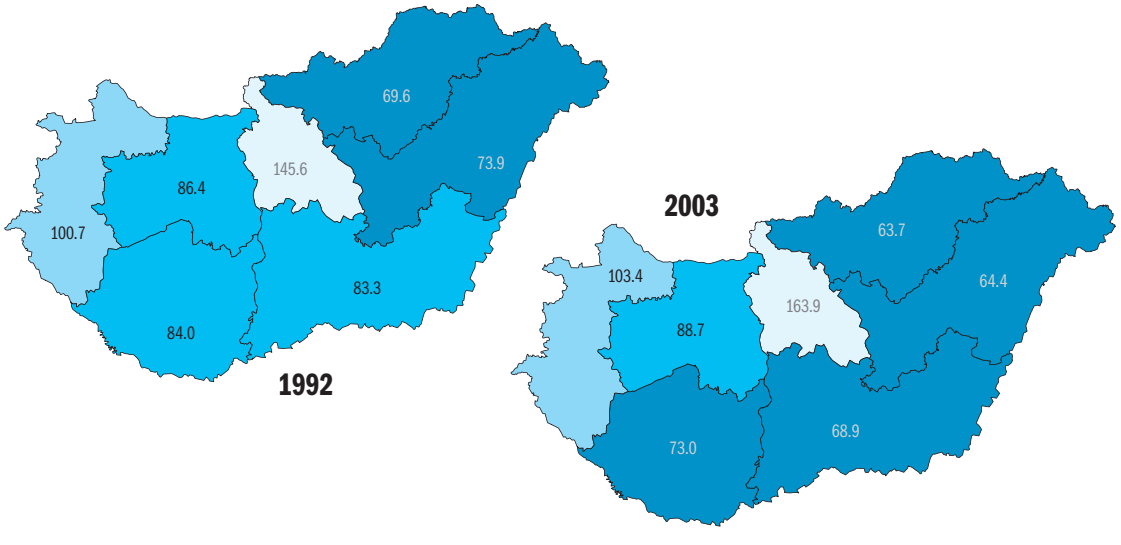


Figure 10.8: Regional inequalities: gross domestic product

Table 10.9: Notices of major layoffs reported to the County Labour Centres, and new jobs created by new firms, plus recruitmens by existing employers over 10 persons, 2002

Counties/*Regions*	Notices of major layoffs		Jobs at new firms		Firms recruiting more than 10 persons	
	no. of notices	no. of persons	no. of notices	no. of persons	no. of notices	no. of persons
Budapest	87	3,899	15	286	138	2,848
Pest	18	788	25	1,577	89	7,612
Central-Hungary	105	4,687	40	1,863	227	10,460
Fejér	31	5,778	35	2,104	55	1,645
Komárom-Esztergom	15	1,082	12	66	57	1,996
Veszprém	25	2,200	5	468	100	2,410
Central Trans-Danubia	71	9,060	52	2,638	212	6,051
Győr-Moson-Sopron	23	1,612	1	10	64	1,342
Vas	15	1,424	5	171	73	2,622
Zala	24	875	11	172	148	3,494
West Trans-Danubia	62	3,911	17	353	285	7,458
Baranya	19	511	2	37	33	778
Somogy	30	661	1	16	24	856
Tolna	16	486	7	169	42	789
South Trans-Danubia	65	1,658	10	222	99	2,423
Borsod-Abaúj-Zemplén	52	1,402	12	331	26	790
Heves	20	743	8	351	97	2,161
Nógrád	16	741	2	27	64	1,628
Northern-Hungary	88	2,886	22	709	187	4,579
Hajdú-Bihar	44	864	12	247	132	3,368
Jász-Nagykun-Szolnok	26	880	44	744	43	1,385
Szabolcs-Szatmár-Bereg	43	1,255	12	358	123	4,611
Northern Great Plain	113	2,999	68	1,349	298	9,364
Bács-Kiskun	25	1,982	1	14	74	1,842
Békés	18	783	6	113	20	535
Csongrád	26	1,070	12	249	46	878
Southern Great Plain	69	3,835	19	376	140	3,255
Hungary total	573	29,036	228	7,510	1448	43,590

Source: FH.

Table 10.10: Notices of major layoffs reported to the County Labour Centres, and new jobs created by new firms, plus recruitmens by existing employers over 10 persons, 2003

Counties/*Regions*	Notices of major layoffs		Jobs at new firms		Firms recruiting more than 10 persons	
	no. of notices	no. of persons	no. of notices	no. of persons	no. of notices	no. of persons
Budapest	139	4,897	33	655	243	5,477
Pest	25	1,121	44	618	73	2,723
Central-Hungary	164	6,018	77	1,273	316	8,200
Fejér	32	2,644	29	700	43	1,255
Komárom-Esztergom	18	843	8	231	78	3,419
Veszprém	52	3,615	11	299	60	1,560
Central Trans-Danubia	102	7,102	48	1,230	181	6,234
Győr-Moson-Sopron	19	2,162	2	330	92	3,827
Vas	19	2,475	4	46	61	2,548
Zala	30	2,223	12	266	109	4,825
West Trans-Danubia	68	6,860	18	642	262	11,200
Baranya	48	1,787	1	35	151	3,935
Somogy	52	2,103	8	293	62	1,613
Tolna	19	1,538	12	336	35	688
South Trans-Danubia	119	5,428	21	664	248	6,236
Borsod-Abaúj-Zemplén	53	2,607	26	897	49	1,692
Heves	12	756	7	94	48	916
Nógrád	18	1,504	3	126	55	1,488
Northern-Hungary	83	4,867	36	1,117	152	4,096
Hajdú-Bihar	46	1,048	11	248	139	2,851
Jász-Nagykun-Szolnok	40	1,635	14	317	139	4,029
Szabolcs-Szatmár-Bereg	62	2,075	7	244	145	4,363
Northern Great Plain	148	4,758	32	809	423	11,243
Bács-Kiskun	40	1,086	3	72	66	1,438
Békés	15	510	11	269	60	1,407
Csongrád	36	1,676	13	349	48	917
Southern Great Plain	91	3,272	27	690	174	3,762
Hungary total	775	38,305	259	6,425	1,756	50,971

Source: FH.

Table 10.11: Number of registered unemployed by educational level, yearly averages

Highest education level	1996	1997	1998	1999	2000	2001	2002	2003
Max. 8 classes of primary school	206,078	191,772	171,882	165,465	160,099	153,085	146,260	152,395
Vocational school	175,650	167,585	152,164	146,226	136,291	124,078	115,323	117,620
Vocational secondary school	63,470	60,332	54,765	54,034	51,702	47,845	45,614	46,927
Grammar school	41,751	37,376	33,458	32,768	31,164	28,219	26,223	26,960
College diploma, BA	9,887	9,529	8,061	8,194	8,360	8,149	8,324	9,740
University diploma, MA	3,786	3,519	2,792	2,832	2,876	2,764	2,971	3,570
Total	500,622	470,112	423,121	409,519	390,492	364,140	344,715	357,212

Source: FH.

Table 10.12: Number of registered unemployed school-leavers by educational level, yearly averages

Highest education level	1996	1997	1998	1999	2000	2001	2002	2003
Max. 8 classes of primary school	2,125	8,583	7,612	7,568	6,979	8,332	9,606	10,853
Vocational school	19,361	15,147	11,111	9,241	7,249	6,355	5,894	6,372
Vocational secondary school	12,489	10,129	7,864	7,468	6,625	6,778	7,271	7,270
Grammar school	10,086	6,590	4,548	4,078	3,566	3,366	3,310	3,375
College diploma, BA	1,656	1,491	1,099	1,211	1,247	1,463	1,766	2,401
University diploma, MA	516	461	318	361	378	469	697	1,020
Total	46,233	42,401	32,551	29,927	26,044	26,763	28,542	31,292

Source: FH.

Table 10.13: Population aged 7 years and over by highest education and administrative/geographical areas

Area, administrative rank	Total	Primary school			Secondary school		University, high school	
		not even the first grade completed	1–7th grade	8th grade	without general certificate	with general certificate	without diploma	with diploma
Capital	100.0	1.4	11.5	20.3	14.7	28.8	4.3	19.1
Seat of county	100.0	1.4	14.0	21.5	20.1	25.2	3.9	13.9
Other towns with county rights	100.0	1.3	14.5	25.5	22.9	23.2	2.4	10.0
Other towns	100.0	1.7	18.8	26.5	23.0	20.1	1.6	8.3
Towns together	100.0	1.5	15.3	23.4	19.9	24.0	3.0	12.8
Villages. large villages	100.0	2.1	23.7	31.7	23.1	14.2	0.9	4.3
Country total	100.0	1.7	18.3	26.3	21.1	20.5	2.2	9.8
Regions								
Central Hungary	100.0	1.5	13.9	22.6	17.5	25.8	3.4	15.3
Central Transdanubia	100.0	1.6	18.0	27.5	23.8	19.3	1.8	8.0
Western Transdanubia	100.0	1.5	17.4	26.7	23.4	20.7	1.7	8.6
Southern Transdanubia	100.0	2.0	19.4	28.4	22.9	17.7	1.9	7.7
Northern Hungary	100.0	2.0	21.1	27.6	21.4	19.2	1.6	7.2
Northern Great Plain	100.0	2.2	22.5	27.9	21.6	16.8	1.8	7.1
Southern Great Plain	100.0	1.6	20.3	28.3	22.3	17.9	1.9	7.7

Source: KSH CSO Census.

Table 10.14: Unemployed and persons seeking for an employment by highest education attainment, regions and types of localities

Region, type of locality	Persons seeking for an employment			Unemployed			Other persons seeking for an employment		
	primary	secondary	higher	primary	secondary	higher	primary	secondary	higher
	education completed								
Central Hungary									
Budapest	32.2	57.8	9.8	31.8	58.5	9.6	32.9	56.8	10.1
Towns	39.2	55.8	4.6	38.0	57.4	4.5	40.9	53.6	4.9
Villages	43.4	53.5	2.9	43.8	53.5	2.5	42.8	53.6	3.4
Central Transdanubia									
Towns with county rights	33.4	60.5	6.0	33.6	60.4	6.0	33.0	60.8	6.1
Other towns	39.8	55.8	3.7	40.3	55.6	3.9	39.0	56.2	3.3
Villages	47.3	50.3	2.2	47.2	50.4	2.2	47.4	50.2	2.1
Western Transdanubia									
Towns with county rights	31.3	61.7	6.8	32.0	61.1	6.7	30.2	62.7	7.0
Other towns	35.4	59.5	4.9	36.5	58.2	5.1	33.8	61.3	4.6
Villages	43.9	53.4	2.5	44.9	52.4	2.5	42.6	54.8	2.5
Southern Transdanubiua									
Towns with county rights	31.6	61.8	6.4	32.2	61.9	5.7	30.5	61.5	7.7
Other towns	36.7	60.1	3.0	37.2	59.6	2.9	35.6	61.0	3.3
Villages	54.6	43.6	1.3	54.8	43.4	1.3	54.2	43.9	1.3
Northern Hungary									
Towns with county rights	32.1	62.6	5.1	32.0	63.0	4.8	32.3	61.5	5.8
Other towns	38.9	57.6	3.1	39.2	57.7	2.8	38.1	57.6	3.8
Villages	51.5	46.6	1.3	51.9	46.4	1.3	50.7	47.3	1.5
Northern Great Plain									
Towns with county rights	30.4	62.9	6.6	30.7	63.0	6.2	29.8	62.6	7.4
Other towns	45.3	52.1	2.2	45.6	51.8	2.1	44.5	52.7	2.4
Villages	55.2	43.4	1.0	55.3	43.4	0.9	54.8	43.5	1.1
Southern Great Plain									
Towns with county rights	29.8	63.1	7.0	29.8	63.3	6.9	29.8	62.7	7.4
Other towns	40.3	56.3	3.1	40.2	56.5	3.0	40.5	55.9	3.3
Villages	48.4	50.0	1.5	48.7	49.8	1.4	47.5	50.5	1.7
Country total	41.9	53.8	4.0	42.3	53.7	3.7	41.1	54.1	4.5

Source: KSH. CSO Census.

Table 11.1: Work permits issued to foreign citizens

Year	Number of workpermits issued during the year	Number of work permits valid at the last day of the year
1989	25,259	...
1990	51,946	...
1991	41,724	33,352
1992	24,621	15,727
1993	19,532	17,620
1994	24,756	20,090
1995	26,085	21,009
1996	20,296	18,763
1997	24,244	20,382
1998	26,310	22,466
1999	34,138	28,469
2000	40,203	35,014
2001	47,269	38,623
2002	49,779	42,700
2003	57,383	48,651

Source: NEO, based on the reports of the regional labour centres.

Table 12.1: Strikes

Year	Number of strikes	Number of involved persons	Hours lost, in thousands
1991	3	24,148	76
1992	4	1,010	33
1993	5	2,574	42
1994	4	31,529	229
1995	7	172,048[a]	1,708[a]
1996	8	4,491	19
1997	5	853	15
1998	7	1,447	3
1999	5	16,685	242
2000	5	26,978	1,192
2001	6	21,128	61
2002	4	4,573	9
2003	7	10,831	19

[a] Teachers strikes number partly estimated.
Source: KSH.

Table 13.1: Employment and unemployment rate of population aged 15–64 by sex in the EU–15 and EU–25, 2003*

Country	Employment rate			Unemployment rate		
	males	females	all	males	females	all
Austria	76.5	61.9	69.1	4.0	4.3	4.1
Belgium	67.1	51.4	59.3	7.5	8.0	7.7
Denmark	79.7	70.5	75.1	5.2	5.8	5.5
United Kingdom	77.9	65.3	73.6	5.5	4.1	4.9
Finland	70.3	67.1	68.7	11.1	10.0	10.5
France	69.4	57.3	63.3	7.5	9.5	8.5
Greece	72.5	44.0	58.0	5.9	13.8	9.1
Netherlands	81.2	65.8	73.6	3.5	3.8	3.6
Ireland	74.5	55.4	65.0	5.0	4.0	4.6
Luxembourg	73.3	52.0	62.7	3.0	4.6	3.7
Germany	70.9	58.9	64.9	10.3	9.4	9.9
Italy	69.5	42.8	56.1	7.0	12.0	9.0
Portugal	74.3	60.7	67.3	5.6	7.8	6.6
Spain	73.1	45.9	59.6	8.0	15.9	11.2
Sweden	74.9	72.2	73.6	6.2	5.0	5.6
EU–15	72.6	56.0	64.3	7.5	8.9	8.1
Hungary	63.5	50.9	57.0	6.2	5.4	5.8
Cyprus	78.8	60.2	69.2	3.9	4.6	4.2
Czech Republic	73.2	56.6	64.9	5.9	9.7	7.6
Estonia	66.8	58.3	62.3	11.3	10.8	11.0
Poland	56.4	46.4	51.4	19.2	20.3	19.7
Latvia	65.8	57.8	61.7	12.7	10.9	10.7
Lithuania	65.9	60.0	62.8	10.6	13.2	13.0
Malta	75.6	33.4	54.6	6.4	9.9	7.5
Slovakia	63.5	52.3	57.9	17.0	17.3	17.2
Slovenia	67.2	57.7	62.5	6.1	7.1	6.6
EU–25	70.8	55.1	62.9	8.5	10.0	9.1

* 2nd Quarterly.
Source: New Cronos.

Table 13.2: Employment composition, 2003*

Country	Self employed	Part time	Fix term contr.	Service	Industry	Agriculture
Austria	n.a.	20.2	7.1	n.a.	n.a.	n.a.
Belgium	16.3	20.5	8.4	75.6	22.2	2.2
Denmark	7.1	21.3	9.3	74.5	22.2	3.3
United Kingdom	12.2	25.2	6.1	80.4	18.7	0.9
Finland	11.8	13.0	16.3	68.9	26.0	5.1
France	8.8	16.5	12.9	74.3	21.6	4.1
Greece	42.3	4.3	11.0	60.6	23.4	16.0
Netherlands	14.0	45.0	14.6	77.7	19.0	3.3
Ireland	17.4	16.8	5.1	65.8	27.7	6.5
Luxembourg[a]	6.9	10.3	5.0	76.7	22.0	1.3
Germany	10.8	22.4	12.2	70.3	27.2	2.4
Italy	25.0	8.5	9.9	66.5	29.1	4.4
Portugal	26.9	11.7	21.1	55.0	32.3	12.6
Spain	15.3	8.0	30.6	65.3	29.1	5.7
Sweden	4.7	22.9	15.1	74.8	22.8	2.3
EU-15	14.8	18.6	12.8	71.4	24.6	4.0
Hungary	13.2	4.4	7.5	62.3	31.9	5.8
Cyprus[a]	na	na	na	70.2	20.7	9.1
Czech Republic	17.1	5.0	9.2	56.1	39.4	4.5
Estonia	8.9	8.5	2.5	61.5	32.3	6.1
Poland	27.3	10.5	19.4	53.0	28.6	18.4
Latvia[a]	16.9	11.3	6.7	60.3	24.4	15.3
Lithuania	20.3	9.6	7.2	54.2	28.0	17.8
Malta[a]	12.3	6.8	4.1	63.7	34.3	1.9
Slovakia	10.2	2.4	4.9	61.3	34.3	4.4
Slovenia	16.9	6.2	13.7	52.9	36.4	10.7
EU-25	15.6	17.1	12.9	69.2	25.5	5.2

* 2nd Quarterly.
[a] Data of 2000.
Source: Employment in Europe.

Table 13.3: Youth educational attainment level and participation in the LLL in EU–15 and EU–25, 2003*

Country[1]	Pertentage of young people aged 20–24 having attained at least upper secondary education attained[1]			Percentage of the adult population aged 25 to 64 participating in education and training		
	males	females	all	males	females	all
Austria	85.1	82.2	83.8	8.0	7.8	7.9
Belgium	78.0	84.6	81.3	8.3	8.7	8.5
Denmark	72.6	76.2	74.4	16.0	22.0	18.9
United Kingdom	78.7	78.1	78.2	17.6	25.3	21.3
Finland	82.5	87.9	85.2	15.0	20.4	17.6
France	78.8	83.0	80.9	7.1	7.7	7.4
Greece	76.5	86.9	81.7	3.5	3.8	3.7
Netherlands	70.0	76.7	73.3	16.2	17.0	16.5
Ireland	82.3	89.0	85.7	8.4	11.0	9.7
Luxembourg	74.0	65.5	69.8	6.6	6.0	6.3
Germany	71.6	73.4	72.5	6.4	5.6	6.0
Italy	66.4	73.4	69.9	4.2	5.2	4.7
Portugal	40.7	54.7	47.7	3.4	4.0	3.7
Spain	57.1	70.1	63.4	5.3	6.3	5.8
Sweden	84.1	87.1	85.6	31.3	37.3	34.2
EU–15	71.2	76.4	73.8	8.9	10.5	9.7
Hungary	83.9	86.1	85.0	5.4	6.5	6.0
Cyprus	76.1	87.8	82.2	7.1	8.5	7.9
Czech Republic	92.7	91.4	92.0	5.1	5.7	5.4
Estonia	78.5	84.2	81.4	5.2	7.1	6.2
Poland	86.1	91.5	88.8	4.5	5.5	5.0
Latvia	68.5	79.7	74.0	5.7	10.2	8.1
Lithuania	78.3	85.8	82.1	3.3	5.7	4.5
Malta	39.8	46.2	43.0	4.9	3.6	4.2
Slovakia	94.1	94.2	94.1	4.9	4.7	4.8
Slovenia	87.4	94.2	90.7	13.9	16.3	15.1
EU–25	74.2	79.2	76.7	8.3	9.7	9.0

* 2nd Quarterly.
1 "Upper secondary" includes uncertified vocational training.
Source: New Cronos.

Table 13.4: Monthly statutory minimum wage rates, Full-time adult employees, aged 23+*

Country	In local currency	In euros	Date effective[1]
Belgium		1,317.50	01. 02. 2004
Bulgaria	120 leva	61	16. 01. 2004
Cyprus	350 Cyprus pounds	600	01. 06. 2004
Czech Republic	6,700 koruna	211	01. 01. 2004
Estonia	2,480 kroons	159	01. 01. 2004
France		1,154.13	25. 06. 2004
Greece		559.98[a]	01. 09. 2004
Hungary	53,000 forints	212	01. 01. 2004
Ireland		1,213.33	01. 02. 2004
Latvia	80 lats	121	01. 01. 2004
Lithuania	450 lita	130	01. 09. 2003
Luxembourg		1,402.96[b]	01. 08. 2003
Malta	233.48 lira	543	01. 01. 2004
Moldova	340 leu	23	01. 07. 2003
Netherlands		1,264.80	01. 07. 2003
Poland	824 zloty	183	01. 01. 2004
Portugal		365.60	01. 01. 2004
Romania	2,800,000 leu	68	01. 01. 2004
Russian Federation	600 rubles	17	01. 10. 2003
Serbia	5,395 new dinars	73	01. 02. 2004
Slovakia	6,500 koruna	163	01. 10. 2004
Slovenia	117,500 tolars	484	01. 08. 2004
Spain		490.80	25. 06. 2004
Turkey	444,150,000 lira	250	01. 07. 2004
Ukraine	205 hryvnia	31	01. 12. 2003
United Kingdom	840.67 pounds sterling	1,226	01. 10. 2004

* Where official rates are expressed by the hour or week, they have been converted to monthly rates on the basis of a 40-hour week or 52-week year. Minimum wage figures exclude any 13th or 14th month payments that may be due under national legislation, custom or practice.

1 Minimum wage levels last updated.

[a] Unmarried white collar workers only.

[b] Unskilled workers only.

Source: FedEE review of minimum wage rates: www.fedee.com/minwage.html

DESCRIPTION OF THE MAIN DATA SOURCES

1. CSO Labour Force Survey

The Hungarian Central Statistical Office has been conducting a new statistical survey since January 1992 – using the experience of the pilot survey carried out in 1991 – to obtain ongoing information on the labour force status of the Hungarian population. The Labour Force Survey (LFS) is a household survey which provides quarterly information on the non-institutional population aged 15–74. The aim of the survey is to observe employment and unemployment according to the international statistical recommendation based on the concepts and definitions recommended by the ILO independently from the existing national labour regulations or their changes.

In international practice, the labour force survey is a widely used statistical tool to provide simultaneous, comprehensive and systematic monitoring of employment, unemployment and underemployment. The survey techniques minimise the subjective bias in classification (since people surveyed are classified by strict criteria) and provide freedom to also consider national characteristics.

In the LFS the population surveyed is divided into two main groups according to the economic activity performed by them during the reference week (the week running from Monday to Sunday which contains the 12th day of the month):
– economically active persons (labour force) and
– economically inactive persons.

The group of economically active persons consists of those being in the labour market either as employed or unemployed during the reference week.

The definitions used in the survey follow the ILO recommendations. According to this those designated employed are persons aged 15–74 who, during the reference week:
– worked one hour or more for pay, profit or payment in kind in a job or in a business (including on a farm),
– worked one hour or more without payment in a family business or on a farm (i.e. unpaid family workers),
– had a job from which they were temporarily absent during the survey week.

Persons on child-care leave are classified according to their activity. Conscripts are considered as economically active persons, exceptions are marked in the footnotes of the table.

From the survey's point of view the activities below are not considered as work:
– work done without payment for another household or institute (voluntary work),
– building or renovating of an own house or flat,
– housework,
– work in the garden or on own land for self-consumption.

Unemployed persons are persons aged 15–74 who:
– were without work, i.e. neither had a job nor were at work (for one hour or more) in paid employment or self-employment during the reference week
– had actively looked for work at any time in the four weeks up to the end of the reference week,
– were available for work within two weeks following the reference week or were waiting to start a new job within 30 days.

Active job search includes: contacting a public or private employment office to find a job, applying to an employer directly, inserting or answering advertisements, asking friends, relatives or other methods.

The labour force (i.e. economically active population) comprises employed and unemployed persons.

Persons are defined economically inactive (i.e. not in the labour force) if they were neither employed nor unemployed, as defined.

Passive unemployed (known as "discouraged persons" according to the ILO concepts) are persons aged 15–74 who desire a job but have given up any active search for work, because they do not believe that they are able to find any.

The Labour Force Survey is based on a multi-stage stratified sample design. The stages of sampling are defined as follows: primary sampling units (PSUs) are enumeration districts (EDs) and secondary sampling units (SSUs) are dwellings in settlements with 15,000 or more inhabitants, while PSUs are settlements, SSUs are EDs and ultimate sampling units are dwellings in all other cases.

The sampling frame or address register of the LFS consists of 12,775 sample units (SUs), covers 751 settle-ments of the country, and contains about 626,000 addresses. The quarterly sample of the LFS is selected from the address register. From each of the 12,775

SU's, three addresses are selected by simple random sampling. The interviewers visit one address in each SU during one month. The main indicators of the labour market are representative for regions.

The LFS sample is basically a sample of dwellings, and in each sampled dwelling, labour market information is collected from each household and from each person aged 15–74 living there. For 1998, the quarterly sample contains about 32,000 households and 65,000 persons. The sample has a simple rotation pattern: any household entering the sample at some time is expected to provide labour market information for six consecutive quarters, then leaves the sample permanently. The samples of two consecutive periods tend to be less than 5/6, which would be obtained at a 100 per cent response rate.

In the LFS sample design strata are defined in terms of geographic units, size categories of settlements and area types such as city centres, outskirts, etc.

2. CSO Labour Force Accounting Census

Before the publication of the Labour Force Survey the annual Labour Force Account gave a view of the total labour force in the period between the two census.

The Labour Force Account, as its name shows, is a balance-like account which compares the labour supply (human resources) to the labour demand at an ideal moment (1 January). Population is taken into account by economic activity with a differentiation between those of working age and the population outside of the working age.

Source of data: Annual labour survey on employment on 1th January of enterprises with more than 20 employees and of all government institutions, labour force survey, census, tax records and social security records, and company registry. The number of persons employed in small enterprises having a legal entity is based on estimation. Data on unemployment comes from the registration system of the National Employment Service.

Source of the labour force: working age population, active earners out of working age and employed pensioners.

3. CSO Institution-Based Labour Statistics

The source of data is the monthly (annual) institutional labour statistical survey. The survey range covers enterprises with at least 5 employees, and public and social insurance and non-profit institutions irrespective of the staff numbers of employees.

The earnings relate to the full-time employees on every occasion. The potential elements of the prevailing monthly average earnings are: basic wages, bonuses, allowances (including miner's loyalty bonus, any Széchenyi-grant), payments for time not worked, bonuses, premiums, wages and salaries for the 13th and more months.

Net average earnings are calculated by deducting from the gross average earnings the actual personal income tax, employee's social security contributions , etc., according to the actual rates (i.e. taking into account the threshold concerning the social security contribution).It does not take into account the impact of the new tax allowance related to the number of children. The personal income tax is calculated by the actual withholding rate applied by the employers when paying out monthly earnings.

The difference between the gross and the net (after-tax) income indexes depends on eventual annual changes in the tax table (tax brackets) and in the tax allowances .

The change of net earnings is estimated as the ratio of net income index and the consumer price index above 100 per cent in the same period.

Non-manual workers are persons with occupations classified by the ISCO-88 in major groups 1-4., manual workers are persons with occupations classified in major groups 5-9. since 1st January 1994. Census data were used for the estimation of the employment data in 1980 and 1990. The aggregate economic data are based on national account statistics, the consumer's and producer's price statistics and industrial surveys. A detailed description of the data sources are to be found in the relevant publications of the Statistics Office.

4. Unemployment Register Database

The other main source of unemployment data in Hungary – and in most of the developed countries – is the huge database containing so called administrative records which are collected monthly and include the individual data of the registered unemployed.

The register actually contains all job seekers, but out of them, at a given point of time, only those are regarded as registered unemployed who:

– had themselves registered with a local office of the National Employment Office as unemployed (i.

e. he/she has got no job but wishes to work, for which they seek assistance from the labour market organisation).
– at the point of time in question (on the closing days of the individual months), the person is not a pensioner or a full-time student, and is ready to co-operate with the local employment office in order to become employed (i. e. he/she accepts the job or training offered to him/her, and keeps the appointments made with the local employment office's placement officer/counsellor).

If a person included in the register is working under any subsidised employment programme on the closing day, or is a participant of a labour market training programme, or has a short-term, temporary job her/his unemployed status is suspended.

If the client is not willing to co-operate with the local office he/she is removed from the register of the unemployed.

The data – i. e. the administrative records of the register – allow not only for the identification of date related data but also for monitoring flows: inflow as well as outflow.

Based on the records of the labour force needs reported to the Employment Office, the stock and flow data of vacancies are statistically processed each month.

Furthermore, detailed monthly statistics of participation in the different active programmes, number of participants and their inflow and outflow are prepared monthly, based on the support amounts actually paid.

The very detailed monthly statistics – in a breakdown of country, region, county, local employment office service delivery area and community – build on the secondary processing of administrative records that are generated virtually as the rather important and useful "by-products" of the accomplishment of the National Employment Office's main functions (such as placement services, payment of benefits, active programme support, etc.).

The Employment Office (and its predecessors, i. e. OMK (National Labour Centre), OMMK and OMKMK) has published the key figures of these statistics on a monthly basis since 1989. The more detailed reports which also contain data by local office service delivery area are published by the County/Metropolitan (Budapest) Labour Centres.

The denominators of the unemployment rates calculated for the registered unemployed are the economically active population data published by the Central Statistical Office's labour market account, and its breakdown by region and county.

The number of the registered unemployed and the registered unemployment rate are obviously different from the figures of the Central Statistical Office's labour force survey. It is mainly the different conceptual approach and the fundamentally different monitoring/measuring methods that account for this variance.

5. Short-Term Labour Market Forecast Database

At the initiative and under the co-ordination of the Employment Office (and its legal predecessors), the employment organisation has conducted the so called short prognosis survey since 1991, twice a year, in March and September. The survey uses an enormous sample obtained by interviewing over 4,500 employers.

The interview focuses on the companies' projections of their material and financial processes, their development and human resource plans, and they are also asked about their concrete lay-off or recruitment plans as well as their expected need for any active labour market programmes.

The surveys are processed in a breakdown of service delivery area, county and country, providing useful information at all levels for the planning activities of the employment organisation.

The prognosis survey provides an opportunity and possibility for the counties and Budapest to analyse in greater depth (also using information from other sources) the major trends in their respective labour markets, to make preparations for tackling problems that are likely to occur in the short term, and to effectively meet the ever-changing needs of their clients.

The forecast is only one of the outputs of the short term prognosis. Further very important "by-products" include regular and personal liaison with companies, the upgraded skills of the placement officers and other administrative personnel, enhanced awareness of the local circumstances, and the adequate orientation of labour market training programmes in view of the needs identified by the surveys.

The prognosis surveys are occasionally supplemented with supplementary surveys to obtain some further useful information that is used by researchers and the decision-makers of employment and education/training policy.

6. Wage Survey Database

The Employment Office (and its legal predecessors) has conducted since 1992, once a year, a representative survey to investigate individual wages and earnings. The survey uses an enormous sample and is conducted at the request of the Ministry of Economic Affairs (formerly: Ministry of Labour and Ministry of Social and Family Affairs).

The reference month of data collection is the month of May every year, but for the calculation of the monthly average of irregularly paid benefits (beyond the base wage/salary), the total amount of such benefits received during the previous year is used.

In the competitive sector, initially data collection only covered companies of over 20 persons; in this group it is incumbent on all companies to provide information, but the sample only includes employees born on certain days.

Data collection has covered companies of 10-19 since 1996, and companies of 5-9 have been covered since 1999, where the companies actually involved in data collection are selected at random (ca. 20 per cent) and the selected ones have to provide information about all their full-time employees.

Data on basic wages and earnings structure can only be retrieved from these surveys in Hungary, thus it is practically these huge, annually generated databases that can serve as the basis of the wage reconciliation negotiations conducted by the social partners.

In the budgetary sector all budgetary institutions provide information, regardless of their size, in a way that the decisive majority of the local budgetary institutions – the ones that are included in the TAKEH central payroll accounting system - provide fully comprehensive information, and the remaining budgetary institutions provide information only about their employees who were born on certain days (regarded as the sample).

Data has only been collected on the professional members of the armed forces since 1999.

Prior to 1992, such data collection took place every three years, thus we are in possession of an enormous data base of the years of 1983, 1986 and 1989.

Of the employees included in the sample, the following data are available:

– the sector the employer operates in, headcount, employer's local unit, type of entity, ownership structure
– employee's wage category, job, male/female, age, educational background.

Based on the huge databases which include the data by individual, the data is analysed every year in the following way:

Standard data analysis, as agreed upon by the social partners, used for wage reconciliation negotiations (which is received by every confederation participating in the negotiations)

Model calculations to determine the expected impact of the rise of the minimum wage

Analyses to meet the needs of the Wage Policy Department, Ministry of Economic Affairs, for the comparison and presentation of wage ratios (total national economy, competitive sector, budgetary sector, regional volume)

The entire database is adopted every year by the Central Statistical Office, which enables the Office to also provide data for certain international organisations, (e. g. ILO and OECD). The Employment Office also provides regularly special analyses for the OECD.

The database containing the data by individual allows for a.) the analysis of data for groups of people determined by any combination of pre-set criteria, b.) the comparison of real basic wage and earnings, with special regard to the composition of the different groups analysed, as well as c.) the analysis of the spread and differentiation level of the basic wages and earnings.

7. Unemployment Benefit Register

The recipients' fully comprehensive registry is made up, on the one hand, of the accounting records containing the disbursed unemployment benefits (unemployment benefit, school leavers' unemployment benefit and pre-retirement unemployment benefit) and, on the other hand, of the so-called master records con-

taining the particulars of benefit recipients. This register allows for the accurate tracking of the recipients' benefit related events, the exact date of their inclusion in and removal from the system, as well as why they have been removed from it (e. g. got a job, eligibility period expired, were excluded, joined an active labour market programme, etc.)

This huge database allows for reporting for any point of time the detailed data of persons who received benefits on a given day, in a breakdown of country, region, county and local office service delivery area. In order to align these data with the closing day statistics of the registered unemployed, these monthly statistics are also completed by the 20th of each month.

In addition, the monthly statistics also contain information of the so-called temporary recipients, e.g. the number of those who have received benefits on any day of the month between the previous month's and the given month's closing day. Of course, data indicating inflows and outflows are reported here.

It is an important and rather useful aspect from a research perspective that, in addition to the standard closing day statistics, groups defined by any criteria can be tracked in the benefit register, e. g. inflow samples can be taken of newly registered persons for different periods, and through tracking them in the registry system the benefit allocation patterns of different cohorts can be compared.

The detailed data of unemployment benefit recipients have been available from the benefit register since January 1989. The first two years had a different benefit allocation system, and the current system, which has been modified several times since then, was implemented by the Employment of 1991 (Act IV).

For the period of between 1991 and 1996, the register also contains the stock and flow data of the recipients of school leavers' unemployment benefit. Since 1997 the system has also contained the recipients of pre-retirement unemployment benefit.

In addition to headcount data, the benefit register can also monitor the average duration of the period of benefit allocation and the average monthly amount of the benefits allocated.

The key data regarding benefits are published by the Employment Office in the monthly periodical Labour Market Situation. In addition, time series data is published annually in the Time Series of the Unemployment Register, always covering the last six years in the form of a monthly breakdown.

8. HCSO Census Data

The largest data collection of the Central Statistical Office is the population and housing census, covering the entire population of the country. The reference date of the last census was 0 o'clock on February 1, 2001. The census data published refer to this survey, though regarding the most important characteristics, with the help of the data of the 1980 and the 1990 census respectively, it is possible to study the changes occurred in the last decades. The data of the previous censuses – within certain limits – have been adjusted according to the concepts of the last census (e.g. the data on employment, employers of the 1980 and the 1990 census are reflecting to the definitions, registers of 2001).

The data refer to the resident population of the census in general, while in some cases to the respective groups of population (e.g. persons in employment, engaged in non-agricultural activities, aged 15 years and older). Resident population of the census means the group of persons staying in fact on the place of the enumeration, those who live their everyday life there, can be contacted on the given address, spend most of their night-rests on that place, go to work or to school from that place. This grouping is basically in line with the concept of resident population of the 1980 and 1990 censuses, where the intent for the official registration had been regarded as a matter of fact of a valid official registration. The census 1990 defined the resident population on the basis of the registered addresses (of the population).

As far as the economic activity of the population is concerned, the census applies the concepts of the International Labour Organization (ILO), while – due to the limits in the size and time of the enumeration – the issue of unemployment cannot be studied as deeply as the continuous labour survey does it. In the frame of the labour force survey the unemployment rate is based on a well-defined set of data, by putting on several related questions. A person for example, spending the term of notice at his employer is regarded as person in employment even if he declares himself as unemployed. This correction cannot be made in the case of the census, as – due to the limits in scope – the subject of the notice have not been raised. As the information on unemployment in case

of the census is based on the biased judgement of the individuals, there might be some differences against the findings of the labour survey.

The grouping system of the occupations at the census 2001 is based on the nomenclature of the Hungarian Standard Classification of Occupations (further FEOR-93), being in force as from 1997. As to basic principles and structure, it follows the international classification of occupations, ISCO-88 (Rev. 3.), and classifies the occupations into the same 10 major groups. In some tables "legislators, senior government officials, leaders of interest groups and managers of firms" and "professionals" are grouped together as "leaders, intellectuals", "technicians and associate professionals" and "office and management (customer service) clerks" are grouped together as "other non-manual workers". In the same tables the group of "craft and related trades workers" include "plant and machine operators and assemblers, vehicle drivers" too, while the group "other occupations" contains elementary occupations and armed forces together.

The classification of the employers or economic activities corresponds to the Hungarian Standard Industrial Classification (TEÁOR) of 1998.

INDEX OF TABLES AND FIGURES

TABLES

INFOCUS

STATISTICAL DATA

FIGURES

LABOUR MARKET TRENDS

INFOCUS

STATISTICAL DATA