THE HUNGARIAN LABOUR MARKET

REVIEW AND ANALYSIS

2003

EDITED BY

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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 with the publication of the previous volumes (three in Hungarian and one in English) and their reception in Hungary and abroad approved our original idea and stimulated us to enhance both the contents and the quality of the new volumes.

This year we put "in focus" labour demand and labour supply. The related chapters investigate the supply side in terms of labour force participation and working time, while on the demand side they analyse job creation and job destruction, and labour as a factor of production. We employ quite different approaches on the two sides, as for the labour supply we concentrate on the individual characteristics and behaviour of job seekers, in the labour demand analysis we investigate the role of firms and government in the labour markets. We hope that our analyses will help us and the readers to understand why employment and labour force participation fell to such a low level in Hungary, and also to assess the chances of a progressive increase in line with the corresponding EU targets.

Employment began to decline slowly already in the mid-eighties, though initially at a negligible rate. Since the end of the eighties, however, when the majority of the large state-owned socialist firms and the agricultural co-

operatives experienced the transition crisis, this rate had been continuously increasing. One could observe the highest rate in 1992, when the number of employees declined by more than half a million, and – though at a continuously decreasing rate – job destruction was permanently higher than job creation up until 1996. Overall, between 1989 and 1996 employment declined by 1.5 million people, which are almost 30 per cent of the initial employment level. By the end of the year 2000 the number of employees did increase by 120,000, but this growth is very modest relative to the earlier declines: it means that employment increased by approximately 3 per cent. During the same period, the number of employees in the European Union increased by more than 4 per cent, despite the fact that the GDP growth rate of the EU was significantly lower than that of Hungary.

However, this trend in the Hungarian labour market is by no means exceptional. Employment declined substantially in all transition countries during the nineties, though rates showed high variation between the countries. Job destruction was relatively small in the member states of the former Soviet Union, while in Central Europe, except for the Czech Republic, labour market trends were quite similar to the Hungarian ones. Mass unemployment evolved much more slowly in the Czech Republic; one could observe substantial decline in the employment level only in the second half of the nineties. Today the employment rate is very similar in most of the Central European countries: only slightly more than half of the people being at an active age are employed. Hungary differs, however, from the other Central (and to some extent Eastern) European countries in a very important aspect: besides the low employment rate, its unemployment rate is also relatively low. By 2001, the unemployment rate in Hungary was substantially lower than in any other Central European countries.

The Lisbon Summit of the European Union held in March 2000 set up a 70 per cent employment rate target for its member states, to be reached by 2010. Today it seems to be quite obvious that most of the countries will fail to reach this target. However, if we consider the current employment rate and also the lower rates of employment growth than economic growth that has been observed recently, Hungary – together with other Central European countries – will be probably far behind the current member states in this respect. This is a striking difference if we take into account that the Hungarian employment rate was well above 70 per cent in 1990.

Figure 1 illustrates changes in the Hungarian labour force between 1989 and 2000. In the figure we highlighted the 1989 level of the labour force (labour force is defined as the sum of the employed and unemployed persons). We call "new inactive" those who were employed by the former socialist economy, but who do not belong to the labour force today, not even as unemployed.

Figure 1: Changes in the labour force between 1989 and 2000 (in thousands)

in thousands

Employed   Unemployed   New inactive

6,000
5,000
4,000
3,000
2,000
1,000
0

1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000
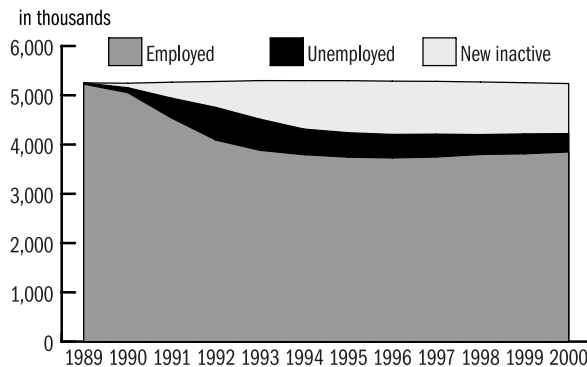
The mass unemployment of the early nineties can be primarily explained by the substantially declining labour demand of those firms that had difficulties in selling their products, and by the high number of bankruptcies. But the fact that people did not have a kind of shortage psychosis any more, which was so typical in the socialist economies, also contributed to this. After 1993, however, both the demand and the supply side of the Hungarian labour market altered significantly. The aim of this volume is to analyse this process both on the supply side and the demand side of the labour market

However, we continue to restrain ourselves from offering economic or social policy recommendations. We would instead prefer to promote dialogue between science and policy, by making research findings accessible to a broader audience. At the same time, we do not hide the research shortcomings and point out those areas that are still to be investigated by a genuine research in Hungary.

Similarly to the previous volumes, 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, labour relations, along with some international comparison and methodological remarks. Data on wage and income differentials are also presented, together with labour market developments at lower levels of government and in smaller spatial units. In accordance with the topics "in focus" this year, we gathered a rich data set on the evolution of working time in Hungary. In assembling employment and unemployment data, we could already use the information content of the general census conducted in 2001.

LABOUR MARKET IN HUNGARY
2001–2002

AUTHOR:

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1. INTRODUCTION

Despite all the achievements in economic transformation and growth, the Hungarian labour market has been stagnant in recent years: annual changes in the labour force and in the number of inactive persons are exclusively due to demographic trends.

Employment declined substantially in the early 1990s, then decreased at a modest rate until 1997. One could observe significant growth in 1998, but that growth later slowed down. Since 2000, average annual Labour Force Survey (LFS) data has shown only a modest, statistically insignificant growth (employment increased by 37,600, 10,400 and 11,100 persons in 2000, 2001 and 2002, respectively). This "hesitant growth" increased by no more than one-tenth of a per cent the employment rate within the 15–64-year-old population. This leaves Hungary with the lowest employment rate among all OECD and EU countries, and even among countries joining the EU. According to available data, the average employment rate in 2001 in the OECD countries was 65.3 per cent, and the similar figure for the EU was 64.1 per cent, while in Hungary it was only 56.6 per cent (*Employment Outlook,* 2002, Statistical Annex). *Unemployment* has been steadily declining since 1994 (from 519,000 in 1993 to 238,800 in 2002), despite the fact that employment has not been increasing. However, this more than 50 per cent decline – which includes a permanently lower proportion of female job seekers than males – is only partly the result of economic consolidation. A major reason is that many people have simply given up job seeking and have left the labour market, which relies increasingly on more skilled labour and those in the best working-age groups. *Labour force participation* has been persistently low because of the unchanged employment level and the decline in the number of active job seekers. As a result,

the *proportion of those out of the labour force* has been permanently high. Most of these people have good reasons for staying off the labour market. Young people attend schools, parents of small children – predominantly mothers – take advantage of social benefits for childcare and stay at home; and older people retire earlier than it is typical in Europe. However, there is also a permanently high proportion of the population staying off the labour force for other reasons, and we can assume that some of them are working in the informal economy, taking unregistered jobs.

At the same time, as we will demonstrate later, there is an important transformation process behind the practically unchanged labour force participation and inactivity rates. These trends, observed in the data until 2001, and continuing also in 2002, have different effects on the various sectors of the economy and various social groups. But the main trends have remained constant. One important reason for this, other than the unfavourable global economic situation, is that successive governments, despite having welcomed and promoted economic modernisation, have consistently postponed those decisions that could have improved employment conditions (and also could have reduced employment costs). In some cases, as demonstrated,[1] government policies made job creation even more expensive. Trade unions do not support those steps that try to relax strict rules on employment either. Nevertheless, the only way to improve the labour market conditions – besides improving the overall economic climate – is continuous adjustment to the changes.

In what follows, we will try to highlight the economic and non-economic factors shaping the recent tendencies in the Hungarian labour market. We will look at labour force participation rates, and we will also investigate their trends in the long run. European Union data, together with some data on the Central and East European countries will help us to better understand the Hungarian peculiarities.

2. ECONOMIC AND NON-ECONOMIC FACTORS SHAPING HUNGARIAN LABOUR MARKET TRENDS

Multinational companies, and firms from almost all developed countries[2] adjusted their Hungarian activities to the altered world market demand as quickly as they could. Responding to falling demand on the product markets, they postponed investments, made production more efficient, reduced output, or moved some of their production to countries offering better conditions. Despite maintaining their significant contribution to exports and production, these adjustments hit the labour market as well. In several cases hundreds of workers were dismissed from Hungarian plants.

Adjustments were not limited to the foreign-owned segment of the economy. Following the now century-long trend, labour demand continued to

1 Fazekas, K. – Koltay, J. (eds) (2002) *The Hungarian Labour Market. Review and Analysis, 2002.* Institute of Economics, Budapest.

2 Although only a fraction of foreign direct investment (barely more than 2 per cent according to data for 2000 from World Investment Report) went into the countries of Central and Eastern Europe, in 1999 Hungary was first among them in per capita FDI. (*Foreign Direct Investment in Hungary 1998–2000.* Central Statistical Office, 2001). FDI inflow progressively slowed down in 2001 and 2002.

decline in agriculture, and also in coal mining. In the service sector, employment declined mainly in the public sector (education, health care), and especially in the armed forces that were also affected by deep reform. However, a significant proportion of dismissed labour found a new job quite quickly, mainly at new plants financed by foreign capital, or in construction and services.

Besides the changing supply and demand conditions on the product markets, another important factor was the government initiated minimum wage explosion. (The monthly amount of the mandatory minimum wage was raised from HUF 25,500/month to HUF 40,000 in 2001, and then to HUF 50,000 in 2002.)

That decision affected about 480,000 employees, 17 per cent of the total labour force in the business sector, and hurt employers by increasing the wage costs. Multinational companies were not affected heavily by the minimum wage increase, as their lowest wages were typically above the new minimum wage, but the situation of numerous small and micro-businesses worsened significantly. One could observe dismissals in low wage sectors/industries (textile and garment industries, working mainly for foreign companies, were heavily affected, especially after their export revenues declined as a consequence of the appreciation of the Hungarian currency). But, the factor that influenced employment even more significantly was that as a result of the minimum wage increase, many firms postponed their planned job creation.

To offset the side-effects of the minimum wage increase, the government initiated a 2 billion HUF compensation program, but this was inappropriate to trigger job creation. Short-term forecasts in the first half of 2001 indicated that firms planned to increase employment by 32,000 employees, while in the second half of the same year they were already planning a reduction of 26,000. Job creation in foreign-owned businesses offset the effect of lay-offs by the end of the year.

In 2000, the government decreased the duration of unemployment (insurance) benefits from 300 days to 270, and from May it terminated the provision of wage subsidies to the unemployed in order to give an "incentive" for job seeking. As a result of this, unemployment did continue to decline in 2001, just as it had in previous years, but there was no substantial change in the employment level. (The number of registered unemployed dropped by 30,000, but the employment level increased by only 10,000.) Meanwhile, less unemployed persons received financial support while seeking employment, and also for a shorter time period. In 2000, about 144,000 unemployed persons received monthly wage subsidies, while by the end of 2001, only 86,000 were receiving a lower amount of regular social assistance, those who were still registered as unemployed.

The cut-backs in assistance were not followed by a decrease in the contributions employer and employee paid to solidarity funds. In 2001, the total payments for the Labour Market Fund increased by 24 billion HUF relative to 2000, though less was offered for the direct support of the unemployed (at the same time, more money was spent on active labour market policy programmes intended to improve the chances of job-finding).

In 2002 the number of registered unemployed declined by 20,000, while the number of employed persons increased by 10,000.

3. LABOUR FORCE PARTICIPATION

In developed market economies – including Hungary – the highest possible proportion of the adult male and female population should have access to paid jobs in order to be able to earn a living and to contribute to their own welfare and that of the country. It is also a goal to find a job and work under transparent conditions and in compliance with contemporary legal frameworks and international standards.

By international comparison, the retirement age in Hungary is relatively low. According to the pension reform, the legal retirement age will reach 62 years (in 2001 it was 61 for males and 57 for females, and in 2002 it will reach 62 and 58, respectively).[3]

According to the Central Statistical Office (CSO) Labour Force Balance Sheets (LFBS), as of January 1, 2001, the population of an economically active age consisted of 6,285,400 males and females, while the similar figure for January 1, 2002 was 6,273,500. In addition, as of January 1, 2001, there were 80,700 males and females over the retirement age but still working, while the similar figure for January 1, 2002 was 63,000.[4]

In both of these years, the 3.95 million people who were employed and the 374,400 and 342,800 people who were registered as unemployed (the sum of the two is the labour force) amounted to about 68 per cent of the population of economically active age. About 73 per cent of males belonged to the labour force, while the female presence on the labour market is a much lower proportion, only 62 per cent.

To approach the figures from the other direction: 27 per cent of males of economically active ages, and 38 per cent of females were absent from the labour market on January 1, 2002. Whether this was voluntary or not, these individuals were out of the labour force because they had no work (or only in the informal economy) and were not registered (were not eligible to be registered) as unemployed.

Of course, these proportions become even higher if we expand the economically active age to the ages used in Western Europe. CSO Labour

3 When making international comparisons, most countries follow ILO guidelines and treat 14–64 as the economically active age group irrespective of different retirement ages between the countries. We have, therefore, used the same figures in analysing the presence or absence of the Hungarians on the labour market, and these ages are the basis for our comparisons.
4 The census of January 1, 2001 found that the overall population was higher by 200,000 than other data had reported. There are many reasons for this difference, but perhaps the most important one is that following the 1990 census, figures were corrected only according to birth and mortality data, and they ignored a roughly 18,000 person/year immigration throughout the 1990s. By the end of the decade this process, which had been unknown earlier, had altered the population share of all age groups. The Central Statistical Office has already published corrected data which changed the numbers of persons in the various age groups that are considered to be economically active, but the correction of data on labour force participation is expected only in 2003. Although labour force participation rate data of the overall population continue to be valid, the most important relative figures for 2001 (population shares of certain age groups) continue to be based on the population figures used prior to the census. We have included the information needed to interpret them correctly.

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Force Surveys (LFS) have measured the labour force participation rates of the population using the OECD standards since 1992.[5]

According to the LFS, in 2002 there were 6,860,000 males and females between the age of 15–64. Sixty per cent of them belonged to the labour force: 67 per cent of the males and 53 per cent of the females. Most of them were employed, since unemployment was relatively low (5.4 per cent).

Table 1: Labour force participation of the 15–64 old population, 2001, 2002

| | Population | From this: | | Part of the labour force | Out of the labour force | Participa-tion rate | Employment rate | Unemploy-ment rate |
		employed	unemployed					
	in thousand					per cent		
Total								
2001	6,866.4	3,864.9	233.8	4,098.7	2,767.7	59.7	56.3	5.7
2002	6,862.7	3,863.3	238.4	4,101.7	2,761.0	59.8	56.3	5.8
From this								
Male								
2001	3,354.9	2,117.5	142.3	2,259.8	1,095.1	67.4	63.1	6.3
2002	3,350.7	2,113.3	137.9	2,251.2	1,099.5	67.2	63.1	6.1
Female								
2001	3,511.5	1,747.4	91.5	1,838.9	1,672.6	52.4	49.8	5.0
2002	3,512.0	1,750.0	100.5	1,850.5	1,661.5	52.7	49.8	5.4

Source: HCSO LFS.

The lower retirement age obviously decreases the labour force participation rate (males retire four, and females eight years earlier than similar age cohorts in most European countries), but that is only a partial explanation. (2001 data for the 15 EU countries and the 11 accession countries showed that a high proportion, over 70 per cent of the population belonged to the labour force [worked or actively looked for a job] in eight current and four future EU members; that the labour force participation rate was below 65 per cent in Belgium, Luxembourg, Spain, Greece, Italy, and Bulgaria; and that only Hungary had a rate below 60 per cent.) In most European countries there is a significantly lower proportion of females than males who work or who are actively seeking a job. Among the former socialist countries, this was true only for Hungary. Another typical phenomenon in Europe was that people above the age of 50 leave the labour market before retirement age. (This is why the EU wants to increase the labour force participation rate primarily among females and in the older age groups.)

According to the LFS, in 2001 only 63,000 Hungarian people over the retirement age were still working, and the LFS found only 18,000 people who were working even after the age of 64 (10,800 males and 7,200 females). Only 2 per cent of the 65–74-year-old population group belonged to the labour force.

5 A summary report issued by the EU, covering employment data for the past five years, calls the accession of new members in the near future a new challenge, since it will increase the EU's current population of an economically active age from 248 million by another 71 million, or by 30 per cent, while employment among the new members is only 58 per cent, relatively low if we compare it to the nearly 64 per cent within the EU in 2001. (Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions. Taking Stock of Five Years of the European Employment Strategy, Brussels 17/07/2002 COM [2002] 416 final.)

However, the huge labour market reserve really consists of the 40 per cent of the 15–64-year old population who are out of the labour force: more than 2.7 million people are absent from the labour market.

3.1 Main employment figures[6]

Employment by age cohort, 1992–2001

We have already seen that males tend to dominate Hungary's current labour force. Similar to the previous decades, there are more females than males in the current population (starting with the age cohort of 30–34). The 2001 census registered an overall population of 10.2 million, out of which 47.6 per cent were male and 52.4 per cent were female). Despite this, there were more males (55 per cent) among the employed 15–64 year olds than females. (Among domestic employees of an economically active age, the share of males is even higher, 56 per cent.) According to the age-cohort data of the LFS, the proportion of employed males exceeds that of females in every single age cohort.

Although there is a significantly higher proportion of males employed even in the 20–24 year old age cohort (57.7 per cent of males and 43.9 per cent of females are employed at this age), the differences increase for the older cohorts. (25–29: 83.3 per cent of males and 57 per cent of females; 30–39: 85 per cent of males and 66.4 per cent of females; 40–54: 74.5 per cent of males and 70.6 per cent of females). We note that in the European Union, 73 per cent of 15–64 year old males were working in 2001, but this proportion was only 63.5 per cent in Hungary. The female employment rate in the EU (54.9 per cent) was lower than the male one, but the Hungarian figure was even lower (49.8 per cent).

The general reasons for lower female participation rates are well known. The primary one is staying at home while having and raising children. But, it also is well known that the female employment rate declined most significantly in the 1990s, when women, along with hundreds of thousands of men, lost their jobs and had no place to return after taking care of their children. Conditions that would enable so many unskilled or low-skilled females to find jobs – including part-time work or some types of flexible working – still don't exist. Until now, hardly anything has been done to improve the employment condition of females, or of the young and older generations on the new labour market.

In the Hungarian labour force of 3.8 million people in 2001, 3.1 million, or 80 per cent were in the 25–54 age cohort (the best working age), while relatively few people of the other age cohorts appeared in the labour market.

6 In the following we use LFS data as a primary source in discussing employment trends.

(Fortunately, several hundreds of thousands of young and old people – generally qualified as inactive – can find irregularly or regularly paying jobs in the informal, unregistered economy. However, people of a "student" or "retired" status do not regard their work at school co-operatives or on small-scale farms as actual "employment", and they tend to avoid reporting it at all because of tax considerations.)

Table 2: Level and share of employment by sector/industry

	2000		2001		2002	
	in thousand	per cent	in thousand	per cent	in thousand	per cent
Agriculture and forestry	251.7	6.5	239.4	6.2	240.9	6.2
Mining and quarrying	19.2	0.5	13.0	0.3	14.8	0.4
Manufacturing	931.3	24.2	955.8	24.8	959.9	24.8
Electricity, gas, steam and water supply	80.1	2.1	79.5	2.1	74.2	1.9
Building industry	267.8	7.0	272.7	7.1	271.0	7.0
Trade, repair and maintenance	540.9	14.1	548.4	14.2	552.1	14.3
Hotels, restaurants	133.3	3.5	143.0	3.7	137.3	3.6
Transport, storage, post and telecom	311.8	8.1	310.9	8.1	309.7	8.0
Financial intermediation	83.7	2.2	78.9	2.0	75.3	1.9
Real estate, renting, business services	204.6	5.3	219.6	5.7	232.8	6.0
Public administration, Defence	299.0	7.8	289.6	7.5	282.1	7.3
Education	317.8	9.3	309.8	8.0	318.0	8.2
Healthcare and social work	241.7	6.3	243.0	6.1	240.7	6.2
Other services	166.2	4.3	164.0	4.2	161.8	4.2
Total	3,849.1	100.0	3,859.5	100.0	3,870.6	100.0

Source: HCSO LFS.

In recent years, about 60 per cent of employees were working in the service sector. The increase of the employment share of services is slowing down. The 2002 employment share was essentially the same as a year before. (In developed economies, the employment share of the service sector exceeds 70 per cent.) In agriculture, employment continued to decline, similar to its trend throughout the 20th century. (In 1900, over 60 per cent of the labour force were employed in agriculture, while in 2002 this figure was 6.2 per cent, the same as it was a year before.) In industry and construction, employment in 2001 increased more rapidly (by 22,600 people) than agricultural employment decreased (by 12,300 people). There was no substantial change in the employment share of industry and construction in 2002. As already indicated, there was powerful inter and intra-sectoral mobility behind these changes in employment figures. While many businesses and organisations dismissed high number of employees, many others and additionally new ones created new jobs. (In manufacturing, for example, chemicals and textile, garments and leather goods lost 17,000 workers, while engineering expanded by 24,000 in 2001.) Employment increased in three parts of the service sector (commerce, hotel and real estate busi-

ness services) by 32,200 altogether, while another six service sectors – including public services – cut employment by roughly the same amount. The public sectors (public administration, education, healthcare) employ slightly more than 20 per cent of the labour force, and the overwhelming majority of employees work in the private sector.

The vast majority of persons employed in both public and private sectors – 86 per cent of the labour force – are employed by somebody else. The share of entrepreneurs (single-person businesses) has been at about 10 per cent in recent years. Figures increased gradually since the early 1990s, reaching a peak in 1999 (408,000 people or nearly 11 per cent of the labour force). Since 2000, this figure has been declining, and in 2001 it stood at 372,000. There has been a parallel decline in the number of people who belong to industrial and farming cooperatives, partly because cooperatives have become corporations, in which former members are now employees. (In 1992 there were 225,000 cooperative members, and in 2001 there were only 31,000.) There was a significant decline also in the number of business partnerships throughout the 1990s, a decline that continued in 2001. (In 1992 there were 258,000 people in such partnerships and in 2001 there were only 119,000.) The number of family members registered as assisting single-person and other partnership businesses has been negligible and has also dropped steadily over the years (26,000 in 2001).

In 2002, the employment spread over more than 900,000 economic units. This included 840,000 units in the private sector, 15,600 in the public and social security sector, and 67,000 in the non-profit sector. More than half (469,000) of the 840,000 private businesses are one-person firms (this number also includes one-person firms of those people who also have a full-time job). Only one-fifth of these firms have a separate legal entity, and the rest qualify as self-employed. In modern economies the organisational pyramid consists of a large number of small businesses and a few large corporations.

However from the mid-1980s, when the number of small businesses began to increase, small firms became progressively predominant, an unfavourable feature of the current size-distribution of the Hungarian economy. Only the smallest ones have increased their number. (More than 60 per cent of all firms, and more than 80 per cent of one-person firms involve the employment of a single person, and 96 per cent of all firms are micro-businesses with the number of employees being between 1–9.) The number of small (10–49 persons) and medium sized (50–259 persons) firms is relatively low.

This organisational structure does not serve as a good basis for increasing employment. According to the latest available data, which is from 1998, 31 per cent of the employed individuals worked in micro-businesses, 10 per

cent in small ones, 14 per cent in medium sized ones, and 45 per cent in large ones (employing more than 250 people). Employment has been increasing at newly established businesses but not at existing ones. In addition, the nearly 800,000 micro-businesses are only willing to increase employment when demand is high also over the long run, and at other times they use a variety of cost-reducing methods.

Some 60 per cent of the people working for the more than 900,000 employers did blue-collar work. The ratio of blue- to white-collar employment has been changing very slowly, mainly because the service sector jobs replacing the disappearing farming and industrial jobs are very similar to the ones disappearing. In 2001, blue-collar employment increased by about 20,000, though the numbers varied significantly between the sectors of employment. Employment in industry and construction declined somewhat, while the number of simple, unskilled jobs decreased by about 10,000. At the same time, there were increases in jobs for machine operators, fitters, and drivers, as well as in service occupations.

About one-third of the blue-collar workers are female. However, among the individuals employed by the service sector and in simple unskilled occupations, more than half of the employees were female.

Nearly 40 per cent of the employed persons (1,482,500) had white-collar jobs. Most of them (514,000) were in occupations requiring a secondary or higher education, and another 450,000 were in jobs requiring a creative application of higher education. In legislative, administrative, interest representation and management categories there has been a slow growth (there were 260,000 in 2001), while in 2000 there was a decline in the number of non-creative unskilled office and administrative jobs. However, females make up more than 90 per cent of employment in this latter type of jobs. The majority of the white-collar employees are females, except for the managers, where they account for only one-third.

Earnings of the persons employed rose significantly in 2002. Among activities surveyed by the Central Statistical Office,[7] gross earnings increased by 18.3 per cent, and real earnings increased by 13.6 per cent. The average monthly gross earnings rose from HUF 103,600 in 2001 to HUF 122,454 in 2002. The average monthly gross earning of blue-collar workers was HUF 84,700, while for white-collar ones it increased to HUF 169,900.

One speciality of the earnings – which otherwise differ widely by sector/ industry, and by company size, job, and many other factors – is that the gap between public and private sector earnings declined, partly triggered by the minimum wage increase. However, the differences between average monthly gross wages remained significant between the sectors. (The average monthly gross earnings in the financial sector was HUF 216,000, while for employees in the textile, garment, leather goods, and footwear industry

7 The Central Statistical Office surveys earning trends for companies in the private sector employing 5 or more people, and also for the entire public sector. This covers about two-thirds of the employed population, or in 2002, 2,559,000 people who had full-time employment.

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it was slightly less than HUF 62,600.) In 2001, the gross earnings of the white-collar workers were nearly double that of the blue-collar workers.

Each year about 200,000–300,000 people find jobs because of social solidarity (and not business needs). Most of these temporary jobs are offered to people who are registered as unemployed (for instance, public employment organised by several ministries to plant forests or mitigate flood damage; municipal projects organised by local governments to meet communal tasks; public service jobs required as a condition to receive regular social assistance; support to assist first-job seekers in finding work, etc.). As far as these jobs are concerned, 180,000 people, or on an annual basis, more than 77,000 people found such type of jobs through the Labour Market Fund in 2001.

Employment schemes offering support for at least temporary employment are still necessary, particularly in the less developed regions of the country where the unemployment rate is high and where only solidarity can offer paid work to socially disadvantaged groups.

Despite the relatively low employment level, only some of the more than half a million potential job seekers are registered as unemployed. (For instance, the CSO LFS has in recent years reported more than 100,000 passive unemployed who want to work but are not actively looking for a job.) As a consequence, both employment surpluses and shortages appear.

In 2001, several major multinational companies complained about shortages in appropriately qualified labour (most of them required employees for mass production and assembly [line] operations that are easy to learn, and as we have seen, this was the area where employment increased to the greatest extent). However, there are many areas where we see temporary or permanent shortages. For instance, in recent years, nurses had to be recruited from neighbouring countries together with employees in the textile and garment industries, and seasonal work in agriculture. In recent years, Hungary has been issuing legal work permits to about 30,000–40,000 foreign workers, a number that has been slowly increasing. (It is assumed that at least the same number of people from neighbouring countries find jobs without permits.) In 2000, 40,200 work permits were issued to foreigners, and in 2001 this number was 47,300, while it was 42,700 in 2002. Some 57 per cent of the people with permits came from Romania and 16 per cent from Ukraine, predominantly from areas populated by ethnic Hungarians, while another 10 per cent came from the neighbouring regions of Slovakia and former Yugoslavia. Only 2,300 people from the EU member countries applied for work permits in 2002. About 32,000 Hungarians were granted permits to work in other countries. Most of them worked in Germany and Austria, using official permits given for foreign labour.

Employees from the new member countries of the EU will be required to wait seven years before they can freely take jobs in the EU. However, some EU members have made separate bilateral agreements and opened their labour markets. (Sweden, the Netherlands, Denmark, and Ireland announced the opening of their labour market, and Great Britain quickly followed them.)

Due to remaining restrictions after the EU accession, to unfavourable demographic trends, to labour mobility constraints, and also according to opinion polls we do not expect significant international migration of Hungarian labour, except for – perhaps – the highly qualified, younger and by nature mobile segment.

3.2 Unemployment

Unemployment – as in every year since the mid-nineties – continued to decline, dropping by about 30,000 in 2001. According to the LFS, applying the standard international definitions (people actively seeking work), 232,900 individuals were unemployed in 2001, while in 2002 this figure was 238,800 with an unemployment rate of 5.8 per cent. In contrast, the number of registered unemployed was 364,100 in 2001, and 344,700 in 2002. The unemployment rate, calculated by international standards, was lower than the EU average (7.4 per cent), or the average of the accession countries (the figure – including Hungary – was 13.5 per cent in 2001).

The Labour Force Survey (in line with corresponding OECD, EU, ILO methodology) qualifies a person as unemployed if s/he does not have a regular job and is actively looking for one. (We will not go into the details of the definition here – for instance if offered a job s/he has to take it within 30 days.) Anyone can actively look for a job, irrespective of age. This includes students who want to work as well as job-seeking retirees. (The survey considers a person ready and able to work until the age of 74, but uses only the 15–64 year olds for the calculations.) A person qualifies as unemployed if s/he wants a job and employs all means to find one. (Active job-seeking can be anything, from registering at the employment offices to reading vacancy ads, to submitting ads, to mobilising family, friends, and acquaintances. The essential feature is that the person must be active in job seeking.)

Under this definition there were 143,000 males and 90,000 females unemployed in Hungary in 2001. As far as age is concerned, nearly three-quarters of them belonged to the best age group, between 15 and 54. It seems that most people between the ages of 15 and 19 are not yet ready to make efforts in order to find employment, while most people over the age of 55 are no longer ready for this. Very few people above Hungary's legal retirement age are actively looking for employment.

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In 2001, nearly 60 per cent of the job seekers (134,300 people) had been looking for a job for less than one year, from the time they had lost their previous job, had finished school or had returned to the labour market after childcare leave or military service. However, nearly 100,000 (96,400 or 42 per cent) had been looking for a job for more than one year, and 44,000 had been searching for more than two years. (A person who does not find a job within one year is qualified as long-term unemployed.) Although the last jobs of the job seekers were in various industries and sectors, most of the new and long-term unemployed individuals (54 per cent in 2001) came from three sectors: manufacturing, commerce, and construction. Most (94 per cent) of the job seekers in 2001 had been blue-collar workers in their previous employment. About half of the blue-collar workers were employed in industry and construction, operating machines, fitting or driving. Another quarter did unskilled (simple) work. About 13,000 of the 30,000 previously white-collar workers (most of them female) had occupations requiring a university or college degree, and 8,000 (7,500 females) had previously done office or administrative work.

There has been little change in the education-based distribution of the unemployed individuals. The most significant difference has been the decline of the proportion of people with the lowest education levels relative to the early 1990s, most likely because this is the group that had lost hope and had given up active job seeking. Nevertheless, people with no more than eight years of primary school education continue to account for more than 35 per cent, while people with vocational training have a similar proportion. Altogether, 70 per cent of the unemployed belong to these two groups.

In more than half of the cases, the primary cause of unemployment was dismissal from previous employment, but looking for a first job or returning to the labour market is in second place. (In recent years, the proportion of this latter group has been higher than 20 per cent.) In 2001 – if we also take into account the nearly 20,000 people looking for a job because their temporary employment was terminated – this group accounts for nearly the one-third of the job seekers.

More than half of the unemployed individuals were looking for a full-time job. Another 32 per cent would have preferred full-time, but were also willing to take part-time employment. Only 6 per cent, somewhat more than 9,000 females and 5,600 males were primarily interested in part-time employment. About 10,000 were only interested in working part-time, while 5,000 would have preferred working part-time but would also have taken a full-time job if offered. Ten thousand males and 6,000 females (7 per cent all together) were ready to take any kind of job.

Wage demands were not exaggerated. The job seekers were more or less realistic about their own abilities and the chances they had with local em-

ployers. (We note that females calculated on lower wages than males.) In 2001, when wages increased by 18 per cent on average and the HUF 40,000/month minimum wage was introduced, the average net wage that unemployed people asked for was HUF 48,500, with males expecting HUF 50,800 and females HUF 44,800.

Expected wages differed of course by qualifications, by previously held jobs, and by other factors. The lowest desired wage was HUF 10,000, with 84 females stating that they would work for that amount. The highest was more than HUF 100,000, demanded by 2,000 males and 500 females. Half of the unemployed individuals (58 per cent of the females) said they would work for HUF 10,000–40,000, and 43 per cent (37 per cent of females) said they wanted HUF 40,000–70,000. Less than 8 per cent asked for more than HUF 70,000 – this proportion also includes those people who asked for more than HUF 100,000.

The Employment Act of 1991, amended annually since then to adjust to the changing conditions, does not explicitly define unemployment. Instead, it gives the criteria for eligibility for financial support and services. These criteria were last modified on July 1, 2001. The definition of eligibility also determines the persons who can register at the regional Employment Centres, and excludes full-time students, people entitled to old-age pensions, and people who have any sort of paid work other than *ad hoc* jobs. The amended text says:
"A person is unemployed if s/he
– has all requirements necessary to enter employment and
– is not a full-time student and
– is not entitled to an old-age pension and
– is not employed, with the exception of a legal relationship for *ad hoc* work, does not conduct any other activity resulting in earned income, and
– cooperates with the local office of the Employment Centre in seeking work, and
– is registered as unemployed by the local office of the Employment Centre."

Conditions of cooperation include that the unemployed "shall participate in looking for an appropriate workplace", as well as "shall enter into employment at a job found or offered by the Employment Centre", though these are not the only conditions. Despite stringent rules that must be met to receive benefits, the number of registered unemployed is much higher than the LFS-based number of the active job seekers. (The difference was 125,000 people in 1995 and 131,000 in 2001. Of course, the difference is much less if we include those 100,000–110,000 people whom LFS qualifies as "passive unemployed".) In 2001, the annual average number of reg-

istered unemployed individuals continued to decline, by 26,352 in that particular year.

Fifty four per cent of the 364,100 persons registered as unemployed in 2001 were males and 46 per cent were females. (The share of females has increased in recent years – in 1993 it was 41 per cent.) The defined age cohorts are slightly different from the LFS classification, but the proportions are similar. Three-quarters of the registered unemployed are in the best working-age-group (between the ages of 26 and 55 in this registry), with people below 20 and above 56 having a share of about 5 per cent each. There was a higher proportion among registered unemployed persons with a maximum of eight years of primary school education (42 per cent), and a lower one with higher education (3 per cent), but blue-collar workers accounted for more than 80 per cent, half of whom had worked as semi-skilled or unskilled employees.

The available support to the registered unemployed persons is the only income source for a significant proportion of the registered unemployed, most of whom have low social status and have been unable to find a job for years. Eighty per cent of the 680,000 people registering as unemployed over the course of the year, and 45,700 of the nearly 57,000 people registering in an average month have already been registered before. Most of them are returnees following interruptions of longer or shorter periods. The reason for the interruption may have been a job, childcare, or military service. Most of them, however, had spent their time on some municipal or community public work project, or on a training course. Typically, their only hope is some similar additional employment opportunity offered by the Employment Centres. Therefore, although they are not eligible for unemployment benefit payments, they do have a chance for temporary community or public service jobs and possible retraining. Based on the 2001 data, we estimate 400,000–500,000 males and females who would be able to work, but are unable to find jobs through their own efforts, and therefore repeatedly rely on the assistance of the Employment Centres and the society. This assistance, as discussed later, is far from generous.

As far as the newcomers are concerned – 20 per cent of the new registrants –, 3,600 were first job seekers, and 7,600 were adults. Nearly 60 per cent of the latter had lost their jobs in various service industries, 30 per cent in industry or construction, and 12 per cent in agriculture.

Less than one-third of the registered unemployed were entitled to unemployment benefits. In 2000, the duration of entitlement to these benefits was cut from 360 days to 270, and also the conditions of entitlement were tightened.[8] In 2001, the average monthly unemployment benefit was HUF 25,677, 24.8 per cent of the average monthly wages, 35.4 per cent of the average blue-collar salaries, and 64.1 per cent of the mandatory minimum

8 *The Hungarian Labour Market, 2002* gives a detailed description about the changes in the unemployment benefit system.

wage. The low level of the average unemployment benefit is, of course, related to the low qualification levels of the vast majority of the unemployed individuals, and to the previous low-income jobs. However, the registered unemployed would have received the HUF 40,000 minimum wage in 2001, had they been able to find a job. But, most of the unemployed people were not entitled even to this modest benefit. One of the restrictions introduced in 2000 terminated the provision of wage-substituting subsidies, and replaced it with a regular social assistance. Previously, people with the lowest chances to find jobs (with no qualifications and/or living in less developed regions, gypsies, etc.) had been entitled to this wage-substituting subsidy when their unemployment benefits expired, and when they had no opportunity to work. Since 1995, more people received the wage-substituting subsidy than unemployment benefits. This subsidy was not linked to the same criteria as unemployment benefits. Instead, similar to social assistance, it was set as a fixed amount, which was pegged to the lowest old age pension (80 per cent of that until 2000). In 2000, its amount was HUF 13,280/month. When the provision of the wage-substituting subsidy was terminated, its former recipients applied for regular social assistance. They remained registered as unemployed, but their subsidy was decreased to 70 per cent of the minimum pension, or to HUF 14,648 in 2001.

At the end of December 2001 there were 125,900 people receiving unemployment benefits (36.7 per cent of all the registered unemployed). Some 26,700 people (7.8 per cent) received the wage-substituting subsidy (which was terminated that month), and more than one quarter (25.1 per cent) of the registered unemployed, or 85,900 people received regular social assistance. 30 per cent of the registered unemployed – 40 per cent of the annual average – received no assistance whatsoever. However, people who are registered as unemployed may have access to Employment Centre services that range from job finding through retraining to participation in a variety of labour market programmes. Despite Employment Centre efforts, however, the most important goal – finding jobs for the unemployed, has not been met. Similar to recent years, more people left the registration system in 2001 (a monthly average of 29,600 people) than entered it.

People left the registration system for a wide variety of reasons (participation in training or in some other programmes, mandatory military service, childcare, retirement, temporary job, simple abandonment, etc.), but only some of them found a new job through the Employment Centres. In 2001, similar to 2000, 1.9 per cent of the registered unemployed, or 11.8 per cent of unemployment beneficiaries (13.4 per cent in 2000) found jobs through the Employment Centres. (The data includes people finding temporary jobs within special employment programmes.) We have to remember that the decline in unemployment in 2001 (similar to recent years) was *not* the

result of a parallel increase in employment. We know that employment increased by about 10,000 persons, while unemployment declined by about 30,000 according to both methods of calculation. The difference consists of people who gave up looking for jobs and left the labour market, increasing the number of people staying out of the labour force.

Despite the steady decline in the number of unemployed, the LFS reports that unemployment affected 213,000 (5.7 per cent) of the country's 3,728,000 households. There was one unemployed person in 194,700 households (5.2 per cent), two in 16,000 (0.4 per cent), and three or more in nearly 2,000 (0.1 per cent). Unemployment hurt larger families to a greater extent. While less than 5 per cent of single-person households had at least one unemployed member, this figure was nearly 20 per cent for two-person households, 27 per cent for three-person households, 29 per cent for four-person ones, and 20.5 per cent for households with five or more persons.

Regional differences in unemployment did not decline. In fact, they even increased between the sub-regions.

Unemployment rates are not particularly high in the seven main (planning/statistical) regions. But regional and county level calculations do not lead to a true image of the state of the labour market, because the sizes of the Hungarian local labour markets are much more similar to the size of the sub-regions. The labour market is segmented into relatively small and closed blocks. Regional differences can be observed between settlements, sub-regions, or counties within a given statistical region.

The lowest regional unemployment rate was 4.3 per cent, and the highest was 8.7 per cent in 2001. The similar figures on the county level were 2.7 per cent and 19.3 per cent, and on the sub-regional level 3 per cent and 25 per cent.

The highest regional unemployment rate could be observed in the East and Northeast, along the Eastern Slovakian and Ukrainian borders, but there are sub-regions with high unemployment rates also within the more developed Western counties, too. The proportion of registered unemployed among the economically active aged population is highest in villages (9.4 per cent) and settlements with less than 500 inhabitants (11.3 per cent). In December 2001, the best unemployment rate was observed in a Budapest district (1.6 per cent), while the worst was in a small village (53.3 per cent).

3.3 The population being out of the labour force

LFBS data, based on the January 1, 2002 census reported that 32 per cent of the economically active aged Hungarian men and women were out of the labour force. The similar figure for the 15–64 year old population was 40 per cent. Adhering to the Hungarian definition of economically active

age, in 2001 about two million people (884,000 males and 1,165,000 females), or 80 per cent of this group remained at home for socially respectable reasons.

– Still at school. The continuing education of 681,000 people aged 15 or more is not only useful, but will soon become essential to the future of both the individuals and the entire country. Hungary is actually quite well placed among the OECD countries with its proportion of people still studying at the age of 15–18. However, while 76 per cent of the 15–19 year olds were still attending school, the similar figure for 20–24 year olds was only 20 per cent, well below that of many European countries. In 2002 the EU suggested to its members to significantly increase the proportion of people still studying at the age of 18–24 to above 50 per cent by 2010. Achieving this level will require major efforts in Hungary.

– Nearly 300,000 people stay at home because of some form of childcare assistance (childcare fees, childcare assistance, and childcare support). Almost all of them are females. Despite the long-term and significant decline in the birth rate, this figure of almost 300,000 has hardly changed at all (1980: 264,000; 1990: 245,000; 1995: 285,000, January 1, 2002: 297,000), which – experience suggests – is primarily related to limited labour market opportunities. With an absence of job opportunities, women tend to choose this financially modest, but socially supported option for as long as they can.

– Some 632,000 males and females retired earlier than the general retirement age. Among the various early-retirement options, disability – a reflection of the general state of health – has been quite significant. (On January 1, 2002 there were more than 450,000 disability retirees who were below general retirement age.) Several tens of thousands of people were allowed to retire earlier as a benefit of certain occupations. However, the number of retired people under the retirement age is decreasing gradually, since many of them have already surpassed the regular retirement age.

– There are about 400,000 people who have become inactive for personal or family reasons, and not because of the socially promoted options. The labour market situation and the insufficient labour supply have obviously played a role in many decisions to become inactive, particularly among the females, who account for two-thirds of this group.

In 2001, the CSO LFS identified more than 2.2 million persons of economically active age as being outside the labour force. The survey does not state the reason for being of this status, but it does ask for the job-related plans of these persons. Almost 400,000 of them would like to find regular paid work – almost the same number as the number of people the LFS defines as having become inactive without any specific reason. When asked why they are not looking for a job then, 112,000 (70,000 males and

42,000 females) said that there were no jobs or that they wouldn't have been able to find one anyway because they were too young or too old or possibly because they were without appropriate qualifications. A somewhat higher number, 143,000 cited poor health or family obligations. Of the 67,000 citing family reasons, 61,000 were female. Only 8,000 said they weren't looking because they felt that the only available jobs were poorly paying ones. In addition to these two groups, there were 8,700 people who were in fact actively looking for a job, but who said that they would not have been able to take the job if they found one, and a further 1,600 said that they were looking for a job but not actively. About 18,000 of them were taking some steps to return to the labour force. They were attending retraining courses or waiting to be called back to work (including seasonal work or municipal public work schemes), while several were planning to launch their own businesses, etc. We note that when expanding the definition of economically active age until the age of 74, we found almost 30,000 additional inactive persons who wanted to work. Most of them wanted to have a job but were not looking for one.

4. INCREASING EMPLOYMENT AS A TOP PRIORITY

Approaching the accession date, in 2001 Hungary prepared a document summarising its top short-run employment policy priorities *(Joint Assessment of the Employment Policy Priorities of Hungary)*. Hungary has also agreed to shape its labour market to reach conformity with the EU's uniform common market. The EU is monitoring the fulfilment of the government's plans, similarly to that of the members' annual action plans. The public international evaluation of the Hungarian employment policy is expected to give a boost to measures improving job creation conditions, which is very much in line with Hungary's own interests.

In order to achieve the EU target of a 70 per cent employment rate within the 15–64 year old population by 2010, i.e. the employment of 4.8 million people (based on current population numbers) as opposed to the approximately 3.85 million ones existing at present, Hungary would have to create approximately one million jobs. That is equivalent to creating 100,000–110,000 jobs each year until 2010. It also means that in addition to having jobs for all people registered as unemployed, some 600,000–700,000 people currently outside the labour force would have to re-enter it. Within that, about 600,000 females need to take jobs, some of them – and this is also true for males – above the age of 55. This target is only attainable if employment policy is not based on spontaneous decisions. Economic conditions can improve unexpectedly (for example in 1999, when employment increased by almost 114,000 in a single year), but they can also bring about stagnation and decline. When employment began to in-

crease slowly, it increased by 51,000 in 1998, by 38,000 in 2000, and by only 10,000 in 2001.

Creating these conditions – ranging from reforms in the welfare system through the establishment of non-traditional types of work and including, among other things, a reduction of taxes on labour – is hard enough even in most European countries. But it is particularly difficult in the accession countries where conditions favoring employment growth need to be created on a new basis. Hungary, however, has agreed to fulfil this obligation, along with the other accession countries.

IN FOCUS
LABOUR – THE SUPPLY SIDE

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1. INTRODUCTION

Péter Galasi

Defining and estimating the labour supply is an important area of labour economics. Neo-classical economics defines supply as the amount of a given good being offered for sale. The supply function describes the selling intention. The simplest form of these models has only a single factor: the unit price of the good. Supply, then is the amount of a good being offered as a function of sales price (unit price). This definition also works for the labour supply. The good for sale is labour, and the supply is the amount of labour being offered for sale as a function of sales price – in this case: wages. What is not self-evident is how we measure the quantity of work being offered.

There are essentially two ways of measuring the amount of labour that is for sale. One approach defines the labour supply as the sum of the individuals willing to work under given labour market conditions, or in other words, the total number of people who want to work. Here, we measure the labour supply in capita. In this case, the labour supply is empirically quantified as the sum of persons actually working (employed) plus the people who would like jobs but are not working at the time of the observation (unemployed). This approach leads to a study of various participation (employment) and unemployment rates. In this instance the analysis focuses on calculating the appropriate rates, on investigating their time trends, and on studying the factors influencing the chances for individual labour force participation (activity, employment) and unemployment. This approach has been used in Section 2 of this chapter, where the author investigates labour force participation, employment, and unemployment trends for males and females along with the factors that influenced them in the 1990s.

Another approach to quantifying the labour supply sets supply as the amount of working time people want to spend on the job over a given period of time (day, week, month, year). In this case, we measure labour supply in working hours. The principal task here is to study the fluctuation of working hours over time – that is, the supply-side adjustment. One distinct trend in analyses defining the labour supply as working time is the study of factors – principally price signals – that influence the supply. Starting off in the early 1960s, these models initially focused primarily on the effects of wages and of non-wage incomes on the paid labour supply measured in working hours.[1] Later investigations included analyses of the costs effects[2] related to taking a job on the supply of paid labour,[3] and of the effects of wages and non-wage incomes on the supply of unpaid labour.

Initial results were limited to individual labour supply estimates, but later analyses also investigated the ways how individuals within the same household adjusted their labour supply. In this context, individuals setting their own labour supply consider not only their own earnings, but also the incomes of the other working members of the household.[4] Subsection 3.1 reports on the results of this type of estimates, presenting the results of calculations for the supply of both paid and unpaid labour.

Researchers later extended the simple labour-supply models in many directions. In Subsection 3.2 we look at the value of paid and unpaid labour using labour supply models. In these models, first we have taken monthly paid and unpaid working hours as given, and then we have ordered specific values (hourly wages) to the unpaid working hours using equivalent wages. This enabled us to define the value of the mostly invisible unpaid labour supply. In Subsection 3.3, we present simple labour supply models that try to capture the "effective" labour supply, which includes both the labour supply of persons actually employed, and of those people who are currently not working, but who probably would work in the event of an economic upturn or of a prolonged economic prosperity.

2. THE LABOUR SUPPLY AS LABOUR FORCE PARTICIPATION

Gyula Nagy

In the course of the deep transformational recession in Hungary, about one-quarter of jobs were lost in the early 1990s. Although a significant portion of the previously employed population simply quitted from the labour force (became inactive), the result was still massive unemployment. Despite the slow economic recovery beginning in 1994, the number of employed continued to drop, and a slow expansion only began in 1998. On the other hand, the unemployment rate has been steadily declining since mid-1993, and is currently low by European comparison.

1 The early results are summarised in *Killingsworth* (1983). For an overview of later research, see e.g. *Killingsworth–Heckman* (1986) and *Pencavel* (1986).
2 E.g. *Cogan* (1980).
3 See *Gronau* (1986).
4 E.g. *Solberg–Wong* (1992), *Apps–Rees* (1988, 1997).

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Males and females were affected differently by the dramatic decline in labour demand. For example, the decline in female labour force participation and employment was more substantial than for males, but actual unemployment has always been higher among males. In explaining male and female labour market peculiarities through the 1990s we rely primarily on the Labour Force Surveys (LFS) of the Central Statistical Office (CSO). The information they offer is manifold and is in line with international statistical standards. But as data collection only started in 1992, for the pre-1992 period we had to rely on Labour Force Balance Sheets. These contain different concepts from those of the LFS, they describe relatively few labour market characteristics, and the data is only available for larger aggregates. Overall, this section focuses on changes in male and female labour market participation and employment triggered by the economic transformation, on the factors influencing female labour force participation rates, and on the gender-based differences in the proportion of self-employment and part-time work.

2.1 Labour force participation and employment

Participation rates in the eighties and nineties

Table 1 illustrates corresponding trends between 1980 and 1997 for several European countries. Since there can be significant differences in the ratio of school attending between the countries, and since differing retirement ages influence the labour force participation of older cohorts, *Table 1* does not contain the data for the 15–24 and the 55 and over age groups.

Apparently, in 1980 the female labour force participation rates in the Eastern European countries – including Hungary – were significantly higher than in Western Europe.[5] Later, throughout the 1980-s it was increasing continuously in both country groups, but the female labour force participation rate was still higher in Eastern Europe in 1990. In the 1990-s these trends reversed. From 1990 to 1997 female labour force participation rates continued to grow in Western Europe, while they fell in the East. The decline was significant in Hungary, in the Czech Republic and in Slovakia (11–13 percentage points in the 25–54 year old cohort). By 1997, only three of the 14 Western European countries had lower rates of female labour force participation than Hungary, and the Hungarian rate was also the lowest among the five East European countries.

There was no significant difference in the labour force participation rate of 25–54 year old Hungarian males compared to Western Europe in either 1980 or 1990, a period when there was a slow decline in male labour force participation rates in both East and West. The decline continued in both country groups following 1990, but we observe the most substantial decline

5 When defining the labour force, we consider the number of employed and unemployed people. The labour force participation rate is the proportion of the labour force relative to the whole population. The same definition can be applied within specific demographic groups as well.

in Hungary. Thus, by 1997, Hungary had the lowest labour force partici-
pation rate for 25–54 year old males among all the countries in *Table 1*.

**Table 1: Labour force participation rates of those aged 25–54 in selected
European countries, 1980–1997 (per cent)**

Country	Women			Men		
	1980	1990	1997	1980	1990	1997
Western Europe						
Austria	60.1	64.0	71.0	95.8	94.3	89.9
Belgium	46.9	60.8	69.7	94.6	92.2	92.1
Denmark	80.4	87.7	81.7	95.3	94.5	92.5
Great Britain	61.2	72.9	75.0	97.0	94.8	91.6
Finland	82.7	86.0	85.5	92.2	92.8	91.0
France	63.8	72.9	77.3	96.5	95.4	94.8
The Netherlands	36.7	58.5	68.7	93.1	93.4	88.1
Ireland	28.9	45.5	58.4	95.4	91.9	90.5
Norway	68.9	79.2	83.3	93.0	92.3	92.6
Italy	42.5	53.8	55.1	95.6	94.0	89.1
Portugal	54.1	69.5	75.0	94.4	94.3	92.4
Spain	30.6	46.9	58.1	95.0	94.3	92.6
Switzerland	52.1	64.5	76.7	97.7	97.4	97.0
Sweden	82.9	90.8	84.4	95.4	94.7	89.1
Central-Eastern Europe						
Czech Republic	90.9	93.3	82.0	97.4	96.9	95.2
Poland	78.8	79.0	76.5	94.3	93.0	89.4
Hungary	77.0	79.1	67.2	95.1	93.3	85.0
Slovakia	84.3	92.6	80.0	96.9	96.8	92.0
Slovenia	81.0	83.9	82.9	95.0	94.2	89.8

Source: ILO's Key Indicators of the Labour Market.

As mentioned before, longer time series on employment and labour force
participation are available only in the Labour Force Balance Sheets (LFBS).
These contain aggregated data for January 1 each year. They are based
mainly on data supplied by companies and other employers, so they qualify
the employees of data-providing companies and institutions as employed,
while they qualify those registered at the regional employment centres as
unemployed. *Figure 1* is based on these balance sheets and contains infor-
mation on the labour force participation rates for the cohorts between the
ages of 15 and retirement age (55 for females and 60 for males), between
1980 and 1998. Although for many years, Hungarian statistical practice
included people receiving childcare support (childcare fees and childcare
assistance) into the labour force, we treat these groups in *Figure 1* as being
outside the labour force, so that our data should be in line with international
convention and also with the practice followed by the CSO since 1998.

Figure 1: Labour force participation rates of women
aged 15–54 and men aged 15–59, 1980–1998
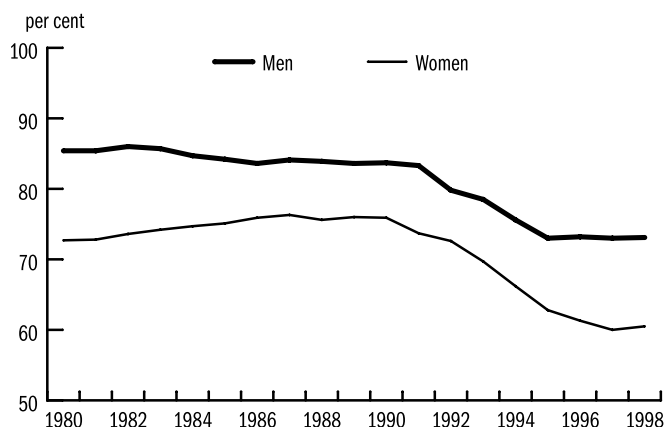
Note: Women on maternity and child care leave are not included in the labour force.
Source: Central Statistical Office's labour force statistics.

According to LFBS data, the labour force participation rate for males dropped by 1.7 percentage points between 1980 and 1990, while for females it rose by 3.2 percentage points. Thus, during this decade the gap between the two genders narrowed from 12.8 percentage points to 7.9 percentage points. Then in the 1990s, there was a significant drop in the labour force participation rates for both genders. The decline for males – about 11 percentage points overall – ended in 1995, while the female labour force participation rate declined continuously until 1997, leading to a 16 percentage point overall decrease. Since the shock of the economic transformation had a more serious effect on the labour market position of females in terms of labour force participation rates, the labour force participation gap widened. In 1998, with female labour force participation at 60.5 per cent and male labour force participation at 73.1 per cent, the gap in the labour force participation rate is 13 percentage points, a similar figure to those recorded in the early 1980s.

Factors Influencing Participation

We will now consider how labour force participation is related to various characteristics of males and females, more specifically to age, education levels, and to household- and region-specific characteristics. We have reliable data from 1992 when the CSO began regular LFS surveys. These surveys are conducted on a quarterly basis, and contain labour market data for the members of tens of thousands of households.

The LFS differs substantially from earlier collections of labour-related data, including the LFBS, in both its methodology and its terminology.

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First of all, the source of the LFS data is not the reports of companies and other employers, but surveys on random samples of the population. This yields direct information on people working for small units or unregistered employers (for instance, in households) that were generally missing from the institutional statistics.[6] In addition, the data are not aggregated but are available on individual level, and this makes it possible to group them in many ways and conduct investigations of interactions. Further, while the Labour Force Balance Sheets treat persons who have work contracts as employed and people registered at the regional employment centres as unemployed, the LFS is in line with International Labour Organisation (ILO) standards. In the LFS a person is qualified as employed if s/he worked, or was absent from his/her job in the week of the survey, while a person is qualified as unemployed if s/he is not employed, is actively looking for work, and is ready to take a job if offered.

Figure 2: Labour force participation rates of women aged 15–54 and men aged 15–59, 1992–1998
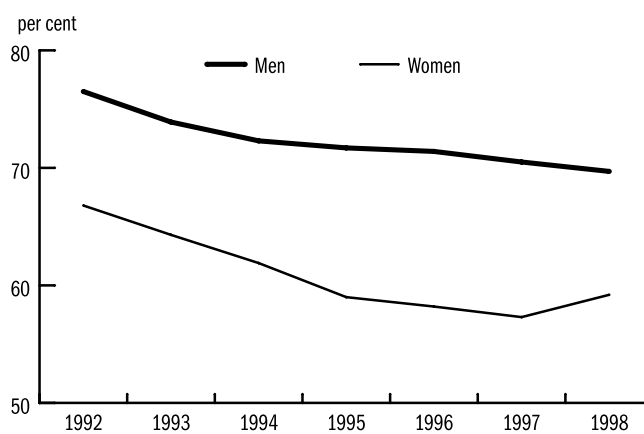
Note: Annual averages of quarterly rates.
Source: Central Statistical Office's LFS.

6 In many cases, the data on these groups in previous statistics are only estimates.

7 Possible reasons for the differences – related to the differences in concepts and methodology already mentioned – include the January 1 focus of the Labour Force Balance Sheets, while the Labour Force Survey data contain the average data for the whole of the given year. This means that the latter reflect conditions at a later time. Another reason for the lower level of labour force participation in the LFS was that the number of unemployed calculated according to ILO standards (actively looking for work and ready to take a job) has been lower than the number of registered unemployed ever since 1993, and the gap between the two has widened continuously.

Due to the methodological and conceptual differences, we come to different employment and unemployment rates when using the LFBS and LFS for the same period. *Figure 2* shows the labour force participation rates between 1992 and 1998 calculated from the labour force survey. A comparison with *Figure 1* – illustrating rates calculated from the LFBS – shows that for the majority of the years the labour force survey yields a somewhat lower rate of labour force participation.[7] We also see that in the labour force survey the male labour force participation rate continues to decline after 1995.

Labour force surveys were introduced in 1992, but the decline in the number of jobs and labour force participation, leading to mass unemployment began much earlier, following the political regime change. We have to consider the amount of information that has been lost because we don't have detailed data for the pre-1992 period.

To answer this question, we have divided *Table 2*, which is based on LFBS data between 1989–1997 into two phases. One of them covers 1989–1992, when we had no LFS data, and the other is for 1992–1997, when these data are available. We see that the female labour force participation rate dropped by 16 percentage points between 1989 and 1997, and that 12.7 percentage points, or almost 80 per cent of the overall drop occurred after 1992. For males, the overall drop was 10.6 percentage points, out of which 6.8 or about two-thirds occurred after 1992. In other words, the majority of the decline in the labour force participation rate took place during a time period that we were able to investigate with the LFS data.

Table 2: Changes in labour force participation of women aged 15–54 and men aged 15–59, 1989–1997 from labour force balance sheets (per cent)

	Women	Men
1989 to 1997	–16.0	–10.6
1989 to 1992	–3.3	–3.8
1992 to 1997	–12.7	–6.8

Note: Women on maternity and child care leave are not included in the labour force.

Using the LFS, we will now investigate the effects of age, education, and certain household and regional specific characteristics on the labour force participation rate. We have focused on two questions: 1) is there a difference between males and females in the effects of the different characteristics, and 2) has there been a change in the effects of these characteristics over the period – 1992–1998 – under investigation?

Age

There can be significant differences between the labour force participation rates of various age groups, because the decision to take a job is strongly dependent on the life cycle. Significant proportions of young people choose to go to school to improve their future employment opportunities and wage prospects. Older groups have the opportunity to retire and as the ability to work often deteriorates with age, we can expect a decline in the labour force participation rate. The birth of children clearly has a significant influence on the participation of young women. Another difference in the

participation decisions of the various age groups may be triggered by differing attitudes towards leisure.

Table 3 presents gender labour force participation rates between 1992 and 1997 by age groups. We find typical differences between the labour force participation rates of males and females based on age. The male labour force participation rate reaches its maximum at a relatively young age: there is no significant difference between the labour force participation of the 25–29 year old and the 30–39 year old males. For females, however, labour force participation is much lower when they are in their twenties than in their thirties, clearly because of child birth. Another difference is that while there is a significant decline in male labour force participation rates above the age of 40, for females, although there was a slight decline in 1992, by 1997 the labour force participation rate of the age group 40–54 was slightly higher than that of the 30–39 year group.

Among both genders, the drop in labour force participation rates between 1992 and 1997 was the sharpest among the 20–24 year olds, although there was also a significant decline among teenagers. Among the older groups, the biggest decline among females was in the young adult (25–29) and middle aged (30–39) cohorts, while among males the most significant drops were among the older groups (40–54 and 55–59). Above retirement age, male labour force participation rates dropped much more substantially than the female ones.

Table 3/B illustrates the gender-based differences in labour force participation rate by age groups, and changes in these differences. The gap between male and female labour force participation for the entire population below retirement age widened by 3.4 percentage points between 1992 and 1997. The change was far from homogenous for the different age groups: the gap expanded more substantially for the 25–39 year olds (nearly 7 percentage points), and less substantially for teens and 40–54 year olds (1.8 and 1.3 percentage points), and remained essentially unchanged for 20–24 year olds.

We also investigated labour force participation probabilities with a multivariable logit estimate. We used the 30–39 year olds as our reference group for the age estimates. In other words, the coefficients show probabilities compared to this age group. Negative values indicate a lower probability than that of the reference group, while positive values suggest a higher probability.

For females, the coefficients for the younger age groups yield essentially the same results as the labour force participation rates reported in *Table 3*. The labour force participation of teenagers and those in their twenties is much smaller than that of the 30–39 year olds. For the over 40 year olds, however, the results were different. While the regression suggests that the

probability of labour force participation over the age of 40 is significantly lower, raw labour force participation rates show no such difference. In 1992 – as we see in *Table 3* – the labour force participation rate of females aged 40–54 in fact was 2.4 percentage points lower than that of the 30–39 year olds, though the regression estimates suggest a far bigger difference than that. Based on the coefficients, the probability of labour force participation on the part of 40–49 year olds exceeded that of the 30–39 year olds by over 5 per cent, and that of the 50–54 year olds was about 30 per cent higher. The difference was even more substantial in 1997. Here the labour force participation rate for 40–54 year olds was somewhat higher than for 30–39 year olds, while the estimation suggested an almost 8 per cent lower probability of labour force participation for the 40–49 year olds and a 37 per cent lower probability for the 50–54 year olds. The key to explaining this apparent contradiction is that over the age of 40, a far lower ratio of females have small children than do younger ones. (In 1997, for instance, 58 per cent of females aged 30–39 had children under the age of six, while the corresponding figure for 40–49 year olds was 26 per cent, and for 50–54 year olds it was 3 per cent.)[8] As we will demonstrate later in details, the younger children a woman has, the lower is the probability that she will choose to belong to the labour force. After filtering out the positive effects on the labour force participation of the lower number of children, above the age of 40 the probability of female labour force participation declines with the age.

8 The proportions are for the second quarter. The average number of children under the age of six for 30–39 year olds was 0.74, while for 40–49 year olds it was 0.31, and for 50–54 year olds it was 0.04.

Table 3/A: Changes in labour force participation rates by gender and age-group, 1992–1997 (per cent)

Age group	Labour force participation rate 1992	Labour force participation rate 1997	Change (percentage point)	Labour force participation rate 1992	Labour force participation rate 1997	Change (percentage point)
	men			women		
15–19	24.4	16.5	–7.9	21.5	11.8	–9.6
20–24	81.0	69.5	–11.6	60.6	49.2	–11.4
25–29	92.7	90.4	–2.2	62.1	52.9	–9.2
30–39	93.4	89.3	–4.1	79.9	69.3	–10.5
40–54	86.3	80.5	–5.8	77.3	70.2	–7.1
55–59	52.0	44.2	–7.9	19.3	16.2	–3.1
60–74	13.5	5.8	–7.7	7.9	3.0	–4.8
15–54/59	76.9	70.8	–6.1	66.7	57.3	–9.4
15–74	66.7	60.4	–6.3	51.0	42.8	–8.2

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Table 3/B: Differences in gender labour force participation rates by age group, 1992 and 1997 (per cent)

Age group	Difference (women – men)		Change in difference (increase: +, decline: -)
	1992	1997	
15–19	-2.9	-4.7	1.8
20–24	-20.4	-20.2	-0.2
25–29	-30.6	-37.5	6.9
30–39	-13.5	-20.0	6.5
40–54	-9.0	-10.3	1.3
55–59	-32.7	-28.0	-4.7
60–74	-5.7	-2.8	-2.9
15–54 (–59)	-10.1	-13.5	3.4
15–74	-15.7	-17.6	1.9

Source. CSO (1999).

We also need to mention that the (negative) coefficients for the older age groups were larger for females than for males in every single year (i.e., smaller in absolute value). This means that above the age of 40, male labour force participation declines more substantially with age than does female labour force participation. It would appear that more males suffer a deterioration in health – the most probable explanation for a decline in labour force participation prior to retirement – than females. On the other hand, the effect of age on the labour force participation of females in the investigated time period increased in the youngest and the oldest groups. Following 1994, the absolute values of the coefficients for both teens and over 40s were higher than earlier.

The multi-variable estimates for males yielded about the same interactions between age and labour force participation as the raw labour force participation rates. Teen activity was quite low, and activity among the 20–24 year olds was significantly lower than that of the 30–39 year old reference group. In three of the seven years investigated, the coefficients of the 25–30 year olds were not significant – in other words, the probability of labour force participation by this age group was not different from that of the 30–39 year olds. In the other four years (1994–1995 and 1997–1998), however, we found significantly positive coefficients. In those years the probability of labour force participation for males aged 25–29 with the same other characteristics as the 30–39 year olds was 5–12 per cent higher than the reference group. At the same time, the labour force participation rates of the age groups show a maximum of 1 per cent difference. The reason for the difference is most likely the composition effect. The proportion of single males among the 25–29 year old group is much higher than among the 30–39 year olds,[9] and this variable influences negatively the probability of labour force participation.[10]

9 The definition of single is a male without a spouse or live-in partner. In Q1 1997, 33 per cent of the 25–29 year olds were single, while the same figure for the 30–39 year olds was 20 per cent.

10 The "pure" differences in probability based on age received from the multi-variable estimates differ from the differences in raw labour force participation rates not only in these cases. We have only emphasised those cases where the deviations from the multi-variable estimates were significant.

Besides the labour force, we have distinguished three groups among those who are not in the labour force: full-time students, recipients of childcare support, and other inactive. On that basis we take a closer look at changes in labour force participation between 1992 and 1998. *Figure 3* shows changes in the labour force participation rates and in the proportion of the three groups being outside the labour force separately for males and females, among the 15–19 year olds.[11]

The decline in labour force participation for both genders in this age group is clearly closely related to the rise in the proportion of full-time students. Among females, the 11 percentage point drop in labour force participation occurred in conformity with a similar increase in the proportion of full-time students. Among teen males, labour force participation dropped by 9.8 percentage points while the proportion of students increased by 7.6 percentage points. In other words, among the females there was no increase in the proportion of those economically inactives who are not full-time students, while among the males that proportion went up by only 2.2 percentage points. That is, almost all of the decline in the teenager labour force participation was the result of the huge increase in the secondary school (and the much smaller increase in college or university) attendance.

11 The labour force participation rates for males shown in *Figure 3* do not correspond to the data in *Table 3*. The reason is that the CSO data used as the source for *Table 3* includes mandatory military service as a participation category, while military conscripts are not included in the data used to compile *Figure 3*.

Figure 3: Labour force participation of 15–19 years old, 1992–1998
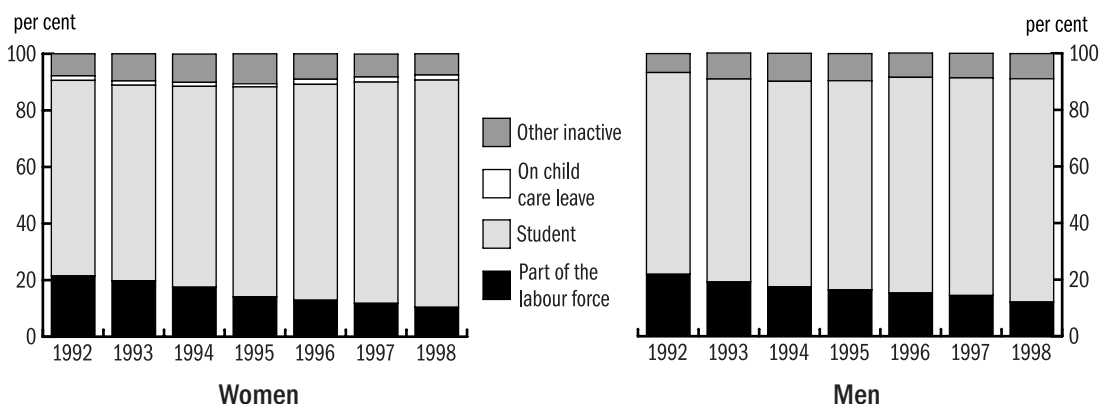
Source: CSO LFS.

Among the 20–24 year olds, there is a similar though somewhat weaker interaction between labour force participation trends and school attendance *(Figure 4)*. Female labour force participation in this age group dropped by 10.7 percentage points between 1992 and 1998, while the proportion of full-time students increased by 8.8 percentage points. Male labour force participation dropped by 13.6 percentage points, while school attendance increased by 8.3 percentage points. Meanwhile, there was an initial rise of

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over 2 percentage points in the proportion of 20–24 year old females receiving childcare assistance or fees, which dropped significantly by 1998, obviously triggered by budgetary restrictions which also hit the amount of benefits offered.

Figure 4: Labour force participation of 20–24 years old, 1992-1998
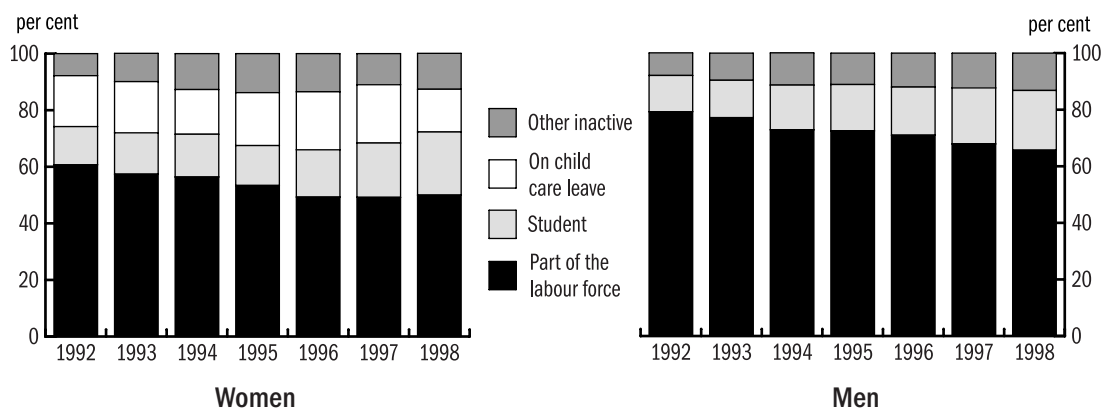
Source: CSO's Labour Force Survey.

College and university attendance of the 25–29 year olds also increased substantially. LFS data on 1992 reported that in this age group 1.3 per cent of males and 0.4 per cent of females were full-time students. By 1998 the figures had gone up to 2.9 and 2.1 per cents.

The data makes it obvious that the expansion of education played an important role in the decline in the labour force participation among younger age groups in the 1990s. The altered labour market conditions provided an incentive to young people to obtain secondary and higher education, to improve their job prospectives and wages. Higher levels of education significantly reduce the risk of unemployment – which we will discuss later –, and education-based wage differences also increased significantly in the transition period.[12] As we have seen, school attendance increased to a somewhat greater extent among females than among males.

Although attending school or college is something that young people do, the influence of the increase in the number of the full-time students cannot be ignored when looking at trends in the labour force participation rates of the overall population. Between 1992 and 1998, the labour force participation of the 15–54 year old females dropped by 8.4 percentage points, while the proportion of full-time students increased by 2.6 percentage points within the entire age group. Among the 15–59 year old males there was a 7.8 percentage point decline in labour force participation accompanied by a 2.1 percentage point increase in the proportion of full-time students.

12 Compared to blue-collar workers with a primary education, the wages of white collar workers with a secondary education increased by 15 per cent, the wages of college graduates in subordinate jobs increased by 30 per cent, and the wages of college-graduate managers increased by 40 per cent between 1986 and 1995. (*Kertesi–Köllő,* 1997).

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In other words, among both genders, about one-quarter of the decline in labour force participation between 1992 and 1998 was associated with an increase in school or college attendance.

Education

The participation data *(Table 4)* clearly shows that the labour force participation of both males and females increased substantially with the rise in education levels. (In *Table 4* we calculated the labour force participation rates using data of the 25 and above age groups, since under 25 there is a relatively large proportion still at school or in higher education.) The obvious economic explanation for the phenomenon is that the more highly educated persons devote more time and money to their education, and the longer the time they spend in the labour force, the more return they can expect for that input in the form of higher wages.

Table 4: Labour force participation by schooling (highest degree) of the population older than 24 years of age and younger than the age of pension in 1992 and 1998 (per cent)

Schooling	Men		Women	
	1992	1998	1992	1998
Less than primary school	51.8	33.9	45.6	20.0
Primary school (8 years of schooling)	75.6	62.1	69.2	56.2
Vocational school	90.7	84.1	78.2	67.7
General secondary school	89.7	82.9	82.8	74.9
Vocational secondary school	92.3	86.9	84.0	77.3
Higher education	94.8	91.9	85.4	85.7

According to the coefficients obtained in the multi-variable estimates, taking people having primary school education as a control group, people with less than a primary school education show a significantly lower probability of taking a job (their coefficient is negative). The relative difference between the probability of labour force participation is particularly large when comparing females with and without a primary school education. In every single year, the coefficient of females without a primary school education was lower (larger in absolute value) than the coefficient for males. We can also conclude that between the early and late 1990s, the relative difference increased for both genders, though the increase was larger for females.

Different types of secondary education had different effects on the labour force participation of males and females. Among males, a general secondary school education only slightly increased the probability of labour force participation (by 4–6 per cent), while vocational secondary school and vocational school education increased probability more significantly (by 22–25 per cent for the former and by 25–34 per cent for the latter).

However, by 1997–1998 the effects of vocational schools on increasing labour force participation had declined. A general high school education increased the probability of female labour force participation more than it did for males (by 14–20 per cent), but similarly to males, this increase was lower than for vocational secondary school education. From 1992 to 1996 there was no significant difference between the effects of education in vocational schools and vocational high schools on the labour force participation. Both of them increased the probability of labour force participation by 30–38 per cent relative to a primary school education level. Then, in 1997–1998, the effects of a vocational school education dropped somewhat (to about 25 per cent).

As expected, higher education increased labour force participation the most substantially. University and college graduates have a 40–50 per cent higher probability of looking for work than similar groups having only a primary school education. Here there is no significant difference between males and females.

Household characteristics

In this section we explore the effects on labour force participation of two household characteristics – children, and cohabitation with a spouse or partner.

The presence of children requiring care and support increases the household's demand for income, and thus the parents' willingness to work. But it also increases the value of the housework – caring for children is very time-consuming –, which in turn reduces the labour supply. Considering the traditional division of gender roles and the higher wages attainable by males, we expect that the higher willingness to work can be observed for males, while the females take on household demands and stay off the labour force.

Figure 5 uses 1998 data to show the differences in the labour force participation of different female age groups together with the number of small (under 14 year old) children. Within the same age group, female labour force participation generally declines with the increase in the number of children, but this interaction is not always valid, or is not always strong. For instance, the labour force participation of 45–54 year old females with one small child is even slightly higher than for females of the same age group without small children (69 vs. 67 per cent). Among the 35–44 year olds, there is hardly any difference between the labour force participation of the two groups (79 per cent of females with one child as opposed to 82 per cent of childless females), and the difference in the labour force participation of 25–34 year olds with one as opposed to two children was also small (60 vs. 55 per cent). A clearly visible and sharp difference becomes

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apparent between females with two as opposed to three or more children. Having three or more children radically reduces the labour force partici-pation of both the 25–34 and the 35–44 female age groups.

Figure 5: Female labour force participation rates by age-group and the number of children in 1998

per cent
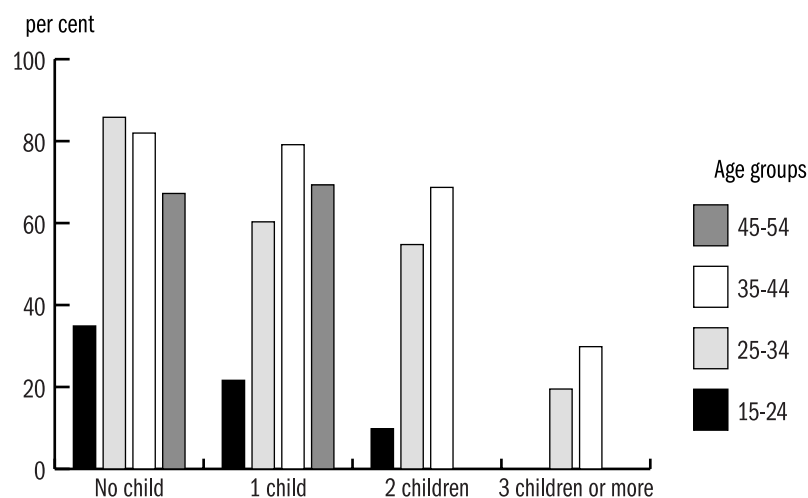
Source: CSO LFS.

Figure 6: Female labour force participation by age group and the age of the youngest child in 1998

per cent
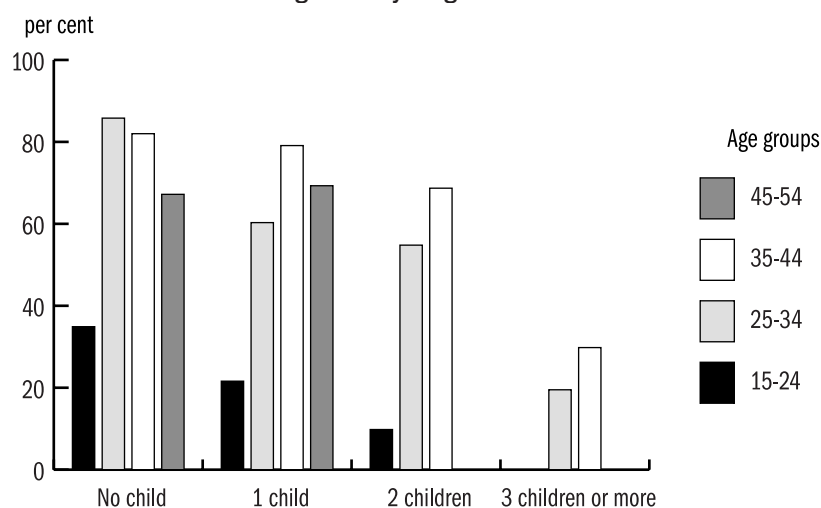
Source: CSO LFS.

Figure 6 shows that female labour force participation is influenced at least as much by the age of children in the household as by their number. Fe-

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males with a child under five show far lower labour force participation rates in every single age group, than do childless females or females with older children. The difference between the labour force participation of childless females and females with small children is lowest among the youngest groups (15–24), clearly because in this age group a large proportion of the childless females are still at school. Among the 25–34 year olds, the labour force participation of females with both 6–10 year old children and 11–14 year old children is lower than that of childless females. 35–44 year old females with children that are at least 6–10 years old continue to show a lower rate of labour force participation than childless females, but those whose smallest child is at least 11–14 seek work to a greater extent than childless females. Over 45, there are too few females with small children in the sample to estimate their labour force participation, although in this age group children who are 6 or more do not restrain them from looking for work.

The next question is how the labour supply is influenced if someone is single as opposed to living with a spouse or partner. Living together with a spouse or partner can have differing effects on male and female labour force participation rates – depending on whether or not they have children. The probability of labour force participation can be increased if the spouse needs to be supported and it can decline if the spouse is working. The effect of marriage (or live-in partnership) on increasing labour force participation is probably stronger for males, while the effects of decreasing it should be stronger for females. When females have children, we expect their labour force participation to be lower when living with a spouse than when being single (when they cannot rely on the income of a spouse).

In *Figure 7* we describe labour force participation rates for 1992–1998 for four groups of females, distinguished by children and marital status. The labour force participation of single females raising a child was significantly higher – by about 10 percentage points – throughout the entire period than that of females raising a child as part of a couple. Among the childless groups the correlation is the opposite: singles were somewhat less active (2–7 percentage points) than when living with a partner.

With the results of the multi-variable models we get a clearer image of how the number of children, age of children, and family status operate independently of other variables – such as education level and age – in affecting the labour force participation of males and females. In the model for females, we included the number of children separately for four age groups – 0–2 years old, 3–5 years old, 6–10 years old, and 11–14 years old – to allow us to distinguish between the influence of younger and older children on labour force participation. In the model for males, since we found no difference in the level of labour force participation that could be related to

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age of children, we used a single variable to represent the number of children. As we had assumed, and have seen in *Figure 7*, family status has a different effect on the probability of labour force participation, depending on whether or not a person has a child. We designed interaction variables to demonstrate this. Their value was the product of 1 and the number of children (of different ages) for singles, and the product of 0 and the number of children (of different ages) for couples, giving us a value of 0 for couples, and a value equal to the number of children for singles. This means that the coefficient for the number of children plus the coefficient of the interaction variable for marriage and number of children yields the effects of the number of children on the labour force participation for singles. We also introduced a variable with a value of 1 for childless singles, and of 0 otherwise, the coefficient of which yields the probability of the labour force participation of childless singles relative to childless couples.

Figure 7: Labour force participation rates of 20–54 year old women by marital status and child care leave, 1992–1998
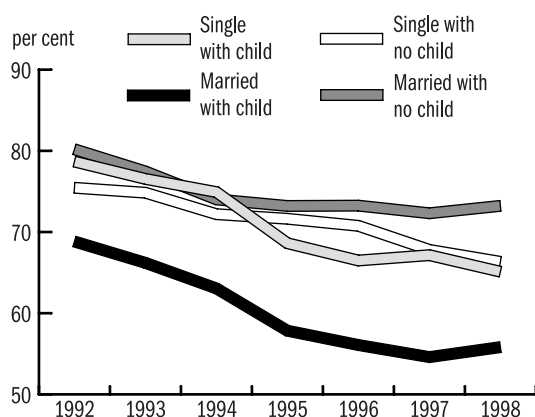
Note: Married includes those living with partners.
Source: CSO LFS, Q2.

In all years under investigation the labour force participation of females with children aged 10 or less was significantly lower than that of childless females. The value of the coefficients declined together with the rise in the child's age, indicating that females with older children are more prone to enter the labour force than females with younger children. As expected, children aged 0–2 had an exceptionally strong negative effect on labour force participation, while children aged 3–5 also had a significant effect. Each additional child of this age reduces the probability of labour force participation by about 25–30 per cent. Each additional child aged 6–10 had a far less powerful influence, with the probability of labour force par-

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ticipation reduced by 6–12 per cent. Where there were 11–14 year olds, in most of the years studied, there was no reduction whatsoever in female economic labour force participation: 1995 was the only year with a significant coefficient. Among males the relationship was the opposite: the higher is the number of children, the more probable it is that a male looks for a paid work. In five of the seven years, the effects of the number of children were statistically significant. At the same time, the relationship was not too robust: an additional child increased the probability of male labour force participation by only 2–5 per cent.

Among *females*, it was observed that a single parent was more ready to look for work than a parent who was part of a couple with the same number of children – clearly because of being forced to earn an income. The significant positive coefficients of the number of children/single interaction variables showed that between 1992 and 1996, single females raising a child under 6 showed a higher probability of labour force participation than married women with the same number of children. However, in 1997 and 1998, we no longer found a significant difference between the two groups. The effect of 6–10 year old children on reducing labour force participation between 1992 and 1995 was lower among singles than among married females. Among males, the situation was also different here. The sign of the coefficients of the interactive variables was negative and their absolute value – when they were significant – was larger than the child number variable coefficients without the interaction. This meant that probability of labour force participation for single males declined rather than increased with a rise in the number of children.

In all of the years studied, there was a lower probability of childless singles seeking paid work than childless couples – which shows that the single and childless variables were significant coefficients. A factor probably contributing to this is that childless couples compared to childless singles have a higher demand for income because a larger proportion of them have moved away from the parental household. The correlation is valid for both males and females, although the effect is weaker for females than for males – only about half as much.

Looking at labour force participation trends by gender, we have seen that in the period of economic transition, female labour force participation dropped to a greater extent than male, so the labour force participation gap between the two genders widened in the 1990s. There might be supply causes in the background of this, along with the decline in demand for labour.

One factor that made a minor contribution to expanding the gender labour force participation gap was that the number of females below retirement age attending full-time school increased to a significantly greater ex-

tent than the number of males. It is very likely, however, that there was an even more significant supply-side factor behind this: with declining real wages it became less worthwhile for females to work for pay. Female wages were significantly below the males' wages, although the gap became less significant in the 1990s,[13] while at the same time, their household work is considered to be more valuable than the males' household work.

As we have seen, raising children is an important factor that influences female labour force participation. While among males, having children somewhat increases the probability of taking a job, irrespectively from the age of the child, labour force participation on the part of females with pre-school children or children in the lower grades of school (6–10 year olds) is significantly lower than that of childless females or females with older children that otherwise have the same characteristics. The smaller the child, the more powerful the labour force participation-reducing effect. Childless singles – males and females alike – are less likely to belong to the labour force than couples living together. However, single females with children are more prone to look for work than females with the same characteristics and the same age children, who live in couples.

2.2 Employment trends and types in the 1990s

In the 1990s, employment among females dropped to a greater extent than among males, just as did labour force participation. Using LFBS data, *Figure 8* shows employment rates for the under-retirement-age population between 1990 and 1998. At the beginning of the period, employment rates for both genders dropped rapidly, and then from 1993–1994 female employment continued to decline though at a slower rate, while male employment showed hardly any change at all. In the final analysis, in early 1998, the employment level of males under retirement age was 18.5 per cent lower than in early 1990, while the female employment rate decreased by 21.8 per cent over the same time period.

We do not have detailed employment data before 1992, when the LFS began, just as we had no data for labour force participation rates. We will now briefly look at certain employment types such as part-time work, and the difference between genders in the various types of employment.

Table 5 shows the part-time workers whose usual number of working hours is below 40 hours per week, unless it is below 40 hours because some kind of legal preference mandates a time-off. (There is no data on part-time employment available for 1993 and 1994.)

13 See: *Galasi* (2000).

Figure 8: Employment of those below pension age by gender, 1990–1998
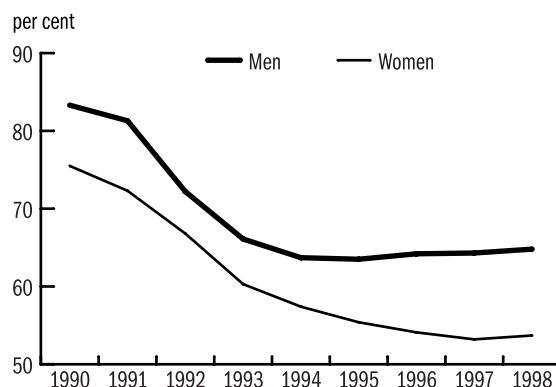
Note: State as of 1st of January of the given year.
Source: CSO LFBS.

Table 5: Part-time employment among the below pension age population by gender, 1992–1998 (per cent)

	1992	1995	1996	1997	1998
Men					
Number of the employed (1992=100)	100.0	93.4	93.9	94.7	95.3
Number of part-time employed (1992=100)	100.0	35.7	37.9	37.6	47.1
Proportion of part-time employed out of all employed	3.5	1.3	1.4	1.4	1.7
Proportion of voluntary part-time employed among all part-time employed		59.8	60.6	61.7	63.3
Women					
Number of the employed (1992=100)	100.0	89.2	88.1	87.7	91.2
Number of part-time employed (1992=100)	100.0	49.0	50.5	55.5	58.0
Proportion of part-time employed out of all employed	6.3	3.5	3.6	4.0	4.0
Proportion of voluntary part-time employed among all part-time employed		59.2	61.5	63.4	64.0

Source: CSO LFS.

In *Table 5* the top line on the upper block (male data) and on the lower block (female data) gives information on the time trend of the number of people employed over time, and the second line gives information on the number of people employed part-time. We see that from 1992 to 1995, part-time employment went down to a far greater extent than overall employment. The number of males working part-time dropped to just over one-third of what it had been and the number of females was down by half, while the overall number of below retirement age males employed went down by only

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6.6 per cent and the overall number of females decreased by 10.8 per cent. After 1995, part-time employment began to rise again, but in 1998 fewer than one-half of the males and two-thirds of the females who had worked part-time in 1992, now had part-time work. We do not know the precise reason for this decline. It may be that the labour shortage disappeared and the relatively high side-costs of employment reduced employer interest in employing people part-time. Supply side issues also have to be considered. With declining real wages, fewer employees found it worth their while to work part-time, since the specific costs of holding a job are higher and actual hourly earnings are lower for part-time workers.

We need to stress that when compared to other countries, the proportion of part-time employment in Hungary is very low. In the European Union, in 1990 the average proportion of females working part-time was 27 per cent while in 1998 it was 28 per cent (*OECD,* 1999). Compared to that, the 6 per cent that was recorded in Hungary in 1992 was itself extremely low. The results of the comparison are not changed substantively by the fact that in the European Union all those working less than 30 hours/week are regarded as part-time workers, even if they were working fewer than 30 hours because of a legal preference mandating time off. Using the same calculations, in 1998 only 5 per cent of females in Hungary worked part-time, just a single percentage point higher than the data in *Table 5.*

When looking at part-time workers, it is common practice to distinguish between people working part-time by choice and people who are working part-time because they were unable to find a full-time job. The bottom line of the blocks on males and females in *Table 5* illustrates the proportion of persons working part-time by choice. In 1998 it was barely two-thirds of either gender, and has increased somewhat – by 4–5 percentage points – since 1995 (the year from which part-time workers can be identified in the labour force surveys).

There are sharp differences between the two genders regarding the manner in which people work. *Table 6* shows that the proportion of employees is higher among females, while males are more often self-employed or members of cooperatives. (We have qualified individual entrepreneurs and owners of partnerships or other businesses who work in them as self-employed.)

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Table 6: Number of employed by type of employment and gender, 1992–1998 (per cent)

	1992	1993	1994	1995	1996	1997	1998
Men							
Employee	76.4	77.9	78.3	77.9	77.3	78.3	79.7
Coop member	7.2	4.6	3.6	2.9	2.8	2.4	1.9
Self-employed	15.8	16.3	16.8	17.8	18.3	17.7	16.8
Casual worker, family help	0.7	1.2	1.3	1.4	1.6	1.6	1.6
Women							
Employee	84.2	86.6	87.1	87.2	87.4	87.8	88.5
Coop member	3.8	2.5	2.0	1.6	1.5	1.3	1.0
Self-employed	10.5	9.4	9.3	9.6	9.3	9.0	9.1
Casual worker, family help	1.5	1.6	1.6	1.6	1.8	1.9	1.3

Source: CSO LFS.

2.3 Unemployment

The unemployment rate – the proportion of unemployed people in the entire labour force[14] – is higher among females than males in the vast majority of developed countries. In 1998, the average female unemployment rate was 11.5 per cent in the European Union, while male unemployment rate was only 8.7 per cent. At the same time, in the OECD countries the average female unemployment rate was 7.4 per cent, while the male rate was 6.3 per cent (*OECD,* 1999). There are relatively few countries where male unemployment is higher. In 1998, these countries included Ireland, Sweden, and the United Kingdom in Europe, and Australia, Canada, and New Zealand of the non-European OECD countries.

In Hungary, as we can see in *Figure 9*, the unemployment rate for females has permanently been lower than for males, ever since the appearance of mass unemployment.

In this subsection, the first thing we investigate is whether female unemployment is lower in Hungary than male unemployment because females have more favourable personal, household- and region-specific characteristics – the factors that influence the risk of unemployment. Then, we will expand the analysis to include the sectoral or industry-specific characteristics of the employees, trying to determine the extent to which differences between males and females in this respect contribute to their different unemployment rates. Then, we will look at the duration of unemployment, and differences between the two genders with respect to when they become unemployed and when they become re-employed. Finally, we will attempt to clarify the extent to which the image of unemployment would be changed if the official definition of unemployment were broader. In other words, what would happen if, for instance, the group that has lost all hope

14 Under international statistical standards, a person qualifies as unemployed if *a)* s/he does no paid work at all, *b)* is actively looking for work, and *c)* would be able to take a job within a short time, if offered. As indicated, we have used this definition of unemployment in this study.

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of ever finding a job, or the people who would like to work but do not actively look for a job, were qualified as unemployed.

Figure 9: Unemployment rates by gender, 1992–1998
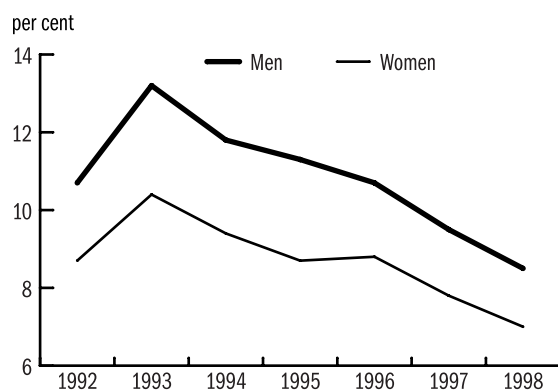
Source: CSO LFS.

Factors influencing unemployment

The difference between the unemployment rates of two groups of employees – males and females in our case – could occur because they have different characteristics in the factors influencing the probability of finding jobs. If differences of this nature are behind the different unemployment rates, we would be unable to say that simply belonging to one group or the other had a direct influence on unemployment. If, for instance, the sole reason for higher unemployment among males were found to be that they were less educated than females (if there were no difference between the unemployment rates of males and females with the same level of education), we would have to say that there was no difference between the genders regarding the probability of unemployment. We would conclude that the higher unemployment rate among males was the consequence of different education levels. So, the question is whether the lower unemployment rate among females in Hungary stems from differences such as this or not.

To answer this question, we took the Q2 sections of the LFS and prepared multi-variable estimates for various personal, household- and region-specific characteristics – age, education level, family status, number of children, place of residence (Budapest or elsewhere), and the regional unemployment rate – to find their effects on the probability of being unemployed. Just as when estimating the probability of labour force participation, here we also used logit regressions. But this time we set up for each year a common regression function for males and females, and used gender as an explanatory variable.[15]

15 We used a joint model, because we assumed that most of the variables – personal and regional characteristics – influence similarly the male and female probability of unemployment. However, when it came to marriage and number of children, where we assumed differences of this nature, we estimated different coefficients for the two genders with interaction variables.

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According to the estimated coefficients, the probability of unemployment is strongly dependent on age. Using the multi-variable estimates, teens were found to have a positive coefficient, meaning a higher probability of unemployment than the 20–24 year olds used as the reference group. Among older groups the negative coefficients rose steadily in absolute value, indicating a declining probability of unemployment with the increase in age. The relationship between the age and the unemployment rate was similar for both genders. Perhaps it is worth pointing out the difference that unemployment among 25–29 year old females did not decline as much as it did for males relative to the 20–24 year old reference group, while among males the differences in rates between the 25–29 year olds and the 30–40 year olds were relatively small.

The higher unemployment rate among younger groups was principally because on the one hand, employers prefer to hire people with experience and practice, who require less of an effort to train, while on the other hand, there is a lower probability that they will dismiss their more experienced workers. In addition, young people are more mobile on the labour market and quit jobs more often than older people. At the same time, we might think that employers are less willing to hire older workers whose remaining active careers are too short to make it worth spending the money to train them. Based on that assumption, we should expect a higher rate of unemployment among persons close to retirement age than among the middle-aged. However, we found no such correlation between age groups and unemployment rates, and our multi-variable estimations did not reflect this either. The unemployment of the oldest group is not lower than that of the middle-aged one. The possible reason is that many people in the elder group with low chances of finding a job tend to quit the labour force, for instance, by applying for a disability pension.

There are major differences in the unemployment rates of people with different education levels. There is a far lower unemployment rate for people with higher levels of education than for people with lower ones. The reference group contained people with eight years of primary school education, and relative to them, the unemployment probability rate for people with less than eight years of education was higher (the coefficients were positive), while the probability for people with more education was lower. The higher is the level of education, the lower is the probability of unemployment (the higher is the absolute value of the negative coefficients). Among people with a secondary education, the probability of unemployment among those with the baccalaureate (secondary leaving certificate) was somewhat lower than it was for those completing vocational schools, while graduates of vocational high schools had a somewhat lower probability than graduates of general high schools. There were no significant

differences between males and females regarding the effect of education level on the probability of unemployment. The education-level based differences in unemployment suggest that employers consider education level a gauge of ability, and prefer to employ and train people with higher education levels in jobs offering long-term employment.

When investigating family-household characteristics, we assumed that they have different effects on the unemployment risk of the two genders. We might expect employers to consider marriage and children among males to be signs of reliability and a commitment to stability on the labour market, while among females they are likely to believe them to be less reliable because of obligations in the household and towards children. The results of the estimations did not fully meet these expectations but it did appear that the effects of marriage and children were not identical for males and females.

In the quarters investigated, when the effects of all other characteristics were filtered out, married males showed a 5–8 per cent lower probability of being unemployed than single ones.[16] For females, the effects of marriage show the same direction though it is less strong. Married females are only 2–5 per cent less likely to be unemployed than singles.[17] As expected, children increase the probability of unemployment among females. One additional child increases unemployment probability by 2–3.5 per cent.[18] In 1992 and 1993, the number of children did not affect male unemployment, but from 1994 there was a significant though weak correlation: one additional child increased the probability of being unemployed by 1–2 per cent. It is possible that this correlation is spurious and is the effect of characteristics that are not controlled for in the models – for instance, the combined effect of the powerful employment discrimination against Gypsies (*Kertesi,* 1994) and the typically higher level of children in Gypsy families.

Finally, the most important variable in our investigation – gender – had strongly significant coefficients in every year investigated, indicating that lower female unemployment was not being triggered by the effects of the other variables in the estimates. Between 1992 and 1998, females in Hungary with identical characteristics as males showed a lower probability of unemployment.

Sectoral/industry effects

Another factor that may have contributed to the gender difference in unemployment is that different proportions of males and females work in different industries/sectors. If the risk of unemployment is different between the sectors – which can be particularly true during periods of rapid economic restructuring –, and if the males and females tend to work more in sectors

16 When reporting the results of the unemployment models, we calculate the marginal effects at 10 per cent probability.
17 The female coefficient was calculated as the sum of the coefficients of the married and married x female variables.
18 Here the coefficients are the sum of the coefficients of the number of children and number-of-children x female variables.

where the unemployment risks are different, this will clearly influence the levels of their unemployment.

When looking for explanations for differences in the unemployment rates between two groups – males and females in this case –, there are certain limits on how we can treat the industries where they work. First of all, unemployed people who hadn't worked earlier or who have been out of work for a long time cannot be included into any sector. Secondly, the effects of unemployment triggered by the chances of losing a job in a particular industry can be more or less balanced out if there is significant intra-sectoral mobility. In other words, a substantial proportion of people losing their jobs in one sector might find re-employment in another one.

Columns two and four of *Table 7* show sectoral unemployment rates based on the numbers of people working in the sector and the number of unemployed who leave it. Columns three and five show proportions of females in the different sectors for 1992 and 1998.

Table 7: Unemployment rates and the proportion of women by industry, 1992 and 1998 (per cent)

Industry	1992		1998	
	Unemploy-ment rate	Proportion of women	Unemploy-ment rate	Proportion of women
Agriculture and forestry	11.1	29.1	7.5	22.7
Mining	8.6	12.8	9.9	16.7
Food, food-processing	10.9	43.4	10.3	37.5
Textile, cloth, leather	11.0	75.3	6.8	78.5
Wood processing, paper and printing	9.6	40.8	7.7	35.0
Chemical	7.8	41.0	4.0	40.4
Construction materials	17.8	39.2	9.6	33.5
Iron and steel processing	14.9	28.9	7.5	16.8
Machinery	13.6	30.3	6.6	30.0
Other manufacturing	10.5	36.5	9.5	26.4
Electricity, gas, water supply	6.4	28.2	4.6	24.3
Construction	18.5	14.6	10.6	7.8
Wholesale and retail trade	8.5	57.8	6.9	53.0
Hotels and restaurants	12.9	57.2	8.6	52.1
Transport, telecommunication	5.8	29.1	4.2	28.2
Financial services	2.2	76.1	4.4	67.1
Public administration	5.4	42.4	6.4	48.5
Education	2.4	75.6	2.4	76.2
Health care	4.3	75.3	4.0	75.9
Other services	8.2	49.2	5.6	46.5
Total	9.2	45.6	6.4	44.5

Note: Persons below pension age.
Source: CSO LFS.

We observe significant differences between the sectors regarding both unemployment rates and the proportion of females in each. We can see indeed that the proportion of females is high in several industries where unemployment rates are low – such as education, healthcare, and financial services –, and that males dominate several sectors where unemployment is higher than average – such as mining, construction, other manufacturing industries, and in 1992, the machinery industry.

To quantify industry/sectoral effects, we decomposed the difference between the unemployment rates of the two genders into two parts using standardisation. One was the difference in industry-unemployment rates by gender, and the other was the differing distribution of males and females by sector.[19] During the calculations we used data on people who were employed, and people who had lost their jobs within two years prior to the survey.

Table 8, which contains the results of the decomposition, shows that the lower unemployment rates among females really are because they tend to work more in industries with lower risks of unemployment. The majority (59–68 per cent) of the gender-based difference in unemployment rates between 1992 and 1996 was the result of this factor and only a minority was because of a gender-specific difference in unemployment rates. By the end of this period, the differences due to the different gender composition became insignificant, but they still accounted for one-third of the total difference in 1997, and nearly one-fourth in 1998.

Table 8: Decomposition of gender differences in
unemployment rates (per cent)

	1992	1993	1994	1995	1996	1997	1998
Male unemployment rate	9.7	11.0	8.7	7.4	6.8	5.6	5.0
Female unemployment rate	7.1	7.4	6.2	5.3	5.1	4.0	3.6
Differences in rates (percentage point)	2.7	3.6	2.5	2.1	1.7	1.5	1.4
Effects							
Differences due to male-female differences in industry unemployment rates	1.1	1.4	0.8	0.8	0.7	1.0	1.0
Differences due to male-female differences in industry composition	1.6	2.2	1.7	1.2	1.0	0.5	0.3
Proportion of industry composition effect	59	62	68	59	59	33	24

Source: CSO LFS.

2.4 Summary

Following the political regime change, in the first years of economic transformation and the accompanying recession in Hungary, about one quarter of jobs were lost, and mass unemployment emerged. The decline in employment continued until 1997, and only began to rise somewhat af-

19 Sectoral ratios were calculated on the basis of the overall distribution of the labour force, that is the combined figures for employed and unemployed.

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ter that time. Unemployment was highest in 1993 and went down steadily throughout the second half of the decade. Currently it is relatively low, compared to other countries of Europe.

In the 1980s, female labour force participation in Hungary – as elsewhere in Eastern Europe – was higher than in Western Europe. In the 1990s, however, the labour force participation rates of Hungarian females dropped significantly, while it grew in the West. By 1997, female labour force participation in Hungary was lower than in most Western European countries. At the beginning of the economic transition, male labour force participation was not significantly different from most Western European countries. In the 1990s, however, male labour force participation in Hungary dropped to a far greater extent than in Western Europe. As a result, by the end of the decade the male labour force participation rate qualified as low by international comparison.

From 1992 to 1997, the sharpest decline in labour force participation for both males and females was in the 20–24 age group, but it also dropped significantly among teens. Among older groups, female labour force participation declined most significantly in the young adult (25–29) and the middle-aged (30–39) cohorts. For males the drop was sharpest among the older groups (40–54 and 55–59). Above retirement age, male labour force participation dropped far more significantly than female. Since, on the whole, female labour force participation dropped to a greater extent than male during the period of economic transition, the gender-based labour force participation gap increased.

The expansion of education played a dominant role in the decline in labour force participation among the younger age groups in the 1990s. Altered labour market conditions urge increasing proportions of young people to get secondary and higher education, to improve later employment prospectives and wages.

Expanding education has also affected the labour force participation of the entire population of economically active age. A good one-fourth of the drop in the overall labour force participation rate among those of economically active age in 1992–1998, male and female alike, was related to growing school attendance.

A minor contributor to widening the gap between male and female labour force participation was that the proportion of economically active aged females attending full-time schools increased more significantly than the similar proportion of males. But it is likely that behind this phenomenon there is a more significant supply-side factor: with declining real wages, it became less worthwhile for females to take jobs for pay. Female wages are significantly below male wages – although the difference did decline

through the 1990s –, while their work in the household is qualified as more valuable than that of males.

As education levels rise, labour force participation rates for both males and females increase significantly. The relative difference in the probability of labour force participation between persons completing and not completing primary school grew in the 1990s, and the gap was larger for females than for males. Various types of secondary education also had different influences on male and female labour force participation rates. Among males, graduation from general high school had only a slight influence on increasing the probability of belonging to the labour force, while graduation from a vocational high school or a vocational school had a stronger influence. Among females, graduation from a general high school increased the probability of labour force participation to a greater extent than among males, but to less of an extent than did vocational secondary education. People with university or college degrees are about 40–50 per cent more likely to be looking for jobs than people with primary school education, when all other characteristics are identical. In this respect there is no noticeable difference between males and females.

Having children is a factor that significantly influences female labour force participation. Among males, the presence of children slightly increases the probability that they will be working, essentially independently of the age of the children. However, the labour force participation of females with pre-school or young school children (6–10 year olds) is significantly lower than that of females with other identical characteristics who are childless or have older children. The younger is the child, the stronger is the labour force participation-reduction effect. Childless singles – male and female alike – are less likely to be in the labour force than married people or people with a live-in partner. At the same time, single females with children are more ready to work than females with the same number of children of the same age who have live-in partners.

The decline in female employment in the 1990s was also greater among females than males, similarly to the drop in labour force participation rates. In early 1998, the employment rate for males of economically active age was 18.5 per cent lower than in early 1990, while for females it was 21.8 per cent lower. From 1992 to 1995, there was a far greater drop in part-time employment than in overall employment. The number of males working part-time was down by nearly two-thirds, while for females it dropped by one-half, while overall employment among males of economically active age declined by only 6.6 per cent and among females by 10.8 per cent. Following 1995, the number of people employed part-time began to increase, but in 1998 still less than half of the males and fewer than two-thirds of the females who had been working part-time in 1992 were employed part-

time. The proportion of part-time employment in Hungary is very low by international comparison. In the European Union, the proportion of females working part-time in the 1990s was 27–28 per cent, while in Hungary it was only 4–6 per cent.

In the vast majority of the developed countries, female unemployment is higher than male unemployment. In Hungary, by contrast, the female unemployment rate – the proportion of unemployed in the total labour force – has been lower than male unemployment ever since mass unemployment emerged. Our investigations have demonstrated that the lower unemployment rate of Hungarian females is not because of more favourable characteristics than males in factors that influence the probability of employment – such as education. In other words, females are less likely to be unemployed than males with identical characteristics. At the same time, we found that one reason behind the lower unemployment rates for females is that a larger proportion of females than males work in industries where the risk of unemployment is relatively low, and therefore females have a lower probability of losing their jobs than males. But, it is also true that if a female loses a job, she will have a harder time finding a new one. Despite the lower probability of finding a job, long-term unemployment among females is not higher than it is among males. The reason is that females have a higher probability of leaving the unemployment-pool by ceasing to look for a job, or in other words, by quitting the labour force.

3. THE LABOUR SUPPLY AS WORKING TIME

3.1 Labour supply estimates – paid/unpaid work and income

Péter Galasi

One possible course in investigating supply is to study the relationship between the time an individual intends to work and her/his wage and non-wage income. The simplest model with which this is done, the simple static single-period labour supply model, maximises the utility of the individual derived from consumption and leisure. S/he allocates her/his disposable time between leisure and working time to attain the highest possible utility, given her/his wage and non-wage income. Formally: our individual wants to maximise her/his utility (U) from consumption (X) and leisure (L), while satisfying both her/his budget and time constraints. Formally:

(1) $$\max U = U(X, L), \ U_X > 0 \text{ and } U_L > 0,$$

(2) $$T = H + L \text{ (time constraint),}$$

(3) $$X = WH + Y \text{ (budget constraint),}$$

where U_X and $U_{l)}$ are the marginal utility of consumption and leisure, T is the consumer's disposable time (hours), H is the amount of time s/he intends to work, W is the individual's wage, and Y is non-wage income. The individual's labour supply function, derived from the model, is:

(4) $$H = H(W,\,Y).$$

Even without going into proofs, we can see that the rise in wage can increase or decrease the labour supply, while a rising non-wage income will definitely reduce it. The empirical problem is therefore writing (4) in such a form that can be estimated, and then estimating it with some statistical method.

The estimation is not simple for various reasons. We shall mention only two of them here. First of all: we can only observe the number of working hours people intend to work (supply) among those who are in fact working, while we have no reason to assume that the labour supply of non-working people is zero. Secondly: the same is true for the wages (wage offers) of individuals who are not working. Since they are not working, their observed wages are zero, but if they were to take a job they would certainly get a wage offer higher than zero.

These complications regarding the estimation can be handled in several ways. One of these is the following – three-equation – process.

1. $P(\text{participation})_i \xleftarrow{Probit} (Z_i),\ (i = 1,\,2,\,\ldots\ldots,n).$

The dependent variable is: is the person working for pay? The right hand-side variables generally include age, education level, and a variable indicating the state of the local job market. The sample includes those 16–65 year old people who are not full-time students.

2. $\log W_i \xleftarrow{OLS\ (White)} (\lambda_{it},\,K_i),\ (i = 1,\,2,\,\ldots\ldots,n).$

The dependent variable is: the natural log of the net hourly wage. The right hand-side variables: λ is the variable that corrects for selection bias (calculated from Equation 1.), and K is a matrix of variables containing individual characteristics. The sample: all individuals working for pay. The estimation method: OLS with White's heteroscedasticity consistent variance-covariance estimates.

3. $\log W_i \xleftarrow{OLS\ (White)} (\lambda_{it},\,\hat{W}_i,\,Y_i,\,X_i),\ (i = 1,\,2,\,\ldots\ldots,n).$

The dependent variable: the natural log of the working time. The right hand-side variables: λ is the variable that corrects for selection bias (calculated from Equation 1.), $\hat{W}$ is net hourly wage corrected to account for the selection bias (calculated from Equation 2.), Y is non-wage income, and X is a matrix of the other explanatory variables. The sample: all individuals

working for pay. The estimation method: OLS with White's heteroscedasticity consistent variance-covariance estimates.

Equation 3. is a standard static labour supply estimation. It is based on the assumption that the sample correctly describes the behaviour of the typical/average Hungarian worker. It produces significant parameter estimates or a relatively good fit if we can filter out the heterogeneity of the individuals. In many cases, however, we can not do this, which leads to very poor fit and many insignificant parameter estimates, as a result of the significant unobserved heterogeneity.

The estimations are generally more successful if we slightly modify the basic model and take into account that besides working for pay, individuals can do unpaid work as well. A possible extension is the following. The individual can allocate her/his time among four types of activities: paid work (H_f), household work (H_h), small-scale farm work (H_k), and leisure (L). In that case, the individual will have the following labour supply functions:

$$(5) \qquad H_f = H_f(W, Y)$$
$$H_i = H_i(W, Y) \ (i = h, k)$$

While in the simplest versions of the model the task is to estimate a single labour supply equation [see (4)], here we will have three equations (the equations for time spent at paid work, at household work, and at small scale farming). More generally: we need to estimate the same number of supply equations as the number of the working activities we distinguish between. In the equation for the labour supply for pay, the sign for wage and non-work income is the same as in (4) (a rise in the wage can reduce or increase supply, while the a in the non-wage income will reduce supply). In the household work and farm-work equations the sign of wage is negative according to the theoretical model (if wages increase, then the household work and farm-work supply will decline), because the individual will be tempted to spend less time on unpaid work if the remuneration for paid work increases. An increase in the non-wage income can reduce the supply of household and farm-work or leave it unaffected. The latter occurs when the possibility to increase consumption as a result of the increase in the non-wage income does not force the individual to reduce the time spent on all three types of working activities.

We estimated the (5) labour supply functions in (5) using data from the first three waves (1992, 1993, and 1994) of the TÁRKI's (a Hungarian Social Research Institute) household panel, using the three-equation method described above. The coefficient of the wage in the labour supply equation for paid work was insignificant. In other words, a rise in wages (net hourly earnings) neither reduced nor increased the individual's labour supply for paid work. The estimated parameters of the non-wage income were sig-

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nificantly negative in two of the three equations. That is – in line with the model predictions –, a rise in the non-wage income reduced the amount of time an individual chose to spend at paid work. In the 1992 equation on household work, a one per cent increase in wages reduced this type of labour supply by about 0.03 per cent, which corresponds to the relationship described by the theoretical model. For the other two years, our parameter estimates were insignificant. In all three years, the coefficient for non-wage income was significant. A one per cent increase of it reduced the time spent at household work by 0.02–0.03 per cent, which again coincided with the implications of the theoretical model. In the equation on the labour supply for farm-work, we obtained significantly negative parameter estimates on the wage for only one time period. However, the effects of non-wage income on farm-work were significantly positive for two time periods, which contradicts our theoretical model.

The empirical performance of the model, when extended to also consider unpaid work, was not bad, but the effects of the various types of incomes on the labour supply were weak, and in some cases even the direction of the labour supply adjustment is not in line with the predictions of the theoretical model.

We can further extend our model if we take into account that individuals can do more than one type of paid work for different wages, and that taking a job is costly. Let us assume again that individuals do two types of unpaid work (household and farm work), but also that they can have three types of paid work (full-time job during normal working hours and overtime, and additional part-time/supplementary job), and that employees have a time-cost (the time spent commuting to the job). In this case (5) is altered as follows:

(6)
$$H_j = H_j(W_f, W_t, W_m, Y, H_u) \quad (j = f, t, m)$$
$$H_i = H_i(W_f, W_t, W_m, Y, H_u) \quad (i = h, k),$$

where the lower indices of $f, t,$ and m are the three types of paid work (full-time job during regular working hours, overtime for the full-time employer, and part-time job), and H_u is commuting time. In this case we have five labour supply equations to estimate instead of three in the previous model, and each of them contains three hourly wage variables plus the time input variable for commuting. The theoretical effect of hourly wages and non-wage income on the supply of various paid and non-paid work types is the same as in (5), while the rise in the time-cost can either reduce or increase the supply of any activity.

We estimated the labour supply equations in (6) for the first wave (1992) of the TÁRKI Household Panel with the same three-equation procedure that was also used during the previous estimation. The estimated param-

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eter of the non-wage income variable was insignificant in all labour supply equations. As for the time-costs of commuting to work (H_u), its estimated coefficient was negative and significant (except for part-time and supplementary work, and farm work), meaning that an increase in commuting time reduces the supply of both full-time labour during regular hours and of household labour. The effect of hourly wages on the labour supply (in cases where the estimated coefficients were significant) was also clear: a rise of the wages always reduced the labour supply. Looking at full-time jobs during regular working hours, a rise in the hourly wages of the other two types of paid activities reduces the labour supply for full-time jobs. None of the hourly wage variables were significant in the overtime at full-time job or in the part-time and supplementary job equations. According to the estimates, a rise in the hourly wages for full-time job during regular working hours and for part-time job reduced the supply of household labour. This is also true for farm work, where we received a significantly negative coefficient for the wage for full-time job during regular working hours.

3.2 The value of paid and unpaid work

Péter Galasi – Gyula Nagy

In addition to their paid work individuals typically do a great deal of unpaid work that creates various goods and services. However, when investigating the goods and services created by a nation, we often ignore the unpaid work. As a consequence, we not only underestimate the total value of the goods produced, but we also tend to underestimate the productive activity of certain groups of people and overestimate that of others – since the two types of work are not divided evenly or randomly among the various groups of people. Data from the TÁRKI 2000 Monitor Survey allows us to estimate the value of paid and unpaid work and investigate the value of the productive activity of various population groups. First we describe the theoretical model that served as a basis for our estimations, and then we will present the estimates themselves.

The method of estimation

Our approach is based on the micro-level observations, and relies on the labour supply model designed by *Becker* (1965) and extended by *Gronau* (1977). In the model individuals maximise their utility as a function of consumption and leisure. The goods consumed can be obtained in two different ways. Either the person does paid work for a given hourly wage, or produces goods and services through unpaid household work. The individual compares the value of the two activities, expressed in consumption opportunities, and divides her/his time between paid and unpaid work ac-

cordingly. S/he spends as much time at unpaid work so that the consumption opportunity created by one hour of unpaid work should exceed the value of consumption opportunity created by one hour of paid work (with working time measured in hours). Therefore, if the person does a given number of hours of unpaid work, then – in the spirit of the model – every single hour of this time is worth at least as much in consumption opportunities as an hour of paid work. The value of one unit of paid work is equal to the hourly wage for that work, since that is the amount of consumption opportunity the individual may obtain with one hour of paid work. Thus, the total value of paid work is the product of the time spent at paid work and the hourly wage, while the product of the time spent at unpaid work and the hourly wage represents the minimal value of unpaid work. If we assume that the value of one hour of unpaid work is exactly the hourly wage, we can defend this assumption by arguing that spending one hour at unpaid work, the individual loses the equivalent income from paid work during that same hour, for which s/he would have been paid had s/he spent it at paid work. In this sense, the hourly wage is the opportunity cost of unpaid work, or the cost of forgone income that was not earned.

Therefore, when calculating the total value of the work, we have to determine the value of one hour of work, and the numbers of hours spent at paid and unpaid work. But determining the value of one hour of work is not quite obvious. Theoretically, it is equal to the hourly wage an individual can earn if s/he chooses to exchange her/his time spent at leisure or unpaid work for paid work. This – in the context of labour economics – is the individual's wage offer, the wage that some employer is willing to pay for one hour of paid work. But, wage offers cannot be observed, or only in a biased way. We do not know what kind of wage offers have those people who do not undertake paid work. Their observed hourly earnings are zero, though it is unlikely that none of the employers would be willing to pay them anything for their work. While we know the actual hourly wages of those people who work for pay, in most cases these do not describe well all the wage offers. It may well be the case that when we are unable to observe a specific wage offer, the reason of this is that it is so low that potential employees do not accept it, so it will in fact never be observed. If that is indeed the case, then we are overestimating the wage offers if we take into account only the actual hourly wages of those people who work for pay.

We can handle this problem if we follow *Heckman's* (1979) procedure to filter out the selection bias that stem from observing only the actual wage offers, and calculate a corrected hourly wage from the observed hourly wages. Moreover, we can also render wage offers to those individuals who are currently not working for pay.

We used the income and working time data of the Monitor Survey to calculate the net hourly earnings of those respondents who worked for pay, and then we estimated the corrected hourly wages of them. Heckman proved that the extent to which observed net earnings are overestimated is related to their probability of being observed. If, therefore, we know the probability that an individual will work for pay, we can estimate her/his corrected hourly wage from the actual wage. Technically, this means that first we use a probit model to estimate the probability that the individuals will be working for pay, and then, based on these probabilities, we calculate the value of the correction variable.[20] We then estimate a wage equation where we include this correction variable as an explanatory variable. The result is a corrected wage, which can be calculated not only for those people who are actually working for pay, but also for those who are not working for pay at the time of the observation. For this, we have to assume that the wage offers of non-working individuals with given explanatory variables and correction variable are the same as the wage offers of those individuals who are currently working for pay with similar explanatory variables and correction variable. With this process we therefore receive 1.) the corrected wages for people working for pay, and also for people who are not, and 2.) the minimum value of a unit of unpaid work (one hour of unpaid work), measured in hourly earnings.[21] The product of the corrected hourly wages and paid and unpaid working time gives us the total value of the paid and unpaid work.[22]

The results about the corrected hourly wages are in line with our expectations. We obtained a significantly negative parameter estimate for the coefficient of the correction variable in the wage equation. The significance of this coefficient suggests that the selection bias described above is indeed significant, and the negative sign shows that without the wage correction, we would have overestimated the value of one hour of work. We can see from *Table 9*[23] that the corrected wage leads to an hourly wage that is about 30 per cent lower than the one observed wages of those people currently working for pay. Similarly to our earlier results (*Galasi,* 2000), the correction results a much higher decline in the wages of males, and less of a decline for females. For the former, the corrected wage decreased by 32 per cent, while for the latter it was only 26 per cent lower. Therefore, the earnings advantage of males measured in corrected wages is lower (11 per cent) than their observed hourly wage advantage (21 per cent).

It is clear from *Table 9* that there is a significant difference between the corrected hourly wages of people who are actually working for pay and the overall average of the corrected hourly wages which includes the wages of those people doing unpaid work. The latter is about 17 per cent lower than the former. This shows that individuals currently not working for pay can

20 The value of the correction variable (*m*) for the *j*-th observation is:

$$mj = \frac{\phi(Z_j\beta)}{\Phi(Z_j\beta)}$$

where Z is the matrix of the explanatory variables in the model, β is the vector of the estimated parameters, Φ is the cumulative distribution function of a standard normally distributed random variable, while ϕ is the density function of a standard normally distributed random variable.

21 See *Galasi–Nagy* (2001) for details on the estimation process.

22 We need to point out that this process differs on a number of points from the process used by *Sik–Szép* (2000) in their recently published study. When calculating the opportunity costs of unpaid work, the authors only took into account the incomes from full-time jobs and did not use the wage corrections. In addition, they only calculated the value of unpaid work for those households in which the individuals worked for pay as well.

23 The calculations are for the population aged 19–70. A significant proportion of young people under the age of 19 is still at school, and they also do a very tiny amount of unpaid work. Among people over 70, for all practical purposes we did not find any individual working for pay, and it is very unlikely that people in this age group would want to return to the labour market.

expect a lower wage offer on average than those people currently working for pay, should they want to take a job as well. This confirms our assumption that the unobserved wage offers tend to be lower.

Table 9: Net (after tax) wage rates

	Men	Women	Wage rate ratio[c]	Together
Observed wage rate of workers (HUF)	405	334	121	370
Corrected wage rate of workers (HUF)	274	248	111	261
N[a] 733	697		1,430	
Average corrected wage rate (HUF)[b]	233	203	115	217
N[b] 1,510	1,701		3,212	

[a] Those doing paid work.
[b] Those doing and not doing paid work together.
[c] (male wage rate/female wage rate)×100.

Results

We investigated the average values of the corrected hourly wages of paid and unpaid working time, and of the values of paid and unpaid work by different age groups, education levels, and settlement types. Since the labour market positions and household characteristics of males and females differ, we have conducted separate calculations for the two genders.

Persons working for pay spend on average slightly more than 160 hours a month at this type of work. Males on average work 15 per cent more than females, and about 5 per cent more males than females do work for pay. Slightly less than half of the amount of time spent at paid work is used for unpaid work. The average working time for males here is significantly less than for females. On average, it is less than 40 per cent of the unpaid working time by females. In addition, more females than males do unpaid work (males make up only 89 per cent of the number of females) *(Table 10)*. In other words, a somewhat higher number of males work for pay for a slightly longer time period, while significantly more females than males do unpaid work for significantly longer time.

Table 10: Paid and unpaid working time

	Men	Women	Working time ratio[a]	Together
Paid work				
Monthly hours of work	178	155	115	167
N	732	697		1,430
Unpaid work				
Monthly hours of work	43	115	38	81
N	1,510	1,701		3,212

[a] (male working time/female working time)×100.

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We can see in *Table 11* that the monthly average value of paid work for the individuals in the sample was about HUF 43,000, which is more than two and a half times higher than the monthly average value of unpaid work. The time spent at unpaid work – as we have seen – is about half of the time spent at paid work. However, the difference between the two average values is significantly larger than this because the corrected hourly wages of people doing unpaid work is relatively low. In paid work, males produce nearly five and a half times the value they produce in unpaid work, and females produce over one and a half times more. The value of paid male work is higher than that of female work – this result is a direct consequence of longer working hours and higher hourly wages –, while the value of their unpaid work is significantly lower, being only 41 per cent of the similar average value for females.

Table 11: The value of paid and unpaid work (HUF)

	Men	Women	Male-female ratio[b]	Together
Value of paid work	48,365	38,079	127	43,260
Value of unpaid work	8,973	21,805	41	15,771
Paid to unpaid value ratio[a]	539	175		274

[a] (value of paid work/value of unpaid work)×100.
[b] (male value/female value)×100.

We can get a good image of the life-time trends of the time spent at work, hourly wages, and value produced at work by looking at the different age groups. *Table 12* contains this data.

For both genders, corrected hourly earnings show a similar trend. First they rise with the increase in age, then they drop, but their final values are still higher than the initial ones. In all age groups, hourly wages for males are higher than for females *(Figure 10)*. Paid working time is also higher for males in all groups except the 20–24 year olds, where both genders spend on average the same amount of time per month at paid work. Differences in life-time profiles reflected well the different roles of the two genders in the division of household work. Male values increase at ages 20–24 and 25–29, then slowly begin to decline, dropping rapidly towards the end. Among females, paid working time is lowest at the age of 25–29 – clearly because of having children –, then it increases, and only begins to decline, similarly to males, in the oldest age group *(Figure 11)*. Among males, the duration of unpaid work increases throughout their entire life-time – though it fluctuates and the rise is relatively slow – while for females it increases rapidly at the age of 25–29, and then continues to rise slowly. The biggest difference is in the values of the 25–29 age group – similarly to paid work and for similar reasons, but in the opposite direction *(Figure 12)*.

Table 12: Working time and value by gender and age group

	Corrected wage rate (HUF)	Hours of paid work[a]	Hours of un-paid work[a]	Value of paid work (HUF)[b]	Value of un-paid work (HUF)[b]
Women					
–20	108	165	34	19,394	3,629
20–24	180	170	63	36,460	10,411
25–29	228	135	113	32,790	23,736
30–34	237	149	122	37,929	26,853
35–49	240	163	119	42,423	26,553
50–59	189	157	126	36,249	21,552
60+	149	114	131	31,597	18,480
Total	203	155	115	38,079	21,805
Men					
–20	131	187	18	31,634	2,557
20–24	198	168	29	34,064	5,412
25–29	238	187	21	48,496	5,039
30–34	264	182	33	51,715	7,892
35–49	263	181	49	52,052	11,785
50–59	222	170	45	46,588	8,810
60+	195	138	75	33,531	12,730
Total	233	178	43	48,365	8,973

[a] Monthly hours of work.
[b] Monthly value.

Figure 10: Corrected wage rates by gender and age group
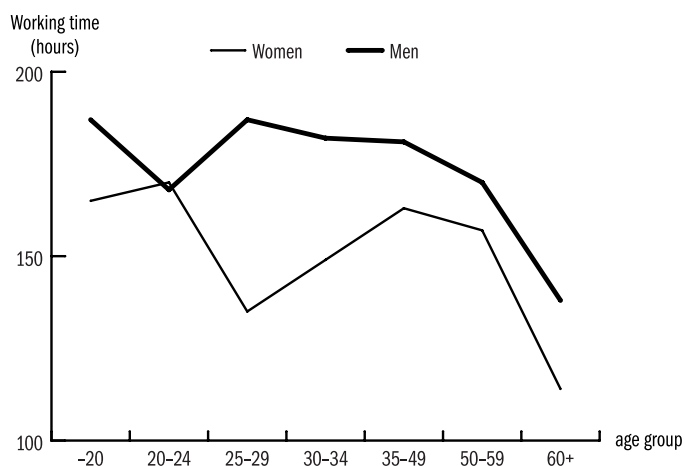
The value of paid work among males essentially follows the same course as the net hourly earnings. With the increase in age it first rises at a declining rate, and then declines at an accelerating rate. Among females, however, it is more similar to the life-time pattern of paid work. Here, we also see a decline at the age of 25–29. We also need to note that at the age of 20–24,

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and also in the oldest age group the values of the two genders are essentially identical. Between these two age groups, male values are higher *(Figure 13)*. As far as the values of unpaid work are concerned, here the roles of the two genders are exchanged. The female life-time pattern is very similar to the males' paid work life-time pattern. However, we observed there slowly increasing values for the males, though with fluctuations. We can also observe here that there is no significant difference between the two genders in the youngest age group, and that among older groups (over the age of 35) the advantage of females decline *(Figure 14)*.

Figure 11: Average monthly paid working time by gender and age group
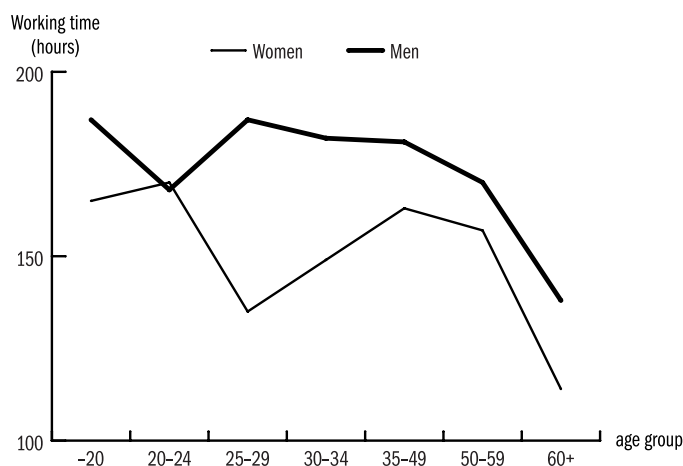
Figure 12: Average monthly unpaid working time by gender and age group
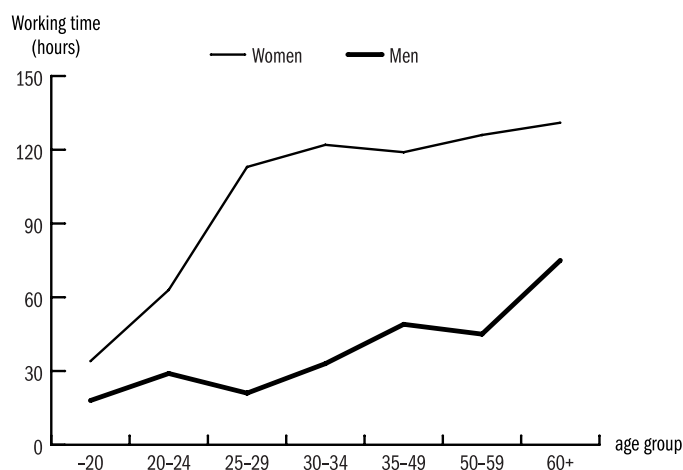
Figure 13: Average monthly value of paid work by gender and age group
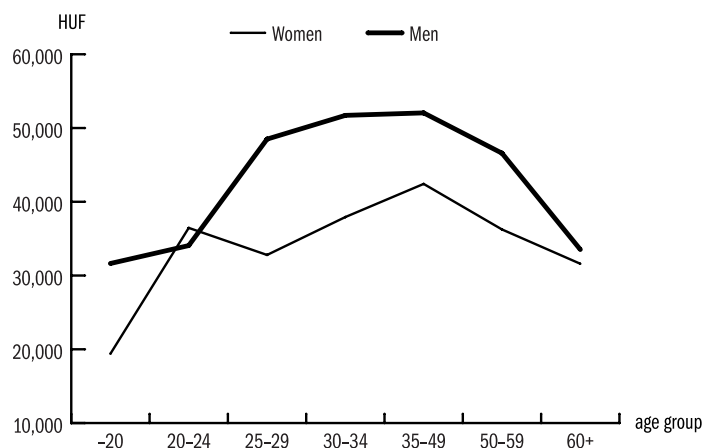
Figure 14: Average monthly value of unpaid work by gender and age group
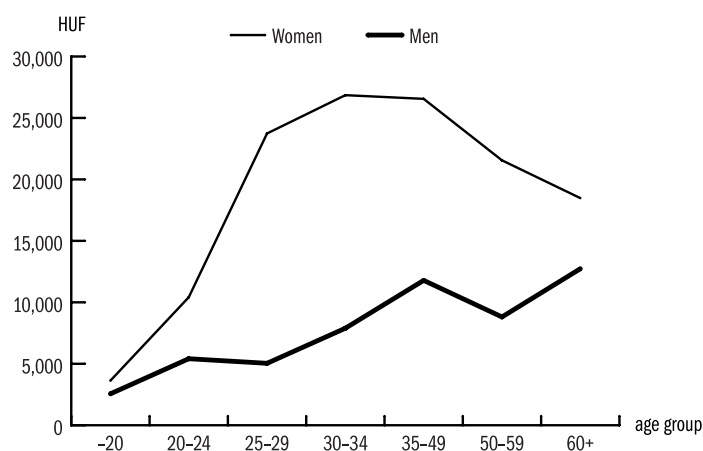
If education level reflects more or less accurately the of differences in human capital, then higher education should be associated with higher hourly wages. We can observe this in *Table 13*, where we also can see that graduation from the secondary vocational high school is worth more than graduation from a general secondary high school. At the same time, except for the group with the lowest education level where male wages are only 5 per cent higher than female ones, males have been earning 12–17 per cent more than females with the same education level. Moreover, the number of paid working hours is relatively independent from education level. It does not show significant differences for the two genders either. Therefore, with the exception of the group with fewer than eight years of primary school edu-

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cation, the male/female working time ratio is more or less constant, and males work more for pay in every single education group. There is no typical pattern regarding unpaid working time either. As the education level rises, the number of hours of unpaid work declines for both genders, though for females the fluctuation is higher. It is not surprising that among the groups with higher education, the value of paid work for both genders is higher, the differences between the two genders are more or less constant, and finally, male values are higher for every education level. The value of unpaid work increases for both genders with the education level in the three lowest education groups, and then drops for people having secondary education. We observe the highest values for people with college or university degree. Fluctuation is stronger among females and female values were higher for all education levels – similarly to our earlier findings.

Table 13: Working time and work value by gender and schooling

	Corrected wage rate (HUF)	Hours of paid work[a]	Hours of un-paid work[a]	Value of paid work (HUF)[b]	Value of unpaid work (HUF)[b]
Women					
Less than primary	80	111	137	9,812	10,746
Primary	131	154	137	23,845	17,724
Vocational	202	158	129	33,685	25,924
General secondary school	219	155	90	37,091	19,582
Vocational secondary school	238	164	100	41,708	23,764
Higher education	349	145	87	51,918	29,820
Total	203	155	115	38,079	21,805
Men					
Less than primary	84	184	81	21,960	6,983
Primary	150	179	57	30,470	8,298
Vocational	228	178	42	43,606	9,364
General secondary school	256	180	31	50,044	8,138
Vocational secondary school	269	177	33	49,095	8,492
Higher education	391	180	29	72,115	10,899
Total	233	178	43	48,365	8,973

[a] Monthly hours.
[b] Monthly value.

Table 14 shows the distribution of working time and the value of work by type of settlement. Net hourly wages show similar trends for both genders. They are lowest in villages, higher in towns, still higher in county seats, and highest in Budapest *(Figure 15)*. Both females and males spend a longer time at paid work in Budapest and the county seats than in other towns and villages *(Figure 16)*. If we investigate the time spent at unpaid work, the order is reversed. Individuals spend the most time at unpaid work in the villages and the least in Budapest. In all settlement categories, females

spend significantly more time at unpaid work than males *(Figure 17)*. The value of paid work shows exactly the same trend as that of hourly wages. Moving from the highest towards the lowest, the order is: Budapest, county seats, other towns, and villages. In addition, in all settlement types the values for males are higher than for females *(Figure 18)*. Among males, the value of unpaid work is essentially the same in Budapest and the county seats, which is also true for smaller towns and villages. But, the values for town and village residents are higher. Among females, there are no significant differences in the values for Budapest, other towns, and villages, but the values for residents of county seats are somewhat lower. In all settlement categories, the value of female unpaid work is at least the double of that of male unpaid work *(Figure 19)*.

Table 14: Working time and value by gender and type of settlement

	Corrected wage rate (HUF)	Hours of paid work[a]	Hours of un-paid work[a]	Value of paid work (HUF)[b]	Value of unpaid work (HUF)[b]
Women					
Village	163	154	146	32,113	23,264
Town	190	146	121	33,582	22,002
County town	202	157	90	36,234	18,076
Budapest	287	163	83	51,117	23,170
Total	203	155	115	38,079	21,805
Men					
Village	194	175	57	40,819	10,380
Town	223	176	50	44,279	10,659
County town	233	183	30	48,633	6,463
Budapest	328	182	21	65,199	6,559
Total	233	178	43	48,365	8,973

[a] Monthly hours.
[b] Monthly value.

Figure 15: Average corrected wage rate by gender and settlement
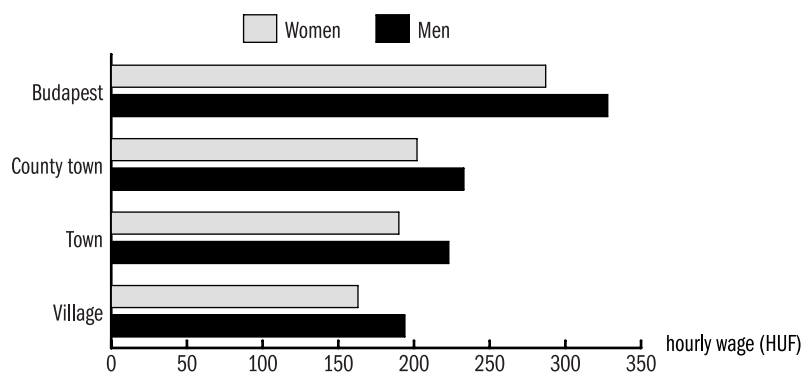
Figure 16: Monthly average working time by gender and settlement
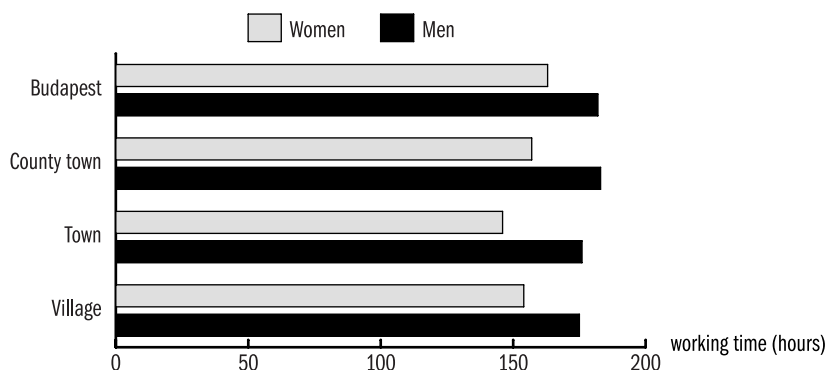
Figure 17: Monthly average unpaid hours of work by gender and settlement
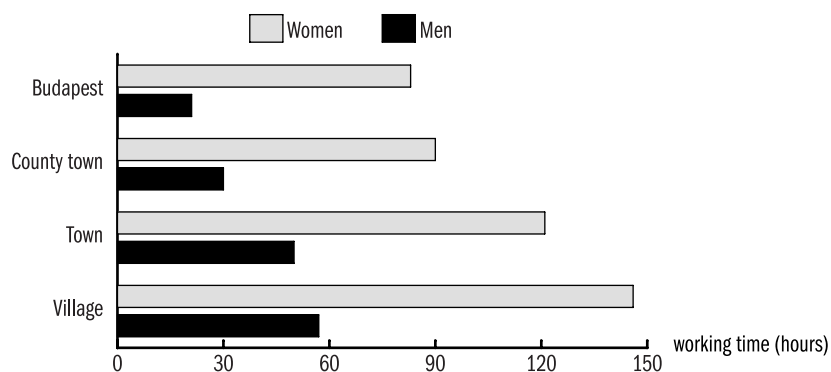
Figure 18: Monthly value of paid work by settlement
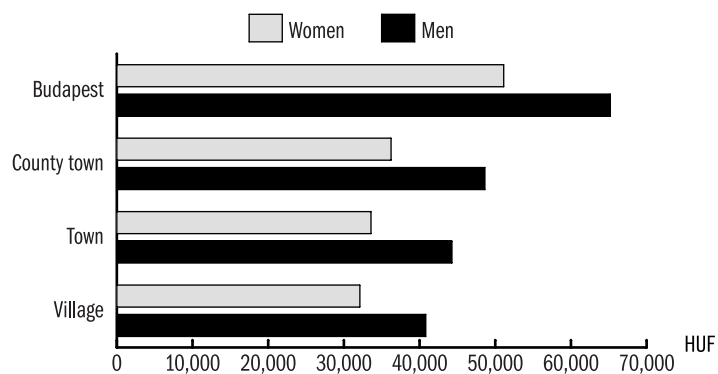
Figure 19: Monthly value of unpaid work by settlement
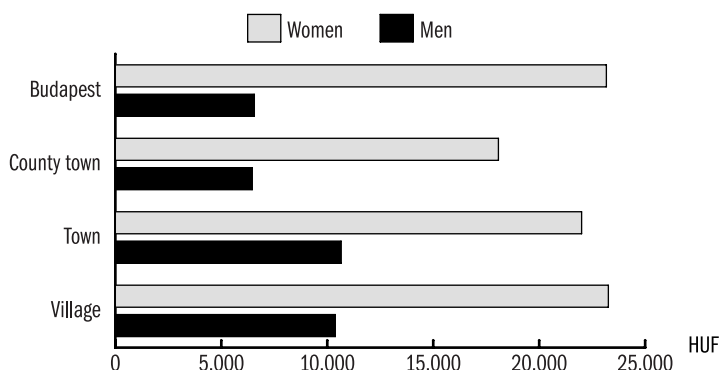
Summing up, we can conclude that – in line with our everyday experience – a somewhat higher proportion of males work for pay in a somewhat higher number of hours per month, while a significantly higher proportion of females do unpaid work for a significantly longer time. If, therefore, we ignore the goods and services produced by unpaid work, then we will underestimate the role of females in creating goods and services. The average monthly value of the males' paid working time is higher by almost a third than the corresponding average for the females, while the average time that males spend with unpaid work is only 40 per cent of the average time of the females.

The distribution of the values by age groups reflects well the different roles of males and females in the household division of labour, and also their different life-time profiles on the labour market as a consequence of these differences. One factor that influences the ratio of the paid and unpaid work is the individual's human capital, which we measured by the education level. The value of paid work was found to be higher for people with higher levels of education. In addition, we have seen that the differences between the two genders are more or less constant, and that male values were higher for every education levels. Similarly, the value of unpaid work tends to increase with the education level, and at all education levels females produce higher value than males. Finally, the value of paid work differs by settlement type. Going from the highest to the lowest values by settlement types we have the following order: Budapest, county seats, other towns, and villages. As far as unpaid work is concerned, there is no similar ranking for females, but males produce higher value in small towns and villages than in county seats and Budapest.

3.3 Estimating the effective labour supply, 1998–2000

Péter Galasi

Introduction

One possible and important application of the labour supply analysis is effective labour supply calculation. This measures the total labour supply of those people who are currently employed, and also of those potential employees who do not happen to be working at the moment but probably would take a job in case of an economic upturn, or continuing economic prosperity. Investigating this issue, important to both employment and economic policy, requires the use of sophisticated statistical estimation procedures, since there is no way of actually observing the labour supply of those people who are currently not working.

In what follows, we will estimate the labour supply of the 15–74 year old population, using data from the CSO LFS conducted in the first quarters of 1998, 1999, and 2000. The size of the available samples is satisfactory (in 1998, 65,112 persons aged 15–74 were included in the sample, while the sample size for 1999 and 2000 was 68,348 and 66,807, respectively).

We measured the labour supply in desired total weekly working time (in million hours), a figure received by multiplying the weighted number of the individuals in the sample – using weights that ensure that the sample should be representative – with the weekly supply of labour.

During the calculations, we used the measurement strategy of the classical individual labour supply models. In other words, we assumed that an individual who has worked zero hours could have had a positive labour supply, but we were unable to observe it. In addition, we assumed that the distribution of the non-zero labour supply is not necessarily the same as the distribution of the actual labour supply. That is, we assumed that there was a selection bias, which means that if we estimated the supply on the basis of actually observed working times, our estimates would have been biased. Therefore, our task was twofold: on the one hand, we had to attach a labour supply to those individuals who worked zero hours at the time of observation, and on the other hand, we had to filter out selection bias from the observed labour supply.

We used *Heckman's* (1979) procedure to get rid of the selection bias. With this procedure first we estimated the 15–74 year old population's labour force participation probability with a probit function, and then, based on the calculated probabilities, we defined a variable that corrects for the selection bias.[24] Next, we estimated labour supply equations for those who were actually working, with the inclusion of this selection correction variable. The product of the value of the selection correction variable and the

24 See footnote 20. on page 70. for definition of the value of the correction variable.

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parameter estimate for it gives us the size of the bias (as the value of the correction variable is positive, and in most cases the estimated coefficient of this is negative, without this correction we would have overestimated the labour supply).[25]

Based on this, we estimated the labour supply of those individuals who did work at the time of observation. We assumed that the labour supply of working and non-working individuals with similar characteristics was identical, and therefore we used the estimated parameters of the labour supply function of working individuals to estimate the potential working time of those who were actually not working (of course, we also corrected those for the selection bias).

The working time variable we used was usual weekly working time at a full-time job. With this, on the one hand we tried to eliminate random fluctuations in working time at a full-time job (the time spent at work for the week prior to the survey was available). On the other hand, we also tried to disregard from fluctuations in the working time spent with part-time and supplementary jobs, which jobs are less stable and are taken by relatively few individuals.

We did the estimation and the calculations separately for males and for females – because of the possible differences in the labour market behaviour of the two genders.

Another question was to which cohorts within the 15–74 year old population we should estimate the labour supply. To answer this, we set up a 29-category labour market classification, and then used it to establish a seven-category combined classification. Individuals were categorised on the basis of the intensity of their participation in the labour market. Group one – the most intensive participants in the labour market – contained people who qualified as employed according to the ILO-OECD definition, irrespectively of what other characteristics they displayed according to other labour market classifications. This group contains people who are employed, but at the same time they also receive retirement benefits, or they are full-time students, or they receive childcare aid, assistance, and fees, or they are registered as unemployed at the regional employment offices. The second group contained people who were unemployed according to the ILO-OECD definition. The definition excludes the incorporation into this group anyone from the previous group, but here we can also find people in full-time education, receiving retirement benefits, registered as unemployed, etc. Group three – the registered unemployed – included individuals who do not qualify either as employed or unemployed according to the ILO-OECD definition, but who are nevertheless registered as unemployed. The fourth group consists of those childcare assistance recipients who are neither employed nor unemployed. The fifth and sixth groups those pen-

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sioners and full-time students who are neither employed nor unemployed. Finally, group seven contains the remaining dependants. The people in this group are not employed, not unemployed, not receiving childcare assistance, not retired, and are not full-time students.

Using weights to ensure that the sample should be representative, we found about 7.7 million people in the 15–74 age group. In 1999, this number was about a half of a per cent lower than in 1998, while in 2000 it was about one per cent lower. However, we did not do the estimation for the entire population. In addition to people who are employed, there are two other groups with relatively strong connections to the labour market – the unemployed and the registered unemployed –, out of whom we assumed that a growing number would go to work if there were a long-term increase in the labour demand; we could observe in this case higher and higher proportion of their estimated labour supply. We can make a similar assumption regarding the persons receiving childcare assistance and other dependants. Regarding full-time students and retirees, we assumed that they would not look for a job even if the labour demand increased on the long run. We, therefore, regarded their effective labour supply as being zero. The argument for this is that those full-time students and retirees who showed some willingness to find jobs were already included among the employed or the unemployed. Therefore, we did our estimation for five groups (employed, unemployed, registered unemployed, persons receiving childcare assistance, and other dependants). The number of people in this estimation slightly exceeds 4.8 million. These numbers were roughly the same in both 1999 and 2000, which were in turn about 1.2 per cent lower than in 1998.

Results

We can observe that the weekly number of hours that people want to work and also the number of people who actually want to work is relatively inelastic in the short run, so we assumed that the effective total labour supply is the same for all the three years. The effect of improving labour market conditions can be captured by the changing distribution of the labour supply between the different labour market groups. In fact there was no significant change in the overall effective labour supply during the investigated period *(Table 15)*: 195.1 million hours in 1998, 193.7 million in 1999, and 195.8 million in 2000.

Table 15: Effective labour supply, 1998–2000.

	Weekly working hours			1000 persons			Total working hours (million)		
	1998	1999	2000	1998	1999	2000	1998	1999	2000
Women									
Employed	37.9	38.9	39.4	1,639.8	1,695.9	1,711.1	62.1	65.9	67.4
Unemployed	36.8	38.4	39.3	138.3	115.0	104.7	5.1	4.4	4.1
Registered unemployed	36.3	38.2	39.2	122.1	74.1	67.5	4.4	2.8	2.6
Child care leave	36.5	37.4	39.0	265.0	267.5	276.9	9.7	10.0	10.8
Other dependant	35.4	37.1	38.9	265.0	239.4	237.3	9.4	8.9	9.2
Total	37.3	38.5	39.3	2,430.2	2,391.8	2,397.4	90.7	92.0	94.2
Men									
Employed	42.3	41.7	41.6	1,978.3	2,048.7	2,066.9	83.7	85.4	86.0
Unemployed	42.1	41.2	41.3	208.4	186.6	169.3	8.8	7.7	7.0
Registered unemployed	42.0	40.8	40.7	128.9	81.1	75.2	5.4	3.3	3.1
Child care leave	42.4	41.1	41.5	4.0	3.6	4.0	0.2	0.1	0.2
Other dependant	42.1	40.4	40.5	149.7	127.8	132.1	6.3	5.2	5.3
Total	42.3	41.6	41.5	2,469.2	2,447.7	2,447.5	104.4	101.7	101.6
Together									
Employed	40.3	40.4	40.6	3,618.0	3,744.5	3,778.0	145.8	151.3	153.4
Unemployed	40.0	40.1	40.6	346.6	301.6	274.0	13.9	12.1	11.1
Registered unemployed	39.2	39.6	40.0	251.0	155.2	142.7	9.9	6.1	5.7
Child care leave	36.6	37.4	39.1	269.0	271.1	280.9	9.8	10.1	11.0
Other dependant	37.8	38.3	39.5	414.7	367.1	369.3	15.7	14.1	14.6
Total	40.4	40.0	40.4	4,899.4	4,839.5	4,844.9	195.1	193.7	195.8

The increasing demand in the labour market had no significant effect on the average number of weekly working hours either, with the average being 40.4 in 1998 and 2000, and 40.0 in 1999. Besides this, the number of persons who were considered part of the effective labour supply dropped by about 60,000 from 1998 to 1999, and did not change significantly between 1999 and 2000. The decline between 1998 and 1999 was partly due to demographic causes, since – as we have already seen – there was a decline in number of the 15–74 year old population. Another reason was that the number of full-time students, who were excluded from the labour supply estimates, increased.

In all of these years, the total labour supply of males exceeded the labour supply of females. However, the share of females did increase somewhat during the investigated period, increasing from 46.5 per cent in 1998 to 47.5 per cent in 1999, and to 48.1 per cent in 2000. The principal reason of this was that male working time was longer than female in all of the three years, but showed either a decline or stagnation, while female weekly working time increased. In 1998 the average weekly working time for males was 42.3 hours, in 1999 it was 41.6 hours, and in 2000 it was 41.5 hours. Meanwhile, female working time rose from 37.3 hours to 38.5 hours, and then to 39.3 hours. The proportion of females did not change substan-

tially, it was always somewhat lower than 50 per cent (49.4–50 per cent). In 1998, the effective labour supply consisted of 2,430,000 females and 2,469,000 males. The corresponding figures in 1999 were 2,392,000 and 2,448,000, and in 2000 they were 2,397,000 and 2,448,000. The share of female employees in the total supply of working time is lower than the average: it ranged between 42 per cent and 44 per cent.

Table 16 illustrates the time trend of the these three indicators. Relative to 1998, weekly working time rose by 0.6 per cent in 1999 and 1.5 per cent in 2000, while the number of persons making up the effective labour supply declined by 1.2 per cent and 1.1 per cent. The two factors reduced total working time by 0.7 per cent in 1999, and increased it by 0.4 per cent in 2000.

Table 16: Changes in effective labour supply (1998=100)

	Weekly working hours		1000 persons		Total working hours (million)	
	1999	2000	1999	2000	1999	2000
Employed						
Women	2.6	4.0	3.4	4.3	6.2	8.6
Men	–1.5	–1.7	3.6	4.5	2.0	2.7
Total	0.3	0.8	3.5	4.4	3.8	5.2
Unemployed						
Women	4.2	6.7	–16.8	–24.3	–13.3	–19.2
Men	–4.8	–1.9	–10.4	–18.7	–12.5	–20.3
Total	0.9	1.3	–13.0	–21.0	–12.8	–19.9
Registered unemployed						
Women	5.1	7.9	–39.3	–44.7	–36.3	–40.3
Men	–2.8	–3.0	–37.1	–41.6	–38.9	–43.4
Total	0.9	2.1	–38.2	–43.1	–37.7	–42.0
On child care leave						
Women	2.3	6.9	0.9	4.5	3.2	11.7
Men	–3.0	–2.1	–10.4	–0.2	–13.1	–2.3
Total	1.3	4.5	0.8	4.4	2.9	11.4
Other dependant						
Women	5.0	10.1	-9.7	–10.5	–5.1	–1.4
Men	–4.0	–3.9	–14.7	–11.8	–18.1	–15.2
Total	1.3	4.5	–11.5	–10.9	–10.3	–6.9
Together						
Women	3.1	5.3	–1.6	–1.3	1.5	3.9
Men	–1.7	–1.8	–0.9	–0.9	–2.6	–2.7
Total	0.6	1.5	–1.2	–1.1	–0.7	0.4

However, there were significant differences between males and females. Among females, weekly working time increased (by 3.1 per cent and 5.3 per cent), while the number of females declined somewhat (1.6 per cent and 1.3 per cent), leading to an increase in their total labour supply (1.5

per cent and 3.9 per cent). Among males, however, there was a decline in both weekly working time (1.7 per cent and 1.8 per cent) and in the numbers (0.9 per cent and 0.9 per cent), so the total labour supply also declined (2.6 per cent and 2.7 per cent).

An investigation of the changes of these three indicators within the various labour market groups uncovers significant differences. Here we might expect weekly working times to change in the same direction as the averages for the entire population, and we might also expect this if we investigate males and females separately. At the same time, the number of people belonging to the various labour market groups fluctuated quite heavily – triggered by the increasing demand in the labour market –, and therefore we have found substantial changes in the total labour supply of the different groups. Relative to 1998, the number of employed people increased substantially – by 3.5 per cent and then by 4.4 per cent –, rising at a similar rate for both males and females. The total weekly working time of employed persons also increased. Within that, female weekly working time increased more rapidly than the average, while male weekly working time declined. However, the effect of the declining male weekly working time on the overall labour supply was more than compensated for by the increase in the number of individuals, among both males and females (and consequently, overall, too), leading to an increase in the total labour supply of employed persons. From 1998 to 1999, the total labour supply of employed females rose by 6.2 per cent, and from 1998 to 2000, it increased by 8.6 per cent. The corresponding values for males were significantly lower (2.0 per cent and 2.7 per cent), leading to a total labour supply of the whole population of employed individuals that was 3.8 per cent and 5.2 per cent higher than in the base year.

With the exception of persons receiving childcare assistance, the number of persons in all other labour market groups dropped significantly, sometimes drastically, in both years for both genders. In 2000, the number of unemployed individuals was 21 per cent lower than the number measured in 1998. Within that there was a more dynamic decline among females than among males. The number of registered unemployed dropped to an even greater extent. The value in 1999 was 38.2 per cent lower than in 1998, and in 2000 it was down by 43.1 per cent. The number of females in the registered unemployed group showed an even more rapid decline relative to the males. There was a less rapid but nonetheless significant decline among other dependants, which showed an 11 per cent drop in 1999 and 2000, relative to the base year. The number of male dependants decreased somewhat more rapidly than the number of females in both of these years. As a result of these declines, the total labour supply of these groups also decreased quite rapidly. In 2000, the effective labour supply of the unem-

ployed persons declined by 20 per cent relative to 1998, while the labour supply of registered unemployed individuals declined by 42 per cent, and that of other dependants by 7 per cent.

Due to these changes, the structure of the labour supply has also altered *(Table 17)*. Since weekly working time is rather stable, the labour market group based distribution of the labour supply has more or less the same pattern if we measure it in numbers of persons or in total working time. *Figures 20–22* illustrate the distribution of the labour supply measured in total working time for females *(Figure 20)* and for males *(Figure 21),* while *Figure 22* shows the combined distribution for both genders.

Table 17: The structure of effective labour supply by gender and labour market status

	1000 persons			Working hours (million)		
	1998	1999	2000	1998	1999	2000
Women						
Employed	67.5	70.9	71.4	68.5	71.6	71.5
Unemployed	5.7	4.8	4.4	5.6	4.8	4.4
Registered unemployed	5.0	3.1	2.8	4.9	3.1	2.8
Child care leave	10.9	11.2	11.5	10.7	10.9	11.5
Other dependant	10.9	10.0	9.9	10.3	9.7	9.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
Men						
Employed	80.1	83.7	84.5	80.2	84.0	84.7
Unemployed	8.4	7.6	6.9	8.4	7.6	6.9
Registered unemployed	5.2	3.3	3.1	5.2	3.3	3.0
Child care leave	0.2	0.1	0.2	0.2	0.1	0.2
Other dependant	6.1	5.2	5.4	6.0	5.1	5.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

Figure 20: Total labour supply by labour market status, per cent, women

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Figure 21: Total labour supply by labour market status, per cent, men
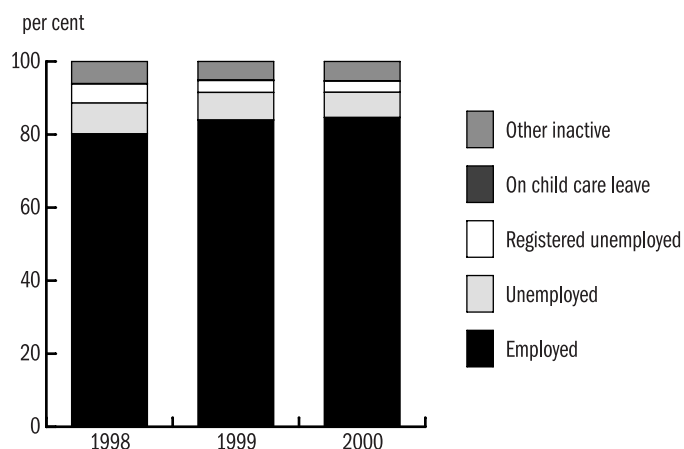
Figure 22: Total labour supply by labour market status, per cent, together
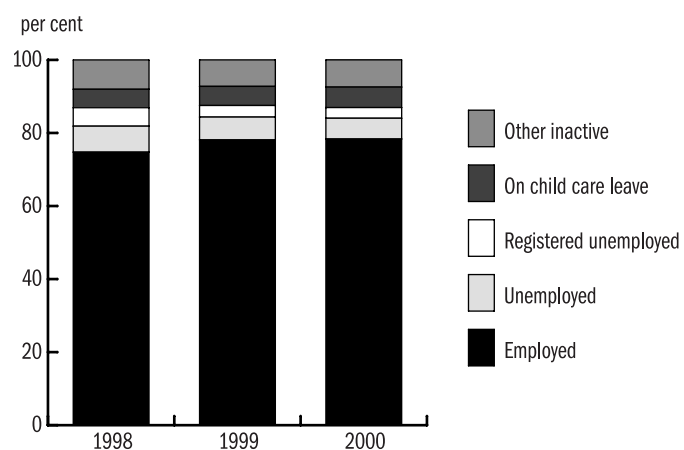
The first thing that we notice is the gender-based differences in the distributions. In each year, the labour supply of employed males is higher than that of employed females. In the unemployed group, we see exactly the opposite, while in the registered unemployed group there are no significant differences between the genders. Finally, for people receiving child-care assistance and other dependants, the total labour supply of females is larger than that of males.

Therefore, the proportion of the total labour supply of employed males and females increases with time, an increase that essentially occurred in 1999. The proportion of the labour supply of unemployed and registered unemployed persons dropped for both genders. However, the correspond-

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ing proportions of persons receiving childcare assistance and other dependants remained essentially unchanged.

We see, therefore, that the changes in the structure of the labour supply can be captured by the increase in the number of employed individuals, and by the corresponding decrease of the proportions of the two unemployed groups.

Summary

We estimated the labour supply of the 15–74 year old population using the first quarter wave of the CSO LFS for 1998, 1999, and 2000. During the calculations we used the individual labour supply models. We tried to estimate the unobserved labour supply, and also to filter out the selection bias in the actually observed labour supply data.

We measured the individual labour supply as the desired number of weekly working hours, and calculated the total labour supply as the product of the weekly working hours and the number of persons making up the effective labour supply.

We did the estimations separately for males and females, and also distinguished between five labour market groups: ILO-OECD-employed, ILO-OECD-unemployed, registered unemployed, persons receiving childcare aid, assistance or fees, and other dependants.

During the investigated period, the total effective labour supply did not change significantly: in 1998 it consisted of 195.1 million hours, in 1999 of 193.7 million, and in 2000 of 195.8 million. The weekly desired working hours were also found to be stable: 40–40.4 hours. However, the number of people who made up the effective labour supply declined by about 60,000 from 1998 to 1999, partly for demographic reasons.

There were significant differences between males and females. Among females, weekly working time increased, while the number of females slightly decreased, so the total labour supply increased. Among males both weekly working time and the number of males declined, so the total labour supply also went down.

We found significant changes in the effective labour supply of the different labour market groups. In both years the number of employed persons increased (by 3.5 per cent and then by 4.4 per cent), and the increase was of similar magnitude for both males and females. The total labour supply of this group also increased. From 1998 to 1999, the total labour supply of employed females rose by 6.2 per cent, and by 2000 it rose by 8.6 per cent. Male values were lower (2.0 per cent and 2.7 per cent), leading to an overall increase in the labour supply of employed persons of 3.8 per cent and 5.2 per cent, relative to the base year. In both of these years the numbers of all other groups declined significantly, sometimes drastically, for both

genders. In 2000, the number of unemployed was 21 per cent below its 1998 level. Within this, the decline was sharper for females than for males. The number of registered unemployed people dropped even more sharply, by 38.2 per cent in 1999 and 43.1 per cent in 2000, relative to 1998. The number of registered unemployed females dropped even more rapidly than the number of registered unemployed males. Less rapid but significant declines were observed among other dependants, where numbers declined on average by 11 per cent in 1999 and 2000 relative to the base year. In both years, the number of males dropped somewhat more rapidly than that of females. The result of the drop in numbers was that the total labour supply of these groups also dropped quite substantially. In 2000, the effective labour supply of unemployed persons was 20 per cent lower than in 1998, while the same figure for registered unemployed was down by 42 per cent, and for other dependants by 7 per cent.

As a result of the above changes, the structure of the labour supply also has altered. This was mainly the consequence of the increase of the number of the employed persons, and of a corresponding decrease in the proportion of the two unemployed groups.

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IN FOCUS
LABOUR – THE DEMAND SIDE

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1. INTRODUCTION

Gábor Kőrösi

In labour economics, investigating demand trends is as important as studying supply. However, the tools used to analyse the two sides are quite different. When looking at supply we of course analyse the characteristics and behavioural specifics of the individual job seeker, while demand is determined by the labour market behavior of entrepreneurs, firms, and government. Therefore, the information and analytical methods we need are different from the ones used when studying the factors behind supply.

It is, however, expedient to narrow the scope of the investigation. The number of persons employed in the public sector has been essentially unchanged throughout the past decade. There have been some major and minor fluctuations, but on the whole, 800,000 people have been employed in the public sector in the broad sense of the term.[1] While economic crisis has left its mark on this segment, instead of making adjustments through the level of employment, the response has been manifest almost exclusively through adjustments in the level of (real) wages.

Transitional crisis also forced the business sector to adjust significantly its wages in the early 1990s, but its most significant consequence on the labour market was a drastic reduction in business sector employment. This was the factor behind the sudden and huge drop in employment portrayed in *Figure 1* of the Foreword. The early 1990s process of cutting down on the over-employment that is so typical for socialism coincided with growing market competition made feasible by liberalisation, and with a loss of markets as COMECON collapsed, triggering a wave of bankruptcies. For that reason, we chose to begin our analysis of labour demand with 1992, when these rather chaotic labour market flows came to an end.

[1] That figure does not include employees of business operations run by central or local government bodies (such as the postal service and the railways) but for the sake of simplicity, it does include foundation schools and hospitals.

The investigation of business sector labour demand is based fundamentally on data from annual company balance sheet reports. This limits the range of conclusions that analysts can draw. For all practical purposes we only have substantive information on a certain part of businesses, the ones required to keep double entry accounting, separating inflow from outflow and employ at least five people.[2] This is rather unfortunate because the most rapidly changing segment of the labour market was the very one involving smaller businesses. Unfortunately, we have but little information concerning the labour market behavior of these enterprises, the ones employing only a few people, and since we lack the basic data necessary for substantive analyses, we are unable to investigate them here. As a result, the information we do have covers barely more than two-thirds of the nearly three million people who were employed in the business sector in 2000. It is worth using these data to compare the structure of the different economic sectors in 1992 and 2000, and to observe the sector-based distribution of employment in a period when the structure of the business sector changed significantly *(Table 1)*.

2 Over time, there have been changes in the collection of employment statistics. In the early 1990s, the system was limited to businesses employing at least 20 people, and was only expanded to include statistics on smaller businesses in the mid-1990s.

Table 1: Sectoral distribution of employment*

	1992	1993	1994	1995	1996	1997	1998	1999	2000
1000 persons									
Agriculture	186.2	213.1	185.2	169.6	164.3	157.2	154.6	144.3	130.2
Mining and energy	107.1	112.6	114.5	108.6	104.5	98.2	94.4	88.0	79.3
Manufacturing	821.0	722.0	689.2	686.6	691.8	725.9	758.0	752.3	772.6
Trade	311.1	277.0	275.6	269.3	275.9	285.6	307.4	325.9	340.5
Construction	151.2	137.5	129.7	118.0	110.9	116.3	120.1	121.9	133.2
Services	601.9	585.3	533.7	518.9	527.7	539.7	559.3	573.3	599.3
Total	2,178.5	2,047.4	1,927.9	1,871.0	1,875.1	1,923.0	1,993.8	2,005.8	2,055.1
Share (%)									
Agriculture	8.5	10.4	9.6	9.1	8.8	8.2	7.8	7.2	6.3
Mining and energy	4.9	5.5	5.9	5.8	5.6	5.1	4.7	4.4	3.9
Manufacturing	37.7	35.3	35.8	36.7	36.9	37.7	38.0	37.5	37.6
Trade	14.3	13.5	14.3	14.4	14.7	14.9	15.4	16.2	16.6
Construction	6.9	6.7	6.7	6.3	5.9	6.1	6.0	6.1	6.5
Services	27.6	28.6	27.7	27.7	28.1	28.1	28.1	28.6	29.2
Total	100	100	100	100	100	100	100	100	100

* Average employment at the enterprises covered in the labour demand analysis.

In some cases we used Wage Survey data together with the balance-sheet reports. The Wage Survey covers the above-mentionedcompanies, taking random samples to collect information on the wages, qualifications, and exact jobs of about one-tenth of labour in the firms surveyed. We used these data primarily to measure employer qualifications.

Essentially, we studied demand trends on two levels. In Section 2 we present the process of job creation and destruction by industry/sector. There

are businesses that destroy jobs and also dynamic firms that create them in practically all sectors. Aggregate employment is given by the combined result. It is easy to imagine that even though two different economies might show employment changes that are quite similar on the national level, very significant differences could exist behind the aggregate figures. For instance, there might be hardly any change within companies in one economy and therefore, no substantive change in demand for labour. In the other economy, however, the business sector may be undergoing a dynamic transformation with new firms created, old ones disappearing, dynamic development in some, and others adjusting to changing market conditions through drastic cutbacks. Despite the overall similarity of aggregate employment flows, economic policy tasks and opportunities will be highly different. Subsection 2.1 presents the most important concepts, while 2.2 contains a summary of empirical results in other countries. Subsection 2.3 then presents a balance of job creation and destruction in Hungary between 1992 and 2000.

Section 3 presents models that describe the labour demand of enterprises. Subsection 3.1 contains a brief overview of the most important models used to study demand, subsection 3.2 summarises results for some the more interesting countries, and subsection 3.3 presents the Hungarian results using homogenous dynamic models. Subsection 3.4 studies demand adjustment over time, while subsection 3.5 demonstrates the consequences of the heterogeneity of demand. Subsection 3.6 tries to links the reported labour market flows to the economic transformation.

2. JOB CREATION AND DESTRUCTION

2.1 Concept and statistical indices

Gábor Kőrösi

Employment is traditionally described by aggregate employment/unemployment/labour force participation rates, by the proportion of long-term unemployed, and by similar aggregate indices. But, these indices contain no information on the structure of the labour market on the micro level – on how hard it is for the average person to find a job. In addition, the aggregate indices could describe both flexible and rigid markets. So, many researchers have chosen to follow the method of *Davis, Haltiwanger and Schuh* (1996), and use job creation, destruction and flow (reallocation) indices derived from firm-level data to describe the state and flexibility of the labour market. These indices reflect the phases of company life cycles and their impact on employment: when the business is established and undergoes initial dynamic growth it creates jobs, then when it becomes streamlined or liquidated, it destroys them. When jobs are destroyed, employees

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might move on to the "neighbouring" company (in the same sector and/or region), or they might have to move on to other economic sectors if the economy itself is undergoing a structural transformation.

To measure these flows, the first thing we need to know is company employment data for (at least) two consecutive years. Average employment is the average of the two years.[3] Then we separate the companies where employment increased from those companies where it declined. The gross job creation rate is the total increase of the employment of all expanding companies in the industry, divided by the total average employment of the industry.[4] Similarly, gross job destruction is the total number of lay-offs divided by the total average employment of the entire industry. The difference between the two is net job creation or destruction. The sum of the two is also an important index: it shows the overall rate of change in the business employment pattern; we call this gross reallocation. The constant reallocation of demand for labour is a necessary by-product of economic growth, since this type of structural change is the basis of the adjustment of labour supply and demand.

2.2 International evidence

Éva Surányi

The main characteristics of the labour flow in developed market economies

Davis and Haltiwanger (1997) studied data from 18 countries and found that the speed of job creation and destruction is surprisingly fast. Looking at annual data, they found that on average one in every ten jobs disappeared, and that on average one new job was created for every ten that already existed. Though this reallocation was somewhat lower in manufacturing than in other sectors, the generally high rate of job flow suggests that the high level of gross job reallocation tended to reflect *intra-industry* changes rather than an inter-industry flow. *Nocke's* (1994) results demonstrated that in France only 17 per cent of job reallocation occurred because of inter-sectoral labour flows. *Davis and Haltiwanger* (2001) also found that only a small proportion of aggregate job reallocation is due to inter-sectoral movements in the economy, and it is rather the consequence of company-level heterogeneous labour demand.[5] Some empirical research projects have also studied the persistency of changes in employment. Their general conclusion was that job creation and destruction reflects permanent changes in company-level employment. For instance, the above-mentioned *Davis and Haltiwanger* (1997) research found that on average seventy per cent

3 For a new company, employment figures for the previous year are 0, just as current employment is 0 for a company that was liquidated in the interim.
4 The staff increment of companies that cut employment is 0. The index can be calculated in a similar way for a region or even for the whole of the economy.
5 The Davis and Haltiwanger analysis defines the sectors by branches of industry, regions, size, type of ownership, and age of company.

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of newly created jobs still existed after one year, and on average eighty per cent of the destroyed jobs were not re-created within one year.

Although the reallocation of jobs can be observed in all sectors, there were nevertheless sharp deviations in the abilities of individual companies to reallocate. Several studies noted that job creation and destruction were strongly concentrated and limited to a few companies, while others tended to be quite rigid (*Davis et al,* 1996; *Albaek and Sorensen,* 1996). This illustrates the important role of fixed costs in the process of labour and capital adjustments. It is quite difficult to explained the observed lumpiness with traditional labour demand models assuming a convex adjustment cost functions, and concluding that businesses will immediately adjust their labour demands (see e.g.: *Nickell,* 1986; *Hamermesh and Phann,* 1996). The result is that over the past decade, models of dynamic labour demand have increasingly emphasised the role of the fixed costs in the adjustment process (e.g.: *Caballero and Engel,* 1993; *Caballero et al,* 1997).

An interesting feature of comparative research on job flows is that the pattern of reallocation intensity has quite similar features in the different countries, and appears to depend mainly on idiosyncratic (company level) factors. Job reallocation in general is strongly influenced by the size and age of a company. If company *size* is treated as a constant, both net changes in employment numbers and (gross) job reallocation decline with the increasing age of the company. This suggests that the effects of the company life cycle play an outstanding role. At the same time, if company age is *constant*, the net change in the number of employees increases with the size of the company, while (gross) job reallocation declines (*Davis and Haltiwanger,* 1997). Of course, there are several other factors in addition to company age and size that influence individual company reallocation abilities. Some papers have called attention to the role played by ownership structure, pointing out that the labour flow rates in the public sector are significantly lower than in the private sector (*Chow et al,* 1996; *Konings et al,* 1996; and *Leonard and Zax,* 1995). In addition, *Davis et al* (1996) report that higher wages and higher capital intensity decrease, while higher industry-specific productivity increases the intensity of job reallocation.

Several authors have attempted to quantify the productivity benefits of reallocation (*Baily et al,* 1992; *Olley and Pakes,* 1996; *Bartelsman and Dhrymes,* 1998; *Foster et al,* 1998). These studies found that the reallocation of *outputs and inputs* from less efficient businesses to more efficient ones plays an important role in the sector's aggregate productivity growth. At the same time, studies on the relationship between the reallocation of *employees* and the growth in the productivity of labour lead to far more ambiguous results, and typically conclude that the reallocation of labour plays far less of a role in increasing efficiency (*Grilisches and Regev,* 1995;

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Baily et al, 1996; *Foster et al,* 1998). *Davis and Haltiwanger* (1997) point out that a significant proportion of job changes are not movements from less productive to more efficient jobs. Several studies have documented cases when a decline in employment leads to a significant increase in efficiency (*Davis et al,* 1996; *Baily et al,* 1996). According to *Baily et al* (1996), neither the growth nor the decline of the level of employment is a particularly strong indicator of company productivity. This issue is likely to become an important one in the future research, because of the significance of the relationship between reallocation and productivity.

The main characteristics of the labour flows in transition economies

In Central and Eastern Europe and in the states of the former Soviet Union, the transition to market economy changed significantly the sectoral distribution of employment, and the ownership structure and operation of the business sector. Two very different trends evolved in the highly varied and assorted theoretical models of the transitional processes. One contends that the main cause behind the changes in the labour market was the sudden collapse of the public sector, which was unable to adjust to changed market conditions, together with the slow emergence of the private sector (*Aghion and Blanchard,* 1993; *Roland,* 1994). The growth of the private sector was not sufficient to absorb the workers dismissed from the public sector, which led to high and long-term unemployment, which in turn slows down the restructuring and reforming of the public sector.

According to other transition models, the main driving force of the transformation is the rapid growth of the private sector, which does absorb the labour laid off from the public sector. In this case, it is argued that unemployment is the result of efficient reallocation. It does not preclude the possibility of a high unemployment rate, but it differs from the previous approach in assuming rapid fluctuations among the unemployed persons, a constant inflow and outflow of unemployed individuals, which is a necessary condition for an efficiency-increasing transformation.

Davis and Haltiwanger (1997) in a summarising table report unemployment rate data, one of the most widespread indices of the gross job flows in transition economies. They received very low unemployment outflow rates everywhere except the Czech Republic, which suggests the existence of a group of permanently unemployed people. This, in fact, has become the main topic of several other international studies (*OECD,* 1994; *Commander and Coricelli,* 1995; *Blanchard,* 1997). *Blanchard* (1997) reports that 40 per cent of people filling newly created jobs in Poland and 71 per cent in Hungary were people who moved there from another position and were never unemployed. By comparison, the corresponding figure in the United States is only 20 per cent. *Sorm and Terell* (1999) studied the Czech

labour market and also found that the labour flow tended to be from job to job rather than an outflow from unemployed status. This suggests that the collapse of the public sector was most likely not followed by rapid emergence and growth of the private sector, or at least not at the beginning of the transition period. It seems that an unavoidable initial consequence of the earlier over-employment by public companies was the dominance of job destruction over job creation (*Konings,* 2002). *Konings, Lehmann and Schaffer* (1996) studied the (gross) job flows of the initial transitional period in Poland, and found that the high ratio of gross job destruction was principally the consequence of outflows from public enterprises, which at the beginning of the transitional period, was accompanied by a low level of job creation. Studying data on Romania, Bulgaria, and Hungary for 1991–1994, *Bilsen and Konings* (1997) found a high ratio (9–13 per cent) of job destruction for all three countries, while the level of job creation in all three was less than 1 per cent. The job destruction rate declined in the years following the regime change, but job creation rates stayed very low, which conforms the low unemployment outflow rates in these countries. In the later years of the transition, we could observe growing job creation rates, mainly in the newly emerging private sector. The job creation rates in public and privatised companies remained low. Although privatised companies showed a higher level of restructuring than public ones, the difference between the two was less than expected (*Konings,* 2002). This strongly suggests that creating incentives to establish new companies is just as important as restructuring and privatising old ones.

Nevertheless, following the initial shock, adjustment in most countries was quite rapid. Studying the years between the regime changes and 1997, *Konings* (2002) found that while in Bulgaria and Romania the job destruction rate remained higher than the job creation rate, in the more developed countries (Poland, Estonia, and Slovenia) the equilibrium between job creation and job destruction was restored by 1997. *Basu, Estrin and Svejnar* (1997) and *Estrin and Svejnar* (1997) similarly found that in the initial period of the transition, businesses in Czechoslovakia and Poland quickly changed their employment levels. A rapid reallocation *between sectors* after the collapse of communism (principally a movement from sectors that had been operating inefficiently until then towards the emerging new sectors – such as services and commerce) was followed by an *intra-sectoral* job reallocation (*Bilsen and Konings,* 1997; *Konings,* 2002). The extra reallocation rate, which can be interpreted as an index of successful adjustment to labour market conditions, has been slowly catching up to the values recorded in the more developed countries. According to *Konings's* (2002) empirical results, the extra reallocation rates of the most successful transition economies [Poland and Slovenia (13 per cent) and Estonia

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(8 per cent)] are quite similar to those of the developed market economies. Interestingly, although Romania was also found to have a relatively high rate (8 per cent), it was behind the other countries regarding the aggregate employment level. Nevertheless, the high reallocation rate may be a good signal of the beginning of a restructuring process, thus it might be assumed that the transition period in Romania was already in a later phase than, for instance, in Bulgaria where the reallocation rate was only 5 per cent.

2.3 Job creation and destruction in Hungary

Gábor Kőrösi

Table 2 summarises the job creation and destruction calculated for the Hungarian firms, while *Figure 1* illustrates the trend for several industries/sectors. The registration number identifying the companies, changed for a relatively large number of firms – especially at the beginning of the period –, and this results in an upward bias in the indicators by increasing the number of firms that were apparently established or closed.[6] Of course, we get lower values of job creation and destruction, and a lower reallocation ratio if when we calculate these indices using only those companies that were in operation under the same registration number for both years, but that eliminates the really new businesses and gives the impression that net job creation was significantly lower after 1995. In other words, there is no good solution. But the trends in industry-specific differences are similar even if the newly established/closing businesses are left out.

It should not surprise anybody that farming, forestry, mining and energy production, and – with the exception of a few good years – traditional light industries, are net job destroyers. What is more interesting is that these industries, except mining, also experienced significant job creation, throughout almost the whole period.[7] The difference between engineering and the chemical industries is also interesting. The labour market situation "normalised" rather quickly in the chemical industries (where the pharmaceutical industry is the dominant employer) with a relatively low – though not negligible on an international scale – job creation and destruction rate of roughly 10 per cent, yielding a balance of nearly zero net job creation. At the same time, engineering, which initially suffered a much higher job-destruction rate, became an outstanding net job creator, with intensive reallocation. In other words, there are really big differences behind the stability of the industry-based distribution of employment shown in *Table 1,* when decomposing overall employment into its component factors. These differences are clearly related to the different market conditions under which the firms operate.

6 A business already in existence can have received a new registration number when privatised or when its organisation form changed (for instance, when being turned into a corporation), as well as when merged or dissolved.

7 The gross job creation indices for light industries (and even less surprisingly, for mining) are almost unchanged if new companies are left out, while for agriculture, the rate declines by roughly 50 per cent.

Table 2: Job creation and destruction in the Hungarian corporate sector (per cent)

	1993	1994	1995	1996	1997	1998	1999	2000
Job creation								
Agriculture	14.3	7.9	7.2	6.2	6.4	7.1	9.2	7.6
Mining and energy	31.8	16.4	8.1	5.4	3.9	2.3	2.3	2.1
Manufacturing	18.1	14.6	14.9	14.0	15.0	12.5	11.0	14.4
TCF	18.8	12.9	13.3	14.3	16.4	11.2	8.8	9.7
Chemical industry	14.4	9.1	10.3	8.9	10.0	9.9	11.6	9.5
Engineering	19.5	15.9	16.2	16.9	18.5	14.9	13.4	23.5
Trade	24.0	21.2	16.4	17.3	19.9	17.5	15.7	23.1
Construction	25.1	26.7	20.5	21.8	20.6	19.6	18.6	16.9
Services	28.9	16.3	16.0	14.4	13.2	11.9	12.2	12.1
Total	22.8	16.6	15.0	14.3	14.3	12.8	12.3	13.7
Job destruction								
Agriculture	40.1	22.0	14.6	10.2	11.8	8.8	14.6	15.5
Mining and energy	29.0	14.6	12.9	9.7	10.5	6.3	8.7	12.1
Manufacturing	30.6	19.9	15.3	13.4	11.2	8.8	11.4	11.7
TCF28.2	19.9	15.6	11.6	7.7	10.3	11.0	12.7	
Chemical industry	23.2	13.3	11.3	8.3	7.2	9.0	10.1	8.4
Engineering	24.4	23.3	14.2	11.1	7.9	6.1	10.9	10.5
Trade	34.9	26.2	24.1	22.9	17.7	15.0	13.8	15.2
Construction	36.7	27.6	21.7	18.7	18.5	12.8	13.5	11.9
Services	36.0	20.2	18.2	12.6	12.0	9.1	10.3	8.5
Total	34.1	21.4	17.4	14.0	12.9	9.7	11.7	11.3
Net job creation or destruction								
Agriculture	–25.8	–14.1	–7.5	–4.1	–5.4	–1.7	–5.4	–7.9
Mining and energy	2.8	1.8	–4.8	–4.3	–6.6	–4.0	–6.4	–10.1
Manufacturing	–12.5	–5.3	–0.3	0.7	3.8	3.7	–0.5	2.7
TCF	–9.5	–7.0	–2.4	2.7	8.7	0.9	–2.1	–2.9
Chemical industry	–8.7	–4.2	–1.0	0.6	2.8	0.9	1.5	1.1
Engineering	–4.9	–7.4	1.9	5.7	10.7	8.8	2.5	12.9
Trade	–10.8	–4.9	–7.7	–5.5	2.3	2.5	1.9	7.9
Construction	–11.6	–1.0	–1.1	3.0	2.1	6.8	5.1	5.0
Services	–7.0	–3.9	–2.3	1.8	1.2	2.9	1.9	3.6
Total	–11.4	–4.8	–2.4	0.2	1.4	3.1	0.6	2.4
Job reallocation								
Agriculture	54.4	29.9	21.8	16.4	18.2	15.9	23.8	23.0
Mining and energy	60.8	31.0	21.0	15.1	14.4	8.5	10.9	14.2
Manufacturing	48.7	34.4	30.2	27.4	26.2	21.2	22.4	26.2
TCF	47.0	32.8	28.9	25.9	24.1	21.5	19.8	22.4
Chemical industry	37.6	22.4	21.7	17.2	17.2	18.9	21.6	17.9
Engineering	43.9	39.2	30.4	28.0	26.4	21.1	24.3	34.0
Trade	58.9	47.4	40.6	40.2	37.6	32.5	29.5	38.3
Construction	61.8	54.3	42.2	40.5	39.2	32.5	32.1	28.8
Services	64.9	36.5	34.2	27.0	25.2	21.0	22.5	20.7
Total	56.9	38.0	32.4	28.3	27.2	22.5	24.0	25.1

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Figure 1: Job creation and destruction (per cent)

Chemical industry

Engineering

Manufacturing

Mining and energy

Services

Total
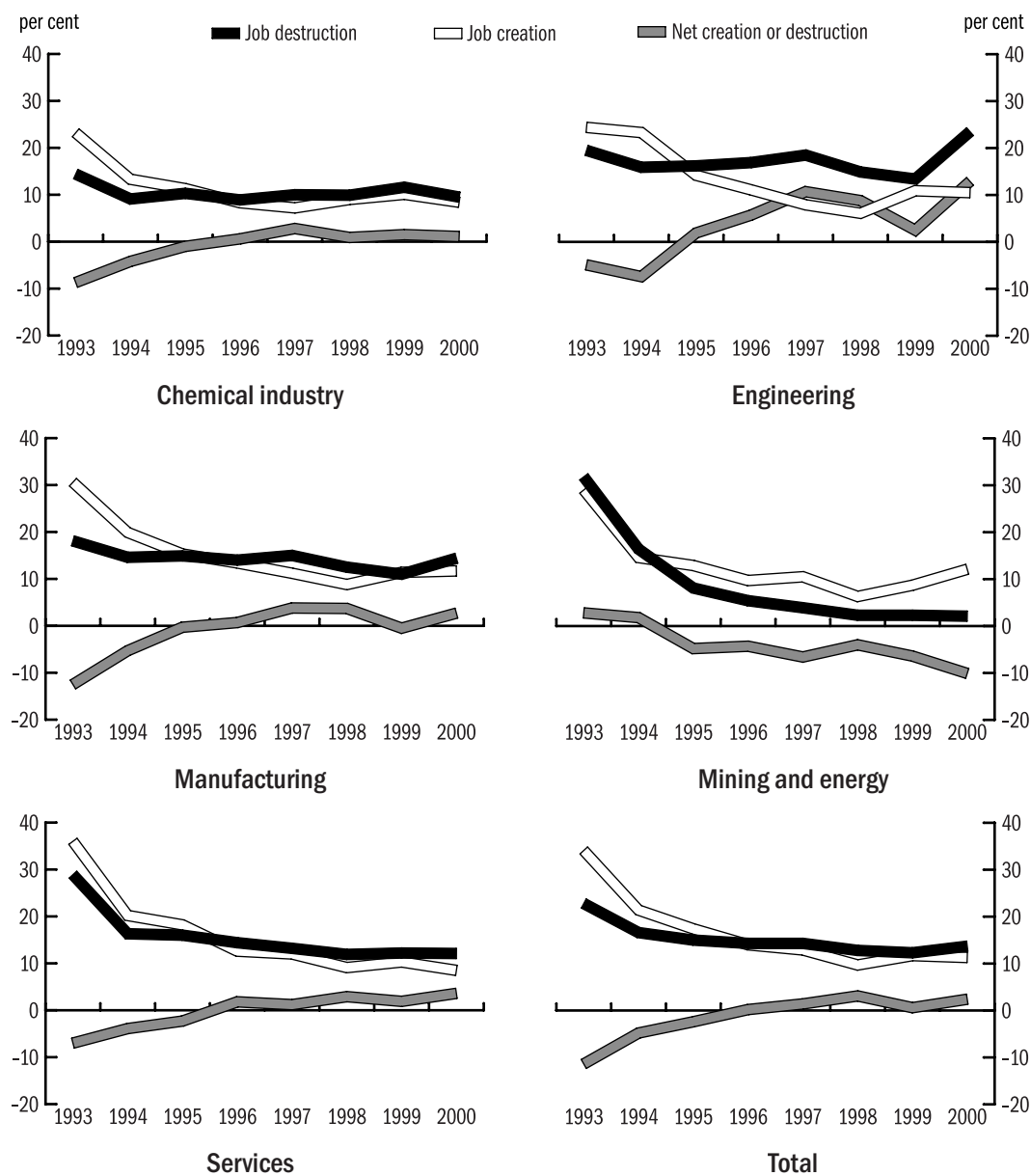
Reallocation rates of the Hungarian economy show a significantly different picture from other former socialist countries. Since the upward bias caused by changes in registration numbers has more of an influence on the gross reallocation index than any other index due to the double accounting, *Table 3* illustrates the rates for continuing assuming that all compa-

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nies that were closed or newly established according to the registration numbers are in fact only given a new registration number, and are actually surviving companies with the same number of employees. In other words, we assumed not only that there was no real firm creation and destruction, but also that employment figures of these relabelled companies had stayed the same in every single case. The actual values are obviously somewhere between the ones in the two tables.

Table 3: Narrowly defined job reallocation (per cent)

	1993	1994	1995	1996	1997	1998	1999	2000
Agriculture	30.0	18.9	14.7	12.1	12.6	11.8	14.8	15.2
Mining and energy	16.5	14.7	7.6	6.9	10.7	7.6	8.5	10.6
Manufacturing	23.1	16.1	15.5	15.1	15.8	15.7	15.9	16.0
TCF	15.4	14.1	13.9	14.2	14.8	14.2	12.7	12.8
Chemical industry	22.2	20.1	17.7	16.9	17.7	17.1	19.0	22.1
Engineering	20.9	10.1	12.0	12.0	11.3	16.4	17.0	13.8
Trade	20.0	15.1	14.6	14.8	15.8	14.9	16.3	14.1
Construction	29.8	23.0	20.9	21.3	21.1	21.9	21.5	19.7
Services	27.5	22.4	23.5	22.7	21.8	22.9	19.8	23.3
Total	23.9	17.4	16.0	15.7	16.4	16.1	16.7	16.2

It is easy to see that with the exception of mining, even though the values are downward biased (probably significantly), they are substantially higher than the ones in other transition economies. In addition, even the narrowly defined reallocation rates are higher than the ones received for most developed market economies. This shows that for the whole of the 1990s, both for the recession and the boom period, the Hungarian labour market responded flexibly to the factors affecting companies in the private sector.

3. LABOUR AS A FACTOR OF PRODUCTION

Section 2 described models to measure the balance of job creation and destruction, and investigated their trend since 1992. The measurements yielded interesting and sometimes surprising results, but did not provide explanation about the causes. In this section we look at the most important models to describe the labour demand, and investigate the reasons behind the high intensity of job creation and destruction, and the particularly high reallocation rate.

3.1 Demand models

Gábor Kőrösi

Labour is one of the most important production factors. Employment of a certain quantity and quality of labour is essential for the firms to achieve their goals. Companies differ in the number of workers they need, and

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also in the necessary skills of those employees. Labour demand is also significantly influenced by the technologies and organisation structure of the companies. However, within certain limits, businesses can freely choose their level of activity, and the way they wish to combine the various production factors to achieve their goals. The behaviour of the firms can be described by a relatively simple model: firms maximise profits under given market conditions; market relations determine the demand for their products and/or services at given prices, and also the resources that can be used at various prices. We describe the transformation of resources into products and services with a production function: what kind of output level can be achieved with different input combinations. This production function essentially describes a technological relationship: in other words, it renders an output level to each combination of inputs. If the demand for company output is fixed, at given prices the company can determine how much it needs to use of the different production factors to maximise its expected profit. In other words, factor demand functions can be derived from this production model. We often assume that demand for the various factors can be separated, or that demand for the various production factors (such as labour) can be described without determining the other factor demands.

As a starting point, let us assume that the Cobb-Douglas model, one of the most popular models which contains one of the simplest production functions, gives a satisfactory description of a company's technology. We will stick to this assumption until we assume labour to be homogenous. Any description of differentiated demand for different quality of labour requires a more complex production function (such as a translog) model.

In the labour demand model derived from the production function, basically two factors determine the number of persons employed in a company: the level of the company's production (services),[8] and the market prices of the factors. The most influential factor price for the labour demand is of course the wage, but the costs of capital also may play an important role, since to a certain extent labour and capital can be substituted for each other.

Theoretically, firms can always adjust their optimal and profit-maximising factor demands to the market conditions. It is not certain, however, whether they will adjust instantaneously. They need a certain time to readjust the level of their factor demands to the new optimum, and this adjustment may also incur costs. For instance, if firms need more workers to increase output, then they have to find them and train them, and also may have to reorganise their production process. They may also need some investments to expand production, and that might require a significant amount of time. Similarly, if a company wants to cut production and its corresponding factor demand, this is also costly since several months' sal-

8 In what follows, we will use the term production for company performance irrespectively of the nature of the company's activity, such as services, commerce, etc. Generally, we use the net revenue from sales to measure company output.

ary will have to be paid to workers who are dismissed. So, depending on costs, it might be more rational for the firms to make only gradual adjustments to the new situation and therefore it will take a longer time to adjust their factor demands (such as employment) to the new circumstances. This adjustment process often makes it necessary to use dynamic models in which the actual demand for labour is influenced by both the contemporaneous and the lagged values of the variables.

The simplest way to describe the adjustment process is to assume that adjustment is symmetric. This means, for instance, that the adjustment costs are the same in both positive and negative adjustments of similar magnitude. In this case, we obtain a relatively simple model that is easy to solve. The model parameters give a direct description of the labour demand. However, it is possible that adjustment costs are in fact asymmetric: for instance, additional labour can begin work after only a few hours of training, but several months of wages would have to be paid as a compensation if employees were dismissed. It might also happen that an increase in capacity requires a significant investment both in time and money, while surplus capacity could be sold relatively easily at a good price. Modelling these asymmetric adjustment processes is much more complicated technically, and interpreting the results of the models is also more cumbersome.

Dynamic models assume that company behaviour is determined by a long-run equilibrium. This equilibrium describes the "ideal" operation of the firm: the company produces its desired output at the lowest possible costs. We assume that the adjustment process of the dynamic model will bring the firm's activity closer to this long-run equilibrium. As changes in market conditions (such as prices including the cost of labour) alter the equilibrium itself, the company is forced to make continuous adjustments. Thus, company behaviour can be described with two different sets of variables: short-run (e.g. wage) elasticity indicates the extent to which a change in the given variable modifies the firm's current labour demand, while long-run elasticity indicates the overall change in labour demand over time, leading to a new state of equilibrium. Static models essentially contain only the long-run elasticity.

This description has so far assumed that labour is homogenous, or that all employees perform identically. The model becomes more realistic and also more complicated if we also make a qualitative distinction in the labour demand. This makes it possible to study not only the substitutablilty/complementarity of capital and labour, but we can also treat the various types of labour in a different way, and we can investigate their complex interactions.

The database for the empirical analysis in the chapter contains those companies using double entry accounting (separating inflow from outflow)

which were included in the Wage Survey of the National Labour Centre between 1992 and 1999.

3.2 International evidence

Gábor Kőrösi – Éva Surányi

Many studies have attempted to estimate the elasticity of labour demand on the basis of the above theoretical considerations. They tend to be quite different regarding model specifications, investigated samples, and time frames. Despite that, results have been surprisingly similar. In the past few decades, assuming *constant output*, the wage elasticity of firm-level labour demand in the developed market economies has stabilised in the range of −0.15 to −0.50.[9]

The primary goal of static models is to estimate the elasticity of firm-level labour demand at constant output, but it is also worth looking at the issue of short-run behaviour. What happens to the elasticity if we also allow *output to vary*? This issue has been in the focus of economists investigating *short-run* macro-economic processes. *Symons and Layard* (1983) estimated the elasticity in six major OECD countries between 0.4–2.6, and found that the value was larger than 1 in four of the six cases. These relatively high values suggest that the role of wage increases in reducing employment may be larger on the short-run, when we also take into account the output effect of the changes.

The most consistent result of those papers that do not assume labour homogeneity has been that non-productive (assumed to be skilled, or white-collar) labour is less easily substituted with physical capital than productive (unskilled, blue-collar) labour. Several studies have found[10] that skilled labour and physical capital are complements, supporting *Rosen's* (1969) and *Griliches* (1969) hypothesis on the complementarity of capital and skills. This is very important when investigating the employment effects of those economic policy tools that enhance investment (such as accelerated depreciation or tax allowances on investments). These policies are likely to increase the demand for skilled labour relative to the demand for unskilled labour.

Over the past thirty years, research on labour demand has increasingly focused on studying labour dynamics. The first paper that stimulated interest in this area is due to *Oi* (1962), which served as a benchmark for most of the later research on dynamic demand for labour. *Oi* was the first to point out that because of adjustment costs (costs of increasing and decreasing employment), labour is not a perfectly flexible production factor and therefore the adjustment to long-run equilibrium (as estimated by the static models) could be both time-consuming and costly.

9 For more details on empirical results see *Hamermesh* (1986).
10 See *Hamermesh* (1986).

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LABOUR – THE DEMAND SIDE

Dynamic demand models use the adjustment process to separate the elasticity describing the short-run behaviour from the long-run elasticity describing the adjustment to a new equilibrium corresponding to the changed market conditions. Long-run elasticity is generally found to be between 0.4 and 1 (production), and −0.3 and −0.5 (wages) in developed market economies. The results for the American labour market are generally on the more elastic side of the range, while the European labour markets are generally on the more rigid side. In absolute value, short-run elasticity is generally lower, and in some cases it is not significantly different from zero (*Hamermesh,* 1986).

There have been surprisingly few investigations of labour demand in Central and Eastern Europe and in the states of the former Soviet Union. Nevertheless, the studies that use data from the labour markets of these transition countries have yielded surprising results: *Grosfeld and Nivet* (1997) found that there were no substantive changes in the labour market behaviour of Polish companies after 1992. *Basu, Estrin and Svejnar* (1997) and *Estrin and Svejnar* (1998) studied Czechoslovakia and the Czech Republic in its period of transition, and the results also suggest that the situation was normalised by 1993, after which there was no substantive change in the labour market behaviour of the firms. In both cases, the authors received very high elasticity values at the beginning of the transition period, but after stabilisation, the low elasticity levels similar to those in Western Europe appeared to become dominant.

A second possible goal of dynamic labour demand models might be to estimate the time frame needed for labour demand to adjust to its long-run equilibrium level, which would also predict the short-run labour market behaviour of companies. The general conclusion of studies using aggregate data is that the time lag of adjustment is quite short (6–12 months), and the adjustment is faster when the working hours rather than the level of employment is adjusted (*Hamermesh,* 1993). In other words, the adjustment costs of labour are not high; the slow adjustment of the relative wages is rather the consequence of slow retraining on the labour supply side and of low employee mobility. However, recent studies based on firm-level data seem to contradict this. Among various studies investigating the structure of adjustment costs, *Nickell and Wadhwani* (1991) analysed a British business panel of firms and found that only 20 per cent of the adjustment occurred within one year. *Bentolila and Gilles St. Paul* (1992) used Spanish data and found that only one-sixth of the adjustment occurred within one year. *Mairesse and Dormont* (1985) studied French and German panel data and found similarly slow adjustment, although their similar analysis of American firms showed a much more rapid adjustment.

3.3 Dynamic labour demand models

Gábor Kőrösi

Our starting point is a labour demand model used quite extensively in relevant literature.[11] In the model we assume that companies maximise profits. Let us assume also that firm-level production can be described with a Cobb-Douglas function. With this specification we assume that
  – demand for the firms' products is lconstrained, and
  – no company has a dominant market position – in other words, none of them can influence – – market prices (including wages);
  – the adjustment costs of labour and capital are symmetric (quadratic);
  – long-run equilibrium has a significant effect on factor demands ;
  – labour is homogenous;
  – changes in exogenous factors affect labour demand no longer than one year.

We analyse labour demand between 1992 and 1999 with a relatively large firm-level data set. It is probably true that the majority of the firms were demand-constrained in the investigated period. As a consequence, profit maximisation meant cost minimisation. There is no doubt that in the period under investigation cost-efficiency was more important to Hungarian firms than ever before.

The quadratic adjustment function means that increasing their factor demand is just as costly for the firms as decreasing their demand by a similar magnitude. This is clearly a simplification. We will give a more detailed description of this adjustment process in the next subsection. For the time being, we investigate only indirectly the assumed symmetry of the adjustment process – attempting to see whether the labour demand elasticity of expanding and contracting firms is the same or not, and whether the elasticities of upward and downward adjustments deviate significantly or not.

The model describes labour demand with contemporaneous and lagged values of three variables: production level, wage costs and costs of capital. In addition, employment in the previous period plays an important role in describing the adjustment process.

However, the values taken from two different time periods can be different simply because of inflation, and it is not likely that inflation would have a substantive influence on the firms' labour demand, since inflation also alters the firms' revenue proportionately, so, in itself it is not a significant explanatory variable. For this reason, we transformed our data to reflect constant prices, using the producer price index for the sector in which the company is located to deflate the data. The consequences of this were interesting in themselves. Since changes in producer prices were quite different between the sectors, the same change in wages had different effects

11 Derivation of the model can be found in *Nickell* (1986). The results summarised here are given in detail in *Kőrösi* (2000, 2002).

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on the various companies. It is possible that the output price of a company grew more rapidly than wages,[12] so its (actual weight of) wage costs declined, while for another one the output price grew much more slowly, or even declined, so the same nominal wage increase actually increased the proportion of its wage costs. This is valid not only for the price differences of the various firms: until the mid-1990s, the consumer and producer price indices were quite different.[13] While employees' complaints about the decline in the purchasing power of their earnings were often justified, for a significant number of companies, despite the drop in real wages, the share of their wage costs increased as their output prices increased much more slowly.

The first important result of our study is that the cost of capital has no significant effect on labour demand. In other words, the effects of substituting capital for labour cannot be demonstrated when analysing labour demand. This is probably because we have assumed labour to be homogenous. In Subsection 3.5 we will demonstrate that the cost of capital cannot be ignored if labour is differentiated, and that different types of labour have significantly different interactions with capital. Clearly, it is the consequence of these significant differences that the effects of capital can only be measured with high imprecision when we assume labour homogeneity.

The elasticity of labour demand has changed significantly over time, therefore no uniform description, equally valid for the whole of the period, can be offered. This also means that the labour market has not reached its equilibrium, and firm-level behaviour is still not predictable, at least not in 1999. The instability was especially true for the wage elasticity of labour demand. Production elasticity has been relatively constant since 1995, but this is not true for the wage sensitivity of employment. However, since the mid-1990s, elasticities tended to fluctuate without any definite trend, so some kind of "normalisation" is nevertheless observable. However, this stability was valid only for short-run elasticities, with long-run elasticities fluctuating randomly in a very broad range, in some cases reaching theoretically unlikely values. This makes it rather clear that labour demand was not influenced by a stable long-run equilibrium, most probably because it did not exist.

The stability of elasticities was investigated over time, but we also over different groups of companies. We investigated the sample by industry/sector, ownership, and size, and found that there were significant differences between these different groups. This is not too surprising, since firms in different industries/sectors use very different technologies. It would be quite surprising if the labour demand in a plant that sews garments were to show the same trend characterictics, e.g., the same thelasticity as that of a nuclear reactor.[14]

12 Companies always calculate with total wage costs that include taxes and social security contributions, and their labour demands respond to changes of these indicators, not to the actual wages they pay out.

13 In 1992 the consumer price index was 23 per cent, in 1993 it was 22.5 per cent and in 1994 it was 18.8 per cent. The producer price indices were 12.3 per cent, 10.8 per cent, and 11.3 per cent in the same years . (Source: Central Statistical Office, Hungarian Statistical Yearbooks.)

14 This is particularly true since we found that the cost of capital did not influence the adjustment of labour demand. In other words, the completely different relative capital demands of two companies played no role whatsoever in the given model.

Investigating trends in the labour demand elasticities by groups of companies lead to an interesting consequence. When we separated elasticities by the direction of change in employment for the entire sample, we found very significant differences between the elasticities of upward and downward adjustment. Labour demand was far more elastic downward than upward, which means that negative effects (decline in production, rise in wages) reduced demand for labour to a far greater extent than the same level of positive effects increased them. This asymmetry disappeared, however, when we estimated the same elasticities for the different groups separately. We will attempt to explain this strange phenomenon later, after studying the main characteristics of the companies in the sample.

We also investigated whether long-run equilibrium played any role whatsoever in the labour demand, and found that this effect was negligible. The random fluctuation of long-run elasticities over time is clearly a consequence of this. But it means that we can describe labour demand by the short-run elasticities. For that reason we estimated a model containing only short-run effects, where instead of the contemporaneous and lagged explanatory variables, we only used the differences. Test results suggest no substantial loss of information when using the short-run equation instead of to the original model. Therefore, we only report the results of the short-run model.

Production and labour costs are equally important explanatory variables of firm-level labour demand. In most equations estimated for the different company groups, both variables were significantly different from zero at 1 per cent, and their signs, almost without exception, matched our theoretical expectations even in the non-significant cases: production elasticities were positive, wage elasticities were negative, and their orders of magnitude also were acceptable. In other words, the estimated equations give a correct description of enterprise behaviour. *Figures 2–5* illustrates the trends of the estimated elasticities for the major groups of companies in each decompositions of the entire sample.

Trends in production and wage elasticities were quite similar and followed typical patterns for the entire sample and for many of the company groups. While in 1993–1994, the earlier years of the sample period, the firms' labour demand was relatively elastic with regard to both factors, in some cases showing a significantly higher (wage) elasticity than is typical in a market economies in several cases. However labour demand generally became inelastic by the middle of the sample period. This clearly reflects the stabilisation of the corporate environments. In most cases, labour demand was more sensitive to changes in wages. From the mid-1990s, the production elasticity of labour demand became quite stable for most groups of enterprises and there were only relatively small differences in the val-

ues estimated for the different enterprise groups. At the same time, in the second half of the sample period the trend of wage elasticities broke: by the end of the 1990s, the wage elasticities of labour demand showed much higher variation, and they also increased for several important enterprise groups, and they also increased. While estimated elasticities were mostly in the range that is typical in developed market economies in the second half of the 1990s, it appears that firm-level labour market behaviour became much more uncertain towards the end of the decade.

Figure 2: Production and wage elasticities
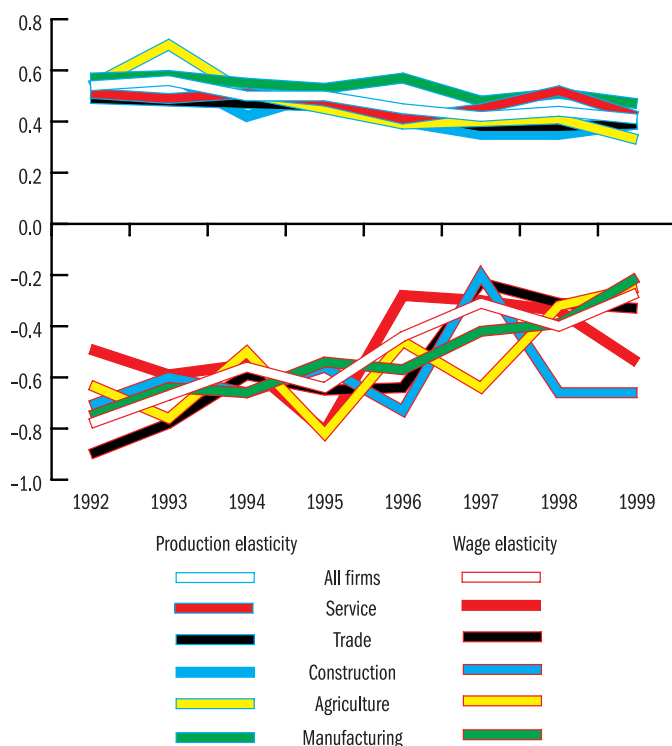
Halpern and Kőrösi (2001) investigated trends in the efficiency of the production process for the same group of enterprises. Since that paper found quite substantial differences between the efficiency of individual enterprises and groups of enterprises, we extended the labour demand model to investigate how production efficiency affected firm-level labour demand. The results indicate a very characteristic process over time. Firm-level labour demand was essentially independent of production efficiency at the beginning of the sample period, until 1994–1995. By the middle of the sample period, the more efficient companies increased employment significantly more rapidly than the less efficient ones, with efficiency-related elasticity generally ranging between 0.2 and 0.4.

Figure 3: Production and wage elasticities, manufacturing sectors
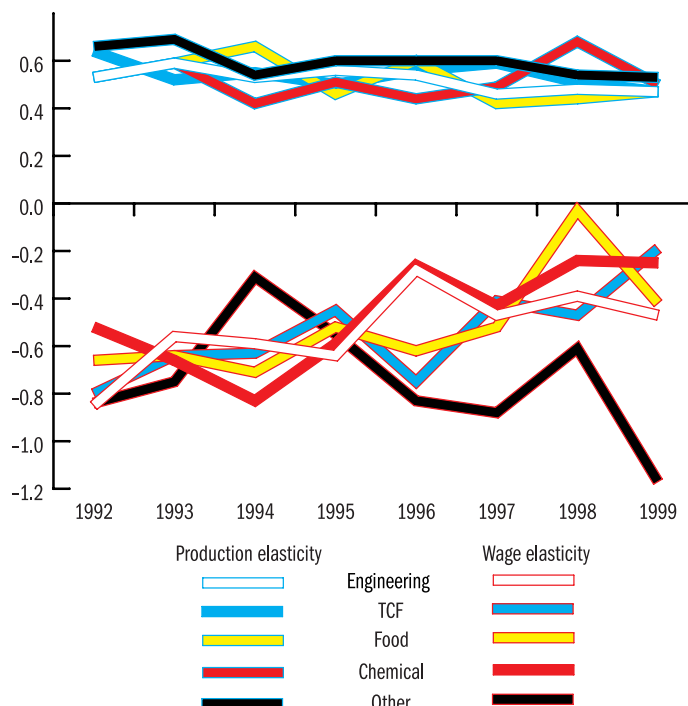
Given that we often measured 20–30 per cent differences between the production efficiencies of the different enterprises, and that differences in excess of 50 per cent were not exceptional either, this in itself could have led to more than ten percentage points differences between the employment changes of two companies. In other words, given two enterprises where wages and production changed by the same rate, it is possible that overall employment declined by 2 per cent at the first one and increased by 10 per cent at the other, purely because the latter was far more efficient in organising its production.

However, the dynamic increase of employment in efficient companies only lasted for two or three years, and then the effects of efficiency on labour demand became insignificant again. Later the elasticity of demand changed only. While we received essentially the same elasticities for production and wages in both models with or without including efficiency in the two preceding periods, by the end of the period elasticities changed significantly in the extended models. However, the direction of the change and its significance is not yet clear. It is apparently another factor also leading to the observed uncertainty in enterprise behaviour.

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Figure 4: Production and wage elasticities by ownership

Production elasticity | Wage elasticity

Foreign
State
Domestic, private
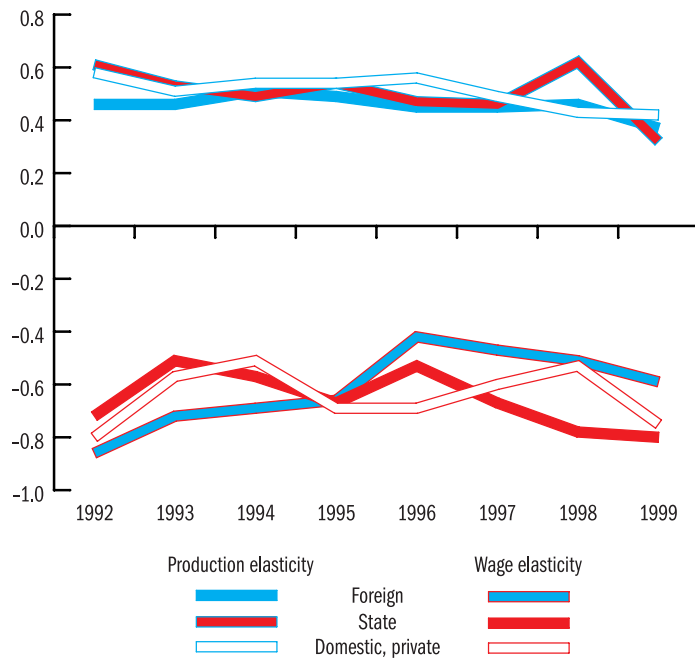
Figure 5: Production and wage elasticities, by size

Production elasticity | Wage elasticity

Large
Medium
Small

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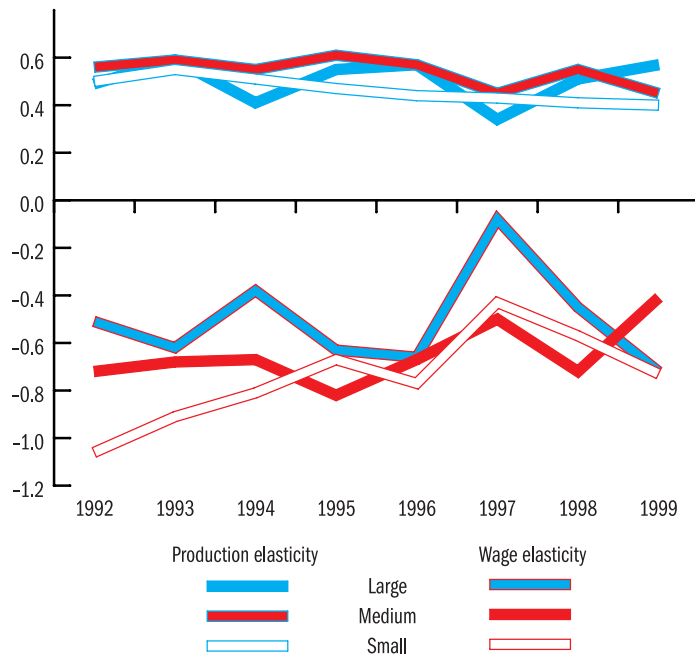
We know that there are significant regional differences in the employment rate. We investigated whether these differences might stem from different labour market behaviours of the enterprises operating in various regions. The result was surprisingly strong: we did not find any sign that regional effects would influence the elasticity of labour demand. In other words, the differences in regional employment patterns were not because of regional differences in the labour-market behaviour of the enterprises.

3.4 Dynamic adjustment

Éva Surányi – Gábor Kőrösi

In the previous subsection we received slightly contradictory results regarding the symmetry of the adjustment process. Looking at the entire sample there was a strong asymmetry, but when estimating the same model for various groups of companies (sectors, for instance) the dynamics of the process no longer appeared to be asymmetric. Therefore, we have to investigate the validity of assumptions about the adjustment process.

We had two assumptions about the adjustment process and adjustment costs. The first was that the adjustment costs of labour and capital, and also the adjustment process could be separated, and investigated independently of each other. The other was that adjustment costs can be described with a quadratic function of the change in labour demand. Since the costs of capital did not have a significant effect on the labour demand so far, not even in a single case, we will stick to the first assumption. However, we try to find another functional form specification to replace the second assumption.

The major advantage of a quadratic cost function is that with this assumption we receive a simple linear dynamic model describing the labour demand. When replacing this with another adjustment cost function, we either end up with a very complicated non-linear model, or a model that does not have a closed-form solution. But with an estimation method becoming popular during the past decade (the generalised method of moments) it is possible to handle even those models that cannot be written in an "appropriate" form. However, the application of this method requires more information, and it is not possible to prepare annual estimates of the model. Therefore, we used all observations in the second half of the sample period (1995–1999) for our estimations. We investigated the properties of the adjustment costs of the Hungarian firms, how they influence the short-run labour market behaviour of the business sector, and also how firms could adjust to external changes. To do this, we specified six different adjustment cost functions, and used them to examine the marginal costs of adjustment. We of course took into account the differences in the

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adjustment costs by sectors and industries, by type of ownership, and also the heterogeneity of short-run labour demand.

Model I is the reference model in which we use the traditional quadratic adjustment cost functions (*Eisner and Strotz,* 1963). It assumes that adjustment costs only depend on the absolute size of the changes in the number of employees, or that the cost of employing or dismissing ten workers are the same in a company with a staff of twenty as in one with a staff of one thousand. This assumption probably is not very realistic, so we may try to specify an adjustment cost function that considers relative changes rather than absolute ones (Model II.) In order to further generalise the specification of the quadratic term, we can apply the form used by *Meghir et al* (1996), originally proposed by *Summers* (1981), which simultaneously takes into account relative and absolute changes in the employment level, and tests for the existence of a learning process in the adjustment process (Model III).

All three models so far assume that adjustment costs are symmetric, or that the costs of hiring a given number of workers are the same as the costs of dismissing the same number of workers. There is no reason to make this assumption a priori, considering the very different nature of the costs of increasing and decreasing employment. One main reason why the quadratic form is used so often is because it is so easy to handle, as the resulting labour demand model (the well-known distributed lag model) is linear, which makes it simple to do the estimations with traditional regression methods. Following *Pfann and Palm* (1992) and *Pfann and Verspagen* (1989), we can generalise the adjustment cost function to include an asymmetric term. The remaining three models are variants of the first three, expanded to include an asymmetric term. A positive asymmetric term indicates that hiring costs exceed the costs of dismissal, while a negative one means that it is more costly to dismiss workers than to hire them.

When estimating the equations for the entire data set, the diagnostic tests indicated model-specification errors. We obtained far better results, however, when we did the same estimations for groups of enterprises. We only quote the results obtained for domestic and foreign owned companies, and for the two largest sectors (engineering, textiles).

It is quite interesting that the properties of the different models were quite robust. While the results for the different groups of enterprises were quantitatively different, of course, they were qualitatively quite similar.

In Models I and IV, the value parameter estimates of the quadratic terms were positive in both cases, which suggests the existence of a convex marginal adjustment cost. That indicates that the marginal costs of adjustment increases with the size of the adjustment. But the estimated parameter is

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quite small, not significantly different from zero, which suggests that the model cannot be used for substantive analyses.

The specification of Models II and V is based on relative changes in employment. Although the parameter estimates are significantly different from zero in both cases, it is difficult to give an economic interpretation to their negative sign. Since the diagnostic tests also indicated model-specification errors, these models proved to be worse than the previous ones.

The relative changes and the possible learning or inertia effects were considered together in Models III and VI. A negative coefficient of the quadratic term reflects a learning effect and a positive one an inertia effect. When adjustment costs were specified in this way, the estimated parameters (for all company groups investigated) were significantly negative and the diagnostic tests indicated no problems either. In other words, these results demonstrated the existence of a significant learning effect in the adjustment process.

The difference between Models I–III and IV–VI was that the symmetric specification of the first group was generalised with the inclusion of an asymmetric term in the second group. The estimated parameter of the asymmetric term suggested an interesting difference between Hungarian and foreign-owned companies: at foreign-owned companies the cost of reducing the workforce was higher than that of increasing it, while at the Hungarian-owned companies this asymmetry worked into the opposite direction. We also found significant differences between the different sectors, but that was not surprising, since adjustment costs are closely related to the technology of the firms.

Although adjustment costs do not influence the desired employment level, if the costs of changing the quantity of labour are asymmetric, then the optimal adjustment process will differ from what derived in the symmetric model. With the exception of special cases that do not occur in practice, the estimates and forecasts of labour demand models based on aggregate data and therefore assume symmetric adjustment costs will be biased.

The estimates of the marginal costs of adjustments, listed in *Table 4,* were the other interesting results of the calculations. The adjustment costs were low relative to the values found in developed market economies. Costs per worker amounted to 3.6 times the monthly wages (on average), while in developed market economies they could be as high as 12–14 times the monthly wages (*Hamermesh,* 1996). The best model (IV) forecast a marginal cost of adjustment that was less than two times the monthly wage. At the same time, studying the various groups of companies, we found significant differences. We observed the highest difference when we investigated firms by ownership; the adjustment ability of Hungarian-owned firms to adjust is much lower than that of foreign-owned ones.

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<div align="center">Table 4: Marginal adjustment costs, relative to the annual wage bill</div>

Model	All firms	Domestic owner	Foreign owner	Textile	Engineering
Model I	0.16	0.13	0.02	0.20	0.10
Model II	0.20	0.19	0.07	0.14	0.13
Model III	0.48	0.64	0.42	0.62	0.27
Model IV	0.19	0.70	0.32	0.35	0.29
Model V	0.70	0.65	0.23	0.65	0.23
Model VI	0.13	0.32	0.15	0.28	0.13

3.5 Demand for skilled and unskilled labour

János Köllő

Demand for unskilled labour dropped much more significantly than its average decrease in the years following the regime change. The number of jobs available to people with primary school education or vocational school training dropped by 48 per cent between 1990 and 1995, and did not increase after that time *(Table 5)*. In the early 1990s, the job market for people with secondary and college education also dropped by 11 per cent, but for this group a consolidated market economy between 1995 and 1999 created roughly the same number of jobs that had disappeared after the collapse of the socialist economy.

<div align="center">Table 5: Employment by gender and education (in thousands)</div>

Educational attainment:	Male		Female		Total	
	low	high	low	high	low	high
1990	1,803	845	1,387	1,055	3,190	1,900
1992	1,358	860	929	936	2,287	1,864
1995	1,225	824	759	869	1,984	1,693
1999	1,228	875	702	1,006	1,930	1,881

Note: High educational attainment: Completed secondary or tertiary.
Source: Fazekas, K. and Koltay, J. (Ed.) *The Hungarian Labour Market, Review and Analyses, 2002.* Institute of Economics, Budapest. pp. 285–288.

In terms of the labour market evaluation of the different jobs, a similar change occurred. Between 1989–1995, real wages dropped along the entire wage scale, increasing only for the highest, 100th percentile group. The low-wage groups saw their wages sharply cut in those years (in the 10th percentile, for instance by 30 per cent), but the decline in the higher earnings groups was also significant (20 per cent in the 90th percentile).[15] But inequalities in earnings did not decline even when real wages began to rise in 1997. In fact, they continued to grow somewhat, and this was triggered not only by what had become a permanent gap between skilled and

15 For details of the process see *Kertesi and Köllő* (2001).

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unskilled labour, but also by another process – the deteriorating market value of older, educated labour.

The deteriorating value of the human capital accumulated during the socialist years is clearly reflected in the fact that employees with college degrees, born between 1950 and 1955 were earning nearly *25 per cent* less in the year 2000 (calculated in relative wages, relative to the average for college graduates) than the amount they could have been expected to earn according their earlier age-earnings profile. College graduates who were 20–25 years old at the time of the regime change profited the most, as they joined the labour market exactly when the intensive changes in economic structure occurred. There was a more modest, but similar generational re-stratification among people with lower levels of education. There is no doubt that the re-stratification process was fundamentally triggered by the demand side: the relative increase in the wages of young and educated labour occurred at a time when the supply of secondary school and college graduates increased significantly. In addition, it can be demonstrated that (at least among large firms) highly productive and capitalised companies employed a much higher than average proportion of *young* secondary school and college graduates (*Kertesi–Köllő,* 2001, *Köllő,* 2002).

Table 6: Data on unemployment beneficiaries, March-April 2001 (per cent)

Educational attainment	In unemployment register for at least the third time[a]	Re-entry to former employer[b]
0–7 classes	50.5	70.9
Primary	40.1	56.6
Vocational	39.6	51.3
Secondary	27.3	27.7
College	19.9	17.4
University	14.0	16.1
Total	36.1	47.8

[a] Number of beneficiaries, March 2001: 105,864 persons.
[b] Employed between 22 March and 6 April 2001: 7,599 persons.
Source: Survey on unemployment benefit recipients finding jobs, Employment Office.

Declining supply also contributed to the decrease in the number of unskilled workers, since older people with low education levels retired, but the extremely high unemployment rate of this group clearly indicates that demand is also insufficient to meet the supply of those job seekers. Employees belonging to this group have hard time finding stable, registered, full-time employment, as data in *Table 6* on unemployment beneficiaries in 2001 indicates. Forty to fifty per cent of unemployment beneficiaries with low education levels became beneficiaries for at least the third time or more, and 50–70 per cent of those who did find jobs (March) had returned to former workplaces – for the most part in the construction industry or

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farming.[16] These are typical symptoms of an emerging "secondary" labour market segment, with a high level of labour turnover, instability, seasonal work, and repeated unemployment.

Can we expect that these phenomena that evolved during the years of regime change come to a stop or turn around? The fact that the value of unskilled labour dropped so much during the transition does not necessarily mean that the economy – or even its modern sector consisting of large firms – cannot find ways and means of a beneficial employment of unskilled labour. The chances that it can do so depend on the *relationship* between productivity and costs of employing capital as opposed to various types of labour, and on how efficient are combinations of the various types of labour with each other and with capital. If unskilled labour is sufficiently cheap, and if it can substitute for capital or skilled labour without raising costs – or if combined with other resources it can increase company productivity –, then it will be in demand.

The significance of the various factors that influence labour demand can be approached by calculating the quantity and the combinations of resources that companies choose to employ at market equilibrium prices. Assuming that the various resources are employed until their marginal cost and marginal revenue are equal – considering the total costs and total benefits from using various input combinations – it is possible to estimate the own- and cross-price elasticity of the demand for various resources on the basis of observed labour composition and productivity.

The own-price elasticity of the demand for an input shows the percentage change in the demand of a given input that would occur if its price increased by 1 per cent, ceteris paribus. It encompasses complicated substitution, complementarity and scale effects into a single index (to be discussed later), and is the basic measure of the demand for any input. According to theoretical and empirical studies (at least, to the ones that have been published) own price elasticity is negative: the quantity demanded decreases with the price.

Cross-price elasticity measures the percentage change of the demand for *one* resource as a consequence of a one per cent change in the price of *another* resource, all other things being equal. If input prices change, on the one hand the firms try to substitute the more expensive inputs with cheaper ones: labour with capital, or one type of labour with another. On the other hand, if any input becomes more expensive, then the total cost of production increases, which forces the company to decrease its output. The overall result of the two effects is that a rise in the price of input *A* can increase demand for input *B* (when the substitution effect dominates), but it can also reduce it (if the two inputs are complements in the production process, or if they are substitutes, but demand for both declines because

16 In other months, the proportion of returnees is clearly lower. When calculating the proportion of returnees to former jobs in *Table 6,* we ignored people who had had found jobs according to computerised records, but with whom no interview had been prepared.

of the rise in total costs). If the observed elasticity is positive – demand for *A* increases when the price of *B* goes up –, then we speak about *gross substitution*, while if it is negative, we speak about *gross complementarity.* (If it is around zero, we consider the two factors to be independent.) By investigating the cross-price elasticities, or the elasticities of "substitution", we can look "behind the scenes" how different adjustment processes influence the own-price elasticities of the demands for inputs.

When trying to calculate the above indices from cross-sectional data – observing the cost structures and input prices of several firms at a given point in time – we actually observe the final results of earlier adjustment processes. During this, we assume that the decrease or increase in the use of the different production factors has been optimal, which made it possible for the company to produce the given output at the lowest possible costs (or, which is the same thing: to attain maximum production level at given total cost level). In brief: we assume that the companies are operating at their optimum, or if they do deviate from it, the deviations are occasional and random.

Of course, this is not always true. If some firms make more efficient use of certain inputs than others – if a foreign owned large firm profits more from having specialists who speak several languages than a small machine shop, or if a medium-sized farm can use a tractor more efficiently than a small family farm –, then the total output will differ even with identical input prices and cost shares. It is important to investigate these "non-neutral efficiency differences", along with the possible decision-making constraints. The explanatory variables included into the demand models can reflect firm-specific, sectoral, or regional differences in the structure of input demands – taking the relative wages and the costs of capital as given.

Because of insufficient amount of data, demand estimation of those models that distinguish between different types of labour is only possible for companies employing more than 300 people, and for only a short time period. The estimation presented here makes distinction between three types of labour and capital.[17] The groups of labour: 1. *uneducated:* having completed a vocational school as a maximum, 2. *young educated:* secondary school or college graduate, with fewer than median years of experience in the labour market, 3. *old-educated:* secondary school or college graduate with more than the median years of experience in the labour market.[18]

In the model used, the optimal cost shares depend on their price and their contribution to productivity. Raw material costs are assumed to be identical on both the cost and the revenue sides, and were therefore ignored.[19] The production costs of a company, not including its raw material costs, can be defined as the sum of labour costs and depreciation costs, and when calculating the cost shares, we can relate the labour costs of the three types of

17 The estimations (*Köllő*, 2001) were prepared with a translog cost function using companies in the 1996–1999 waves of the Wage Survey. The number of companies included in the study was 458, 605, 455, and 436.

18 Labour market experience is an estimated value: age – number of years of education – 6. The median of experience is 21 or 22 years, depending on the year of the investigation.

19 This assumption is not necessarily true. Several researchers have demonstrated that raw materials and unskilled labour can be substituted for each other, and therefore when studying the demand for the latter, trends in raw material costs also have to be analysed. However, this could only be done in time-series settings, when we have reliable raw material price indices on an appropriately disaggregated level.

labour, and also the capital cost to this total cost. Input prices are defined as the ratio of the total costs spent on an input and the amount of the input used in production, which yields the mean unit labour cost of the labour types, and the depreciation rate (amortisation divided by the net value of tangible assets) for the capital. When calculating labour costs we included all wage-type payments, fringe benefits and contributions. We controlled for the scale effects with the inclusion of the value added, and the influence of non-neutral (related to the composition of labour) efficiency differences with a variable measuring majority foreign ownership. In the latter case, we assumed that at given wages, foreign owned companies tried to employ more young and skilled workers, because they were able to employ them more efficiently than the average (see *Kertesi–Köllő,* 2001).

Table 7 contains a summary of the most important results. Before interpreting them, we have to stress again that they are based on the analysis of a single sample with a single model. All conclusions are conditional ones and need further confirmation. Hoping in this, the results in *Table 7* can be summarised as follows.

In all cases the estimated own-wage elasticities are negative, and their magnitudes are in line with international experience (*Hamermesh*, 1993, pp. 110–111). Demand for unskilled labour is particularly wage-sensitive. While for the two groups of skilled labour we found that the elasticities were below –1.0, in three out of four years the elasticity of demand for unskilled labour was around –1.5, and it was –0.9 only in 1998.

This means that a one per cent increase in labour costs reduces demand for unskilled labour by more than one per cent, and demand for skilled labour by less than per cent. That also means that when the average wage increases, the total earnings of the former group decline, while for the latter group they increase. (Based on this, using accepted terminology, we can say that demand for unskilled labour is elastic and demand for skilled labour is inelastic.)

These differences are in line with theoretical considerations and international experience. The wage elasticity of the demand for a given type of labour depends basically on three factors.

In the case of a company, the more elastic is the demand *of its products* relative to the rising costs, the higher is the probability that a wage increase will reduce its demand for labour. This condition will raise the relative wage elasticity of the demand for unskilled labour, because this type of labour is employed primarily by large companies that face strong international competition (such as assembly facilities), by farms, and by construction firms and wholesalers that are also price sensitive.

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Table 7: Skill-specific labour demand of large firms[*]

	1996	1997	1998	1999
Cost shares in sample				
Unskilled	0.318	0.298	0.292	0.268
Skilled, old	0.202	0.189	0.205	0.195
Skilled, young	0.184	0.182	0.199	0.212
Capital	0.296	0.331	0.304	0.325
Total	1.000	1.000	1.000	1.000
Own-price elasticity				
Unskilled	–1.528	–1.528	–0.875	–1.768
Skilled, old	–0.543	–0.687	–0.986	–0.997
Skilled, young	–0.949	–1.026	–0.745	–0.647
Capital	–3.507	–2.485	–2.610	–2.573
Cross-price elasticity				
Unskilled – Capital	1.832	1.828	1.646	2.187
Skilled, old – Capital	0.541	0.509	0.555	0.340
Skilled, young – Capital	1.100	0.996	1.010	0.862
Unskilled-Skilled, old	–0.007	–0.229	–0.278	–0.170
Unskilled-Skilled, young	–0.309	–0.584	–0.949	–0.956
Skilled, old – Skilled, young	–0.285	0.165	0.575	0.612
Effect of other variables on optimal cost shares				
Sales total				
Unskilled	–0.073	–0.069	–0.080	–0.071
Skilled, old	–0.004	–0.004	0.005	–0.002
Skilled, young	0.012	0.010	0.019	0.016
Capital	0.065	0.099	0.056	0.057
Majority foreign ownership				
Unskilled	–0.006	–0.029	–0.005	0.008
Skilled, old	–0.026	–0.031	–0.054	–0.061
Skilled, young	0.010	0.022	0.014	0.030
Capital	0.022	0.038	0.045	0.023

[*] See *Kőllő* (2001) for estimation details.

Secondly, wage elasticity depends on whether it is possible to use another type of labour or capital to *substitute* for a given type of labour. Restrictions on substitution are the weakest for unskilled labour. Not only is it easier to replace this type of labour with machinery, or with a technical change in the production process, but it is also easier and cheaper to dismiss workers, or even to close down or relocate the production. "Virtual" losses stemming from dismissals are also significantly lower: in contrast with laying off skilled workers, when firms have to give up some of the possible returns from earlier investments in training, laying off unskilled workers is virtually cost-free.

Thirdly, the cost of substituting an input that has become more expensive also depends on the price elasticity *of the supply of substitute inputs.* If

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input *A* becomes more expensive and as a result the demand for, and the price of input *B* go up, this is still not sufficient for the actual substitution. It is also necessary that there should be an increase in the *supply* of the input whose demand and therefore also the price has increased. It is very difficult to decide whether the elasticity of the supply of *capital resources* substituting for unskilled or skilled labour are different or not, but it seems to be true that it is easier to substitute unskilled labour with subcontractors or outsourcing. (We often saw, particularly during the first years after the regime change, that unskilled and semi-skilled workers previously held by employees with only a primary school education were easily filled by more educated unemployed people. It would not be worthwhile for neither the company nor the employee to make substitution in the opposite direction, assuming that wages are proportional to performance.) This factor also increases the price elasticity of demand for unskilled labour.[20]

Therefore, the elasticity of demand for unskilled labour is fundamentally determined by the high level of *substitution* that is possible for this type of labour (and products). Several additional details on this can be seen in *Table 4*.

According to the results, all three types of labour can be substituted with *capital*, but unskilled labour is particularly easy to substitute if the wage becomes higher than the cost of capital. While the estimated cross-price elasticity was between 0.3 and 1.1 for skilled labour, the figures for unskilled labour were between 1.6 and 2.2. The elasticity – as already mentioned – measures the percentage change in capital usage as a consequence of a one per cent increase in the cost of the various types of labour and vice versa. A positive value (gross substitution) means that a rise in the cost of capital increases demand for labour while a negative one means that it reduces demand for labour. A rise in the price of one type of labour – particularly if unskilled – will increase the demand for capital resources. A high capital substitution elasticity such as the one estimated here is relatively rare, but several studies did report values nearly as high or even higher in the 1970s, when raw labour began to be substituted intensively in western countries (see: *Hamermesh,* 1993, pp. 110–111, comprehensive table).

The substitutability between older and younger *skilled* labour has increased somewhat. Demand for unskilled and older skilled labour seems to be more or less independent, while results suggest a gross complementarity between unskilled and young skilled labour: an increase in the price of unskilled labour also reduces demand for young skilled labour. Theoretically it is possible that in the production technology these two types of labour are complements. However, it is more likely that the increase in total costs resulting from the higher wages of unskilled labour is reducing the demand for young educated labour. This could be linked to the fact

20 A fourth possible reason for high wage elasticity is the high share of a given type of labour within total costs. In contrast with the Hicks-Marshall law already mentioned, this fourth factor is not necessarily valid. In addition, in the sample investigated, the distribution of unskilled labour was not more concentrated than the average.

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that these two types of labour are often combined in manufacturing companies with assembly facilities and belts run by new management schemes, or in wholesaler firms.

The estimates also show that larger companies employ somewhat more capital and less unskilled labour, while demand by foreign-owned companies – as expected – was distorted towards more capital and (far) less old educated labour. The results of the model that distinguishes between several types of labour are in line with *Kőrösi's* (2000) conclusions that demand for labour in the Hungarian economy is currently wage sensitive, and also indicate that this is particularly true for unskilled labour, which, in addition, can easily be substituted with capital. The resulting social tension and economic policy dilemmas are likely to influence Hungary in the future as well.

In the process of closing the gap between the Hungarian economy, still in relative capital shortage, and its developed western trade partners, the costs of capital relative to the wages will gradually decline, which is likely to further reduce the demand for unskilled labour. This story will probably not be finished on that point. If the number of available jobs continues to decline, probably even more unskilled people will stop looking for a job, and will be forced to live on unemployment benefits, or will have to find employment in the informal economy. If future governments – similarly to the one that left office this year – believe that the (apparently) increasing "incentive problem" can be remedied by radically increasing the minimum wage and cutting unemployment benefits, the problem will become even more serious: any further decline in labour demand can destroy the positive effects of the policies designed to create incentives to work.

It is very hard to predict the effect that the unprecedented growth in the skilled labour supply will have on the market. The wage elasticity reported here (if we accept it at all) refers to a state of equilibrium that evolved in the mid-1990s, when the supply of college graduates was too low relative to the demand. At most, we can predict the consequences of the increasing supply in a hypothetical economy where the demand conditions reported in *Table 4* were to remain valid also in the long run. In an economy of this type, as a consequence of the excess supply, the wages of fresh college graduates would go down, reducing the risk of unemployment. An increase in the employment of fresh graduates would have a positive effect on the demand for unskilled labour, and at the same time it would increase competition between younger and older college graduates, to the extent that these can be substituted with each other. Unemployment of college graduates would be only one of the consequences (and it is not certain that it would be the most serious one).

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It would be irresponsible rather than brave to draw any more definitive conclusions from the currently available data. The adjustment process may also be influenced by other important factors (demand could go up as a result of an increase in the quality of supply, foreign job opportunities could improve, there could be a major political intervention because of the particular sensitivity to what happens to college graduates). These factors are currently impossible to predict, not to mention that our results based on data about a few large firms can not be extended to the entire economy. It would be easier to assess chances if the analysis of labour demand could be continued on a richer database than the one used here.

3.6 Company characteristics

Gábor Kőrösi

So far, this section has suggested that while the Hungarian labour market has some specific characteristics during the transition period, the situation is in many aspects quite similar to the processes that determine labour demand in developed market economies. The most important difference is that in contrast with the labour markets of developed market economies, there is still no stable equilibrium that affects the behaviour of the Hungarian firms. As a result, all we can observe is rapid, short-term adjustment. However, the elasticity of labour demand is in line with the figures measured in developed market economies. While demand for Hungarian labour is somewhat more elastic than on the extremely rigid markets of some of the West European countries, it is quite similar to the American and some of the more flexible European markets.

This appears to contradict to what we have said about job creation and destruction, when we emphasised the extraordinary elasticity of the Hungarian labour market, but there is no sign of this extraordinary elasticity in the parameters that define firm-level labour market behaviour. What made the Hungarian market appear to be elastic?

To find the answer, it is wise first of all to investigate the companies themselves. *Table 8* presents several important statistics of the entire sample used to model labour demand, while *Table 9* presents the same descriptive statistics for the manufacturing sector.[21]

21 Forint data is always given in 1992 constant producer prices. Annual changes are always for the companies in the same group in the given year, even if the company was in a different group in the previous (base) year.

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Table 8: Descriptive statistics on firm characteristics

	1992	1993	1994	1995	1996	1997	1998	1999
All firms								
Number of firms	4,287	6,992	8,507	9,254	9,,858	11,448	11,485	11,207
Employment	290.3	174.7	165	152.2	138.8	124.3	126.9	123.6
Employment (%, change)	−16.8	−12.7	−4	−8.6	−3.5	−1.3	0.7	−3
Labour cost (1000 HUF/cap)	380.4	461.5	463.8	417.1	395.2	396.6	417.2	444.8
Labour cost (%, change)	7.2	6.4	2.9	−9.5	−4.5	−0.1	1.9	6.4
Output (HUF, million)	542.1	443.5	453.8	430.7	428.8	435.5	498.7	562.4
Output (%, change)	−16	0	8	0.2	3.7	9.8	13.5	11.9
Profit margin (%)	−36.2	−42.7	−31.5	−3.2	−13.1	1.1	−22.7	−10.1
Increasing output								
Number of firms	917	3,125	4,463	3,873	4,269	5,473	6,713	5,633
Employment	331.9	179.2	166.3	167.5	144.8	130	136.4	150.8
Employment (%, change)	1.7	−1.5	6.4	3.4	4.3	6.8	7	3.9
Labour cost (1000 HUF/cap)	471.7	513.4	495.7	447.5	426.6	425.3	443	464.8
Labour cost (%, change)	8.7	8.7	4.2	−5.9	−0.7	3.8	1.1	7.5
Output (HUF, million)	966.8	545.8	578.6	581.7	560.3	602.5	614.5	776.9
Output (%, change)	69.4	36	27.8	25.3	28.2	32.9	31.3	30.5
Profit margin (%)	−4.4	−21.4	−7	14.3	−4.5	1.9	4.6	−5.8
Decreasing output								
Number of firms	3,370	3,867	4,044	5,381	5,589	5,975	4,772	5,574
Employment	278.9	171.1	163.6	141.3	134.3	119.1	113.6	96.2
Employment (%, change)	−21.4	−20.4	−13.5	−16.9	−9.1	−8.2	−8.3	−12.4
Labour cost (1000 HUF/cap)	355.5	419.5	428.6	395.2	371.2	370.4	380.9	424.6
Labour cost (%, change)	6.7	4.3	1.3	−12.3	−7.7	−3.8	3.3	5.2
Output (HUF, million)	426.5	360.8	316.1	322	328.4	282.5	335.8	345.7
Output (%, change)	−35.9	−24.5	−17.8	−20.6	−16.9	−18	−15.9	−15.5
Profit margin (%)	−44.9	−59.9	−58.5	−15.8	−19.7	0.4	−61	−14.5
Domestic owner								
Number of firms	3,588	5,422	6,656	7,254	7,739	8,894	8,954	8,739
Employment	299.1	166.1	151.6	134.1	116.5	102.3	102.4	97.9
Employment (%, change)	−17.7	−13	−7.3	−10.4	−4.8	−3.1	−1.2	−4.6
Labour cost (1000 HUF/cap)	347.3	408.9	413	370.8	343.8	331.2	348.8	369.8
Labour cost (%, change)	7.9	7.3	1.6	−10	−6.1	−1.5	0.2	5.8
Output (HUF, million)	499.5	362.3	323.1	268.3	242.4	220.2	239.3	241.5
Output (%, change)	−18	−6	1.1	−5.4	−2.1	−0.4	6.6	2
Profit margin (%)	−39.3	−46.1	−36.2	−8.6	−12.1	−4.7	−29.7	−7.8
Majority foreign owner								
Number of firms	348	964	1,193	1,367	1,500	1,887	1,935	1,919
Employment	233.3	194.5	182.4	203.1	209.7	194	221.8	227.3
Employment (%, change)	−7.9	−3.1	3.4	2.3	0.9	4.1	6.2	2.3
Labour cost (1000 HUF/cap)	588	681.5	683.6	629.1	634.2	666.5	701.5	752
Labour cost (%, change)	5.7	4.2	6.6	−7.3	−0.1	3	5.9	7.5
Output (HUF, million)	807.9	771.2	856	934.3	1,052.1	1,155.1	1,606.5	1,950.4
Output (%, change)	11	18.6	27.2	8.4	12.9	23.8	21	20.8
Profit margin (%)	−9.6	−19.1	−16	29.6	−21.1	31.6	5.2	−7.9

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Table 9: Descriptive statistics on firm characteristics, manufacturing

	1992	1993	1994	1995	1996	1997	1998	1999
All manufacturing firms								
Number of firms	1,458	2,215	2,811	3,066	3,251	3,793	3,914	3,844
Employment	314.8	215	191.3	178.8	170.1	155.3	159.5	158
Employment (%, change)	−15.8	−13.6	−5.6	−1.9	−1.6	2	2.9	−2
Labour cost (1000 HUF/cap)	367.4	425.8	438.8	411.1	392.8	392.8	402.7	425.6
Labour cost (%, change)	9	12.6	3	−5.6	−3.1	1.1	6.4	7.8
Output (HUF, million)	688.7	530.5	544.3	557.4	564.8	593.6	677	810.3
Output (%, change)	0.4	5.6	10.2	10.2	7.3	19.1	16.7	18.6
Profit margin (%)	−40.3	−17	−19.7	−9.5	−4.6	15.3	0.4	−1.4
Increasing output								
Number of firms	424	1,209	1,665	1,594	1,536	1,970	2,315	1,901
Employment	327.4	218.7	197.4	192.8	174.5	181.2	154	167.6
Employment (%, change)	−1.9	−8.7	1	5.5	7.7	8.7	11.2	7.5
Labour cost (1000 HUF/cap)	417.3	445.5	465.2	439.8	422.7	409.9	423.2	454.2
Labour cost (%, change)	12.7	17	3.1	−0.1	2.9	5.6	9.1	10
Output (HUF, million)	1,250.8	643	708	756.9	609.5	891.8	760.3	1,075.4
Output (%, change)	87.2	28.7	24.2	25.1	35.9	38.1	41.6	43.7
Profit margin (%)	−4.7	−4	−1.7	−0.9	2.7	3	3.9	3.3
Decreasing output								
Number of firms	1,034	1,006	1,146	1,472	1,715	1,823	1,599	1,943
Employment	309.6	210.5	182.4	163.7	166.2	127.2	167.5	148.7
Employment (%, change)	−20.7	−19.1	−14.5	−10	−9.1	−6.9	−6.4	−10.7
Labour cost (1000 HUF/cap)	346.9	402.2	400.4	380.1	366	374.3	372.9	397.6
Labour cost (%, change)	7.3	7.3	2.7	−11.8	−8.7	−3.9	2.2	5.6
Output (HUF, million)	458.2	395.2	306.6	341.3	524.8	271.4	556.5	551
Output (%, change)	−33.9	−21.9	−20.2	−14.4	−12	−20	−13.4	−11
Profit margin (%)	−54.8	−32.6	−45.7	−18.8	−11.2	28.6	−4.7	−6.1
Domestic owner								
Number of firms	1,063	1,457	1,873	2,033	2,176	2,528	2,598	2,559
Employment	324.4	199.7	164.7	149.5	134.1	113.7	112.8	106.4
Employment (%, change)	−17.5	−11.3	−8.7	−4	−3.4	−0.8	0.6	−5.1
Labour cost (1000 HUF/cap)	326.6	371.2	382.2	355.6	334.7	327.5	337.5	358.9
Labour cost (%, change)	10	14.1	−0.5	−9	−5.5	−1.8	6.7	8.5
Output (HUF, million)	704.9	460.4	306.1	294.6	249	226.3	222.7	222.1
Output (%, change)	2	−1.1	1.2	4.2	−3.1	3.3	5	2.1
Profit margin (%)	−50.6	−20.6	−17.1	−10.7	−5.5	−1.6	−0.2	−2
Majority foreign owner								
Number of firms	216	504	647	755	811	982	1,036	1,029
Employment	251.2	234	218.9	223.6	234.2	225.2	257.3	272.6
Employment (%, change)	−7.5	−5.2	2.1	2.5	2.7	6.1	7.2	3.4
Labour cost (1000 HUF/cap)	518.8	553.4	572.5	547	537.1	551.7	556.8	582.5
Labour cost (%, change)	9.8	9.9	7.6	0	0.4	5.8	6.3	7.2
Output (HUF, million)	640.9	682.5	813.2	914.4	1,085.4	1,238.8	1,804	2,322.6
Output (%, change)	12.1	21.7	27.2	19	19.3	34.2	23.4	25.7
Profit margin (%)	−7.8	−9.9	−26.3	−8.7	−2.5	62.9	2.4	0.4

It is instructive to look at the changes in the output of companies increasing and reducing their production. There was not a single year in the entire sample when the *average* growth rate of the expanding firms was less than 25 per cent, or when the *average* decline of the contracting ones was less than 15 per cent. If we look at the manufacturing industry only, we see a somewhat more moderate rate in the latter half of the period, but even *average annual* changes in excess of 10 per cent are very high. Similarly, in the first half of the sample period, and sometimes even later on, the rate of change of *real* wage costs was also quite high, particularly if we compare that with, for instance, the output dynamics of contracting or domestically-owned firms. Having seen these changes it is not at all surprising that contracting firms dismissed at least 8 per cent of their employees each year.[22]

We see that the situation has improved gradually after 1995: relatively more companies were able to increase their production, and the expanding firms have increased their output significantly more rapidly than the rate with which contracting firms declined. As a consequence, from the mid-1990s firm-level average output (particularly in manufacturing) grew very rapidly. Obviously, there were major differences between the firms behind this definitely positive average trend: some of the firms – particularly those in foreign ownership – grew very dynamically, but the market situation worsened significantly for as much as nearly half of them.

Therefore, despite the low elasticities of labour demand, with the enormous changes, even moderate elasticities generated huge changes. For instance, in 1999, the production elasticity of labour demand for the entire sample was 0.41, while the wage elasticity was only −0.27. These figures describe a very rigid labour market. Let us consider, however, an average contracting firm, where real wage costs increased by 5.2 per cent and production declined by 15.5 per cent. On this basis, an 11.8 per cent decline in the number of employees should be expected, and the actual average reduction was quite close to this (12.4 per cent).

At the same time, if a company could increase its output by 30 per cent, it is obvious that it had to employ many new workers: an elasticity of 0.4 would increase firm-level employment by 12 per cent, that could be reduced somewhat by the effects of wage increases. This explains the apparent contradiction between the very inelastic labour demand and the very elastic job reallocation.

The unusually high job creation and destruction rates reflect an exceptionally rapid and broad structural transformation of the Hungarian business sector, rather than the particularly high elasticity of the Hungarian labour market. Therefore, it was not the labour market that was extremely elastic in the 1990s, but the economic structure changed very rapidly. This

22 Of course, it is quite possible for the production of a company to decline in one year and rise in the next.

is the most likely explanation of the phenomenon that the labour market behaviour of the firms was characterised on the one hand by very rapid adjustment, and on the other, that labour demand was not influenced by the long-run equilibrium. And probably this is the reason why in the entire sample we found a significant asymmetry in the elasticities, despite finding no similar effects in the sectoral estimations. It is possible that elasticities were relatively higher in the crisis sectors, and this was the reason behind the surprising phenomenon on the aggregate level.

When the market situation of firms changes or can change at this rate, it is necessary to adjust to these changes quickly and it is not possible to consider long-run issues. This is particularly true because the rapid growth was far from being general. In 1997–1999, output in the manufacturing industry increased by an annual average of nearly 20 per cent, but there were huge differences in that growth. The half of the companies increased their production by an average of twice that rate, while the other half, unable to expand, declined by over 10 per cent a year. This should also make it clear that based on the past, it is nearly impossible to reliably predict the operation of the labour market in a much less dynamic period.

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STATISTICAL DATA

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SECTIONS

1. Basic economic indicators
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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 CSO-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	Industry production	Exports	Imports	Real earnings	Employment
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[2]	126.4[2]	104.9	100.1
1998	104.9	112.5	122.1[2]	124.9[2]	103.6	101.4
1999	104.2	110.4	115.9[2]	114.3[2]	102.5	103.2
2000	105.2	118.1	121.8[2]	121.1[2]	101.5	101.0
2001	103.8[1]	104.1[1]	109.1[2]	106.3[2]	106.4	100.3

* Previous year = 100.
1 Preliminary.
2 Including free trade zones.
Source: Employment: 1989–1991: KSH MEM; 1992–: KSH MEF. Other data: KSH.
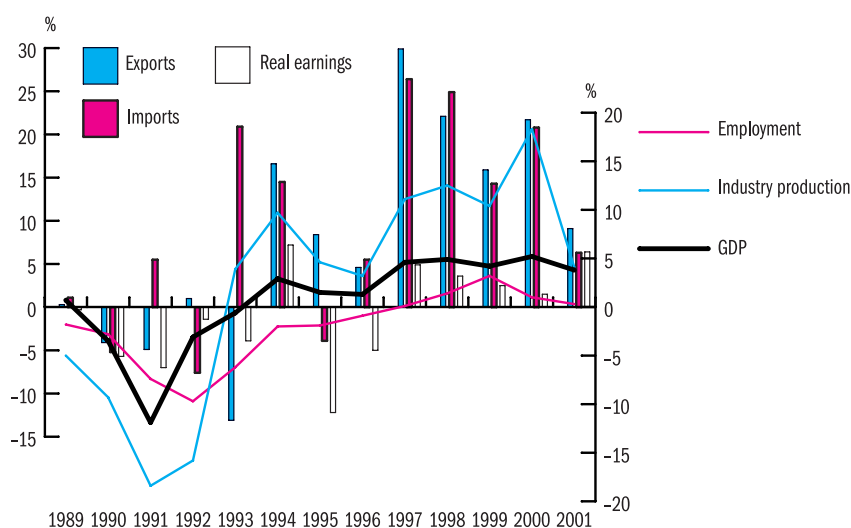
Figure 1.1: Annual changes of main economic indicators 1.

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Table 1.2: Main economic indicators 2.*

Year	GDP def-lator	Consumer price inde-xes	Trade balance[5]/ GDP	Balance of current account[3]/ GDP	General government deficit[4]/GDP	Gross foreign debt/GDP[2]
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	–2.5	–4.3	3.4	64.4
2000	109.7	109.8	–4.0	–3.2	3.4	66.6
2001	108.6	109.2	–2.1	–2.1[1]	...	62.9[1]

* Previous year = 100.
1 Preliminary. – 2 Including owner credit. – 3 1989–94: in convertible currency;
   1995–: in convertible and non-convertible currency. – 4 1995–98: excluding revenues
   from privatization. – 5 Goods and services.
Source: KSH. Balance of current account: MNB.
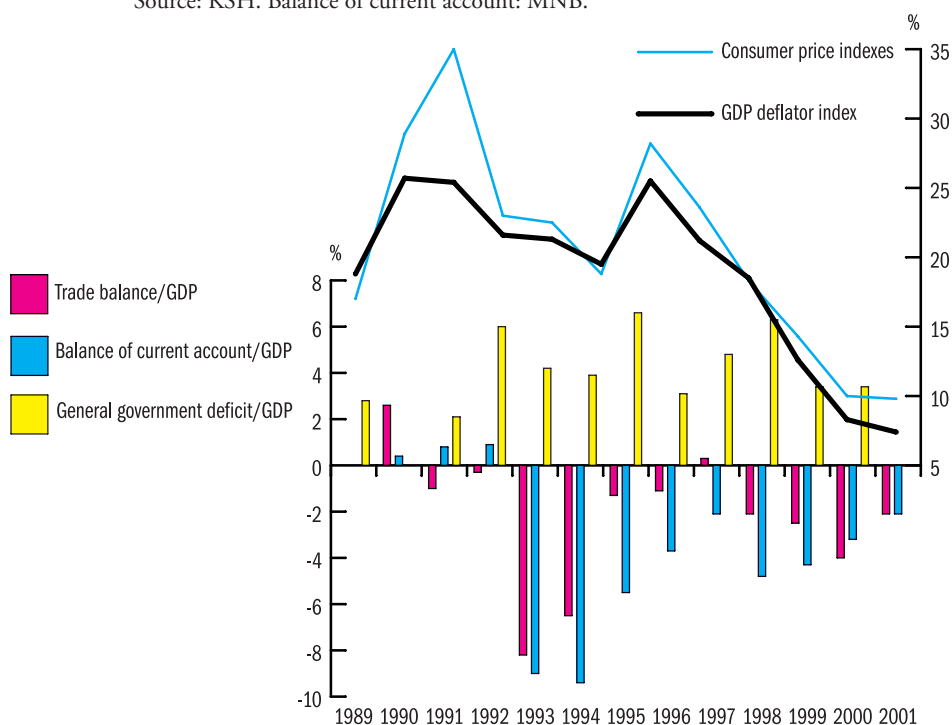
Figure 1.2: Annual changes of main economic indicators 2.

Table 2: Population[1]

Year	In thousands	1992 = 100	Annual changes	Population 15–64 age	Dependency rate[2]
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

1 1st January.
2 Population 0–14 + above 65 age / population 15–64 age.
Note: Recalculated on the basis of Population Cenzus 2001.
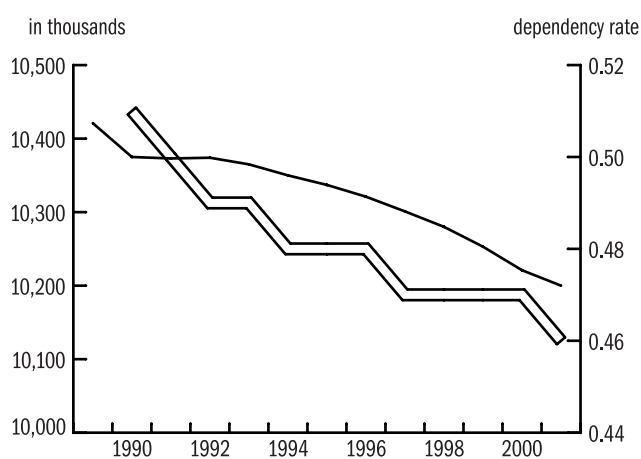
Figure 2: Population on 1st January

Table 3.1: Labour force participation*

Year	Below working age	Population at working age								Population above working age			Total
		Employed	Of which: self-employed and assisting family members	Unemployed	Pensioner	Student	On child care leave	Other inactive	Employed	Pensioner and other inactive	Unemployed	
1980	2,347.6	4,887.9	170.6	0.0	300.8	370.1	259.0	339.7	570.3	1,632.1	0.0	10,707.5
1990	2,097.1	4,534.3	260.2	62.4	284.3	548.9	249.7	297.5	345.7	1,944.9	0.0	10,364.9
1991	2,036.8	4,270.5	280.0	253.3	335.6	578.2	259.8	317.1	249.5	2,045.2	0.0	10,346.0
1992	1,983.9	3,898.4	301.0	434.9	392.7	620.0	262.1	435.9	184.3	2,101.7	9.8	10,323.7
1993	1,934.4	3,689.5	319.3	502.6	437.5	683.9	270.5	480.1	137.5	2,141.2	16.3	10,293.5
1994	1,890.4	3,633.1	342.0	437.4	476.5	708.2	280.9	540.7	118.4	2,163.8	11.9	10,261.3
1995	1,853.2	3,571.3	366.2	410.0	495.2	723.4	285.3	596.1	107.5	2,180.6	6.4	10,229.0
1996	1,819.3	3,546.1	388.9	394.0	512.7	740.0	289.2	599.3	102.1	2,184.6	6.1	10,193.4
1997	1,786.9	3,549.5	389.6	342.5	542.9	752.0	289.0	599.9	96.9	2,189.0	6.3	10,154.9
1998	1,758.2	3,608.5	375.0	305.5	588.8	697.0	295.5	565.7	89.3	2,197.6	7.5	10,113.6
1999	1,731.1	3,701.0	411.5	283.3	534.7	675.6	298.5	546.6	110.4	2,185.2	1.4	10,067.8
2000	1,710.0	3,721.7	384.3	260.2	506.4	695.1	297.2	619.1+	127.4	2,271.0+	2.3	10,211.0
2001	1,676.0	3,719.2	371.5	230.5	508.3	685.7	298.3	656.6+	140.3	2,277.1+	2.3	10,189.7

* In thousands. Annual average figures.

Notes: Till 1999 updated figure based on 1990 population census, 2000 and 2001 demographical information based on 2001 population census, but labour market information comming from the original LFS.

'Employed' includes conscripts and working pensioner. Data on students for 1995–97 have been reestimated 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 – Males*

| Year | Below working age | Men at working age | | | | | | | Men above working age | | | Total |
		Employed	Of which: self-employed and assisting family members	Unemployed	Pensioner	Student	On child care leave	Other inactive	Employed	Pensioner and other inactive	Unemployed	
1980	1,208.2	2,750.5	85.6	0.0	173.8	196.3	0.0	99.1	265.3	491.8	0.0	5,185.0
1990	1,073.1	2,524.3	168.9	37.9	188.4	284.2	1.2	80.3	123.7	665.5	0.0	4,978.6
1991	1,041.7	2,351.6	179.8	150.3	218.7	296.5	1.5	115.0	90.4	700.7	0.0	4,966.4
1992	1,014.4	2,153.1	195.6	263.2	252.0	302.4	1.7	174.8	65.1	722.1	3.2	4,952.0
1993	989.1	2,029.1	207.8	311.5	263.2	346.9	2.0	203.3	47.9	735.7	4.5	4,933.2
1994	966.5	2,013.4	222.5	270.0	277.6	357.1	3.7	239.6	41.6	740.0	3.8	4,913.3
1995	947.9	2,012.5	243.0	259.3	282.2	367.4	4.9	237.8	37.1	742.6	2.1	4,893.8
1996	931.0	2,007.4	266.4	242.4	291.9	372.8	3.3	248.3	28.9	746.3	1.3	4,873.6
1997	914.8	2,018.0	268.5	212.2	306.0	377.6	1.5	251.6	25.5	743.5	1.9	4,852.6
1998	900.3	2,015.5	256.7	186.5	345.4	350.4	1.0	264.2	26.2	737.3	2.8	4,829.6
1999	886.8	2,068.4	283.3	170.3	312.7	338.8	4.2	261.5	34.7	727.2	0.4	4,805.0
2000	874.7	2,084.2	263.7	158.8	310.8	352.5	4.1	273.1[+]	38.2	760.4[+]	0.7	4,792.0
2001	857.9	2,091.4	260.9	141.9	311.6	342.7	1.0	293.9[+]	39.2	769.5[+]	0.7	4,845.2

* See the notes to Table 3.1.

Table 3.3: Labour force participation – Females*

Year	Below working age	Women at working age							Women above working age			Total
		Emplo-yed	Of which: self-emp-loyed and assisting family members	Unemp-loyed	Pensio-ner	Stu-dent	On child care leave	Other inactive	Emplo-yed	Pensio-ner and other inactive	Unemp-loyed	
1980	1,139.4	2,137.4	85.0	0.0	127.0	173.8	259.0	240.6	305.0	1,140.3	0.0	5,522.5
1990	1,024.1	2,010.0	91.3	24.5	95.8	264.7	248.5	217.3	222.0	1,279.4	0.0	5,386.3
1991	995.1	1,918.9	100.2	103.1	116.9	281.8	258.3	201.9	159.1	1,344.5	0.0	5,379.6
1992	969.5	1,745.3	105.4	171.7	140.8	317.6	260.4	261.1	119.2	1,379.6	6.6	5,371.8
1993	945.3	1,660.4	111.5	191.1	174.3	337.0	268.5	276.8	89.6	1,405.5	11.8	5,360.3
1994	923.7	1,619.7	119.5	167.4	198.9	351.1	277.2	301.1	76.8	1,423.8	8.1	5,347.8
1995	905.3	1,558.8	123.2	150.7	213.0	356.0	280.4	358.3	70.4	1,438.0	4.3	5,335.2
1996	888.3	1,538.7	122.5	151.6	220.7	367.2	285.9	351.1	73.2	1,438.3	4.8	5,319.8
1997	872.1	1,531.5	121.1	130.3	236.9	374.4	287.5	348.3	71.4	1,445.3	4.4	5,302.1
1998	857.9	1,593.0	118.3	119.0	243.4	346.6	294.5	301.5	63.1	1,460.3	4.7	5,284.0
1999	844.3	1,632.6	128.2	113.0	222.0	336.8	291.1	288.3	75.8	1,458.0	1.0	5,262.9
2000	835.3	1,637.5	120.6	101.4	195.6	342.6	293.1	346.0[+]	89.2	1,510.6[+]	1.6	5,251.0
2001	818.1	1,627.8	110.6	88.6	196.7	343.0	297.3	362.7[+]	101.1	1,507.6[+]	1.6	5,344.5

* See the notes to Table 3.1.

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Table 3.4: Labour force participation, per cent*

| Year | Below working age | Population at working age | | | | | | | Population above working age | | | Total |
		Employed	Of which: self-employed and assisting family members	Unemployed	Pensioner	Student	On child care leave	Other inactive	Employed	Pensioner and other inactive	Unemployed	
1980	21.9	45.6	1.6	0.0	2.8	3.5	2.4	3.2	5.3	15.2	0.0	100.0
1990	20.2	43.7	2.5	0.6	2.7	5.3	2.4	2.9	3.3	18.8	0.0	100.0
1991	19.7	41.3	2.7	2.4	3.2	5.6	2.5	3.1	2.4	19.8	0.0	100.0
1992	19.2	37.8	2.9	4.2	3.8	6.0	2.5	4.2	1.8	20.4	0.1	100.0
1993	18.8	35.8	3.1	4.9	4.3	6.6	2.6	4.7	1.3	20.8	0.2	100.0
1994	18.4	35.4	3.3	4.3	4.6	6.9	2.7	5.3	1.2	21.1	0.1	100.0
1995	18.1	34.9	3.6	4.0	4.8	7.1	2.8	5.8	1.1	21.3	0.1	100.0
1996	17.8	34.8	3.8	3.9	5.0	7.3	2.8	5.9	1.0	21.4	0.1	100.0
1997	17.6	35.0	3.8	3.4	5.3	7.4	2.8	5.9	1.0	21.6	0.1	100.0
1998	17.4	35.7	3.7	3.0	5.8	6.9	2.9	5.6	0.9	21.7	0.1	100.0
1999	17.2	36.8	4.1	2.8	5.3	6.7	2.8	5.6	1.1	21.7	0.0	100.0
2000	16.7	36.4	3.8	2.5	5.0	6.8	2.9	6.1	1.2	22.2	0.0	100.0
2001	16.4	36.5	3.6	2.3	5.0	6.7	2.9	6.4	1.4	22.3	0.0	100.0

* See the notes to Table 3.1.
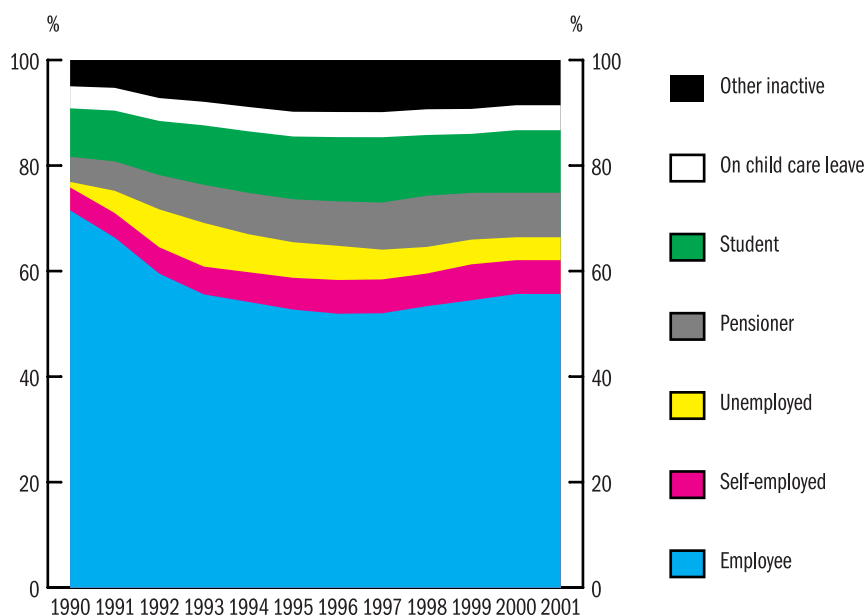
Figure 3.1: Labour force participation of population at working age, per cent

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Table 3.5: Labour force participation – Males, per cent*

Year	Below working age	Men at working age							Men above working age			Total
		Employed	Of which: self-employed and assisting family members	Unemployed	Pensioner	Student	On child care leave	Other inactive	Employed	Pensioner and other inactive	Unemployed	
1980	23.3	53.0	1.7	0.0	3.4	3.8	0.0	1.9	5.1	9.5	0.0	100.0
1990	21.6	50.7	3.4	0.8	3.8	5.7	0.0	1.6	2.5	13.4	0.0	100.0
1991	21.0	47.4	3.6	3.0	4.4	6.0	0.0	2.3	1.8	14.1	0.0	100.0
1992	20.5	43.5	3.9	5.3	5.1	6.1	0.0	3.5	1.3	14.6	0.1	100.0
1993	20.0	41.1	4.2	6.3	5.3	7.0	0.0	4.1	1.0	14.9	0.1	100.0
1994	19.7	41.0	4.5	5.5	5.6	7.3	0.1	4.9	0.8	15.1	0.1	100.0
1995	19.4	41.1	5.0	5.3	5.8	7.5	0.1	4.9	0.8	15.2	0.0	100.0
1996	19.1	41.2	5.5	5.0	6.0	7.6	0.1	5.1	0.6	15.3	0.0	100.0
1997	18.9	41.6	5.5	4.4	6.3	7.8	0.0	5.2	0.5	15.3	0.0	100.0
1998	18.6	41.7	5.3	3.9	7.2	7.3	0.0	5.5	0.5	15.3	0.1	100.0
1999	18.5	43.0	5.9	3.5	6.5	7.1	0.1	5.4	0.7	15.2	0.0	100.0
2000	18.0	42.9	5.4	3.3	6.4	7.3	0.1	5.6	0.8	15.7	0.0	100.0
2001	17.7	43.2	5.4	2.9	6.4	7.1	0.0	6.1	0.8	15.9	0.0	100.0

* See the notes to Table 3.1.
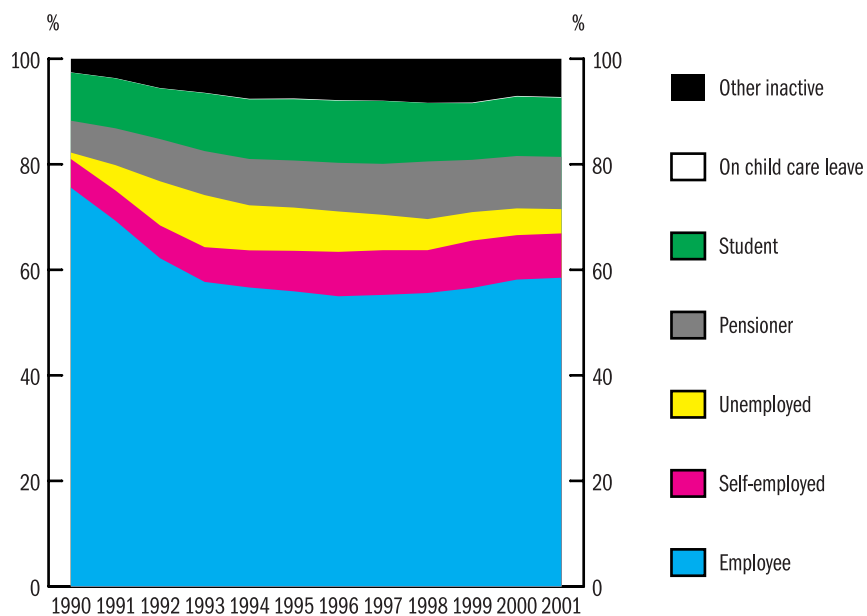
Figure 3.2: Labour force participation – Men aged 15–59, per cent

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Table 3.6: Labour force participation – Females, per cent*

Year	Below working age	Women at working age							Women above working age			Total
		Employed	Of which: self-employed and assisting family members	Unemployed	Pensioner	Student	On child care leave	Other inactive	Employed	Pensioner and other inactive	Unemployed	
1980	20.6	38.7	1.5	0.0	2.3	3.1	4.7	4.4	5.5	20.6	0.0	100.0
1990	19.0	37.3	1.7	0.5	1.8	4.9	4.6	4.0	4.1	23.8	0.0	100.0
1991	18.5	35.7	1.9	1.9	2.2	5.2	4.8	3.8	3.0	25.0	0.0	100.0
1992	18.0	32.5	2.0	3.2	2.6	5.9	4.8	4.9	2.2	25.7	0.1	100.0
1993	17.6	31.0	2.1	3.6	3.3	6.3	5.0	5.2	1.7	26.2	0.2	100.0
1994	17.3	30.3	2.2	3.1	3.7	6.6	5.2	5.6	1.4	26.6	0.2	100.0
1995	17.0	29.2	2.3	2.8	4.0	6.7	5.3	6.7	1.3	27.0	0.1	100.0
1996	16.7	28.9	2.3	2.8	4.1	6.9	5.4	6.6	1.4	27.0	0.1	100.0
1997	16.4	28.9	2.3	2.5	4.5	7.1	5.4	6.6	1.3	27.3	0.1	100.0
1998	16.2	30.1	2.2	2.3	4.6	6.6	5.6	5.7	1.2	27.6	0.1	100.0
1999	16.0	31.1	2.4	2.1	4.2	6.4	5.3	5.7	1.4	27.8	0.0	100.0
2000	15.6	30.6	2.3	1.9	3.7	6.4	5.5	6.5	1.7	28.2	0.0	100.0
2001	15.3	30.5	2.1	1.7	3.7	6.4	5.6	6.8	1.9	28.2	0.0	100.0

* See the notes to Table 3.1.
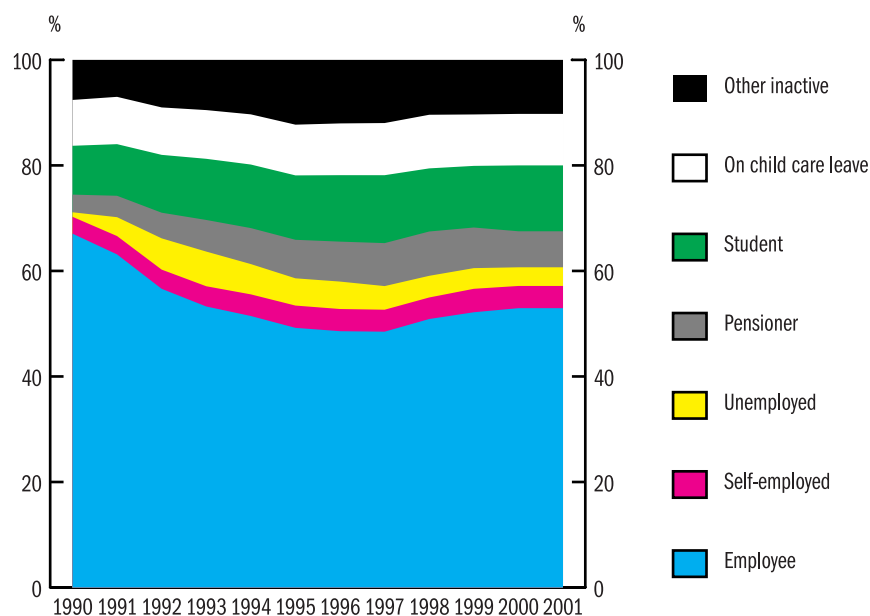
Figure 3.3: Labour force participation– Women aged 15–54, per cent

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Table 4.1: Employed of working age*

Year	1000 prs	1992=100	Annual change	Employment ratio[1]
1980	4,887.9	125.4	...	79.4
1990	4,534.3	116.3	...	75.9
1991	4,270.5	109.5	–5.8	71.0
1992	3,898.4	100.0	–8.7	64.5
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	...

1 Per cent of the working age population.
* Female aged 15–44, men aged 15–59, no correction on the basis of the increasing
   working age.
Source: 1980–91: KSH MEM, 1992– KSH MEF.
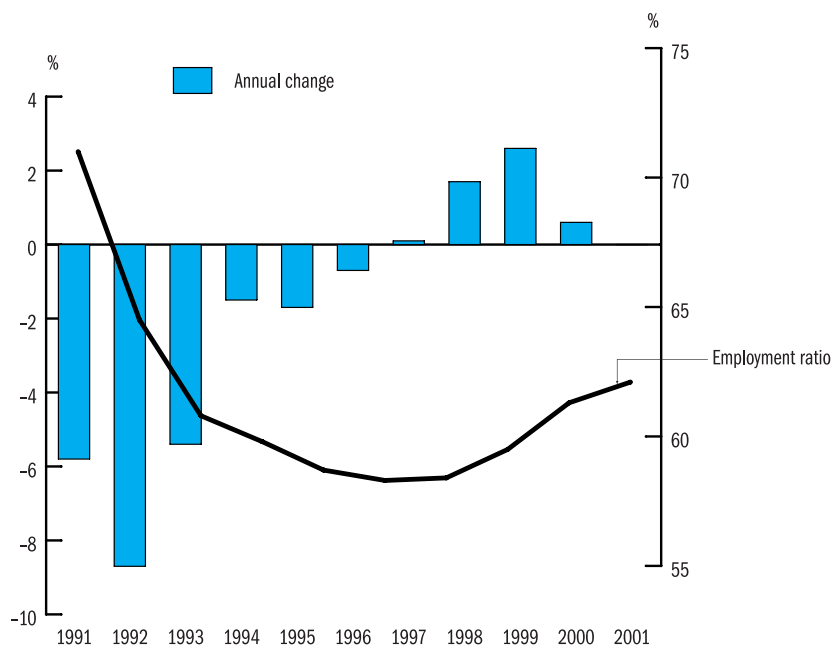
Figure 4.1: Employe.d of working age

Table 4.2: Employed above working age*

Year	1000 prs	1992=100	Annual change	Employment ratio[1]
1980	570.3	309.4	...	25.9
1990	345.7	187.6	...	15.1
1991	249.5	135.4	–27.8	10.9
1992	184.3	100.0	–26.1	8.0
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	...

* See note table 4.1.
1 Per cent of the population above working age. Working age defined ad females aged
   15–54 and men aged 15–59.
Source: 1980–91: KSH MEM, 1992– KSH MEF.
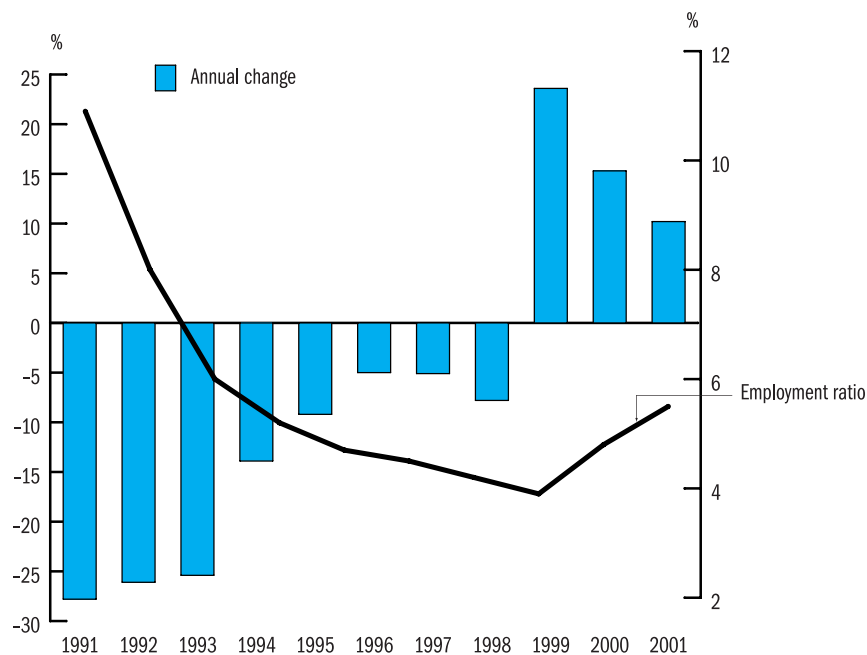
Figure 4.2: Employed above working age

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Table 4.3: Employed

Year	1000 prs	1992=100	Annual change	Employment 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	45.4

1 Per cent of the population above 15 year.
Source: 1980–91: KSH MEM, 1992– KSH MEF.
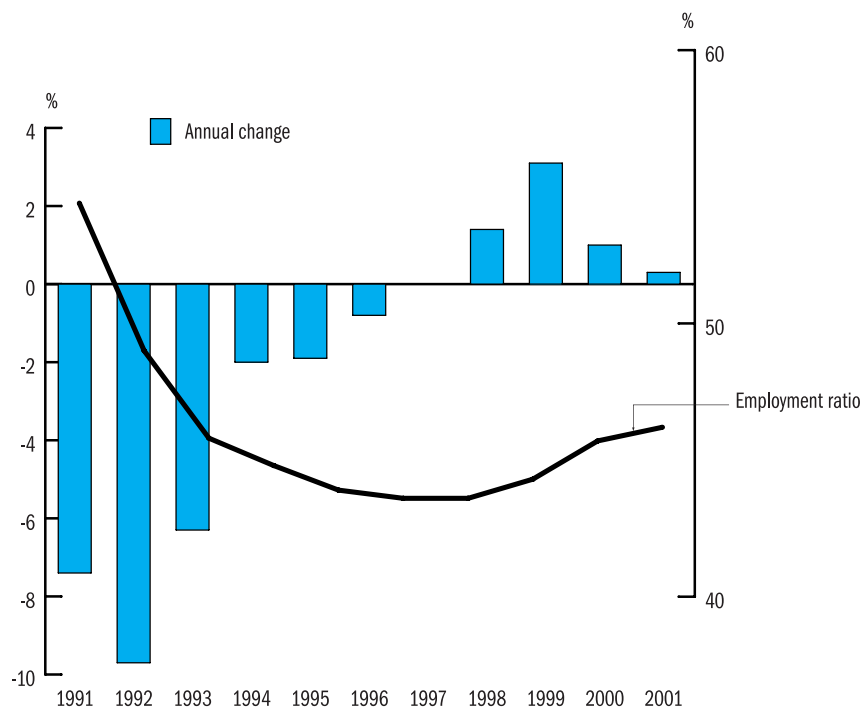
Figure 4.3: Employed

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Table 4.4: Employed by gender

Year	Males		Females		Ratio of females per cent
	1000 prs	1992=100	1000 prs	1992=100	
1980	3,015.8	136.0	2442.4	131.0	44.7
1990	2,648.0	119.4	2232.0	119.7	45.7
1991	2,442.0	110.1	2078.0	111.5	46.0
1992	2,218.2	100.0	1864.5	100.0	45.7
1993	2,077.0	93.6	1750.0	93.9	45.7
1994	2,055.0	92.6	1696.5	91.0	45.2
1995	2,049.6	92.4	1629.2	87.4	44.3
1996	2,036.3	91.8	1611.9	86.5	44.2
1997	2,043.5	92.1	1602.9	86.0	44.0
1998	2,041.7	92.0	1656.1	88.8	44.8
1999	2,103.1	94.8	1708.4	91.6	44.8
2000	2,122.4	95.7	1726.7	92.6	44.9
2001	2,130.6	96.1	1728.9	92.7	44.8

Source: 1980–91: KSH MEM, 1992– : KSH MEF.

in thousands
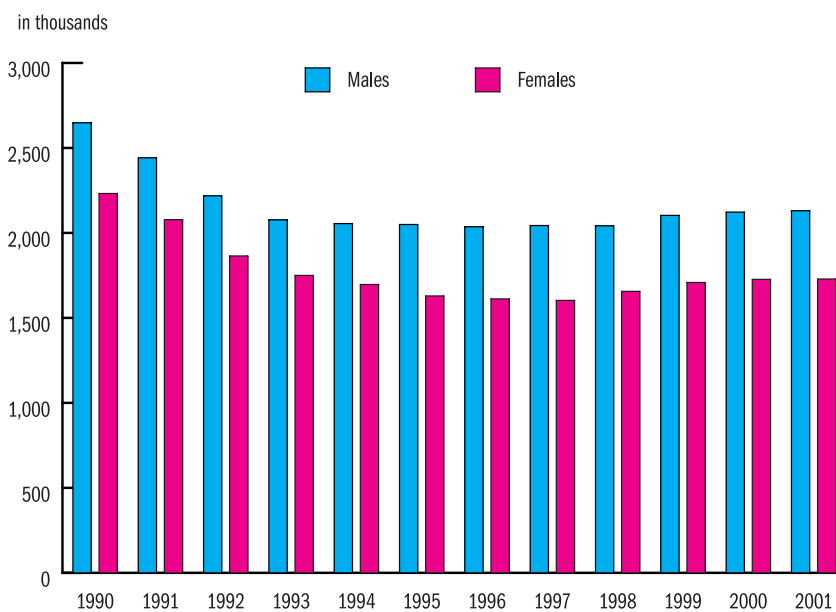
Figure 4.4: Employed by gender

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Table 4.5: Composition of the unemployed 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

Source: 1980–91: Census based estimates. 1992– : KSH MEF.
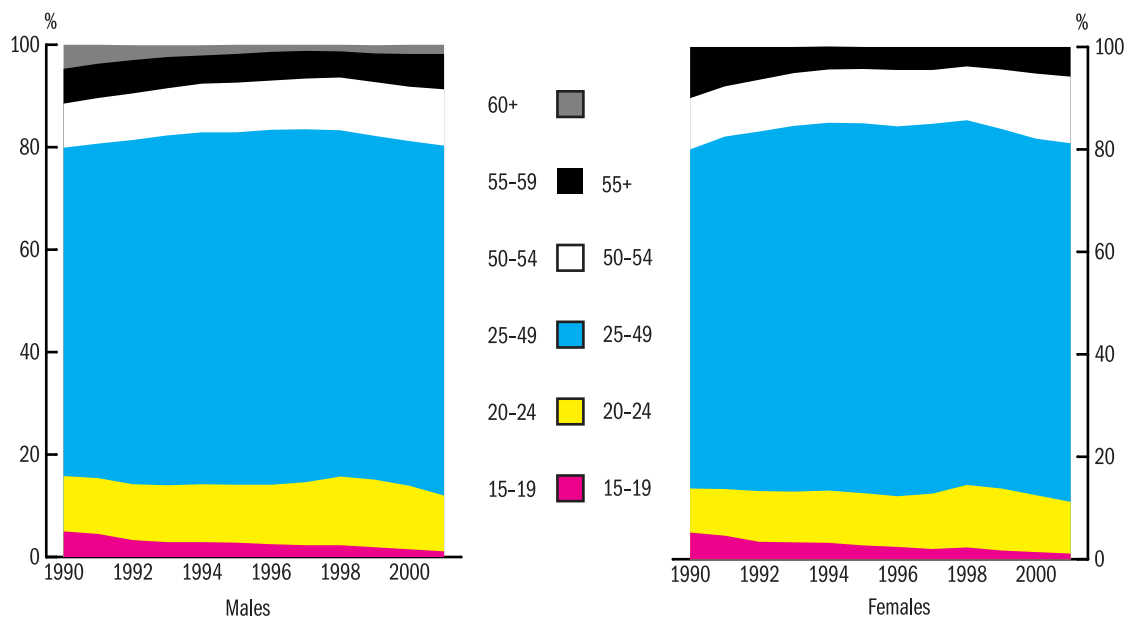
Figure 4.5: Employed by age, per cent

Table 4.6: Composition of the unemployed 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
1991	4.6	9.1	68.8	9.8	7.7	100.0
1992	3.4	9.9	70.2	10.1	6.4	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

Source: 1980–1991: 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
1992	25.9	35.2	24.1	14.7	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

Source: 1980–91: Census based estimates. 1992– : KSH MEF.
Note: Since 1999 slight changes carried out in the categorisation system.

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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
1992	32.8	17.0	36.0	14.2	100.0
1993	31.1	17.9	35.9	15.1	100.0
1994	28.4	19.5	36.8	15.3	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

Source: 1980–91: Census based estimates. 1992– : KSH MEF.
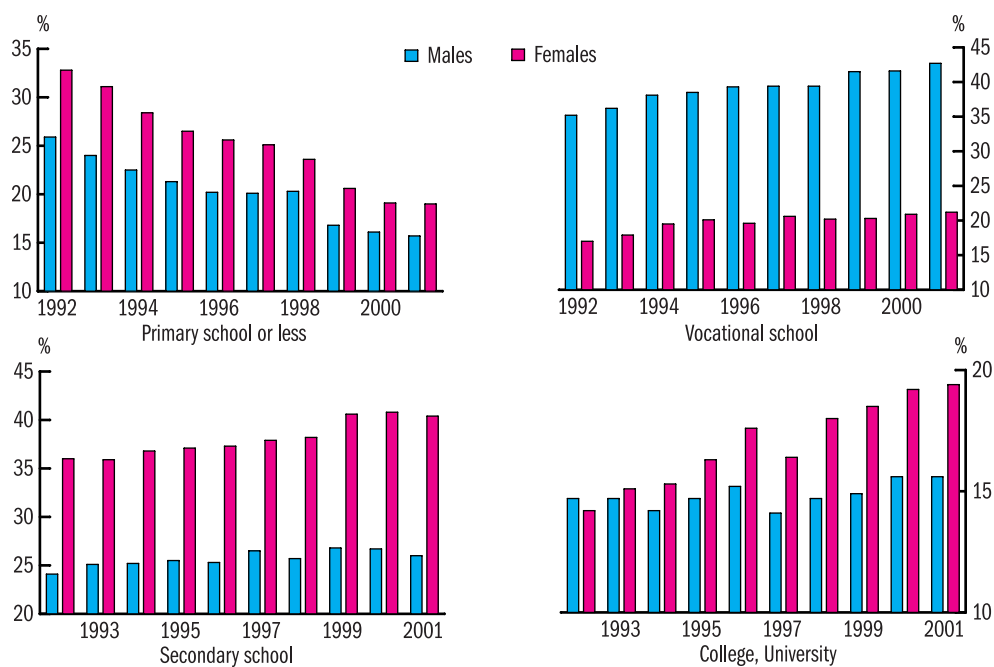
Figure 4.6: Employed by highest educational attainment and gender, per cent

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Table 4.9: Composition of the employed
by type of employment, per cent

Year	Employees	Self-employed and assisting family members
1980	96.5	3.5
1990	94.3	5.7
1991	93.4	6.6
1992	92.3	7.7
1993	91.3	8.7
1994	90.6	9.4
1995	89.7	10.3
1996	89.0	11.0
1997	89.0	11.0
1998	89.6	10.4
1999	88.9	11.1
2000	89.4	10.6
2001	89.6	10.4

Source: 1980–91: KSH MEM, 1992– KSH MEF.

Figure 4.7: Ratio of self-employed and assisting family members, per cent

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Table 4.10: Self-employed and assisting family members*

Year	In thousands	1992=100	Annual changes
1980	170.6	56.7	...
1990	260.2	86.4	...
1991	280.0	93.0	7.6
1992	301.0	100.0	7.5
1993	319.3	106.1	6.1
1994	342.0	113.6	7.1
1995	366.2	121.7	7.1
1996	388.9	129.2	6.2
1997	389.6	129.4	0.2
1998	375.0	124.6	−3.7
1999	411.5	136.7	9.7
2000	384.3	127.7	−6.4
2001	371.5	123.4	−2.9

* Aged 15–54/59.
Source: 1980–91: KSH MEM, 1992–: KSH MEF.
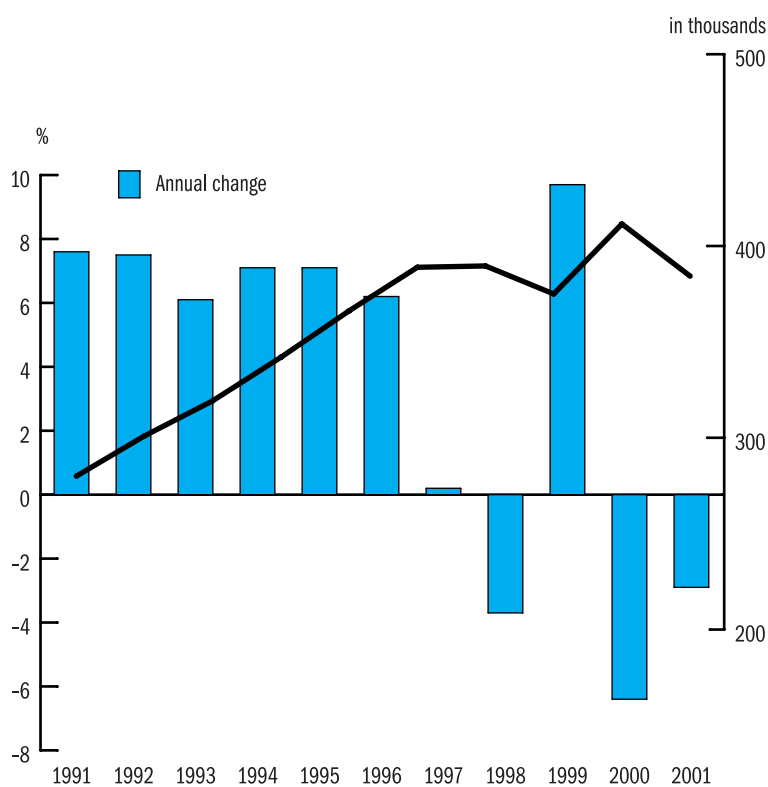
Figure 4.8: Self-employed and assisting family members,
number and annual change

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Table 4.11: Employees*

Year	In thousands	1992=100	Annual changes
1980	4,717.3	131.1	...
1990	4,274.1	118.8	...
1991	3,990.5	110.9	-6.6
1992	3,597.4	100.0	-9.9
1993	3,370.2	93.7	-6.3
1994	3,291.1	91.5	-2.3
1995	3,205.1	89.1	-2.6
1996	3,157.2	87.8	-1.5
1997	3,159.9	87.8	0.1
1998	3,233.5	89.9	2.3
1999	3,289.5	91.4	1.7
2000	3,337.4	92.8	1.5
2001	3,347.7	93.1	1.0

* Employees of working age net of self-employed and assisting
  family members.
Source: 1980–91: KSH MEM, 1992–: KSH MEF.
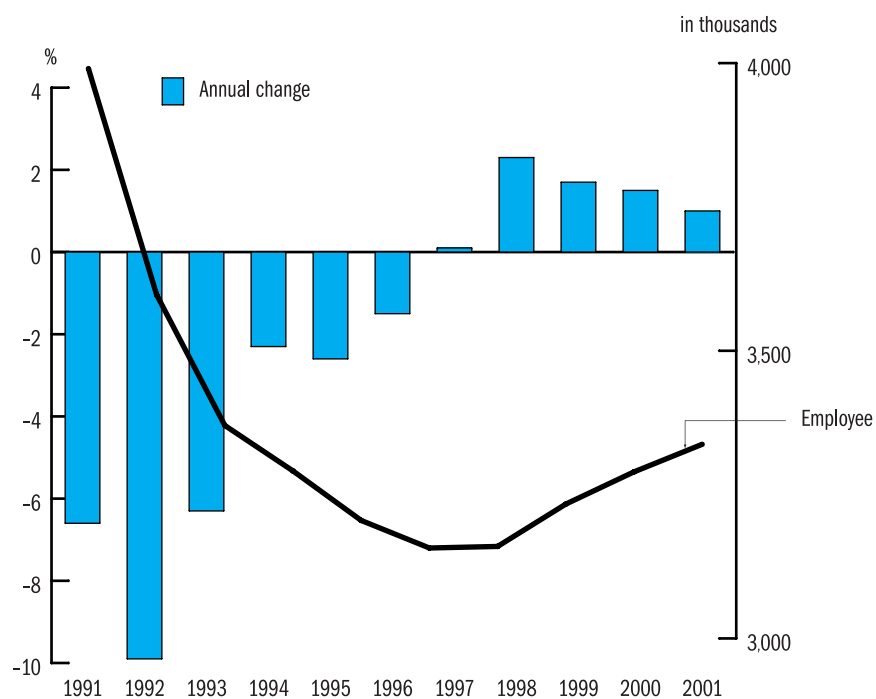
Figure 4.9: Employees

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Table 4.12: Employees by industry, per cent*

	1980	1990	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Agriculture	18.0	15.8	10.3	8.2	7.6	6.9	7.1	6.6	6.3	5.8	5.2	4.9
Mining and quarrying	2.2	1.8	1.5	1.2	1.2	1.0	1.0	0.8	0.7	0.7	0.7	0.4
Manufacturing	29.2	29.5	27.5	25.9	24.7	24.3	24.7	25.1	26.0	26.0	25.9	26.5
Electricity, gas, steam and water supply	2.9	3.0	2.8	3.1	3.2	2.9	2.7	3.0	2.9	2.6	2.3	2.3
Construction	7.0	5.9	5.1	5.3	5.0	5.5	5.5	5.5	5.7	6.0	6.4	6.5
Wholesale and retail trade	8.7	8.9	10.5	10.8	10.9	10.7	11.5	12.0	11.4	12.3	13.0	13.1
Hotels and restaurants	2.3	2.4	2.5	2.6	2.5	2.9	2.8	3.0	3.0	3.3	3.2	3.5
Transport, storage and communication	7.4	6.7	8.2	8.9	8.4	8.6	8.6	8.4	8.3	8.3	8.3	8.3
Financial intermediation	1.1	1.4	1.8	2.1	2.1	2.5	2.5	2.5	2.3	2.2	2.2	2.1
Real estate, renting and business activities	3.2	2.9	3.3	3.7	3.2	3.4	3.2	3.7	4.0	4.5	5.0	5.4
Public administration and defence; compulsory social security	4.0	5.6	7.6	8.7	9.4	9.6	9.4	9.0	8.8	8.4	8.1	7.9
Education	6.0	7.1	8.4	10.0	9.9	10.1	9.8	9.1	9.2	9.0	9.1	8.9
Health and social work	5.3	5.5	6.3	7.1	7.0	6.9	6.8	7.1	7.1	6.9	6.8	6.6
Other	2.7	3.4	4.2	4.2	4.8	4.7	4.1	4.2	4.3	4.0	3.9	3.7
Total, %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* Includes members of cooperatives and partnerships.
Source: 1980 –1990: Census based estimates. 1992–: KSH MEF.

Table 4.13: Employees of the corporate sector by firm size, per cent

Year	–19	20–49	50–249	250–999	1000+
	Number of employees				
1995	0.1	6.3	31.1	29.9	32.7
1996	0.5	6.2	32.0	26.5	34.8
1997	0.5	6.5	34.3	25.0	33.8
1998	0.5	6.3	32.4	26.4	34.4
1999	0.6	7.5	34.2	25.5	32.3
2000	0.7	7.4	41.5	22.4	28.0
2001	0.9	9.6	38.5	23.0	28.0

Note: 1995–1999: Firms employing 10 or more workers; 2000–2001: Firms employing 5 or more workers.
Source: FH BT.

Table 4.14: Employees of the corporate sector by the share of foreign ownership, per cent

Foreign Ownership	1997	1998	1999	2000	2001
100%	12.2	14.4	17.1	17.5	19.0
Majority	12.3	13.9	13.5	11.7	11.0
Minority	7.3	7.6	6.0	5.3	4.9
0%	68.2	64.1	63.4	65.5	65.1

Note: 1997–1999: Firms employing 10 or more workers. 2000–2001: Firms employing 5 or more workers.
Source: FH BT.
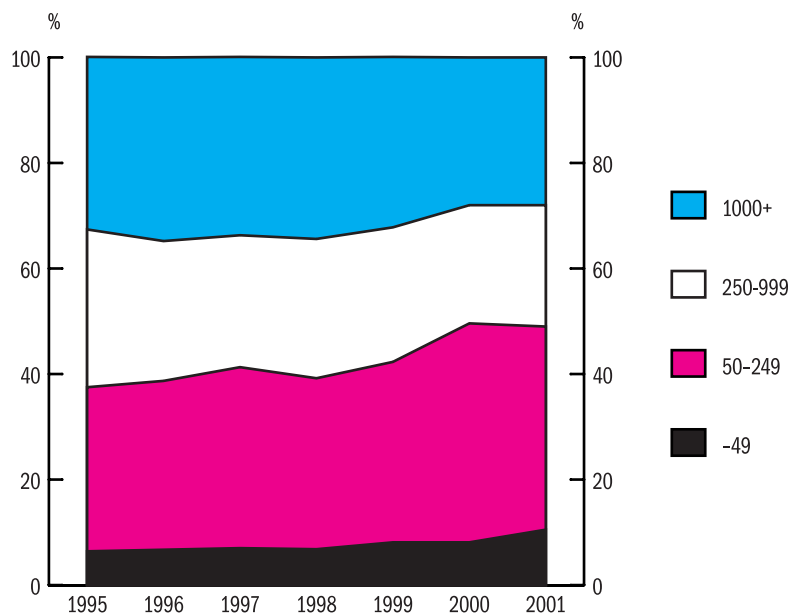
Figure 4.10: Employees of the corporate sector by firm size, per cent
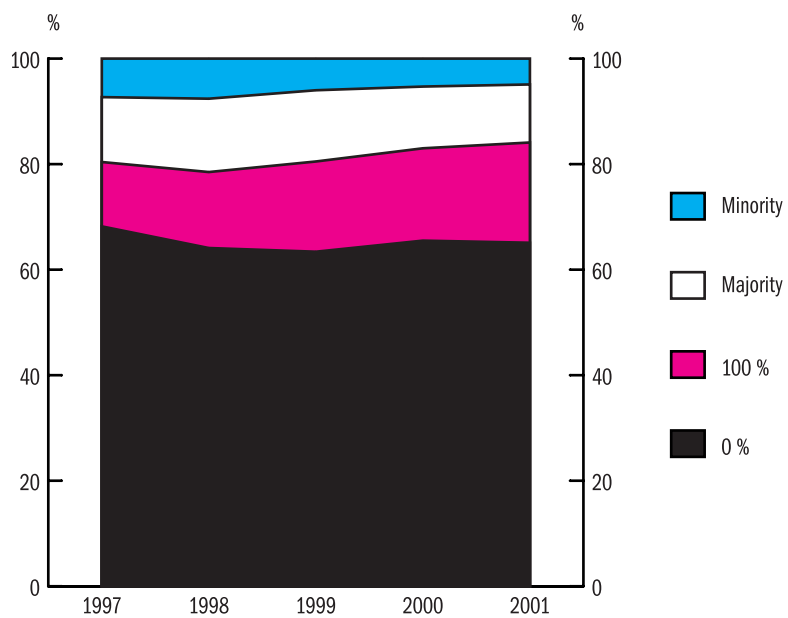
Figure 4.11: Employees of the corporate sector by the share
of foreign ownership, per cent

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Table 5.1: 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	477.4	–	–	–		
1991	227.3	4.1	–	–		
1992	557.0	10.3	444.2	9.8	120.0	18.8
1993	671.8	12.9	518.9	11.9	141.3	22.9
1994	568.4	11.3	451.2	10.7	124.7	20.9
1995	507.7	10.6	416.5	10.2	114.3	20.2
1996	500.6	11.0	400.1	9.9	106.3	19.2
1997	470.1	10.5	348.8	8.7	95.8	16.8
1998	423.1	9.5	313.0	7.8	87.6	13.9
1999	409.5	9.7	284.7	7.0	78.6	12.8
2000	390.5	9.3	262.5	6.4	70.7	12.5
2001	364.1	8.5	232.9	5.7	55.7	10.8

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.
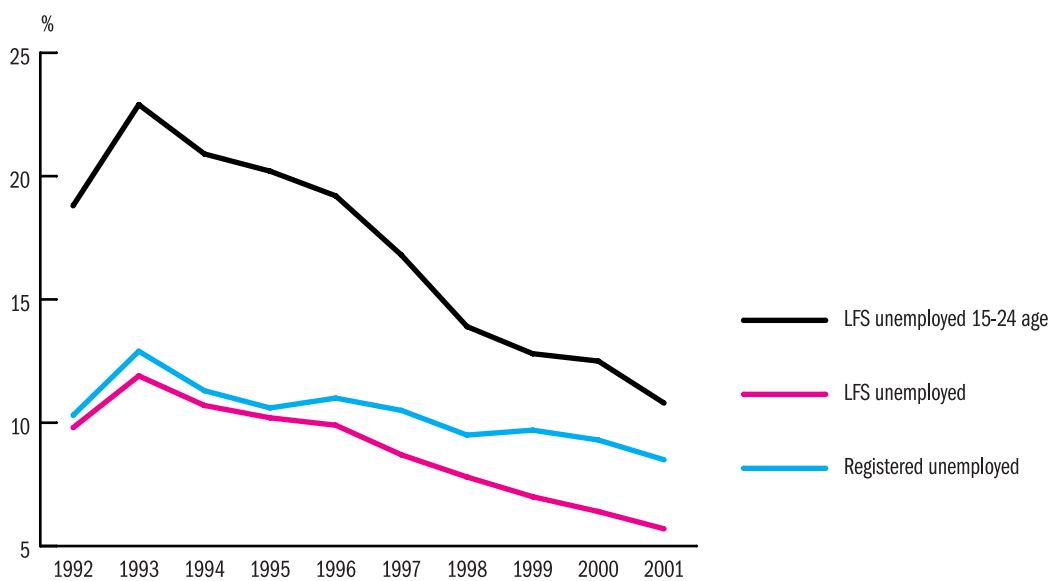
Figure 5.1: Registered and LFS, LFS 15–24 age unemployment rates

Table 5.2: Registered 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

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 were excluded.
Source: KSH MEF.
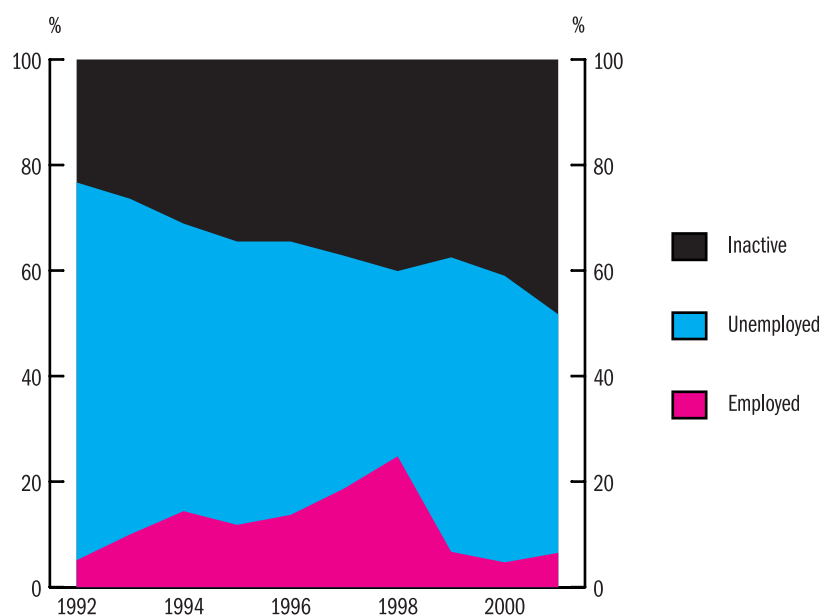
Figure 5.2: Registered unemployed by economic activity

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Figure 5.3: Quarterly flows between labour market states, population between 15–74 years
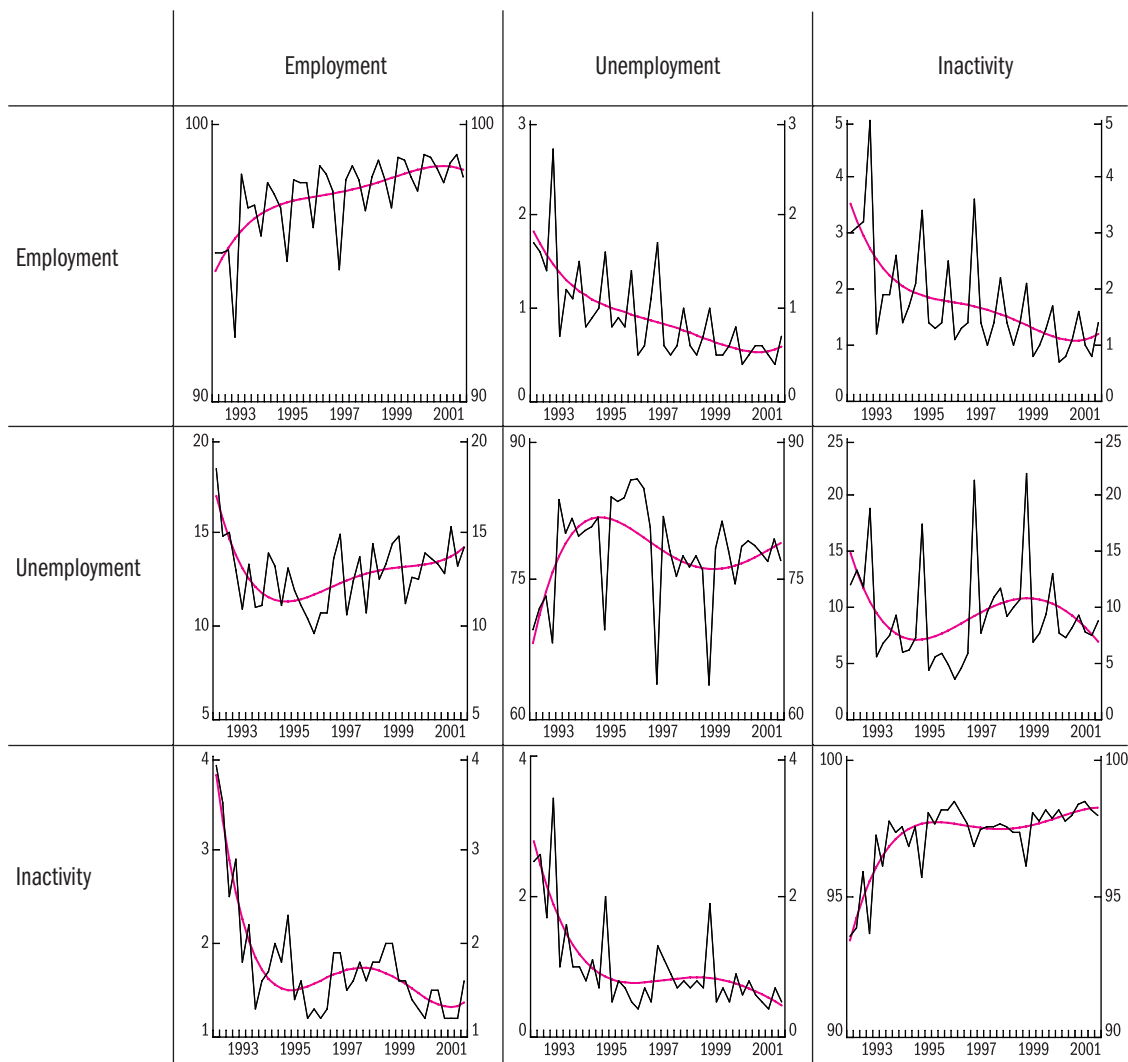
The data refer to 15–74 aged cohorts observed in the LFS in two consecutive quarters.
    Red curves: smoothed with fourth degree polinomial.
Source: KSH MEF.

Table 5.3: Selected time series of registered unemployment, yearly average, in thousands, per cent

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001[1]
Registered unemployment	557.0	671.7	568.4	507.7	500.6	470.1	423.1	409.5	390.5	364.1
Unemployment rate	10.3	12.9	11.3	10.6	11.0	10.5	9.5	9.7	9.3	8.5
Of which										
– school-leavers	39.6	59.7	62.1	54.5	46.2	42.4	32.5	29.9	26.0	26.8
– non school-leavers	517.4	612.0	506.2	453.2	454.4	427.7	390.6	379.6	364.4	337.4
– male	328.0	395.3	333.0	293.8	284.1	267.1	233.4	221.4	209.7	196.4
– female	228.9	276.4	235.3	213.8	216.5	203.0	189.7	188.1	180.8	167.7
– 25 years old and younger	139.7	174.8	153.3	134.2	124.0	105.8	89.9	85.4	79.1	75.6
– manual workers	465.1	556.0	467.6	414.3	407.4	386.3	349.0	336.8	321.2	302.0
– non manual workers	91.9	115.8	100.7	93.4	93.2	83.8	74.1	72.7	69.3	62.1
Ratio, %										
– school-leavers	7.1	8.9	10.9	10.7	9.2	9.0	7.7	7.3	6.7	7.3
– male	58.9	58.8	58.6	57.9	56.7	56.8	55.2	54.1	53.7	53.9
– 25 years old and younger	25.1	26.0	27.0	26.4	24.8	22.5	21.3	20.9	20.3	20.8
– manual workers	83.5	82.8	82.3	81.6	81.4	82.2	82.5	82.3	82.2	82.9
Unemployment benefit recipients	412.9	404.8	228.9	182.8	171.7	141.7	130.7	140.7	131.7	119.2
Unemployment assistance recipients	18.4	89.3	190.3	210.0	211.3	201.3	182.2	148.6	143.5	131.2*
Inflow to the Register	–	48.6	42.3	45.7	52.8	56.1	55.4	57.2	54.1	57.0
Of which										
– school-leavers	–	7.6	7.8	8.0	7.5	9.2	9.8	9.3	8.0	7.8
Outflow from the Register	–	51.2	51.7	47.6	54.3	57.3	60.4	57.2	56.8	59.4
Of which										
– school-leavers	–	6.6	7.9	8.5	8.9	9.0	11.0	9.4	8.2	7.7

1 First half of the year.
* From 2001 together with regular social allowance recipients.
Source: FH REG.

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Table 5.4: Unemployment rate by age and gender and lengths, per cent

Year	Unemployment rate			Of which 15–24 ages	Ratio of long term unemp-loyment*
	Males	Females	Together		
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

* 100 % = Unemployed total.
Source: KSH MEF.
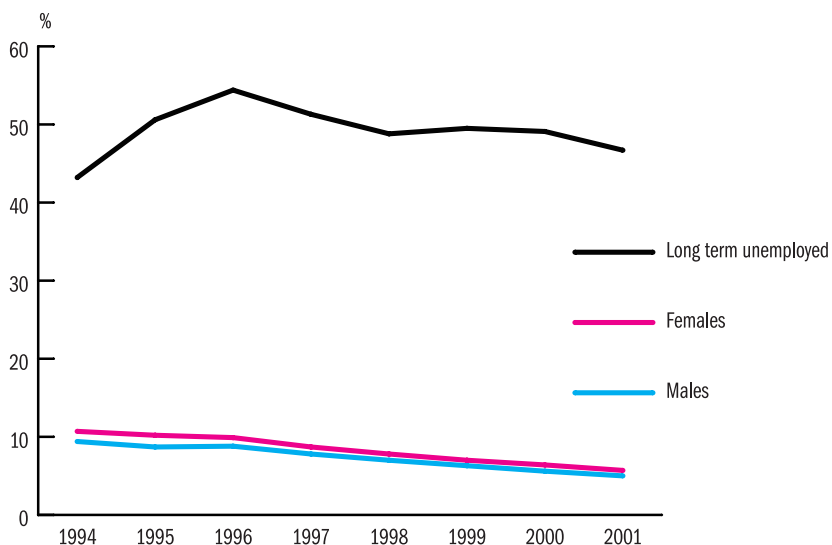
Figure 5.4: Unemployment rate by gender and length

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Table 5.5: 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

Source: KSH MEF (without those unemployed who will get a new job within 30 days).
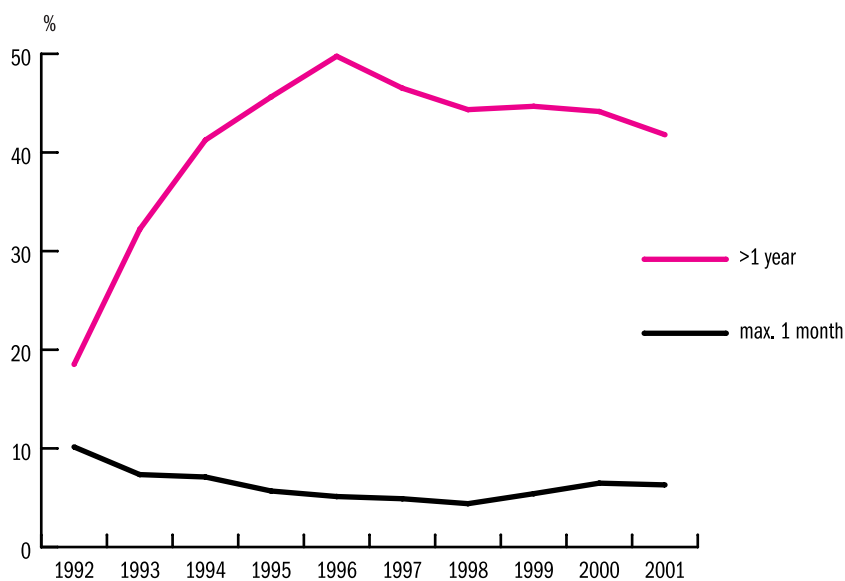
Figure 5.5: The distribution of unemployed by duration of job search,
in thousands

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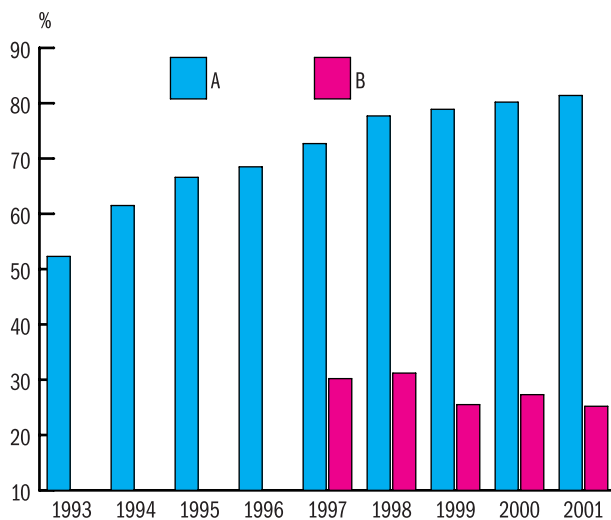
Figure 5.6: Long-term registered unemployment[1]

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.
1 Data for the month of June in each year.

Table 5.6: First-time entrants and re-entrants to 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	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	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	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	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	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	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	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

Source: FH REG.
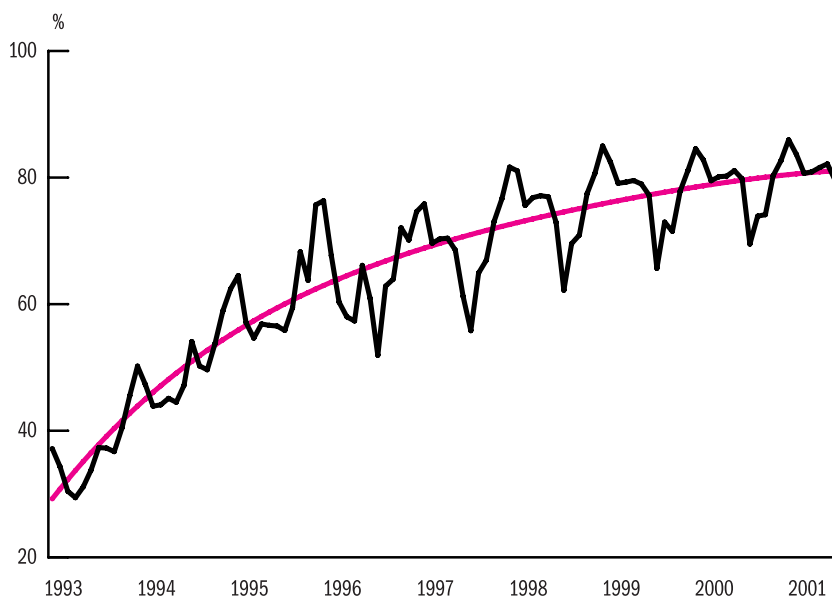
Figure 5.7: Ratio of re-entrants to first-time entrants in the register

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Table 5.7: Monthly average of newly (first time) registered unemployment persons (inflow) in 2001 by groups of occupations (2 digit FEOR-code)

Occupational groups	Average monthly inflow, persons		
	School-leavers	Non school-leavers	Together
– Unfilled	33	36	69
01 Occupations of armed forces requiring higher (third-level) qualification	5	7	12
02 Occupations of armed forces requiring secondary-level qualification	15	17	32
03 Occupations of armed forces not requiring secondary-level qualification	1	3	4
11 Legislators, senior government officials, senior officials of nation-wide special-interest organisations	0	1	0
12 Senior officials of regional and local self-government, public administration, jurisdiction and special-interest organisations	0	4	4
13 Managers of businesses and budgetary institutions	47	160	207
14 General managers of small enterprises and budgetary institutions	5	17	21
21 Engineering and natural science professionals	130	88	217
22 Health professionals	5	12	17
23 Welfare and labour market service professionals	8	4	12
24 Teaching professionals	113	141	254
25 Business, legal and social science professionals	76	76	153
26 Cultural, sport, artistic and religious professionals	13	26	39
29 Professionals n.e.c.	1	6	7
31 Technicians and related associate professionals	217	172	389
32 Health associate professionals	30	143	173
33 Welfare and labour market services occupations	10	14	24
34 Teaching associate professionals	18	20	38
35 Legal, life and property protection services associate professionals	6	7	13
36 Business and financial intermediation clerks	125	266	391
37 Cultural, sport, artistic and religious associate professionals	9	22	30
39 Clerks n.e.c.	5	29	34
41 Office clerks	577	549	1126
42 Management (consumer services) clerks	69	104	172
51 Wholesale and retail trade, hotels and restaurants workers	353	904	1257
52 Transport, postal and communications workers	4	51	55
53 Non-material service workers	70	184	254
61 Skilled agricultural workers	501	107	158
62 Skilled forestry and game farming workers	6	15	20
63 Skilled fishery workers	1	1	2
64 Plant protection, plant health protection and soil conservation workers	0	1	2
71 Extraction workers	3	18	21
72 Food processing and related trades workers	29	126	154
73 Light industry workers	146	441	588
74 Steel and metal trades workers	206	547	753
75 Handicraft, miscellaneous industry and warehouse workers, laboratory assistants	12	113	124
76 Construction workers	114	313	427
81 Manufacturing machine operators	25	325	350
82 Other stationary-plant operators	13	60	73
83 Mobile-plant operators	22	312	334
91 Elementary services occupations (without agriculture)	905	1,552	2,457
92 Agricultural and forestry labourers	8	19	27
Total:	3,484	7,010	10,494

Source: FH-REG. (Based upon two-digits FEOR-code, by more than 10 persons.)

Table 5.8: Benefit receipt and participation in active labour market programs

Year		Unemp- loyment benefit	Unemp- loyment assistance	UA for school leavers	Do not receive provision	Public work	Retrai- ning	Wage subsidy	Other program- mes	Total
1990	in thousands	42.5	–	–	18.6	...	...	...	...	61.0
	per cent	69.6			30.4					100.0
1991	in thousands	236.0	–	9.0	72.7	...	...	...	...	317.7
	per cent	74.3		2.8	22.9					100.0
1992	in thousands	431.2	27.2	18.4	150.3	18.2	27.4	7.7	20.6	701.0
	per cent	61.5	3.9	2.6	21.4	2.6	3.9	1.1	2.9	100.0
1993	in thousands	312.4	123.2	23.8	195.6	26.0	30.1	14.8	45.2	771.1
	per cent	40.5	16.0	3.1	25.4	3.4	3.9	1.9	5.9	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[1]	0.0	106.5	26.7	25.3	27.5	73.5	516.2
	per cent	22.7	27.1	0.0	20.6	5.2	4.9	5.3	14.2	100.0
2001	in thousands	111.8	113.2	0.0	105.2	29.0	30.0	25.8	37.2	452.2
	per cent	24.7	25.0	0.0	23.3	6.4	6.6	5.7	8.2	100.0

1 Together with the number of regular social allowance recipients.
Note: October. The percentage ratios refer to the combined number of the registered unemployed and program partici-
pants.
Source: FH.

Table 5.9: Distribution of registered unemployed, unemployment benefit recipients and unemployment assistance + regular social assistance recipients by educational attainment

Educational attainment	Registered unemployed				Unemployment benefit				Unemployment assistance*			
	1995	1998	2001	2002	1995	1998	2001	2002	1995	1998	2001	2002
Max. 8 classes of primary school	43.6	40.9	42.3	42.6	36.9	32.0	29.7	30.8	56.8	50.0	55.5	59.2
Vocational school	34.5	36.0	34.2	33.5	36.6	39.5	40.7	40.4	30.6	34.3	30.0	29.1
Vocational secondary school	11.7	12.8	13.0	13.3	14.9	16.0	16.7	16.4	6.9	8.7	7.4	6.4
Grammar school	7.9	7.8	7.7	7.6	8.3	9.0	9.0	8.5	4.5	5.7	5.1	4.5
College diplom, BA	1.5	1.8	2.1	2.3	2.2	2.6	2.9	2.8	0.8	1.0	0.9	0.7
University diplom, MA	0.7	0.6	0.7	0.8	1.0	0.9	1.0	1.1	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

* Recipients of regular social assistance are included since 2001.
Note: Minden évben júniusi zárólétszám adatok (on the closing date of June in every year).
Source: FH.
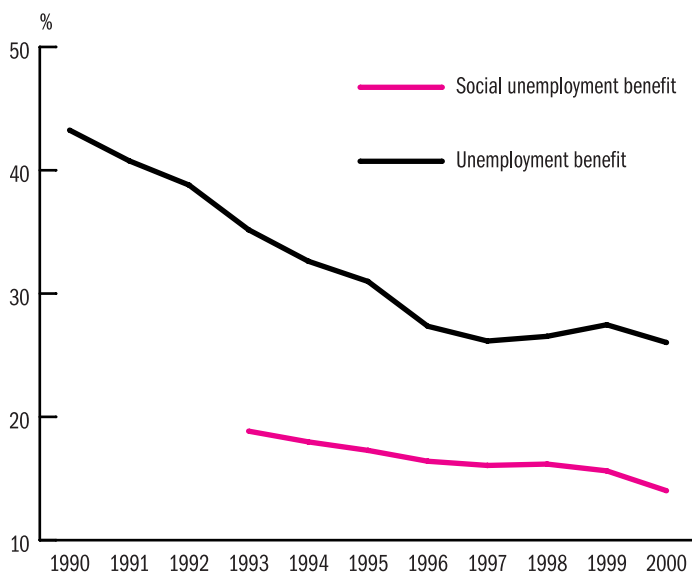
Figure 5.8: The ratio of average unemployment benefits
and unemployment assistance to gross earnings

Table 6.1: Inactive population by gender*

Year	Male			Female		
	In thou-sands	1992=100	Inactivity ratio[1]	In thou-sands	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
1991	1,332.4	91.7	33.9	2,203.4	93.4	50.3
1992	1,453.0	100.0	36.9	2,359.5	100.0	53.6
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

* Population above 14 years of age.
1 Per cent of the population above 14 years of age.
Note: See notes at table 3.1.
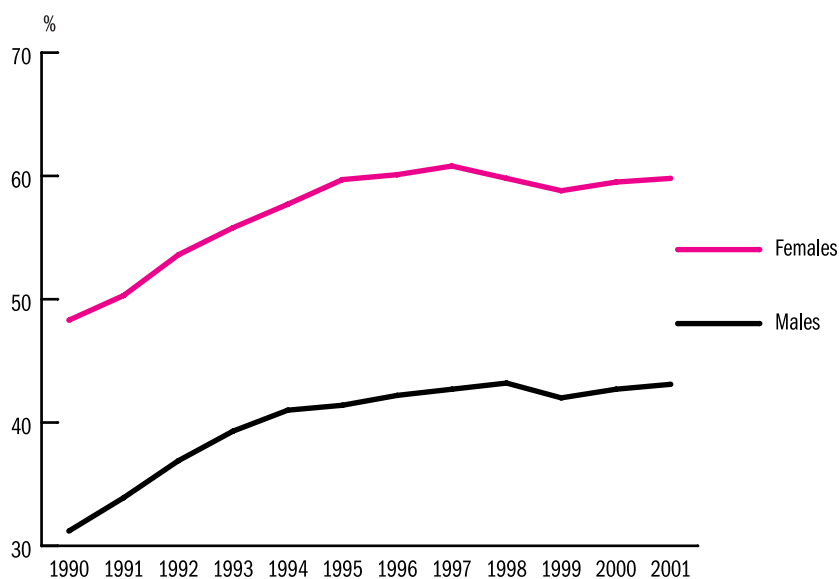
Figure 6.1: Inactive ratio by gender

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Table 6.2: Inactive population of working age by gender

Year	Male			Female		
	In thou-sands	1992=100	Inactivity ratio[1]	In thou-sands	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
1991	631.7	86.4	20.2	858.9	87.7	29.8
1992	730.9	100.0	23.2	979.9	100.0	33.8
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	29.8	1,199.7	122.4	41.1

1 Per cent of the working age population.
Source: 1980–91: KSH MEM; 1992– KSH MEF.
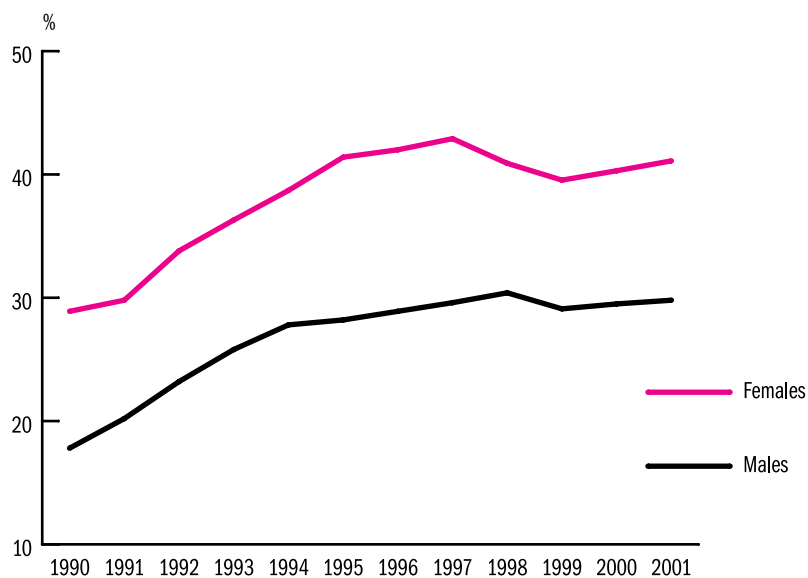
Figure 6.2: Inactivity ratio of working age population by gender

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Table 7.1: Nominal and real earnings

Year	Gross earnings (HUF)	Net earnings (HUF)	Consumer price[1]	Gross real earnings index	Net real earnings index	Net real earnings[2]
1989	10,571	8,165	117.2	100.6	99.7	115.6
1990	13,446	10,108	128.9	99.8	94.3	109.1
1991	17,934	12,948	135.0	96.3	93.0	101.4
1992	22,294	15,628	123.0	101.7	98.6	100.0
1993	27,173	18,397	122.5	99.5	96.1	96.1
1994	33,939	23,424	118.8	105.1	107.2	103.0
1995	38,900	25,891	128.2	91.1	87.8	90.5
1996	46,837	30,544	123.6	97.4	95.0	86.0
1997	57,270	38,145	118.3	103.4	104.9	90.2
1998	67,764	45,162	114.3	103.5	103.6	93.4
1999	77,187	50,076	110.0	105.5	102.5	95.8
2000	87,645	55,785	109.8	103.7	101.5	97.2
2001	103,558	64,915	109.2	108.1	106.4	103.4

1 Previous year = 100%.
2 1992 = 100.
Source: KSH IMS.
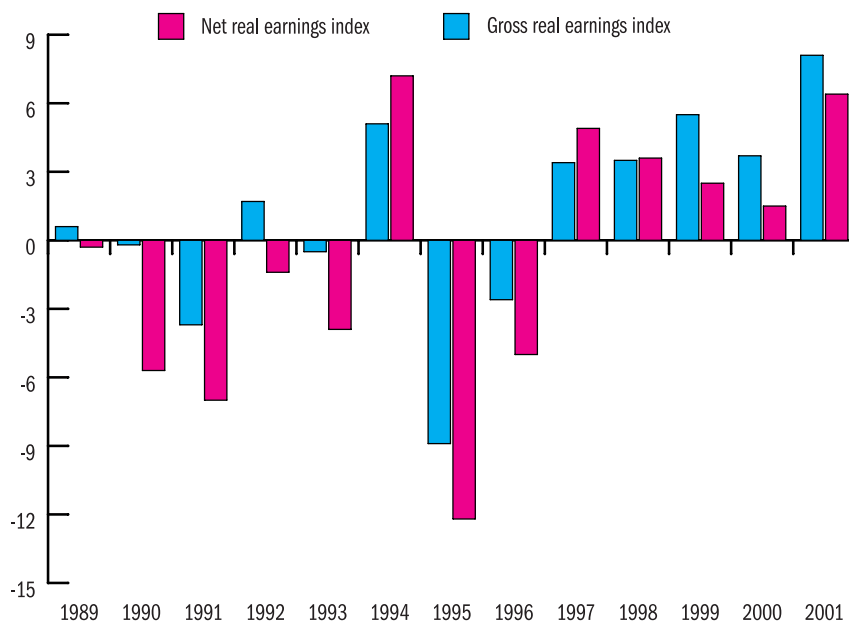
Figure 7.1: Change of gross real earnings and net real earnings

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Table 7.2: Gross average earnings by industry – total*

	1993	1994	1995	1996	1997	1998	1999	2000	2001
Agriculture	19,230	24,641	29,873	35,073	42,216	48,762	53,521	59,246	72,116
Mining and quarrying	36,611	43,245	50,765	60,102	76,952	84,977	95,762	112,914	126,796
Manufacturing	26,317	32,500	38,797	47,178	57,597	67,169	76,335	88,136	101,119
Electricity, gas, steam and water supply	34,202	41,958	50,805	62,525	75,729	90,305	104,543	119,539	135,682
Construction	24,053	30,301	32,544	38,407	46,884	54,123	56,753	64,259	79,719
Wholesale and retail trade	27,294	32,930	36,311	45,463	53,733	62,688	66,913	77,758	90,596
Hotels and restaurants	23,298	28,040	29,370	35,267	41,012	46,437	50,067	56,593	68,120
Transport storage and communication	28,208	35,511	41,437	51,513	63,288	76,108	88,238	98,815	114,447
Financial intermediation	52,881	62,643	71,194	88,759	114,083	142,432	165,327	189,444	215,970
Real estate, renting and business activities	31,434	38,275	41,716	51,733	61,146	81,125	89,399	101,019	121,821
Public administration and defence; compulsory social security	33,550	40,048	45,861	53,523	65,329	75,671	92,821	103,428	131,724
Education	24,495	31,912	34,866	38,996	49,460	59,822	72,869	81,204	97,647
Health and social work	22,624	29,446	32,462	37,530	45,376	52,781	59,105	68,304	78,850
Other	27,794	34,635	39,884	47,857	54,533	63,896	71,199	79,820	91,677
Total	27,173	33,939	38,900	46,837	57,270	67,764	77,187	87,645	103,553

* 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*

	1993	1994	1995	1996	1997	1998	1999	2000	2001
Agriculture	16,544	20,988	25,085	29,679	35,667	41,115	45,548	50,256	61,628
Mining and quarrying	31,883	37,057	43,054	50,888	64,751	72,065	80,365	93,827	105,141
Manufacturing	21,689	26,451	31,454	38,280	46,254	53,908	60,846	69,644	79,701
Electricity, gas, steam and water supply	28,350	34,482	41,551	50,979	61,586	72,890	83,874	94,811	107,785
Construction	19,789	24,689	26,760	31,257	37,174	42,937	45,069	50,995	60,880
Wholesale and retail trade	18,270	21,821	24,041	29,279	34,502	39,344	42,105	47,097	57,977
Hotels and restaurants	17,509	20,547	21,590	26,124	30,560	34,683	37,460	43,185	52,903
Transport storage and communication	24,015	29,976	34,087	41,678	49,879	59,222	66,555	72,989	83,995
Financial intermediation	32,197	36,944	41,443	47,583	65,962	75,118	78,210	80,054	91,678
Real estate, renting and business activities	19,418	23,015	25,760	31,604	36,083	43,468	46,486	52,693	63,414
Public administration and defence; compulsory social security	24,072	28,200	31,101	35,276	41,341	47,429	59,498	62,460	78,548
Education	15,121	18,068	19,758	23,129	28,262	33,886	40,759	45,125	53,943
Health and social work	18,135	20,776	22,649	26,566	32,264	37,308	42,211	49,029	57,046
Other	20,250	23,951	27,427	33,237	38,670	44,675	49,170	54,369	64,618
Total	20,856	25,507	29,203	35,305	42,419	49,423	55,218	61,930	72,626

* HUF/month, per capita.
See Note and Source on Table 7.2.

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Table 7.4: Gross average earnings by industry – non-manual workers*

	1993	1994	1995	1996	1997	1998	1999	2000	2001
Agriculture	28,751	37,213	46,536	54,398	66,041	77,811	83,534	92,018	108,454
Mining and quarrying	59,776	72,363	86,851	101,708	130,340	138,398	158,687	186,241	210,590
Manufacturing	42,115	53,464	64,638	79,225	99,868	118,989	135,325	158,394	183,055
Electricity, gas, steam and water supply	49,451	61,254	73,525	89,634	107,484	128,646	147,268	168,042	187,650
Construction	40,883	51,837	54,733	64,371	80,924	92,179	97,216	109,064	138,896
Wholesale and retail trade	41,017	46,808	54,043	67,030	81,262	97,009	102,890	123,195	139,124
Hotels and restaurants	34,679	42,503	46,812	54,839	66,337	76,985	88,168	97,173	112,104
Transport storage and communication	36,158	45,380	54,068	67,556	84,329	101,707	120,085	136,670	158,007
Financial intermediation	54,108	64,137	72,644	90,338	115,222	143,947	167,244	192,129	218,801
Real estate, renting and business activities	42,777	53,550	57,607	72,247	88,999	118,360	127,674	142,280	170,435
Public administration and defence; compulsory social security	39,662	47,769	55,321	66,081	82,634	98,028	117,573	129,679	165,102
Education	28,000	36,792	40,092	44,196	54,448	64,813	79,344	87,983	105,549
Health and social work	27,169	34,238	37,488	43,046	51,704	60,113	66,801	76,896	88,339
Other	37,360	46,722	53,381	62,830	71,432	83,599	94,482	108,976	123,172
Total	36,832	45,336	52,250	62,309	77,202	92,711	106,962	121,779	143,753

* HUF/month, per capita.

See Note and Source on Table 7.2.

Table 7.5: Gross average earnings distribution by industry*

	1993	1994	1995	1996	1997	1998	1999	2000	2001
Agriculture	70.8	72.6	76.8	74.9	73.7	72.0	69.3	67.6	69.6
Mining and quarrying	134.7	127.4	130.5	128.3	134.4	125.4	124.1	128.8	122.9
Manufacturing	96.8	95.8	99.7	100.7	100.6	99.1	98.9	100.6	97.7
Electricity, gas, steam and water supply	125.9	123.6	130.6	133.5	132.2	133.3	135.4	136.4	131.0
Construction	88.5	89.3	83.7	82.0	81.9	79.9	73.5	73.3	77.0
Wholesale and retail trade	100.4	97.0	93.3	97.1	93.8	92.5	86.7	88.7	87.5
Hotels and restaurants	85.7	82.6	75.5	75.3	71.6	68.5	64.9	64.6	65.8
Transport storage and communication	103.8	104.6	106.5	110.0	110.5	112.3	114.3	112.7	110.5
Financial intermediation	194.6	184.6	183.0	189.5	199.2	210.2	214.2	216.1	208.6
Real estate, renting and business activities	115.7	112.8	107.2	110.5	106.8	119.7	115.8	115.3	117.6
Public administration and defence; compulsory social security	123.5	118.0	117.9	114.3	114.1	111.7	120.3	118.0	127.2
Education	90.1	94.0	89.6	83.3	86.4	88.3	94.4	92.7	94.3
Health and social work	83.3	86.8	83.4	80.1	79.2	77.9	76.6	77.9	76.1
Other	102.3	102.1	102.5	102.2	95.2	94.3	92.2	91.1	88.5

* National average = 100.

See Note and Source on Table 7.2.
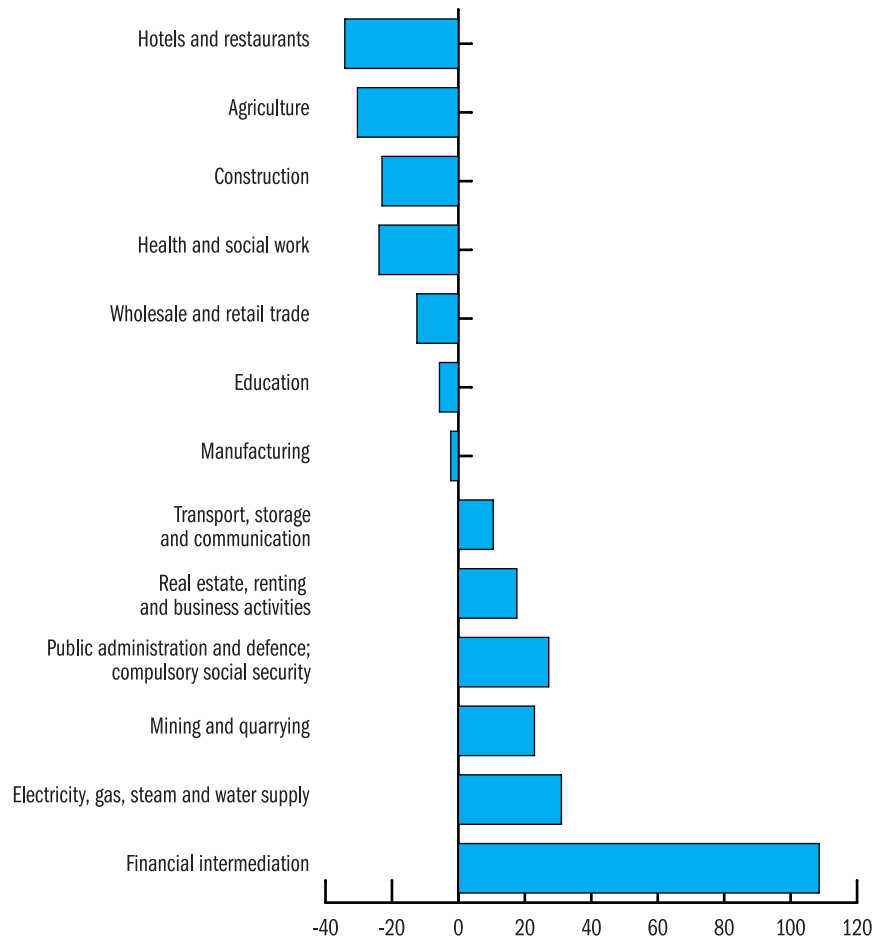
Figure 7.2: Gross real earnings as a percentage of national average industry, 2001

Table 7.6: The composition of full-time employees and average earnings
by gender in each major branches of the economy in 2001

Industries	Male		Female		Together		Female/male earnings ratio
	Composition	Average earning	Composition	Average earning	Composition	Average earning	
	per cent	HUF/ month, per capita	per cent	HUF/ month, per capita	per cent	HUF/ month, per capita	
A Agriculture	7.2	76,596	2.2	66,575	4.7	74,303	86.9
B Fishing	0.1	64,777	0.0	62,705	0.1	64,464	96.8
C Mining and quarrying	0.5	122,163	0.1	120,907	0.3	122,030	99.0
D Manufacturing	34.4	118,940	25.0	85,578	29.7	105,003	72.0
E Electricity, gas, steam and water supply	4.7	143,031	1.5	118,224	3.1	136,991	82.7
F Construction	6.9	83,780	1.0	86,441	3.9	84,103	103.2
G Wholesale and retail trade	9.4	102,280	9.8	83,511	9.6	92,736	81.6
H Hotels and restaurants	1.5	91,634	1.9	67,104	1.7	78,109	73.2
I Transport storage and communication	12.7	118,314	6.2	108,197	9.5	115,013	91.4
J Financial intermediation	1.1	296,368	3.1	174,516	2.1	207,550	58.9
K Real estate, renting and business activities	5.5	131,787	4.8	109,728	5.1	121,559	83.3
L Public administration and defence, compulsory social security	5.0	153,617	11.5	112,368	8.2	125,049	73.1
M Education	5.1	103,377	18.3	81,990	11.7	86,707	79.3
N Health and social work	3.3	93,404	12.5	78,270	7.9	81,451	83.8
O Other	2.7	108,824	2.3	89,690	2.5	100,096	82.4
Total	100.0	115,045	100.0	92,034	100.0	103,610	80.0

Source: FH-BT.

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Table 7.7: The composition of full-time employees and average earnings
by gender according to the level of education – Economy (total)

Industries	Male		Female		Together		Female/ male earnings ratio
	Composition	Average earning	Composition	Average earning	Composition	Average earning	
	per cent	HUF/ month, per capita	per cent	HUF/ month, per capita	per cent	HUF/ month, per capita	
Primary school 0–7 classes	0.9	63,489	0.7	55,548	0.8	60,113	87.5
Finished primary school	15.6	73,545	21.0	60,973	18.3	66,376	82.9
Vocational school, 2 yrs	2.4	74,235	2.5	71,375	2.5	72,802	96.1
Vocational school, 3 yrs	37.9	84,260	14.8	65,296	26.4	78,991	77.5
Vocational secondary school	14.3	109,613	20.9	90,837	17.6	98,512	82.9
General secondary school	5.6	110,264	14.7	91,979	10.1	97,081	83.4
Technical secondary school	5.5	134,012	2.5	113,514	4.0	127,708	84.7
College	8.6	189,909	16.6	118,714	12.6	143,274	62.5
University	9.2	258,115	6.5	192,272	7.8	231,020	74.5
Total	100.0	115,045	100.0	92,034	100.0	103,610	80.0

Source: FH-BT.

Table 7.8: The composition of full-time employees and average earnings
by gender according to the level of education – Budgetary sector (total)

Industries	Male		Female		Together		Female/ male earnings ratio
	Composition	Average earning	Composition	Average earning	Composition	Average earning	
	per cent	HUF/ month, per capita	per cent	HUF/ month, per capita	per cent	HUF/ month, per capita	
Primary school 0–7 classes	0.6	57,699	0.5	52,812	0.5	54,112	91.5
Finished primary school	12.6	63,016	16.4	53,823	15.5	55,733	85.4
Vocational school, 2 yrs	1.7	69,781	2.0	70,574	1.9	70,394	101.1
Vocational school, 3 yrs	17.0	68,267	7.2	61,668	9.7	64,621	90.3
Vocational secondary school	9.6	90,825	18.3	81,596	16.1	82,997	89.8
General secondary school	7.0	95,440	13.6	81,884	11.9	8,3905	85.8
Technical secondary school	1.8	110,382	1.3	104,983	1.4	106,785	95.1
College	21.7	136,196	30.5	100,726	28.3	107,667	74.0
University	28.0	18,7510	10.2	157,344	14.7	171,960	83.9
Total	100.0	120,516	100.0	89,105	100.0	97,107	73.9

Source: FH-BT.

Table 7.9: The composition of full-time employees and average earnings
by gender according to the level of education – Competitive sector (total)

Industries	Male		Female		Together		Female/male earnings ratio
	Composition	Average earning	Composition	Average earning	Composition	Average earning	
	per cent	HUF/month, per capita	per cent	HUF/month, per capita	per cent	HUF/month, per capita	
Primary school 0–7 classes	0.9	64,099	0.7	57,059	0.9	61,671	89.0
Finished primary school	16.1	74,972	24.5	64,703	19.4	69,863	86.3
Vocational school, 2 yrs	2.6	74,754	2.9	71,816	2.7	73,521	96.1
Vocational school, 3 yrs	41.5	85,396	20.6	66,277	33.3	80,713	77.6
Vocational secondary school	15.1	111,678	23.0	96,561	18.2	104,153	86.5
General secondary school	5.4	113,601	15.5	98,873	9.4	103,985	87.0
Technical secondary school	6.1	135,246	3.4	115,965	5.1	130,111	85.7
College	6.4	221,706	5.8	192,901	6.1	211,018	87.0
University	5.9	315,958	3.6	268,265	5.0	302,318	84.9
Total	100.0	114,096	100.0	94,312	100.0	106,288	82.7

Source: FH-BT.

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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

Source: KSH IMS. Prices and productivity: KSH.
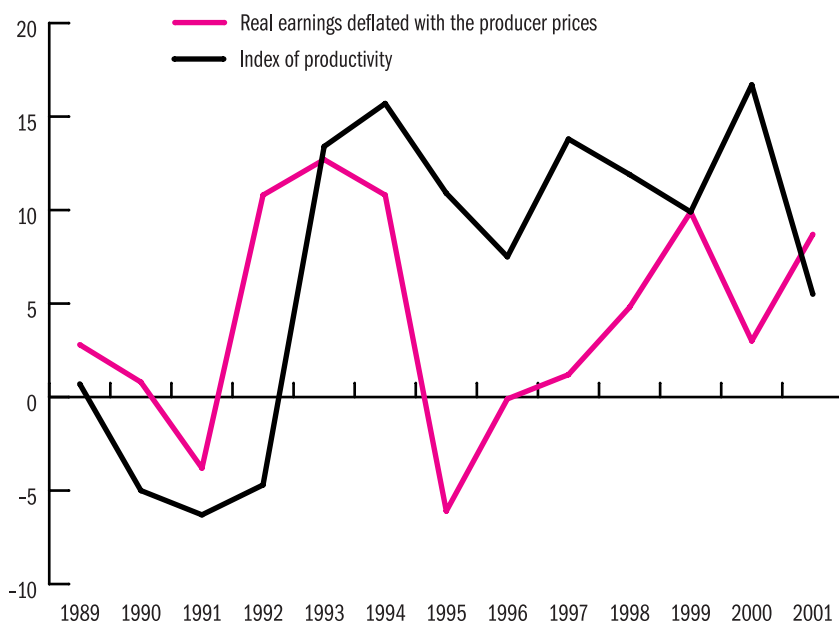
Figure 7.3: Index of productivity and real earnings
deflated by the producer price index

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	43.7*

* January-June monthly average.
Source: KSH.
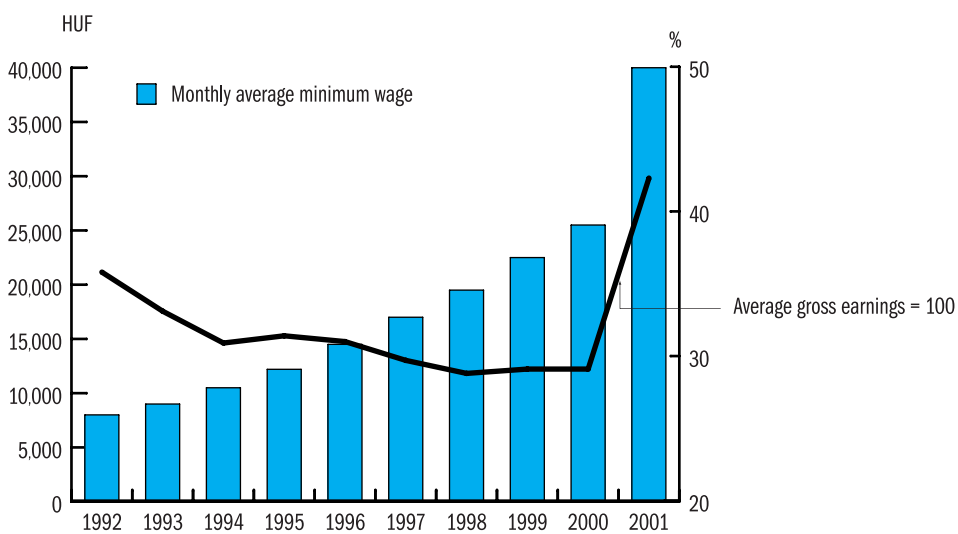
Figure 7.4: Minimum wage, average gross earnings = 100

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Table 7.12: Central 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

* Gross average wage increase: actual rates and recommendations by the Council of the Reconciliation of Interests.
Source: KSH, Ministry of 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	–	–	–	–
2001	–	–	–	–

Note: 1992–97: reported wage agreements; 1998–1999: collective agreements containing wage agreements.
Source: FH.

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Table 7.14: Percentage of low paid workers[1] by genders,
age groups, levels of education and industries

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
By genders										
Males	14.1	16.9	16.1	15.2	15.6	18.1	18.1	18.8	22.1	20.7
Females	25.2	21.3	25.6	24.8	26.5	25.7	25.9	26.4	26.8	25.0
Together	19.4	19.2	20.8	19.9	21.0	21.9	22.0	22.7	24.4	22.8
By age groups										
–24	40.6	39.6	42.4	40.2	37.8	39.1	37.7	37.9	37.0	35.5
25–54	17.1	16.9	18.7	18.0	19.4	20.2	20.6	21.3	22.8	21.9
55+	11.3	12.7	11.4	10.3	11.0	11.8	12.7	17.2	19.8	18.1
By level of education										
1–8 classes of primary school	34.7	...	40.4	37.6	40.1	40.6	42.9	43.9	43.4	40.4
Vocational schools	21.4	...	25.9	24.7	23.7	27.0	26.9	28.6	31.2	29.4
Secondary schools	11.7	...	12.0	12.9	13.1	14.0	14.2	15.4	18.8	18.0
Higher education	2.3	...	1.9	3.1	3.2	3.0	3.4	3.2	4.7	4.7
By industries										
Agriculture	39.9	31.9	38.4	32.1	30.1	36.7	36.7	38.1	38.0	34.3
Manufacturing	15.5	16.4	18.9	16.4	15.8	18.5	18.9	18.9	20.0	19.1
Construction	15.9	15.7	23.3	23.5	26.7	32.7	32.6	36.7	42.9	41.7
Trade	27.9	25.1	30.4	31.9	31.7	36.0	37.7	36.8	42.8	41.3
Transport and communication	9.8	8.6	10.3	8.6	8.5	8.8	8.8	9.0	11.3	10.6
Finance and business services	12.4	14.2	16.4	17.9	17.0	19.9	19.9	21.1	25.3	22.6
Public administration	15.8	17.5	16.4	17.0	25.9	19.0	15.5	16.0	13.7	13.8
Education and health	21.0	24.8	20.2	22.7	25.7	22.9	24.3	25.5	23.7	21.5

1 Percentage of those who earn less than 2/3 of the median earning.
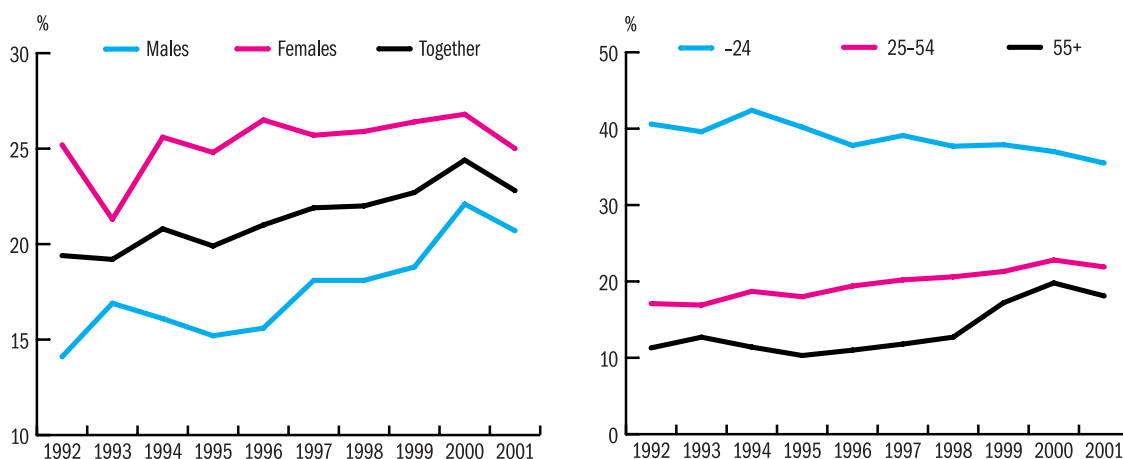
Figure 7.5: Percentage of low paid workers by genders and age groups

Table 7.15: The differentiation of gross monthly earnings by genders
and for all persons, 1992–2001 (ratios of deciles)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Males and females together										
D9/D5	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.3
D5/D1	1.8	1.8	1.9	1.9	1.9	1.9	1.9	2.0	2.2	1.9
D9/D1	3.6	3.6	3.9	3.9	4.0	4.2	4.2	4.4	4.9	4.2
Males										
D9/D5	2.0	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.1	2.4
D5/D1	1.8	1.8	1.9	1.9	1.9	2.0	2.0	2.1	2.4	2.0
D9/D1	3.6	3.7	4.0	3.9	4.0	4.5	4.5	4.8	5.1	4.9
Females										
D9/D5	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0
D5/D1	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.9	2.0	1.8
D9/D1	3.3	3.5	3.6	3.6	3.7	3.7	3.7	3.8	4.1	3.6

Source: FH-BT.
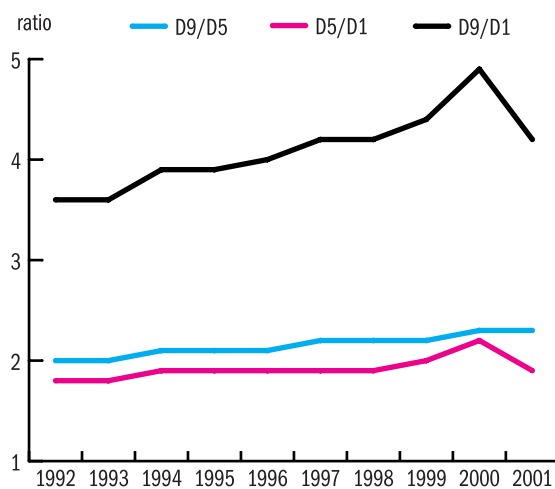
Figure 7.6: The differentiation of gross monthly earnings
for all persons, 1992–2001

Table 8.1: School leavers by level of education

Year	Primary school	Specialized secondary school	Vocational school	Secondary school	College and university
1980	119,809	2,646	46,586	43,167	14,859
1989	170,891	3,241	50,483	52,573	15,699
1990	164,614	3,375	51,558	53,039	15,963
1991	158,907	3,890	55,412	54,248	16,458
1992	151,287	3,810	62,451	59,646	16,201
1993	144,200	6,302	60,040	68,607	16,223
1994	136,857	7,285	55,617	68,604	18,041
1995	122,333	6,991	50,066	70,265	20,024
1996	120,529	6,414	47,795	73,413	22,128
1997	116,708	4,895	41,973	75,564	24,411
1998	113,651	3,995	38,871	77,660	25,338
1999	114,302	2,460	36,362	73,965	27,049
2000	...	...	35,500[a]	72,200[b]	28,300[b]
2001	114,200	...	33,500[a]	70,441	29,746

[a] Specialized secondary schools included. Estimatewd data.
[b] Estimated data.
Note: Primary school: completed the 8th grade. Other levels: received certificate. Excludes special schools.
Source: OM STAT.

Table 8.2: Pupils/students entering the school system, by level of education

Year	Primary school*	Specialized secondary school	Vocational school	Secondary school	College and university
1980	171,347	4,051	56,634	57,213	17,886
1989	128,542	6,219	85,548	84,140	20,704
1990	125,665	6,144	81,788	83,939	22,662
1991	126,258	9,934	74,033	85,054	25,385
1992	129,852	13,011	66,380	86,675	30,192
1993	125,679	13,642	63,335	87,657	35,005
1994	126,032	16,112	61,034	87,392	37,934
1995	123,997	9,820	55,532	82,665	42,433
1996	124,554	7,603	51,219	84,773	44,698
1997	127,214	5,319	47,764	84,395	45,669
1998	125,875	3,007	36,658	86,868	48,886
1999	121,424	2,694	30,876	89,184	51,586
2000	...	...	33,900[a]	90,800[c]	54,100[c]
2001	112,144		34,210[b]	92,393	56,709

* Excludes special schools.
[a] Specialized secondary schools are included. Estimated data.
[b] Specialized secondary schools are included.
[c] Estimated data.
Source: OM STAT.

Table 8.3: The number of pupils/students by level of education

Year	Primary school	Specialized secondary school	Vocational school	Secondary school	College and university
1980	119,809	2,646	46,586	43,167	14,859
1980/81	1,162,203	8,613	154,096	203,238	64,057
1989/90	1,183,573	11,995	201,702	273,511	72,381
1990/91	1,130,656	12,833	209,371	291,872	76,601
1991/92	1,081,213	17,065	204,655	309,351	83,191
1992/93	1,044,164	23,263	188,570	322,954	92,328
1993/94	1,009,416	24,672	174,187	330,586	103,713
1994/95	985,291	22,421	163,330	337,317	116,370
1995/96	974,806	18,305	154,294	349,299	129,541
1996/97	965,998	14,561	143,846	361,395	142,113
1997/98	963,997	11,274	132,637	368,645	152,889
1998/99	964,248	8,476	119,727	376,626	163,100
1999/2000	960,601	7,504	109,534	386,579	171,516
2000/2001	905,932		123,951*	420,889	184,071

* Specialized secondary schools are included.
Note: Excludes special schools.
Source: OM STAT.
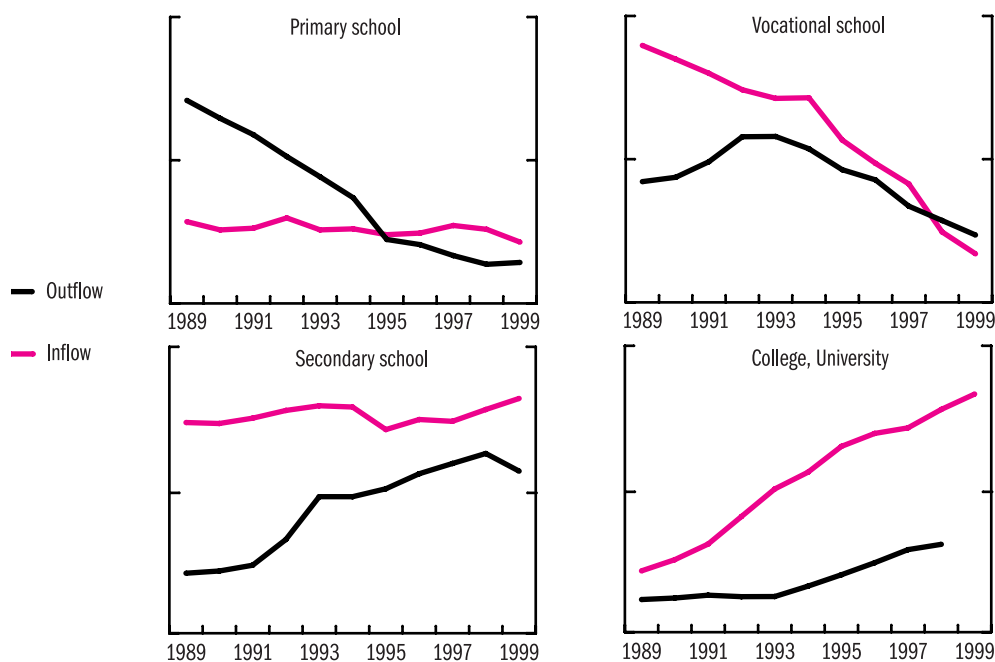
Figure 8: Flows of the educational system by level

Table 9.1: Registered vacancies*

Year	Number of vacancies at closing day	Number of registered unemployed at closing date	Number of vacancies for 100 prsn
1989	60,429	23,760	254.3
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

* Monthly average stock figures.
Source: FH.
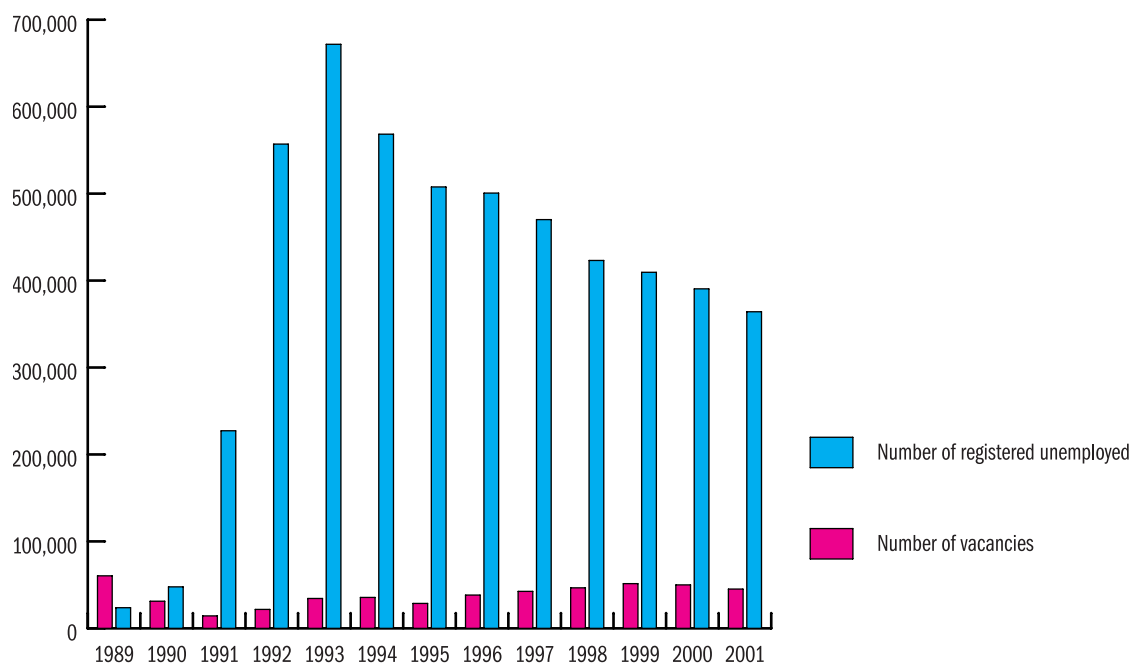
Figure 9.1: Number of registered vacancies and registered unemployed

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Table 9.2: Notified new non-supported vacancies (inflow) in each month and the monthly average in 2001 by groups of occupations (2 digit FEOR-code)

	January	February	March	April	May	June	July	August	September	Oktober	November	December	Monthly average
01. Occupations of armed forces requiring higher (third-level) qualification	1	0	0	1	0	0	0	1	1	0	1	1	0.5
02. Occupations of armed forces requiring secondary-level qualification	1	4	2	6	1	1	1	2	81	15	3	6	10.3
03. Occupations of armed forces not requiring secondary-level qualification	1	2	0	1	0	2	1	0	73	16	5	3	8.7
11. Legislators, senior government officials, senior officials of nation-wide special-interest organisations	0	0	0	0	0	0	0	0	0	0	0	0	0.0
12. Senior officials of regional and local self-government, public administration, jurisdiction and special interest organisations	0	0	0	2	0	0	0	0	0	1	3	1	0.6
13. Managers of businesses and budgetary institutions	52	65	63	113	76	74	73	61	74	62	49	45	67.3
14. General managers of small enter-prises and budgetary institutions	4	5	6	2	6	3	3	3	3	5	4	4	4.0
21. Engineering and natural science professionals	87	93	61	154	54	57	87	66	89	75	51	46	76.7
22. Health professionals	16	20	10	14	16	14	20	15	29	21	47	22	20.3
23. Welfare and labour market service professionals	8	7	6	7	5	6	13	10	11	14	15	2	8.7
24. Teaching professionals	65	98	43	46	77	85	278	300	383	84	62	64	132.1
25. Business, legal and social science professionals	59	76	52	78	51	69	57	40	44	78	60	42	58.8
26. Cultural, sport, artistic and religious professionals	7	12	7	13	10	12	7	7	14	9	7	3	9.0
29. Professionals n.e.c.	0	2	1	6	3	1	1	2	0	2	4	0	1.8
31. Technicians and related associate professionals	96	116	100	126	91	116	101	82	95	106	88	81	99.8
32. Health associate professionals	65	66	61	67	64	85	62	58	89	79	75	36	67.3
33. Welfare and labour market services occupations	14	22	17	14	19	16	21	28	23	16	24	9	18.6
34. Teaching associate professionals	13	15	6	8	13	9	32	18	59	18	19	10	18.3
35. Legal, life and property protection services associate professionals	5	8	7	3	8	8	4	6	6	5	7	2	5.8
36. Business and financial inter-mediation clerks	112	157	117	195	166	154	125	115	127	150	88	136	136.8
37. Cultural, sport, artistic and religious associate professionals	10	8	7	8	8	11	3	13	15	4	6	4	8.1

	January	February	March	April	May	June	July	August	September	Oktober	November	December	Monthly average
39. Clerks n.e.c.	3	5	8	6	4	1	10	4	6	9	6	7	5.8
41. Office clerks	301	370	315	385	325	378	334	296	424	340	285	247	333.3
42. Management (consumer services) clerks	59	66	59	88	67	81	85	78	75	65	50	48	68.4
51. Wholesale and retail trade, hotels and restaurants workers	423	714	729	986	914	949	732	683	866	722	550	475	728.6
52. Transport, postal and communications workers	16	23	24	20	18	28	18	30	29	37	34	28	25.4
53. Non-material service workers	92	109	105	130	124	148	125	114	131	117	90	72	113.1
61. Skilled agricultural workers	66	73	128	127	111	125	83	87	99	85	59	49	91.0
62. Skilled forestry and game farming workers	9	6	13	8	9	7	17	7	7	13	3	8	8.9
63. Skilled fishery workers	0	1	1	3	2	2	1	0	2	3	0	3	1.5
64. Plant prot., health prot. and soil cons. workers	1	1	4	1	1	1	0	1	0	1	1	0	1.0
71. Extraction workers	16	7	6	5	2	3	30	26	2	12	6	8	10.3
72. Food proc. and related trades workers	63	72	64	114	127	128	116	91	118	103	87	77	96.7
73. Light industry workers	287	350	289	330	311	379	325	272	436	359	277	203	318.2
74. Steel and metal trades workers	430	625	514	706	552	607	527	460	610	611	408	299	529.8
75. Handicraft, misc. ind. warehouse workers, lab. ass.	50	90	92	93	86	102	91	84	144	95	75.	44	87.2
76. Construction workers	282	459	589	729	539	584	482	443	520	471	280	177	462.9
81. Manuf. machine operators	157	184	133	207	158	196	140	113	213	184	145	119	162.4
82. Other stationary-plant operators	35	48	68	68	37	50	50	42	70	63	31	34	49.7
83. Mobile-plant operators	178	289	466	527	346	377	336	264	317	299	207	190	316.3
91. Elementary services occupations, without agriculture	897	1,174	1,317	1,740	1,485	1,576	1,284	1,155	1,638	1,228	958	717	1,264.1
92. Agricultural and forestry labourers	27	27	30	27	42	35	28	16	25	16	8	5	23.8
Total:	4,008	5,469	5,520	7,164	5,928	6,480	5,703	5,093	6,948	5,593	4,178	3,327	5,450.9

Source: FH-REG.

Table 9.3: Firms intending to increase/decrease their staff*

Year	Half year	Intending to decrease	Intending to increase
1992	I.	36.1	10.2
	II.	36.0	15.4
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

* In the period of the next half year after the interview date, in the sample of FH PROG.)
Source: FH PROG.
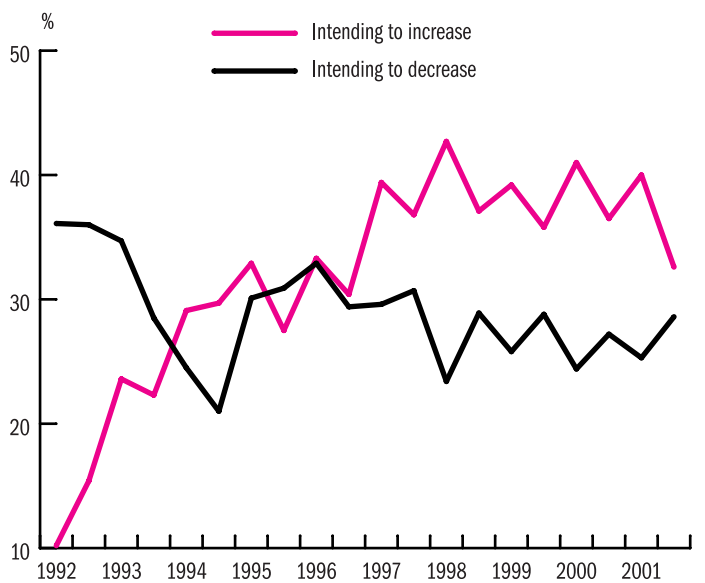
Figure 9.2: Firms intending to increase/decrease their staff

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Table 9.4: Firms expecting increasing/decreasing orders*

Year	Half year	Orders	
		increasing	decreasing
1992	I.	27.2	40.1
	II.	21.0	38.2
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

* In the period of the next half year after the interview date,
  in the sample of FH PROG.
Source: FH PROG.
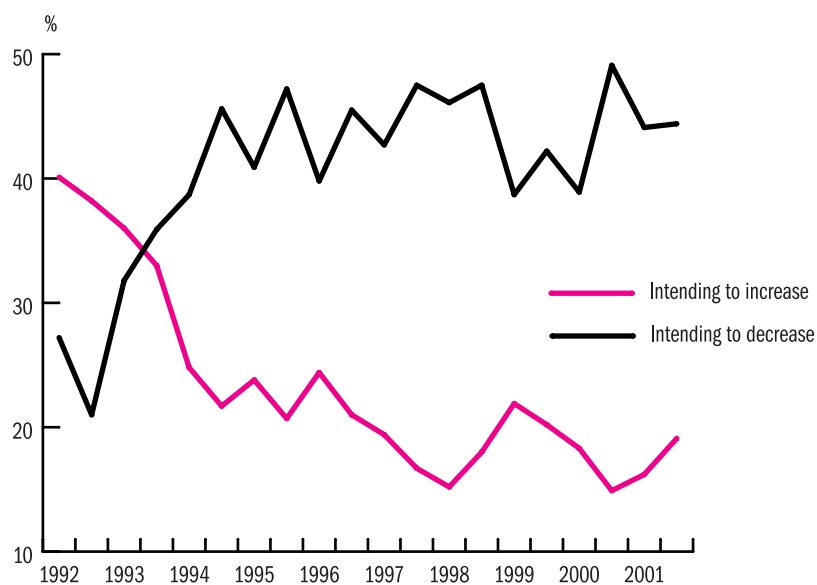
Figure 9.3: Firms expecting increasing/decreasing orders

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Table 9.5: Firms activating new capacities*

Year	Halfyear	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

* In the period of the next half year after the interview date,
  in the sample of FH PROG.
Source: FH PROG.
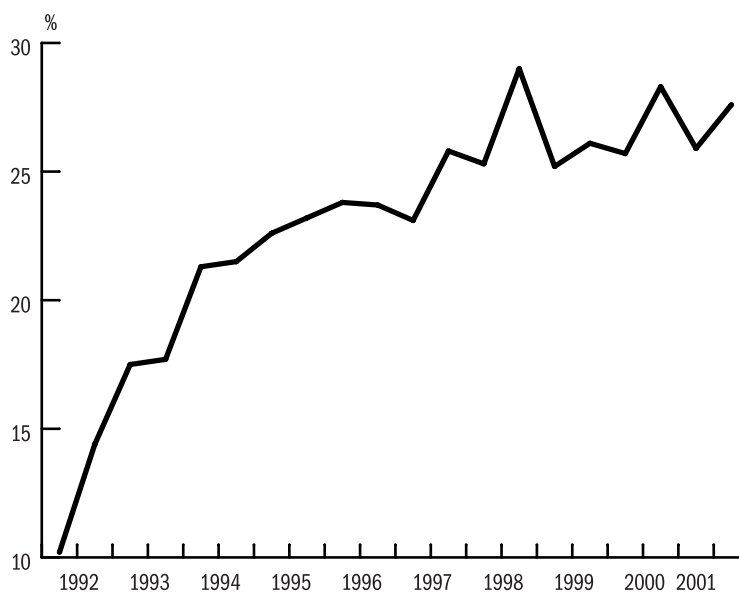
Figure 9.4: Firms activating new capacities

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Table 10.1: Regional inequalities: Labour force participation rates*

Year	Central Hungary	Central Trans- danubia	Western Trans- danubia	Southern Trans- danubia	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	63.8
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

* Working age population.
Source: KSH MEF.
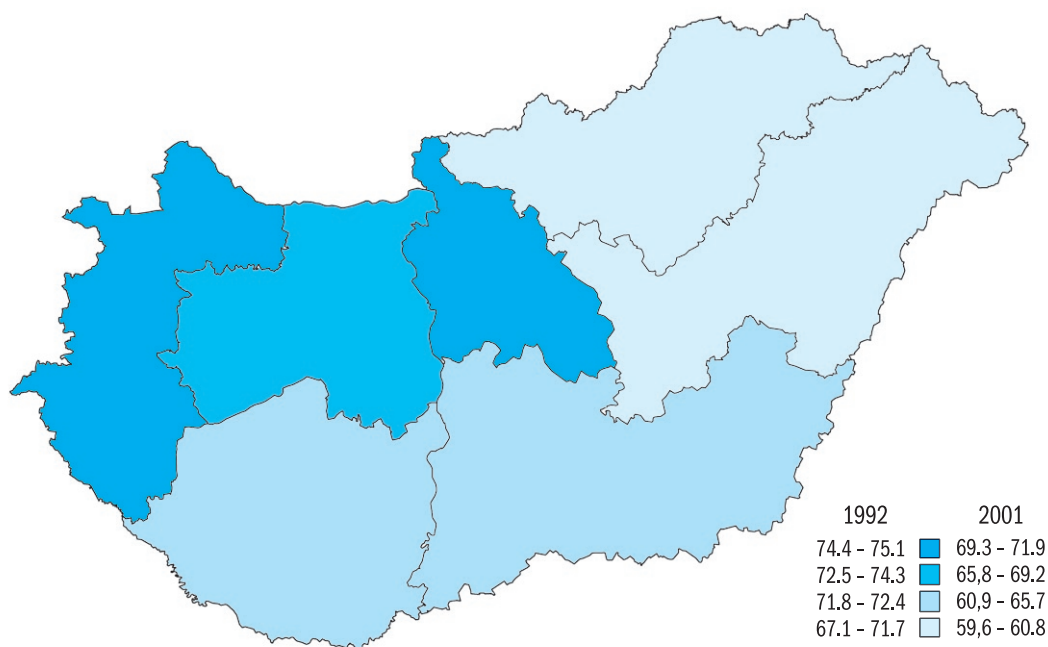
Figure 10.1: Regional inequalities: Labour force participation rates in NUTS-2 level regions

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Table 10.2: Regional inequalities: Employment ratio*

Year	Central Hungary	Central Trans-danubia	Western Trans-danubia	Southern Trans-danubia	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	64.3	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

* Working age population.
Source: KSH MEF.
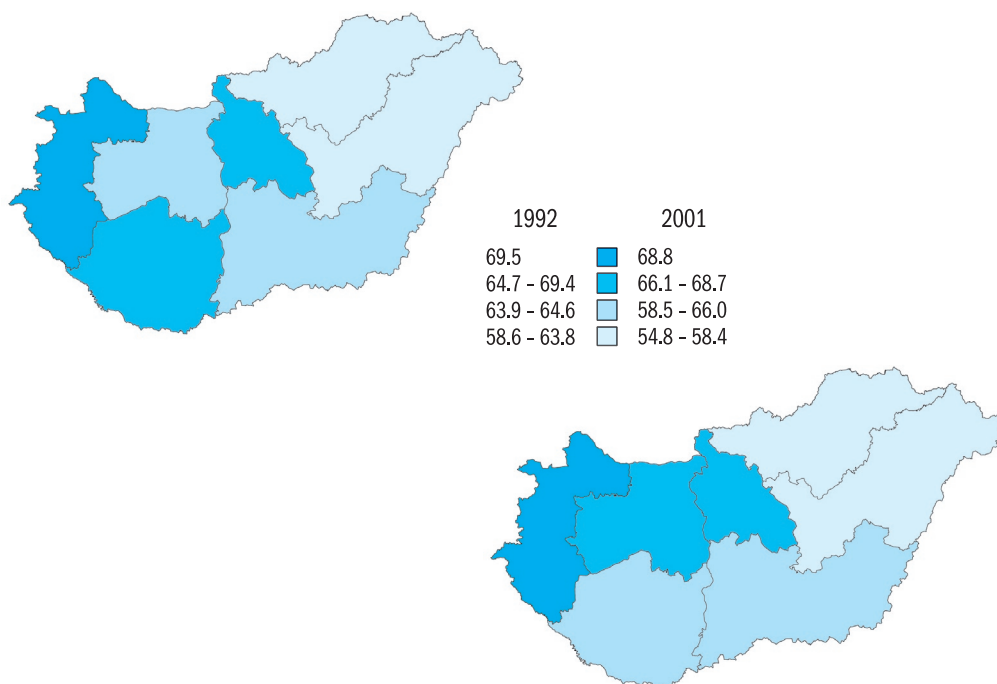
Figure 10.2: Regional inequalities: Employment ratio in NUTS-2 level regions

Table 10.3: Regional inequalities: Registered unemployment rate*

Year	Central Hungary	Central Trans-danubia	Western Trans-danubia	Southern Trans-danubia	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

* The denominator of the ratio is the active population on January 1st of the previous year.
Source: FH REG.

1993	2001
17.1 – 19.1	16.0
14.1 – 17.0	11.2 – 15.9
10.1 – 14.0	6.7 – 11.1
8.0 – 10.0	3.2 – 6.6
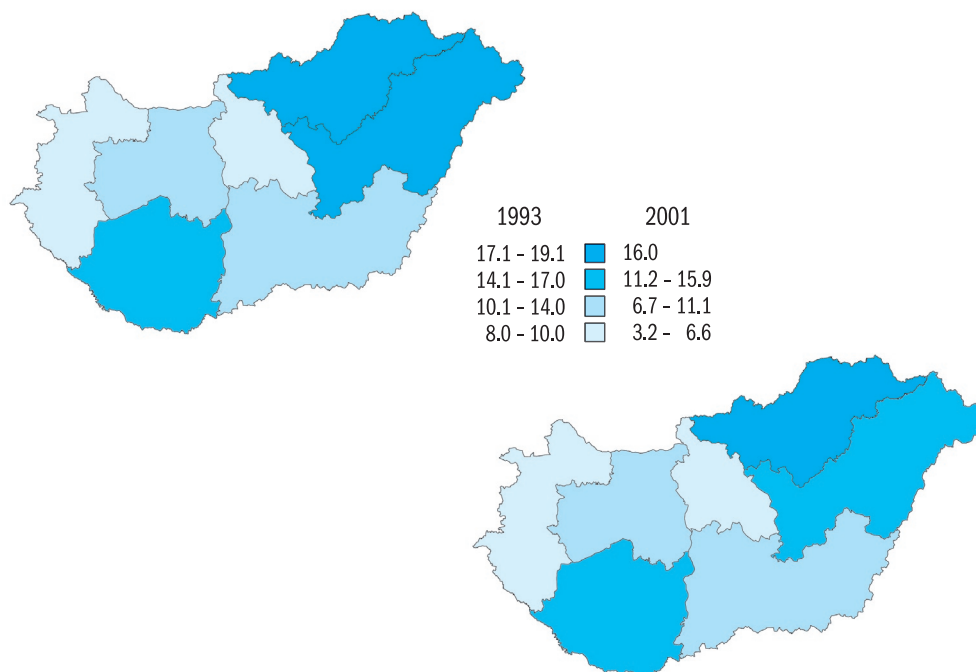
Figure 10.3: Regional inequalities: Registered unemployment rate in NUTS-2 level regions

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Table 10.4: Regional inequalities: LFS-based unemployment rate

| Year	Central Hungary	Central Trans-danubia	Western Trans-danubia	Southern Trans-danubia	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
1992	7.4	11.4	7.2	9.5	13.9	12.3	10.1	9.8
1993	9.8	12.4	8.9	12.7	15.9	14.6	12.2	11.9
1994	8.7	10.6	7.7	11.8	15.0	13.6	10.5	10.7
1995	7.3	10.8	6.8	11.9	15.8	13.6	9.2	10.2
1996	8.1	10.3	7.1	9.3	15.3	13.0	8.3	9.9
1997	6.9	8.0	6.0	9.9	13.9	11.9	7.3	8.7
1998	5.6	6.7	6.0	9.4	12.2	11.0	7.1	7.8
1999	5.2	6.0	4.4	8.3	11.5	10.1	5.7	7.0
2000	5.2	4.8	4.2	7.8	10.1	9.2	5.1	6.4
2001	4.3	4.3	4.2	7.8	8.5	7.8	5.4	5.7

Source: KSH MEF.
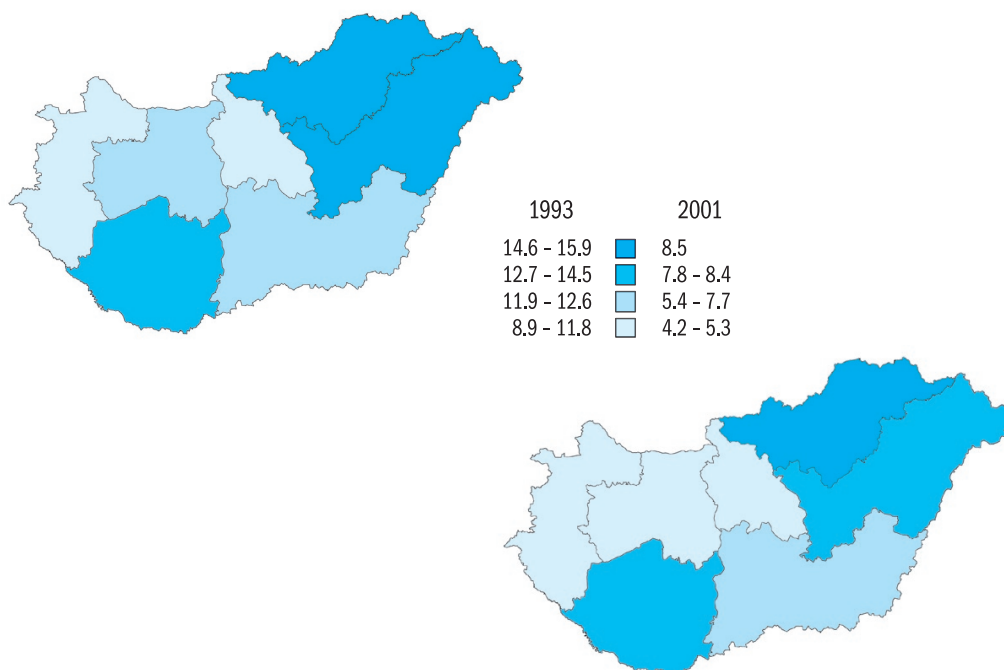
Figure 10.4: Regional inequalities: LFS-based unemployment rates in NUTS-2 level regions

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Table 10.5: Annual average of registered unemployment rate by counties

|	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Budapest	0.1	1.2	4.6	6.6	5.9	5.7	5.7	4.8	4.0	3.7	3.0	2.6
Baranya	1.1	5.1	11.2	13.2	11.7	11.8	12.2	13.3	11.8	11.6	11.6	11.1
Bács-Kiskun	1.1	5.9	13.4	16.0	13.1	11.0	10.9	10.7	9.7	10.0	10.0	9.3
Békés	1.1	7.4	13.3	16.3	15.1	14.0	14.0	13.5	13.0	13.0	13.1	11.9
Borsod-Abaúj-Zemplén	2.3	8.0	16.7	20.2	17.5	16.7	18.0	19.0	17.9	19.5	20.3	19.0
Csongrád	1.0	4.8	9.8	11.7	10.8	9.9	9.3	9.2	8.1	8.5	8.6	8.3
Fejér	1.0	4.1	10.1	12.5	11.3	10.6	10.4	9.4	8.4	8.3	7.2	6.4
Győr-Moson-Sopron	0.5	2.9	6.9	8.2	7.7	6.8	7.4	6.4	5.1	4.8	4.6	4.1
Hajdú-Bihar	0.9	5.0	11.5	16.6	15.3	14.2	15.6	15.0	14.0	15.6	14.7	13.6
Heves	1.6	6.4	12.7	15.2	13.9	12.5	13.6	12.1	11.7	12.3	12.0	10.6
Jász-Nagykun-Szolnok	1.6	7.0	14.4	17.1	15.8	14.6	14.8	14.8	13.5	13.7	13.4	11.5
Komárom-Esztergom	1.0	4.1	11.5	14.4	12.6	11.3	12.0	11.4	9.8	10.1	8.3	7.0
Nógrád	2.4	9.8	16.8	21.3	17.2	16.3	17.0	16.3	15.6	16.2	14.9	14.3
Pest	0.5	4.4	8.1	11.0	8.1	7.6	7.8	7.3	6.3	6.0	5.2	4.4
Somogy	1.4	5.2	9.2	11.6	10.9	11.2	12.5	12.7	11.3	12.2	11.9	11.6
Szabolcs-Szatmár-Bereg	2.6	10.7	18.9	20.6	19.3	19.3	19.7	18.9	17.2	18.7	19.5	17.8
Tolna	1.6	6.5	12.1	14.7	13.4	12.2	13.4	13.5	12.3	12.9	11.8	11.0
Vas	0.4	2.9	7.3	9.1	8.3	7.2	7.2	6.7	5.6	5.6	5.2	4.9
Veszprém	0.9	4.9	9.9	11.9	10.9	10.0	9.9	9.2	7.9	8.2	7.2	6.9
Zala	0.8	3.9	7.7	10.3	9.8	9.2	9.8	9.2	8.1	7.7	7.2	6.5
Country	1.0	4.1	10.3	12.9	11.3	10.6	11.0	10.5	9.5	9.7	9.3	8.5

Source: FH REG.
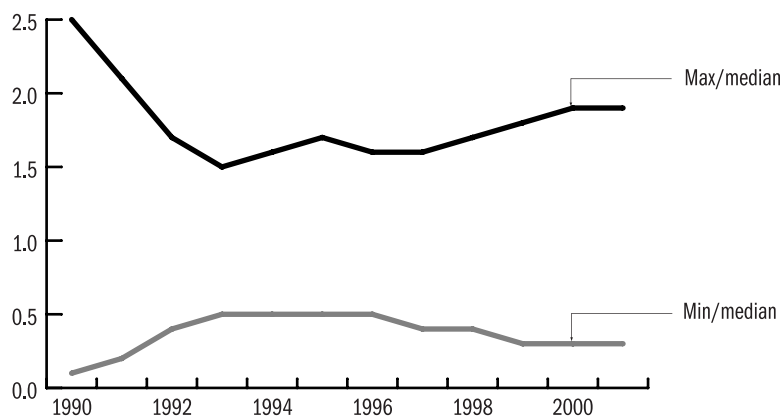
Figure 10.5: Regional inequalities: unemployment rates in the counties

Table 10.6: The average monthly per capita earnings in Budapest and in the counties

County	1994		1996		1998		2000		2001	
	HUF/ month	%	HUF/ month	%	HUF/ month	%	HUF/ month	%	HUF/ month	%
Budapest	45,180	126.8	60,870	127.8	90,949	131.0	121,450	134.4	140,312	135.4
Baranya	32,445	91.1	43,955	92.3	63,391	91.3	76,243	84.4	89,479	86.4
Bács-Kiskun	30,124	84.6	40,477	85.0	57,325	82.6	71,141	78.8	83,432	80.5
Békés	30,725	86.3	40,428	84.9	57,433	82.7	69,552	77.0	79,718	76.9
Borsod-Abaúj-Zemplén	32,260	90.6	41,512	87.1	61,295	88.3	78,136	86.5	89,223	86.1
Csongrád	33,057	92.8	42,855	90.0	60,780	87.6	79,857	88.4	90,367	87.2
Fejér	37,068	104.1	50,129	105.2	73,592	106.0	94,758	104.9	108,290	104.5
Győr-Moson-Sopron	34,666	97.3	47,327	99.4	68,684	98.9	87,334	96.7	103,371	99.8
Hajdú-Bihar	31,978	89.8	42,517	89.3	58,907	84.9	74,922	82.9	87,352	84.3
Heves	33,033	92.7	43,699	91.7	62,163	89.6	83,440	92.4	92,861	89.6
Komárom-Esztergom	33,648	94.5	46,139	96.9	66,564	95.9	84,382	93.4	98,494	95.1
Nógrád	29,023	81.5	38,287	80.4	53,855	77.6	67,368	74.6	80,158	77.4
Pest	32,417	91.0	46,009	96.6	67,768	97.6	87,311	96.6	103,871	100.3
Somogy	29,791	83.6	41,151	86.4	56,888	82.0	68,725	76.1	80,440	77.6
Szabolcs-Szatmár-Bereg	30,675	86.1	39,441	82.8	56,218	81.0	71,403	79.0	79,937	77.2
Jász-Nagykun-Szolnok	30,554	85.8	41,807	87.8	59,441	85.6	75,121	83.2	89,393	84.3
Tolna	33,729	94.7	44,220	92.8	61,594	88.7	78,544	86.9	90,583	87.4
Vas	30,443	85.5	41,668	87.5	60,840	87.6	83,040	91.9	92,492	89.3
Veszprém	33,142	93.0	43,578	91.5	63,474	91.4	79,868	88.4	91,189	88.0
Zala	32,307	90.7	43,314	90.9	61,866	89.1	78,237	86.6	89,252	86.1
Total	35,620	100.0	47,633	100.0	69,415	100.0	90,338	100.0	103,610	100.0

Source: FH BT.

Table 10.7: Regional inequalities: Earnings*

Year	Central Hungary	Central Trans-danubia	Western Trans-danubia	Southern Trans-danubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
HUF/person/month								
1989	11,719	10,880	10,108	10,484	10,472	9,675	9,841	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
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

* 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 (1995–98) and 5 workers (1999–2001), respectively.
Source: FH BT.

■	17.8 – 19.0
■	13.6 – 17.7
■	10.6 – 13.5
■	8.3 – 10.5
■	6.4 – 8.2
□	2.6 – 6.3
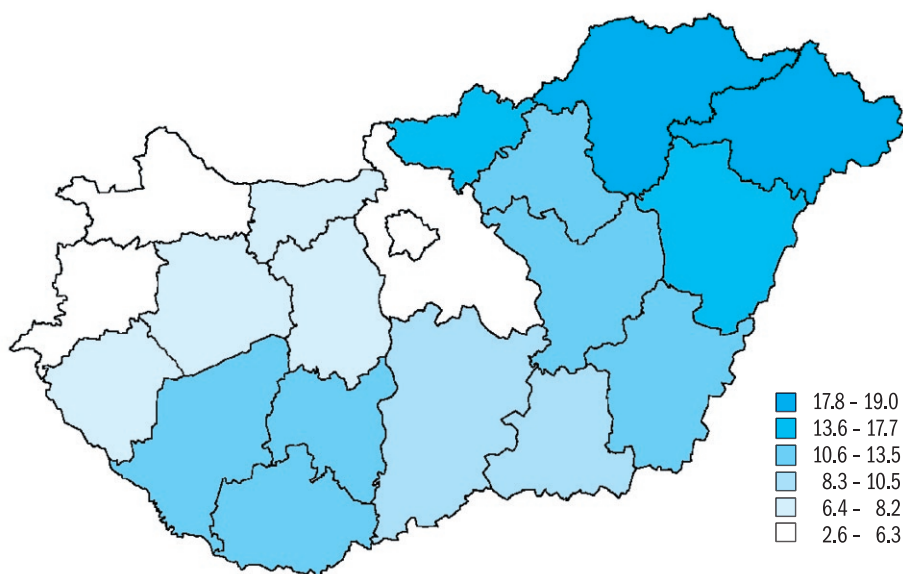
Figure 10.6: Average of registered unemployment rate by counties, 2001

1989		2001	
108.3	■	100.0 – 127.5	
100.5 – 108.2	■	92.9 – 99.9	
93.4 – 100.4	■	83.9 – 92.8	
89.4 – 93.3	□	81.8 – 83.8	

Figure 10.7: Regional inequalities: Earnings

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Table 10.8: Regional inequalities: gross domestic product

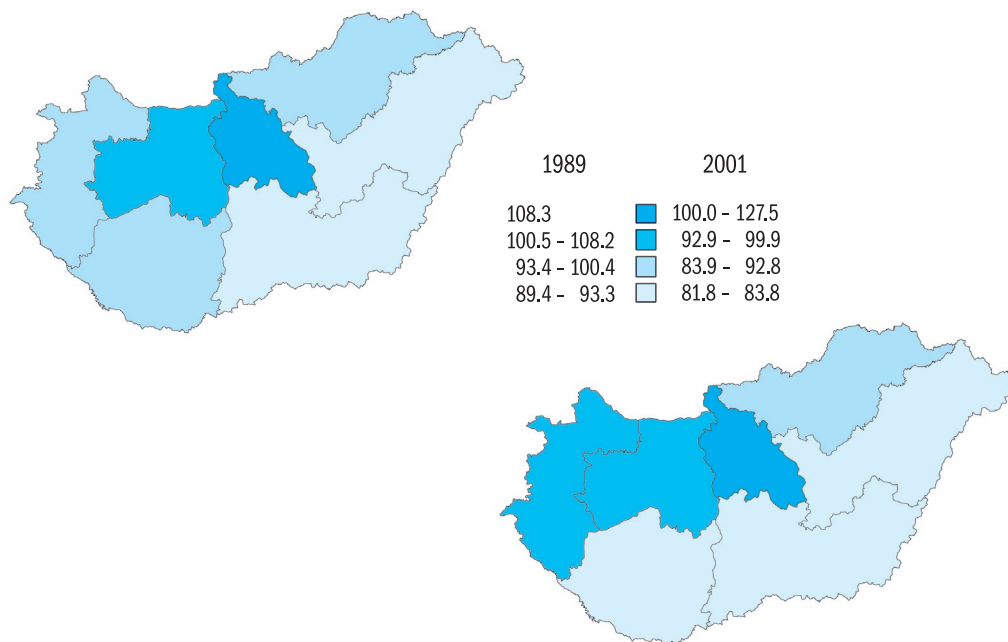| Year	Central Hungary	Central Trans-danubia	Western Trans-danubia	Southern Trans-danubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
Per capita, 1000 HUF								
1994	619	367	428	357	296	314	354	425
1995	792	497	565	448	400	391	457	549
1996	993	621	710	541	467	476	549	676
1997	1,254	807	885	653	566	581	655	841
1998	1,474	978	1,102	770	678	675	761	997
1999	1,710	1,061	1,301	880	751	726	843	1,132
2000	1,997	1,318	1,494	982	847	832	943	1,312
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	100.5	113.9	74.8	64.6	63.4	71.8	100.0

Source: KSH.
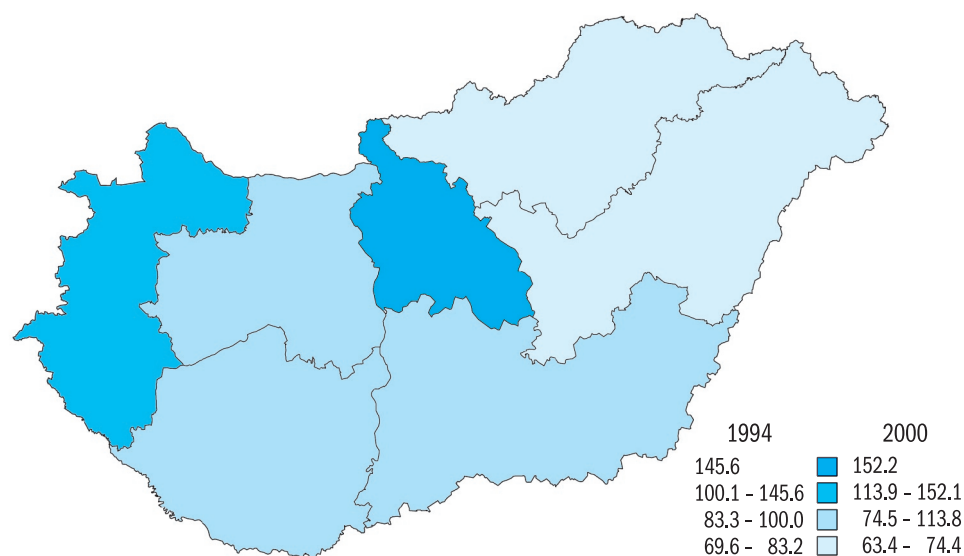
Figure 10.8: Regional inequalities: gross domestic product

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Table 11.1: Domestic migration

Year	Number of changes of dwelling (permanent migrations) in thousands	Number of 15–55/59 years old persons changing dwelling as a percentage of the 15–55/59 years old population
1989	204,058	2.2
1990	213,625	2.4
1991	188,381	2.1
1992	204,641	2.3
1993	207,839	2.3
1994	209,075	2.3
1995	210,909	2.3
1996	208,971	2.2
1997	219,837	2.3
1998	224,208	2.4
1999	220,000	2.4
2000	229,000	2.5
2001	219,000	2.2

Source: Population register.

Table 11.2: Commuting

| Year	Working in the residence		Commuter	
	in thousands	%	in thousands	%
1980	3,850.4	76.0	1,218.4	24.0
1990	3,381.6	74.7	1,145.6	25.3
1996	2,598.1	74.6	886.7	25.4

Note: The data refer to persons classified as 'active wage earners'.
Source: 1980, 1990: NSZ, 1996: MC.

Table 11.3: 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

Source: NEO, based on the reports of the regional labour centres.
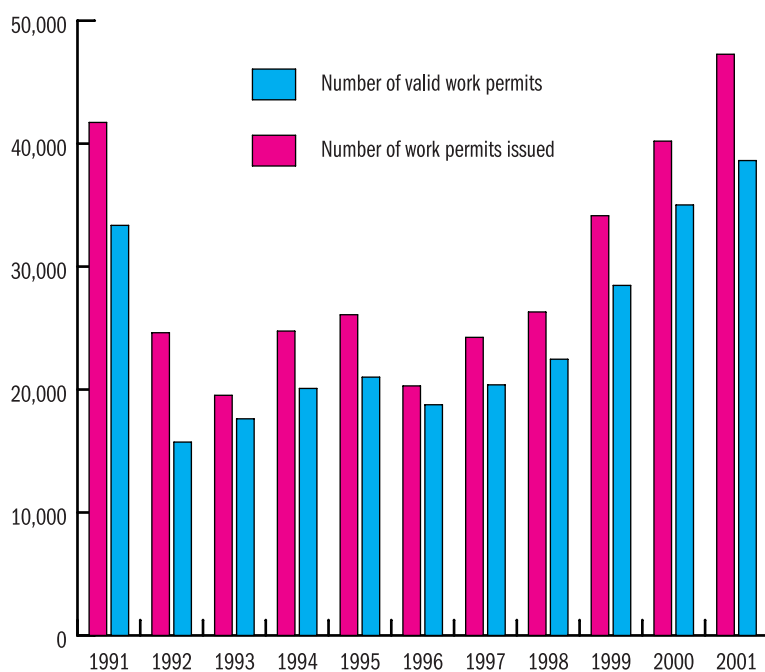
Figure 11: Work permit issued to foreign citiziens

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Table 11.4: Labour turnover*

Year	Number	Share
1989	628,529	14.1
1989	628,529	14.1
1990	448,484	10.8
1991	315,705	8.5
1992	...	...
1993	...	...
1994	175,995	4.7
1995	219,359	6.0
1996	269,635	7.4
1997	212,383	5.8
1998	216,593	5.9
1999	189,770	5.0
2000	192,483	4.9
2001	182,202	4.7

* Persons changing employer during the year.
Note: Data before and after 1992 are not comparable.
Source: 1989–91: KSH IMS; 1994: KSH MEF, supple-
    mentary survey.

Table 12: Strikes

Year	Number of strikes	Number of involved persons	Hours were 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	1,720,481	1,708[1]
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

1 Teachers strikes number partly estimated.
Source: KSH.

Table 13.1: Actual hours worked by sex

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
Average weekly hours worked in main work	38.9	39.9	40.1	40.1	41.4	40.5	40.3	40.9	41.1
Average weekly hours worked in second work	0.9	0.6	0.5	0.5	0.4	0.3	0.3	0.4	0.3
Average weekly hours worked in main and second work	39.8	40.6	40.6	40.6	41.8	40.7	40.6	41.3	41.4
Women									
Average weekly hours worked in main work	35.0	35.5	35.4	35.5	36.7	36.0	36.4	37.0	36.9
Average weekly hours worked in second work	0.5	0.3	0.3	0.3	0.2	0.1	0.2	0.2	0.2
Average weekly hours worked in main and second work	35.4	35.9	35.7	35.8	37.0	36.1	36.6	37.2	37.1
Both sexes together									
Average weekly hours worked in main work	37.1	37.9	37.9	38.1	39.3	38.5	38.6	39.2	39.2
Average weekly hours worked in second work	0.7	0.5	0.4	0.4	0.3	0.2	0.3	0.3	0.3
Average weekly hours worked in main and second work	37.8	38.4	38.3	38.5	39.6	38.7	38.8	39.4	39.5

Table 13.2: Proportions of employed worked in reference week

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
Percentage of employed worked in reference week	92.0	92.7	93.2	94.5	95.4	95.8	96.0	96.4	96.8
Percentage of employed worked in second work in reference week	5.1	3.8	3.6	3.4	2.8	1.8	2.0	2.2	2.0
Women									
Percentage of employed worked in reference week	89.0	89.2	89.6	91.2	92.3	92.8	93.6	94.4	94.8
Percentage of employed worked in second work in reference week	3.0	2.2	2.0	2.0	1.6	1.1	1.3	1.2	1.3
Both sexes together									
Percentage of employed worked in reference week	90.6	91.1	91.5	93.0	94.0	94.5	95.0	95.5	95.9
Percentage of employed worked in second work in reference week	4.1	3.0	2.8	2.7	2.3	1.5	1.7	1.8	1.7

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Table 13.3: Reasons for absence from work, percent

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
Illness	42.4	42.5	46.6	37.5	35.8	32.2	32.7	33.0	32.8
Parental leave	0.4	0.4	0.7	0.6	0.7	0.6	0.9	0.4	0.8
Vacation	36.7	40.6	37.2	42.7	46.7	50.1	51.2	48.6	49.7
Strike	0.1	0.0	0.1	0.1	0.2	0.0	0.0	0.1	0.3
Weather conditions	1.1	1.4	1.0	2.1	3.4	3.8	2.6	5.1	3.7
Work schedule	3.3	2.7	2.2	2.5	2.4	2.2	2.9	2.1	2.7
Reduction in economic activity	9.9	6.5	4.9	5.1	3.4	3.5	3.0	3.8	4.1
Other reason	5.9	5.9	7.3	9.4	7.3	7.5	6.8	6.9	6.7
Women									
Illness	40.1	40.4	41.0	34.3	34.3	30.5	31.3	30.8	27.6
Parental leave	13.3	9.7	12.0	12.8	11.4	11.2	8.0	8.4	10.5
Vacation	36.4	39.4	38.3	43.2	44.8	48.2	50.1	49.8	51.4
Strike	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Weather conditions	0.4	0.5	0.1	0.2	0.4	0.7	0.4	0.7	0.5
Work schedule	1.5	1.5	1.3	1.0	1.0	1.3	1.1	1.1	0.8
Reduction in economic activity	4.4	3.4	2.9	2.6	2.0	1.8	3.1	2.1	2.4
Other reason	3.9	5.1	4.3	5.8	6.1	6.2	6.0	7.1	6.9
Both sexes together									
Illness	41.1	41.3	43.4	35.7	35.0	31.2	31.9	31.8	29.5
Parental leave	7.4	5.6	7.1	7.6	6.8	6.7	4.9	4.9	6.3
Vacation	36.5	39.9	37.8	43.0	45.6	49.0	50.6	49.3	50.7
Strike	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1
Weather conditions	0.7	0.9	0.5	1.0	1.7	2.0	1.3	2.6	1.8
Work schedule	2.3	2.0	1.7	1.7	1.6	1.7	1.9	1.5	1.6
Reduction in economic activity	6.9	4.8	3.8	3.7	2.6	2.5	3.1	2.8	3.1
Other reason	4.8	5.5	5.6	7.3	6.6	6.8	6.3	7.0	6.8

Table 13.4: Average weekly hours worked by age-group

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
15–19 years	37.3	39.2	38.5	38.3	40.4	39.0	38.4	39.1	39.0
20–29 years	39.9	40.8	40.8	41.0	41.9	40.8	40.4	41.3	41.5
30–39 years	41.1	41.6	41.8	41.5	42.4	41.5	41.5	42.0	41.9
40–49 years	40.4	41.1	41.1	41.2	42.4	41.1	41.1	41.6	41.8
50–59 years	38.4	39.0	39.2	39.2	40.7	39.6	39.7	40.8	41.0
60–74 years	31.1	31.6	30.8	31.7	32.6	31.7	33.9	33.1	34.2
Total	39.8	40.6	40.6	40.6	41.8	40.7	40.6	41.3	41.4
Women									
15–19 years	36.5	36.9	37.6	37.2	38.2	37.1	37.4	38.3	37.9
20–29 years	33.6	34.6	34.8	34.9	36.3	35.4	36.4	37.0	37.1
30–39 years	36.1	36.6	36.1	36.0	36.8	36.0	36.4	37.1	36.8
40–49 years	37.1	37.0	36.8	36.9	38.0	37.1	37.3	37.7	37.8
50–54 years	36.0	35.3	35.7	35.6	37.2	36.5	36.8	37.6	37.6
55–74 year	28.3	29.2	27.2	29.9	31.2	31.2	31.3	32.5	33.1
Total	35.4	35.9	35.7	35.8	37.0	36.1	36.6	37.2	37.1
Both sexes together									
15–19 years	36.9	37.9	38.0	37.7	39.3	38.1	37.9	38.8	38.5
20–29 years	37.1	38.1	38.2	38.5	39.7	38.7	38.8	39.5	39.7
30–39 years	38.8	39.3	39.2	39.0	39.9	39.1	39.2	39.8	39.7
40–49 years	38.8	39.1	39.0	39.1	40.2	39.1	39.2	39.6	39.8
50–54/59 years	37.5	37.6	37.9	37.9	39.4	38.5	38.7	39.6	39.7
55/61–74 years	29.4	30.2	28.6	30.6	31.7	31.4	32.2	32.7	33.4
Total	37.8	38.4	38.3	38.5	39.6	38.7	38.8	39.4	39.5

Table 13.5: Average weekly hours worked by type of employment

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
Employee	38.9	39.7	39.7	39.6	40.8	39.8	39.8	40.5	40.6
Co-operative member	40.2	40.8	41.2	40.7	42.3	40.4	41.0	41.4	40.9
Self-employed	43.6	44.2	44.8	45.0	46.0	44.8	44.3	45.0	45.5
Total	39.8	40.6	40.6	40.6	41.8	40.7	40.6	41.3	41.4
Women									
Employee	34.9	35.5	35.2	35.4	36.4	35.6	36.2	36.8	36.8
Co-operative member	35.2	34.8	36.9	36.6	37.8	38.1	37.3	36.3	38.9
Self-employed	38.8	39.1	39.1	38.7	41.4	39.8	40.0	40.5	40.3
Total	35.4	35.9	35.7	35.8	37.0	36.1	36.6	37.2	37.1
Both sexes together									
Employee	37.0	37.6	37.5	37.6	38.7	37.8	38.1	38.7	38.8
Co-operative member	38.6	38.9	39.8	39.4	40.9	39.7	39.9	39.9	40.3
Self-employed	41.7	42.4	42.8	42.9	44.5	43.2	42.9	43.5	43.9
Total	37.8	38.4	38.3	38.5	39.6	38.7	38.8	39.4	39.5

Table 13.6: Average weekly hours worked by industry

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
Agriculture	40.4	41.7	41.8	41.5	43.0	41.5	41.7	42.0	42.6
Mining	36.5	37.5	36.7	38.2	39.3	39.2	39.4	41.2	41.1
Manufacturing	38.4	39.3	39.4	39.9	40.7	39.9	39.8	40.3	40.1
Electricity, gas and water supply	39.6	39.3	38.7	39.3	39.7	39.0	38.9	40.0	40.0
Construction	39.4	39.9	40.4	40.3	41.7	41.8	40.8	41.5	42.1
Trade and repairing	42.4	43.0	42.9	43.4	44.4	42.8	42.6	42.7	42.5
Hotels and restaurants	44.4	45.8	45.5	44.2	47.1	45.2	44.6	44.7	45.2
Transportation and storage	40.8	41.4	41.7	41.7	43.1	41.5	41.5	42.6	42.7
Financial intermediation	39.2	40.9	41.1	41.2	42.1	39.5	40.9	40.9	41.7
Real estate, renting	41.4	41.9	41.6	42.6	42.8	42.2	43.2	43.5	43.7
Public administration and defence	40.1	40.9	40.5	39.4	40.3	38.9	39.4	40.4	40.2
Education	36.7	36.1	36.1	34.7	35.2	33.2	33.9	35.6	35.8
Health and social work	40.0	41.0	41.0	40.6	41.4	40.7	40.6	41.0	41.2
Other services	39.3	40.7	41.1	40.4	41.7	40.1	40.2	40.1	41.1
Other	40.7	37.6	36.8	39.0	41.6	41.4	37.3	38.3	35.9
Total	39.8	40.6	40.6	40.6	41.8	40.7	40.6	41.3	41.4
Women									
Agriculture	35.7	35.5	36.5	35.8	38.3	37.1	37.4	36.5	37.8
Mining	33.7	35.5	32.9	36.3	35.1	38.0	36.0	37.2	38.3
Manufacturing	34.7	35.3	35.4	36.3	37.2	36.5	37.0	37.7	37.4
Electicity, gas, steam	35.5	36.2	36.7	35.2	36.9	36.6	36.9	37.5	37.6
Construction	35.6	35.7	34.9	37.0	37.0	36.3	37.4	36.6	37.9
Trade and repairing	37.5	38.2	37.6	37.7	38.9	38.1	38.5	38.8	38.7
Hotels and restaurants	39.1	39.9	40.1	38.1	39.7	39.8	39.8	40.7	40.1
Transportation and storage	35.1	36.1	35.0	36.0	37.4	36.2	36.8	37.3	36.6
Financial intermediation	36.7	36.3	36.2	36.7	37.9	36.4	37.4	37.6	37.9
Real estate, renting	36.1	37.9	37.2	37.5	38.2	37.1	38.0	38.6	38.2
Public administration and defence	35.6	36.4	35.7	36.1	36.6	36.0	36.4	37.1	37.3
Education	32.4	32.5	32.1	31.5	32.9	31.8	31.8	33.1	33.1
Health and social work	35.9	35.9	36.3	36.5	37.4	35.6	37.0	37.5	37.6
Other services	35.5	36.1	34.9	35.0	36.7	36.3	36.6	36.7	36.8
Other	35.1	34.5	30.4	34.3	33.2	34.3	32.8	33.2	41.2
Total	35.4	35.9	35.7	35.8	37.0	36.1	36.6	37.2	37.1

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	1992	1993	1994	1995	1996	1997	1998	1999	2000
Both sexes together									
Agriculture	38.9	39.9	40.3	40.0	41.9	40.4	40.6	40.7	41.4
Mining	36.1	37.1	36.3	37.9	38.6	39.1	38.9	40.4	40.6
Manufacturing	36.8	37.6	37.7	38.4	39.2	38.5	38.6	39.3	39.0
Electicity, gas, steam	38.4	38.4	38.2	38.2	38.9	38.4	38.4	39.4	39.4
Construction	38.8	39.4	39.8	39.9	41.3	41.3	40.5	41.1	41.8
Trade and repairing	39.5	40.2	39.9	40.3	41.5	40.4	40.4	40.6	40.5
Hotels and restaurants	41.3	42.5	42.7	40.8	43.1	42.5	42.1	42.6	42.5
Transportation and storage	39.1	39.9	39.9	40.3	41.6	40.2	40.1	41.1	41.0
Financial intermediation	37.3	37.4	37.5	38.0	39.2	37.4	38.5	38.7	39.1
Real estate, renting	38.7	40.0	39.6	40.2	40.6	39.8	40.9	41.4	41.2
Public administration and defence	38.2	38.9	38.4	37.9	38.6	37.5	37.9	38.8	38.8
Education	33.5	33.4	33.1	32.3	33.4	32.1	32.3	33.7	33.7
Health and social work	36.9	37.3	37.5	37.5	38.4	36.9	37.9	38.3	38.5
Other services	37.4	38.4	38.2	37.9	39.3	38.3	38.4	38.3	38.9
Other	38.7	36.5	34.4	37.8	38.6	38.8	35.4	35.2	38.6
Total	37.8	38.4	38.3	38.5	39.6	38.7	38.8	39.4	39.5

Table 13.7: Average weekly hours worked by occupation

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
Legislators, senior officials and managers	...	...	43.5	43.7	44.2	43.1	43.9	44.8	44.1
Professionals	...	...	39.8	38.4	40.0	38.2	39.2	39.6	39.7
Technicians and associate professionals	...	...	40.8	40.3	40.6	39.9	40.1	40.6	40.8
Clerks	...	...	39.4	38.4	39.3	38.3	38.2	38.7	40.1
Service workers and shop and market sales workers	...	...	43.2	42.9	44.8	43.5	42.9	43.4	43.3
Skilled agricultural and forestry workers	...	...	43.5	42.8	45.4	43.5	42.6	43.3	44.0
Craft and related workers	...	...	39.3	39.6	40.6	40.0	39.7	40.3	40.7
Plant and machine operators and assemblers	...	...	41.3	41.4	42.6	41.1	41.1	41.9	42.0
Elementary occupations	...	...	38.0	39.3	39.7	38.6	38.8	39.1	39.1
Armed forces	...	...	40.4	39.9	40.8	39.1	38.9	40.2	40.2
Total	...	...	40.6	40.6	41.8	40.7	40.6	41.3	41.4
Women									
Legislators, senior officials and managers	...	...	38.8	39.6	40.2	38.8	40.1	40.3	40.1
Professionals	...	...	33.0	32.4	34.0	32.9	33.0	34.2	34.5
Technicians and associate professionals	...	...	36.1	36.5	37.8	36.2	37.3	37.7	37.4
Clerks	...	...	35.4	35.9	36.9	36.3	37.0	37.4	37.2
Service workers and shop and market sales workers	...	...	38.0	37.5	38.7	38.0	38.2	38.8	38.6
Skilled agricultural and forestry workers	...	...	36.5	36.0	38.9	37.9	37.7	36.1	37.8
Craft and related workers	...	...	35.1	36.3	37.3	36.7	37.0	37.9	37.5
Plant and machine operators and assemblers	...	...	35.7	35.2	35.8	35.8	36.5	36.8	37.2
Elementary occupations	...	...	33.8	34.0	35.2	34.7	34.8	35.4	35.5
Armed forces	...	...	36.6	38.3	37.7	38.0	37.6	38.3	37.3
Total	...	...	35.7	35.8	37.0	36.1	36.6	37.2	37.1

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	1992	1993	1994	1995	1996	1997	1998	1999	2000
Both sexes together									
Legislators, senior officials and managers	...	...	41.8	42.3	42.9	41.7	42.6	43.3	42.7
Professionals	...	...	35.9	35.1	36.5	35.2	35.6	36.5	36.7
Technicians and associate professionals	...	...	37.7	37.9	38.8	37.5	38.3	38.7	38.6
Clerks	...	...	35.8	36.2	37.1	36.5	37.1	37.5	37.4
Service workers and shop and market sales workers	...	...	40.3	39.9	41.5	40.6	40.3	40.9	40.7
Skilled agricultural and forestry workers	...	...	41.3	40.9	43.6	41.9	41.3	41.4	42.3
Craft and related workers	...	...	38.4	38.9	39.9	39.3	39.1	39.9	40.1
Plant and machine operators and assemblers	...	...	40.1	40.2	41.2	39.9	40.0	40.6	40.7
Elementary occupations	...	...	35.6	36.3	37.2	36.5	36.6	37.0	37.2
Armed forces	...	...	40.0	39.7	40.4	38.9	38.7	39.9	39.8
Total	...	...	38.3	38.5	39.6	38.7	38.8	39.4	39.5

Table 13.8: Average weekly hours worked in main work by age-group

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
15–19 years	36.9	39.2	38.5	38.3	40.2	39.0	38.4	39.0	39.0
20–29 years	39.2	40.4	40.4	40.6	41.7	40.7	40.3	41.1	41.4
30–39 years	40.1	41.0	41.1	40.9	41.9	41.3	41.1	41.7	41.6
40–49 years	39.4	40.3	40.5	40.5	41.9	40.7	40.7	41.1	41.4
50–59 years	37.5	38.4	38.7	38.7	40.1	39.2	39.4	40.4	40.6
60–74 years	30.2	31.0	30.3	31.2	32.2	31.4	33.4	32.8	33.5
Total	38.9	39.9	40.1	40.1	41.4	40.5	40.3	40.9	41.1
Women									
15–19 years	36.3	36.9	37.6	37.1	38.1	37.1	37.3	38.3	37.9
20–29 years	33.3	34.4	34.7	34.7	36.2	35.3	36.4	37.0	37.0
30–39 years	35.6	36.3	35.8	35.7	36.6	35.8	36.2	37.0	36.6
40–49 years	36.5	36.6	36.5	36.6	37.8	36.9	37.1	37.5	37.6
50–54 years	35.4	35.0	35.4	35.3	37.0	36.3	36.5	37.4	37.4
55–74 years	27.6	28.8	26.8	29.5	31.0	30.9	31.0	32.3	32.9
Total	35.0	35.5	35.4	35.5	36.7	36.0	36.4	37.0	36.9
Both sexes together									
15–19 years	36.6	37.9	38.0	37.7	39.2	38.1	37.9	38.7	38.5
20–29 years	36.6	37.8	38.0	38.2	39.5	38.6	38.7	39.4	39.6
30–39 years	38.0	38.8	38.7	38.6	39.6	38.9	38.9	39.6	39.4
40–49 years	37.9	38.5	38.5	38.6	39.9	38.8	38.9	39.3	39.5
50–54/59 years	36.8	37.1	37.5	37.5	39.0	38.2	38.4	39.3	39.4
55/61–74 years	28.7	29.7	28.2	30.2	31.4	31.1	31.9	32.4	33.1
Total	37.1	37.9	37.9	38.1	39.3	38.5	38.6	39.2	39.2

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Table 13.9: Average weekly hours worked in main work by type of employment

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
Employee	38.0	39.1	39.1	39.1	40.3	39.5	39.5	40.1	40.3
Co-operative member	38.7	39.7	40.0	39.8	41.7	40.0	40.6	41.0	40.7
Self-employed	42.8	43.7	44.4	44.5	45.6	44.5	44.1	44.7	45.2
Total	38.9	39.9	40.1	40.1	41.4	40.5	40.3	40.9	41.1
Women									
Employee	34.5	35.2	34.9	35.1	36.2	35.5	36.0	36.6	36.6
Co-operative member	33.9	34.3	36.1	35.8	37.5	37.9	37.0	36.1	38.5
Self-employed	38.2	38.8	38.8	38.5	41.2	39.6	39.9	40.3	40.0
Total	35.0	35.5	35.4	35.5	36.7	36.0	36.4	37.0	36.9
Both sexes together									
Employee	36.3	37.2	37.1	37.2	38.4	37.6	37.8	38.5	38.5
Co-operative member	37.2	38.0	38.8	38.6	40.4	39.3	39.5	39.6	40.0
Self-employed	41.0	42.0	42.4	42.5	44.2	43.0	42.7	43.3	43.6
Total	37.1	37.9	37.9	38.1	39.3	38.5	38.6	39.2	39.2

Table 13.10: Average weekly hours worked in main work by industry

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
Agriculture	39.1	41.0	41.1	40.9	42.6	41.2	41.3	41.7	42.3
Mining	35.7	37.0	36.6	37.7	38.8	39.0	38.9	41.1	40.9
Manufacturing	37.7	38.8	39.0	39.4	40.4	39.7	39.5	40.1	40.0
Electricity, gas and water supply	38.0	38.4	38.1	38.6	39.3	38.8	38.6	39.7	39.6
Construction	38.7	39.5	40.2	40.0	41.4	41.6	40.7	41.4	42.0
Trade and repairing	41.6	42.4	42.5	43.0	44.0	42.6	42.3	42.4	42.3
Hotels and restaurants	43.4	45.6	45.1	44.0	47.0	45.1	44.4	44.6	45.1
Transportation and storage	40.1	40.9	41.2	41.4	42.8	41.3	41.2	42.3	42.4
Financial intermediation	39.1	40.0	40.3	40.8	41.6	39.4	40.7	40.5	41.1
Real estate, renting	39.5	40.6	40.6	41.8	42.3	41.8	42.6	42.6	43.2
Public administration and defence	39.3	40.2	39.9	39.0	39.8	38.7	38.9	39.8	39.7
Education	35.4	34.8	34.9	33.0	33.8	32.4	33.1	34.1	34.7
Health and social work	39.3	40.5	40.4	39.9	40.6	39.8	39.9	40.3	40.5
Other services	38.5	40.0	40.3	39.7	41.2	39.7	39.8	39.7	40.4
Other	39.5	37.6	36.7	38.7	41.6	41.4	37.1	38.3	35.9
Total	38.9	39.9	40.1	40.1	41.4	40.5	40.3	40.9	41.1

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	1992	1993	1994	1995	1996	1997	1998	1999	2000
Women									
Agriculture	34.6	35.2	36.2	35.4	38.0	37.0	37.2	36.4	37.6
Mining	33.3	35.5	32.8	35.5	35.0	38.0	36.0	37.2	38.3
Manufacturing	34.4	35.1	35.2	36.0	37.0	36.3	37.0	37.6	37.3
Electicity, gas, steam	34.8	35.3	36.2	35.1	36.8	36.2	36.6	37.3	37.5
Construction	34.9	35.2	34.3	36.6	36.3	36.1	37.2	36.4	37.4
Trade and repairing	37.0	37.9	37.4	37.6	38.8	38.1	38.4	38.7	38.6
Hotels and restaurants	38.8	39.8	39.9	38.0	39.6	39.8	39.8	40.6	40.1
Transportation and storage	34.8	35.8	34.9	35.9	37.3	36.1	36.6	37.1	36.5
Financial intermediation	36.2	36.1	36.1	36.3	37.7	36.1	37.1	37.6	37.8
Real estate, renting	35.3	36.7	36.8	37.1	37.5	36.8	37.7	38.3	37.9
Public administration and defence	35.1	36.0	35.5	35.8	36.4	35.8	36.2	36.9	36.9
Education	32.0	32.2	31.8	31.2	32.6	31.6	31.5	32.8	32.8
Health and social work	35.6	35.8	36.1	36.1	37.1	35.5	36.8	37.3	37.4
Other services	34.8	35.7	34.5	34.7	36.5	36.1	36.4	36.6	36.5
Other	34.5	34.0	30.2	34.3	31.6	34.3	32.8	33.2	37.3
Total	35.0	35.6	35.4	35.5	36.7	36.0	36.4	37.0	36.9
Both sexes together									
Agriculture	37.7	39.3	39.7	39.5	41.5	40.2	40.3	40.4	41.2
Mining	35.4	36.8	36.1	37.4	38.2	38.8	38.4	40.3	40.4
Manufacturing	36.2	37.2	37.4	38.0	39.0	38.3	38.5	39.1	38.9
Electicity, gas, steam	37.1	37.5	37.6	37.7	38.6	38.1	38.1	39.0	39.1
Construction	38.1	39.0	39.5	39.7	40.9	41.1	40.4	41.0	41.7
Trade and repairing	38.9	39.8	39.6	40.0	41.3	40.3	40.2	40.4	40.4
Hotels and restaurants	40.8	42.3	42.4	40.7	43.0	42.4	41.9	42.5	42.4
Transportation and storage	38.5	39.5	39.5	40.0	41.4	40.0	39.9	40.8	40.7
Financial intermediation	36.9	37.1	37.2	37.6	38.9	37.2	38.3	38.6	38.9
Real estate, renting	37.4	38.7	38.9	39.6	40.0	39.4	40.4	40.7	40.8
Public administration and defence	37.5	38.4	37.9	37.6	38.2	37.3	37.6	38.3	38.4
Education	32.8	32.8	32.6	31.6	32.9	31.8	31.9	33.1	33.2
Health and social work	36.5	37.0	37.2	37.0	37.9	36.5	37.6	38.0	38.2
Other services	36.7	37.9	37.6	37.4	38.9	37.9	38.1	38.1	38.4
Other	37.7	36.4	34.2	37.5	38.0	38.8	35.3	35.2	36.6
Total	37.1	37.9	37.9	38.1	39.3	38.5	38.6	39.2	39.2

Table 13.11: Average weekly hours worked in main work by occupation

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
Legislators, senior officials and managers	...	...	42.5	43.0	43.4	42.5	43.3	44.1	43.5
Professionals	...	...	38.5	37.0	38.9	37.5	38.3	38.4	38.9
Technicians and associate professionals	...	...	39.9	39.6	40.0	39.5	39.5	40.0	40.3
Clerks	...	...	38.4	37.9	39.2	38.2	37.9	38.5	39.8
Service workers and shop and market sales workers	...	...	42.7	42.5	44.5	43.3	42.6	43.0	42.9
Skilled agricultural and forestry workers	...	...	43.1	42.3	45.0	43.2	42.3	43.1	43.9
Craft and related workers	...	...	38.9	39.2	40.3	39.8	39.5	40.2	40.5
Plant and machine operators and assemblers	...	...	41.0	41.1	42.4	40.9	40.9	41.7	41.8
Elementary occupations	...	...	37.7	38.8	39.4	38.5	38.7	38.9	39.0
Armed forces	...	...	40.2	39.6	40.4	38.9	38.7	40.1	40.0
Total	...	...	40.1	40.1	41.4	40.5	40.3	40.9	41.1
Women									
Legislators, senior officials and managers	...	...	38.2	39.1	39.9	38.6	39.5	39.9	39.6
Professionals	...	...	32.5	31.7	33.4	32.6	32.6	33.8	34.0
Technicians and associate professionals	...	...	35.8	36.2	37.6	36.0	37.1	37.5	37.3
Clerks	...	...	35.3	35.8	36.8	36.1	36.9	37.2	37.0
Service workers and shop and market sales workers	...	...	37.8	37.4	38.5	38.0	38.2	38.8	38.5
Skilled agricultural and forestry workers	...	...	36.2	35.8	38.7	37.8	37.5	36.0	37.8
Craft and related workers	...	...	34.8	36.1	37.2	36.6	37.0	37.8	37.5
Plant and machine operators and assemblers	...	...	35.5	35.0	35.7	35.7	36.5	36.8	37.2
Elementary occupations	...	...	33.6	33.8	35.1	34.7	34.7	35.2	35.3
Armed forces	...	...	36.6	38.0	37.6	38.0	37.4	38.0	36.6
Total	...	...	35.4	35.5	36.7	36.0	36.4	37.0	36.9
Both sexes together									
Legislators, senior officials and managers	...	...	40.9	41.7	42.3	41.2	42.0	42.6	42.2
Professionals	...	...	35.1	34.1	35.7	34.7	35.0	35.7	36.1
Technicians and associate professionals	...	...	37.3	37.5	38.4	37.2	38.0	38.4	38.3
Clerks	...	...	35.5	35.9	37.0	36.3	36.9	37.3	37.2
Service workers and shop and market sales workers	...	...	39.9	39.7	41.3	40.4	40.2	40.7	40.5
Skilled agricultural and forestry workers	...	...	40.9	40.4	43.3	41.7	41.0	41.2	42.2
Craft and related workers	...	...	38.1	38.6	39.6	39.2	39.0	39.7	39.9
Plant and machine operators and assemblers	...	...	39.9	39.9	41.0	39.8	39.9	40.5	40.6
Elementary occupations	...	...	35.4	35.9	37.0	36.4	36.5	36.9	37.0
Armed forces	...	...	39.8	39.4	40.1	38.8	38.5	39.7	39.5
Total	...	...	37.9	38.1	39.3	38.5	38.6	39.2	39.2

Table 13.12: Percentage of employed absent from work by age-group

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
15–19 years	7.5	4.9	5.3	5.0	2.7	3.2	3.5	2.4	1.9
20–29 years	7.1	6.1	5.4	4.2	3.7	3.1	3.2	2.8	2.3
30–39 years	7.1	6.8	6.2	5.1	4.5	3.8	3.7	3.3	3.3
40–49 years	8.4	7.6	7.1	5.7	4.8	4.4	4.3	4.0	3.5
50–59 years	10.1	9.7	9.6	7.2	6.4	6.0	5.0	4.4	4.1
60–74 years	8.8	10.0	8.5	8.3	5.4	5.9	5.7	5.8	4.4
Total	8.0	7.3	6.8	5.5	4.6	4.2	4.0	3.6	3.2
Women									
15–19 years	7.9	7.5	6.2	5.5	4.8	3.3	4.0	3.3	3.3
20–29 years	15.5	14.1	13.1	11.6	9.4	9.6	7.2	6.7	5.9
30–39 years	10.8	10.0	10.0	8.7	8.0	7.4	7.0	5.5	5.9
40–49 years	9.4	9.3	8.9	7.3	6.6	6.1	5.6	5.2	4.6
50–54 years	10.4	12.3	10.8	9.1	7.9	6.5	7.0	5.3	4.8
55–74 years	9.5	10.7	14.2	8.8	8.2	6.3	4.1	4.5	4.7
Total	11.0	10.8	10.4	8.8	7.7	7.2	6.4	5.6	5.2
Both sexes together									
15–19 years	7.7	6.3	5.8	5.2	3.7	3.3	3.7	2.8	2.6
20–29 years	10.7	9.6	8.7	7.3	6.0	5.7	4.8	4.4	3.8
30–39 years	8.8	8.3	7.9	6.7	6.0	5.4	5.2	4.3	4.4
40–49 years	8.9	8.5	8.0	6.5	5.7	5.3	5.0	4.6	4.0
50–54/59 years	10.2	10.7	10.0	7.9	6.9	6.2	5.7	4.7	4.3
55/61–74 years	9.2	10.4	11.9	8.6	7.3	6.2	4.7	4.9	4.6
Total	9.4	8.9	8.5	7.0	6.0	5.5	5.0	4.5	4.1

Table 13.13: Percentage of employed absent from work by type of employment

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
Employee	8.3	7.7	7.2	5.7	4.8	4.3	4.1	3.6	3.3
Co-operative member	9.3	9.0	8.4	6.4	5.4	4.5	3.5	3.3	4.8
Self-employed	5.9	5.5	4.7	4.1	4.0	3.6	3.4	3.5	2.8
Total	8.0	7.3	6.8	5.5	4.6	4.2	4.0	3.6	3.2
Women									
Employee	11.5	11.1	10.9	9.2	8.1	7.7	6.7	5.8	5.4
Co-operative member	13.0	13.9	8.7	6.9	7.2	4.9	4.8	6.0	3.0
Self-employed	7.4	7.3	6.7	6.1	4.8	3.8	3.7	4.1	3.6
Total	11.0	10.8	10.4	8.8	7.7	7.2	6.4	5.6	5.2
Both sexes together									
Employee	9.9	9.3	9.0	7.4	6.4	5.9	5.3	4.6	4.3
Co-operative member	10.5	10.6	8.5	6.5	6.0	4.7	3.9	4.1	4.3
Self-employed	6.5	6.2	5.4	4.8	4.2	3.6	3.5	3.7	3.1
Total	9.4	8.9	8.5	7.0	6.0	5.5	5.0	4.5	4.1

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Table 13.14: Percentage of employed absent from work by industry

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
Agriculture	8.3	7.3	6.5	5.0	4.1	3.9	3.1	3.8	3.9
Mining	12.1	10.5	11.6	6.7	6.7	6.8	6.0	3.2	4.5
Manufacturing	8.5	7.1	7.1	4.9	4.2	3.8	3.8	3.3	3.0
Electricity, gas and water supply	7.6	7.4	6.8	4.3	4.2	4.0	4.0	3.2	2.9
Construction	9.4	9.5	8.4	7.0	5.8	4.4	4.4	4.0	3.8
Trade and repairing	5.5	5.0	4.9	3.7	3.2	2.9	2.2	2.6	1.9
Hotels and restaurants	6.0	6.8	4.0	4.3	2.6	2.5	3.6	2.8	2.5
Transportation and storage	7.5	7.3	6.2	5.2	4.5	4.1	3.9	3.3	3.0
Financial intermediation	5.8	4.4	3.6	3.2	3.1	3.3	2.9	2.3	1.8
Real estate, renting	7.7	6.7	6.8	4.7	4.1	3.6	2.9	2.8	2.3
Public administration and defence	8.0	7.3	7.1	6.5	5.3	5.3	4.9	4.0	3.7
Education	9.7	11.4	10.4	12.4	11.8	11.2	11.4	8.9	8.2
Health and social work	8.0	8.5	6.0	6.2	6.6	5.4	4.2	3.9	4.5
Other services	6.3	5.2	6.0	4.6	3.6	3.4	3.9	3.9	2.7
Other	6.7	1.4	7.4	6.1	5.0	3.5	2.6	1.7	1.4
Total	8.0	7.3	6.8	5.5	4.6	4.2	4.0	3.6	3.2
Women									
Agriculture	9.9	10.6	7.8	7.4	5.5	5.9	3.8	5.8	5.1
Mining	15.8	10.2	16.9	5.8	6.8	3.8	9.8	3.4	1.5
Manufacturing	12.7	12.3	11.6	8.5	7.6	7.1	6.2	5.5	4.9
Electicity, gas, steam	9.3	8.9	7.6	9.1	7.7	6.7	4.7	4.7	4.0
Construction	11.6	10.8	12.2	7.0	8.6	5.7	3.2	3.8	3.9
Trade and repairing	9.7	8.2	8.5	7.5	6.3	4.9	4.7	4.0	3.6
Hotels and restaurants	9.0	8.7	8.1	7.6	7.7	4.9	4.7	4.0	3.0
Transportation and storage	10.6	8.9	10.6	7.4	6.0	7.3	6.2	5.1	5.0
Financial	7.7	9.9	8.4	6.8	5.1	6.3	4.6	4.3	4.0
Real estate, renting	9.2	8.3	8.2	5.5	6.0	4.1	4.7	3.3	4.1
Public administration and defence	9.0	8.5	8.7	7.6	7.1	6.8	6.1	5.1	4.2
Education	13.9	14.9	13.9	14.2	12.1	12.3	12.8	10.5	10.3
Health and social work	10.7	11.0	10.5	9.0	8.1	8.7	5.1	5.2	4.8
Other services	9.7	7.6	9.7	6.7	5.8	5.1	4.6	4.7	4.4
Other	3.7	6.3	12.5	7.5	11.9	0.0	3.1	0.0	1.0
Total	11.0	10.7	10.4	8.8	7.7	7.2	6.4	5.6	5.2

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	1992	1993	1994	1995	1996	1997	1998	1999	2000
Both sexes together									
Agriculture	8.8	8.3	6.9	5.7	4.4	4.4	3.3	4.3	4.2
Mining	12.6	10.5	12.2	6.5	6.7	6.4	6.6	3.2	3.9
Manufacturing	10.3	9.4	9.1	6.4	5.6	5.1	4.8	4.2	3.8
Electicity, gas, steam	8.1	7.8	7.0	5.5	5.1	4.7	4.1	3.6	3.2
Construction	9.7	9.6	8.8	7.0	6.1	4.5	4.3	4.0	3.8
Trade and repairing	7.9	6.8	6.9	5.8	4.8	3.9	3.6	3.4	2.8
Hotels and restaurants	7.7	7.9	6.2	6.1	5.4	3.7	4.2	3.4	2.7
Transportation and storage	8.4	7.7	7.4	5.7	4.9	5.0	4.6	3.8	3.6
Financial	7.2	8.5	7.1	5.8	4.5	5.3	4.1	3.6	3.2
Real estate, renting	8.5	7.5	7.4	5.1	5.0	3.8	3.7	3.0	3.2
Public administration and defence	8.4	7.8	7.8	7.0	6.2	6.0	5.5	4.5	3.9
Education	12.9	14.0	13.1	13.8	12.1	12.0	12.5	10.1	9.9
Health and social work	10.0	10.3	9.4	8.3	7.7	7.9	4.9	4.9	4.7
Other services	8.0	6.4	7.8	5.6	4.6	4.2	4.3	4.3	3.6
Other	5.7	3.1	9.3	6.5	7.5	2.2	2.8	0.7	1.2
Total	9.4	8.9	8.5	7.0	6.0	5.5	5.0	4.5	4.1

Table 13.15: Percentage of employed absent from work by occupation

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Men									
Legislators, senior officials and managers	...	...	6.3	4.1	4.0	4.1	3.0	2.8	2.6
Professionals	...	...	7.0	8.1	6.8	6.4	6.1	5.2	4.6
Technicians and associate professionals	...	...	5.7	4.7	5.0	4.2	3.8	3.4	2.8
Clerks	...	...	5.2	5.4	4.3	1.8	2.3	3.3	1.6
Service workers and shop and market sales workers	...	...	4.7	4.6	3.3	2.9	2.8	3.1	2.8
Skilled agricultural and forestry workers	...	...	4.6	4.8	3.4	3.5	3.0	3.8	3.7
Craft and related workers	...	...	7.5	5.5	4.7	4.0	4.1	3.5	3.2
Plant and machine operators and assemblers	...	...	7.6	5.6	4.7	4.6	4.2	3.7	3.0
Elementary occupations	...	...	8.1	5.2	4.5	3.9	3.3	3.3	3.3
Armed forces	...	...	8.7	7.1	7.2	5.5	7.1	5.2	5.3
Total	...	...	6.8	5.5	4.6	4.2	4.0	3.6	3.2
Women									
Legislators, senior officials and managers	...	...	7.7	6.0	5.5	5.6	4.9	4.6	3.9
Professionals	...	...	13.6	13.7	11.8	11.3	11.7	9.5	8.7
Technicians and associate professionals	...	...	10.5	8.4	6.9	8.1	5.2	4.9	4.8
Clerks	...	...	9.2	7.6	6.6	6.2	4.7	4.3	4.5
Service workers and shop and market sales workers	...	...	8.4	7.7	6.8	5.2	4.5	4.1	3.6
Skilled agricultural and forestry workers	...	...	7.5	7.1	6.3	5.8	3.5	6.6	6.2
Craft and related workers	...	...	12.9	8.5	7.2	6.6	6.6	5.3	5.0
Plant and machine operators and assemblers	...	...	11.1	9.1	9.5	8.4	7.4	7.4	5.7
Elementary occupations	...	...	10.8	8.7	7.3	6.1	6.8	5.2	5.0
Armed forces	...	...	10.0	4.9	8.8	5.6	8.2	4.7	8.1
Total	...	...	10.4	8.8	7.7	7.2	6.4	5.6	5.2

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	1992	1993	1994	1995	1996	1997	1998	1999	2000
Both sexes together									
Legislators, senior officials and managers	...	...	6.8	4.7	4.5	4.6	3.7	3.5	3.0
Professionals	...	...	10.7	11.2	9.7	9.2	9.3	7.7	7.0
Technicians and associate professionals	...	...	8.8	7.1	6.2	6.7	4.7	4.4	4.1
Clerks	...	...	8.8	7.4	6.4	5.8	4.5	4.2	4.3
Service workers and shop and									
market sales workers	...	...	6.8	6.3	5.2	4.1	3.8	3.7	3.2
Skilled agricultural and forestry workers	...	...	5.6	5.4	4.2	4.2	3.2	4.6	4.4
Craft and related workers	...	...	8.6	6.1	5.2	4.5	4.6	3.8	3.6
Plant and machine operators									
and assemblers	...	...	8.3	6.3	5.6	5.4	4.9	4.6	3.7
Elementary occupations	...	...	9.7	7.2	6.1	5.1	5.2	4.4	4.2
Armed forces	...	...	8.9	6.8	7.4	5.6	7.3	5.1	5.7
Total	...	...	8.5	7.0	6.0	5.5	5.0	4.5	4.1

Table 13.16: Means and distributions of usual hours of work

	1992	1995	1996	1997	1998	1999	2000
Men							
Percentage of employed							
declaring usual working hours	90.7	87.1	85.6	85.6	86.9	86.6	86.0
Mean usual working hours	43.0	42.8	42.8	42.6	42.2	42.4	42.5
Percentiles of usual working hours							
95%	60	60	60	60	60	60	60
90%	50	50	50	50	50	50	50
75%	44	44	42	42	40	42	42
Median	40	40	40	40	40	40	40
25%	40	40	40	40	40	40	40
10%	40	40	40	40	40	40	40
5%	36	40	40	40	40	40	40
Women							
Percentage of employed declaring usual working hours	95.2	94	93.9	93.8	94.1	94.4	94.7
Mean usual working hours	40.5	40.1	40.1	39.9	39.8	39.9	39.8
Percentiles of usual working hours							
95%	50	50	50	50	50	50	48
90%	45	44	44	44	44	44	42
75%	42	40	40	40	40	40	40
Median	40	40	40	40	40	40	40
25%	40	40	40	40	40	40	40
10%	36	40	40	40	40	38	40
5%	30	30	30	28	27	28	30

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	1992	1993	1994	1995	1996	1997	1998	1999	2000
Both sexes together									
Percentage of employed declaring usual working hours			92.8	90.2	89.3	89.2	90.1	90.1	90
Mean usual working hours			41.8	41.5	41.5	41.3	41.1	41.2	41.2
Percentiles of usual working hours									
95%			56	55	56	55	50	55	50
90%			50	50	50	50	48	50	48
75%			42	42	40	40	40	40	40
Median			40	40	40	40	40	40	40
25%			40	40	40	40	40	40	40
10%			40	40	40	40	40	40	40
5%			30	34	32	30	30	30	32

Table 13.17: Incidence of part-time work and reasons for part-time work (less than 30 hours a week)

	1992	1995	1996	1997	1998	1999	2000
Men							
Percentage of employed working part-time	2.7	1.9	1.8	1.8	2.0	2.1	1.7
Reason for working part-time							
Economic reasons	43.6	32.3	31.4	33.2	32.0	27.1	23.5
Does not want a full-time job	28.9	26.8	28.2	23.5	24.4	25.6	28.0
Own illness or disability	17.7	13.8	12.8	15.9	16.0	21.2	23.4
Other reason	9.8	27.1	27.5	27.4	27.7	26.1	25.1
Women							
Percentage of employed working part-time	5.0	4.6	4.6	5.0	5.2	5.1	4.8
Reason for working part-time							
Economic reasons	35.3	33.7	33.1	32.7	31.2	27.6	24.3
Does not want a full-time job	40.2	38.9	33.5	35.4	34.9	37.9	37.1
Own illness or disability	12.0	5.9	7.4	10.4	8.0	10.4	13.7
Other reason	12.5	21.4	25.9	21.5	26.0	24.1	24.9
Both sexes together							
Percentage of employed working part-time	3.8	3.2	3.1	3.3	3.5	3.5	3.2
Reason for working part-time							
Economic reasons	38.7	33.3	32.6	32.9	31.5	27.4	24.0
Does not want a full-time job	35.6	34.7	31.8	31.7	31.3	33.9	34.4
Own illness or disability	14.3	8.7	9.2	12.1	10.7	13.9	16.6
Other reason	11.4	23.4	26.4	23.3	26.5	24.8	24.9

Table 13.18: Mean usual hours of work by age-group

	1992	1995	1996	1997	1998	1999	2000
Men							
15–19 years	41.0	41.1	41.4	40.8	40.5	40.9	40.7
20–29 years	42.8	42.7	42.8	42.5	42.0	42.4	42.4
30–39 years	43.7	43.3	43.3	43.2	42.8	42.9	42.8
40–49 years	43.6	43.2	43.1	42.9	42.6	42.8	42.8
50–59 years	42.5	42.4	42.4	42.2	42.0	42.1	42.4
60–74 years	35.8	34.0	34.0	34.8	36.1	35.1	35.3
Total	43.0	42.8	42.8	42.6	42.2	42.4	42.5
Women							
15–19 years	40.2	40.0	40.3	39.7	39.8	40.5	40.3
20–29 years	40.6	40.4	40.3	40.3	40.1	40.3	40.1
30–39 years	40.9	40.2	40.1	39.8	39.7	39.8	39.7
40–49 years	41.3	40.6	40.6	40.3	40.2	40.2	40.1
50–54 years	40.7	40.1	40.3	39.9	40.0	40.1	40.0
55–74 years	33.2	33.7	34.8	34.6	33.3	34.6	35.7
Total	40.5	40.1	40.1	39.9	39.8	39.9	39.8
Both sexes together							
15–19 years	40.6	40.5	40.9	40.3	40.2	40.7	40.5
20–29 years	41.8	41.7	41.7	41.6	41.2	41.5	41.4
30–39 years	42.4	41.8	41.8	41.6	41.3	41.4	41.4
40–49 years	42.4	41.8	41.8	41.6	41.3	41.4	41.4
50–54/59 years	41.8	41.5	41.6	41.3	41.2	41.3	41.4
55/61–74 years	34.2	33.8	34.6	34.6	34.2	34.8	35.6
Total	41.8	41.5	41.5	41.3	41.1	41.2	41.2

Table 13.19: Mean usual hours of work by type of employment

	1992	1995	1996	1997	1998	1999	2000
Men							
Employee	42.2	41.9	41.9	41.7	41.5	41.7	41.8
Co-operative member	43.9	43.1	43.5	42.7	42.4	42.5	42.1
Self-employed	46.5	47.3	47.4	47.7	46.4	47.0	47.0
Total	43.0	42.8	42.8	42.6	42.2	42.4	42.5
Women							
Employee	40.1	39.8	39.7	39.5	39.5	39.6	39.6
Co-operative member	41.1	40.3	41.0	40.9	40.1	39.1	40.6
Self-employed	43.2	42.8	43.7	43.3	42.6	43.2	42.3
Total	40.5	40.1	40.1	39.9	39.8	39.9	39.8
Both sexes together							
Employee	41.2	40.9	40.8	40.7	40.6	40.7	40.7
Co-operative member	43.0	42.2	42.7	42.2	41.7	41.5	41.6
Self-employed	45.2	45.7	46.1	46.2	45.1	45.7	45.4
Total	41.8	41.5	41.5	41.3	41.1	41.2	41.2

Table 13.20: Mean usual hours of work by industry

	1992	1995	1996	1997	1998	1999	2000
Men							
Agriculture	44.0	43.5	44.1	43.8	43.1	43.7	44.0
Mining	41.4	41.2	41.4	41.3	42.0	42.4	42.6
Manufacturing	42.0	41.9	41.9	41.7	41.5	41.6	41.5
Electricity, gas and water supply	41.5	41.0	41.2	41.2	41.0	41.2	41.3
Construction	43.3	44.0	44.0	43.9	42.9	43.5	43.7
Trade and repairs	44.5	44.9	44.5	44.3	43.6	43.5	43.1
Hotels and restaurants	46.6	45.2	46.4	46.1	45.3	45.0	45.2
Transportation and storage	43.9	43.8	43.5	43.2	43.0	43.2	43.2
Financial intermediation	42.2	42.4	43.2	42.0	42.2	42.2	42.2
Real estate, renting	44.2	43.4	43.6	43.8	43.8	43.9	43.7
Public administration and defence	43.1	42.3	41.9	41.4	41.4	41.4	41.5
Education	40.0	38.4	38.1	37.5	38.4	37.7	38.5
Health and social work	43.1	42.2	42.0	41.7	41.3	41.8	41.9
Other services	41.4	42.3	42.3	42.1	41.1	41.4	42.0
Other	44.0	42.3	43.6	39.8	38.6	47.4	38.2
Total	43.0	42.8	42.8	42.6	42.2	42.4	42.5
Women							
Agriculture	41.3	40.1	41.3	41.6	40.3	40.7	41.2
Mining	40.6	39.7	38.7	39.9	40.6	41.2	40.3
Manufacturing	40.6	40.6	40.6	40.2	40.3	40.4	40.2
Electricity, gas and water supply	39.9	39.9	40.8	40.1	39.9	40.0	40.1
Construction	40.5	40.4	40.2	40.8	39.0	39.0	39.5
Trade and repairs	41.9	41.6	41.6	41.0	40.9	40.8	40.6
Hotels and restaurants	43.9	41.2	42.0	42.5	42.1	42.4	41.5
Transportation and storage	40.1	39.9	40.0	40.1	40.1	40.0	39.6
Financial intermediation	40.3	40.2	40.3	40.2	40.2	40.3	40.4
Real estate, renting	39.3	40.9	40.2	39.5	41.0	40.2	39.7
Public administration and defence	39.7	39.8	40.1	39.7	39.5	39.9	39.6
Education	38.3	37.7	37.4	37.2	37.3	37.2	37.6
Health and social work	40.6	40.4	40.3	40.0	39.6	40.1	40.0
Other services	39.7	38.7	38.7	38.9	38.8	38.9	39.4
Other	36.7	42.9	36.9	35.3	33.6	32.7	38.3
Total	40.5	40.1	40.1	39.9	39.8	39.9	39.8

	1992	1995	1996	1997	1998	1999	2000
Both sexes together							
Agriculture	43.1	42.6	43.4	43.3	42.5	43.0	43.3
Mining	41.3	41.0	40.9	41.1	41.7	42.2	42.1
Manufacturing	41.4	41.3	41.3	41.1	41.0	41.1	40.9
Electricity, gas and water supply	41.0	40.7	41.1	40.9	40.7	40.9	41.0
Construction	42.8	43.6	43.6	43.6	42.6	43.1	43.4
Trade and repairs	42.9	43.0	42.9	42.5	42.1	42.0	41.8
Hotels and restaurants	45.0	43.0	43.9	44.2	43.5	43.6	43.1
Transportation and storage	42.7	42.7	42.4	42.3	42.1	42.2	42.1
Financial intermediation	40.7	40.8	41.1	40.7	40.8	40.9	40.9
Real estate, renting	41.7	42.2	41.9	41.7	42.5	42.2	41.8
Public administration and defence	41.6	41.2	41.0	40.6	40.5	40.6	40.6
Education	38.7	37.9	37.6	37.3	37.5	37.4	37.8
Health and social work	41.2	40.8	40.7	40.4	40.0	40.5	40.4
Other services	40.5	40.5	40.4	40.4	39.9	40.1	40.6
Other	41.6	42.5	41.1	37.8	36.2	38.0	38.3
Total	41.8	41.5	41.5	41.3	41.1	41.2	41.2

Table 13.21: Mean usual hours of work by occupation

	1992	1995	1996	1997	1998	1999	2000
Men							
Legislators, senior officials and managers	...	44.4	44.4	44.1	44.4	44.6	44.4
Professionals	...	40.5	41.0	40.3	40.7	40.2	40.8
Technicians and associate professionals	...	42.0	41.7	41.9	41.7	41.6	41.5
Clerks	...	41.1	40.6	40.7	39.6	40.1	41.3
Service workers and shop and market sales workers	...	44.6	44.8	44.6	43.7	44.1	44.0
Skilled agricultural and forestry workers	...	45.1	46.6	46.2	44.3	45.4	45.9
Craft and related workers	...	42.2	42.1	42.0	41.7	41.9	42.0
Plant and machine operators and assemblers	...	43.7	43.4	43.1	42.8	42.9	42.8
Elementary occupations	...	42.0	41.5	41.3	41.0	41.4	40.9
Armed forces	...	42.7	42.5	41.9	41.6	41.7	41.8
Total	...	42.8	42.8	42.6	42.2	42.4	42.5
Women							
Legislators, senior officials and managers	...	42.3	42.1	41.8	42.3	42.1	41.6
Professionals	...	37.9	37.7	37.7	37.7	37.8	38.0
Technicians and associate professionals	...	40.6	40.5	40.3	40.1	40.3	40.1
Clerks	...	40.2	40.1	39.9	39.9	39.8	39.6
Service workers and shop and market sales workers	...	41.3	41.4	41.0	40.7	40.9	40.6
Skilled agricultural and forestry workers	...	40.7	43.0	42.8	40.8	41.7	42.5
Craft and related workers	...	40.7	40.6	40.3	40.5	40.7	40.3
Plant and machine operators and assemblers	...	40.0	40.2	40.2	40.4	40.4	40.3
Elementary occupations	...	38.4	38.7	38.4	38.3	38.1	38.3
Armed forces	...	41.1	41.8	40.9	40.4	41.0	40.4
Total	...	40.1	40.1	39.9	39.8	39.9	39.8

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→	1992	1995	1996	1997	1998	1999	2000
Both sexes together							
Legislators, senior officials and managers	...	43.6	43.6	43.3	43.6	43.7	43.4
Professionals	...	39.0	39.0	38.7	38.9	38.7	39.1
Technicians and associate professionals	...	41.1	40.9	40.8	40.6	40.7	40.6
Clerks	...	40.3	40.1	40.0	39.9	39.8	39.7
Service workers and shop and market sales workers	...	42.7	42.9	42.6	42.0	42.3	42.0
Skilled agricultural and forestry workers	...	43.9	45.6	45.3	43.4	44.5	45.0
Craft and related workers	...	41.9	41.8	41.6	41.4	41.7	41.7
Plant and machine operators and assemblers	...	42.9	42.6	42.4	42.1	42.2	42.0
Elementary occupations	...	39.9	39.8	39.6	39.5	39.5	39.5
Armed forces	...	42.5	42.4	41.7	41.5	41.6	41.6
Total	...	41.5	41.5	41.3	41.1	41.2	41.2

Table 13.22: Percentages of employed working part-time by age-group

	1992	1995	1996	1997	1998	1999	2000
Men							
15–19 years	3.3	1.2	3.5	2.1	2.6	3.3	2.7
20–29 years	1.6	1.6	1.4	1.4	1.7	1.4	1.0
30–39 years	1.8	1.2	1.0	0.9	1.4	1.6	1.1
40–49 years	1.7	1.0	1.2	1.2	1.4	1.3	1.1
50–59 years	2.4	1.9	2.1	2.6	2.4	3.0	2.2
60–74 years	27.8	30.0	28.7	25.8	24.9	26.5	26.4
Total	2.7	1.9	1.8	1.8	2.0	2.1	1.7
Women							
15–19 years	5.1	3.5	2.8	3.2	3.7	2.0	3.2
20–29 years	3.8	3.4	4.2	3.9	4.0	3.8	3.7
30–39 years	3.6	4.5	4.3	4.4	5.1	5.8	4.9
40–49 years	2.3	2.8	3.0	3.6	3.6	3.7	3.9
50–54 years	3.5	4.6	4.1	5.3	4.9	3.5	2.9
55–74 years	32.3	27.5	24.2	27.9	31.9	26.2	20.3
Total	5.0	4.6	4.6	5.0	5.2	5.1	4.8
Both sexes together							
15–19 years	4.3	2.4	3.2	2.6	3.1	2.7	2.9
20–29 years	2.6	2.4	2.6	2.4	2.7	2.4	2.2
30–39 years	2.7	2.7	2.5	2.6	3.1	3.6	2.9
40–49 years	2.0	1.9	2.1	2.4	2.6	2.6	2.6
50–54/59 years	2.8	2.9	2.9	3.6	3.4	3.2	2.5
55/61–74 years	30.6	28.4	25.5	27.3	29.8	26.3	21.9
Total	3.8	3.2	3.1	3.3	3.5	3.5	3.2

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Table 13.23: Percentages of employed working part-time by type of employment

	1992	1995	1996	1997	1998	1999	2000
Men							
Employee	2.3	1.7	1.6	1.7	1.8	1.9	1.6
Co-operative member	1.4	1.0	0.2	0.5	0.7	0.1	0.8
Self-employed	5.4	3.3	2.9	2.1	3.4	3.7	2.7
Total	2.7	1.9	1.8	1.8	2.0	2.1	1.7
Women							
Employee	4.7	4.4	4.5	5.0	5.0	4.9	4.5
Co-operative member	2.0	3.6	2.2	3.3	2.5	4.1	0.5
Self-employed	8.3	6.5	6.4	6.2	7.8	8.0	7.9
Total	5.0	4.6	4.6	5.0	5.2	5.1	4.8
Both sexes together							
Employee	3.5	3.1	3.0	3.3	3.3	3.3	3.0
Co-operative member	1.6	1.8	0.9	1.4	1.2	1.4	0.7
Self-employed	6.6	4.4	4.1	3.5	5.0	5.2	4.5
Total	3.8	3.2	3.1	3.3	3.5	3.5	3.2

Table 13.24: Percentages of employed working part-time by industry

	1992	1995	1996	1997	1998	1999	2000
Men							
Agriculture	3.0	3.2	2.2	1.9	2.5	2.5	1.9
Mining	0.6	0.0	0.3	0.5	0.5	0.6	0.4
Manufacturing	1.6	0.8	0.9	0.8	1.0	0.8	1.0
Electricity, gas and water supply	1.6	0.7	0.1	0.2	0.5	0.5	0.3
Construction	1.3	0.7	0.7	0.6	1.3	1.1	0.8
Trade and repairs	3.6	2.4	1.4	1.2	2.3	2.5	1.8
Hotels and restaurants	3.7	2.6	2.6	3.7	2.3	2.9	2.7
Transportation and storage	2.4	0.7	1.1	1.1	1.0	1.0	0.9
Financial intermediation	2.1	1.7	0.7	1.9	1.5	3.5	2.9
Real estate, renting	3.7	4.8	3.1	2.0	2.7	1.5	1.9
Public administration and defence	2.0	0.6	1.6	1.3	1.0	1.4	1.2
Education	7.4	10.8	11.7	12.5	11.1	14.0	10.6
Health and social work	4.0	2.5	1.6	2.1	3.5	4.0	3.2
Other services	8.4	2.7	2.8	5.3	3.4	4.5	3.3
Other	2.2	0.0	2.1	8.9	15.4	12.0	6.5
Total	2.7	1.9	1.8	1.8	2.0	2.1	1.7

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	1992	1995	1996	1997	1998	1999	2000
Women							
Agriculture	6.2	7.2	5.2	4.8	6.9	7.4	6.5
Mining	1.1	3.8	8.3	6.1	0.0	0.4	1.6
Manufacturing	1.9	1.7	1.7	2.0	1.8	1.8	2.2
Electricity, gas and water supply	2.7	2.5	2.3	3.4	3.1	1.0	0.8
Construction	2.5	2.7	4.5	3.7	7.9	7.8	7.4
Trade and repairs	5.0	4.0	3.6	4.6	4.6	5.3	4.9
Hotels and restaurants	4.6	5.5	5.6	5.3	6.1	5.5	4.7
Transportation and storage	5.9	4.4	4.8	3.6	3.8	4.2	4.3
Financial intermediation	4.8	2.8	2.5	3.2	3.1	4.1	3.2
Real estate, renting	9.3	4.7	6.2	9.1	6.8	6.6	6.4
Public administration and defence	5.2	3.5	1.9	3.7	4.3	3.5	3.4
Education	8.7	9.8	10.3	11.2	11.5	11.5	9.7
Health and social work	3.8	2.9	3.0	3.3	4.1	2.5	2.7
Other services	9.2	8.0	10.9	8.1	7.8	8.5	6.9
Other	17.5	11.8	15.2	22.1	28.5	34.8	22.2
Total	5.0	4.6	4.6	5.0	5.2	5.1	4.8
Both sexes together							
Agriculture	4.0	4.3	2.9	2.6	3.5	3.7	3.0
Mining	0.7	0.6	1.7	1.2	0.4	0.6	0.7
Manufacturing	1.7	1.2	1.3	1.3	1.4	1.2	1.5
Electricity, gas and water supply	1.9	1.2	0.7	1.0	1.1	0.6	0.4
Construction	1.5	1.0	1.1	0.9	1.9	1.7	1.4
Trade and repairs	4.5	3.3	2.6	3.0	3.6	4.1	3.5
Hotels and restaurants	4.2	4.3	4.3	4.6	4.4	4.3	3.8
Transportation and storage	3.5	1.8	2.2	1.8	1.9	2.0	1.9
Financial intermediation	4.2	2.5	2.0	2.8	2.6	3.9	3.1
Real estate, renting	6.6	4.7	4.6	5.5	4.5	3.8	4.0
Public administration and defence	3.4	1.9	1.7	2.5	2.6	2.5	2.3
Education	8.4	10.0	10.6	11.5	11.4	12.0	9.9
Health and social work	3.8	2.8	2.7	3.1	4.0	2.8	2.8
Other services	8.8	5.4	7.0	6.8	5.8	6.6	5.2
Other	7.4	2.8	6.8	14.9	21.6	26.6	14.1
Total	3.8	3.2	3.1	3.3	3.5	3.5	3.2

Table 13.25: Percentages of employed working part-time by occupation

	1992	1995	1996	1997	1998	1999	2000
Men							
Legislators, senior officials and managers	...	1.2	1.4	1.2	1.1	1.2	0.9
Professionals	...	7.7	6.8	7.8	6.8	8.2	5.9
Technicians and associate professionals	...	2.1	2.5	1.1	1.8	2.4	1.7
Clerks	...	3.3	1.9	8.7	5.5	2.9	2.7
Service workers and shop and market sales workers	...	2.1	1.7	2.1	2.6	2.8	2.0
Skilled agricultural and forestry workers	...	6.1	3.6	3.3	4.0	3.5	2.7
Craft and related workers	...	0.7	0.6	0.5	0.8	0.8	0.8
Plant and machine operators and assemblers	...	0.4	0.6	0.5	0.8	0.9	0.7
Elementary occupations	...	2.2	3.1	3.0	3.1	2.5	3.4
Armed forces	...	0.0	0.4	0.0	0.0	0.3	0.5
Total	...	1.9	1.8	1.8	2.0	2.1	1.7
Women							
Legislators, senior officials and managers	...	1.0	1.7	1.6	2.5	2.2	1.2
Professionals	...	11.3	11.4	11.5	11.7	11.3	9.9
Technicians and associate professionals	...	2.4	2.5	2.8	3.3	2.7	2.8
Clerks	...	2.5	2.6	3.2	3.0	3.1	3.6
Service workers and shop and market sales workers	...	4.7	4.7	5.3	5.7	5.4	5.1
Skilled agricultural and forestry workers	...	11.9	8.4	7.5	11.4	11.6	9.2
Craft and related workers	...	1.2	1.5	2.4	2.0	1.8	2.1
Plant and machine operators and assemblers	...	1.9	1.3	1.3	0.9	1.0	1.2
Elementary occupations	...	7.8	7.0	8.2	8.0	9.5	8.4
Armed forces	...	1.4	0.0	0.0	0.0	0.0	0.0
Total	...	4.6	4.6	5.0	5.2	5.1	4.8
Both sexes together							
Legislators, senior officials and managers	...	1.1	1.5	1.3	1.6	1.6	1.0
Professionals	...	9.7	9.6	10.0	9.7	10.1	8.3
Technicians and associate professionals	...	2.3	2.5	2.2	2.8	2.6	2.4
Clerks	...	2.6	2.6	3.6	3.2	3.0	3.6
Service workers and shop and market sales workers	...	3.6	3.4	3.9	4.3	4.3	3.8
Skilled agricultural and forestry workers	...	7.7	4.8	4.4	5.9	5.5	4.4
Craft and related workers	...	0.8	0.8	0.9	1.0	1.0	1.1
Plant and machine operators and assemblers	...	0.8	0.7	0.7	0.9	0.9	0.9
Elementary occupations	...	5.5	5.4	6.0	5.9	6.5	6.1
Armed forces	...	0.2	0.4	0.0	0.0	0.2	0.4
Total	...	3.2	3.1	3.3	3.5	3.5	3.2

Table 13.26: Incidence of special work-arrangements for age-groups in year 2000, percentages

	Shift work	Irregular hours	Evening work	Night work	Saturday work	Sunday work	Work at home
Men							
15–19 years	24.5	13.2	17.0	10.6	16.8	10.9	1.3
20–29 years	21.8	14.9	17.4	11.3	18.1	12.2	3.0
30–39 years	17.2	17.0	15.3	9.8	17.5	11.8	4.6
40–49 years	16.7	15.6	13.6	8.8	16.2	11.3	6.8
50–59 years	12.9	13.1	11.6	7.8	15.2	10.8	7.5
60–74 years	6.2	13.9	10.6	4.7	16.6	12.2	16.6
Total	17.4	15.3	14.7	9.5	16.9	11.6	5.5
Women							
15–19 years	30.5	9.8	17.0	6.4	21.2	14.9	2.7
20–29 years	21.1	10.4	12.2	6.0	15.9	8.8	2.7
30–39 years	16.2	9.6	8.8	4.0	12.5	6.6	6.4
40–49 years	15.0	10.1	9.2	4.3	11.4	6.7	7.1
50–54 years	13.1	9.0	8.5	4.2	10.2	6.0	6.0
55–74 years	7.2	9.2	7.6	3.4	11.1	6.3	7.7
Total	16.3	9.8	9.7	4.6	12.7	7.2	5.8
Both sexes together							
15–19 years	27.4	11.5	17.0	8.6	18.9	12.8	2.0
20–29 years	21.5	13.0	15.3	9.1	17.2	10.8	2.9
30–39 years	16.8	13.8	12.5	7.3	15.3	9.5	5.4
40–49 years	15.8	12.8	11.4	6.5	13.8	9.0	7.0
50–54/59 years	13.0	11.6	10.5	6.4	13.3	9.0	6.9
55/61–74 years	6.9	10.6	8.5	3.8	12.8	8.0	10.4
Total	16.9	12.8	12.5	7.3	15.0	9.6	5.6

Table 13.27: Incidence of special work-arrangements by type of employment in year 2000, percentages

	Shift work	Irregular hours	Evening work	Night work	Saturday work	Sunday work	Work at home
Men							
Employee	19.7	14.3	15.0	10.5	14.0	10.3	2.2
Co-operative member	7.8	14.2	8.1	5.2	13.1	9.5	1.3
Self-employed	7.7	19.7	14.0	5.2	30.6	18.0	20.7
Total	17.4	15.3	14.7	9.5	16.9	11.6	5.5
Women							
Employee	17.2	9.1	9.5	4.8	10.4	6.1	3.4
Co-operative member	9.2	14.2	5.0	0.2	8.4	5.7	2.7
Self-employed	8.1	16.8	12.5	2.6	34.1	17.0	27.8
Total	16.3	9.8	9.7	4.6	12.7	7.2	5.8
Both sexes together							
Employee	18.5	11.8	12.4	7.8	12.3	8.3	2.8
Co-operative member	8.2	14.2	7.2	3.7	11.7	8.4	1.7
Self-employed	7.9	18.8	13.5	4.4	31.7	17.6	23.0
Total	16.9	12.8	12.5	7.3	15.0	9.6	5.6

Table 13.28: Incidence of special work-arrangements by industry

	Shift work	Irregular hours	Evening work	Night work	Saturday work	Sunday work	Work at home
Men							
Agriculture	11.1	17.5	11.2	5.8	27.1	21.2	11.8
Mining	29.8	18.2	18.6	21.3	9.5	7.8	2.3
Manufacturing	30.9	9.2	17.9	13.0	10.9	7.3	3.7
Electricity, gas and water supply	21.1	13.5	14.2	12.1	12.6	10.9	1.2
Construction	6.1	11.2	3.9	1.2	12.1	4.6	2.8
Trade and repairs	11.5	14.0	8.4	2.9	22.3	8.8	7.7
Hotels and restaurants	24.8	26.3	44.8	17.9	47.0	39.2	3.0
Transportation and storage	18.3	22.6	20.2	14.6	20.0	15.7	2.8
Financial intermediation	3.9	13.1	7.3	3.0	8.5	5.7	5.6
Real estate, renting	12.0	24.0	20.4	15.7	19.0	15.5	12.9
Public administration and defence	13.8	21.8	14.3	12.7	13.8	13.4	3.0
Education	3.3	12.0	5.8	2.5	4.5	2.9	9.6
Health and social work	23.4	16.0	16.9	15.5	16.6	14.3	3.6
Other services	9.2	18.8	17.0	5.9	18.7	15.5	8.0
Other	15.6	0.0	22.0	22.0	21.0	17.4	2.0
Total	17.4	15.3	14.7	9.5	16.9	11.6	5.5
Women							
Agriculture	9.1	15.6	12.4	3.4	28.7	21.6	15.5
Mining	9.4	6.9	10.6	7.2	8.9	8.5	3.3
Manufacturing	28.9	7.0	15.3	8.6	7.7	4.4	4.0
Electricity, gas and water supply	2.9	10.3	3.8	2.8	3.5	1.4	3.7
Construction	3.5	10.4	2.4	1.5	3.3	2.1	12.5
Trade and repairs	17.9	10.3	7.2	0.9	29.4	9.8	4.7
Hotels and restaurants	20.3	15.4	27.0	9.1	35.8	29.9	3.3
Transportation and storage	11.3	11.9	6.5	4.1	8.0	4.4	3.1
Financial intermediation	2.8	11.8	4.3	1.1	3.1	1.0	4.9
Real estate, renting	4.7	10.9	6.9	2.6	5.8	3.6	14.5
Public administration and defence	2.9	7.2	2.9	1.5	3.6	3.2	4.8
Education	6.9	7.9	2.9	0.6	1.3	1.0	7.0
Health and social work	27.4	11.6	14.6	11.9	14.3	12.5	1.9
Other services	13.7	14.0	9.8	2.2	16.7	7.0	10.8
Other	3.9	24.3	24.0	5.4	35.3	29.5	0.0
Total	16.3	9.8	9.7	4.6	12.7	7.2	5.8

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	Shift work	Irregular hours	Evening work	Night work	Saturday work	Sunday work	Work at home
Both sexes together							
Agriculture	10.6	17.1	11.5	5.2	27.5	21.3	12.7
Mining	25.7	15.9	17.0	18.5	9.4	8.0	2.5
Manufacturing	30.1	8.3	16.8	11.1	9.5	6.1	3.9
Electricity, gas and water supply	16.6	12.7	11.7	9.8	10.4	8.6	1.8
Construction	5.9	11.1	3.8	1.3	11.4	4.5	3.6
Trade and repairs	14.7	12.1	7.8	1.9	26.0	9.3	6.2
Hotels and restaurants	22.4	20.6	35.4	13.3	41.1	34.3	3.2
Transportation and storage	16.4	19.6	16.4	11.7	16.7	12.6	2.9
Financial intermediation	3.2	12.2	5.3	1.8	4.9	2.6	5.1
Real estate, renting	8.7	18.0	14.2	9.7	12.9	10.0	13.6
Public administration and defence	8.5	14.8	8.8	7.3	8.9	8.5	3.9
Education	6.1	8.8	3.5	1.1	2.0	1.4	7.6
Health and social work	26.4	12.7	15.1	12.8	14.9	13.0	2.3
Other services	11.5	16.3	13.2	4.0	17.7	11.1	9.4
Other	9.6	12.3	23.0	13.6	28.3	23.6	1.0
Total	16.9	12.8	12.5	7.3	15.0	9.6	5.6

Table 13.29: Incidence of special work-arrangements by occupation in year 2000, percentages

	Shift work	Irregular hours	Evening work	Night work	Saturday work	Sunday work	Work at home
Men							
Legislators, senior officials and managers	8.0	13.3	10.8	4.1	13.8	7.9	9.4
Professionals	5.6	13.4	8.1	3.5	7.8	5.4	11.8
Technicians and associate professionals	13.4	14.5	11.6	7.5	11.5	9.3	4.5
Clerks	9.3	14.2	9.7	5.4	13.6	8.3	7.6
Service workers and shop and market sales workers	21.2	23.6	25.9	17.0	35.9	24.7	4.1
Skilled agricultural and forestry workers	12.6	18.7	14.9	5.1	41.0	32.6	21.6
Craft and related workers	19.2	10.7	10.9	7.2	10.5	5.7	4.0
Plant and machine operators, assemblers	27.9	17.8	21.7	15.4	18.3	13.8	1.6
Elementary occupations	15.0	15.4	13.7	12.7	15.5	11.1	1.2
Armed forces	19.7	31.7	17.5	16.5	17.2	16.9	2.7
Total	17.4	15.3	14.7	9.5	16.9	11.6	5.5
Women							
Legislators, senior officials and managers	7.5	8.9	5.7	2.2	11.3	5.7	9.0
Professionals	5.8	9.5	3.6	1.1	2.9	2.1	10.5
Technicians and associate professionals	16.6	10.4	10.0	7.4	9.3	7.8	3.4
Clerks	6.0	7.7	3.0	0.6	4.3	2.2	4.7
Skilled agricultural and forestry workers	9.9	18.4	17.3	4.8	42.0	32.9	24.6
Craft and related workers	25.9	8.3	14.2	6.4	7.5	3.8	7.0
Plant and machine operators, assemblers	46.5	6.2	23.5	14.5	9.8	6.2	1.3
Elementary occupations	14.1	9.9	10.1	4.0	9.0	7.0	1.1
Armed forces	2.4	17.8	2.3	2.3	2.3	2.3	0.0
Total	16.3	9.8	9.7	4.6	12.7	7.2	5.8
Both sexes together							
Legislators, senior officials and managers	7.8	11.8	9.1	3.5	12.9	7.2	9.3
Professionals	5.7	11.1	5.5	2.1	5.0	3.5	11.0
Technicians and associate professionals	15.5	11.9	10.6	7.5	10.1	8.3	3.8
Clerks	6.3	8.2	3.5	1.0	5.0	2.7	4.9
Service workers and shop and market sales workers	20.9	17.4	18.4	9.7	34.2	18.7	4.9
Skilled agricultural and forestry workers	11.8	18.6	15.6	5.0	41.3	32.7	22.4
Craft and related workers	20.5	10.2	11.5	7.0	9.9	5.3	4.6
Plant and machine operators, assemblers	32.9	14.7	22.2	15.1	16.0	11.8	1.5
Elementary occupations	14.5	12.5	11.8	8.1	12.1	8.9	1.1
Armed forces	17.4	29.9	15.4	14.6	15.2	15.0	2.3
Total	16.9	12.8	12.5	7.3	15.0	9.6	5.6

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Table 14.1: Population by economic activity and sex, 1 January

Economic activity	1930	1941[a]	1949	1960	1970	1980	1990	2001[a]
Males								
Employed	2,760,772	3,056,692	2,892,072	3,068,489	2,924,472	2,866,794	2,513,659	2,002,956
Unemployed	...	...	...	...	...	...	84,538	255,893
Inactive	97,412	116,984	129,784	220,335	625,439	872,107	994,397	1,235,000
Dependent	1,390,268	1,387,199	1,401,564	1,515,219	1,442,192	1,449,808	1,392,310	1,356,801
Total	4,248,452	4,560,875	4,423,420	4,804,043	4,992,103	5,188,709	4,984,904	4,850,650
Females								
Employed	976,684	1,145,207	1,192,859	1,691,127	2,049,474	2,202,046	2,013,498	1,687,313
Unemployed	...	...	...	...	...	...	41,689	160,317
Inactive	78,306	88,432	124,972	216,264	768,701	1,330,370	1,663,858	2,070,541
Dependent	3,381,667	3,521,560	3,463,548	3,249,610	2,490,718	1,988,338	1,670,874	1,429,494
Total	4,436,657	4,755,199	4,781,379	5,157,001	5,308,893	5,520,754	5,389,919	5,347,665
Total, number								
Employed	3,737,456	4,201,899	4,084,931	4,759,616	4,973,946	5,068,840	4,527,157	3,690,269
Unemployed	...	...	...	...	...	...	126,227	416,210
Inactive	175,718	205,416	254,756	436,599	1,394,140	2,202,477	2,658,255	3,305,541
Dependent	4,771,935	4,908,759	4,865,112	4,764,829	3,932,910	3,438,146	3,063,184	2,786,295
Total	8,685,109	9,316,074	9,204,799	9,961,044	10,300,996	10,709,463	10,374,823	10,198,315
Total, percentage								
Employed	43.0	45.1	44.4	47.8	48.3	47.3	43.6	36.2
Unemployed	...	...	...	...	...	...	1.2	4.1
Inactive	2.0	2.2	2.8	4.4	13.5	20.6	25.6	32.4
Dependent	54.9	52.7	52.9	47.8	38.2	32.1	29.5	27.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a 1ᵗʰ February.

Table 14.2: Persons in employment by major occupational groups, 1 January

Major occupational group	1980	1990	2001[a]	1980	1990	2001[a]
	Persons			Percentage		
Legislators, senior goverment officials, leaders of special-interest organizations, managers of firms	344,375	343,216	299,763	6.8	7.6	8.1
Professionals	389,010	390,699	455,437	7.7	8.6	12.3
Technicians and associate professionals	471,223	489,452	540,900	9.3	10.8	14.7
Office and management (costumer service) clerks	345,940	278,221	209,593	6.8	6.1	5.7
Service workers	391,145	389,879	581,909	7.7	8.6	15.8
Skilled agricultural and forestry workers	273,263	181,019	115,519	5.4	4.0	3.1
Craft and related trades workers	1,422,710	1,228,032	743,924	28.1	27.1	20.2
Plant and machine operators and assemblers, vehicle drivers	675,387	589,910	417,536	13.3	13.0	11.3
Elementary occupations	752,602	519,294	256,062	14.9	11.5	6.9
Armed forces	...	115,250	69,626	...	2.5	1.9
Total	5,065,655	4,524,972	3,690,269	100.0	100.0	100.0

a 1ᵗʰ February.

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Table 14.3: Employed persons by major industry, 1 January

Major occupational group	1980	1990	2001[a]	1980	1990	2001[a]
	Persons			Percentage		
Agriculture, hunting, forestry and fishing	958,369	699,258	203,106	18.9	15.5	5.5
Mining and quarrying	126,010	91,925	7,992	2.5	2.0	0.2
Manufacturing	1,488,903	1,194,168	896,869	29.4	26.4	24.3
Electricity, gas, steam and water supply	107,112	110,932	71,374	2.1	2.5	1.9
Construction	402,119	315,814	236,380	7.9	7.0	6.4
Whoesele and retail trade, repair of motor vehicles and household goods	451,239	465,156	520,677	8.9	10.3	14.1
Hotels and restaurants	112,739	107,698	133,953	2.2	2.4	3.6
Transport, storage, post and telecommunication	419,434	398,343	288,938	8.3	8.8	7.8
Financial intermediation	30,562	45,524	69,678	0.6	1.0	1.9
Real estate, renting and business activities	140,336	153,175	279,138	2.8	3.4	7.6
Public administration and defence, compulsory social security	195,406	250,998	279,789	3.9	5.5	7.6
Education	248,585	273,635	309,512	4.9	6.0	8.4
Health and social work	189,166	235,575	241,636	3.7	5.2	6.5
Other community, social and personal services	195,675	182,771	151,227	3.9	4.0	4.1
Total	5,065,655	4,524,972	3,690,269	100.0	100.0	100.0

a 1th February.

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Table 15.1: Unemployment rate by age and sex
and length of unemployment, 2001, per cent

Country	Unemployment rate			Of which 15–24 ages	Long-term unemploy-ment rate
	Male	Female	Together		
Hungary	6.3	4.9	5.7	10.5	2.5
Czech Republic	6.7	9.6	8.0	16.3	4.1
Poland	17.0	20.0	18.4	41.5	9.2
Romania	7.0	6.0	6.6	17.6	3.2
Slovenia	5.4	6.0	5.7	15.7	3.6
Slovak Republic	20.1	18.6	19.4	38.9	11.3
Eu–15 average	6.4	8.7	7.4	14.9	3.3
Ireland	3.9	3.7	3.8	6.6	1.3
Portugal	3.2	5.1	4.1	9.3	1.5
Spain	7.5	15.5	10.6	21.5	5.1
Italy	7.3	12.9	9.4	28.1	5.9
Greece	6.7	15.4	10.2	28.1	5.4

Source: Employment in Europe 2001. Recent Trends and Prospects. European Commis-
sion. Luxembourg. 2002.
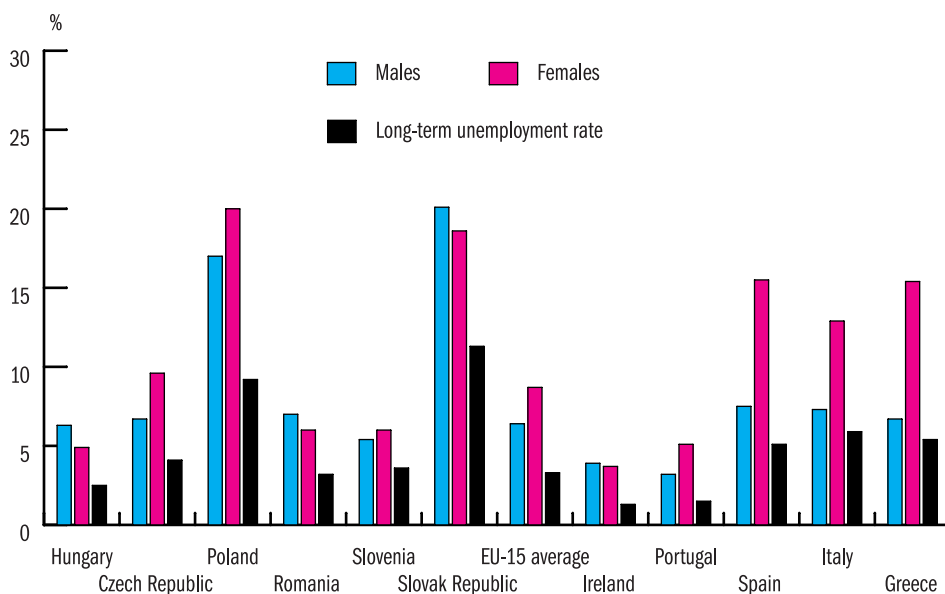
Figure 15.1: Unemployment rate by sex and long term unemployment rate

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Table 15.2: Employment rate by age and sex,
population aged 15–64, per cent

Country	Unemployment rate			Of which 15–24 ages
	Male	Female	Together	
Hungary	63.3	49.6	56.3	31.4
Czech Republic	73.2	57.0	65.0	34.4
Poland	59.2	48.4	53.8	21.4
Romania	68.6	58.2	63.3	32.7
Slovenia	68.5	58.6	63.6	30.3
Slovak Republic	61.8	51.8	56.7	27.7
EU–15 average	73.0	54.9	63.9	40.7
Ireland	76.4	55.0	65.7	49.6
Portugal	76.9	61.1	68.9	43.8
Spain	70.7	41.9	56.3	33.1
Italy	68.5	41.1	54.8	26.3
Greece	70.8	40.9	55.4	26.0

Source: Employment in Europe 2001. Recent Trends and Prospects. European Commis-
sion, Luxembourg, 2002.
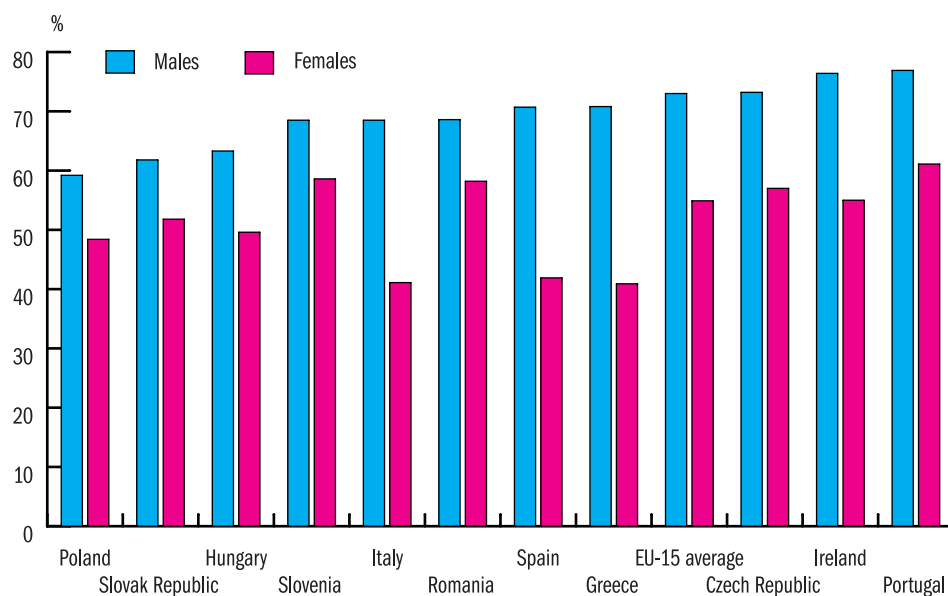
Figure 15.2: Employment rate by population aged 15–64

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Table 15.3: Table Composition of employed population 2000,
15–64 ages, per cent

Country	Self emp-loyed	Part time	Fix term contr.	Service	Industry	Agricul-ture
Hungary	13.9	3.3	6.4	59.4	34.5	6.1
Czech Republic	14.6	4.3	6.9	54.6	40.5	4.9
Poland	22.5	9.5	8.6	50.1	30.7	19.2
Romania	25.7	16.8	1.6	29.7	25.8	44.4
Slovenia	11.8	6.1	10.8	51.4	38.6	9.9
Slovak Republic	8.4	2.3	4.6	56.7	37.1	6.3
EU–15 average	14.8	17.9	13.4	69.4	26.4	4.2
Ireland	17.6	16.5	3.7	64.0	29.0	7.0
Portugal	28.5	10.8	20.6	58.5	30.6	10.9
Spain	16.4	8.1	31.7	63.8	29.8	6.5
Italy	25.8	8.4	9.8	65.8	29.4	4.8
Greece	43.3	4.0	12.6	59.5	24.2	16.3

Source: Employment in Europe 2001. Recent Trends and Prospects. European Commission, Luxembourg, 2001.
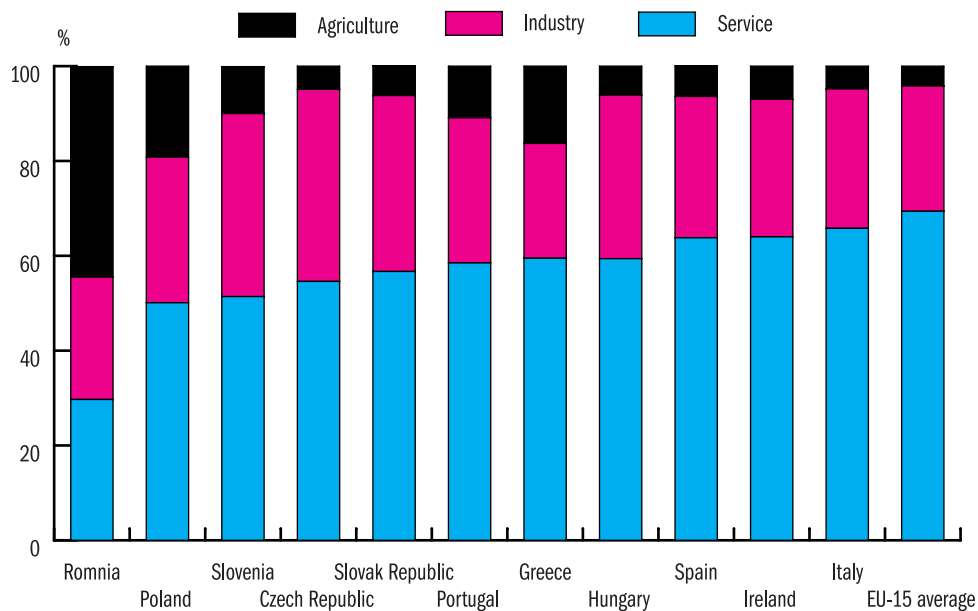
Figure 15.3: Composition of employed population

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16. 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 settlements 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

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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 pre-

pared 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 na-

tional 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 containing 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.

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