# TRANSITION OF THE HUNGARIAN LABOUR MARKET – AGE, SKILL AND REGIONAL DIFFERENCES - [*]

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## ABSTRACT

*The system change has been accompanied by large scale redundancies, massive and frequently long-term unemployment, a high level of inactivity and growing income and regional disparities in Hungary. Transition has its winners and losers both in terms of economic activity and wages. The paper describes the role of three factors: age, skill, and location shaping labour market differences during three phases of transition. In the first part of the paper, impact of transition on the Hungarian labour market has been discussed. In the second part we investigate the evolution of age and skill related differences on the labour market. In the third part regional differences will be discussed. Section four concludes and discusses policy options available to reduce labour market disparities in the following years.*

*Keywords*: Hungary, transition, labour market

*JEL classification numbers*: J3, J6, R12

# 1. INTRODUCTION – IMPACT OF TRANSITION ON THE HUNGARIAN LABOUR MARKET

Hungary has been a front-runner among CEE countries in the transition from the state planned economy to capitalism over the last fourteen years. The country successfully passed through the most painful periods of economic transformation and has turned into a vigorous market economy. The average growth of the real GDP has been 4.1 percent annually since 1997, steadily exceeding the EU15 average (2.2%). Economic growth has been accompanied by a rapid increase of productivity and large scale economic restructuring. This excellent performance of the economy was mainly due to the dynamism of the export oriented manufacturing sector which has become dominated by foreign-owned companies. Hungary takes fourth place in the per capita ratio ranking of the positive net FDI inflows in the group of OECD countries (OECD, 2004).[1]

## *Social costs of transition*

Nevertheless, similarly to other transition countries Hungarians have had to pay the price: the enormous social costs of transition. Full employment, social equality, and balanced regional development had been the major explicit policy goals during the old regimes for more than four decades. Transition brought about dramatic changes in this field of "socialist achievements". Hungary experienced one of the largest declines in employment in the CEE countries during transition. (Svejnar 2002) Total employment decreased from 4.8 million in 1987 to 3.5 million in 1996. All (net) job destruction took place outside of public administration, health and education. Employment outside those sectors fell from 4 million in 1987 to 2.7 million in 1995, which meant that one third of all jobs were destroyed. (Kézdi 2002)

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[1] According to the latest report of the Central Statistical Office, more than 40 percent of the GDP, 47 percent of gross sales, 44 percent of value added and 83 percent of the total exports were performed by foreign investment enterprises (FIEs) in 2002. FIEs engaged 25 percent of the corporate sector employees in the same year. (CSO 2004).

Where full and lifetime employment, scarcity of labour, compressed income and regional distribution used to be the standard, the situation is now the reverse in many respects. The system change has been accompanied by large-scale redundancies, massive long term or frequently recurrent unemployment, a high level of inactivity, and growing income and regional disparities.

### *Three phases of transition*

Based on the evolution of GDP, employment and real wages indicators between 1989-2004 (Figure 1) the post socialist era so far can be divided into three periods: *transitional crises* (1989-1993); *economic recovery* (1994 - 1997) and *catching up* leading to the accession to the European Union (1998-2004). The evolution of the Hungarian labour market adequately reflects the different characteristics of the three periods.

**Figure 1: Changes of GDP, employment and real wages   1988=100 %**
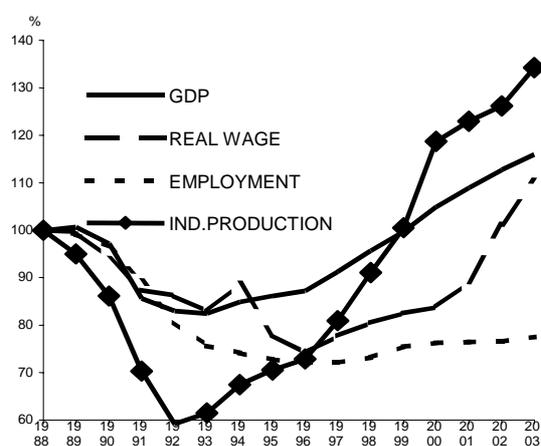
**Figure 2: The rate of unemployment, activity and employment, Q1/1998 – Q4/2003**



**Source:** CSO Stadat
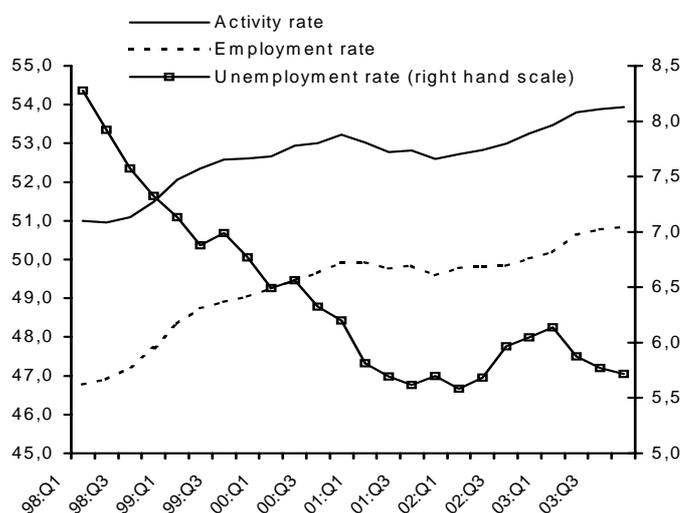
**Source:** CSO Labour Force Survey

During the years of transitional crises GDP fell by 17.5 percent. One and a half million jobs (25%) disappeared and the employment rate of the working age population decreased from 76 to 60 percent. Large scale job destruction led to a fast increase of open unemployment and massive outflows from

employment to inactivity. In the first quarter of 1993, at the bottom of the recession, the unemployment rate was 12 percent and the ratio of long-term unemployed exceeded 43 percent. At the end of 1993 the inactivity rate of the working age population reached as much as 31 percent. Parallel to this, fast deterioration of real wages took place. In 1993 the average real wages were less than 83 percent of the wages paid in 1989.

During the years of economic recovery GDP started to increase and exceeded their pre-transition level in 1999. Hungary followed an export led economic growth fuelled by massive inflows of foreign direct investment concentrated in the manufacturing sector. The improving economic situation had certain positive effects on the labour market as well. The unemployment rate decreased from 11.9 percent to 8.7 percent between 1993-1997 and real wages started to grow in 1997. On the negative side, however, the revival of the economy did not induce growth in employment. The participation rate continued to decrease and had become the lowest among the transition countries. On the other hand, the rapid increase of production together with stagnating employment was a source of the substantial increase of productivity.

This "jobless" type of growth had come to end in 1997. In the following three years the average yearly growth of GDP and industrial production was 4.7 and 13 percent respectively, and the growth of employment recorded a positive 1.4 percent. Between 1997-2000 the unemployment rate decreased from 8.7 percent to 6.4 percent. Mainly due to fast pre-election wage increases and the direct and indirect effects of the nearly doubled minimum wage, real wages increased by 6.4 in 2001. The salaries of civil servants increased on average by 50 percent from 1st September 2002, contributing to a 13.6 percent real wage increase for the whole year. In 2002, the export driven growth of the previous years was replaced by a development stimulated by internal demand. Strong fiscal expansion and state financed infrastructure developments prevented the economy from slowing down but the cost was high: the macro-economic balance of the Hungarian economy

deteriorated. The growth of GDP decreased from 3.7 percent to 3.3 percent in 2002 and to 2.6 percent in the first half of 2003. Hungary's export growth slowed down and the inflow of foreign direct investment (FDI) decreased substantially in 2002 with a further deterioration of this trend in the first 6 months of 2003. The labour market reflected these negative tendencies. The employment ratio, which showed a steady increase since 1997, took a reverse direction. (see Figure 2)

The Hungarian economy reached the bottom of the slowdown in the summer of 2003 and growth slightly accelerated in the second half of the year. The GDP increased by 3.6 percent in the fourth quarter of 2003 and by 4 percent in the first half of 2004. Industrial production increased by 6.4 percent in 2003 and by more than 10 percent in the first half of 2004. The inflow of FDI was substantially higher than last year and investments in manufacturing industry began to increase after the sharp decline of the previous year. Labour market indicators somewhat reflect the improving economic situation. However, as employment adjusted to expanding demand more slowly than did production, accelerated growth in productivity was recorded. The unemployment ratio returned to its downward trend in 2003 and was fluctuating around 5.7 percent during the whole year - a much lower level than the EU average in 2003.

### *The post transitional labour market in international comparison*

Unfortunately, a more detailed analysis of labour market activity shows a far less impressive picture. The outcome of the post-transitional Hungarian labour market is exceptionally poor or at least paradoxical by international comparison. Although, Hungary has one of the lowest unemployment rates in Europe, as a result of continuous decrease since the transition crises were over, decreasing unemployment was mostly a consequence of increasing inactivity within the stagnating non-employed population and definitely not the result of growing demand for labour. Reducing unemployment via

decreasing search intensity [2] of the non-employed could hardly be appreciated as a positive feature of the labour market.

The employment rate of the 15-64 old Hungarian population is one of the lowest among the OECD and EU countries including the new member states while the Hungarian participation ratio is the lowest both in the EU member states and in the OECD countries. Data show that in certain age/gender groups such as: 15-24 age group and 25-54 male age group the participation rate is exceptionally low and is out of the range not only of the EU countries but that of the Visegrad countries as well.  19.9 percent of the prime age male population and 70.2 percent of the 55 – 64 age population do not want or could not enter the labour market. The corresponding figures of the EU 15 average 7.6 percent and 55.4 percent. According to these figures the Hungarian labour market is surprisingly small compared to the size of the population. (See Table 1)

**Table 1: Participation rates age by age and gender (2003)**

|  |  | EU15* | | | AC3** | | | Hungary |
|---|---|---|---|---|---|---|---|---|
|  |  | Mean | Minimum | Maximum | Mean | Minimum | Maximum | Mean |
| 15-64 | total | 70,0 | 61,1 | 79,6 | 68,0 | 64,6 | 70,7 | 60,1 |
|  | Male | 78,5 | 73,1 | 84,5 | 74,9 | 70,6 | 78,7 | 67,7 |
|  | Female | 61,5 | 47,9 | 75,8 | 61,3 | 58,7 | 63,2 | 52,9 |
| 15-24 | Total | 47,2 | 34,7 | 73,7 | 38,1 | 37,8 | 43,4 | 34,4 |
|  | Male | 50,6 | 38,3 | 74,5 | 41,7 | 41,6 | 47,5 | 37,8 |
|  | Female | 43,6 | 31,0 | 73,0 | 34,5 | 34,1 | 39,2 | 30,9 |
| 25-54 | Total | 83,2 | 75,7 | 88,1 | 86,2 | 81,5 | 88,6 | 76,9 |
|  | Male | 92,4 | 89,8 | 95,1 | 91,9 | 87,2 | 94,8 | 84,3 |
|  | Female | 73,9 | 60,3 | 85,5 | 80,5 | 75,8 | 83,9 | 69,5 |
| 55-64 | Total | 44,6 | 27,8 | 71,2 | 34,3 | 26,9 | 42,5 | 27,5 |
|  | Male | 55,1 | 37,6 | 74,3 | 49,2 | 38,7 | 59,4 | 38,2 |
|  | Female | 34,4 | 18,1 | 68,2 | 21,5 | 11,1 | 27,3 | 18,9 |

\* UE member states before accession ** Poland, Check Republic, Slovakia
**Source:** EUROSTAT

Such a relative smallness is accompanied by high and increasing regional disparities, and growing spatial polarisation. Enterprises, jobs, the employed population, income, the wealth and the general wellbeing are more and more concentrated in the most developed core regions while the long term

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[2] Search intensity = (number of the unemployed) / (number of the non-employed population)

unemployed, inactivity, the poverty, ill health and social exclusion are more and more concentrated in the less developed peripheral local labour markets (LLM) of the country. (Faluvégi 2004)

Here we arrive at the main questions of this paper: Why is the Hungarian participation ratio so low? Why is the ratio of the inactive population within the non-employed so high? Who are the inactive people? Why don't they search for a job? Why are the spatial differences of the local labour markets so high and what are the main reasons for the increasing gap and polarisation of the LLMs? Which regions and localities are the winners and which are the losers of transition. Why couldn't the labour market differences be alleviated by mobility of workers or mobility of the jobs between the high and low employment regions in such a small country? What are the possibilities for employment policy measures aiming to increase employment and to mitigate labour market differences?

In the following parts of the paper we are going to answer these questions taking stock of stylised facts and results of the relevant empirical literature. In the second part the main reasons of the low employment and high inactivity on the post transitional Hungarian labour market will be discussed. In the third part determinants of the labour market differences and polarisation will be analysed. In the fourth part conclusions and some policy options will be summarised.

### *Winners and losers of the transition*

Considering the social costs of the transition and economic restructuring one should note that behind the evolution of the national averages of economic and labour market indicators there was an increasing dispersion and growing inequality. While employment probability and income position of certain groups on the labour market seriously depreciated others could substantially improve their position. Transition has its winners and losers on the labour market both in terms of economic activity and wages.

Kőrösi (2002) investigated job destruction and job creation in the three phases of transition. He found that net job destruction in the first two phases was compounded with high intensity of job creation. High intensity of job destruction and job reallocation resulted large scale job reallocation between and within industries. Employment probability did not decreased evenly across different segments of the labour market. Kertesi-Köllő (2002) and Kézdi (2002) found that employment and wage position of different age and skill groups substantially changed during the last decade.

Major part of the widening gap between the winners and losers can be attributed to combinations of some *group related* and *regional* factors such as: age, gender, education, ethnicity and geographical location, degree of urbanisation etc. According to the employment and wage statistics and a series of empirical studies[3] on the Hungarian labour market, three factors: *age (experience), skill, and location* seem to play crucial role in growing labour market differences.

The remainder of the paper is organised as follows: In the second part we investigate the evolution of age and skill differences on the labour market. In the third part regional differences will be discussed. Section 4 investigates impact of FDI on labour market differences. Section 5 concludes and discusses policy options available to reduce labour market disparities in the future.

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[3] Institute of Economics - HAS publishes a series titled "Budapest Working Papers on the Labour Market and a yearbook series titled: „The Hungarian Labour Market – Review and Analysis". These working papers and chapters titled „In- Focus" of the yearbook series give an in-depths analyses on most recent results of empirical studies on different fields of the labour market issues. Volumes of these series can be downloaded from the following website: http://econ.core.hu/index.php?cmd=3&lang=en

## 2. CHANGING PATTERN OF AGE AND SKILL RELATED DIFFERENCES ON THE LABOUR MARKET

Among the most striking features of the labour market transition were the collapse of demand for unskilled labour, fast squeezing out of older people from the labour market and substantial revaluation of skill and experience in the wage formation process.

### *Age and skill related differences in labour market activity*

Commander and Köllő (2004) examined the skill content of job creation and job destruction using a detailed three-country survey. Their results show that transition has exerted a strong bias against unskilled labour who have lost employment disproportionately. Moreover, job creation in new firms tends to be biased against workers with low educational attainments and skills. The skill content of blue collar work has also shifted upwards. Although there is a variation across the sampled countries, these appear to be common features.

In case of Hungary, demand for the unskilled labour started to diminish already during the pre-transitional period. Virtually all the jobs were lost by the least educated. Between 1987 and 1996, employment of those with 11 grades or less fell from 3,1 to 1,9 million (-38%), compared to 1,17 to 1,09 million (-7%) for those with 12 grades, and 0,56 to 0,54 million (-5%) for the college educated. 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 percent between 1990 and 1995, and did not increase after that time. In the early 1990s, the demand for people with secondary and college education also dropped by 11 percent, but for this group years of economic recovery created roughly the same number of jobs that had disappeared after the collapse of the socialist economy. Köllő (2003)

**Figure 3: Changes in employment by level of education**
**(1991-2003)**
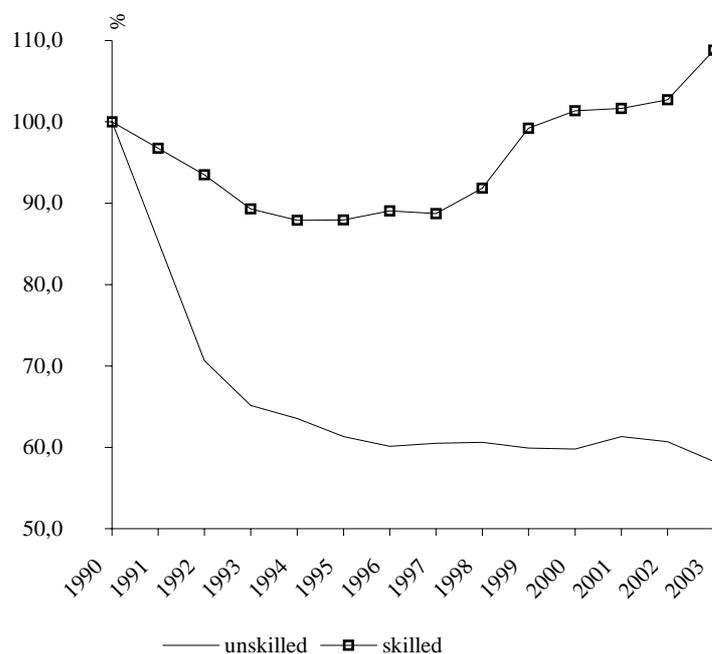


**Source:** CSO Labour Force Survey

Changing composition of the employed population in Hungary reflects this process. Figure 3 shows that the number of unskilled and skilled jobs decreased by 35 and 11 percent between1989 – 1993. During the years of economic recovery the number of skilled jobs started to increase but destruction of unskilled jobs continued albeit with much slower intensity. In 2000 the number of skilled jobs exceeded the level of 1990 while the number of unskilled jobs was less than 60 percent of the level in1990.

Employment rate of the older workers decreased fast during the years of transitional crises. In case of redundancies and mass dismissals Hungarian firms preferred to use early retirement schemes and disability pension schemes as the least painful means of workforce reduction. Early retirement was explicitly encouraged by the government of the early transition period. In 1991-97 early retirement (as opposed to old-age and disability pensions) accounted for a high and growing share of total retirement: 23 per cent in 1991, 27 per cent in 1994, and 30 per cent in 1997. (Szeman 1994, Köllő and Nacsa 2004)  Data shows fast increase of those covered this schemes

during the first part of the 90's. With a radical change of policy the ratio dropped to 17 per cent in 1998 and 3-4 per cent in 1999-2001. In the second part of the 90', the government decided to rise the retirement age of old age pensions and to introduce more strict conditions of disability schemes. (calculating the costs of these measures and the growing scarcity of labour in certain regions of the country. Increasing employment rate of older population reflects these changes in the years 1999 – 2003.

### *Age and skill related differences in wages – revaluation of human capital during transition*

One of the main features of changes in labour market relations during transition is a sizeable increase in the returns to skill and decrease in return to age and experience in employment pattern and wage formation within the corporate sector. Kézdi (2002) and Kertesi-Köllő (2002) found that transition had dramatically different impacts on different age cohorts. In general, labour market experience accumulated through the years of the old regime devaluated after 1990. An important consequence is that the wage disadvantage of young people relative to older cohorts has diminished throughout the whole period. This trend has been the most pronounced among the highest educated. Figure 4 shows the significant increase in the wage of the college-educated 25–29 old and 30–34 old relative to the college-educated 40–54 old. All improved their position compared to the middle aged during the whole time period (except for 30–34 year-old of women until the mid-1990's), and these trends accelerated after 1995. Since the majority of the 30–34 years old in the second half of the 1990's started and even finished university before 1990, these results suggest that it is socialist labour market experience rather than socialist education that lost from its value for the older cohorts.

Kézdi (2002) argues that in case of Hungary job creation and job destruction had different characteristics in different phases of transition. Major destruction of low-skilled jobs and large inter-sectoral reallocation, partly toward skill-intensive industries were profound during the transitional crises

and the economic recovery. After 1996, employment started to raise, which has also seen a pervasive skill upgrade in all sectors. The skill premium in earnings started to grow even faster because increasing demand for skill met a more and more inelastic supply in the short run.

**Figure 4: Wage of the college-educated 25-29 and 30-34 years old over the wage of the college-educated 40-54 years old in Hungary**
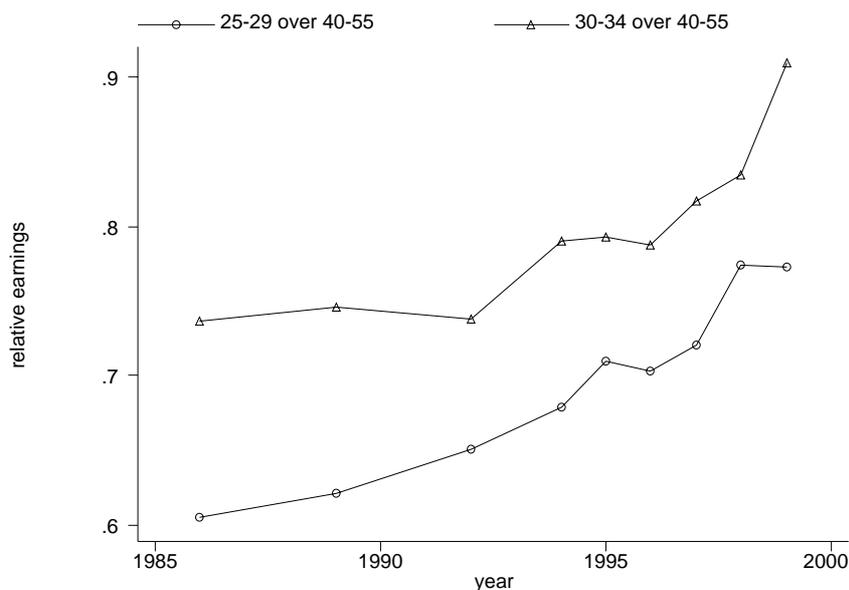


**Source:** Kézdi (2002)

Demand for low skilled/low paid jobs was largely reduced by the large increases in the statutory minimum wage since 2000. While in 2000, 10 per cent of business employment was at the minimum wage this share had risen to 18 % in 2002. The increase in labour costs hit the small domestically owned firms and local labour markets in the less developed regions especially hard. (Kertesi and Köllő 2003)

## 3. REGIONAL DIFFERENCES IN ECONOMIC ACTIVITY – WHY DOES IT INCREASE AND WHY COULD IT NOT BE MITIGATED?

### 3.1 Time path of regional differences in economic activity

Indicators of local labour market differences have been showing a steadily increasing trend in terms of the range of relative differences, polarisation and increasing core-periphery division. The Central Statistical Office (CSO)

provides region level[4] time series of the Labour Force Surveys and the national accounts. These data show that the decline in economic performance and employment has been much more severe in disadvantaged rural regions of the East and Southwest than in the more urbanised Central and North-western territories. Regional employment or unemployment rate differences at NUTS-2 level, however, are not particularly large by international comparison and did not tend to increase during recent years. The problem is that, in the case of Hungary, NUTS-2 level analyses of labour market indicators give a distorted picture. This is because due to the relatively high travel costs of commuting and the underdeveloped transport infrastructure, local labour markets (LLMs) are small sized, closed and fragmented. The size of LLMs fits more into the category of NUTS-4 level "micro-regions"[5].

Figure 5 shows the time path of average registered unemployment rates[6] of 150 micro regions in Hungary between 1990–2003. Expressing mean registered unemployment rates of each decile of the 150 micro-regions in the percentage of the median at each period gives us a detailed picture of the time path of the relative unemployment rate differential at micro-regional level. We can see that large differences had appeared during the turbulent period of the collapse of the socialist economy. In the second phase of transition, after a short period of decrease and stagnation, regional differences began to increase again. The widening gap has been mainly

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[4] There are 7 statistical-planning regions (NUTS-2 units), 19 counties and the capital, Budapest (NUTS-3 level units), 150 statistical micro-regions (NUTS-4 level units) and 3,120 settlements (NUTS-5 level units) in Hungary. The average size of micro-regions is 620.2 $km^2$, the average number of the local population is 77,279 and the average density of population is 108.5 cap./$km^2$. On the NUTS classification see: Eurostat 1995.

[5] Given the relatively high cost of public transport the effective local labour market in backward regions is estimated to be confined to a radius of 16 km or less in case of unskilled labour. (OECD 2002)

[6] The small sample size of the HCSO Labour Force Survey does not allow us to calculate micro-region level time series for different labour market status of the local population. Micro–region level registered unemployment rates time series can be calculated from the settlement level Unemployment Register Data Base of the National Employment Office.
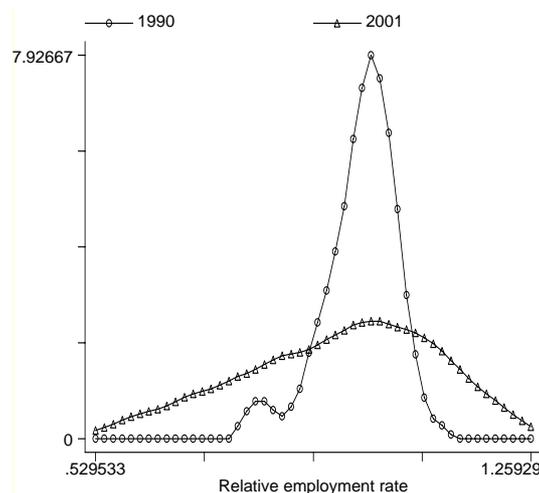
generated by the continuously deteriorating position of the high unemployment regions.

**Figure 5: Time path of micro-regional unemployment rate differences (1991/Q1 – 2002/Q3)**
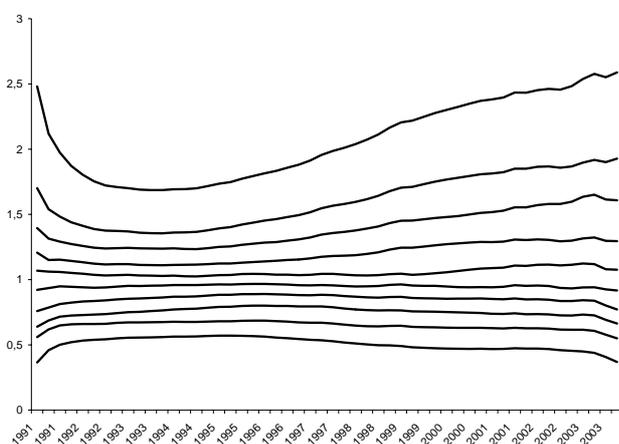


Source: National Employment Office
Unemployment Register Data Base

**Figure 6: Kernel density of relative employment rates (1990, 2001)**



Source: HCSO Census 1990,2001

Growing micro-regional disparities were accompanied by two other important features: high rank stability on the one hand and polarisation of micro-regions on the other. The majority of micro-regions which were in a relatively good position at the start recovered faster from the transitional shock and turned out to be the winners of the post transitional period, while the vast majority of backward regions of the socialist economy was not able to overcome their disadvantageous status even after 10 years of transition. High rank stability points to long-term, hard-to-change explanatory factors behind the successes and failures of the micro-regions. (Ábrahám and Kertesi 1998, Fazekas 1996, 2000, Nemes Nagy 2004)

Figure 6 shows the Kernel density estimation[7] of relative employment rates of micro-regions in 1990 and 2001. The two lines reflect *polarisation* of micro-regions. Both the range of the relative employment rates and the

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[7] Kernel density estimation is a non-parametric technique for density estimation in which a known density function (the kernel) is averaged across the observed data points to create a smooth approximation. Silverman (1986)

density of regions at the low and high end of the distribution have increased during the 1990's. This polarisation has led to an emergence of sizeable groups of "extremely high" and "extremely low" employment regions.

## 3.2 Winners and losers of transition

Grouping micro-regions into quartiles according to employment rates[8] gives a simple but clearly defined picture of the "winners" and "losers" of transition at the level of LLMs. The top quartile (high employment) regions had a 65.7 percent employment rate in 2001, covered 20.3 percent of the territory and 38.8 percent of the population of the country. The corresponding figures of the bottom quartile (low employment) regions were: 40.9 percent, 24.6 percent and 14.1 percent.

*Figure 7: Spatial distribution of micro-regions in the four quartiles of employment rates*
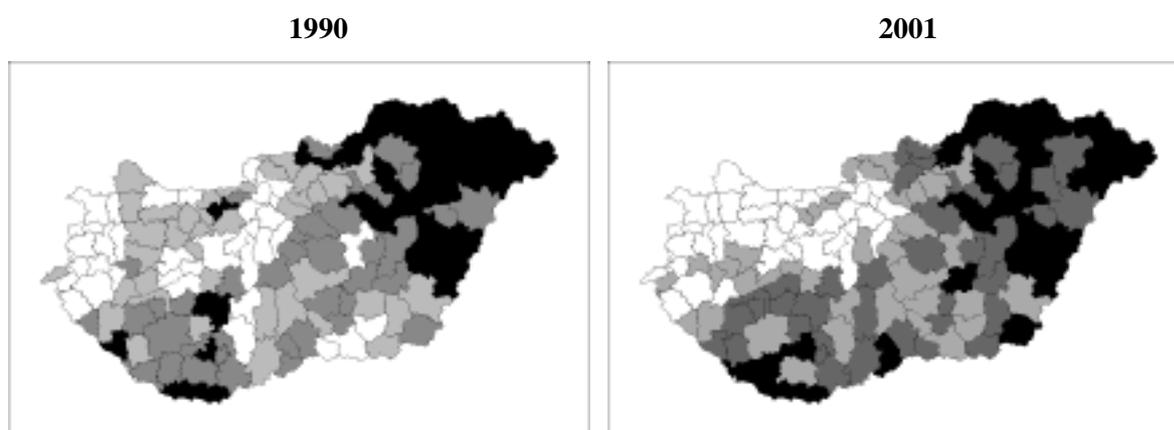
**1990**                                    **2001**



**Note:** White: top quartile - high employment micro regions;
Black: bottom quartile - low employment micro regions
**Source**: HCSO Census 1990, 2001

Figure 7 shows the geographical distribution of top and bottom quartiles of micro-regions in 1990 and 2001. One can see a clear east-west, core-periphery division before and after the transition. The central agglomeration and regions along the main east-west transport routes in the direction of Graz and Vienna have the highest employment rates while most of the low employment regions are located at the periphery, along the East-Slovakian,

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[8] Employment rate = (employed population / working age (15-64) population)*100

Ukrainian, Romanian and Croatian borders. Comparing the two maps, it is visible that the core-periphery division of micro-regions has become stronger during the nineties. The average distance of the high employment regions from the main Austrian border crossing point (Hegyeshalom) decreased from 150 km to 111 km (-26%) while the average distance of the low employment regions increased slightly, from 349 to 352 km (+1%)[9]. The correlation coefficients between the average employment rates of micro-regions and average distance of the region's centre from the Austrian border changed from – 0.54 to  – 0.77  between 1990 – 2001. (Fazekas  2004)

## 3.3. On the causes of micro regional differences

During the last decade a series of empirical studies investigated determinants of micro regional differences of economic activity in Hungary. (Ábrahám and Kertesi 1998, Fazekas, 1996, 2000b, 2002, Nemes-Nagy 2004) Unanimous results show that the differences were generated by the demand side of the labour market. While the intensity of job destruction shows an equal regional distribution, the intensity of job creation follows an uneven pattern in the first phase of transition. (Nemes-Nagy 2000) Emerging unemployment rate differences could be attributed mainly to the differences in geographic location, and in the entrepreneurial capacity and industrial heritage of the regions. The effect of existence of the state run large industries on their own was negatively related to the level of unemployment. The dominance of state industry has led to higher unemployment only in those regions where this dominance was coupled with low entrepreneurial capacity. Entrepreneurial capacity refers to the extent to which infrastructure and social, human and conditions of local economic development "were ready" at the start of the transition. Nemes Nagy (2004) found that that until the middle of the decade the regional inequalities of unemployment on the micro-region level were mostly explained by the distance from the Western border. Beside the West-East division, however,

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[9] Distance of the high and low employment regions means the average minimum distance of the region's administrative centres 00 from the Austrian Border (Hegyeshalom) on public road weighted by the number of working age population.

the variable representing the lack of intellectual capital and also the share of uneducated persons became similarly important by now in shaping regional inequalities. The farther away a micro region from the Western border and the higher the rate of uneducated people, the higher the unemployment in the region.

A relatively large scale of the Hungarian undeclared employment is often presumed to play a key role in the low level of formal employment and search activity in high unemployment regions. Nevertheless, there is no straightforward linkage between the size of a region's informal economy and its level of employment or search intensity. The question of whether formal and informal jobs are substitutes or complements, and whether people's engagement in informal employment is conducive to lower search intensity, are difficult ones that require disaggregate data in order to properly address the problem. Köllő and Nacsa (2004) present some rough calculations estimating how employment and some proxies of the local informal economy were correlated in Hungary's micro-regions, in 2000. Results of the estimations show a statistically significant inverse relationship between employment (as well as labour force participation) and indicators of the informal economy. Regions with a sizeable informal economy have lower *employment* rates. However, as soon as the equations were controlled for the level of education - thought of as a proxy of a region's level of development and ability to absorb capital investments - all relationships between informal economy and labour market outcomes became statistically insignificant. Variations in the size of the informal economy actually do not explain variations in formal employment, unemployment, or search intensity once human capital endowments are controlled for.

According to the authors the observed correlation is consistent with the expectation of no causal relationship between informal and formal employment, or between informal employment and search intensity. The informal economy is widespread in regions with low levels of education and a number of related endowments conducive to low levels of job creation and

employment. In this sense the informal economy is an effect rather than a 'cause' of low formal employment.

## 3.4 The role of FDI in increasing regional differences

An important factor behind the changing location preferences of firms is the massive inflow of foreign direct investments and the fast increase of foreign firms' employment during the nineties. Fazekas (2004) found that the spatial concentration of corporate sector employment in the developed urban centres has substantially increased labour market differences. Allocation preferences of foreign firms had a further important positive impact on this process. The number of employees in the business sector increased by 404 thousand (22.2 percent) in Hungary between 1993-2002. This number equals 6.6 percent of the working age population of the country. More than two thirds of the net job creation was within the group of foreign firms. The number of foreign firms' employees increased by 91.1 percent while the number of domestic firms' employees increased by 8.8 percent.

Table 2 shows the size of employment changes in the corporate sector in two groups of micro regions. Employment change is presented as a percentage of the working age population. High employment regions and low employment regions refer to the top quarter and bottom quarter of micro regions ranked according to their employment rates in 1990. One can see that between 1993 – 2000 job creation of FIEs in the two quartiles had a crucial impact on employment rate differences. In the high employment regions net job creation of FIEs was 8 percent of the working age population while it was only 1.8 percent in the low employment regions. After 2000 net job destruction of FIEs was more concentrated in high employment regions. It means that after 2000 the spatial distribution of job destruction of FIEs decreased regional employment differences. This effect was counterbalanced by the spatial distribution of job creation/job destruction of domestic firms. In low employment regions DEs jobs decreased as much as 4 percent of the working age population while DEs job creation in high employment regions was around 3 percent of the working age population. In sum, for the whole

period between 1993-2002 we can observe a net job destruction (- 1 percent of the working age population) in the low employment regions and a net job creation (+11 percent) in the high employment regions.

**Table 2:  Changes of corporate employment in the low and in the high employment regions between  1993 - 2002**

| Quartiles of micro regions according to the average of  employment rates in 2000 | Changes in the Number of employees 1993 = 100 % | | | Changes in the number of employees as a percentage of the working age population | | |
|---|---|---|---|---|---|---|
| | DEs | FIEs | Total | DEs | FIEs | Total |
| *Low employment regions* | % -14.6 | % +79.2 | % -4.6 | % -2.5 | % +1.6 | % -0.9 |
| *Bottom quartile* **High employment regions** *Top quartile* | +13.8 | +106.0 | +30.9 | +4.1 | +7.1 | +11.2 |
| Country total | +8.8 | +91.1 | +22.2 | +2.2 | +4.4 | +6.6 |

Note**: Financial sector excluded**
Source: **IE-FDI Database**

### *Why do firms concentrate in high employment regions?*

CSO-FDI data base contains information on the distribution of FDI stock and of FIEs employees at the level of macro regions and counties between 1995-2002. (CSO 2004) Data show that both FDI stock and FIEs employees were highly concentrated in the most developed regions (Central Hungary, Central Transdanubia and Western Transdanubia).  In 1995 83 percent of the FDI stock and 72 percent of FIEs employees were located in these regions. On the level of macro regions the most important change that occurred between 1995-2002 was that the share of the Central Region in FIEs employment decreased by 10 percentage points, while the share of Northern Hungary increased by the same degree.  Unfortunately the CSO FDI data base is not suitable for measuring the impact of firms' job creation on local labour markets for two reasons: 1.) It contains information on the regional distribution of foreign and domestic firms only at the level of macro regions and counties.  2.) In the CSO FDI data base firms are classified into regions according to the settlement of the headquarters of the firms. This

method, however, overestimates the spatial concentration of firms because premises located in different regions are taken into account as if they were located in the headquarters' region. (Hamar 1999)

We can investigate, however, at the micro region level the distribution of foreign and domestic enterprises with the help of the IE-FDI micro-regional data base. It contains a set of balance sheet data of all foreign and domestic enterprises, *separately* aggregated at NUTS-4 level of regions. Since the balance sheets of the firms contain the settlement code and the number of employees of each establishment of enterprises, the bias found in the CSO FDI data base has been reduced by the redistribution of firms' data between micro-regions in proportion to the branch's share in the total number of employees of the given firms.

Studies on spatial distribution of FDI (Hamar 1999, Fazekas 2000, Békés 2004) revealed that FDI inflows were highly concentrated in certain regions so it comes as no surprise that the concentration of FIEs jobs is higher than the concentration of the working age population and higher than the concentration of DEs employees. The difference between the concentration of FIEs and DEs jobs is, however, not particularly high. According to Fazekas' (2004) calculations for the year 2002 the Gini coefficients of the working age population, DEs employees and FIEs employees were 0.50, 0.63 and 0.70 respectively. 17.1 percent of the working age population, 23.0 percent of the domestic firms' employment and 23.5 percent of the foreign firms' employment were concentrated in one region: in the capital of the country. The top quartile of the micro regions (37 regions) having the highest shares covered 61.1 per cent of the working age population, 73.3 percent of the DE's jobs and 78.3 percent of FIE's jobs in 2002.

Using relative concentration indexes we could measure the difference between the spatial distribution of FIE's or DE's jobs and the distribution of a benchmark variable (the working age population in this case). Fazekas (2004) found that the relative concentration of FIE's jobs is the highest in

most of the micro-regions along the Austrian border but that there are also several regions of the top quarter in the eastern part of the country as well. The relative concentration of DE's jobs does not show a similarly clear east-west division.

We can have a more detailed picture of the determinants of spatial concentration of FIEs and DE's jobs by estimating the *relative concentration* of jobs by regressions using selected explanatory variables. Fazekas (2003, 2004) came to the conclusion that regional differences in unemployment rates of micro-regions have been determined by three main factors: the industrial past of the regions, the proximity of the regions to the western portals and the education level of the local labour force.

### *Impact of regional wage differences on spatial distribution of corporate employment*

Elasticity of net earnings to local unemployment rates had reached 10 percent in Hungary in the mid 1990's. According to the literature it is a typical value in developed market economies. (Köllő 2002, 2004) At that time the highest unemployment rate at micro-region level was eight times that of the lowest unemployment rate. Taking into account the effect of the 10 percent elasticity the estimated net earnings difference between the two regions was around 17 percent. So the question arises: Why are the foreign and domestic investors alike so reluctant to relocate their activities towards the high unemployment/low employment regions?

The regional differences of productivity and the unit labour costs of foreign and domestic firms explain a great deal of this reluctance. According to Köllő's (2003) calculations a considerable part of wage differences related to unemployment rates disappears if we take into account the large productivity gaps between the low and high unemployment regions. Because of the productivity gaps the same wage level means much larger unit labour costs in the "bad" regions than in the "good" ones. After clearing the effect of productivity gaps Köllő found that firms moving from the most developed

regions to the less developed regions could save a meagre 2-7 percent in wage costs.
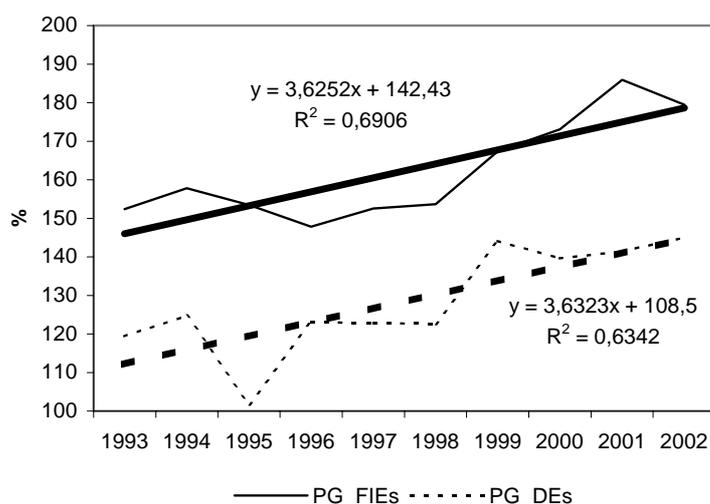
**Figure 8: Wage costs and productivity of firms settled in high employment regions compared to the firms settled in low employment regions in manufacturing in 2002**
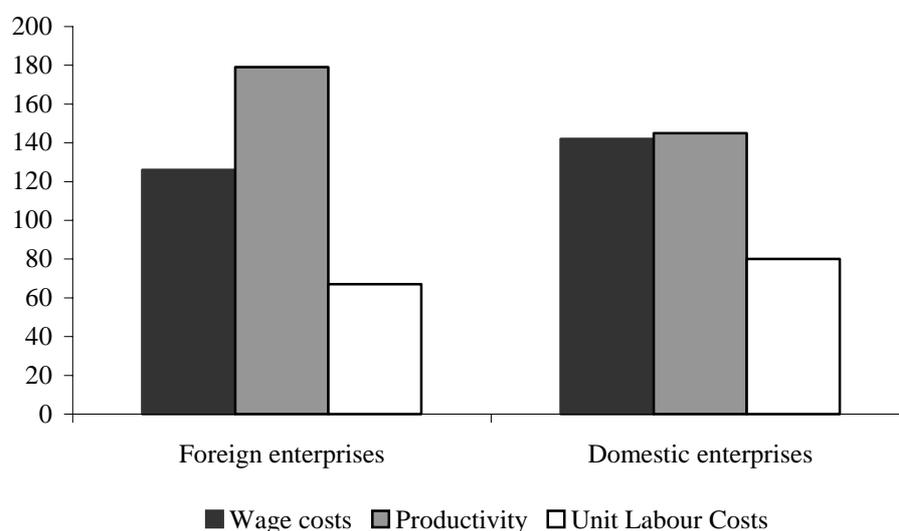


Source: IE-FDI micro regional data base
Note: Firms settled in low employment regions = 100 %

**Figure 9:** **Time path of the productivity gap between firms in manufacturing settled in low and high employment regions (1993 – 2002)**



Source**: Fazekas (2004)**
Note:
Productivity gap = (average productivity firms settled in high employment regions) / (average productivity of firms settled in low employment regions) *100
Productivity = net sales/employees

Figure 8 shows Fazekas' (2004) calculation on regional differences in wages, productivity and unit labour costs between firms in manufacturing operating in high and low employment regions. One can see that there are substantial regional differences in both FIEs and DEs groups. Wage costs are higher in high employment regions than in low employment regions but because of the high productivity the unit labour costs of firms operating in high employment regions is less than 80 percent of those settled in low employment regions. There is no doubt that besides region-specific factors (proximity, density of firms, externalities offered by urban agglomerations etc) the regional productivity gap has been influenced by a number of firm specific factors, such as: sector composition, different technologies and labour/capital ratios. Nevertheless, the time paths of regional gaps in the case of FIEs and DEs reveal a striking tendency. (Figure 9.) The regional gaps of productivity between firms settled in high and in low employment regions have substantially increased in both groups over the last ten years. Explanations of the main factors behind the increasing wage and productivity gaps require a careful analysis which is beyond the scope of this paper. Nevertheless, we are convinced that increasing return to agglomerations constitutes an important part of the explanation. Regional spillover effects between firms could be an important element of agglomeration effects. The higher the density of foreign firms in the high employment regions, the stronger the spillover effect towards domestic (and foreign) firms and, as a consequence, the higher the productivity advantages of these regions are. According to empirical evidence from Hungary the increasing density of FIEs has a significant positive effect on the productivity of domestic firms. (Schoors and van der Tol 2002, Sgard 2001)

## 4. CONCLUSION AND POLICY IMPLICATIONS

In the previous parts of the paper we described increasing age, skill and location related differences on the Hungarian labour market during transition. The driving force of this process was the fast integration of the country into the world economy and massive inflows of foreign direct

investments into certain regions of the country. What can we expect in the future and what should be done to stop further deterioration of backward regions and to improve labour market position of older workers and the unskilled? The majority of studies on the impact of the EU accession forecast the increasing attractiveness of accession countries towards FDI inflows. Are there relevant policy options to avoid the situation where further increase of FDI inflows follows the established pattern, i.e. increase regional differences and polarisation?

The third part of the paper demonstrated that the education level of the local population has a crucial impact on the competitiveness of local economies. Thus, one of the most important tasks is to raise education levels even in the remote rural territories of the country. It is a long term and costly program for central and local governments and requires a large scale development of the educational infrastructure. Analyses of the explanatory factors of spatial concentration of FIE's jobs show that in addition to the education/urbanisation level and industrial past, the geographical location (i.e. distance from the EU borders) has a crucial impact on the attractiveness of regions. Distance could be decreased by the development of transport infrastructure and some urbanised South-Transdanubian, and East-Hungarian regions could be connected to the most developed Central-Hungarian and West-Transdanubian agglomerations. The most challenging questions for the policy makers: What can be done in the case of remote rural regions along the north-east, east, and southern borders? How will the EU accession affect their position in the years to come?

Answering the social and economic challenges of growing labour market inequalities require concentrated and co-ordinated actions in several fields of the government policy. Growing scarcity of (skilled) labour and increasing age limit of old age pension resulted a modest increase of employment ratio of older generation in the last years. The most serious problem is the cumulating labour market backwardness. The unskilled, old age population more and more concentrated in the disadvantageous regions. Unskilled

population is extremely high in the Roma population which is highly concentrated in disadvantageous regions.

Policies targeted different labour market disadvantages seems to be failed to reduce inequalities up to know. Nevertheless we are convinced that in Hungary the accession to the EU offer opportunities to access all the necessary financial and intellectual sources which needed for a comprehensive development strategy.

### *Mid term expectations and employment policy answers*

The number of the working age population will increase until, and will sharply decrease after, 2006. The expansion of educational attainment will continue but the structural discrepancies between the demand and supply will be accelerated. According to the latest projections (GKI 2003) the participation rate will be 62 % in 2006 - much less than the requirement of the EU Employment Strategy for 2005 (67%). Unfortunately there are no reliable prognoses on medium and long term development of labour demand in Hungary. All of the projections stressed high uncertainty concerning the future development of the economy and uncertainty over the labour market consequences resulting from the different paths of future developments. Nevertheless certain immediate effects could be estimated. Direct job creation effects of the accession are estimated to be around 8,000-10,000 jobs. Demand for a highly educated workforce will increase while in certain occupations (customs officials, carriers etc) a large element of jobs will be diminished. Unfortunately there are no detailed calculations on immediate short term job creation and job destruction effects of the accession. There is no doubt: the fast structural changes of employment by sectors and by branches will continue. The share of agriculture and industry will decrease while the expansion of employment in the service sector will continue. Despite decreasing labour demand in manufacturing, scarcity of (skilled) labour will accelerate and concentrate in the most developed regions. Structural changes within the manufacturing industry will continue. Employment in the textile and food industry will decrease considerably,

employment in the chemical industry will slightly decrease and employment in the machine and steel industry will stagnate in the years to come.

Based on the information available the most important challenges of employment policy in the next five years could be summarised as follows:

- Insufficient demand for low-skilled labour, decreasing employment probabilities of school leavers and highly educated job seekers. Increasing structural regional discrepancies between demand and supply on the labour market, increasing scarcity of labour in certain segments of the labour market,
- Insufficient supply of highly motivated work force with special skills required by high-technology, competitive industries,
- Low employability of a large pool of long term unemployed, inactive population, disadvantageous groups concentrated in local labour markets in the less developed regions of the country.

In order to find satisfactory solutions for the recent challenges the Ministry of Employment Policy and Labour elaborated an Action Plan for 2004. The strategy was adopted by the government and was discussed by the Interest Conciliation Committee of Hungary in December 2003. The Action Plan schedules concrete steps in six fields: 1) Improving institutional and background and quality of labour market forecasts; 2) Improving job creation effects of economic development; 3) Enlargement of employment capacity of the formal economy; 4) Increase in the capacity and effectiveness of supported employment; 5) Development of employability, adaptability and training of disadvantaged persons; 6) Actions to answer the requirements of the European Employment Strategy. Most of the projects in the Action Plan are important parts of preparations for the National Employment Strategy to be elaborated and delivered to the Commission prior to October 2004. Developments in the next months will answer the key question: Is the Hungarian Government capable of developing and fulfilling a comprehensive

economic policy which should be a prerequisite for sustainable employment development in the coming years.

## REFERENCES

Ábrahám, Árpád/Kertesi, Gábor (1998): Regional unemployment rate differentials in Hungary 1990 – 1995, The changing role of human capital, In: Halpern, László, Ch. Wyplosz, (eds.): Hungary – Towards a market economy, Cambridge: Cambridge University Press.

Commander, Simon/Köllő, János (2004): The Changing Demand for Skills: Evidence from the Transition. IZA Working Papers, no. 1073.

CSO (2004): Foreign Direct Investment in Hungary 2001 – 2002, Budapest: Hungarian Central Statistical Office.

Faluvégi, Albert (2004): Térbeli kirekesztődés, a térségek leszakadása, In: KSH, A szegénység és a társadalmi kirekesztődés folyamata, Tanulmányok. Budapest: KSH.

Fazekas, Károly (2004): Spatial concentration of domestic and foreign investment enterprises in Hungary, In: Fazekas, Károly/Koltay Jenő/Cseres Gergely, Zsombor (2004).

Fazekas, Károly (2004b): The current situation on the labour market and labour market policy in Hungary, In: Fazekas, Károly/Koltay Jenő/Cseres Gergely, Zsombor (2004).

Fazekas, Károly (2003): Effects of FDI inflows on regional labour market differences in Hungary, paper presented at the International Conference "Reinventing Regions in the Global Economy" organised by the Regional Studies Association. 12th-15th April 2003. Pisa, Italy.

Fazekas, Károly (2002): Regional Disparities in Unemployment in the CEE Countries – The Case of Hungary, In: Pizatti, L. (ed.): Labor, Employment and social Policies in the EU Enlargement Process: Changing Perspectives and Policy Options. Washington: World Bank.

Fazekas, Károly (2000): Regional Labour Market Differentials during Transition in Hungary, In: Petracos, George/ Maier, G./Gorzelak, Grzegorz. (eds.): Integration and Transition in Europe: The Economic Geography of Interaction. London: Routledge.

Fazekas, Károly (1996): Types of Micro-regions, Dispersion of Unemployment, and Local Employment Development in Hungary, In: Eastern European Economics, Vol. 34, no. 3.

Fazekas, K.-J. Koltay, - Zs. Cs. Gergely (eds), The Hungarian Labour Market - 2004. Review and Analysis", Budapest: IE-HAS.

Hamar, Judit (1999): A külföldi működőtőke beáramlás Magyarországon belüli területi jellemzői, In: Külgazdaság, Vol. 18. March. pp. 47-69.

Kertesi, Gábor (2004): The Employment of the Roma - Evidence from Hungary, Budapest Working Papers on the Labour Market, BWP, no. 1, Budapest, IE-HAS.

Kertesi, Gábor/Köllõ, János (2002): Labour Demand with Heterogeneous Labour Inputs after the Transition in Hungary, 1992-1999, Budapest Working Papers on the Labour Market, no. 5. Budapest: IE-HAS.
http://econ.core.hu/index.php?cmd=27&lang=hu

Kertesi, Gábor/Kollo, János (2003): Fighting "low equilibria" by doubling the minimum wage? Hungary's experiment, IZA Discussion Papers, no. 970.

Kézdi, Gábor (2002): Two phases of labour market transition in Hungary, Inter-sectorial reallocation and skill-biased technological change, , Budapest Working Papers on the Labour Market, no. 3. Budapest: IE-HAS.
http://econ.core.hu/index.php?cmd=27&lang=hu

Köllő, J. (2002): "Evolution of Wages by Major Groups of Labour. Differences by Education and age". In: Fazekas, K. and Koltay, J. (eds) The Hungarian Labour Market. Review and Analysis. Institute of Economics, HAS. Budapest.

Köllő, János (2003): Demand for Skilled and Unskilled Labour, In: Fazekas, Károly/Koltay, Jenő (eds.) The Hungarian Labour Market – 2003. Review and Analysis, Budapest: IE-HAS.

Köllő, János (2004): Regional differences in Earnings and Wage Costs, In: Fazekas, Károly/Koltay Jenő/Cseres Gergely, Zsombor  (2004).

Köllő, János/Nacsa, Beáta (2004): Flexibility and Security in the Labor Market – Hungary's Experience". Budapest: ILO-CET.

Kõrösi, Gábor (2002): Labour Adjustment and Efficiency in Hungary
Budapest Working Papers on the Labour Market, no. 4. Budapest: IE-HAS.
http://econ.core.hu/index.php?cmd=27&lang=hu

Kõrösi, Gábor (2002): Job creation and destruction in Hungary, In: Fazekas, Károly/Koltay, Jenő (eds.) The  Hungarian Labour Market – 2003. Review and Analysis, Budapest: IE-HAS.

Lelkes, Orsolya/Scharle, Ágota (2004): Miért inaktív az 50 éves magyar férfiak egyharmada? In: Kolosi, Tamás et al. (eds.): Social Report. Budapest: TÁRKI.

Nemes Nagy, József (2000): The new regional structure in Hungary, In: Petracos, G. – G. Maier - G. Gorzelak (eds.) In: Petracos, George/ Maier, G./Gorzelak, Grzegorz. (eds.): Integration and Transition in Europe: The Economic Geography of Interaction. London: Routledge.

Nemes Nagy, J. (2004): "The Influence of Location and Education on Regional Inequalities in Hungary", In: Fazekas, Károly/Koltay Jenő/Cseres Gergely, Zsombor  (2004).

OECD (2002), Economic Survey of Hungary, Paris: OECD.

OECD (2004): OECD Employment Outlook. Paris: OECD.

Silverman, B. W. (1986) Density Estimation. London: Chapman and Hall.

Schoors, K. and B. van der Tol (2002): Foreign Direct Investment Spillovers within and between Sectors, Evidence from Hungarian Data, Gehnt University Working Paper. no. 157.
http://fetew.ugent.be/AlgEco/Cerise/publications/FDIspillover_rugpaper.pdf

Sgard, Jerome (2001): Direct Foreign Investments and Productivity Growth in Hungarian firms, 1992-1999, CEPII Working Papers, no.19.
http://ssrn.com/abstract=293696

Széman, Zsuzsa (1994): Employer Policies Towards Older Workers In Hungary, Soco Project Paper no. 11. Vienna: WIIW.

Svejnar, Jan (2002): Transition Economies: Performance and Challenges. The Journal of Economic Perspectives

Tarjáni, Hajnal (2004): Estimating The Impact of Sbtc on Input Demand Elasticities in Hungary, MNB Working Paper, no. 3. Budapest: MNB.