

Transitions on the Hungarian labour market: main trends and regional disparities

RUUD J. DORENBOS¹

Introduction²

The transition to a market economy has caused significant changes on the Hungarian labour market. Excess demand for labour and shortage of labour which occurred in the centrally planned economies were replaced by a surplus of labour and a shortage of jobs. This resulted in a sharply increasing unemployment rate which became one of the most pronounced outcomes of the transformation process. These changes in the labour market manifested itself with different strengths in particular economic sectors. Those sectors hit most severely lost the greatest number of jobs. Consequently, the regions in which these sectors used to play a significant role were struck by unemployment problems, while other regions were capable of defending their jobs. Besides the unbalanced geographical distribution of job seekers, there also exists the situation that relatively low vacancy rates are located in high-unemployment areas. Also in Hungary there are some regions where the process of economic transformation has been particularly hard hit. Regional unemployment rates show that regional disparities have increased rapidly since the beginning of the transition period. In particular the counties in the North(eastern) part of Hungary are confronted with very high unemployment rates, mainly due to their 'one-sided' economic structure. On the other hand, the position of the Central Region (the capital city Budapest and the surrounding county Pest) and the Northwestern counties show a more diversified economic structure and hence a more promising picture.

On the basis of the above, it appears that the restructuring process on the Hungarian labour market not only takes place in a relatively short period of time but also manifested itself with different strengths on the Hungarian regional labour markets. Both from a social and a scientific point of view it is interesting to acquire a better understanding in the processes which take place on these regional labour markets. Therefore, on the basis of data from the Hungarian labour force survey transitions between, but also within, several labour market states within regions will be analysed. After all, the eye-catching differences

1 University of Groningen, Faculty of Spatial Sciences, P.O. Box 800. NL-9700 AV Groningen, the Netherlands.

2 I would like to thank János KÖLLŐ and Károly FAZEKAS (Institute of Economics, Hungarian Academy of Sciences) and Albert FALUVÉGI (Central Statistical Office) for providing information or permitting access to datasets.

in regional unemployment figures are probably the result of a very dynamic and dissimilar process of certain labour market flows. When supply and demand on (sub)markets are not in equilibrium, mobility is an essential element in the process of optimal allocation of labour. Therefore, the concept of labour mobility will be used here. Focusing on the most important mobility patterns, we will initially investigate the direction and size of the mobility patterns. In a later stage we will analyse the determinants of the individual labour force transitions.

The plan of this paper is as follows. In section two the concepts of regional labour markets and labour market mobility flows will be clarified. Section three will give an overview of the main trends on the Hungarian labour market as well as a description of the old and new disparities on the Hungarian regional labour markets, thereby focusing on the differences between on the one hand the capital city Budapest and the surrounding county Pest and the northwestern counties and, on the other hand, the north(eastern) counties. Section four shows what transitions, i.e. mobility flows, have taken place on the Hungarian (regional) labour markets in 1995. Also in this section, the data will be presented. In section five, we will derive a stationary- or equilibrium labour force state distribution which is based on estimated transition probabilities and some simplifying assumptions. Finally, the main conclusions of the analysis will be made in section six.

Regional labour markets and labour market mobility

Empirically, it is difficult to define a regional labour market. In labour market research it is common to define a regional labour market as an area where the incoming and outgoing flows of commuters are minimal. According to NIJKAMP, P. and FISCHER, H. (1987), a regional labour market is a geographical area within which the employment opportunities open to a worker can be fulfilled without changing his or her place of residence. Of course, the geographical range of regional labour markets is also affected by, among other things, income, infrastructure, access to means of transport, the extent of knowledge of alternative employment opportunities and individual preferences.

For a more general definition, three criteria seem to be important NIJKAMP, P. and FISCHER, H. (1987); journey-to-work, the market's employment opportunities and the accessibility to market information about job openings, actual and potential future wages. Based on these three criteria, a regional labour market can be defined as a spatially delineated area which fulfills the next boundary requirements:³

1. Daily commuting to work outside the borders of a region is of minor importance
2. Commuting and migration costs are much lower within a region than when crossing the borders
3. Job search costs are much lower within a region than outside a region

3 From the perspective of the employer, the regional labour market may be defined as a spatial area which contains the potential pool of applicants a firm can, theoretically considered, attract.

In practice, one must be aware that the definition of regional labour markets that can be implemented in empirical analysis is also strongly influenced by the availability of data. The smallest geographical areas at which data on unemployment as well as vacancies are available in Hungary are regional labour areas (offices). One might try to combine regional labour areas in such a way to get more meaningful units of regional labour markets. An additional problem could be that other important data (for example, regarding employment, production and wages) are not available at the level of regional labour offices. On the basis of the above it seems not sensible to create 'regional labour markets' by combining regional labour areas. In Hungary regional labour markets are analysed on the basis of Hungarian administrative units. These administrative units comprise 19 counties (provinces) and the capital city Budapest. Nevertheless, on the basis of the above-mentioned definitions, it seems obvious that the Hungarian counties are much smaller geographical areas than regional labour markets. A possibility is to combine more or less homogeneous counties in such a way that we create macro-regions. In section four, we will come back so this issue.

Labour mobility

As noticed before, the rapidly increasing unemployment rate is one of the most striking labour market features of the Eastern European labour markets. Of course the problem is much broader. The role of labour in the economic transformation process is a really crucial one, both in quantitative and qualitative respect. For example, large investments in capital stock in existing and new industries are necessary to stimulate economic growth. To obtain the full benefits of these investments also the quality of labour has to be improved to match the needs of the newly emerging economic structures. Due to this process of restructuring and modernization, the sectoral composition of the firms and the occupational structure of the labour force will change radically. Some branches will be more affected than others. Both the employed and the unemployed will need additional training and schooling to fit in the changing occupational structure. The skills of the (new) entrants on the labour market have to be adjusted to fit with the needs of new production units. This means that more emphasis will be put on the selection of workers on the basis of labour market characteristics which reflect their (expected) productivity. Job competition and crowding-out effects with regard to access to jobs will lead to changing inequalities on the labour market.

From a scientific point of view it is interesting to study how individual suppliers of labour anticipate on this process of restructuring and modernization. The high unemployment figures are probably the result of a very dynamic process of different labour market flows. When supply and demand on (sub)markets are not in equilibrium, mobility is an essential element in the process of optimal allocation of labour. If we focus on mobility flows within (regional) labour markets,⁴ three types of mobility can be distinguished VISSERS, A. M. C. (1989):

1. between jobs (functional mobility)
2. between employment and unemployment

4 In this paper we refrain from spatial mobility (migration and commuting) which refers to labour mobility between regional labour markets.

3. in and out of the labour force (participation mobility)

This means that there are seven relevant flows (*Fig. 1*): flows from job to job (1), flows from unemployment to employment (2) and vice versa (4), flows from inactivity to unemployment (6) and vice versa (7) and from employment to inactivity (5) and vice versa (3) OURS, J. VAN (1990). This paper will focus on mobility flows within several regions in order to search for possible large regional differences in the flows in and out from unemployment and employment. This means that we will focus on the flow numbers 2,3,4 and 5. Of course, also attention will be paid to the flows between jobs (number 1). In section four of this paper, the direction and size of these different mobility flows will be discussed.

The Hungarian labour market: main trends and regional disparities

Just as the other Eastern European countries, also in Hungary the unemployment rate grew rapidly after the transition to a market economy. The collapse of the former communist economies, the COMECON (Council for Mutual Economic Assistance) market, and in particular the disintegration of the Soviet Union, caused the loss of the main market of Hungary. This is demonstrated by the decline in the number of employees in traditionally CMEA-oriented industries. For example, the decline in employment in the heavy industry, especially in the two former pillars metallurgy and machinery, was above-average FOTI, K. (1993). In addition, the long recession in Western Europe together with the fast and radical import liberalization (without any virtual protection measures) made it very difficult for the chances of the Hungarian products, as far as these products were capable to satisfy the high western quality standards. The Hungarian government, which already weighted down with enormous debts, could no longer retain the distribution of huge subsidies for the benefit of the destituted companies. Under the pressure of the market, there was left only one option for the companies: dismissal of their employees. Within a period of hardly four years, the registered unemployment rate rose from 0.4 per cent in 1989 to 12.9 per cent in 1993. Nowadays, the registered unemployment rate is around 10.5 per cent (European Commission, 1995). It must be mentioned here that the unemployment

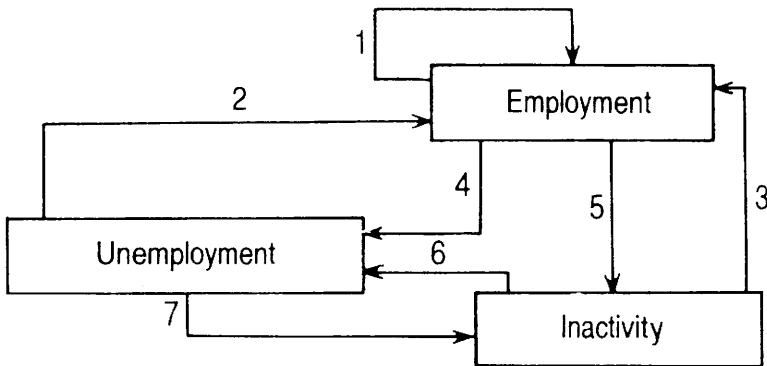


Fig. 1 Labour mobility flows

Source: OURS, J. VAN (1990).

rate is lower than could have been expected. After all, many people left the labour market, in particular the older workers approaching retirement age who took advantage of the possibility of earlier pension DORENBOS, R. J. (1996).

It seems that in Hungary the first stage of transition, which would be characterised by a sharp fall in state sector employment BLANCHARD, F. (1991) has been finished. The second stage would be a growth in private sector firms which are able to draw workers from the pool of unemployment created by the initial shake-out. During this stage unemployment would decline until it reaches an equilibrium. However, most new private sector employees have been recruited directly from the state sector without an intervening spell of unemployment BOERI, T. 1994a,b; JACKMAN, R. (1994). Unemployed people tend to look for work in the state sector. On the basis of labour force evidence in Hungary, these unemployed people are significantly more likely to find state sector than private sector jobs. The third stage would be characterized by further growth of the private firms being able to bid away workers from the residual state sector. However, on basis of the available evidence so far, it is as if the second stage of the transition is omitted and the third stage already came into effect JACKMAN, R. (1995).

Another important feature of the Hungarian labour market is the strong variation of the situation in regional labour markets. If we take the counties as regional labour markets, we can observe considerable differences in unemployment rates (*Table 1*). (*Fig. 2*.) shows that in particular the differences between on the one hand the counties in the region of North-(East) Hungary and on the other hand the capital city Budapest and the counties in the North-West region are striking NESPOROVA, A. and SIMONYI, A. (1994); European Commission, (1995).

Table 1. Regional unemployment rates in Hungary, June 1991 - June 1995

| County | June 1991 | June 1992 | June 1993 | June 1994 | June 1995 |
|------------------------|------------|-------------|-------------|-------------|-------------|
| Budapest | 2.0 | 6.0 | 6.9 | 6.0 | 5.0 |
| Baranya | 7.2 | 15.7 | 15.2 | 13.5 | 13.2 |
| Bács-Kiskun | 7.9 | 14.8 | 15.2 | 11.4 | 9.8 |
| Békés | 9.6 | 14.7 | 16.3 | 14.7 | 13.6 |
| Borsod-Abaúj-Zemplén | 11.2 | 17.7 | 21.8 | 15.8 | 15.2 |
| Csongrád | 6.9 | 12.4 | 13.7 | 11.0 | 9.8 |
| Fejér | 5.2 | 12.3 | 12.7 | 10.8 | 9.3 |
| Győr-Moson-Sopron | 4.2 | 8.1 | 9.0 | 6.9 | 6.0 |
| Hajdú-Bihar | 8.4 | 15.6 | 17.5 | 15.1 | 14.1 |
| Heves | 7.7 | 14.2 | 15.3 | 12.3 | 11.3 |
| Komárom | 5.8 | 13.8 | 14.3 | 12.0 | 10.6 |
| Nógrád | 10.5 | 18.2 | 18.6 | 14.9 | 13.9 |
| Pest | 4.5 | 9.9 | 10.2 | 8.0 | 7.3 |
| Somogy | 6.6 | 10.9 | 12.3 | 10.2 | 9.6 |
| Szabolcs-Szatmár-Bereg | 12.3 | 20.5 | 20.7 | 19.0 | 18.2 |
| Jász-Nagykun-Szolnok | 8.7 | 15.8 | 16.7 | 14.7 | 12.8 |
| Tolna | 7.9 | 13.9 | 14.7 | 12.4 | 11.0 |
| Vas | 4.5 | 9.2 | 10.4 | 8.5 | 7.3 |
| Veszprém | 5.8 | 10.8 | 11.4 | 10.0 | 8.6 |
| Zala | 5.0 | 9.4 | 11.2 | 9.9 | 8.3 |
| <i>Hungary</i> | <i>7.4</i> | <i>13.5</i> | <i>14.7</i> | <i>12.2</i> | <i>11.1</i> |

Source: National Labour Centre

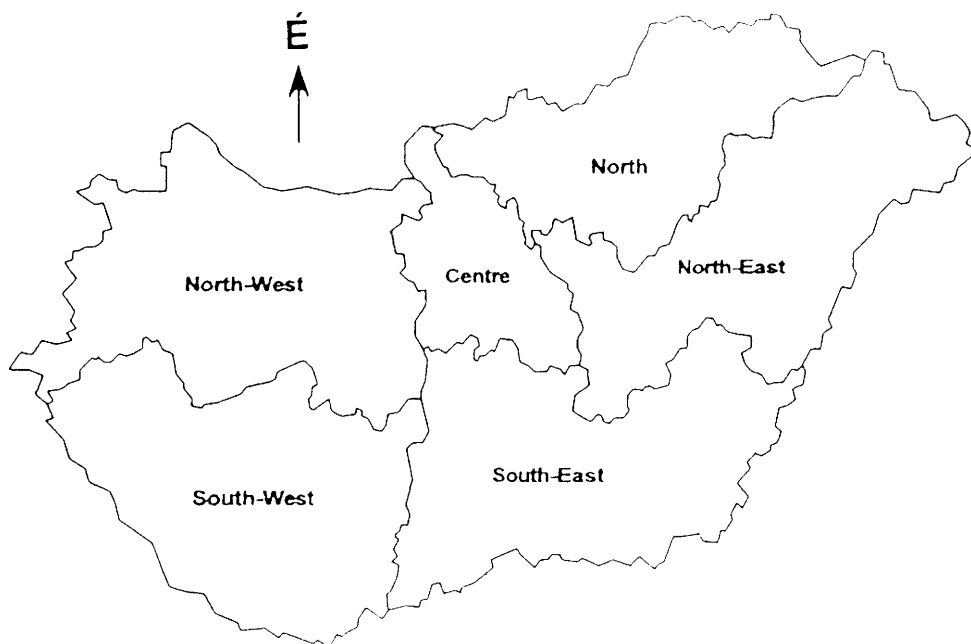


Fig. 2. Unemployment rates in Hungary by counties

The favourite position of the Central region and the Northwest region is also evident by many other indicators, like the above-average gross domestic product per capita level, above-average income levels, relatively low unemployment rates, above-average foreign investments and a high concentration of firms and joint ventures (*Table 2.*). In particular the capital city Budapest and the county Győr-Moson-Sopron rank at the top, while the counties of the North and the Northeast rank at the bottom NEMES NAGY, J. (1995). But not only the contrast between the Central- and Northwestern region is striking. In general, regional disparities in Hungary represent four main spatial and settlement levels NEMES NAGY, J. (1994); NEMES NAGY, J. and RUTTKAY, É. (1994):

- Dualism of Budapest and the countryside
- Macro-regional division
- Disparities at the meso- and micro levels (variation by counties and micro-regions)
- Differentiation according to the hierarchy and size of settlements

Table 2. Selection of some economic and demographical indicators by counties and macro-regions, Hungary

| County | Population'95 | % | Per capita investments HUF | GDP* per head'94 HUF (thousands) | Enterprises with FDI's (%)** | Number of joint ventures'93 |
|------------------------|-------------------|--------------|----------------------------|----------------------------------|------------------------------|-----------------------------|
| Central | 2.903.000 | 28.3 | 109.254 | 613 | 26.9 | 10155 |
| Budapest | 1.930.000 | 18.8 | 129.195 | 767 | 28.6 | 9105 |
| Pest | 0.973.000 | 9.5 | 65.600 | 323 | 17.9 | 1050 |
| North-West | 1.817.000 | 17.9 | 72.931 | 397 | 25.1 | 2412 |
| Fejér | 0.426.000 | 4.2 | 68.691 | 409 | 16.9 | 374 |
| Veszprém | 0.379.000 | 3.7 | 49.479 | 335 | 25.2 | 470 |
| Győr-Moson-Sopron | 0.426.000 | 4.2 | 104.092 | 449 | 32.1 | 797 |
| Komárom | 0.313.000 | 3.1 | 73.515 | 340 | 18.8 | 363 |
| Vas | 0.273.000 | 2.7 | 63.956 | 447 | 33.1 | 408 |
| South-West | 1.302.000 | 12.6 | 50.294 | 368 | 21.7 | 1547 |
| Somogy | 0.338.000 | 3.3 | 41.234 | 328 | 18.1 | 335 |
| Zala | 0.302.000 | 2.9 | 61.424 | 403 | 27.3 | 449 |
| Baranya | 0.412.000 | 4.0 | 43.945 | 356 | 22.7 | 573 |
| Tolna | 0.250.000 | 2.4 | 58.958 | 403 | 17.4 | 190 |
| North-East | 1.546.000 | 15.1 | 39.882 | 313 | 10.8 | 702 |
| Hajdú-Bihar | 0.550.000 | 5.4 | 40.909 | 354 | 11.1 | 282 |
| Szabolcs-Szatmár-Bereg | 0.573.000 | 5.6 | 39.807 | 252 | 9.7 | 220 |
| Jász-Nagykun-Szolnok | 0.423.000 | 4.1 | 39.493 | 335 | 11.9 | 200 |
| South-East | 1.375.000 | 13.5 | 40.839 | 356 | 21.6 | 1914 |
| Bács-Kiskun | 0.541.000 | 5.3 | 36.673 | 328 | 22.1 | 834 |
| Csongrád | 0.429.000 | 4.2 | 47.128 | 402 | 27.0 | 863 |
| Békés | 0.405.000 | 4.0 | 39.591 | 344 | 12.1 | 217 |
| North | 1.304.000 | 12.7 | 44.432 | 293 | 11.0 | 582 |
| Nógrád | 0.224.000 | 2.2 | 30.763 | 266 | 12.5 | 132 |
| Borsod-Abaúj-Zemplén | 0.750.000 | 7.3 | 49.857 | 296 | 9.2 | 285 |
| Heves | 0.330.000 | 3.2 | 42.100 | 302 | 14.4 | 165 |
| <i>Total</i> | <i>10.247.000</i> | <i>100.0</i> | <i>67.421</i> | <i>425</i> | <i>23.3</i> | <i>17312</i> |

* GDP = Gross Domestic Product.

** Enterprises with foreign direct investments/economic organisations with legal status (1994).

Source: Central Statistical Office, Statistical Yearbook, 1995; NEMES NAGY, J. 1995; Department of Dissemination, Central Statistical Office.

In this paper we will focus, mainly due to the available data, on the disparities on macro-regional level. Without discussing the main explanations for these regional dispa-

rities into detail, there are a number of reasons for the remarkable regional disparities. Following SCARPETTA, E. (1995) these reasons can be divided in so called old disparities and new disparities.

Old regional disparities

During the communist period, there were striking differences in the economic structure of the various regions of the central and eastern European countries. The sectoral composition of the counties is one of the aspects of disparity. The share of industry in total employment varies in most central and eastern european countries strongly from region to region. Although, according to SCARPETTA, E. (1995) these differences were less pronounced in Hungary. Nevertheless, the role of industry is a crucial one in the aspects of disparity, because since decades industry has been the moving force of the Hungarian economy (BARTA, GY. 1992).

The spatial pattern of industrial activities was highly dependent on the sites of raw materials. Both the Northwestern counties like Komárom-Esztergom, Fejér and Veszprém as well as Nógrád and Borsod-Abaúj-Zemplén situated in the northeast were important sites of raw materials like for instance brown coal. The production plants, especially concentrated on the heavy industry such as coal mining, steel, chemicals and ship building, were mainly located in the neighborhood of these sites. Economic policy was at that time mainly focused on extensive quantitative growth, which implied that a large part of the investments ended up for the benefit of the heavy industry. This stimulated the creation of several areas which were highly dependent on a few huge enterprises or conglomerates. After all, an important feature of the industry sector is the very large size of production plants.

After 1960, an process of industrial diversification began. In addition to the heavy industry, the machinery and the light industry got attention. Since the necessity of the nearness of raw materials was not that important anymore, the industrial areas were more diversified across the country. During this period, also the collectivization of agriculture was rounded off. These developments caused that a larger share of total investments ended up in the rural areas. This proces was intensified by the orientation of trade towards the Soviet bloc. Moreover, many enterprises were, as a result of the large labour shortages in Budapest, forced to move their production plants to the rural areas⁵ (KENNIS, J. and SCHLUTER, M. 1994; SCARPETTA, E. 1995). However, because the new industrial jobs located in small and medium-sized settlements of less developed regions were to a large extent controlled by firms' administrative centers far away in the cities, these newly settled industrial firms remained rootless (BARTA, GY. 1992). Furthermore, at the end of the seventies, economic growth sank. This resulted in the situation that destituted state companies swallowed the bulk of the state budget, which implied that there was not enough money left to improve the infrastructure and to develop the backward areas. Besides, this lack of industrial tradition and the concentration of investments in huge plants or mines

5 The share of Budapest in total employment in the industry sector decreased from 54 per cent to 22.4 per cent between 1948 and 1988, whereas the share of the Great Plain in total employment in the industry sector increased from 7.9 per cent to 24.4 per cent (NEMES NAGY, J. and RUTTKAY, É. 1994; KENNIS, J. and SCHLUTER, M. 1994).

did not lead to an uniform regional development. Instead, it created examples of one-city-one-firm surrounded by backward agriculture. Moreover, the great plain region which experienced the forced industrialisation program is still an economically threatened region.

In the seventies and in the early eighties the number of industrial jobs was declining. The main two reasons were, on the one hand, the shortage of labour that affected the industrial sector more than other sectors of the economy, and, on the other hand, the more attractive employment opportunities in the tertiary sector. In addition, during the eighties, the importance of the industrial sector declined rapidly in Western Europe.

In Hungary, the transition to a post-industrial society expired less prosperous. The service industry was the only growing sector, but only in the grey sector and in the big cities. The decline of heavy industry led to the birth of depression zones in the industrial areas. Despite the fact that the government continued to support these industrial concerns financially, the results of this policy became not apparent. Because of this, the old companies continued to exist and no renewal of the industrial structure occurred (KENNIS, J. and SCHLUTER, M. 1994).

Summarizing, it can be said that this biased allocation of resources resulted in the situation that certain regional labour markets were highly dependent on the functioning of only a few enterprises. Besides, the neighbouring areas in the same region relied on activities functionally dependent on these large plants, in case of the traditional industrial sites, or, as was the case in most relatively new industrial areas, were devoted to agriculture. It can be said that during the greater part of the socialist period the most characteristic feature of macro-regional economic inequalities was the North-South division, originating in the mainly industrial character of the North (principally due to important sites of raw materials) and the more agricultural character of the South (NEMES NAGY, J. 1995). However, as mentioned before, both counties situated in the northwest and counties situated in the northeast have suffered from the above described development. How far these counties were able to answer successfully to the challenges of the transition process will be discussed in the next section.

New disparities

The enormous changes launched in the central and eastern European countries at the beginning of the market-oriented reforms, have induced new disparities. Important measures such as the introduction of market-based prices, the drastic reduction of state subsidies and the re-direction of trade to Western economies from CMEA (Council of Mutual Economic Assistance) partners have produced significantly different effects across sectors, occupations and regions. These measures required different employment responses across enterprises in line with factors such as the proportion of costs expounded by labour or energy. In particular the privileged and heavily subsidised heavy industries, which have been hard hit by fierce competition from new trade partners and changes in the orientation of domestic demand, and agricultural activities, as a consequence of the controversial process of land restitution and the breaking up of large state-owned cooperatives into new private entities, are suffering from the economic changes.

To what extent the industrial sector will be able to compete on the world market with the developed market economies depends on a number of factors. It is obvious that an intensive flow of foreign capital will strengthen the industry sector on its way to a more

modern and efficient functioning production structure. But also the availability of an educated, trained and capable labour force as well as large investments in infrastructure are of great importance. It seems that above all the geographical location of the counties is of decisive importance.

The former fundamental regional division, the North-South gap, has been replaced by a West-East division (regions located west and east of the river Danube) (NEMES NAGY, J. 1995; HORVÁTH, G. 1993). The advantages and disadvantages stemming from the geographical location are most manifested in this relation. Not only entrepreneurial activities are highly intensive along the western border, with Austria, South Germany and Northern Italy as possible partner regions (CSÉFALVAY, Z. 1994; RUTTKAY, É. 1995), but those of the individuals too, like job opportunities, shopping behaviour and information gathering. Because of this, the northwestern part of Hungary was capable to switch over to a post-industrial society. In the northeastern part of Hungary, such transborder relations are missing (NEMES NAGY, J. and RUTTKAY, É. 1994; NEMES NAGY, J. 1994). Besides, the uneven spread of foreign capital contributes to a great extent to the new patterns of regional disparities. A good example concerns the direct foreign investments in the auto industry in the western counties. Facilities like Ford, General Motors and Suzuki tend to favour western counties rather than the north-east and rural south where decline had been most severe during the process of economic transformation (SADLER, D. and SWAIN, A. 1994). The Hungarian government lacked the capacity to guide investment projects to particular locations, especially when faced with an array of competing subsidies from other east European states.

It seems that the region of North (eastern) Hungary has the most severe problems in adjusting to the transformation process. These counties not only have to contend with the crisis of the heavy industries, but also with the limited availability of infrastructural services and the heavy environmental burden in certain regions are constraints for the process of modernisation of the production structure. In addition, many workers living in these underdeveloped regions and localities were formerly able to find jobs relatively nearby, in more or less remote towns. Even in 1990, 25 percent of all active wage-earners still worked away from their place of residence. These commuters have tended to lose their jobs more often than others. The suspension of former enterprise contributions to travelling costs has made such remote employment very expensive. This applies in particular for job seekers with few skills who can only hope for poorly paid work NESPOROVA, A. and SIMONYI, A. (1994).

The regional differences in unemployment rates are not likely to change in the near future since vacancies are higher in those regions where unemployment is relatively low. Moreover, there is a shift towards more qualified workers, whereas in many hard hit areas a large number of the population is unskilled. Spatial mobility of workers can not reduce the regional differences due to poor infrastructure and the increasing housing shortages, especially in the big cities where the number of vacancies are the highest (FOTI, K. 1993; NESPOROVA, A. and SIMONYI, A. 1994).

Labour force transitions in Hungary

It is now six years since the state-socialist system collapsed in Central and Eastern Europe and the countries started on their transition towards a developed market economy. In these years the situation on the labour market has radically changed in every country.

An important additional feature is the strong variation of the situation in regional labour markets. As we discussed in the previous section, these increased regional disparities are the result of the so-called old- and new disparities. This section tries to explore in which way the restructuring process has taken place on the regional labour markets of Hungary. In order to study these changes, we distinguish six macro-regions, by clustering the 19 counties and the capital city of Hungary, as follows⁶ (Fig. 3.):

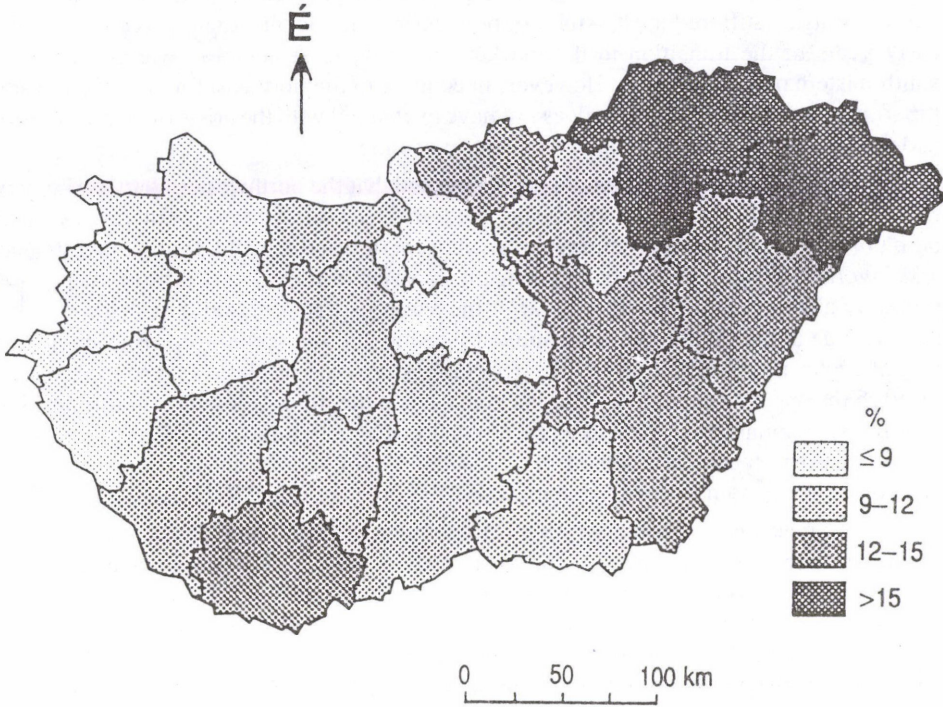


Fig. 3. Division of Hungary in macro-regions

1. Central (Budapest and Pest)
2. North-West (Győr-Moson-Sopron, Komárom-Esztergom, Vas, Veszprém and Fejér)
3. South-West (Zala, Baranya, Tolna and Somogy)
4. North-East (Szabolcs-Szatmár-Bereg, Hajdú-Bihar and Jász-Nagykun-Szolnok)
5. South-East (Bács-Kiskun, Csongrád and Békés)
6. North (Nógrád, Borsod-Abaúj-Zemplén and Heves)

Based on the trends described in the previous section, one could have expected that in particular the south-eastern part of Hungary would have the most severe (labour market) problems. After all, during the socialist regime the focus was on the heavy industry, which

6 This is a distinction, used by, among others, CSÉFALVAY, Z. (1994), NEMES NAGY, J. and RUTTKAY, É. (1994) and NEMES NAGY, J. (1995). We must be aware of the fact that there still exists considerable heterogeneity within these macro-regions

meant that most investments were intended for the northern part of Hungary. Since agriculture dominated the southern part of Hungary investments stayed out. After the transition to the market economy, the east-west contrast came into sight. This contrast originated from the problems in the heavy industry and agriculture in the east and the rapid growth of the private- and mixed sector (due to the large share of foreign direct investments) in the west. On basis of these developments, one may expect that the southeastern part of Hungary suffered most. After all, both during the socialist regime as well as in the early years of the transition to the market economy, least attention was given to the south-eastern part of Hungary. However, in contrast to the northeastern part of Hungary, the southeastern part of Hungary does not have to contend with the crisis of heavy industry and the heavy environmental burden in certain counties.

On the other hand, one would have expected that the northwestern part of Hungary and the capital city Budapest would have the fewest (labour market) problems. This part both enjoyed the investments during the socialist period and the high foreign investments and favorable geographical location near the Austrian border. The south-western part is probably able to perform fairly well, after the less prosperous period during the socialist regime, due to the favourable geographical location and the growth of, for example, the tourist sector near Lake Balaton. The (north)-eastern part of Hungary probably passes through the opposite development. It is expected that the more or less favourable position during the communist period will worsen rather fast as a consequence of the crises of the heavy industry, the infrastructural backwardness, communication gaps and the heavy environmental burden in certain counties NEMES NAGY, J. and RUTTKAY, É. (1994).

The main purpose of this section is to examine some possible remarkable differences between regions as far as the mobility (transitions) between employment and unemployment and vice versa as well as job-to-job mobility is concerned. In the following we will focus in particular on the differences in labour market performance between the Central and North-West on the one side and the North and North-East on the other side. On basis of the above-mentioned development during the socialist period and in the early years of transition, two hypotheses on labour market performance can be formulated:

Hypothesis 1: The Macro-Regions Centre and North-West are the 'winners' of the transition to the market economy; this is, as far as the labour market is concerned, manifested by low inflow probabilities into unemployment, high outflow probabilities out of unemployment as well as above-average participation rates.

Hypothesis 2: The Macro-Regions North and North-East are the main 'losers' of the transition to the market economy; this is, as far as the labour market is concerned, showed by high inflow probabilities into unemployment, low outflow probabilities out of unemployment as well as low participation rates.

Notably, we will check if there exists, in general, large differences between the eastern- and western part of Hungary, as may be expected on basis of the literature. Besides, we try to give some possible explanations for the diverging performance of the regional labour markets, although this is not the main objective of this paper.

To see in which way the different 'macro'-regions adjust to the rapid changes on the labour market, this paper will use four consecutive quarters of the Hungarian Labour

Force Survey of 1995. The Hungarian Central Statistical Office has been conducting a new statistical survey since January 1992 to obtain timely information on the labour force status of the Hungarian population. The so-called Labour Force Survey (LFS) is a sample household survey, which provide quarterly information on non-institutional population aged 15–74. The aim of this survey is to observe the employment and unemployment according to the international statistical recommendations using the concepts and definitions accepted by the International Labour Office (ILO) independently from the existing labour regulations or their changes. In the international practice the labour force survey is a widely used statistical tool to provide simultaneous, comprehensive and systematic monitoring of employment, unemployment and inactivity. The survey techniques minimize the subjective bias in classification (since people surveyed are classified by using strict criteria) and provide freedom to consider the national characteristics as well⁷.

On basis of the labour force survey, three labour market states will be distinguished: employment, unemployment and inactivity. Our choice for these labour market states is partly the result of our wish to start with a relatively simple model. Besides, these three labour market states are in a way basic situations on the labour market. We are in particular interested in the transitions between these three labour market states. A transition should be defined here as a change of labour market status: the moment upon which one moves from labour market state i to labour market state j . This means that in our analyses with three labour market states, six transitions are possible. If we also take the transition from job-to-job, from unemployment-to-unemployment and from inactivity to inactivity, nine transitions are possible. So in all, nine flows are involved in describing the labour market in the following Markovian way:

| Labour Force Status in previous quarter | Labour Force Status in current quarter | | |
|--|--|-------|-------|
| | E_t | U_t | I_t |
| E_{t-1} | EE | EU | EN |
| U_{t-1} | UE | UU | UN |
| I_{t-1} | IE | IU | II |

where, E = employed, U = unemployed and I = inactive. The symbols in the cells stand for the number of workers moving from the indicated state in the previous quarter to a given state in the current one (MARSTON, G. 1976).

The definitions used in the survey follow the International Labour Office (ILO) recommendations. According to this definition, employed persons are persons aged 15–74 who, during the reference week: 1. worked one hour or more for pay, profit or payment in kind in job or business (including farm), 2. worked one hour or more without pay in a family business or on a farm (i.e. unpaid family members) and 3. were employees who had a job from which they were temporarily absent all of survey week (Central Statistical Office, 1995). The unemployed are defined as those persons aged 15–74 who were not

7 It must be mentioned that the LFS is not representative on county level. By making use of macro-regions this problem is partly prevented and in our opinion the most practical and workable solution. For more information on, among other things, the sample design, see Central Statistical Office (1995).

employed during the reference week and: 1. had actively looked for work at any time in four weeks up to the end of the reference week, 2. available for work within two weeks following the reference week or 3. waiting to start a job within 30 days. Persons are defined to be inactive (not in the labour force) if they were neither employed nor unemployed. This sequence of classification guarantees for every person to belong to only one category. *Table 3* gives an overview of the distribution of the three labour market states in the 4 consecutive quarters of the Hungarian labour force survey in 1995.

Table 3. Distribution of the labour force states in the hungarian labour force survey, first quarter 1995 – fourth quarter 1995

| Labour force state | 95. I | 95. II | 95. III | 95. IV |
|--------------------|---------------|---------------|---------------|---------------|
| Employment | 22.975 | 22.789 | 22.757 | 22.687 |
| % | 43.8 | 44.2 | 44.7 | 44.9 |
| Unemployment | 2.943 | 2.771 | 2.732 | 2.629 |
| % | 5.6 | 5.4 | 5.4 | 5.2 |
| Inactive | 26.416 | 25.959 | 25.368 | 25.072 |
| % | 50.4 | 50.3 | 49.8 | 49.7 |
| Missings | 96 | 87 | 96 | 84 |
| % | 0.2 | 0.2 | 0.2 | 0.2 |
| <i>Total</i> | <i>52.430</i> | <i>51.606</i> | <i>50.953</i> | <i>50.472</i> |
| % | <i>100.0</i> | <i>100.0</i> | <i>100.0</i> | <i>100.0</i> |

We are very well aware of the fact that the data of the Hungarian Labour Force Surveys of 1995 give only an instantaneous picture of the restructuring process on the Hungarian (regional) labour markets. Nevertheless, we assume that the results of our examination can tell us for which the restructuring process on the regional labour market has led to. Besides, we are able to draw conclusions regarding the actual situation of, and also differences between, the regional labour markets.

Table 4 gives the distribution of the Labour Force States in the Hungarian Labour Force Survey by Region. It is striking that the percentage of employed people is above-average in the three western regions. As far as the unemployment figures are concerned, it is striking that this percentage is very low for the southeastern region. The northern region and the northeastern region show the highest unemployment percentages. As may be expected, the inactivity percentages are highest in the eastern located regions. On basis of this table, it can not be concluded that there is a clear east-west contrast. One could state that there is a clear contrast between one the one hand the northern region, and to a lesser extent the northeastern region, and on the other hand the remainder of the country.

Following MARSTON, G. (1976), THEEUWES, J. KERKHOFS, M. and LINDEBOOM, M. (1987) and STEINER, V. and KWIATKOWSKI, E. (1995), to get some insight on the relative importance of the flows between the three labour force states, *Table 5* shows the empirical transition probabilities based on the information contained in *Table 1*. The transition probabilities are computed as follows: If we divide the aggregated quarterly transitions of labour market state i in period $t-1$ to labour market state j in period t by the number of persons in labour market state i in period $t-1$, then we get the quarterly transition probabilities P_{ij} ($i, j =$ employment, unemployment, inactivity) (THEEUWES, J.,

KERKHOFS, M. and LINDEBOOM, M. 1987). In this way we have computed the transition probabilities on the basis of the four consecutive quarters of the Hungarian Labour Force Survey. For example, 410 of all employed people in the first quarter of 1995 (1.78%) left the employment state between the first and second quarter of 1995; of these, 155 became unemployed and 255 dropped out of the labour force implying transition probabilities into these two states of 67 and 1.11 respectively. As far as quarterly transition probabilities are affected by seasonal factors, changes in these probabilities within the observation period do not represent a genuine structural change. To account for seasonal and other irregular effects, also the average transition probabilities are given (see also STEINER, V. and KWIATKOWSKI, E. 1995).

Table 4. Distribution of the labour force states in the hungarian labour force survey 1994 by macro-regions, first quarter 1995 – fourth quarter 1995

| Quarter | Central | North-West | South-West | North-East | South-East | North | Total |
|--------------|---------|------------|------------|------------|------------|-------|-------|
| Employment | | | | | | | |
| Quarter 1 | 48.1 | 47.3 | 44.2 | 39.2 | 42.2 | 40.0 | 43.9 |
| Quarter 2 | 48.8 | 47.5 | 44.2 | 39.8 | 43.0 | 39.8 | 44.2 |
| Quarter 3 | 48.9 | 48.3 | 44.6 | 40.6 | 44.0 | 39.8 | 44.7 |
| Quarter 4 | 49.3 | 48.3 | 45.2 | 40.4 | 44.6 | 40.3 | 45.0 |
| Unemployment | | | | | | | |
| Quarter 1 | 4.1 | 5.1 | 5.9 | 6.9 | 4.9 | 7.7 | 5.6 |
| Quarter 2 | 3.7 | 4.8 | 5.5 | 6.3 | 4.8 | 7.9 | 5.4 |
| Quarter 3 | 3.9 | 4.8 | 5.4 | 6.0 | 4.8 | 8.0 | 5.4 |
| Quarter 4 | 4.0 | 4.5 | 5.0 | 6.1 | 4.5 | 7.8 | 5.2 |
| Inactivity | | | | | | | |
| Quarter 1 | 47.9 | 47.6 | 49.9 | 53.9 | 53.0 | 52.3 | 50.5 |
| Quarter 2 | 47.5 | 47.7 | 50.2 | 53.9 | 52.2 | 52.3 | 50.4 |
| Quarter 3 | 47.2 | 46.9 | 50.0 | 53.4 | 51.2 | 52.1 | 49.9 |
| Quarter 4 | 46.7 | 47.2 | 49.8 | 53.5 | 50.9 | 51.9 | 49.8 |

Table 5. Quarterly empirical transition probabilities between labour force states. Hungary, first quarter 1995 - fourth quarter 1995

| Quarter | P_{eu} | P_{ei} | P_e | P_{ue} | P_{ui} | P_u | P_{ie} | P_{iu} | P_i |
|----------------------|----------|----------|-------|----------|----------|-------|----------|----------|-------|
| 95. I–95. II | 0.67 | 1.11 | 1.78 | 10.26 | 3.50 | 13.76 | 1.16 | 0.38 | 1.54 |
| 95. II–95. III | 0.75 | 1.18 | 1.93 | 9.96 | 4.22 | 14.18 | 1.27 | 0.65 | 1.92 |
| 95. III–95. IV | 0.64 | 1.19 | 1.83 | 8.75 | 4.65 | 13.30 | 0.89 | 0.50 | 1.39 |
| Average 95. I–95. IV | 0.69 | 1.16 | 1.85 | 9.66 | 4.12 | 13.78 | 1.11 | 0.51 | 1.62 |

Note: P_{eu} means the transition probability from the labour market state employment (state of origin) to labour market state unemployment (state of destination). P_e means the total outflow probability out of employment, e.g. $P_e = P_{eu} + P_{ei}$.

It is striking that the transition probabilities from employment into inactivity are much higher than from employment into unemployment. It seems that the wide-spread

use of early retirement schemes as well as disability pensions still play an important role in the Hungarian restructuring process. Nevertheless, the transition probabilities from inactivity into employment are also high. Probably, this are mainly schoolleavers who, for the first time, enter the labour market. The transition probabilities from employment and inactivity into unemployment are very low. The outflow probabilities from unemployment are relatively high. Besides, a considerable share of this outflow ends in inactivity rather than in employment. One must notice that the unemployment rate decreased in 1995 in Hungary. If we undertake the four waves of the Hungarian Labour Force Survey as a pure panel, the respective survival rates are for employment 94.17, for inactivity 94.75 and for unemployment 60.94. This means that of all people who were unemployed in the first quarter of 1995, almost 61 per cent still were unemployed in the fourth quarter of 1995.

Table 6 shows the transition probabilities for the six distinguished macro-regions. If we compare the (average) transition probabilities of *Table 6* it is obvious that the (average) transition probabilities from employment to unemployment are in case of the northeastern part, the northern part and the south-western part of Hungary much higher than the national average. Besides, the high transition probabilities from employment to inactivity for the north-eastern part are striking, but we also observe a substantial flow in the opposite direction. As regards the (average) transition probabilities from unemployment to employment, also the southwestern part, the northeastern part and the northern part of Hungary show the least promising picture. Of these regions the northern region performs obvious worst. On basis of these results it can be concluded that the situation for the unemployed has relatively deteriorated in the northeastern part during 1994, in comparison with Hungary as a total. Nevertheless, as mentioned before, over 1995 the unemployment rate decreased. In particular in Komárom and in Jász-Nagykun the unemployment rates decreased considerably (*Table 1.*). However, both the northeastern counties, Borsod and Szabolcs, still face very high unemployment rates. Another striking result in *Table 5* concerns the above-average transition probabilities from employment to unemployment in the southwestern region. However, in contrast to the northeastern part of Hungary, this macro-region faces also above-average transition probabilities from unemployment to employment. The south-eastern part performs as far the flow from employment to unemployment and vice versa equally to the central region. However, the inflow to inactivity is in the south-eastern region more extensive.

If we match these results with our hypotheses, we can conclude that indeed the Macro-Regions Centre and North-West show the lowest transition probabilities from employment into unemployment as well as the highest outflow probabilities from unemployment into employment. It is remarkable that the south-eastern part of Hungary also displays a very low transition probability from employment into unemployment as well as an above-average transition probability from unemployment into employment. Also our second hypotheses appears to be correct. The northern- and northeastern region show above-average transition probabilities from employment into unemployment, although the southwestern region performs even worse than the northeastern region. The transition probabilities from unemployment into employment are by far the lowest in the northern- and northeastern region, which points out to a large share of long-term unemployed in the unemployment pool.

Table 6. Average empirical transition probabilities between labour force states by macro-regions, first quarter 1995 – fourth quarter 1995

| Macro-regions | P_{eu} | P_{ei} | P_e | P_{uc} | P_{ui} | P_u | P_{ic} | P_{iu} | P_i |
|----------------|----------|----------|-------|----------|----------|-------|----------|----------|-------|
| 95. I – 95. IV | | | | | | | | | |
| Central | 0.45 | 0.76 | 1.21 | 10.14 | 3.05 | 13.19 | 0.85 | 0.38 | 1.19 |
| North-West | 0.67 | 1.12 | 1.79 | 11.85 | 5.22 | 17.07 | 1.28 | 0.55 | 1.83 |
| South-West | 0.85 | 1.12 | 1.97 | 9.73 | 5.20 | 14.93 | 1.08 | 0.53 | 1.61 |
| North-East | 0.79 | 1.69 | 2.48 | 8.85 | 3.95 | 12.80 | 1.46 | 0.58 | 2.04 |
| South-East | 0.56 | 1.10 | 1.66 | 10.58 | 3.99 | 14.57 | 1.01 | 0.44 | 1.45 |
| North | 0.99 | 1.44 | 2.43 | 7.81 | 3.51 | 11.32 | 0.95 | 0.66 | 1.61 |

Note: P_{eu} means the transition probability from the labour market state employment (state of origin) to labour market state unemployment (state of destination). P_e means the total outflow probability out of employment, e.g. $P_e = P_{eu} + P_{ei}$.

Table 7 shows the distribution of employment by type of organisation. Despite the fact that it is already more than six years ago that the state-socialist system collapsed in Central and Eastern Europe and Hungary started on his transition towards a developed market economy, the restructuring process is still taken place, given the changes in organization types. The state sector is most extensive in the centre, although we notice here a large decline. The high but declining share of the state sector in the centre reflects the overwhelming concentration of economic control functions in Budapest. Mentioned can be here health care, education, culture, research and government BARTA, GY. (1992). The central region experiences also an above-average share of the private sector in the total economy. This is increasingly being associated with a concentration of service sector activities, including finance, insurance and banking. This means that the mixed sector and the co-operatives are relatively underrepresented in the total economy of the central region. It appears to be remarkable that the share of the private sector in the total economy of the north-western region is, with the exception of the northern region, the lowest. However, we can notice a very high share of the mixed sector in this region, partly as a result of the increasing number of joint ventures in, for example the auto industry. In particular the per centage of plant and machine operators and assemblers is above the national average. The northern region also experiences a high share of the mixed sector in the total economy. As a matter of fact, given the length of time, the enormous increase of the mixed sector and the halving of the co-operatives can be mentioned sensational. Finally, it can be perceived that the share of the private sector as well as the share of the co-operatives in the total economy is highest in the south-eastern region. This high share of the private sector and the co-operatives is mainly due to the high per centage of skilled agricultural and forestry workers, respectively around 25 and 30 per cent.

As far as the transitions between the types of organisations are concerned, there can be observed some interesting differences, in particular if it concerns the inflow probabilities into the mixed sector⁸. As we can see in Table 8, the individual transition probabilities from the state sector to the mixed sector are in the northeastern region and the northern

8 Here we must take into account that the transitions between on the one hand the state sector and co-operatives and on the other hand the private sector and mixed sector can imply the move of an individual between the types of organisations or the (partial) privatization of a co-operative or state-owned enterprise. Because of this and because of the fact that the number of transitions are in general very low, conclusions following from this table must be handled carefully.

region above-average. These regions take care of almost 60 per cent of all transitions from state sector to the mixed sector. Also the transition probabilities from the private sector to the mixed sector are in case of the northwestern- and the northern region far above-average. Finally, the most extensive flow in absolute figures, for Hungary as a total, concerns the flow from the co-operative sector to the mixed sector. In the three northwestern-, northeastern- and northern region an above-average flow can be detected. For the northern region this flow is almost three times the national average and almost one third of the total transitions from the co-operative sector to the mixed sector. Finally, also a considerable flow from the mixed sector to the private sector can be mentioned. In particular in the northeastern region this flow is above national average.

Table 7. Employment by organization by macro-region, Hungarian Labour Force Survey, first quarter - fourth quarter 1995

| Macro-regions | State | | Private | | Co-operative | | Mixed | | Clerical etc. | |
|---------------|-------------|-------------|-------------|-------------|--------------|------------|-------------|-------------|---------------|------------|
| | I | IV | I | IV | I | IV | I | IV | I | IV |
| Central | 45.0 | 41.4 | 32.5 | 34.9 | 8.8 | 5.3 | 11.1 | 14.7 | 1.3 | 1.7 |
| North-West | 33.1 | 31.8 | 26.5 | 27.7 | 11.8 | 8.4 | 24.5 | 29.2 | 3.0 | 1.3 |
| South-West | 36.6 | 35.4 | 33.9 | 35.5 | 15.1 | 9.7 | 12.8 | 17.4 | 1.2 | 1.3 |
| North-East | 38.4 | 35.5 | 31.7 | 33.9 | 16.5 | 10.5 | 11.5 | 17.8 | 1.1 | 0.8 |
| South-East | 35.4 | 31.3 | 34.1 | 36.1 | 14.3 | 11.8 | 14.7 | 19.2 | 1.0 | 0.7 |
| North | 40.2 | 36.3 | 26.5 | 27.6 | 12.6 | 5.6 | 18.9 | 29.1 | 0.8 | 0.7 |
| <i>Total</i> | <i>38.5</i> | <i>35.6</i> | <i>30.8</i> | <i>32.6</i> | <i>12.7</i> | <i>8.3</i> | <i>15.7</i> | <i>21.0</i> | <i>1.5</i> | <i>1.2</i> |

*Table 8. Average individual transition probabilities within the labour force state employment by macro-regions, first quarter 1995 - fourth quarter 1995**

| Macro-regions | SCES | SCEP | SCEM | PCEP | PCEM | CCEC | CCEP | CCEM | MCEP |
|----------------|--------------|-------------|-------------|--------------|-------------|--------------|-------------|-------------|-------------|
| 95. I - 95. IV | | | | | | | | | |
| Central | 99.02 | 0.32 | 0.40 | 99.52 | 0.16 | 95.41 | 1.60 | 1.92 | 0.53 |
| North-West | 99.00 | 0.33 | 0.56 | 98.46 | 1.11 | 91.11 | 1.83 | 5.92 | 0.54 |
| South-West | 99.13 | 0.36 | 0.36 | 99.38 | 0.35 | 92.91 | 1.77 | 4.32 | 0.18 |
| North-East | 98.24 | 0.58 | 1.02 | 99.08 | 0.57 | 91.88 | 1.99 | 5.05 | 1.15 |
| South-East | 99.09 | 0.49 | 0.23 | 99.34 | 0.40 | 96.92 | 1.12 | 1.77 | 0.44 |
| North | 97.34 | 0.51 | 1.89 | 99.04 | 1.56 | 81.94 | 2.26 | 14.80 | 3.38 |
| <i>Total</i> | <i>98.70</i> | <i>0.41</i> | <i>0.70</i> | <i>99.05</i> | <i>0.61</i> | <i>92.33</i> | <i>1.73</i> | <i>5.05</i> | <i>0.53</i> |

* Only the main transitions are displayed in Table 8.

e.g. *SCES* means a transition from state sector to state sector, *20P* means private sector, *M* means mixed sector, *C* means co-operative sector.

A simple Markov-model

In this paragraph we will use the data from the quarterly transitions for the completion of a simple dynamic model. This model enables us to compute the stationary

distribution of the three labour market states. This means that we consider the figures mentioned in *Table 3* and *Table 4* as estimates of the transition probabilities P_{ij} . These estimates must also be accompanied by standard errors. These are defined as:

$$((\sqrt{P_{ij} * (1 - P_{ij})})/N_i),$$

where N_i = the number of observations in the outflow situation. Only in a limited number of cases, in particular the transitions from unemployment into employment, the standard error is relatively large (≈ 0.016).

If we use the estimated probabilities P_{ij} for the transition of labour market state i , observed in quarter $t-1$, to labour market situation j , observed in quarter t , the following relation between the distribution of the sample population over the three labour market states in both quarters can be linked up:

$$\begin{aligned} E(t) &= P_{ee}(t) * E(t-1) + P_{ue}(t) * U(t-1) + P_{ie} * I(t-1) \\ U(t) &= P_{eu}(t) * E(t-1) + P_{uu}(t) * U(t-1) + P_{iu} * I(t-1) \\ I(t) &= P_{ei}(t) * E(t-1) + P_{iu}(t) * U(t-1) + P_{ii} * I(t-1), \end{aligned} \quad (1)$$

where $E(t)$ = employment on time t , $U(t)$ = unemployment on time t , $I(t)$ = inactivity on time t .

The system that is described in the three equations is called the first order Markov-process. The Markov-process describes the distribution of the population over the states in period t as a simple linear function of the distribution of the labour market states one period ago. In case an initial distribution of the labour market states is given for, for example, period $t = 0$, it is possible to compute by means of the transition probabilities $P_{ij}(t)$ the distribution of the labour market states from period 1 up to as far as we would like. Therefore, we have to solve the system of equations (1) recursively over time. In this way we obtain the time paths for unemployment, employment and inactivity THEEUWES, J., KERKHOFS, M. and LINDEBOOM, M. (1987).

The most important elements are the estimated transition probabilities P_{ij} . In the first-order Markov-process (1), it is assumed that these are constant over time. *Table 2* showed us that the transition probabilities varied over time. In case we want to use the Markov-system (1), it is necessary to have this time-dependence under control. This can be done by relating the transition probabilities to a set of exogeneous variables and subsequently using these future values of the exogeneous variables for the prediction of the time paths MARSTON, G. (1976). Besides, if we assume that transition probabilities between labour market states follow a simple Markov process, this implies that the transition probabilities only depend on the the state of origin (and a set of exogeneous variables), but not on the history of the process. This assumption is rather restrictive since it rules out certain potentially importnat state dependance effects in individual labour force behaviour which may be especially importnat for the explanations of the dynamics of the

labour market STEINER, V. and KWIATKOWSKI, E. (1995). However, because this section must be seen as a first start, we will solve this problem in a very simple way⁹. We will use the average transition probabilities as the estimations of the considered stable P_{ij} 's.

Given that flows into and out of the various labour force states are in balance, i.e. stocks do not change, and that the transition probabilities do not depend on the the history of the process, the equilibrium distribution of the labour force among the alternative states only depends on the various transition probabilities and not on the initial state distribution. In an equilibrium- or stationary- distribution, it applies that:

$$e(t) = e(t-1) ; u(t) = u(t-1) ; i(t) = i(t-1)$$

In an equilibrium situation, the inflow into unemployment out of employment and inactivity is equal to the outflow out of unemployment to employment and inactivity:

$$P_{eu} * e^* + P_{iu} * i^* = (P_{ue} + P_{ui}) * u^* \quad (2)$$

The stars (*) indicate the equilibrium levels of the three labour market states. Analogous to unemployment, for employment applies:

$$P_{ue} * u^* + P_{ie} * i^* = (P_{eu} + P_{ei}) * e^* \quad (3)$$

We are also able to write down a similar equation for the labour market state inactivity. This equation is not independent to the other two equations. After all, the sum of the three labour market states counts to 1.

$$e^* + u^* + i^* = 1 \quad (4)$$

Equations (2), (3) and (4) can now be solved for e^* , u^* and i^* . If we fill in the corresponding values for the transition probabilities P_{ij} into every row of equation (1), we obtain the equilibrium solutions (*Table 9*). The definitions for the unemployment rate ru and the participation rate p are easily to compute on basis of this labour force distribution:

$$ru = u/(u + e)$$

$$p = u + e$$

On basis of *Table 9*, it is obvious that their is a clear difference between on the one hand the macro-regions Centre and North-West and, in particular, on the other hand the macro-regions North and North-east. We can observe that the stationary or equilibrium employment per centages are much higher in the Centre and the North-West of Hungary, whereas the stationary or equilibrium unemployment and inactivity per centages are much

9 For a short description of the technical aspects of simple Markov-models, we refer to AMAMIYA, S. (1985).

lower. The equilibrium employment, unemployment and inactivity per centages are in the southern located regions in general equal to the national average. The most interesting equilibrium per centage is without doubt the unemployment rate ru^* . On basis of these per centages, we can observe that in particular the northern region will have great difficulties in fighting unemployment. In addition, the northern region shows the lowest participation rate.

Table 9. Equilibrium- or stationary labour market distributions by macro-regions, Hungary 1995.

| Macro-regions | E* | U* | I* | RU* | P* |
|---------------|-------------|------------|-------------|------------|-------------|
| Central | 54.6 | 3.0. | 42.4 | 5.2 | 57.6 |
| North-West | 53.8 | 3.5 | 42.7 | 6.1 | 57.3 |
| South-West | 47.9 | 4.4 | 47.7 | 8.4 | 52.3 |
| North-East | 46.6 | 5.1 | 48.3 | 9.9 | 51.7 |
| South-East | 49.8 | 3.3 | 46.9 | 6.2 | 53.1 |
| North | 43.2 | 6.7 | 50.1 | 13.4 | 49.8 |
| <i>Total</i> | <i>49.7</i> | <i>4.2</i> | <i>46.1</i> | <i>7.8</i> | <i>53.9</i> |

Conclusions

The aim of this paper was to acquire a better understanding of the processes which took place on the regional labour markets in Hungary. Therefore, transitions between and within several labour market states were analyzed on basis of the Hungarian Labour Force Survey of 1995. On the basis of this survey it can be concluded that the restructuring process on the regional labour markets still takes place, however, with different speeds. In particular in the northern and northeastern regions the restructuring process is going on rapidly. We have seen that in both macro-regions considerable mobility exists between labour market states; The outflow probabilities out of employment into unemployment are highest in both macro-regions. However, the unemployed are in a less favourable position since the outflow probabilities out of unemployment into employment are the smallest. This means that it is very difficult for the unemployed living in these counties to get out of the unemployment pool. Consequently, the share of long-term unemployment (>12 months) in total unemployment is highest in these regions.

This paper demonstrated also that mobility within the labour market state employment is most extensive in the three northern regions. Especially, the transition probabilities from the state sector, the private sector and the co-operative sector to the mixed sector were above-average. On the basis of these results, it appears that the restructuring process is still going on in this part of the country. On the other hand, the centre region and the south-eastern region showed the slightest transition probabilities within the labour market state employment.

It is clear that the transition process has not led to a distinct east-west division. It appears to be that the southeastern part of Hungary performs better than the northern region and the northeastern region and, in general, performs equally to the southwestern region of Hungary. The low mobility in the southeastern part may also be attributed to the possibility that the transformation process did and still does not take place in a consistent

way. Of course we have to notice that the above-mentioned results only give information of 1995. Nevertheless, the results show a promising picture for the southeastern part of Hungary. This paper raised also a lot of interesting questions. For example, what are the exact reasons behind the relatively apparent successful development of the southeastern region? What are the perspectives for the northern and northeastern regions and what are the chances for the long-term unemployed, in particular in these weaker developed regions? Besides, it is a challenge to elaborate further the link between the described old- and new disparities with the still ongoing restructuring process on the regional labour markets.

REFERENCES

- BARTA, GY. 1992. The Changing Role of Industry in Regional Development and Regional Development Policy in Hungary. – *Tijdschrift voor Economische en Sociale Geografie (TESG)* 1983, No. 5, pp. 372–379.
- BOERI, T. 1994a. Labour market flows and the persistence of unemployment in Central and Eastern Europe. – In: *Unemployment in transition countries: Transient or persistent?*, OECD, Paris.
- BOERI, T. 1994b. 'Transitional' Unemployment. – *The Economics of Transition*, Volume 2, No. 1, pp. 1–25.
- BURDA, M. 1993. Unemployment, Labour Markets and Structural Change in Eastern Europe, *Economic Policy*, No. 16, pp. 101–138.
- Central Statistical Office 1995. *Labour Force Survey 1994 (Annual Report)*. Budapest, 1995.
- CSÉFALVAY, Z. 1994. The Regional Differentiation of the Hungarian Economy in Transition. – *GeoJournal* 32.4, pp. 351–361.
- DORENBOS, R. J. 1996. Werkgelegenheid, werkloosheid en inactiviteit in Hongarije en Polen (Employment, unemployment and inactivity in Hungary and Poland. – *Oost-Europa Verkenningen*, mei 1996, pp. 25–36.
- DÖVÉNYI, Z. 1993. Unemployment as a new phenomenon of the transition. – Unpublished, Budapest.
- DÖVÉNYI, Z. 1994. Transition and Unemployment - The Case of Hungary. – *GeoJournal*, 32.4, pp. 393–398.
- European Commission 1995. *Employment Observatory: Central and Eastern Europe*. – *Employment Trends and Developments*, No. 8, November 1995.
- FÓTI, K. 1993. *Rising Unemployment in Hungary: Causes and Remedies*. – Institute for World Economics, Hungarian Academy of Sciences, working paper No. 24, August 1993.
- GODFREY, M., LÁZÁR, G. and O'LEARY, C. 1993. Report on a survey of unemployment and active labour market programmes in Hungary, ILO/Japan project on employment policies for transition in Hungary, Budapest.
- HORVÁTH, G. 1993. Restructuring and Interregional Cooperation in Central Europe: the case of Hungary. – In: CAPPELLIN, R. and BATEY, P. W. J. (eds.), *Regional Networks, border regions and European Integration*, PION, London, pp. 157–176.
- JACKMAN, R. 1994. Economic policy and employment in the transition economies of Central and Eastern Europe: What have we learned?. – *International Labour Review*, Vol. 133, No. 3, pp. 327–345.
- JACKMAN, R. 1995. *Economic Policies, Employment and Labour Markets in Transition in Central and Eastern Europe*. – Central for Economic Performance, Discussion Paper No. 265, London.
- KENNIS, J. and SCHLUTER, M. Hongarije: land van de twee snelheden? De gevolgen van de transitie naar een markteconomie op de regionale economische ontwikkeling (Hungary: country of two velocities? The consequences of the transition to a market economy for the regional economic development. – *Verslagen van Leeronderzoek G and P*, Faculteit Ruimtelijke Wetenschappen, Rijksuniversiteit Utrecht, Juli.

- KÖLLŐ, J. 1993a. Flows of Labour, Employment and Wages in the Private Sector in Hungary: A Review of the Scarce Statistical Evidence. – Draft presented at the Second workshop on Labour Markets in Transitional Socialist Economies, Stirling, Development Institute of the World Bank.
- KÖLLŐ, J. 1993b. Background paper on Unemployment and unemployment-related expenditures. – The Blue Ribbon Commission: Budget and Social Policy Project, Budapest.
- MADDALA, G. S. 1983. Limited-Dependent and Qualitative Variables in Econometrics, Econometric Society. – Monograph in Quantitative Economics, Cambridge University Press, Cambridge.
- NEMES NAGY, J. 1994. Regional Disparities in Hungary during the period of Transition to a Market Economy. – *GeoJournal* 32.4, pp. 363–368.
- NEMES NAGY, J. 1995. Regional Aspects of transition: development, problems and policies. – The Vienna Institute Monthly Report, The Vienna Institute for Comparative Economic Studies (WIIW). 1995–I.
- NEMES NAGY, J. and RUTTKAY, É. 1994. Regional Dimensions of the Hungarian Economic Transition. – Paper presented at the 34th European Congress of the Regional Science Association, Groningen, 23–26 August 1994.
- NESPOROVA, A. and SIMONYI, A. 1994. Labour Market Developments in Hungary. – International Labour Organisation, Central and Eastern European Team, Budapest.
- OECD 1995. Regional Unemployment in Central and Eastern Europe. – Paris.
- OURS, J. VAN 1990. An International Comparative Study on Job Mobility. – *Labour: Review of Labour Economics and Industrial Relations*, Vol. 4. No.: 3, pp. 33–55.
- RUTTKAY, É. 1995. Borders and Border Regions (a case study: Hungary). – Paper presented at the 35th European Congress of Regional Science Association, Odense, 21–25 August 1995.
- SADLER, D. and SWAIN, A. 1994. State and market in eastern Europe: regional development and workplace implications of direct foreign investment in the automobile industry in Hungary. – In: *Transactions, Institute of British Geographers (IBG)*. pp. 387–403.
- STEINER, V. and KWIATKOWSKI, E. 1995. The Polish Labour Market in Transition. – Zentrum für Europäische Wirtschaftsforschung GmbH, Discussion Paper No. 95–03.
- THEEUWES, J., KERKHOF, M. and LINDEBOOM, M. 1987. Toestanden, Overgangen en Duren op de Nederlandse Arbeidsmarkt 1980–1985. – OSA-werkdocument nr. W49, 's Gravenhage.
- VISSERS, A. M. C. 1979. Mobiliteit op de Arbeidsmarkt: een literatuurstudie, Tilburg, Instituut voor Sociaal-Wetenschappelijk Onderzoek