Employment in Poland 2006: productivity for jobs

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Introduction

This book constitutes a follow-up and extension of the publication of the Ministry of Economy and Labour entitled *Employment in Poland 2005*. In the pages of this report, we discuss problems which were not addressed, or which were merely touched upon, in the previous issue and which are of particular importance as from the beginning of the year 2007 which saw the emergence of new challenges for the Polish economy and for the Polish labour market. These challenges are brought about by the process of globalisation and of European integration. Hence, we have put a lot of focus on the aspect of demand in the labour market and especially so from the macroeconomic and regional perspectives. Moreover, we have looked at how increasing productivity and competitiveness of Polish companies shape various unemployment, employment and remuneration trends. We also address the issue of labour supply which we analyse not only from the macroeconomic and regional points of view but which we assess with an emphasis on such current matters as migration or work in the non-observed economy.

Similarly to preceding issue, this issue of Employment in Poland is above all a scientific paper which synthesises empirical and theoretical macroeconomic evidence with recent findings of relevant empirical research. It was completed thanks to the cooperation of the Department of Economic Analyses and Forecasts of the Ministry of Labour and Social Policy, on the one hand, and the Institute for Structural Research, on the other. It is addressed, however, not only to researchers working in the field of macroeconomics but also policy-makers, who shape and implement economic policies, including the labour market policy, at national, regional and local levels. The authors hope that the analytical framework presented in the report as well as the conclusions relevant for the labour market, which were formulated on the basis of this framework, will be considered a valuable contribution to the discussion on the optimal extent and scope of public intervention in Poland.

This report consists of four parts. In the first part, we look at the Polish economy from the macroeconomic point of view and analyse the labour markets in eight – out of ten – states which joined the European Union in May 2004. In this venture, we focus on identifying those aggregate disturbances which had a decisive influence on the economic fluctuations within the CEE region in the period 1994--2005, and we assess to what extent these disturbances are responsible for different dynamics of unemployment and employment trends in the examined countries and to what extent different fiscal and monetary approaches adopted at that time contributed to remedy these disturbances. The key finding resulting from this analysis is that the relatively most significant decrease in employment and increase in unemployment levels in Europe, which came about in Poland after the year 2000, are due to the idiosyncratic, i.e. limited to only one country, decrease in return on capital and total factor productivity [TFP] dynamics. We evidence in this report that other countries in the CEE region managed to swiftly eliminate the negative effects that the financial crises of the late 1990s exerted on their economies, whereas Poland was not able to overcome the economic slow-down or to improve the situation in its labour market in the period 2001-2002 without an earlier large-scale reallocation of resources in the entire economy. We also postulate that, although the policy-mix adopted in the above period was not the immediate cause for the economic decline, its role in accommodating the shock was probably moderately negative. One important conclusion of this part is that evolving employment and unemployment trends for prime-aged individuals are determined above all by economic factors whereas the participation rate for over-55-year-olds in Poland – the lowest in Europe – is due to the social policy model adopted in Poland. Hence, if this model is not essentially modified, Poland will not be able to catch up in terms of employment levels not only with the old EU member states but also with most of the new ones.

Part II is devoted to the analysis of regional differences in the labour market in Poland in the period 2000-2005. We look at six internally homogeneous groups of *poviats* (NUTS4 regions) which we symbolically label as follows: *Development Centres* (*Centra rozwoju*), *Suburbs* (*Suburbia*), *Towns* (*Miasta*), *Former state farms* (*Byłe PGR)*, *Low-productivity agriculture* (*Niskoproduktywne rolnictwo*) and Agricultural and Industrial (*Rolniczo-przemysłowe*). On the one hand, we analyse aggregate data, on the other, we identify microeconomic factors affecting trends in job creation and destruction. It ensues from our analysis that in the period 2000-2005 no significant changes in the labour market indicators occurred either between particular groups or between voivodeships (NUTS2 regions). This is so because the

direction and depth of fluctuations on the regional scale were generally shaped by aggregate shocks which affected the economy as a whole. Moreover, the above period saw a greater differentiation in terms of productivity and thus, in most parts of Poland, increasing employment and unemployment rates are due to the development of labour-intensive manufacturing. *Development centres* together with their surrounding *Suburbs* constitute one positive exemption. Poviats from the above groups not only exhibit relatively good the situation in the labour market but they also experience the fastest modernisation of the economic structure and the highest productivity, and therefore also wage dynamics. We argue that, for the time being, it is only the largest urban conglomerations that have adopted the development model which increases the probability of maintaining fast economic growth in medium and long term. Therefore, the Polish labour market as a whole remains very vulnerable to economic fluctuations.

In Part III we focus on spatial mobility of population. Firstly, we discuss important – from the local and regional points of view – phenomena such as internal migration and commuting, and secondly, we look at the increasingly relevant phenomenon Europe-wide, namely international migration. In both cases we demonstrate that economic determinants are of key significance when decisions about changing place of residence are made and that the key incentive to migrate is higher wages in the destination location and a relatively worse situation in the labour market in the region of origin. Part III also presents our estimates of the scale of international migration in Poland, which indicate that the number of people who stayed abroad for more than two months in the year 2005 was higher by approximately 165,000-379,000 thousand compared to the situation before the EU enlargement in 2004. However, this abrupt increase in the number of emigrants was to be observed only immediately after Poland's accession to the EU. Moreover, we point out in Part III that irrespective of the fact that international migration is mostly seasonal and that emigrants retain strong ties with their homeland, for years Poland has been a country from which relatively numerous groups of young people depart for long periods to work abroad. The only effective remedy to stop this process is a rapid increase in productivity and income levels in Poland and a dynamic modernisation of the Polish economy. As for internal migration, we argue that its aggregate intensity is neither the highest in Europe nor as low as it is often claimed to be. Furthermore, we emphasise that although the general model of population movements from smaller to larger conglomerates remains valid, the limited intensity of these movements results in the process of urbanisation being slow and in *Development Centres* and *Suburbs* being less numerous in terms of population than in other EU member states. In the long run, this may constitute an obstacle for real convergence to the most developed EU countries.

Part IV looks at the problem of work in the non-observed economy (NOE). Considering that it is de facto impossible to precisely measure the non-observed economy and that various methods lead to different outcomes, which value the NOE output at 15-30 per cent of the GDP, our analysis focuses on presenting factors that lead to the emergence of undeclared work and on the consequences that this phenomenon has on the economy and on the labour market on micro- and macro scale. We attach particular attention to the fact that NOE can be perceived both positively and negatively. On the one hand, undeclared work means jobs for those who want to work but who cannot, for various reasons, find work in the official market. On the other hand, however, undeclared work is a cause for high tax rates imposed on those legally employed. Moreover, it enhances the free-rider effect and thus renders difficult the implementation of social policy aimed at helping those who really have no source of income. The most important conclusion of Part IV is that the reasons for the existence of the grey economy are to be sought both in the overly burdensome fiscal policy of the state and in economic regulations which are not only excessive but above all unsuited to social expectations. Therefore, one way to reduce the extent of the grey area is to eliminate these obstacles.

The phenomena identified in particular parts are juxtaposed in the final part of this report, in the conclusions and implications for the labour market policy. These findings are intended to indicate possible directions of desired change in all areas, to the extent that these proposals are sufficiently supported by the presented analyses. Particular emphasis is placed on demonstrating links between such seemingly distant areas as macroeconomics, regional development, migration policy and campaign against the black economy, as well as on the fact that any intervention in one area must account for consequences that it may cause in another one, which means that it is necessary to look at labour market policy from the angle of broader coordinated and development oriented economic policy.

Part I. Labour Market in macro perspective

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Introduction

A number of the most significant and socially disruptive problems of the Polish economy are directly related to the current situation in the labour market. This applies both to low employment and participation rates, which decrease the output that could potentially be generated in the economy, as well as to high unemployment which is the core reason for enduring poverty of numerous families in Poland. However, the last three years have brought many positive changes in this area, enabling to partly counteract the effects of the adverse phenomena which arose in the years 1998-2003.

Therefore, we begin this part of the report by scrutinising the latest developments in the Polish labour market, by looking at their causes and indicating which socio-economic groups benefit most from the present economic upturn and which groups enjoyed only a slight improvement in their position in the labour market. A description of these trends is a point of departure for the assessment of how increasing employment and decreasing unemployment have improved the picture of the Polish labour market in relation to other European Union member states and in particular in relation to those states which joined the EU along with Poland in May 2004. We point out the key features common for the NMS8 as well as the crucial differences between them. Consequently, we reflect on the question of when and why the Polish labour market began to negatively distinguish itself from other CEE countries. These issues are discussed in the first chapter of this part of the report.

In the second chapter, we look at labour market transformations in the NMS8 from the macroeconomic perspective. In the last two decades, the CEE countries have not only exhibited different employment and unemployment rates but they have also experienced divergent growth dynamics and pace of real convergence towards the EU15. In scrutinizing these phenomena, we demonstrate to what extent they resulted from different labour utilization and to what extent they were due to diversified growth of labour productivity. We also identify interactions between economic growth and employment and unemployment in the region concerned.

The previous issue of ***Employment in Poland*** was devoted to the analysis of institutional factors and structural features of labour supply which play a key role in shaping the labour market in the long-run. Therefore, in the second chapter of this part, we focus on short- and medium-term phenomena and we examine the impact of aggregate disturbances on the CEE labour markets in the last ten years. We look at aggregate shocks which are due, above all, to global economic fluctuations and to external demand, as well as at country--specific shocks which affected only some of the countries examined. In doing so, we demonstrate which of the above impulses were most crucial causes of the necessity of profound changes in the structure of output of the NMS8 economies, and thus triggered their restructuring and reallocation of capital and labour between sectors.

The analysis of economic growth dynamics in the countries concerned gives the opportunity to formulate a question on how economic fluctuations were reflected in the adopted policies, mainly fiscal and monetary. We evaluate, to what extent measures undertaken in this area could help compensate or reinforce the economic disturbances and we give particular attention to the consequences of the adopted policy mix on employment fluctuations. The part ends with a summary, in which we stress the impact that the economic upturn and labour demand shifts may have in the future on strengthening the improvement in the Polish labour market. We also examine the potential role of institutional factors which modify labour supply and its utilisation in the production process. We point to the key significance – in the long perspective – of institutional solutions for closing the gap between Poland and the EU15 both in terms of labour market performance and general wealth and prosperity of the society.1. Labour in the NMS8 in the period 1990-2005

1. Labour in the NMS8 in the period 1990-2005

1.1 Recent changes in the labour market in Poland

After a five-year long decrease in employment levels, from the second quarter of 2003, the number of people working in Poland has been on the rise and the employment rate has been steadily growing. This translated into a decline in unemployment and was accompanied by stabilisation of economic participation rate. Therefore, we can clearly observe a progressing improvement of the situation in the Polish labour market. In 2005, the annual average working population amounted to 14,124 thousand people, which constituted an increase by 4.2 and 3.8 per cent compared to 2002 and 2003 respectively. In mid-2006, the positive labour market trends, including an increase in employment and decrease in unemployment levels, underwent a further intensification,[1] the average number of working individuals grew to reach the level of 14,269 thousand, which was an increase by 5.2 per cent over the worst slump in the labour market in 2002. Consequently, the employment rate for the age group 15-64 rose from 51.0 per cent (the lowest in the last fifteen years) at the end of 2002 to 53.4 per cent in mid-2006. Moreover, in 2003-2005, the number of economically active individuals increased at more or less the same rate as the number of the working age population and, as a result, the participation rate stabilised and remained flat – at least until the beginning of 2005 when it grew slightly only to decline unexpectedly in 2006. At present, it is difficult to assess whether this means the return of the earlier, unfavourable trend, apparent from the beginning of the transition, or whether this is a one-off anomaly.[2] The unemployment rate, which grew from 10.2 to 20.5 per cent between the second quarter of 1998 and the third quarter of 2002, has been declining gradually and steadily since 2003 to reach 18.5 per cent in the fourth quarter of 2004 and 17.4 per cent the year after. This dynamics was further amplified in 2006 and in consequence the unemployment rate went as low as 15.8 per cent in the second quarter of 2006.

However, irrespective of the improving situation in the labour market and the increasing number of the working population in Poland, two phenomena which became apparent already in mid-2004 (see Chart I.1), the participation and employment rates for individuals in working age have not yet reached the levels from before the year 2001, when the Polish economy underwent a temporary slow-down. Compared to the situation from before the Russian crisis, i.e. that in the year 1998, in the first half of 2006, participation and employment rates were significantly lower – by 2 and 5 percentage points respectively. The decline in the number of unemployed, which has been going on since the first quarter of 2004, made it possible to reverse nearly half of the increase in the unemployment rate, which occurred in the period 1998-2003. This means that the increase in unemployment that lasted five years was reduced by almost a half in only two years. Therefore, the recent changes in the labour market seem to justify expectations that the mentioned increase in unemployment can be entirely cancelled out during the economic upturn. However, the true challenge for the Polish labour market is to considerably improve the participation and employment rates to match levels typical for the EU15. A success in this area depends above all on structural and institutional features of the labour market and not on business cycle fluctuations, although it is surely easier to undertake initiatives in the above respect when the economy is developing at a robust pace and when the demand for labour is growing (see Bukowski et al. 2005).

Table I.1.
Participation, employment and unemployment rates for the age group 15-64 in the period 1999-2006 (percentages)

	1998	1999	2000	2001	2002	2003	2004	2005	2006[i]
Participation rate	66.1	65.7	65.7	65.4	64.4	64.2	64.2	64.5	64.0
Employment rate	58.9	56.7	54.9	53.3	51.4	51.4	51.9	52.9	53.6
Unemployment rate	10.9	13.7	16.5	18.5	20.2	20.0	19.7	18.0	16.2

i – first two quarters

Source: Own calculations based on BAEL data free from seasonal fluctuations and methodological changes.

Charts I.1-I.2 as well as the observation that declining unemployment is accompanied by an increase in employment levels and by a stabilisation of the percentage of the economically active working age population (subject to barely explicable fluctuations around the turn of 2005 and 2006), suggest that the prime cause of declining unemployment levels is an increase in the number of working Poles. Although lower unemployment can also be due to, for instance, less numerous groups of individuals joining the labour market (compared with the baby boomers who entered the labour market a couple of years ago), or decreasing labour supply which indicates that the unemployed may be leaving the labour market, these phenomena are considerably less important than rising employment

[1] 1 At the time when this report was prepared, the BAEL data (Labour Force Survey) were available only for the first two quarters of 2006. The BAEL data used were cleared from seasonal fluctuations and methodological changes. Data presented in the subsequent parts of this report were treated in the same manner, if they pertain to analyses limited to Poland only. All analyses that address international issues are based on data provided by Eurostat, unless expressly stated otherwise.
[2] Quarter-to-quarter fluctuations in participation levels evidence that possibly this phenomenon could be connected to seasonal migration. However, the fall in participation in 2006 could in fact be a statistical artefact – in accordance with the BAEL data, in 2005, the participation rate grew in all age groups, apart from the age group 15-24, and then, in 2006 – it fell in all these groups. Such a change seems to be highly improbable and the decline in unemployment in 2006 reported by CSO (Polish Central Statistical Office) in its quarterly update for the labour market is mainly due to this astonishing slump in participation. This artefact can also result from new method of calculating the respondents' age in BAEL, which affected the results. Nevertheless, in view of CSO's failure to comment on the above issue, it is hardly possible to resolve this problem definitively. Thus, the time series for the number of professionally active individuals has been corrected in order to eliminate the annual level shifts in the period 2005-2006 which deviate from the earlier trend.

Their relative role can be evaluated quantitatively, as suggested by Bukowski et al. (2005), by decomposing unemployment changes into its net inflow components, that is changes that occur in three dimensions – demographic dimension (which results from the fact that, in principle, various age groups differ in terms of their typical participation, employment and unemployment rates),[3] participation dimension (because rising/falling per cent share of individuals who are economically active translates into rising/falling working and unemployed populations) and employment dimension, which indicates that variations in the number of working people contribute to the evolution of unemployment.

Chart I.1.
Employment, participation and unemployment rates in Poland in the period 2002-2006 (until the second quarter)

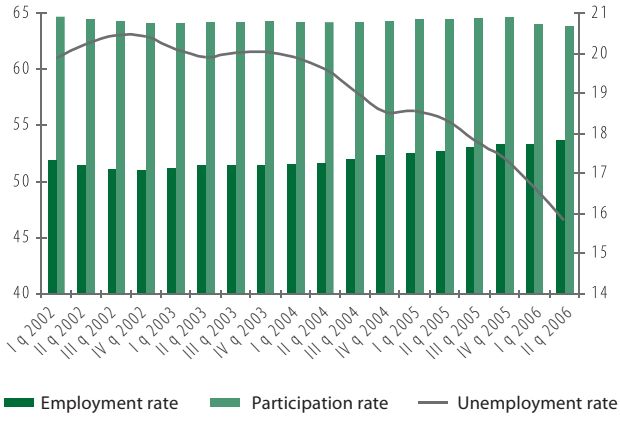
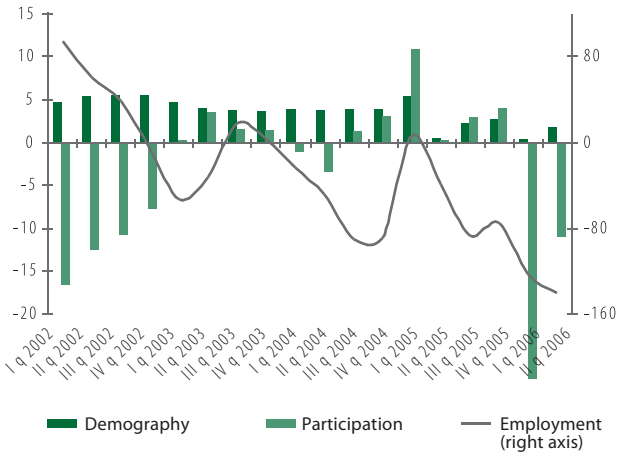


Chart I.2.
Decomposition of sources of quarterly unemployment change in the period 2002-2006 (until the second quarter)



Remarks: Decomposition is based on quarterly changes in the number of unemployed in the age group 15–64 which result from demographic, participation and employment factors (in thousands of unemployed) in the period 2002-2006 (until the second quarter) – factors that lower the unemployment rate are below the OX axis, and those that increase it – above the OX axis.

Source: own calculation based on the BAEL data cleared from seasonal fluctuations and methodological changes.

In this respect nothing much has changed in the last three years. Chart I.2 confirms that, as from the beginning of the year 2004, the soaring number of working population had an increasing influence on the decline in unemployment rate, and especially so from the third quarter of 2005 when the employment dynamics reached levels unknown since the economic boom of the late 1990s.[4] In this context, the input of gradually progressing demographic processes as well as of labour supply variations was of lesser significance. However, until the end of 2003 (and generally a couple of years before), demographic factors and participation trends were pulling in opposite directions, whereas after this date the significance of participation variations became marginal, as the processes of decreasing labour supply in Poland has been halted but not reversed. However, a couple of rare exceptions stand out from this picture. At the beginning of 2005, the increase in participation rate (subject to earlier reservations) contributed to the rise of employment and unemployment and because this was the case especially for people of 55 years and above, the mentioned increase in participation rate could be attributed to lower inflow of beneficiaries to the pre-retirement benefit system, which is probably one of the positive consequences of the partial reform of this system in 2004. Even so, there are two apparent exceptions and it is especially the decline in participation, which occurred at the beginning of 2006 and which was exhibited by individuals younger than 45 years, that is somewhat awkward. It can be assumed that (to the extent that it is not a statistical artefact) a certain role may be attributed to migration processes which seemingly lower the participation levels in Poland but which are in fact due to the labour migration abroad. This conjecture is further examined in the third part of this report. The demographic factor became less and less significant mainly due to the fact that the most numerous groups of the 1980s demographic boom had already entered the labour market.

Although the impact of demographic processes on changes in the labour market, i.e. on improvement gradually becoming apparent in the aftermath of the economic upturn of 2003, was rather moderate, it should be emphasised that it is an enduring feature of the Polish labour market that young people as well as people in pre-retirement age have a relatively large share in the total working age

[3] In particular, young people participate in education and those who enter the labour market become unemployed nearly by definition (before they find jobs). As a result, the age group 15-24 generally exhibits higher average unemployment and lower participation and employment rates than individuals aged 25-45. Older people, especially those who are more than 55 years old and who approach the statutory retirement age, typically have greater problems with adapting to the changes in the economy. If they lose their jobs, they are more likely to leave the market than to become unemployed. Changes in the share of particular age groups in the working age population can thus somewhat automatically affect the average participation, employment and unemployment levels.

[4] The weakening impact of growing employment rates on the number of unemployed population, seen at the turn of 2004 and 2005, as well as the accompanying positive and then, a year later, negative influence of participation changes, have to do exactly with the previously discussed, barely explicable shifts in the level of economic participation visible in the BAEL data. At the time when this report was prepared, due to the lack of BAEL data covering the entire year 2006, it was impossible to assess whether this is only a statistical artefact or whether there have actually been certain variations in participation rates. However, as labour supply is in principle subject to considerable inertia, it seems doubtful that such distinct fluctuations of non-seasonal nature could occur across 6 quarters. The decline in the number of professionally active individuals in the age group 25-44, i.e. a group that is typically characterised by stable participation levels, amounting to 200,000 people in the first quarter of 2006 – compared with the fourth quarter of 2005 (raw BAEL data) – is only comparable to the fall in participation level for this group between the fourth quarter of 2002 and the first quarter of 2003, when, as a result of the change in the demographic structure of the population (as evidenced by the National Census), the system of weights was modified. Therefore, it can be assumed that if the BAEL data did not reflect such structural change of the statistical characteristics of the time series, decompositions of unemployment variations presented in charts I.2 and I.6 would be free from violent changes in the contribution of employment and participation rates at the turn of 2004 and 2005 and then of 2005 and 2006.

population. However, the different nature of setbacks that attach to these groups – lack of working experience for the young and risk of health and working skills deterioration for the elderly – affected the relative changes of situation of these groups in the labour market vis-à-vis other age groups in the last three years.

In the period 2003-2005, the population ageing phenomenon, i.e. the increase in the share of adults of 55 years and above in the population, gained momentum, whereas the size of the age group 15-24 as well as its share in the working age population were declining. As from mid-2002, the increasing number of the elderly spurred the labour supply of individuals of 55 years and above – nevertheless, the participation rate for this group remained unchanged until 2005, when it finally rose by 1 percentage point and reached the still low – in the international context – level of 32.8 per cent. The fall in youth participation, which started off in 2001 and which contributed most to the lowering of the participation rate for this age group in 2002-2003, continued incessantly until mid-2006. Even so, as from 2003, the employment rate for young people has been on the rise, above all, thanks to rapidly declining unemployment.

As for the pre-retirement age group, it could be observed that the number of economically active people was growing – although from a very low level and in close reliance to the demographic factor – and that the increase in the number of working individuals was relatively most dynamic for this group. However, regardless of this fact, the declining trend in employment rates for the elderly (see Chart I.4), which was distinctive for the Polish labour market throughout the last decade, has been continuing as long as to beginning of 2005. It is worth noting that since 1999 these rates have failed to exceed 30 per cent and that at present they are 15 percentage points lower than the average rates for all EU member states. A number of workers in the ever-more numerous group of over-55-year-oldshave probably found it difficult to remain in employment, however, only in the case of very few of them it led to unemployment, whereas in the overwhelming majority of instances – to withdrawal from the labour market. Indeed, between the end of 2003 and mid-2006, the population aged 55-64 rose by 437,000 people, with 67 per cent due to the increasing population of inactive individuals and only 7 per cent to the increasing number of unemployed. Consequently, the unemployment rate for elderly adults grew (see Chart I.5), but nonetheless unemployment affects only a minor percentage of people of this age. Therefore, although some positive tendencies in labour market participation of the elderly came to light, and they can be linked with a certain limitation of social transfers addressed to the elderly (pre-retirement benefits), two thirds of this age group still end / terminate economic activity before reaching the statutory retirement age.

The situation of individuals aged 45-54 in the labour market has been changing in a similar manner. As from 2004, the participation and employment rates of this group have been showing steady though slow rise, and even though some people from this growing number of economically active population have been becoming unemployed, the increase in employment still largely contributed to the fall of unemployment (see Chart I.6). According to Bukowski et al. (2005), one distinct feature of the Polish labour market at the end of 1990s was that, as a result of a general deterioration of the economic conditions, the inactivity rate in these groups noticeably grew. Furthermore, the economic upturn of 2003-2005 caused a relatively lower – compared with other age groups – employment dynamics for the age group 45-54 (see Chart I.4). In the recent years, the unemployment rate for this group only began to diminish in the second quarter of 2005 – that is nearly 2 years later than in the case of younger people. The above deliberations confirm earlier observations (Bukowski et al., 2005), namely that deterioration on the labour market which occurred towards the end of the previous decade have had more enduring effects for the age group 45-54 than for people in the so-called ***prime-age***, i.e. between 25 and 44 years. This is a telling illustration of difficulties that individuals over the age of 45 years – less mobile in terms of occupation and space (see the third part of this report) than younger people – often encounter when entering/re-entering the labour market. Because this problem concerns people already at the age of 45 and aggravates with age, it can be said that when it comes to labour market participation, this vulnerable stage in life for Poles commences 5-10 years earlier than in most developed countries, where it typically occurs around the age of 55, or possibly 50.

Chart I.3.
Dynamics of the number of economically active persons (left chart) and of the participation rate (right chart) by age in Poland in the period 2003–2006 (until the second quarter)

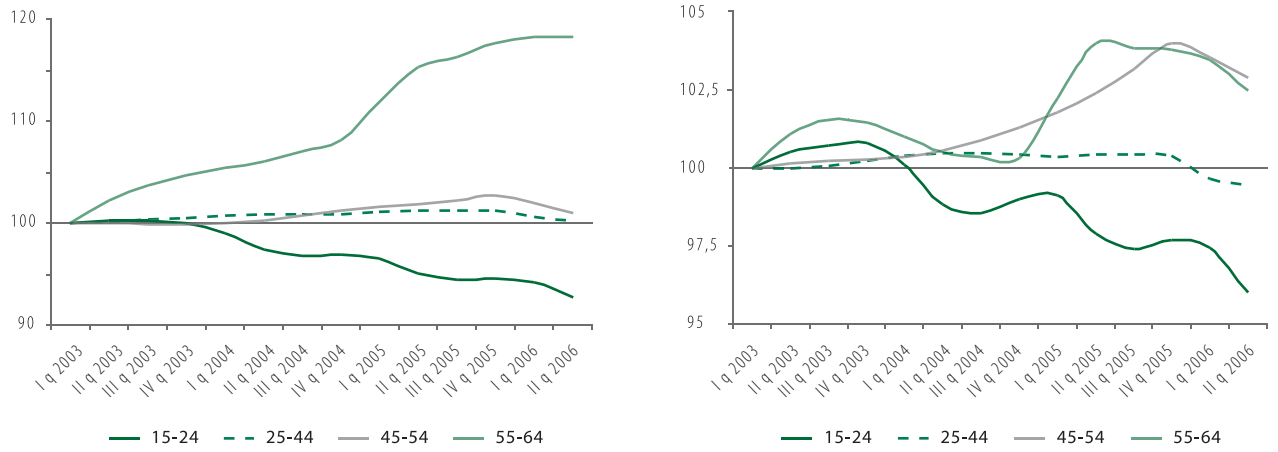


Chart I.4.
Dynamics of the number of persons employed (left chart) and of the employment rate (right graph) by age in Poland in the period 2003–2006 (until the second quarter)

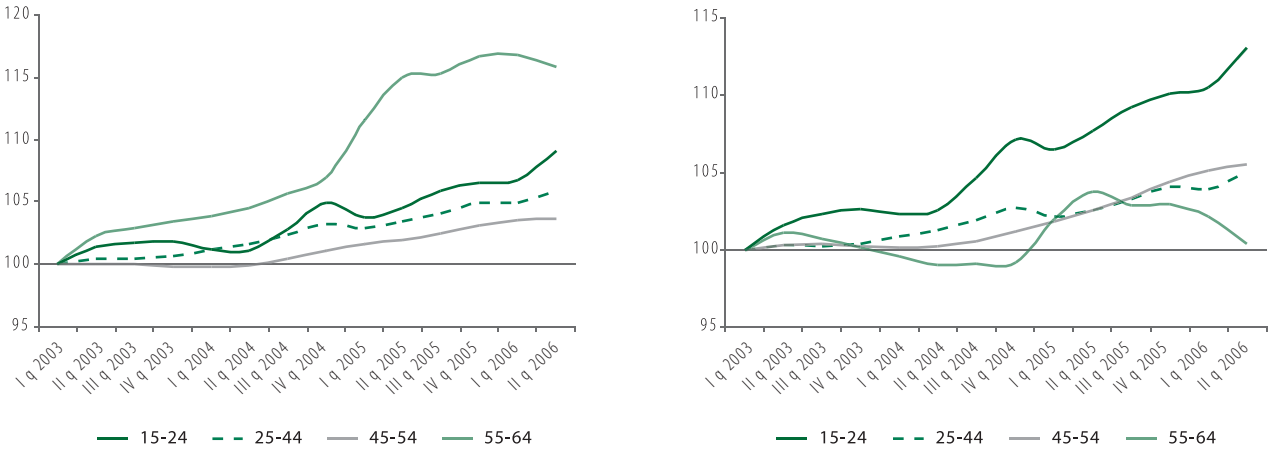
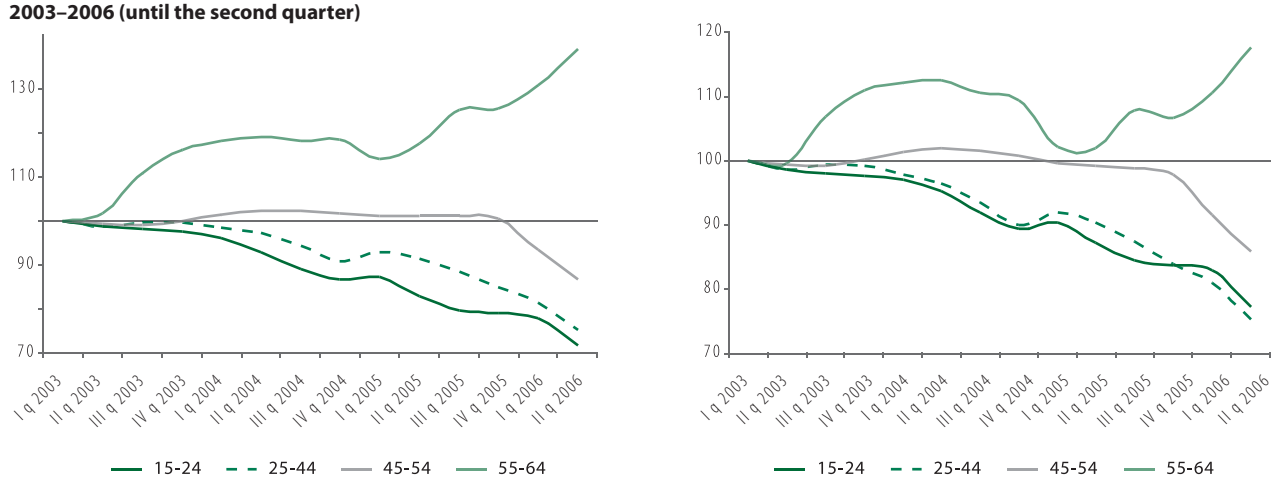


Chart I.5.
Dynamics of the number of unemployed persons (left chart) and of the unemployment rate (right chart) by age in Poland in the period 2003–2006 (until the second quarter)

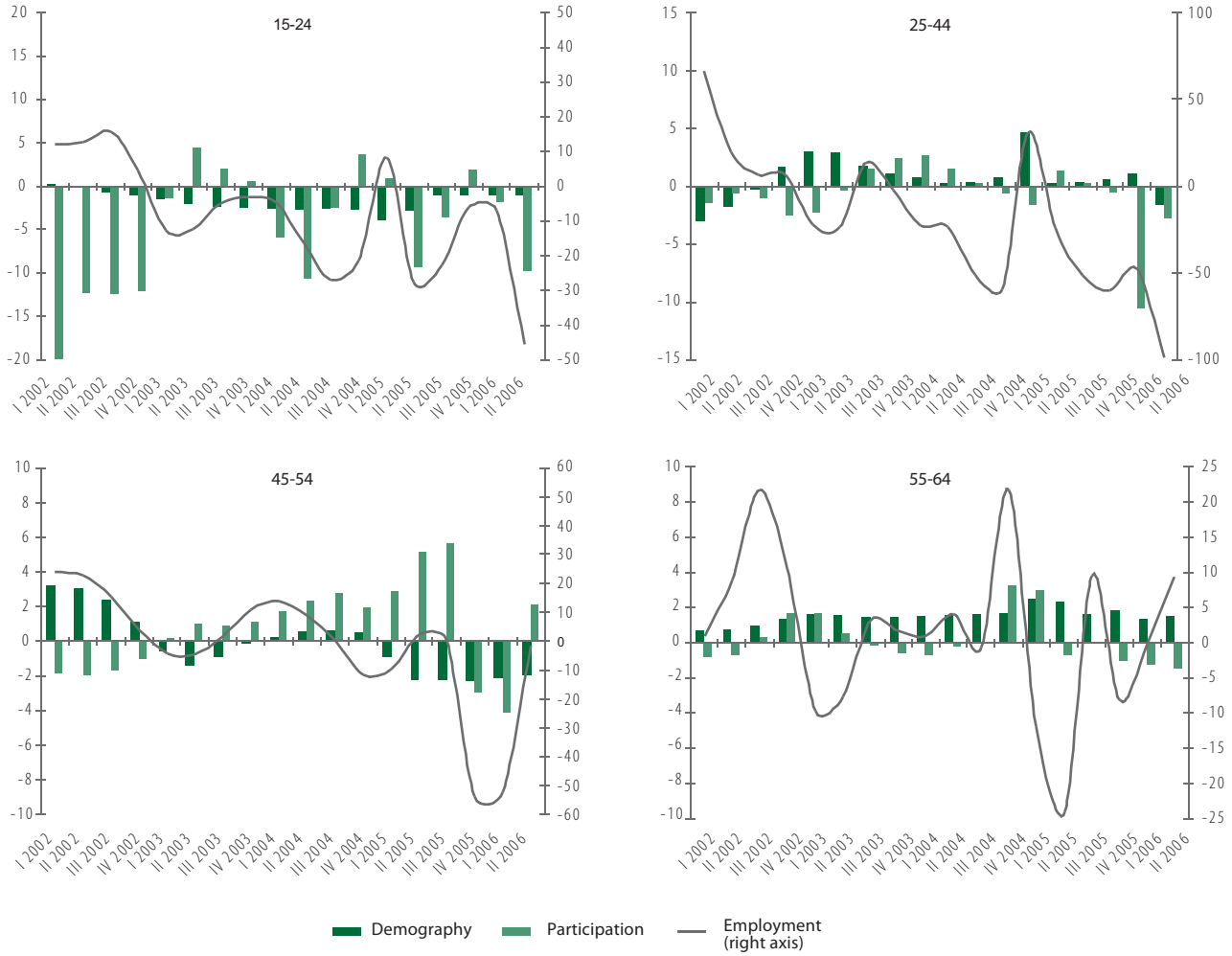


Remarks: In view of abrupt changes in the number of economically active individuals in the age groups 45-54 and 55-64, the presented series for these groups from the BAEL data between the fourth quarter 2005 and the first quarter of 2006 have been additionally cleared in order to bring it closer to the general trend.

Source: Own calculations based on BAEL data cleared from seasonal fluctuations and methodological changes.

Chart I.6.

Decomposition of sources of quarterly unemployment changes by age groups in the period 2002-2006 (until the second quarter)



Remarks: The above decomposition is based on quarterly changes in the number of unemployed individuals of 15–64 years which result from the influence of demographic factors, variations in participation and employment (in thousands of unemployed) in the period 2002-2006 (until the second quarter) – factors which decrease the unemployment rate are below the OX axis and those which increase it – above the axis.

Source: Own calculations based on the BAEL data cleared from seasonal fluctuations and methodological changes.

Thus, the economic upturn resulted in a much faster and more intense improvement of the situation in the labour market for individuals below the age of 45 years than for the older ones. Accordingly, the decline of 741,000 in the number of unemployed between the end of 2002 and the middle of 2006 was in 35 per cent due to the fall in the number of unemployed individuals in the age group 15-24 and in 58 per cent to the decreasing number of unemployed in prime-age. On the other hand, group over 55 years contributed positively to the total number of unemployed in Poland The number of unemployed below the age of 25 decreased in 2003-2006 by 262,000 people, of which 111,000 was due to the increase in the working population, and the remaining part – to the fall in the number of the people participating in the labour market. Thus, the slump in unemployment rates for this group is mainly a result of the increase in employment levels, although, compared with the other age groups, it was the diminishing labour supply of the youths that was of relatively greater importance (see Chart I.6). Hence, the evidence that the trend of declining participation of young people, continuing since the beginning of the 1990s, still persists. The last three years, however, saw an improvement of the relative position of individuals in the age group 15-24, which enjoyed the highest dynamics in employment rates, and for which the reduction of the unemployment level was comparable with the changes that concerned people in the ***prime-age***, who in general are the ones best-off on labour market (see Chart I.5). Thus, it seems that although young people were more adversely affected by the negative developments, which occurred in the labour market at the beginning of the decade, than those aged 25-44 years (Bukowski et al., 2005), the current economic boom has a similar impact on the improvement of the situation of both groups.

Table I. 2.
Employment changes by sector of the economy in the period 2002-2005 (2000=100)

	Agriculture	Industry	Construction	Market services	Public services	Total
2002	100	100	100	100	100	100
2003	96	102	96	101	104	101
2004	95	105	94	104	103	102
2005	94	108	101	107	106	104

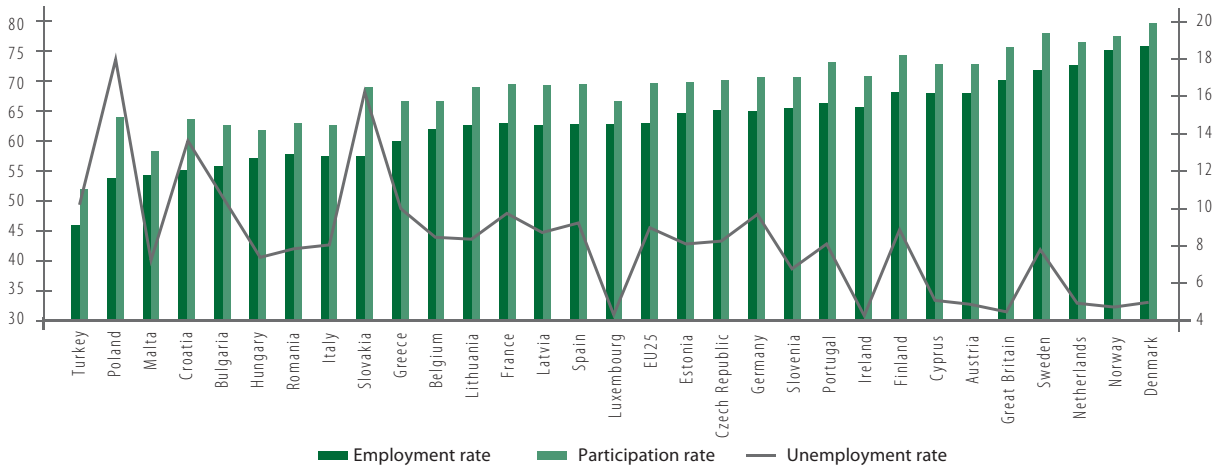
Source: Own elaboration based on BAEL data.

The fact that the economy entered the booming period also resulted in increasing labour demand in sectors characterised by substantial elasticity of demand for their output to the general level of economic activity. Table I.2 indicates that although the total number of working population has been steadily growing since 2003, initially this growth was only due to the rising employment in public services (i.e. administration, education and healthcare) and in industry. In the case of public services, which mainly consist of the public sector, the increase in employment levels was to some extent a consequence of rising employment in this sector concurrently to general deterioration on the labour market. At the same time, working individuals might have been then more prone to opt for stable employment in the public sector.[5] However, as far as industry is concerned, good labour performance was mainly due to notable results achieved by Polish exporters at that time, which we further discuss in the second chapter. Hence, the increase in employment in industry preceded the rise in labour demand in those areas of the economy which rely on domestic demand, that is in market services and above all in construction – which is a branch that depends on investments undertaken in the economy and which saw, after a prolonged slump of labour demand, an increase in employment of 7 per cent between 2004 and 2005. The gradual decline in employment in agriculture has been subject to a slowdown in the last two years, which can be attributed to Poland's accession to the EU and a considerable rise in external demand for Polish agricultural products. Sectoral analysis is presented in greater detail in the second part of this report, however, it should be concluded at this stage that the evident cyclical acceleration of economic growth was followed – with a greater or lesser delay – by increasing labour demand and falling unemployment. These two trends have been gaining pace since mid-2005, especially in those sectors of the economy that are vulnerable to domestic demand fluctuations.

1.2. Poland of 2005 in international context

Positive changes that have occurred in the labour market in the last three years, have not, however, substantially altered the position of Poland vis-à-vis other European countries, and especially in relation to countries which, similarly to Poland, joined the EU in 2004. In 2005, out of all EU member states and its associated candidate states participation rate in Poland was only higher than those of Hungary and Italy, and the unemployment level in Poland has consequently been the highest. Although it can be expected that the economic upturn and the resulting acceleration of positive changes in the labour market will cause that, at the end of 2006, the relative position of Poland in relation to other EU member states will improve slightly in terms of labour market indicators, but even if this positive scenario comes about, the general picture of Poland's labour market is not likely to change much also because the cyclical economic upturn and the structural reforms simultaneously improve the situation in the labour markets of other EU member states.

Chart I.7.
Participation, employment and unemployment rates in the EU member states for the age group 15–64 in 2005



Source: Own elaboration based on Eurostat data.

[5] Public services were the only sector which saw an increase in employment in 2002 compared with 2001.

Indeed, in the last three years, the gap between the Polish labour market – in terms of employment and unemployment – and EU15 and the NMS7 labour markers, was reduced only marginally and mainly so because of a relative improvement in the situation of the young people. Unfortunately, when total participation and employment levels are considered, this gap has became even larger. Such phenomenon was especially noticeable for elderly people, because, when influence of demographic factors is removed, labour supply and employment rates for over-55-year-olds in Poland are at best stable or even falling, whereas participation and employment levels in this age group in the other CEE countries generally converge to the rapidly growing EU average. This means that Poland stands out from the other countries in the region as a country with highest unemployment rate, low participation and employment rates as well as considerably stronger inertia in the latter two rates – especially for the oldest age groups. In fact, in the period 2002-2005, participation rate for individuals in pre-retirement age increased in the EU15 and in the NMS7 by an average of respectively 4.8 and 6.5 percentage points, whereas Poland reached an increase by only 1.4 percentage points. In case of employment rate, this gap has broadened even stronger and made Poland distinct from the EU15 especially due to the participation and employment levels for people aged 55-64 (see Table I.3). Consequently, because of this marginal increase in participation of the elderly in the labour market, rising employment of young and prime-age people was not enough to fill the gap between the Polish labour market and the labour markets of other EU member states.

Table I.3.
Participation, employment and unemployment rates for Poland, the NMS7 and the EU15 in 2005 by age groups (percentages)

	15-64			15-24			55-64		
	Participation rate	Employment rate	Unemployment rate	Participation rate	Employment rate	Unemployment rate	Participation rate	Employment rate	Unemployment rate
Poland	64.4	52.8	19.0	35.7	22.5	36.9	30.5	27.2	10.8
NMS7	67.3	61.1	9.1	33.7	27.4	18.5i	44.8	41.9	6.6i
EU15	71.0	65.2	7.9	47.8	39.8	16.6	47.1	44.1	6.4

Remarks: NMS7 – Czech Republic, Estonia, Hungary, Latvia Lithuania, , Slovakia, Slovenia.
i – unweighted average

Source: Own elaboration based on Eurostat data.

Thus, the improved situation on the Polish labour market is part of the Europe-wide trend triggered by the cyclical upswing experienced by the world economy, from which the other countries in the CEE region benefit on average slightly more than Poland, although with some exceptions. Indeed, in the last couple of years, especially the Baltic states, Slovakia and Slovenia improved their relative position with respect to the EU15, whereas the gap between Poland and the EU15 remained fairly stable and the situation in Czech Republic and Hungary got worse. However, it is worth stressing that, although in the period 2002-2005 the absolute decrease in unemployment rate expressed in percentage points in Poland proved greater than in any of EU15 countries, the relative reduction of unemployment rate was much higher in Baltic states as well as Slovakia and Bulgaria, which at the same time exhibited visibly stronger increase in employment and labour supply of individuals in working age.

As proposed by Bukowski et al. (2005), the international differences in employment rate can be decomposed into differences arising from labour force characteristics and the intensity of their utilisation. Table I.4 and Charts I.8-I.9 demonstrate the decomposition of the gap between the employment rate in particular NMS8 country vis-à-vis the EU15 average into components related to demographic factors, human capital[6] and disparities in the intensity of utilisation of labour force. The last component may result from such factors like institutional background of the labour market, product market competition, as well as from the general economic situation. However, because we only analyse data for the years 2002 and 2005, it can be assumed that the effect of the last above-mentioned factor is more or less similar in the group of countries concerned, for which the business cycle is mutually synchronised. Hence the conclusion that dissimilarities in the dynamics of positive changes in the economy and on the labour market should be attributed above all to structural factors. This issue in further discussed in section 1.2.

Table I.4 shows that the CEE countries can be divided into three groups, depending on the size of the gap between their employment rates and that of the EU15 and on the factors causing it. **The first group** includes the Czech Republic and Slovenia, where the total employment rate is comparable to the average of EU15 and where the intensity of labour force utilisation decreases the size of the employment gap, which means that the employment levels in these countries are in general higher than those for the UE15, especially for prime-aged individuals (see Charts I.8-I.9). However, these countries differ from each other in terms of the direction of changes that occurred in the period 2002-2005 – in Slovenia the employment grew and at the moment Slovenia is a country with the highest employment rate in the NMS8, but the employment rate in the Czech Republic fell below the average of the EU15.

[6] Human capital is measured by the nominal level of education which has two major drawbacks. Firstly, different educational systems in various countries do not allow for full comparability of successive levels of education. Secondly, differences in quality of education and appropriateness of acquired skills for labour market requirements, which are very hard to quantify, are omitted. The impact of human capital should therefore be analysed with the above caveats in mind.

Table I.4.
Decomposition of the employment gap between the NMS8 and the EU15 in the years 2002 and 2005

	Czech Republic	Poland	Slovakia	Hungary	Slovenia	Estonia[i]	Lithuania	Latvia
2002								
Intensity	-3.1	10.2	5.8	6.4	-1.3	1.0	4.3	2.4
Quality	1.2	1.3	1.4	1.0	0.9	b.d.	-0.1	0.4
Demographic factor	0.7	1.0	0.6	0.6	0.3	2.1	1.6	2.3
Total	-1.2	12.5	7.8	7.9	-0.1	3.1ii	5.8ii	5.0ii
2005								
Intensity	-2.2	10.4	5.3	6.6	-1.2	-2.3	0.3	-0.6
Quality	1.3	1.0	1.2	0.8	0.5	b.d.	-0.3	0.2
Demographic factor	1.1	1.4	0.8	0.8	-0.2	2.8	3.2	2.5
Total	0.3	12.8	7.3	8.3	-1.0	0.4	3.3	2.1

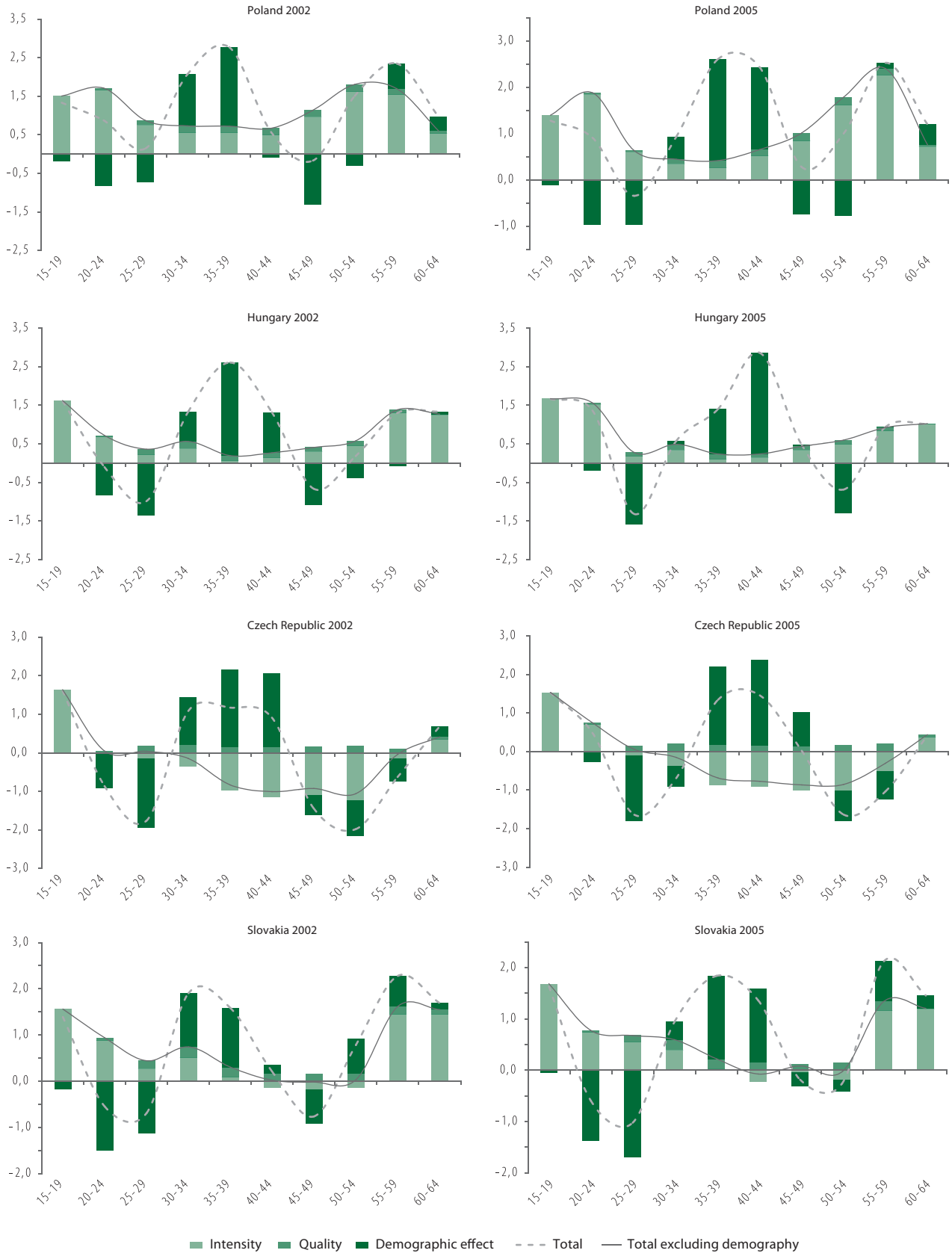
Remarks: i – Eurostat does not provide employment to education rates for Estonia. It is impossible to evaluate the labour force resources quality effect and therefore the results for this country are not fully comparable.
ii – 2001.

Source: Own elaboration based on Eurostat data.

The second group consists of Poland and Hungary and to a lesser extent their features are also shared by Slovakia. They lag behind the EU15 with their low employment levels and their position towards the EU15 has not changed in last three years. This gap is in 80 per cent due to the intensity component (lower participation and/or higher unemployment), whereas the demographic factor and differences in the level of education of the labour force are much less important. It is worth stressing also that the improving quality of the labour force has led to the gradual closure of the gap in employment as the next groups that enter labour markets in the CEE countries are better educated that the previous generations and therefore become more comparable, with respect to nominal education level attained, with their peers in Western Europe. Although the second group of countries exhibit similar employment rates, Hungary stands out with lower unemployment, which is accompanied by the lowest participation rate among all NMS8 countries. As for Poland and Slovakia, their low employment rates, lower than in the UE15 and the other countries in the region, are rather due to the highest unemployment rates out of all NMS8.

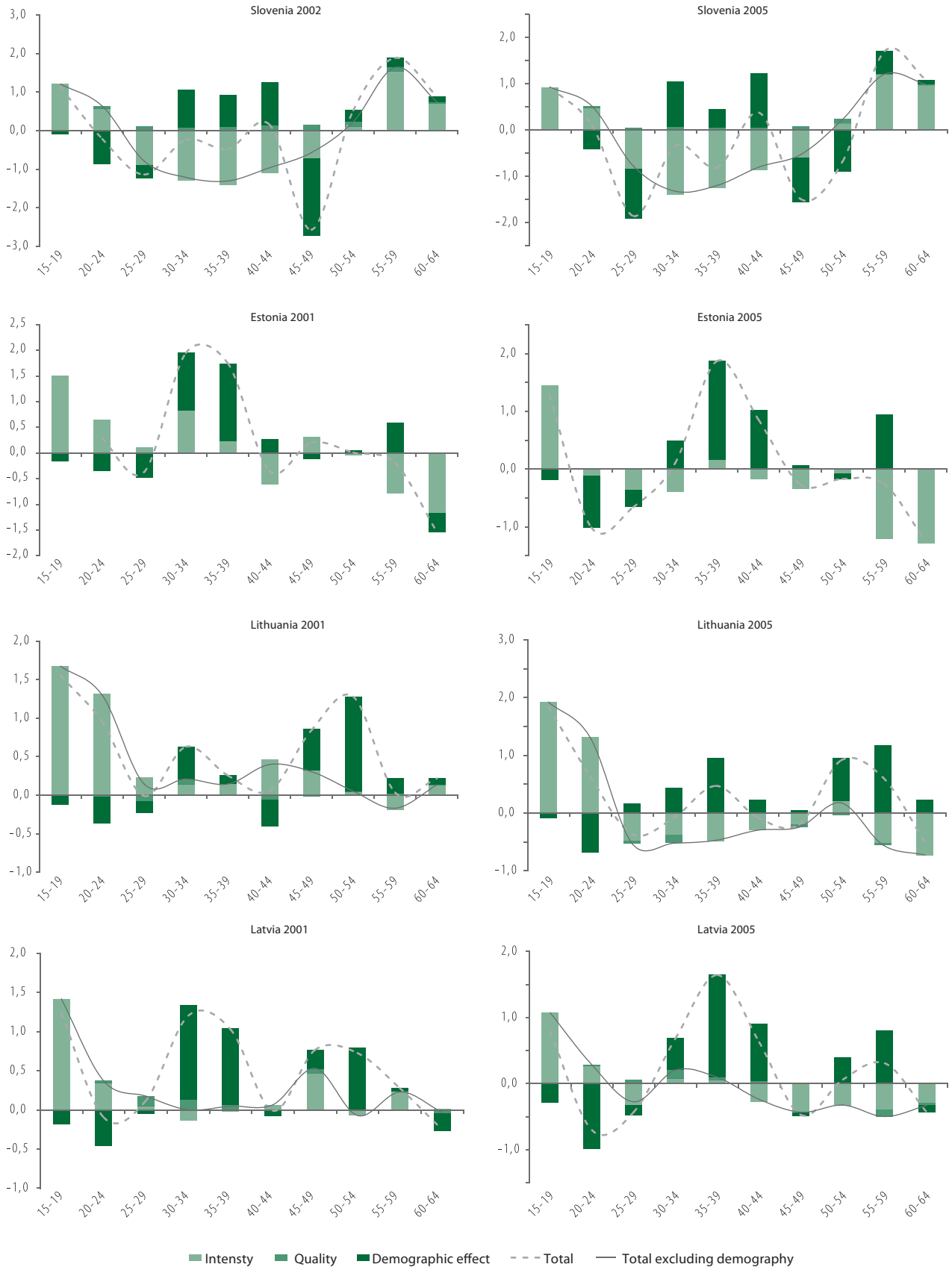
Finally, the third group is composed of the Baltic states, which have employment levels that rank exactly in the middle of the spectrum. However, in the period 2002-2005, these countries achieved the largest progress in the process of convergence of their employment rates with EU15. In comparison to Poland, relatively more people in the Baltic states are now at the peak of activity in the labour market. Please note, however, that increasingly numerous groups enter now these labour market, and they are younger by a couple of years than the baby boom generation in Poland. Hence, the significance of the demographic factor increased between 2002 and 2005 and, more importantly, it is exactly the demographic factor that explains nearly entirely Baltic states' gap towards the EU15 in 2005 (see Table I.4). In other words, in the third group countries – as opposed to Poland, Hungary and Slovakia – low participation and high unemployment do not enlarge the employment gap vis-à-vis the Western European countries. Positive changes of increasing labour supply and decreasing unemployment have occurred in the Baltic states in the recent years. In 2002, the contribution of lower intensity in the utilisation of labour force to total employment gap was still apparent, however, since then, the rapidly growing employment, falling unemployment and increasing participation rates, especially among the older age groups, helped to fully reduce the impact of the intensity of labour force utilisation on the size of the employment gap vis-à-vis the EU15 and consequently to reduce the remaining gap considerably (see Chart I.9).

Chart I.8.
Decomposition of the employment gap between the NMS8 and the EU15 in the period 2002 and 2005



Source: Own elaboration based on Eurostat data.

Chart I.9.
Decomposition of the employment gap between the NMS8 and the EU15 in the years 2002 and 2005



Remarks: i – Eurostat does not provide employment rates by education level attained for Estonia.

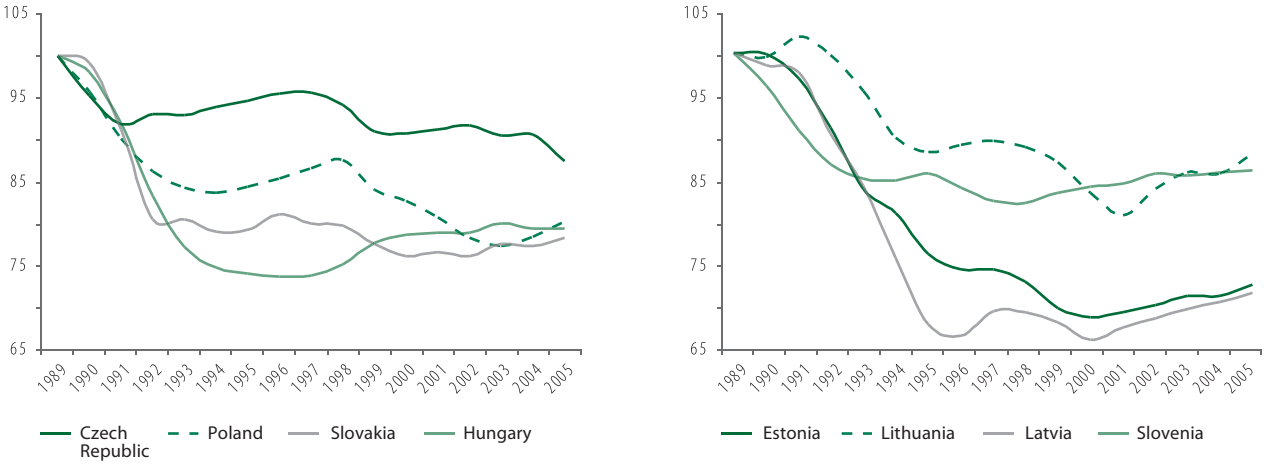
Source: Own elaboration based on Eurostat data.

1.3. Basic characteristics of the NMS8 labour markets in the period 1990-2005

A further question that should be raised when analysing the causes for the employment gap between Poland and the EU15 and NMS8 is that about the moment when the performance of the Polish labour market started to diverge from the experiences of the other countries in the region. According to Bukowski et al. (2005) and in line with a number of arguments which we present in the second chapter, the present situation in the Polish labour market is a consequence of the abrupt fall in employment levels in 1998, due to the Russian crisis, which was later further intensified by the cyclical slump in the period 2001-2002. Indeed, in 1997, which we treat as the starting point of our analysis,[7] differences between the Polish labour market and those in other countries in the region were of a slightly different nature than at present. By elucidating the differences between them, both in terms of labour market indicators and their dynamics, it will be possible to look from this particular perspective at the evolution of the macroeconomic situation of the NMS8 and the influence that external and internal factors had upon it. Although this topic is discussed in detail in the second chapter of this part of report, for the purpose of demonstrating the developments that took place in the labour markets of the NMS8 in the last fifteen years, it is necessary to refer to certain economic disturbances and to key institutional features of these labour markets that are reflected in the diverse developments presented in this section.

The early transition period (period 1990-1994) was characterised by a fall in the level of economic activity, output and employment in all CEE countries, although differences between them pertained to the depth of the output slump directly resulting from the direct transition shock, as well as to the scale of employment changes and labour supply adjustments (Nesporova, 2002). Even though the initial fall in the number of employed in Poland was the largest out of all the examined economies, it was of short duration and already in 1993 employment rose year-to-year (Chart I.10). Such rapid reversal of the falling trend was to be seen only in the Czech Republic, where the reduction of the number of working individuals in the period 1990-1994 was much less severe. In all other economies in the region, the fall in employment lasted noticeably longer.

Chart I.10.
Dynamics of the number of persons employed in the NMS8 in the period 1989–2005.



Source: Own elaboration based on GGDC data.

Employment generally increased in the period 1993-1996, i.e. since the moment when the impact of immediate effects of the adjustment at the early transition stages weakened in particular countries and when they set on the path of rapid growth. The employment rise in Poland and in the Czech Republic was followed in Slovakia from 1995 on, however the much lower output growth in Hungary was accompanied by the stable number of working individuals. The Slovenian labour market evolved in a specific manner. The initial decline in employment was even greater – in relative terms – that the adjustment that took place in Poland and in the Czech Republic, however, later, the number of employed stabilized – just like it did in Hungary – although the rate of economic growth ranked somewhere in the middle between that of Hungary and that of Poland (Vodopivec et al., 1997). The Baltic states experienced a different trend during the early transformation period. The employment went down a little bit later and less than in the remaining NMS8 countries, and changes in the number of working population were largely related to the decrease in total population. In the case of Estonia and Latvia, the number of inhabitants shrinked by approximately 10 per cent till 1997, which reflected the considerable emigration of people of Russian descent. Therefore, developments in the share of working individuals in the total population of the Baltic states were less visible than changes in the number of working population and comparable to these observed in the other NMS8.[8] Nevertheless, both GDP and employment in these countries only started to increase in 1996, and then this economic upturn and the improving situation in the labour market were halted by the economic recession resulting from the Russian crisis.

[7] This is largely determined by the availability of data which, in the early 1990s, was rather scarce and imperfect, subject to international incomparability and methodological incoherencies. Moreover, the year 1997 was the last year that preceded major macroeconomic changes and developments in the labour markets, which are discussed in this part of the report.
[8] One exception was Estonia where the number of working population was declining continuously throughout the 1990s (see Chart I.10) however the rate of employment remained higher that in the other countries in the region.

Table I.5
Participation, employment and unemployment rates for the NMS8 and EU15 in 1997 by age groups (percentages).

	15-64			15-24			55-64		
	participation rate	employment rate	unemployment rate	participation rate	employment rate	unemployment rate	participation rate	employment rate	unemployment rate
Czech Republic	72.1	68,8	4,8	47.7	41.5	13. 0[i]	38.6	37.1	3.9[i]
Estonia	72.3	65,3	9,6	42.5[i]	35.5[i]	17.0	53.5[i]	50.2[i]	6.2[i]
Lithuania	70.2	62,5	14,4	43.2[i]	33.1[i]	25.5	42.4[i]	39.5[i]	6.8
Latvia	70.2	60,3	15,3	45.0[i]	33.3[i]	26.8	40.6[i]	36.3[i]	10.6
Poland	65.9	58,9	10,9	36.7	28.9	23.2	35.8	33.9	5.9
Slovakia	69.4	61,1	11,9	46.8[i]	35.0[i]	25.1	24.6[i]	22.8[i]	22.8[i]
Slovenia	67.3	62,6	6,9	47.9	40.0	17.2	22.4	21.8	21.8
Hungary	57.6	52,4	9,0	35.9	33.9	17.0	18.8	17.7	5.5
UE15	67.7	60,7	9,9	47.0	38.2	20.7	40.1	36.4	9.2

i – data for 1998

Source: Own elaboration based on Eurostat, OECD (Czech Republic, Estonia, Slovakia for 1997) and ILO data (Lithuania and Latvia for 1997).

The drop in employment, typical for the early transformation period, translated differently into changes of numbers of economically inactive and unemployed. The participation rates were generally declining from high levels which characterised the previous economic system, and although it was the decrease of women's labour supply (Nesporova, 2002) and the leaving the labour market by increasingly numerous groups of elderly people that played the key role in shaping such a phenomenon. However, there were clear differences between countries in the region. Consequently, in 1997, the NMS8 could be divided into economies which retained high participation and suffered from relatively high unemployment – as the latter absorbed outflows from employment – and economies where lay-outs were buffered by social security system and the outflow of individuals in working age out of the labour market (see Fortuny et al., 2003).

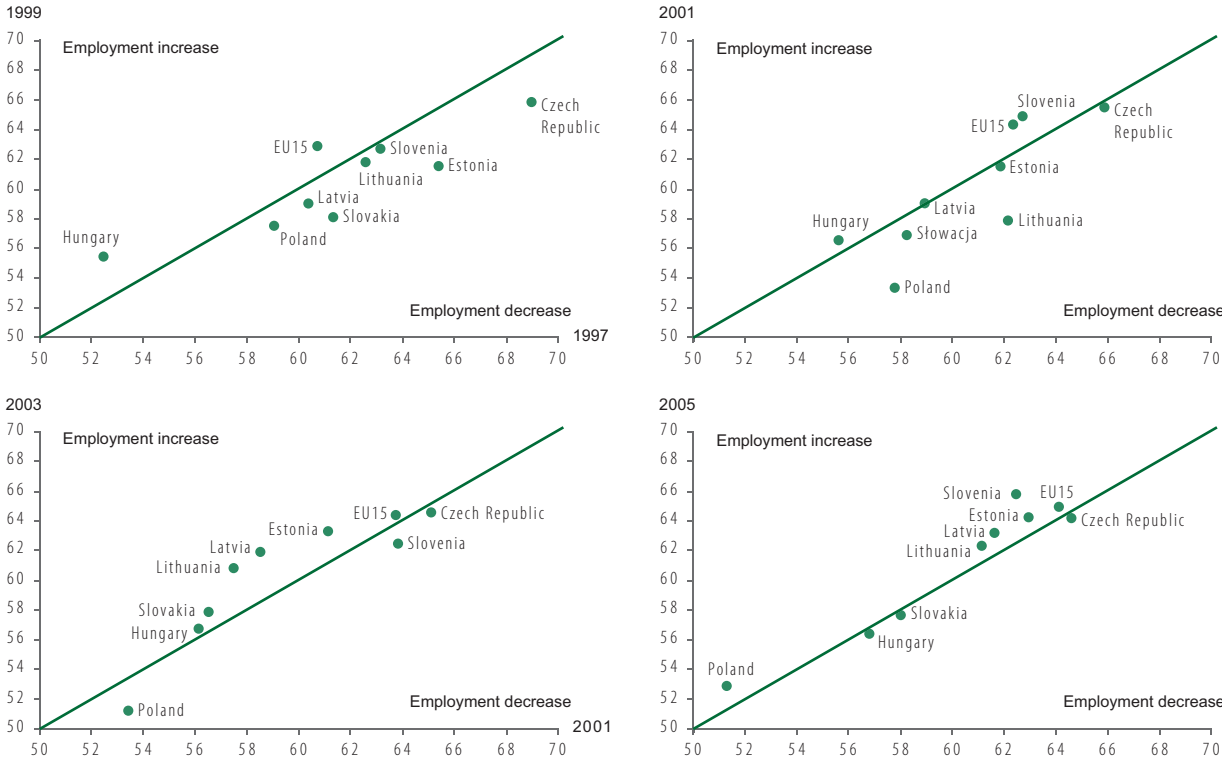
The group of countries where job reductions were largely absorbed by the fall in participation (especially among the people in pre-retirement age) included above all countries from the first two groups presented above, that is Hungary, Czech Republic, Slovenia and to some extent Poland. Decrease in labour supply occurred to large extent in the initial years of the transformation and thus, in 1997, the labour supply of over-55-year-olds in these countries was evidently lower than the EU15 average (see I.13). In particular, low unemployment in Hungary in the 1990s was accompanied by the lowest participation and employment rates in the region, especially among the elderly. Female participation in Hungary also declined rather quickly –from the levels greater than the average for all OECD countries at the beginning of the 1990s it fell below 50 per cent in 1997 (OECD, 1997hu). The situation in Slovenia was similar in that the relatively low unemployment and decent total employment were accompanied by very low participation in the age group 55-64. As for the Czech Republic, the beginning of the transformation brought a noticeable slump in labour supply, t large extent due to the decrease in the number of retirees who received benefits and worked simultaneously (Boeri, 1995). However, total participation and employment rates remained high until 1997. In Poland, the employment rate, even after the period of growth in the number of working individuals during the economic boom of 1994-1997, was only higher than the employment rate in Hungary (see Table I.5), and the participation rate was declining regardless of the output evolution, mainly because of the falling labour supply of people over 50 (Bukowski et al., 2005). Therefore, it can be said that in the 1990s the Polish labour market was characterised by steadily decreasing participation and by unemployment fluctuations which were quasi-cyclical, that is related to the changes in output dynamics.

The Baltic states, which belong to the third group referred to in the previous section, had very different experiences in the above respect. Labour supply rates remained in these countries at a high level, mainly due to lesser emphasis of governments on transferring income from working ***prime-age*** persons to non-working individuals at pre-retirement age than in the Visegrad Group countries at that time (OECD, 2003a). In fact, differences in labour supply in working age population between these groups of countries largely reflected different participation of over-55-year-olds. In 1997, only in the Baltic states participation rate of older people was close to the level found in Western Europe, whereas in the other cases it fell below the average for the EU15 (see Table I.5). Moreover, although it can be claimed (see Chapter Two) that during the first stage of transformation firms in the Baltic states were hoarding the labour force (because labour productivity in these countries was falling), delayed adjustment of excessive employment took place in the mid-1990s and those who lost work were more likely than in other countries in the region to become unemployed rather than to withdraw from the labour market. Consequently, in the mid-1990s, unemployment rates in the Baltic states were higher than in the other NMS8, although their employment rates were comparable.

On the other hand, in the second half of the 1990s, participation rates of young people in the NMS8 were rather homogeneous and only slightly lower than the average of the EU15. Greater differences were to be observed in employment and unemployment of young people and because of the correlation of these measures with their counterparts for total working age population, reflected differences in the general situation in the NMS8 labour markets.

Chart I.11.

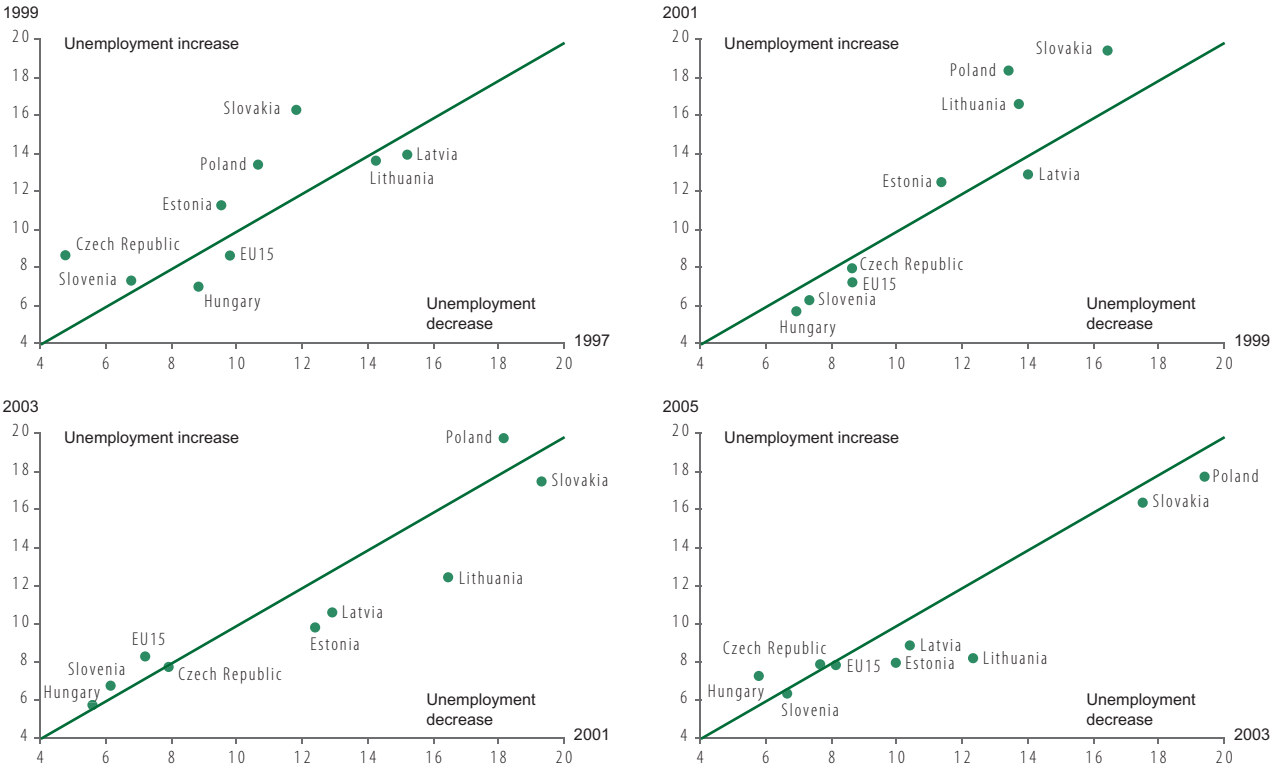
Employment rate for persons in the age group 15-64 in the NMS8 and the UE15 in the period 1997–2005



Source: Own elaboration based on Eurostat data.

Chart I.12.

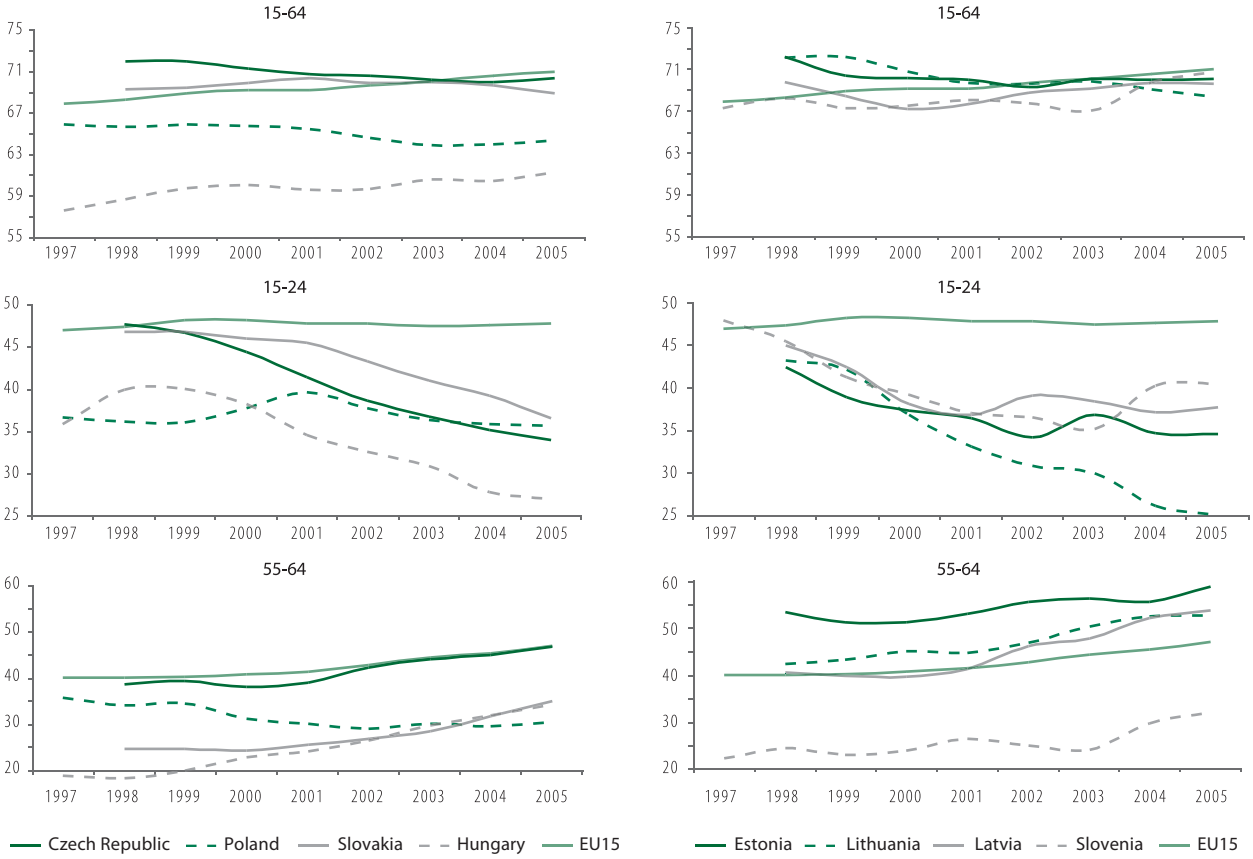
Unemployment rate for persons in the age group 15-64 in the NMS8 and the UE15 in the period 1997–2005.



Source: Own elaboration based on Eurostat data

In 1998, macroeconomic factors triggered another wave of changes. In the Czech Republic, the second half of 1997 brought a financial crisis, which led to a two-year decline in output. Employment in this country was on a decrease until 2000, unemployment doubled to reach the level of 8.8 per cent and then remained at more or less this level. Consequently, low unemployment which characterised the Czech labour market prior to the negative shock of the financial crisis, and which was initially interpreted as either a mark of a lesser need than in other transforming countries to reallocate and reduce employment or as a sign of restructuring which proved smoother than, for instance, in Poland and in the Baltic states, turned out to reflect smaller scale of structural adjustments that occurred at the beginning of transformation. Poor labour productivity growth and enduring unemployment since 1997, combined with high incidence of long-term unemployment, which affected above all former employees of sectors with decreasing share in output and employment (such as mining and certain branches of industry) and/or unskilled workers, along with considerable and persistent regional differences in labour market indicators (OECD, 2004cz), (OECD, 2005eo), indicate that the Czech labour market has been affected by structural mismatches of supply and demand which became apparent later than in the neighbouring countries.

Chart I.13.
Participation rate in the NMS8 in the period 1989–2005.



Source: Own elaboration based on Eurostat data.

In the Baltic states, Slovakia and Poland, a similar role of an external shock was played by the Russian crisis (see Chapter Two) which entailed a comparable decline in employment amounting to 4 per cent, with the exception of only Latvia where it was 3 per cent. In Poland and in Slovakia, workers made redundant mainly became unemployed, whereas in the Baltic states they rather withdrew from the labour market, leading to a decrease in participation, which was not earlier observed in these countries to the extent seen in Poland of Hungary (Eamets, 2004). Although the immediate reaction of employment to the negative demand shock, that is the Russian crisis, was very similar for all countries in this group, with only some differences in adjustments of unemployment and participation, some differences arose regarding the persistence of this disturbance.

These differences became above all in the evolution of the labour markets in the period 2001-2003, when the Baltic states took much less time to mitigate the effects of the earlier crisis – employment in Estonia, Latvia and Lithuania increased during this period by 3, 5 and 7 per cent respectively.[9] In Slovakia, the fall in employment was more prolonged, however, it began to slowly grow as from 2001, although definitely not as dynamically as in the Baltic states. In Poland the number of employed people decreased further by another 3 per cent between 2001 and 2003. Consequently, the situation in the Polish labour market after the developments that occurred during the five-year period between the Russian crisis and the beginning of the cyclical economic upswing in 2003 was evidently worse than in the neighbouring countries (see Charts I.11 and I.12).

After 1998, compared to the remaining NMS8, the situation in the Hungarian and Slovenian labour markets evolved differently because these two countries did not suffered the consequences of the crisis in 1998-1999, mainly due to their modest economic links with Russia (see Chapter Two). On the contrary, for Hungary, the period 1998-1999 marked the largest increase in employment across the entire period 1990-2005 (see Chart I.10). Although it was on the increase for six consecutive years, the employment rate remained at a relatively low level (see Chart I.11). It should be emphasised that between 1997 and 2000 and then from 2002 onwards, Hungary saw an increase in the participation rate, which was , however, not enough to fully reverse the considerable decline in labour supply which occurred earlier. Hence, Hungary still has the lowest labour supply out of all the NMS8.

It is worth mentioning that it is the increase in participation of over-55-year-olds, which nearly doubled from 18.8 per cent in 1998 to 34.4 in 2005, that was of key importance for the recent expansion of labour supply in Hungary. As presented in Box I.1, the example of Hungary perfectly illustrates the influence of institutional factors on participation and employment rates for groups with high labour supply elasticity, such as the elderly (Fortuny et al., 2003), the young entering the labour market, and – to some extent – women (see Bukowski et al., 2006). This example demonstrates that even in the face of a general stagnation in the labour market, limitation of possibilities and incentives to withdraw from the labour market leads to increased employment among the people in pre-retirement age and thus to the improvement of the general picture of the labour market. It should be noted that in 2001-2002 the decrease in output growth to 3 per cent annually and the stabilisation of the employment level were accompanied by a decrease in unemployment, caused by the outflow of the unemployed from the labour market (see Charts I.11 and I.12). This indicates that fluctuations of participation in Hungary constituted an important channel of absorption of labour demand changes and that the policy aimed at increasing participation was not consistent. Consequently, in 2005, the Hungarian labour market was characterised by low unemployment (in the NMS8, higher only than that in Slovenia) and at the same time by the lowest participation rate among the working age individuals.

Out of all new EU member states, Slovenia stood out due to its relatively high rate of economic growth from 1994 until a slight slowdown in 2001, which was again followed by relatively high growth. The downturn which took place at the beginning of this decade brought a reversal of the increasing trend in the number of the working population observed since 1998 (see Chart I.10) both in absolute terms and with respect to the employment rate. As presented in Charts I.11 and I.12, employment and unemployment fluctuations in Slovenia can be perceived as fluctuations around some medium-term average rates, accordingly amounting to 64/65 and approximately 6.5 per cent. The economic upturn of 2004-2005 entailed a faster increase in the number of employed than it had been the case a couple of years before. As a result, in 2005, the employment rate in Slovenia reached the highest level out of all NMS8. It should be noted that in the period 2004-2005 the participation rate in Slovenia grew by 3.6 percentage points which was almost completely absorbed by an increase in employment. To a large extent, the increased labour supply and employment in the age group 55-64 (by 8 percentage points in the period 2000-2005) contributed to such labour supply and employment expansion, which enabled a decrease in unemployment of the elderly, although the rates of participation and employment are still rather low in Slovenia – their levels are similar to those in Slovakia and in Hungary, i.e. countries which have clearly lower overall participation and employment rates. Slovenia also introduced institutional reforms, which were of significance and which consisted above all in the limitation of availability of unemployment benefits granted to elderly persons virtually for open-ended periods and which played the role of veiled early retirement arrangements (see Vodopivec et al., (2003), Bukowski et al. (2006)).

The developments that occurred in the Polish labour market in the last three years (described in section 1.1) were generally typical for the NMS8 and therefore the fact that at present Poland distinguishes itself negatively from these countries should be attributed, above all, to the events of the period 1998-2002. A decade ago, Poland was characterised by unemployment rate close to the NMS8 average and by fast-growing employment during the economic upturn. These trends were curbed in 1998, when, similarly to Slovakia and the Baltic states, Poland experienced a deep decrease in employment and increase in unemployment, which continued as dominating developments in the labour markets of the above countries for about two years. The period 2001-2003 constituted another crucial stage because the developments in the Polish labour market diverged from those in all other countries in the region where the number of the working population started to increase gradually, whereas in Poland the decrease in employment and increase in unemployment deepened. Consequently, in 2002, the unemployment rate in Poland rocketed above 20 per cent, thus exceeding twice the average for the NMS7 (excluding Poland). There is one aspect of the recent evolution of the NMS8 labour markets which evidently distinguishes Poland – unfortunately in the negative sense –namely the participation rate of over-55-year-olds. As indicated in section 1.1, the stagnation in participation rates for the elderly in Poland can be explicitly attributed to institutional factors in the form of social expenditure system which creates (probably) the strongest incentives to withdrawal from the labour market before reaching the statutory retirement age , and which, as opposed to other new EU member states, has not been subjected to considerable reform.

[9] The aggregate employment growth rates in the period 2000-2005 in Estonia, Latvia and Lithuania amounted to 5, 7 and 10 per cent respectively.

Box I.1. Retirement system and labour supply of the elderly in Hungary

One element of the social security system which has been operating in Hungary since the early 1990s was, similarly to other countries in the CEE region, the early retirement scheme. This scheme made it possible for the Hungarians to withdraw from the labour market a couple of years before reaching the statutory retirement age, which was at that time the lowest in Europe with 55 years for women and 60 years for men. According to Bukowski et al. (2006), earlier retirement is an element of social security which de facto is a tool of passive labour market policy as it allows people in pre-retirement age to withdraw from the labour market. This is perceived as one of methods to limit the level of unemployment and to ease its social consequences. By introducing broadly accessible early retirement options, or other benefits of similar economic characteristics (such as, for example in Poland, disability pensions due to a continuing inability to work), the CEE countries resorted to the same policy as the OECD countries in the 1970s and 1980s to remedy the negative shocks in their labour markets.

The consequences of this policy – for the CEE recently and the OECD countries in the past – proved grave and negative as they led to a considerable decline in labour supply of elderly people, thus adding to the pressure on the working population charged with the cost of financing transfers by increased taxation. In the case of Hungary, easy access to these benefits led to slump in the participation rate of the age group 55-64 to only 18.3 per cent in 1998 and to the lowering of the average age of withdrawal from the labour market to 56.9 years. However, high costs of this policy were related to the relatively high tax wedge imposed on working persons and they contributed to deficits in public finance.

Table I.6.
Participation and employment rates for the age group 55-64 and the average age of withdrawal from the labour market in Hungary in the period 1997-2005

	1997	1998	1999	2000	2001	2002	2003	2004	2005
Participation rate	18.8	18.3	19.9	22.9	24.2	26.4	29.8	32.0	34.3
Employment rate	17.7	17.3	19.4	22.2	23.5	25.6	28.9	31.1	33.0
Average age of withdrawal	57.5	56.9	57.3	57.0	57.6	59.1	61.6	60.5	59.8

Source: Own elaboration based on Eurostat and OECD data.

In most Western European countries, a number of measures were undertaken to limit the detrimental influence of the social security system, which made it possible to reverse the decreasing trend in participation of the elderly. High rate of withdrawal made the Hungarians reform their retirement system and one element of this reform was the limitation of availability of transfers which induced elderly persons to withdraw from the labour market. The reforms initiated in 1998 included, among others, levelling and gradual increase of the statutory retirement age for women and men to 62 years (for men, this target was achieved in 2001, whereas for women the expected date of implementation is 2009) and replacement of early retirement options with special unemployment benefits for persons in pre-retirement age. These benefits are available to people who are aged not more than 5 years below the retirement age, however, the criteria for granting the benefit are much more restrictive than in the case of early retirement and their amount is limited to 80 per cent of minimum retirement pension.

The increase of the statutory retirement age as well as the limitation of access to pre-retirement benefits effectively limited the scale of early withdrawal from the labour market, led to a significant increase in labour supply of the elderly and consequently in the employment rate for this age group and the increase in the average age of withdrawal from the labour market. After a couple of years from the implementation of these changes, participation and employment rates from persons in the pre-retirement age nearly doubled and the average retirement age exceeded 60 years.

In view of the fact that in the previous issue of this report the focus was placed on institutional factors affecting the Polish labour market, including above all the disincentives created by social transfers, in the subsequent part of this issue, we focus on the analysis of macroeconomic factors, which, as it seems, were of decisive importance for different developments in the NMS8 labour markets in the period 1998-2005. Although institutional and structural features of the labour market play a key role in shaping the average, medium-term levels of labour market aggregates and indicators, as well as the trends that arise within this market, especially in case of labour supply, they are not in themselves the cause for employment and unemployment variations, particularly in case of developments that are as abrupt as those observed in the NMS8 over the last decade. Therefore, in the next Chapter, we make an attempt at identifying the nature and magnitude of demand and supply shocks that affected particular economies and their labour markets, but we also analyse how successful these economies were in absorbing the disturbances we pinpoint. Moreover, we try to identify impulses commonly affecting NMS8 economies as well as country-specific shocks, and to assess to what extent different developments in the labour market in last 15 years could be explained by different economic growth performance and government policy reactions to economic fluctuations. One example of such response are measures undertaken in the area of labour market institutions, which can have an influence on the fact that the common shocks influence the various labour markets with different magnitude or persistence.

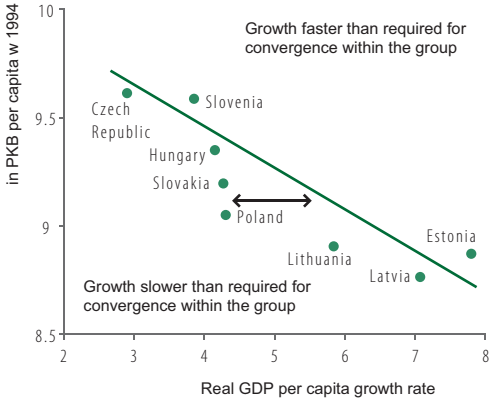
2. Macroeconomic and institutional environments of the labour markets in the NMS8 in the period 1994-2005

2.1 Introduction

The evolution of labour market aggregates should be perceived as a combination of gradual changes in their relatively stable equilibrium values and of absorption of effects resulting from unexpected external disturbances. In other words, the experiences of the OECD countries indicate that generally periods of high unemployment result from severe adverse shocks, and that the situation in the labour market affected by such disturbance is determined in a medium-term by the speed with which the given labour market is able to absorb the effects of the disturbance. Moreover, these experiences indicate that repercussions that occur at the level of individual employed / unemployed persons often intensify and prolong the consequences of transitory shocks, and that modifications of labour market institutions, reflect the government policy, implemented in response to external disturbances, may contribute to changes natural unemployment rate and equilibrium unemployment (see Blanchard, Landier (2002), Nickell et al., (2005)).

In this Chapter, we scrutinise how the macroeconomic factors affecting the NMS8 labour markets have evolved since the early nineties, with the main focus on technological shocks, external demand fluctuations and demand – fiscal and monetary – policies. These deliberations will allow us to assess to what extent different evolutions in the labour markets of particular countries can be attributed to **different shocks affecting these countries**. We also look into the influence that the **implemented of demand-side policies**, i.e. fiscal and monetary policies, exerted in the examined period on output evolution and in particular how these policies influence the accommodation of disturbances in various countries in the region. The initial years of the transformation brought a decline in GDP of the post-communist countries which reflected adjustments in the supply structure of their economies to the requirements of the market, and the decline of sectors overdeveloped under the centrally planned economy.[10] This process unfolded at different speeds (e.g. the GDP slump in the Czech Republic is said to be smaller than in Poland or Hungary) and in specific cases it occurred at different points during the period 1989-1995 (in Poland and in the Czech Republic, GDP was on the rise as early as 1992, whereas in the Baltic states, growth rates were still negative in 1994). However, after 1994, general real convergence of GDP per capita levels could be observed in the NMS8 (see Chart I.14). Countries with the highest GDP per capita in 1994, namely Slovenia and the Czech Republic, were characterised by lower than average growth rates later on. As for the period 1994-2005, the highest growth rate was observed in the Baltic states – initially the poorest. Nevertheless, the gap was so large that the difference between their GDP per capita levels and those of other countries was not fully cancelled out in the above period. Poland distinguishes itself from this general picture. In the first half of the 1990s it experienced strong growth performance and already in 1996 was the first and the only country in the region which reached the GDP per capita level recorded before 1989.[11] However, a considerably less favourable evolution of the economic situation in the following years made Poland the only country with evidently lower medium- and long-term growth rate than the theoretical rate that ensures convergence to the level comparable with the other NMS8 countries. In other words, considering Poland's initial level of GDP, if Poland was to catch up with other NMS8 economies, especially with the Baltic states which in the mid-1990s had lower GDP per capita than Poland but at present have reached higher per capita income , it should grow at the average annual rate of approximately 6.0 per cent rather than at actual annual rate of 4.2 per cent on average. During the period 1994-2006, Slovakia and Lithuania also distinguished themselves negatively as they did not reach the expected growth and convergence rates, however, in their case, this gap was clearly smaller than in the case of Poland. At the other extreme, there were Estonia and Slovenia which exhibited exceptionally high growth rates (considering their initial per capita income levels).

Chart I.14.
Average growth rate of real GDP per capita in the period 1994-2005 versus a logarithm of initial GDP per capita (in purchasing power parity USD) in 1994 in the NMS8.



Source: Own elaboration based on GGDC data

[10] Account should be taken of considerable methodological difficulties in measuring the GDP in CEE transition economies at the beginning of the nineties. For example, in Poland, where the international statistical standards were adopted relatively early, the Central Statistical Office has been calculating GDP in accordance with the Eurostat methodology only starting in 1995. Hence, any earlier comparisons of output levels or GDP growth in the NMS8 should be treated with caution.
[11] Expressed in purchasing power parity USD (GGDC data). In case of the Czech Republic, Estonia, Slovakia, Slovenia and Hungary, this happened in 2000, in Latvia in 2003 and in Lithuania as late as in 2004.

Simultaneously to the process of convergence occurring within NMS8 group, the countries in the region gradually reduced the income gap towards the EU15. As presented in Chart I.15,[12] in particular cases, this process began between 1991 and 1994, after these countries overcame the direct repercussions of the so-called transformation shock, i.e. after they adapted their production volume and structure, previously determined by the rules of the centrally planned economy, to the requirements of the free market. Moreover, almost all examined countries experienced, prior to the year 2000, temporary slowdown in the rate of convergence towards the EU15,[13] however, certain differences can be observed as to the timing and, above all, the depth of this slowdown. At the beginning of the century, the NMS8, excluding Poland and Slovenia, again began reducing the gap between them and Western Europe. Different growth rates throughout the period resulted in reshuffling in the ranking of relative wealth in these countries compared with the EU15. In 1994, Latvia, with her GDP per capita amounting to ¼ of per capita GDP of France, was the poorest country in the region, whereas the Czech Republic with income per capita equal to 56 per cent of that of France, was the richest. In 2005, Poland moved to the lowest rank (42 per cent) and Slovenia headed the league with 69 per cent of the per capita income of France.

Labour productivity, evidently lower but growing faster in the NMS8 than in the EU15, was of key significance both for the existence of the described income gap and also for its gradual reduction. Therefore, the distance between the NMS8 and the EU15 in terms of income per capita was being bridged above all thanks to the increase in output per worker (see Chart I.15). This was so because the legacy of the previous economic system included very high utilisation of labour force (measured as a share of the working population in the total population), which was in fact greater than in the EU15, as well as low labour productivity. According to Bukowski et al. (2006b), throughout the post-war period, the increase in productivity in Poland was slower than in France and to some degree – in terms of total output and output per capita – this failure was compensated by increased labour input. It can be assumed that the situation was analogous in the other post-communist economies.[14] Consequently, at the beginning of the 1990s, in all of the countries in the region labour productivity was below half of the level seen in Western European economies, in 1994, it varied between 23 per cent of French labour productivity (used as a point of reference) achieved in Estonia, 33 per cent in Poland and 48 per cent in Hungary. In 2005, these values amounted to 39 per cent in Latvia, 47 per cent in Poland and 63 per cent in Slovenia.

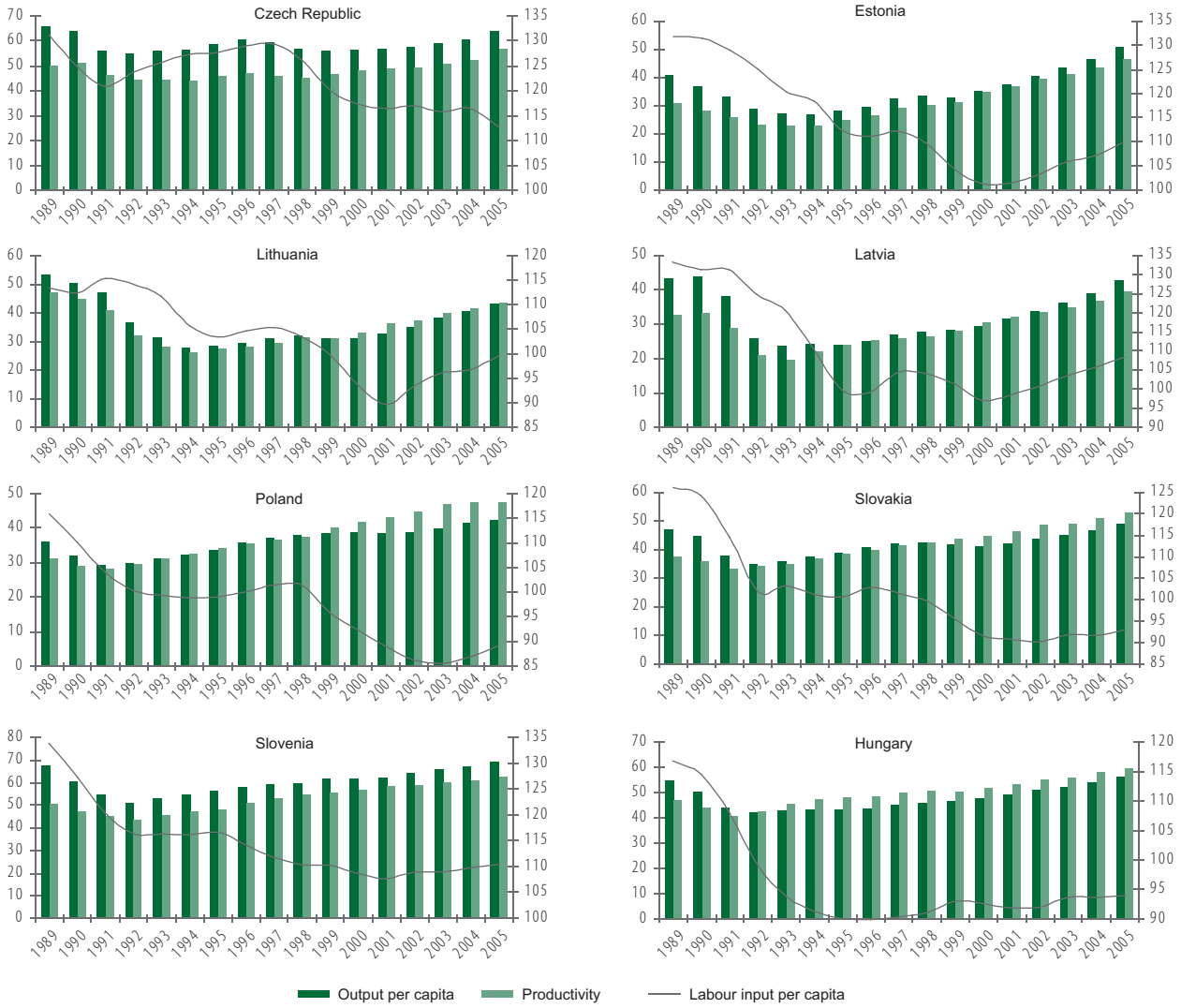
Finally, the clearly greater – in relation to France – labour input observed at the beginning of the transition was a sign of overemployment in the centrally planned economies and, although it has considerably decreased concurrently to the progress of the market reforms, it remained above the French labour input rate in all countries in the region, excluding Poland, Slovakia and Hungary. In the latter three countries, the share of employed in total population is smaller than it is in France and only recently relative labour input has started to contribute to the closing of the development gap towards the EU15, however, this impact is still lesser than in the Baltic states.

Although in the first years of the transition the increase in productivity could be perceived as a mechanical phenomenon, which reflected somewhat automatically the adjustment of overemployment which became apparent in the market economy, in the later period it had a key influence on real convergence of the NMS8 towards the EU15. Chart I.16 indicates that a inverse relationship between the initial productivity level and its subsequent growth rate is as evident as in the case of per capita output (see Chart I.14). As opposed to the GDP per capita dynamics, the growth rate of labour productivity in the Polish economy in 1994-2005 was, in fact, fairly in line with convergence rule, however, with the caveat that economies with the highest initial labour productivity (Czech Republic, Hungary and Slovenia) distinguished themselves positively due to high labour productivity dynamics in comparison with the other countries in the region.[15] This means that insufficient – from the intra-NMS8 convergence perspective – income per capita growth rate in Poland can be considered a consequence, above all, of a the labour input shrinking relatively stronger than in the other countries. The labour productivity growth rate was not high enough to counterbalance this gap.

It is worth emphasising that evolutions of labour productivity and employment in medium-term, such as the period studied in this report, can be largely independent from one another and indeed the NMS8 provides a full spectrum of possible developments of these two variables. Consequently, as illustrated in Chart I.17, the increase in labour productivity does not indicate a systematic relationship with labour input changes. Although in Poland, the Czech Republic and Slovakia the decline in the labour input was accompanied by rising labour productivity, Slovenia enjoyed a higher increase in productivity than the Czech Republic alongside increasing utilisation of this production factor. The Baltic states were not homogeneous in the above respect either – higher real convergence in Latvia than in Lithuania resulted from positive labour productivity dynamics as well as from the expanding labour input, whereas Estonia, which distinguished itself in 1994-2005 by the highest per capita GDP growth rate out of all NMS8, achieved this result due to a boost in labour productivity.

[12] France constitutes a point of reference as its GDP per capita during the examined period was basically equal to the EU15 average (see Caselli, Teneyro, 2005).
[13] Except for Hungary (see Chart I.15), which, however, developed at a slower average rate than the rate resulting from the convergence hypothesis for the NMS8 (see Chart I.16).
[14] Evident shortage of data makes it impossible to verify this proposition for the Baltic states, Slovenia and the Czech Republic and Slovakia separately. However, in Czechoslovakia and in Hungary, the above-mentioned process did occur.
[15] In particular, this "excessively" high growth rate of per capita output in Slovenia was mainly due to a fast increase in labour productivity, which also exceeded the value of absolute real convergence within the NMS8, irrespective of steadily decreasing relative labour input.

Chart I.15.
Decomposition of differences in GDP per capita levels (in purchasing power parity USD) between the NMS8 and France into productivity and labour utilization in the period 1989–2005



Remarks: Variables are expressed as percentages of relevant values for France in particular years.

Source: Own elaboration based on GGDC data

Chart I.16.
Average growth rate of labour productivity in the period 1994-2005 versus the logarithm of its initial level in the NMS8

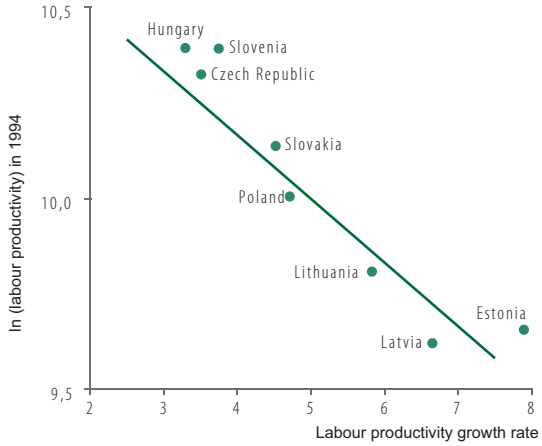
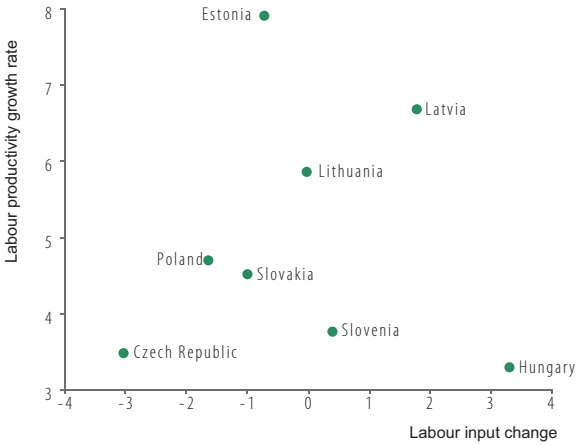


Chart I.17.
Average growth rate of labour productivity and changes in per capita labour input in the period 1994-2005 in the NMS8



Remarks: Labour productivity – GDP per worker in purchasing power parity USD.
Labour input –share of employed in the total population.

Source: Own elaboration based on GGDC data.

Moreover, the recent increased intensity of labour utilisation in the Baltic states was accompanied by invariably high rate of productivity growth, whereas in Poland, after the year 2004, the negative labour input trend was reversed but concurrently the labour productivity dynamics decreased. The above remarks indicate that any robust generalisations about the correlation between productivity growth and employment changes in NMS8 should not be made.

The progress in convergence of particular countries is determined, above all, by their potential to increase labour productivity which results from the ability to improve total factor productivity (TFP)[16] and, to a lesser extent, from the net accumulation of physical capital, which also boosts labour productivity thanks to the higher capital endowment of employed. Indeed, the growth in labour productivity resulting from rising TFP explains the real convergence that occurred within the EU15 (Caselli, Teneyro (2005)), as well as the rapid growth of the so-called Asian tigers, although in this case the importance of capital accumulation was greater than for the European countries (Young (1995), Hsieh (2002)). However, the halt to catching up of EU15 in income per capita with the United States, which happened after 1975, was due to the slowdown of GDP per worker growth in Europe in relation to the United States, further reinforced by negative developments in labour supply in the European countries (see Blanchard (2004)).

This means that, although short-term fluctuations of output growth generally imply changes in the labour market, in the medium term economic growth and labour market developments (understood as changes in employment and unemployment) are not directly related. Technical progress and the ability of economies to introduction of innovations, determine, above all, the rate at which output per capita grows in particular countries and thus decide about the wealth of nations. Technical progress necessarily triggers a number of changes in the labour market, in particular it influences the structure of labour demand and wage levels. These adjustments apply both to intersectoral reallocation of labour, human capital and skill requirements.

Due to the fact that business cycle fluctuations cause employment, unemployment and sometimes also labour supply oscillations in the short run, the present differences in labour market performance within the NMS8 group can be perceived as a **combination of medium-term trends** and **consequences of macroeconomic disturbances** that have occurred in the last couple of years. In fact, Charts I.14 and I.15, which illustrate a general (subject to the above caveats on Poland) convergence among NMS8 countries and the group as a whole towards the EU15, do not inform about changes in time of the level and dynamics of economic activity in the examined countries. As these changes were evident (see Chart I.18), we look at the last decade dividing it into two subsequent sub-periods – from 1996 to 2000, and following the year 2000. The analyzed period begins in 1996 because sufficiently detailed data for the entire group of countries are only available for the period from this year on.

Box I.2. Aggregate shocks in the economy

The output evolution is a composite of trends shaping long-term economic growth as well as of a number of disturbances which are apparent as deviations from these trends. Short-term output fluctuations, i.e. within the an approx. eight-year business cycle span, are caused by aggregate shocks. These are usually divided into **supply** and **demand shocks**. Both types of disturbances can differ in terms of duration – economies are affected by transitory shocks, lasting a coupe of quarters at the most and dissipating gradually throughout the cycle, as well as permanent shocks.

Aggregate **demand shocks** are often transitory in nature. This type of shocks can be triggered, for instance, by periods of expansive fiscal or monetary policy. This is so because increases in public finance deficit and changes in real interest rates – before they are internalised by households through adjusted savings or investment rates – can temporarily lead to an increase or decrease in aggregated demand. nevertheless, shifts of external demand for domestic goods resulting from change in preferences of foreign consumers, are usually considered as permanent shocks. In this Chapter, we look at the occurrence and intensity of these shifts in the NMS8 countries.

Supply shocks can also differ significantly in terms of durability. Price shocks, which consist in exogenous – from the perspective of a given economy – changes in prices of production factors (e.g. raw materials or fuels) as a result of their increased/decreased supply in global markets, are in general transitory. On the other hand, **technological shocks**, or factor productivity disturbances, are often perceived as permanent when they result from technical progress in the strict meaning, lastingly moving the production possibilities frontier of a given economy. It is possible, however, that transitory productivity disturbances occur, for instance, as the **necessity to reallocate resources** between sectors of the economy, when investment in previously popular types of business activity become less profitable, for example because of overinvestment. Due to the fact that the search for new, profit-making types of business is time-consuming, costly and risky, before capital and labour force can be shifted to new forms of business, a transitory slowdown in the dynamics of capital accumulation, labour productivity and economic growth occurs. Supply shocks of this type (permanent or transitory) can also come about as a consequence of changes in regulations which affect the product market and business freedom.

A heterogeneous evolution of the CEE labour markets from1997 on can be attributed to different sequence and intensity of macroeconomic disturbances in the groups of countries specified earlier. Furthermore, to some extent it can be associated with differences in implemented fiscal and monetary policy-mix. Therefore, after presenting the general picture of the macroeconomic conditions during each sub-period, we make an attempt at assessing the influence that fiscal and monetary policy of that time could have exerted on macroeconomic situation, and we focus, above all, on the question about the extent to which demand-side policy affected the labour markets in NMS8 countries. The key issues that we scrutinise are:

[16] The increase in TFP is above all due to technological progress, however, in specific countries it may also depend on institutional and structural features of their economies, such as competitiveness of product markets, "quality" of legislation and institutional incentives or barriers for entrepreneurship.

For fiscal policy:

- assessment whether fiscal policy was anti- or procyclical,
- assessment of the relative share of structural and cyclical components of total public finance balance,
- identification of fiscal impulses, i.e. fiscal expansions and contractions,
- analysis of the type of expenditures/revenues constituting a given impulse,
- assessment of the influence of a given fiscal impulse on the labour market.

For monetary policy:

- analysis of reasons behind the interest rate policy in individual countries,
- assessment whether monetary policy was anti- or procyclical,
- assessment of the influence of monetary policy on the economy and the labour market.

It should be emphasised that apart from aggregate shocks and macroeconomic policy responses to them, various evolutions of examined labour markets – especially in the aftermath of a common shock – could also be a consequence of different abilities of particular countries to accommodate such shock (see Blanchard, Wolfers, 1999). This ability is determined, to a large extent, by structural features of the economy (of the supply and demand on the labour market in particular) and by the institutional structure of the labour market (such as social security system, educational system , retraining and life-long learning facilities, employment protection regulation and degree of economic freedom which determines the conditions for setting up and running business) (see Bassanini, Duval, 2006). As the role of the above factors was discussed in Part IV of the previous issue of this report (see Bukowski et al. 2005), we only touch on the related problems in a brief end note.

Box I.3. Types of shocks in the labour market

Disturbances affecting output imply **shocks in labour demand**, irrespective of their product market nature, i.e. whether they are supply- or demand-determined. Such impulse may involve labour demand changes in almost all sectors of the economy, if it is triggered by an aggregate shock in the product market, or only in certain part of the economy, because technological progress affects the productivity of production factors in particular sectors in an unequal manner, thus implying the need for intersectoral shifts and employment restructuring – such shocks are commonly referred to as **reallocation shocks**. They do not necessarily have to involve changes in total labour demand or fluctuations in employment levels, however, if they are "sufficiently" deep, they can lead to the deterioration of the situation in the labour market for a couple of years, especially if the ability of the economy to reallocate production factors is limited.

Supply shocks in the labour market are connected with fluctuations in labour supply which result from changes in wage expectations of workers and unemployed, distorting the relation between wages and labour productivity. Negative / positive labour supply shocks consist in an increase / decrease in real wages claimed by employees relative to the dynamics of labour productivity, which increases / decreases the real cost of labour. Negative labour supply shocks may be due to an increase in potential income that can be received from sources other than work, or to a relative increase in the bargaining power of employees in wage negotiations with employers. Demographic and migration processes constitute a special case of supply shock as they lead to changes in the total potential labour force in the economy.

Transitory shocks only affect the economy in a short term. However, contrary to the long-lasting impact on output, permanent technological shocks (i.e. persistent increase in production factors productivity) do not imply permanent changes of employment and unemployment rates, although they do influence wage levels. The consequences of such impulses are connected with the elasticity of labour supply and real wages. Although in a short term wages can be – and usually are to some extent – sticky, in a long term they are flexible but elasticity of labour supply is rather low. Therefore, price adjustments allow the return of employment and unemployment to equilibrium and shocks are entirely absorbed by real wage changes.

The experiences of the OECD countries and findings of labour economics indicate that the short-term **performance of the labour market is largely determined** by fluctuations in labour demand, which are characterised by different depth and persistence in particular economies. In fact, in the OECD countries, unemployment rose in the 1970s and 1980s as a consequence of (supply) oil shocks universally and to similar extent. However, after a couple of years, the crucial difference concerning the durability of the primary disturbance became apparent – countries such as France, Germany, Italy, Netherlands, Belgium and Spain recorded only a slight decline in unemployment after the oil shock ceased, whereas in the United States, the Scandinavian countries and in Japan, this disturbance was clearly less persistent. Furthermore, the Scandinavian countries experienced low unemployment until the first half of the 1990s when it soared as a result of a crisis, which combined global recession and a slump in external demand from the former USSR republics. Thus, international differences in labour market performance reflect various levels of the so-called natural unemployment rate in particular countries, as well as differences in the depth of macroeconomic shocks that affect these countries and their ability to absorb such shocks (see Bukowski et al. 2006).

Both long-term equilibrium in the labour market and its **potential to deal with aggregate and reallocation shocks** are related to structural aspects of the economy and the design of labour market intuitions. These factors modify labour supply and demand as well as the scale of frictions and mismatches which are responsible for the effectiveness of the price mechanism which clears the market after disturbances occur. The following are of prime importance:

- structural features of labour supply – of which human capital is the most crucial – which determine the degree of complementarity of capital and labour, as well as the pace of labour supply adjustments to developments in structure of demand for labour,
- product market competition, as its higher level leads to higher total labour demand and greater ability of the economy to reallocate production factors, and thus to shorter periods of propagation of negative reallocation shocks,
- institutional background of the labour market (social security and taxation, collective bargaining model, effectiveness of the active labour market policy, labour law rigidity, etc.), influencing in what time perspective and relative scope, labour demand fluctuations are absorbed by changes in employment or real wages.

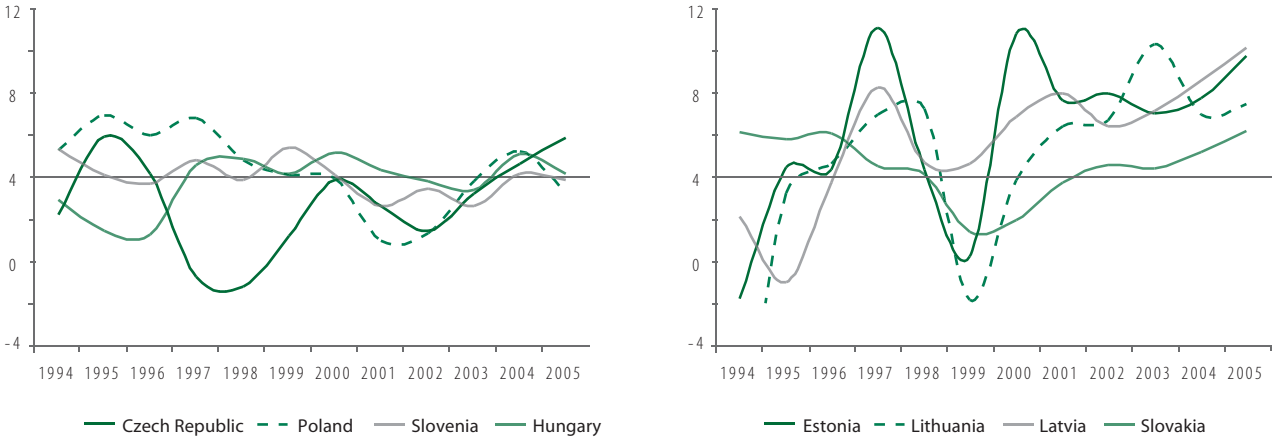
2.2 Period before and directly after the Russian crisis (1994-2000)

2.2.1 Output and external disturbances before the year 2000

After the initial decline in output, from the year 1995 on the NMS8 economies entered a phase of growth, and the period 1996-1997 saw a particularly dynamic economic upturn (see Chart I.18). One consequence of the economic upsurge, which began in the countries in the region at different points in time during the period 1994-1996 (GDP growth in Poland, Slovakia and Slovenia accelerated as early as 1994, whereas in the Czech Republic and in the Baltic states – in 1995), was the increasing employment. Economic growth in Hungary was clearly lower at that time, which was reflected in merely stabilisation of employment after a considerable decline at the beginning of the decade. Employment fluctuated in the above period in dependence on changes in business activity, especially so in Poland, Czech Republic and Slovakia. However, this feature does not appear in the case of Slovenia, which was growing in the period 1994-1998 at the average annual rate of 4 per cent – a little more slowly than Poland or Slovakia but faster than the Czech Republic and, above all, Hungary – and nonetheless, employment remained stable or even declined, like it did in Hungary. The Baltic

states followed a slightly different scenario of the early transition period: the initial decrease in GDP was more significant, reductions in employment came later and their scale was relatively shallower than in Poland, Hungary and Slovenia (see Nesporova (2002), Eamets (2004)). Moreover, the increase in employment that occurred in the mid-1990s was relatively smaller and delayed, as these economies improved significantly their growth rates only from 1996 on. Thus, in the period 1996-1999, the average growth rate for the countries in the region was relatively high and exceeded 5 per cent per year, compared with the average of 2.8 per cent in the EU15 and even lower – by 1 percentage point – growth in Germany. Out of all examined countries, it was only the Czech Republic that experienced a considerable slowdown during this period.

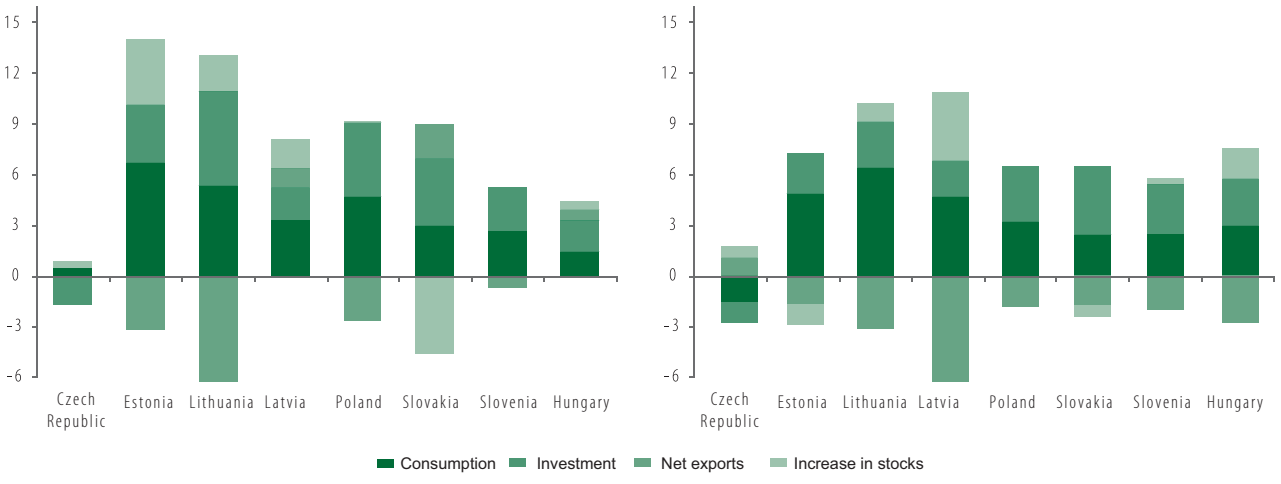
Chart I.18.
GDP dynamics in the NMS8 in the period 1994–2005



Source: Own elaboration based on GGDC data.

The period of dynamic economic upturn in the middle of the decade largely resulted from extensive accumulation and modernisation of capital, which enabled a rapid increase in labour productivity. As presented in Chart I.19, in the period 1996-1998, output in the NMS8 grew mainly due to flourishing internal demand, which, in turn, was a consequence – to the similar extent – of increasing private consumption and investment. In fact, in the period 1996-1998, contributions of consumption and investment to GDP growth in the NMS8 amounted to an average of 3.7 and 3 percentage points respectively.[17] On the other hand, the contribution of net exports to GDP growth in the NMS8 was generally negative in that period, with the exception of the Czech Republic, where exports' contribution was of comparable importance for growth as consumption.[18] This contrast between the Czech Republic and the other countries in the region was due to the currency crisis which originated in the former in 1997, thus causing a 15 per cent depreciation of the Czech crown and resulting in a two-year long decrease in GDP, internal demand, investment and employment, as well as an increase in unemployment. The first symptoms of upswing could be observed as late as mid-1999.

Chart I.19.
Contribution of final demand components to GDP growth in the NMS8 in the years 1997 (left graph) and 1998 (right graph)



Source: Own elaboration based on Eurostat data and on Economic Survey of Europe

[17] Apart from the Czech Republic, which, as from 1997, experienced a negative contribution of investment dynamics to GDP growth due to a financial crisis. In the remaining seven countries, in the period 1996-1998, consumption and investment contributed to GDP growth an annual average of 4 and 3.4 percentage points respectively.
[18] In 1996, these remarks were also valid, apart from negative contribution of net exports in Slovakia – explained by considerable decrease in external demand from the EU member states, including the Czech Republic (OECD, 1998sk) –and apart from decline of consumption in Hungary, reflecting the fiscal contraction initiated in 1995.

The remaining countries in the region were characterised, throughout the period 1995-1999, by high internal demand growth rates accompanied by worsening balances of trade. One reason for such tendencies was the progressing integration of the NMS8 economies in global trade, which translated into a dynamic increase in foreign trade volume. The economic upsurge and high internal demand dynamics were accompanied by a decrease in aggregate domestic savings in relation to output,[19] thus leading to considerable current account balance deficits.[20] In the majority of countries the expansion of foreign debt was a consequence of negative savings of both private and public sector, and only Hungary and Poland exhibited positive net private savings in the period 1996-1998.

Moreover, exports and imports differed with respect to goods capital output ratios and degree of product processing. Exports of the NMS8 , constituted of mainly low-processed goods, including consumption goods. On the imports side, capital goods, necessary for maintaining high investment rates, played an important role. Consequently, capital accumulation in the NMS8 depended largely on foreign direct investment (FDI), the inflow of which helped to improve the capital account balances in the NMS8, thus counterbalancing the current account deficits. Initially, in absolute terms, Poland was the largest recipient of foreign direct investment, receiving 40 per cent of the total FDI inflow to the NMS8 in 1997. However, in relative terms, the Baltic states and Hungary[21] should be regarded as the main beneficiaries of foreign investment in the above period, as illustrated in Table I.7.

Table I.7.
Investment in the NMS8 in the period 1997-2000 (percentage share in GDP)

	1997	1998	1999	2000	1997	1998	1999	2000
	Total investment				Foreign direct investment			
Czech Republic	29.9	28.2	27.0	28.0	2.3	6.0	10.5	8.9
Estonia	27.7	29.9	24.7	26.0	5.4	10.4	5.4	7.0
Lithuania	22.6	24.0	22.0	18.8	3.5	8.3	4.5	3.3
Latvia	16.9	24.7	23.0	24.2	8.4	5.3	5.2	5.3
Poland	22.4	24.1	24.4	23.7	3.1	3.7	4.3	5.5
Slovakia	33.6	35.7	29.3	25.7	b.d.	b.d.	b.d.	10.5
Slovenia	23.1	24.1	26.4	25.6	b.d.	b.d.	b.d.	b.d.
Hungary	22.2	23.6	23.9	22.9	b.d.	b.d.	4.2	3.4

Source: Own elaboration based on Eurostat data.

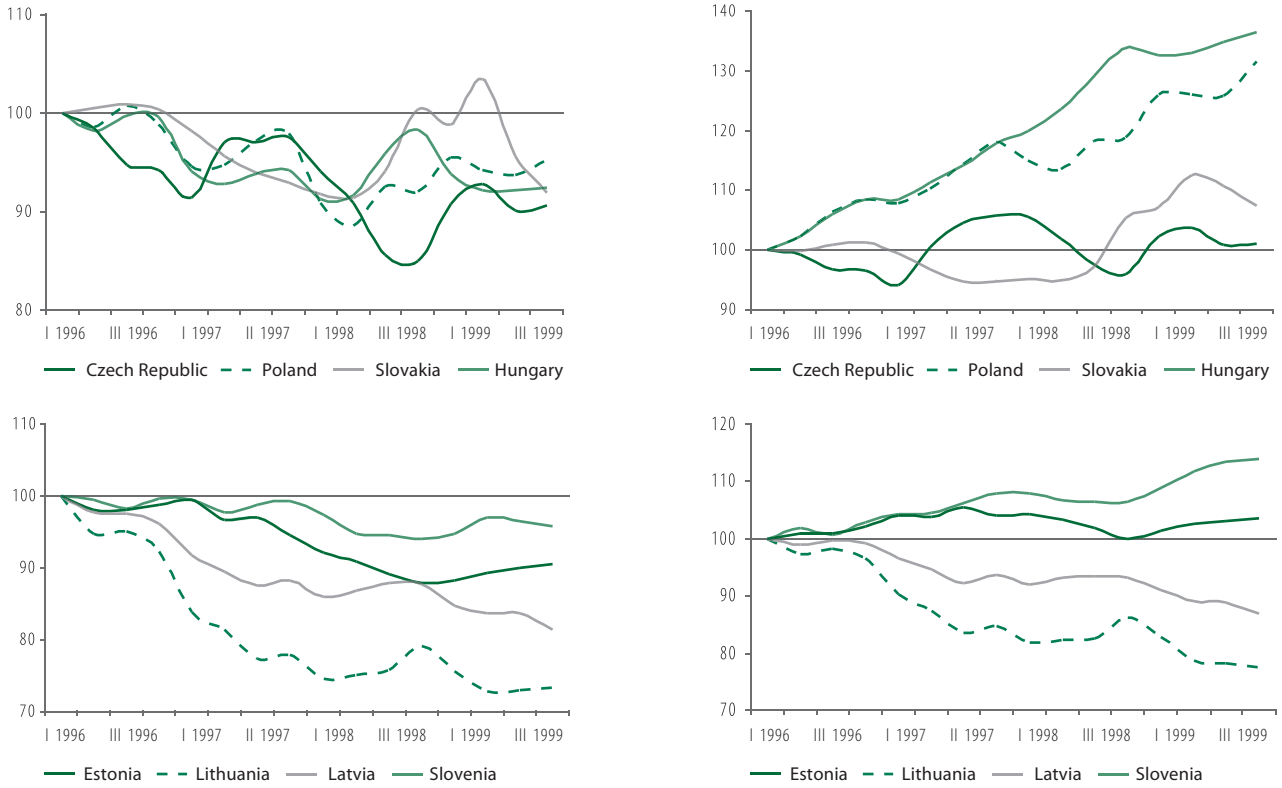
The balance of foreign trade in the NMS8 – shaped, above all, by their increasing participation in the international division of labour and rigid demand for tradable goods not produced locally – could have also been affected by the evolution of real exchange rates, which determined the relative international competitiveness of tradables manufactured by these countries.

Real appreciation was a widespread tendency which in general occurred regardless of nominal exchange rates developments (see Chart I.20). In other words, it took place even in those countries where nominal currencies were weakening, such as Poland, Hungary and Slovenia. This means that higher average inflation recorded in the NMS8 (see Chart I.31) than in the European Economic Area (EEA) member countries did not fully translate into nominal exchange rate depreciation.[22] We look at factors affecting the evolution of nominal exchange rates in the examined countries in the subsequent part devoted to monetary policy, whereas at this point we focus on real exchange rates.

[19] In the period 1996–1997, the share of current account deficit in GDP declined only in Hungary and Slovakia, and in the period 1997–1998, only in the Czech Republic and Estonia.
[20] For instance, in Poland, in 1996, imports grew by 33.8 per cent compared with the previous year, whereas exports rose by as little as 6.7 per cent. As a result, for the first time since1991, in 1996, net exports were negative. The problem of current account imbalance became apparent earliest in Hungary, where, in 1995, the so-called Stablisation Plan was implemented, thus putting into practice fiscal and monetary measures with the objective of reducing the risk of a financial crisis.
[21] Eurostat does not provide FDI data for Hungary prior to 1999, however, in accordance with the OECD data, in 1999, accumulated FDI stock per capita in Hungary exceeded twice the corresponding value in the Czech Republic and nine times in Poland (OECD, 1999hu).
[22] Prior to 1999, none of the NMS8 adopted the floating nominal exchange rate regime and different forms of managed exchange rates were adopted instead (see Box I.6). This means that the nominal depreciation of the Polish and Hungarian currencies resulted exactly from the deliberate policy of these countries' central banks. Similarly, the appreciation (prior to 1997) of the effective nominal exchange rate of the Czech crown reflected fixing of the exchange rate against the German mark, and the appreciation of the Lithuanian currency – the adoption of the currency board.

Chart I.20.

Effective real (left graph) and nominal (right graph) exchange rate of the NMS8 in the period 1996-1999 (1Apr1996=100)



Remarks: CPI deflated real exchange rate. Effective exchange rate is a weighted mean of exchange rates relative to 34 major trading partners of every country. Exchange rates have been calculated in accordance with the European method, meaning that index increases represent depreciation, whereas index decreases – appreciation.

Source: Own elaboration based on Eurostat data

Box I.4. Reasons for real exchange rate developments

Real exchange rate is defined as:

$$\lambda_t = e_t + p_t^* - p_t$$

where λ_t represents real exchange rate, e_t – nominal exchange rate calculated in accordance with the European method, p_t^*– foreign price level, and p_t– domestic price level, at moment t. Variables are expressed in logarithms. Nominal price index can be expressed as a weighted mean of traded p^T and non-traded goods p^N, namely:

$$p_t = \alpha p_t^N + (1-\alpha) p_t^T$$

Realny kurs walutowy można więc zdekomponować następująco:

$$\lambda_t = [e_t - p_t^T + p_t^{T*}] + [-\alpha(p_t^N - p_t^T) + \alpha^*(p_t^{N*} - p_t^{T*})]$$

The first component of the above sum represents relative price of foreign and domestic tradable goods, whereas the second – relative price of foreign and domestic non-tradable goods expressed in units of domestic tradable goods. Therefore, real exchange rate developments, especially real exchange rate **appreciation, i.e. decrease in λ_t**, can result from changes in prices of tradable goods (i.e. from nominal exchange rate appreciation or more dynamic increase in prices of domestic than foreign tradables), or from changes in relative prices of domestic and foreign non- tradable goods (i.e. from convergence of price levels of domestic to foreign non- tradable goods).

If the so-called **the law of one price** (stating that prices of tradable goods expressed in the same currency are equal) applies, the first component of the sum will be zero and constant in time. However, in practice, the law of one price is not valid because domestic and foreign tradable goods are not perfect substitutes and international trade is hindered by certain barriers. Consequently, relative prices of tradables also fluctuate, for instance, if productivity of their manufacturing grows faster domestically than abroad.

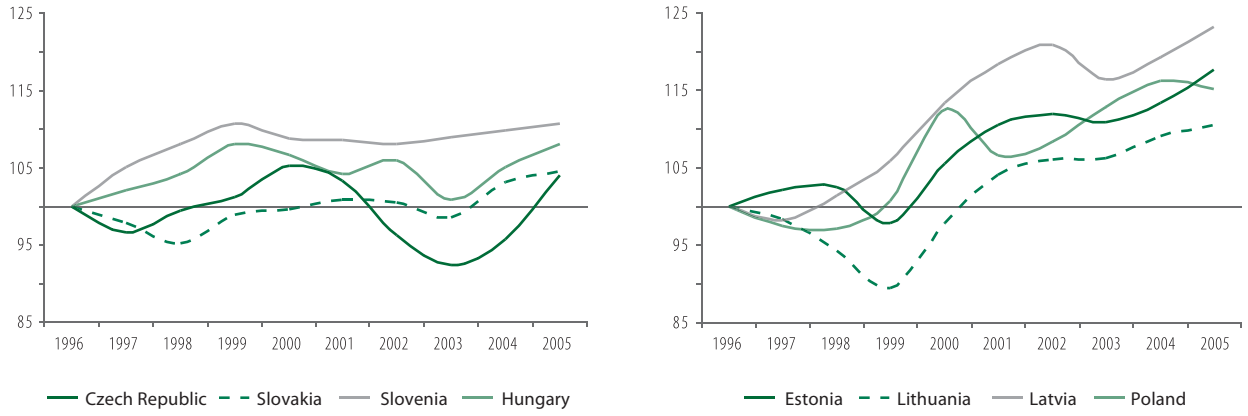
Changes in relative prices of non-tradable goods can be caused by higher productivity growth in the domestic sector producing tradables. Rapid productivity increases imply real wage increases in the tradables sector, which translates into rising prices of non-tradables – due to, firstly the one hand, demand factors, and on the other, changes in nominal wages also in the sector of non-tradable goods. This phenomenon is known as the Balassa-Samuelson effect.

Real exchange rate appreciation may be connected with either the strengthening of the real exchange rate limited to tradable goods (hence, with a relative decline in exports competitiveness), or changes in relative prices between tradable and non-tradable goods, on foreign and domestic market (see Box I.4). In both cases, the probable reason for the strengthening of the real exchange rate was the productivity convergence between the NMS8 and the EU15 (see Chart I.15). It can be reasonably assumed that the increase in productivity proceeded faster in the tradables rather than non-tradables sector, thus lowering the relative production cost of tradables and leading to real appreciation.[23] Moreover, rising labour productivity translated (though not entirely) into the increase in real wages, and consequently into changes in relative prices of tradable and non-tradable goods.[24] As the result, the real exchange rate gradually appreciated.

It is worth noting that, using real GDP per worker as a measure of in the period 1996-1999, real appreciation exceeded the dynamics of productivity only in the Czech Republic,[25] Lithuania and Latvia,[26] whereas in the remaining countries in the region productivity grew faster than relative prices of domestic to foreign goods, and thus their international competitiveness ***de facto*** improved. Such conclusion is valid for real exchange rates deflated by both the consumer price index and unit labour costs. This means that the productivity growth was accompanied by a relative decrease in real – from the foreign perspective – cost of labour in examined countries, because the labour productivity increase surpassed the real appreciation. Moreover, the relative price of output of these economies was decreasing.[27] Both features indicate that the attractiveness of the countries in the region as investment location was generally improving. It can therefore be surmised that their foreign trade balances were determined predominantly by the distinct structures of their imports and exports – in terms of degree of product processing, capital and labour intensity and technological level of imported and exported goods – rather than by real exchange rate developments.

Labour productivity generally grew in all countries in the region and the inverse relation between the initial level of labour productivity and its growth dynamics (see Chart I.16) was visible also in the period 1996-1999. However, as far as labour demand is concerned, as well as the possibilities of occurrence of appreciation pressure (see Box I.4), the evolution of the relationship between labour productivity and real wages is of crucial importance, as it determines the changes in unit labour cost in the economy. In fact, in the period of rapid growth of 1996-1999, in a couple of countries real wages grew faster than labour productivity (see Chart I.21), which can be explained by the non-competitive nature of wage negotiations (see Lindbeck, Snower, 2002) in some sectors of the economy (especially in the public sector and in highly unionised branches). Nevertheless, from the foreign perspective, this was of no particular significance. Real appreciation was generally smaller than labour productivity growth in general, and hence even more so than productivity growth in the tradables sector, which attracts the majority of foreign direct investment.

Chart I.21.
Labour productivity increase in relation to real wage increase in the NMS8 in the period 1996-2005



Remarks: Labour productivity – GDP per worker in purchasing power parity USD (GGDC data).
Real wages – average nominal wage adjusted by the GDP deflator (Eurostat data).

Source: Own elaboration based on GGDC and Eurostat data.

[23] For instance, Jazbec (2002) estimates for Slovenia that, in the period 1993-2001, 1 per cent faster labour productivity growth in industry (being a proxy for the productivity increase in the tradable goods sector) than in services (which constitute a majority of non-tradable goods) implied an appreciation of real exchange rate by 1.5 per cent.
[24] Egert et al. (2003) attribute a large part of the real appreciation which occurred in the transition countries in the period 1995-2000 to the trend price increase of tradable goods.
[25] In the Czech Republic, the real appreciation exceeded the productivity increase even after the currency crisis leading to nominal depreciation. It results from the fact that, at the time of the crisis, the decrease in output was relatively deeper than employment reductions, and therefore labour productivity actually decreased in 1997.
[26] Sharp appreciation in case of these two Baltic states occurred simultaneously with the Russian crisis and is connected with the improvement of terms-of-trade with Russia, their main trading partner.
[27] Only in Hungary was the productivity dynamics in the period 1996-1999 virtually equal to the dynamics of the real exchange rate deflated by unit cost of labour, thus indicating to the relative stability of the real labour cost in Hungary from the foreign perspective, and the relatively decreasing relative price of the Hungarian goods.

Openness to international trade gradually unfolded to the extent that, in the second half of the 1990s, the CEE economies distinguished themselves by their relatively high vulnerability to external demand disturbances. Furthermore, their trade structures – in terms of degree of processing of goods and export destinations, largely limited the possibility of re-directing supply of exported goods to domestic markets, for instance in the aftermath of an external demand breakdown. This was so mainly due to low substitutability of exported and imported goods. These factors led to situation where a decrease in external demand could turn into a real negative demand shock. This is exactly the type of disturbance that occurred in Russia in the form of a **financial crisis**,[28] resulting in collapse of foreign trade, especially affecting the countries neighbouring with the Commonwealth of Independent States (CIS).

Table I.8.
Current account balances (percentage share in GDP) of the NMS8 in the period 1995-2000

	Czech Republic	Estonia	Lithuania	Latvia	Poland	Slovakia	Slovenia	Hungary
1995	-2.5	-4.2	-9.5	-0.3	0.6	2.0	-0.4	-3.4
1996	-6.7	-8.6	-8.9	-5.0	-2.1	-10	0.3	-3.9
1997	-6.3	-11.4	-9.9	-5.6	-3.7	-9.2	0.3	-4.4
1998	-2.1	-8.6	-11.6	-9.8	-4.0	-9.5	-0.6	-7.1
1999	-2.5	-5.3	-10.9	-9.1	-7.4	-5.6	-3.2	-7.8
2000	-4.9	-5.4	-5.9	-4.7	-5.8	-3.4	-2.8	-8.5

Source: Ministry of Economy 2006

As a result of this disturbance, the rapid economic growth lasting since 1996, slowed down in mid-1998, and was followed by economic stagnation, lasting in from two to six quarters in various countries. This shock was particularly severe and earliest to be noticed in the Baltic states where, in 1999, the decrease in GDP growth rate amounted to approximately 5 percentage points compared to the previous year, and on the other hand was relatively weakest in the Czech Republic,[29] Hungary and Slovenia. In Poland, the immediate effects were moderate, GDP growth remained relatively high (around 4 per cent annually), and the slowdown lasted only three quarters. Such differences in vulnerability of the countries in the region to the Russian shock is reflected in the changes in their current account balances (see Table I.8) – the Baltic states registered a deterioration in trade balances as early as 1998, whereas Poland followed with a slight delay.

The consequences of a financial crisis occurring in one country can spill over onto other economies via two main channels – through **international trade** and through the **financial channel**. The financial channel, which means devaluation pressure on currencies of other countries that suffer from capital outflows as a result of the financial crisis, turned out to be of little importance. As far as international trade is concerned, the effects of the crisis became apparent as early as the third and fourth quarter of 1998, above all in the Baltic states, for which Russia had been the main exports destination. In 1999, Russia's share in total exports of the Baltic states decreased on average by one third compared with the situation before the crisis.

In the case of the other NMS8, impact of the shock was smaller (see Chart I.22) due to both lower initial trade integration with Russia (exports from the Czech Republic and Poland to Russia amounted to 3.4 and 8.4 per cent of these countries' GDP respectively) and smaller slump in foreign trade. It should be emphasised, however, that, contrary to the other examined countries, Poland and Slovakia had been closely connected via trade with Ukraine and Belarus (jointly accounting for respectively 6 and 10 per cent of total exports in 1997-1998), which – due to high level of integration of these countries with the Russian economy – acted as an additional transmission channel of the demand disturbance. Moreover, in case of Poland, cross-border trade was of especially great importance and its balance deteriorated greatly as a result of the crisis (Becke, Fidrmuc (2000)). Thus, the spill-over effect of the shock could have been stronger for Poland (and Slovakia) than for the Czech Republic and Hungary.

The consequences of the Russian crisis in the second half of the year 1998 were further reinforced by a temporary decrease in import demand in Western Europe, particularly in Germany, which was the main trade partner of Poland, the Czech Republic and Slovenia (see Chart I.22). The increase of UE15 demand from 1999 on was on the other hand an important factor in the recovery of the CEE economies and allowed for a ongoing increase in the role of the EU member states as trade partners of the NMS8. Notwithstanding the above, in 1999, the GDP dynamics in the NMS8 was on average by lower 2 percentage points than in the previous year.

[28] The Russian crisis was a consequence of Russia's swelling foreign debt (of the public and private sectors alike), which, alongside fixed exchange rate, led to an abrupt devaluation of the rouble, declaration of partial insolvency by the Federation authorities, increase of indebtedness of companies and a banking crisis. The resulting decline in disposable income as well as worsening of terms-of-trade translated into a slump of demand for imported goods.
[29] In the period 1997-1998, GDP declined in the Czech Republic because of a currency crisis. In 1999, for the first time in two years, the Czech Republic registered GDP growth of 1.2 per cent.

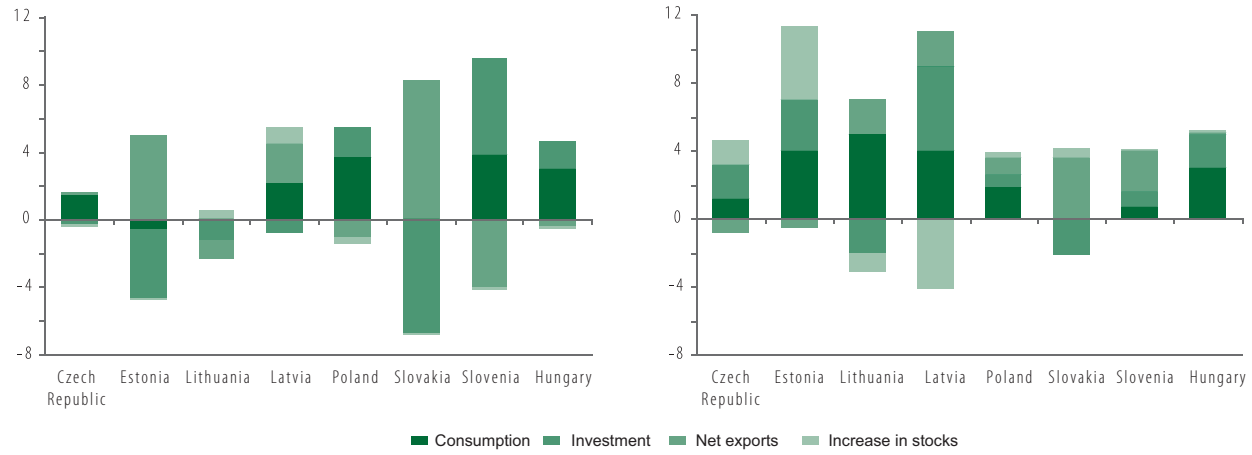
Chart I.22.
Dynamics of exports from the NMS8 to Russia, Germany and the EU (1Apr1996=100) in the period 1996–1998

Source: Own elaboration based on IMF deseasonalised data.

Hence, the Russian shock led to a number of significant changes in the trade structure of the countries in the region. However, as far as in the period 1996-1998 the contribution of net exports to the increase in GDP was generally negative in NMS8, in 1999-2000, this contribution was already positive and amounted to 1.5 percentage points on average. It resulted from modifications in the structure of exported goods as well as in export directions of the CEE economies. In all countries in the region affected by the crisis, the export flows were redirected to the EU15, and in particular to Germany (in case of Poland, the Czech Republic and Slovakia), Finland and Sweden (in case of Estonia). Another repercussion of the Russian crisis was the 1999 decline in domestic demand, particularly in investment, in the Baltic states. This was so mainly because of the considerable (though transitory) deterioration of the situation on their labour markets and the simultaneous decrease in disposable income. As presented in Chart I.18, the consequences of the crisis in terms of GDP dynamics were for the Baltic states severe but also of short duration – as early as 2000 these countries re-entered the path of rapid growth, stimulated to similar extent by domestic and external demand (see Chart I.23).

The economic situation in Hungary and Slovenia was different because these economies were only modestly linked (directly and indirectly) with Russia and as a result they did not experience a negative demand shock in 1998.[30] In Hungary, between 1997 and 2001, the average annual growth rate exceeded 4 per cent, mainly due to high domestic demand dynamics. Slovenia, in turn, had been growing fairly fast since 1994 – initially, thanks to its exports,[31] and as from 1997 – domestic consumption and investment, including state investment. The clearly negative contribution of net exports to GDP growth in Slovenia in 1999 stemmed from the decline in EU15 demand. Nevertheless, it was only temporary and already in 2000, external demand was the main demand contribution to positive GDP dynamics in this country.[32]

Chart I.23.
Contribution of final demand components to GDP in the NMS8 in the years 1999 (left graph) and 2000 (right graph)



Source: Own elaboration based on Eurostat and OECD data and Economic Survey of Europe.

The Russian crisis triggered off major developments in the labour markets of most NMS8. In the period 1998-2000, the employment rate declined by 2-4 percentage points in those countries in the region that had been particularly highly integrated, whether indirectly or directly, with the Russian economy (see Bukowski et al. 2005 and Chart I.10). The increase in unemployment rates was comparable,[33] and the Baltic states also experienced a decrease in participation. Therefore, the shock, which was transmitted above all through the trade channel, affected especially badly the labour markets of Russia's neighbours, namely Ukraine, Belarus, the Baltic states, Slovakia and Poland. As mentioned above, it was not only the breakdown of aggregate demand dynamics and ensuing decline of GDP dynamics that was of importance, but also the necessity, forced by the crisis, to modify the structure and directions of export flows, thus consequently the production profiles in a number of sectors of the economy. As explained in the subsequent part of this chapter, devoted to the period after the year 2000, the above adjustment was particularly severe in Poland, which not only experienced a collapse of exports to Russia in 1998, but also had to cope with a prolonged decline in return on capital and in the dynamics of total factor productivity.

On the other hand, the Russian crisis did not affect the labour markets of those countries which had scarce trade links with the CIS countries, for instance, Hungary and Slovenia, which, in the period 1998-2000, actually exhibited increasing employment and decreasing unemployment rates (in both cases by approximately 2 percentage points – see Charts I.10 and I.11). The impact of the Russian crisis on the Czech labour market was relatively small because this country had already at that time stronger trade links with the European Union than Poland, Slovakia or the Baltic states. Therefore, the Czech Republic was only affected by the limited spill-overs coming from Slovakia, the economic situation of which was worsening. At the same time, however, the Czech Republic was still struggling in 1998-1999 with the consequences of its own financial crisis, forcing enterprises to undergo far-reaching adjustments of labour demand. Consequently, this country also registered a decrease in employment and an increase in unemployment, though visibly smaller than in Poland and Slovakia.

[30] As presented in Chart I.22, although the trade links between Hungary and Russia had been on constant rise prior to 1998, in comparison with the trade links with the EU member states, and in particular with Germany which accounted for half of Hungarian exports, they were of little importance.
[31] Directed above all to Western Europe – as early as 1995, Germany – Slovenia's main trade partner – received 30 per cent of exports, and the OECD countries accounted for 80 per cent of total exports in Slovenia.
[32] Slovenia distinguished itself with "best" current account balance out of all examined countries and indeed only in 1999-2001 experienced deficit on this account (see Table I.8).
[33] Apart from Latvia, where the labour market situation was worse than in the remaining countries even before the Russian crisis, particularly with respect to unemployment rate. Moreover, Latvia, to a greater extent than other countries, absorbed the shock in the labour market through decreasing participation.

2.2.2 Fiscal policy before the year 2000

In the second half of the 1990s, fiscal policies of the NMS8 focused mainly on maintaining stable budget deficit levels in relation to GDP in medium-term.[34] This task was easier, among others, thanks to proceeds from privatisation. This strategy was implemented, for instance, in Poland, the Czech Republic, Estonia and Latvia. At the same time, prior to the year 2000, the countries in the region made attempts at decreasing the share of the public finance sector in their GDPs, above all, by reducing consumption and (to a lesser extent) public investment. Generally, it can be said that in the second half of the 1990s, the CEE countries were characterised by similar shares of public expenditure in their GDPs, however, their levels of government consumption and social expenditure were largely different – Poland, the Czech Republic and Hungary allocated greater shares of GDP to social transfers than the Baltic states and Slovakia, which was compensated with relatively lower expenditure on public consumption (see Charts I.28-I.30). After 2000, the share of the public sector in GDPs of the Czech Republic, Poland, Slovenia and Hungary reached approximately 45 per cent, whereas in the Baltic states and Slovakia, the decline in the share of public expenditure in GDP continued until the average level of 35 per cent was reached in 2005 (see Chart I.25).

Evolution of public finance deficits in the NMS8 in the period 1996-2005, juxtaposed with cyclical GDP fluctuations in that period, exposes three phenomena that become apparent in the area of demand-side policy. Firstly, in some of the countries (Poland, the Czech Republic and Hungary) a very clear tendency could be observed, namely more or less stable deficits in medium-term were maintained, with certain deviations caused, above all, by fluctuations of budget expenditure.[35] Secondly, in the remaining countries (i.e. the Baltic states and Slovakia), a period of strong fluctuations in 1997-2000 was followed by an visible tendency to gradually reduce total deficit until the primary surplus was reached (see Chart I.24). Thirdly, although in a majority of countries (except for Hungary) minor anti-cyclical fluctuations in total and primary deficit could be observed, meaning that deficit was generally increasing during periods of slower growth and declining when the economy was booming, it can be reasonably assumed that most of these fluctuations were due to the automatic stabilisers. Thus, the fact that these deficits were evolved (with some exceptions) in direction reverse to GDP fluctuations does not mean that the authorities were implementing an anti-cyclical demand-side policy. In fact, it seems that only Estonia pursued a strictly anti-cyclical policy, which consisted in increasing primary deficit during periods of recession and reducing it during expansions, and ultimately, in maintaining a balanced budget in medium term. Other Baltic states strove to follow the Estonian model but only towards the end of the analysed period they managed to attain balance. The remaining countries generally preserved expenditure over the revenues but at a stable level, allowing only for fluctuations which reflected developments in the economic situation and occasionally pushing ahead for fiscal consolidations or expansions (see Chart I.40).

Box I.5. Fiscal policy and fiscal impulses – definitions and measurement

An abrupt increase of the public finance deficit resulting from discretionary decrease of tax burden or expansion of public expenditure has traditionally been regarded as a symptom of **expansive fiscal policy** or **fiscal expansion**. If the actions of the government consist in reducing the deficit as a result of increased taxation or reduced expenditure, they lead to the so-called **restrictive policy** or **fiscal contraction.**

The most appropriate measure of the fiscal situation when analyzing fiscal impulses is **primary deficit**, i.e. total public finance deficit less cost of public debt servicing. Interest payable on government debt is not directly related with neither phase of the business cycle, nor with the discretionary changes in fiscal policy, and as such, they should not influence the assessment how expansive the policy is.

Because fiscal policy is by definition of discretionary nature, when judging the extent of its expansiveness, one has to also take into consideration the impact that economic fluctuations have on public revenues and expenditures, by dividing total deficit into two components. Firstly, primary **cyclical deficit** can be distinguished because there exist certain categories of revenues (e.g. indirect taxes) that evolve in a procyclical manner, as well as certain categories of expenditures (e.g. unemployment-related) that evolve anti-cyclically. Thus, primary cyclical deficit should, as a rule, be ignored when identifying fiscal impulses. The remaining part of primary deficit – the so-called **structural deficit** – reflects persistent imbalance of revenues and expenditures, occurring both during recession and expansion periods, and is a much more reliable basis for the measurement of fiscal policy expansiveness.

[34] Data on public finance balance in particular countries are not fully comparable because of different calculation methodologies used. From the macroeconomic point of view, the most reliable methodologies are ESA95 used by Eurostat and the OECD methodology, which account for the broadest categories of revenues and expenditures. Nevertheless, such countries as the Czech Republic, Slovakia and Hungary, have been using – as from the beginning of this decade – the GFS methodology of the IMF, which provides lower deficit levels. Another important difference between these methodologies is the method of recording revenues/expenses in time: for ESA95, it is the moment when accounts payable or receivable are incurred (accrual basis), for GFS – when a financial transfer is executed (cash basis). As a result, it is very difficult to gather methodologically homogeneous and comparable data for the period 1996-2005.

[35] Slovenia stands out from this group because in the period 1996-2000 it pursued a policy of balanced budget and its deficit never exceeded 1.4 per cent of GDP (Mrak, Stanovnik, Stiblar, 2004). Eurostat does not provide data for Slovenia for this period and therefore it is difficult to assess the extent of coherence between the methodologies used by local institutions and that of Eurostat, upon which the analysis of fiscal policies of the remaining countries is based.

In order to precisely denote fiscal impulses, one should refer to primary structural deficit (see Box I.5),[36] which is most suitable when assessing the scale of discretionary measures in fiscal policy. This is so because this indicator of public finance balance does not account for the impact of automatic stabilisers. Unfortunately, limited availability of the data on structural deficit in the NMS8[37] does not allow for such a straightforward analysis. It can be assumed that in the countries where total deficit was relatively large (Poland, the Czech Republic, Hungary),[38] the scope for pursuing a discretionary anticyclical fiscal policy in response to shocks affecting the economy was limited. The fiscal reaction to the crisis of 1997 in the Czech Republic illustrates well such conjecture. Throughout the period of rapid growth prior to the crisis, primary deficit had been considerable and even though it grew further in 1998, the change in deficit reflected mainly the decline in revenues. The increase in social spending in response to the decline in household incomes was financed by the decrease in expenditures on public sector wages and public investment (see Charts I.28-I.30), and public consumption actually declined in real terms (OECD, 2000cz). It can be assumed that the increase in social expenditures and the decrease in revenues, as a result of deteriorating economic situation, must have been balanced with the reduction of all other expenditures, due to difficulties with financing the government borrowing needs in the midst of a financial crisis.

Box I.6. Fiscal policy and fiscal impulses – impact on the economy and labour market

The **composition of a fiscal disturbance**, i.e. its **expenditures forming an impulse and/or methods of its financing**, is of crucial importance when it comes to assessing the impact of fiscal policy on the economy and the labour market. An increase in one category of expenditures may entail a decrease in another, or an increase in deficit or tax burden. The Keynesian economics, which emphasises the role of aggregate demand in the determining the level of output, argues for the positive impact of any kind of fiscal impulse on output, i.e. of increased expenditures as well as decreased taxes. Modern macroeconomics, however, does not provide such straightforward answers because it takes into account the channels of fiscal policy transmission. Among these channels, household income and the related **substitution** and **income effects** of labour supply are fundamental. The substitution effect implies positive elasticity of labour supply to wages, which means that households increase labour supply at the cost of their leisure in response to rising wages. The income effect arises because an increase in expected permanent income enables individuals to work less because they are able to maintain consumption at the same level with lower labour input. A decline in permanent income may result from a decrease in hourly wage but also from a decrease in income from sources other than work, especially from social transfers. Due to the fact that the latter constitute a significant component of public expenditures, fiscal impulses may affect labour supply in different ways depending on the expenditures that compose them. Investment is another transmission mechanism, as it generally grows in response to increase in labour supply and contracts when labour supply decreases. However, potential changes in the taxation of enterprises are of high importance in this respect. Response of macroeconomic variables (e.g. output, investment, consumption, employment) to particular adjustments in fiscal policy are reflected by the so-called **fiscal multipliers**.

When considering the impact of fiscal policy on the labour market and economic activity, one should distinguish between long- and short-term impacts. In the **long term**, the budget constraint of government is binding and therefore adjustments in fiscal policy must take the form of shifts between expenditure categories – with their total size constant – or of changes in total expenditures accompanied by an according increase/decrease in taxation. In such perspective, the importance of transmission mechanisms becomes fully evident. According to Bukowski et al. (2006a), the financing of additional transfer spending by an increase in taxes or decrease in consumption and public investment affects the economy in an **unambiguously negative way**, leading to lower consumption, investment, output and employment. On the other hand, reduction of social transfers triggers an increase in labour supply due to the significant income effects, which, in turn, raise capital productivity and prompts its accumulation – and so consequently to further increase of output, employment and income. Largest **positive influence on the economy** is exerted by increase in public investment financed with lower transfers, because public capital, which is complementary to private capital, increases the return on private sector investment. Relatively strong effects are produced also by cuts in distorting taxes levied on capital and labour, financed with reduction in transfers, whereas positive implications of increased public consumption – balanced out by a decrease in transfers – are definitely smaller. However, if transfers remain unchanged, an increase in public consumption financed by increased taxation in the long term also negatively influences the economy. It should be emphasised that such implications, known in the literature under the rather inadequate notion of non-keynesian fiscal policy effects (see Alesina and Perotti (1997)), result from both modern classical and neo-keynesian models.

Due to the fact that in the short term output is determined greatly by the demand side, it can happen that short-term output and employment responses to an increase in government expenditure are different that the long-term consequences. This does not, however, apply to social transfers, as their increase exerts an negative influence on employment and output also in the short term.

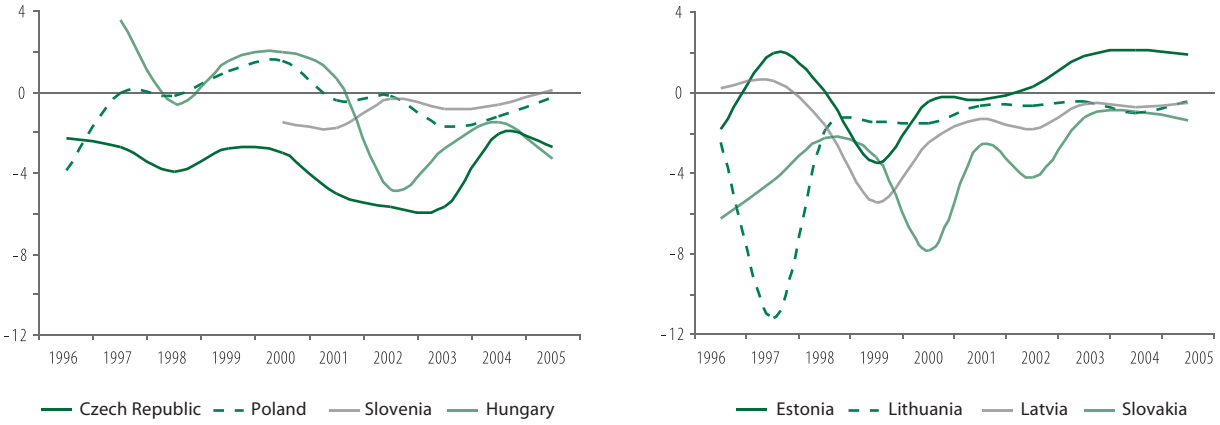
Concerning **transitory shocks**, which usually take form of discretionary adjustments of fiscal policy, or impulses in response to output fluctuations, **financing of an increase in public consumption by debt exerts a positive, though temporary, influence on output and employment, whereas financing of an increase in transfers by debt leads to a decline in output and employment, because of a declining labour supply**. These conclusions are further supported by a number of empirical studies (see Gali, Lopez-Salido, Valles (2004), Perotti (2004)). Therefore, , we analyse which categories of expenditures constituted cyclical and discretionary developments in fiscal policy in the NMS8, as this knowledge is of key importance when assessing the impact of the above changes on the labour market.

[36] In the literature also referred to as the so-called cyclically adjusted deficit (see Giavazzi, Pagano (1990), Alesina, Perrotti (1997), Alesina, Ardagna (1998)).
[37] OECD, which calculates both the structural and cyclical deficit component for its member states, does not make such calculations for its CEE member states.
[38] Leaving aside the debt service cost, deficit which persists irrespective of the economic situation, must contain a substantial structural component, which is very well exemplified by the evolution of large primary and total deficit in the Czech Republic. The structural nature of deficit often entails high expenditures on social transfers, which in the above-mentioned countries were relatively high. According to Bukowski et al. (2006), specific feature of the CEE countries is that although the average share of the public finance in GDP is smaller than in the EU15 on average, share of social expenditure is similar, and therefore relatively higher than that observed in Western Europe at the time when the level of its socio-economic development was comparable.

Seemingly, at that time, Poland followed the similar path. In 1999, in the aftermath of rapid increase in unemployment and a temporary slowdown of the GDP dynamics, Poland slightly increased social transfers and public consumption; however, to preserve the balance, the government also had to decrease investment accordingly. However, on the basis of statements of the Ministry of Finance, it can be assessed that the above policy was rather a part of a discretionary fiscal tightening, at that time aiming on reducing the deficit, than a decision resulting from choice between the necessity to finance higher government borrowing needs in the environment of a considerable structural deficit, confronted with balancing of increases in some categories of expenditure by cuts in other areas. This interpretation is further supported by the fact that the only case of primary surplus in the period 1996-2005 occurred immediately after the Russian shock, thus making Poland's fiscal policy of that time procyclical.

As opposed to Poland, the Czech Republic and Hungary, the countries in the region with relatively low total public finance shares in GDP, were better equipped for anticyclical policy in response to external demand disturbance. The above applies first of all to the Baltic states which, in 1998-1999, could substantially increase social transfers and public consumption in real terms in response to the repercussions of the Russian crisis (see Charts I.28-I.30). In line with the medium-term trend of decreasing share of budgetary revenues in GDP (see Charts I.25-I.27), these higher expenditures were entirely financed by debt. Moreover, apart from the Baltic states, none of the NMS8 experienced an evident and lasting amelioration of public finance balance during the economic upturn of 1995-1998. Therefore, it can be claimed that prior to the year 2000, the Baltic states, and in particular Estonia, to greatest extent pursued anticyclical fiscal policy and at the same time a exhibited simultaneous tendency towards the reduction of total size of government.

Chart I.24.
Primary public finance balance in the NMS8 in the period 1996-2005



Remarks: The presented values have been calculated in accordance with the ESA95 methodology.

Source: Own elaboration based on Eurostat data

When scrutinizing the fiscal impulses in the CEE region before 2000, it should be noted that, in 1995-1998, Poland and Hungary achieved rapidly decreasing public debt servicing cost,[39] which translated into a significant decrease in the share of public expenditure in GDP. Moreover, during the period of rapid growth and evident improvement on the labour market, expenditures on social transfers were on the decline. This allowed Poland and Hungary to reduce the scope of fiscalism and, at the same time, to lower the tax burden, reduce budget deficits and even attain a primary surplus. It can be assessed that the such decrease in taxation and in the government's borrowing demand generated a positive impulse in both economies, thus increasing labour and capital supply and contributing to dynamic growth at that time. However, because the fiscal multipliers, representing the elasticity of output and investment to changes in fiscal policy, are moderate in such scenarios, especially when the certainty of the permanent character of fiscal changes is rather small (see Hemming, Kell, Mahfouz, 2002), this effect was not likely to be very significant.

Fiscal stance of Slovakia in period 1997-2000 is another notable example of fiscal loosening during the examined period. Initially, Slovakia financed with deficit the temporarily increased public investment (see Table I.7), in particular on infrastructure, along with public consumption, and later also subsidies for enterprises (in the form of capital expenditures and uncollected taxes) and direct capital transfers to banks adversely affected by the financial crises in the Czech Republic and Russia. However, ignoring the above exceptional capital expenditures, it could be said that in 1999, i.e. directly after the Russian crisis, Slovakia tightened fiscal policy by reducing investment and public consumption, which should have affected the Slovak labour market in rather negatively.[40]

[39] As a result of both reduction of debt and of its conversion to commercial papers with more favourable interest rates, decrease in capital transfers to enterprises and increase in reliability of the two countries in the eyes of potential creditors.
[40] Subsidies for banks, although important to the extent that they could have prevented the bankruptcies, could not have had any direct impact on the Slovak economy or labour market. However, reductions in public investment and consumption, which were accompanied by an increase in transfers and in deficit, could have caused moderately negative multiplier effects (see Box I.6)

A similar situation could be observed a little earlier in Lithuania, where a one-off, large increase in capital transfers to enterprises and banks in 1997 did not disturb the general trend of reducing the share of budget expenditures and revenues in GDP. Lithuania, affected by the Russian crisis to a similar extent as Estonia and Latvia, reacted to the crisis in a similar way, namely by increasing public consumption and social transfers. As explained in Box I.6, indeed, a transitory increase in transfers lowers labour supply, but it also reduces fluctuations of disposable income of individuals loosing jobs. Moreover, a temporary increase in public consumption leads to a temporary increase in employment and output.

Generally speaking, it can be assessed that the Baltic states were the only countries in the region that were able to loosen fiscal policy as a response to the Russian crisis, without abandoning at the same time the medium-term consolidation strategy. It can be assumed that the temporary increase in deficits used to finance higher expenditures, alongside a consistent policy of reducing the total government size, induced positive multiplier effects in these economies. According to Bukowski et al. (2006), such conduct of fiscal policy affects the economy in the medium and long term in an unambiguously positive manner – by increasing capital and labour supply as well as labour demand, as the conditions necessary for the occurrence of so-called non-keynesian fiscal policy effects are met (see Box I.6 and Hemming, Kell, Mahfouz, (2002), Alesina and Perotti (1997)). Moreover, in the short term, this policy allows the fiscal instruments to be applied in an antycyclical fashion. It also provides monetary authorities with a setting suitable for implementation a relatively loose monetary policy.

Table I.9.
Fiscal impulses in the NMS8 in the period 1996-2000.

Country	Period	Fiscal impulse	Financing method	Expected impact on labour market and output
Hungary and Poland	1996-1998	Decrease in taxes	Decrease in debt servicing cost and decrease in deficit	Positive impact on employment and output
Poland	1999-2000	Increase in transfers and decrease in public investment	Decrease in deficit	Negative impact on output and employment
Lithuania and Slovakia	1997 i 1999	Temporary increase in capital transfers to enterprises	Increase in deficit	Prevention of a banking crisis and potentially of its negative consequences, no direct impact on labour market
Lithuania, Latvia, Estonia	1998-1999	Temporary increase in consumption, public investment and transfers	Increase in deficit	Smoother absorption of the Russian shock, some decrease in labour supply
Slovakia	1997-1998	Decrease in consumption and public investment	Decrease in deficit	Neutral or moderately negative on output and employment

Source: Own elaboration.

Chart I.25.
Public expenditure in the NMS8 (percentage share in GDP) in the period 1996-2005

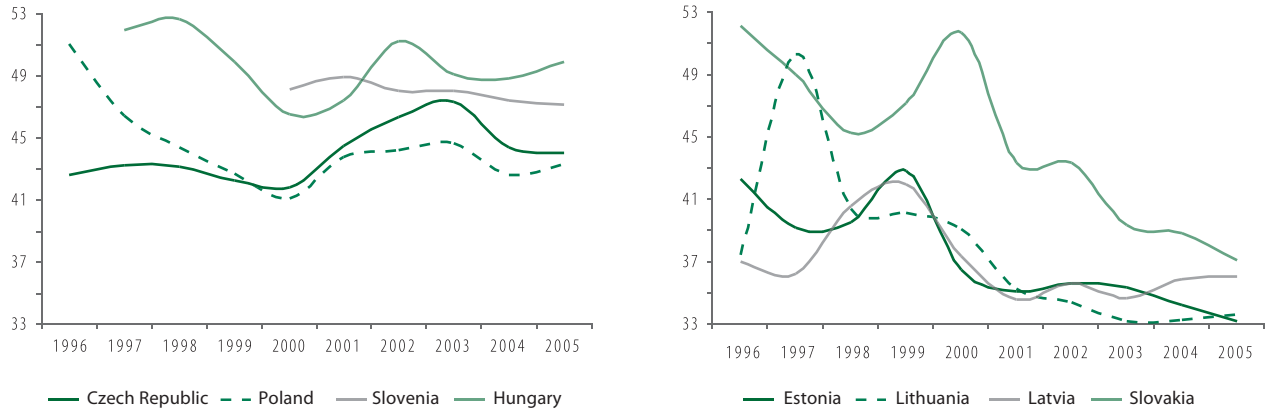


Chart I.26.
Budgetary revenues in the NMS8 (percentage share in GDP) in the period 1996-2005

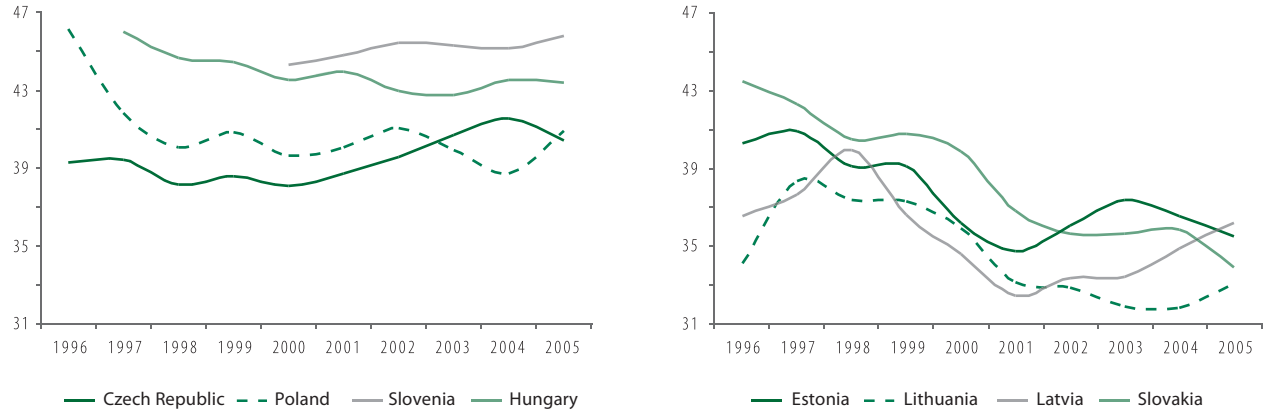
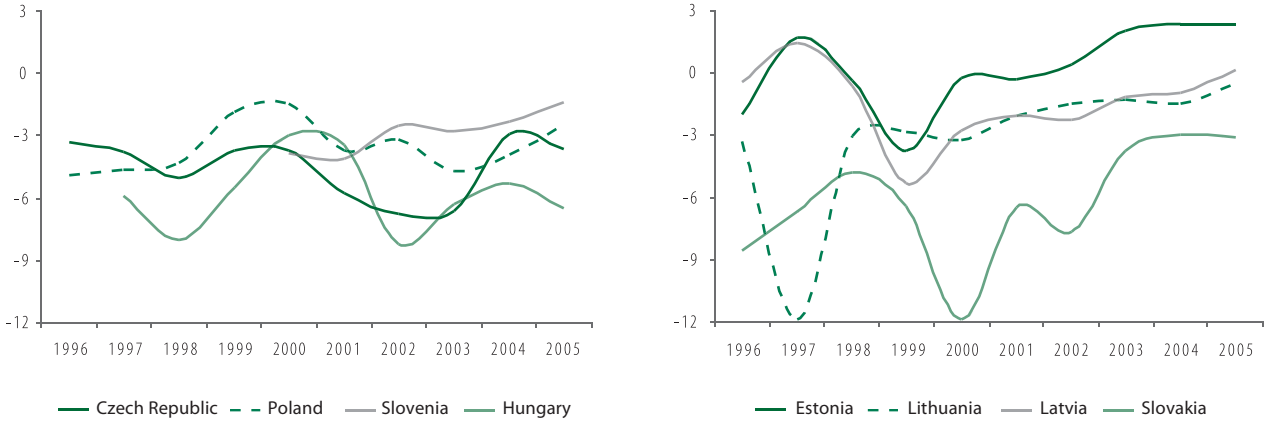


Chart I.27.
General budgetary balances in the NMS8 (percentage share in GDP) in the period 1996-2005



Remarks: The presented values have been calculated in accordance with the ESA95 methodology.

Source: Own elaboration based on Eurostat data

Chart I.28.
Public consumption in the NMS8 (percenta share in GDP) in the period 1996-2005

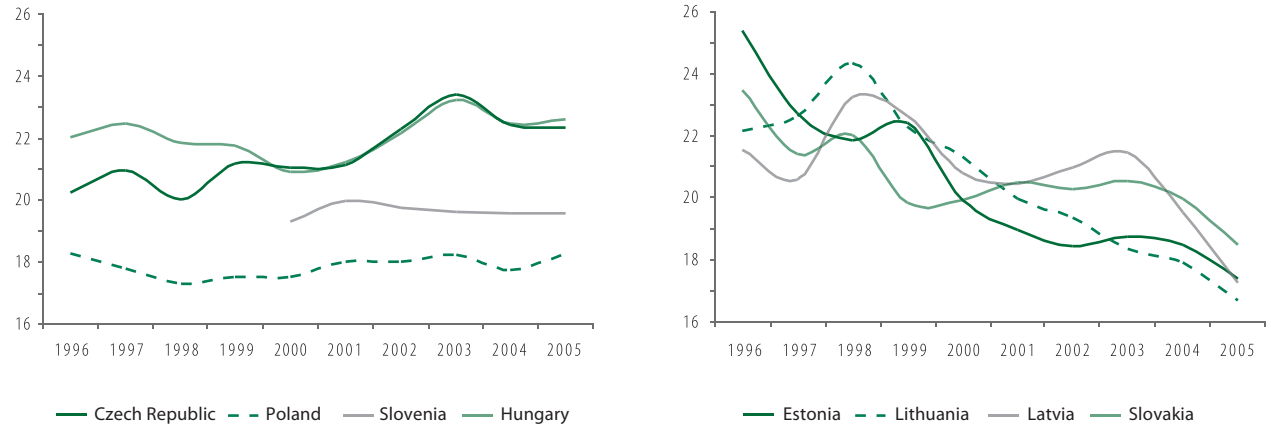


Chart I.29.
Social transfers in the NMS8 (percentage share in GDP) in the period 1996-2005

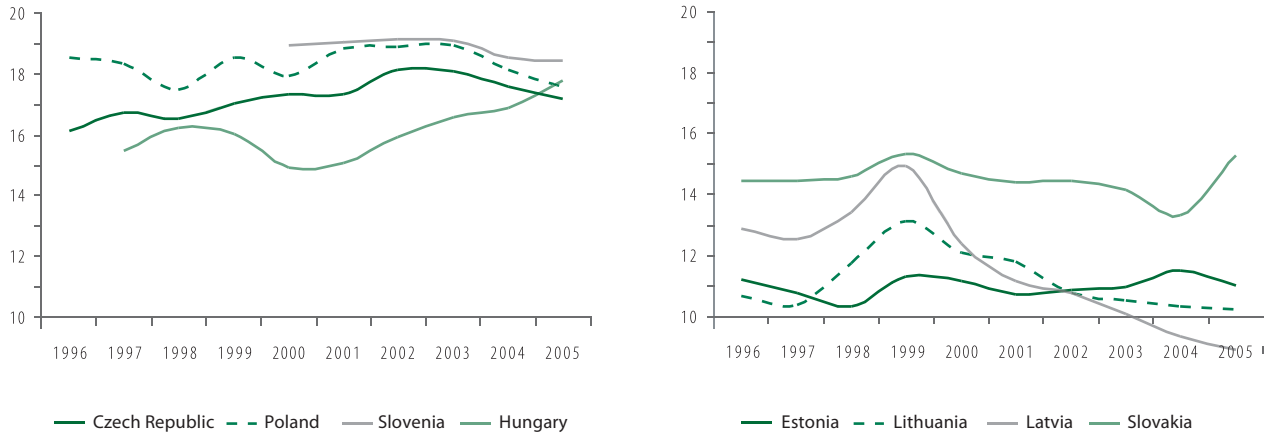
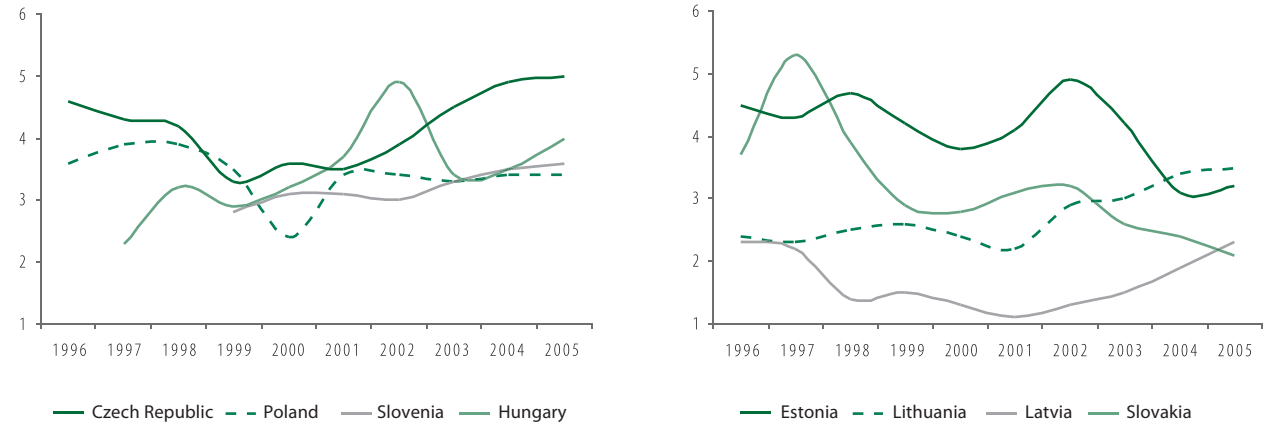


Chart I.30.
Public investment in the NMS8 (percentage share in GDP) in the period 1996-2005



Remark: The presented values have been calculated in accordance with the ESA95 methodology.

Source: Own elaboration based on Eurostat data.

2.2.3 Monetary policy before the year 2000

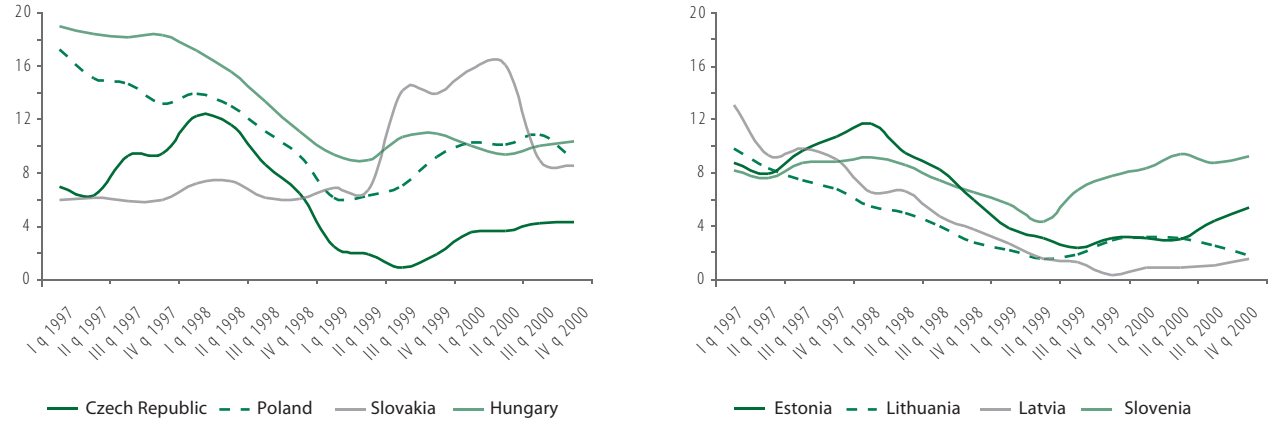
The key objective of monetary policy in the NMS8 was disinflation and, in the later period, stabilisation of price levels within the adopted fluctuation margins. Although the formally stated goal of the monetary authorities in some of the above countries was either "the stability of the national currency" (Estonia, Slovenia, Hungary) or "the stability of prices" (Czech Republic, Lithuania, Latvia, Poland, Slovakia), parallel to achieving a number of secondary goals (related to supporting the development of banking and finance system), ultimately, curbing inflation was a predominant objective of all monetary authorities. Particular exchange rate regimes were to great extent a means to that end. So although fiscal policy, as discussed in the previous section, was conducted in a number of cases with the intention to influence level of output and income, the impact of monetary policy on economic situation was only a by-product of measures undertaken to ensure currency and price stability.

As early as the second half of the 1990s, benchmark interest rates of central bank became the most commonly used monetary policy tool in all NMS8. It should be emphasised at this point that due to low, compared with the EU15, development and depth of financial markets in Eastern and Central Europe, the transmission mechanism of from benchmark to market interest rates could have been limited. This means that the monetary authorities in NMS8 could have been forced to take stronger measures than would be sufficient in EU 15 economies, for example, relatively higher increase in interest rates needed for lowering inflation to a certain level or at accommodating pressures currency depreciation (see Ganev et al. (2002). On the same grounds, the monetary authorities in the CEE countries regarded efficient exchange rate management as a prerequisite for curbing inflation, which was reflected at that time in the adoption of different forms of managed exchange rates. However, only Estonia and Lithuania decided to completely relinquish autonomous monetary policies and to introduce currency boards, whereas Slovenia was the only CEE country with floating, though managed, exchange rate (see Box I.7). Moreover, the transmission of changes of benchmark interest rate to market rates and influence on volume of credit was subject to considerable uncertainty, but was probably smaller than in the EU15, because of shallow CEE financial markets.. The above factors indicate, that monetary policy in transition economies was not conducted with objective to influence aggregate demand.

Monetary decisions were being made during subsequent economic up- and downturns, which implied different priorities in monetary policy. Initially, the context was dictated by the dynamic inflow of foreign capital and by the symptoms of overheating of the rapidly growing NMS8 economies. In mid-1998, in turn, an opposite problem came to light, namely a slowdown caused by the Czech and Russian crises, which were followed by a reduction in capital transfers from abroad and the a threat of a large-scale capital outflow from Central and Eastern Europe.

Thus, disinflation occurred with various intensity, depending on the pace and scope of price deregulation. However, as early as mid-1990s, the rate of inflation in the NMS8 decreased to moderate levels. Higher price dynamics during that period distinguished Poland and Hungary from the other NMS8, however, it was curbed in the above two countries in 1997-1998, so at the end of the decade the NMS8 constituted a homogeneous group in terms of their inflation rates (see Chart I.31). The process of stabilising prices allowed gradual lowering of nominal interest rates, although, due to the substantial risk premium expected by financial markets from transition economies, significant difference persisted between real interest rates in the NMS8 and the EU15. The above situation gave rise to a threat of excessive – from the point of view of monetary authorities obliged to accommodate pressures on nominal exchange rates – inflow of short-term capital, prompted possibly soon interest rates' reduction in order to avoid pressures towards a nominal appreciation of currencies.

Chart I.31.
Inflation rates in the NMS8 in the period 1997-2000



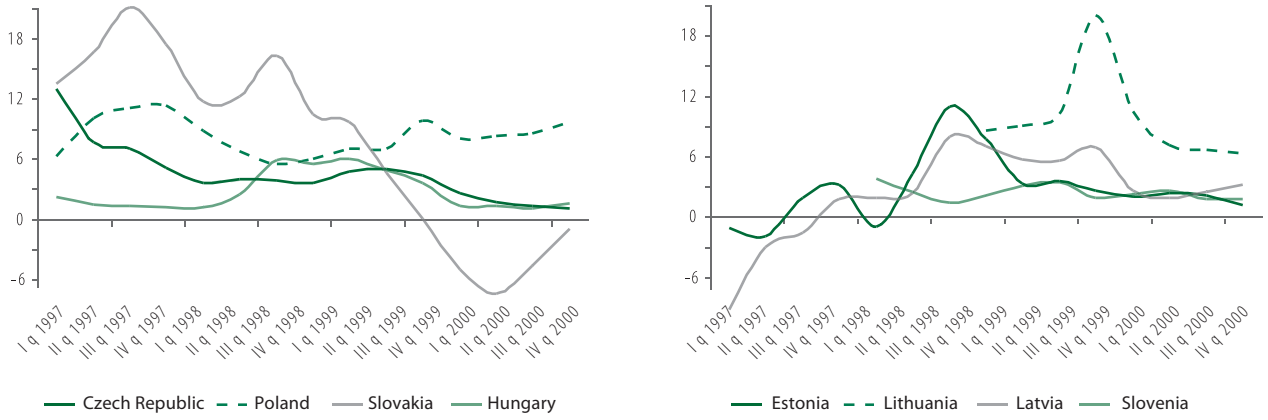
Remarks: Inflation rates on HCPI basis in accordance with the Eurostat methodology.

Source: Own elaboration based on Eurostat data..

It should be borne in mind that during economic upturn, low interest rates could have led to a decrease in savings and increase in lending, and consequently to inflationary pressures, which indeed took place in 1996-1997. The development of the banking sector was also important as it blurred the relationship between narrow money aggregates and wide measures of its supply. Increasing demand for money, which accompanied the rapid economic growth of 1996-1998, , absorbed the increase in money supply, so the falling inflation trend was not reversed until the end of 1997 (see Chart I.31). Thus, the impact of monetary policies of that time on real economy should be assessed as minor – on the one hand, there was a certain restrictiveness prompted by disinflation, and on the other hand, there was a gradual decline in nominal and real interest rates – enabled exactly by the decreasing price dynamics, which reinforced by expanding secondary creation of money contributed to greater money supply in the NMS8. Therefore, the impact of monetary policies on output, and even more so on the labour markets, was probably negligible.

However, during the boom of 1996-1998, the declining savings of the private sector as well as the persisting public finance deficit in several countries (see Chart I.17) led to a deterioration of current account balances (see Table I.8). This gave rise to a threat of an abrupt reversal of capital flows and of a drastic slump in nominal exchange rates. Poorly developed transmission mechanism of monetary policy impulses and high vulnerability to disturbances on global currency markets enhanced such risks. The currency crisis in the Czech Republic turned out to be such an impulse. It brought about a considerable weakening of the Czech crown as well as abandoning of fixed exchange rate regime which was replaced by managed floating exchange rate. The crisis was accompanied by speculative attacks on other currencies in the region (e.g. the Slovak crown), which contributed to tightening these countries' monetary policies. In 1997 interest rates were increased, obviously to greatest extent in the Czech Republic, where the authorities counteracted the intensification of capital outflows and further depreciation. The Slovak monetary policy was tightened in a similar way. However, other countries in the region did not pursue restrictive monetary policies, which focused on exchange rate developments and was simply cautious.[41] It can be assumed that such policy helped to prevent the turbulence, related to capital outflows triggered by the Czech crisis, from spreading over the region and thus enabling other CEE economies to grow at a rapid rate alongside increasing employment.

Chart I.32.
Expected short-term ex ante real interest rates in the NMS8 in the period 1997-2000



Remarks: Adaptive expectations have been assumed – the rate of price changes expected over the forthcoming 12 months is equal to the average 12 month inflation recorded in the last two quarters preceding the moment of prediction.

Source: Own elaboration based on Eurostat data

The situation of Slovenia was rather unique in the above context. As early as 1996, the inflation rate fell below 10 per cent, and interest rates were declining in the successive years simultaneously to the declining inflation expectations (Mrak, Stanovnik, Stiblar, 2004), which allows to recognize the Slovenian monetary policy as consistently neutral until the year 1999. The conduct of this policy was facilitated by the limitation of capital flows which, on the one hand, reduced Slovakia's vulnerability to potential consequences of external financial crises, and on the other hand, allowed for differences in interest rates vis-à-vis the EU15 without provoking exchange rate oscillations. Slovenia embarked on this strategy, untypical in comparison with the rest of Europe, because the economy directed towards exports and fiscal policy of balanced budget, supported balanced current account and moreover, , Slovenia was less dependent on foreign investment than the other NMS8.

The environment in which monetary policies were conducted changed in 1998. Following the Czech, Asian and Russian crises, the vulnerability of the NMS8 financial markets increased as well as the expected risk premium, which provoked a temporary outflow of foreign capital thus meriting a tightening of monetary policy. However, at the same time, global demand shrunk alongside increasing supply of tradable goods, which translated into a decrease in tradables' prices. As a result, in 1998, inflation, GDP growth and aggregate

[41] In case of Estonia and Latvia, expected real interest rates had in fact been negative until 1998. However, due to the currency board regime, they had been exogenous from the point of view of national economies.

demand in NMS8 countries turned out lower than expected, thus prompting a loosening of monetary policy. World-wide decrease in interest rates was another factor in favour of such decision. Moreover, the Russian crisis affected monetary stance in a slightly different way than the earlier Czech crisis. Firstly, the band of exchange rate fluctuations was commonly widened, whereas the Czech Republic and Slovakia had already adopted the floating exchange rate regime, and therefore they were less vulnerable to speculative attacks. Secondly, monetary policy in Poland was used to send a message to the global markets, via cuts in interest rates, that Polish economy is resistant to the threat of a currency crisis. The loosening of monetary policy from the second half of 1998 was most visible in the Czech Republic, Slovakia and Poland.

In the Czech Republic and in Slovakia this tendency to monetary easing was an attempt to reverse the "excessive" tightening adopted immediately after the Czech crisis. Particularly in the Czech Republic the monetary response contributed to an abrupt decline in price dynamics, alongside a persisting slump in GDP growth. Considerable softening of monetary policy maintained until 2000 followed, and the real market interest rates in Slovakia actually turned negative. Nevertheless, even such substantial measures did not led to the expansion of broader money aggregates –surprisingly weak secondary money creation in Slovakia at that time make it being regarded as an example of a country where the elasticity of volume of credit with respect to changes in central bank instruments was very low and where the standard mechanism of monetary impulse transmission did not work. Bearing in mind the negative external price shock of 1998, it should be acknowledged that indeed Poland's monetary policy was softened, however, real interest rates decreased to a lesser degree than in the Czech Republic and Slovakia. A similar evolution of monetary policy was observed in Hungary. In case of Baltic states, the relinquishment of autonomous monetary policy led to the situation where, after the Russian crisis, interest rates soared, whereas the price dynamics slowed down – therefore, the monetary conditions "toughened" somewhat automatically.

At the end of the year 1999, a certain divergence in the degree of restrictiveness of monetary policy in Poland and in other countries in the region emerged.[42] An abrupt acceleration of price dynamics warranted an increase in interest rates (actual inflation exceeded the target of National Bank of Poland – NBP – which did not happen in other countries, namely in the Czech Republic, Slovakia and Hungary, implementing at that time the direct inflation target strategy), which was perceived as caused by a decrease in central bank's interest rates introduced in the preceding year. The direct inflation target strategy required that the monetary authorities influence appropriately inflation expectations of economic agents so that their forecasts would be more forward looking and based on the declarations of monetary authorities rather than on past experience.[43] However, due to the fact that inflation expectations were at that time formed adaptively (see Łyziak (2003)), a higher price dynamics, accompanied by a large increase in nominal wages, paved the way for the central bank to tighten the policy. The shift to the floating exchange rate regime was also important as under this regime an increase in interest rates could have been a prevention measure against considerable depreciation of the nominal exchange rate in the aftermath of floating.

The tightening of monetary policy led to an increase in both nominal and real interest rates, however the latter remained at the level comparable to that of 1998 until the end of 2000 (see Chart I.32). Furthermore, output growth and the share of investment in GDP remained practically constant throughout the period 1998-2000 (see Chart I.18 and Table I.7). In the other countries of the region monetary policies were consistently neutral because, as opposed to the National Bank of Poland, their central banks shared the view that the a external shock affecting all countries was a key determinant behind higher price dynamics. Consequently, in comparison with the other countries in the region, Poland was at that time characterised by a relatively more restrictive monetary policy, although to the extent comparable to that from two years before. Except for Poland, only Slovakia experienced a monetary tightening in 2000, after a two-year-long softening trend.

In the period 1996-2000, the NMS8 central banks successfully achieved gradual disinflation, in the meantime modifying strategies concerning exchange rate, where a polarisation became apparent. Untypical, transitory mechanisms were country-by-country replaced with either a fixed exchange rate regime/currency board, or a floating exchange rate (see Box I.7). The interaction of complex challenges emerging for the monetary authorities because of attempts to simultaneously manage exchange rates and inflation, subjected to considerable vulnerability of the CEE countries to external factors,[44] and the outbreak of the Czech and Russian crises, suggest that any assessment of monetary policies should be made above all from the perspective of the achievement of their fundamental targets in the context of the above-mentioned obstacles.

This instability of the environment and broad range of the policy instruments applied prevents also generalisations about the pro- or anticyclical conduct of monetary policy. The Czech Republic is a good example here, with monetary policy which seemed to be procyclical in 1997 and anticyclical in the following two years. It appears, however, that two episodes of restrictive policy can be distinguished – the Czech Republic and Slovakia in 1997 and Poland and Slovenia in 1999-2000 – as well as one episode of expansive policy – in the Czech Republic in 1998-2000. Nevertheless, it can be reasonably assumed that these impulses did not caused the economic

[42] Interest rates were also increased in Slovenia, where the symptoms of overheating of the economy became visible, and the central bank reacted to the increase in prices reflecting the anticipated introduction of VAT. Moreover, at that time Slovenia abolished restrictions on capital flows, which resulted in the necessity to adjust the spread in interest rates vis-à-vis the EU15 in line with the expected risk premium, i.e. to increase the interest rates. However, the change in the expected real interest rates was minor (see Chart I.32), indicates rather a change in monetary stance than its contracting impact on the economy.

[43] In fact, as indicated by Levin, Natalucci, Piger (2004)), in euro zone countries implementing a strategy of direct inflation target, inflation expectations exhibit a much lower correlation with past inflation levels than in the countries where different monetary policy models are pursued. In the latter, these expectations are far more adaptive.

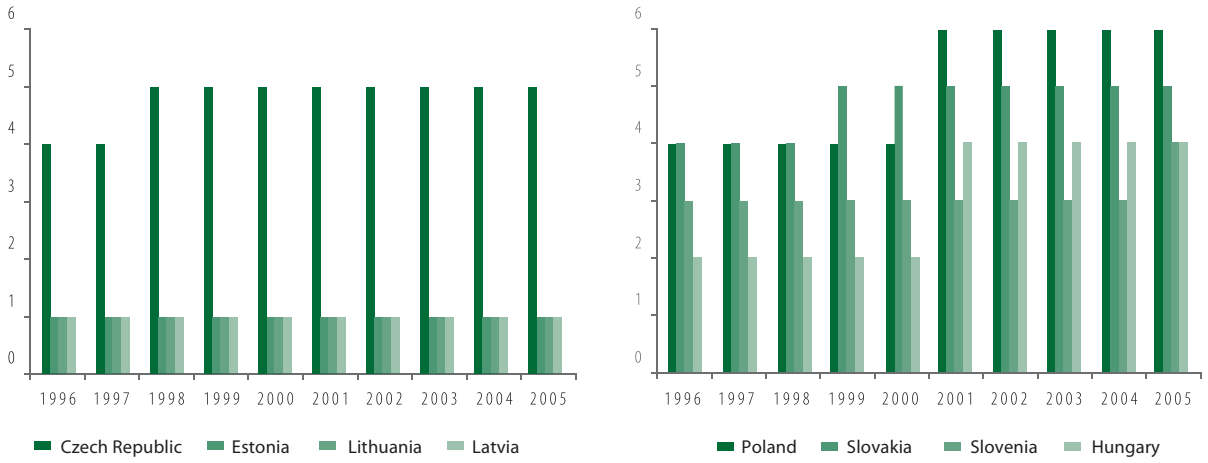
[44] For instance, according to Maćkowiak (2005), from 20 to 50 per cent of short-term variability of the price level in the Czech Republic, Poland and Hungary in the period 1992-2004 should be attributed to external shocks. In the long term, this value, according to that estimations, is even greater and amounts to approximately 60-85 per cent.

fluctuations of that period and that they did not have a significant impact on the real economy, possibly with the exception of the Czech Republic and Slovakia in 1997, when the monetary tightening reinforced the direct consequences of the currency crisis. Due to a relatively long time required for the results of a monetary impulse in the real economy to emerge (it is generally accepted that they appear after at least 4 quarters) and poorly developed transmission mechanisms , monetary policy was of little importance as determinant of output level, and even more so in influencing the situation in the labour market.

Box I.7. Exchange rate and monetary regimes in the NMS8 in the period 1996-2005

At the beginning of transition, following two monetary regimes were adopted in the CEE countries: **currency board** (in Estonia and Lithuania) or **fixed exchange rate** to one currency (USD – in Latvia, or DEM – in the Czech Republic) or a basket of currencies (all other countries). The above choice was determined by low level of currency reserves, necessity to curb high inflation and the need to establish a sound macroeconomic policy. However, with time, maintaining fixed exchange rates became too costly and too difficult for these economies, which was particularly apparent in the second half of the 1990s. Speculative attacks on the Czech and Slovak currencies and the later spill-over of the Russian crisis were grounds for CEE countries to abandon the fixed exchange rate regime. Most commonly the transition from fixed to floating exchange rate was preceded by the widening of fluctuation band around the central parity or the adoption of crawling peg

Chart I.33.
Evolution of exchange rate and monetary regimes in the NMS8



Explanatory note:
1 – currency board (1a) quasi-currency board (1b)
2 – fixed rate (2a) or crawling peg (2b) with fluctuation margins of up to 2.25 per cent around the central parity
3 – managed floating rate
4 – fixe rate (4a) or crawling peg (4b) with fluctuation margins of more than 2.25 per cent around the central parity
5 – floating rate with intervention
6 – floating rate

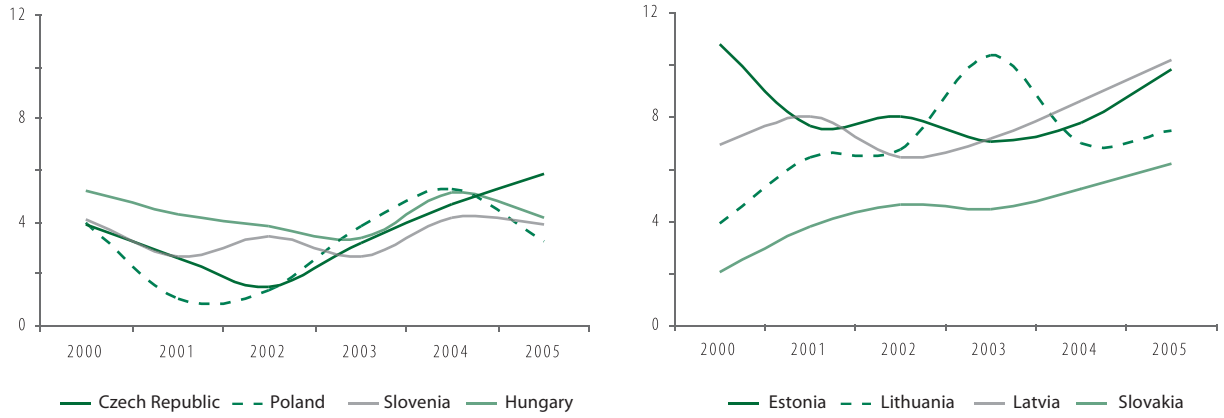
Source: Own elaboration

2.3 Period after the year 2000

2.3.1 Output and external disturbances after the year 2000

The beginning of the current decade, i.e. the years 2001-2002, brought a slowdown in growth of world economy, which, from the perspective of the NMS8, translated above all into slump of external demand dynamics, which had constituted the main demand component of output growth in the two preceding years. Although this was a common process, its significance was particularly visible in the countries closely integrated with the EU in external trade, such as Hungary, Slovenia and the Czech Republic, which were not severely affected by the Russian crisis and which directed more than 80 per cent of all their exports to the European Economic Area. The EU economy downturn had an comparably visible impact on the Latvian, and even more so on Estonian economy, which at that time had the highest ratio of exports to output out of all NMS8 (see Box I.10). At the same time, the convergence among the NMS8 countries intensified, due to the higher growth of the relatively poorer countries, namely the Baltic states and Slovakia, whereas Poland – which at that time ranked between the Baltic states and Slovakia in terms of per capita income – began to negatively distinguish itself from the NMS8 with its mediocre growth. However, although in Estonia and Latvia the acceleration in growth soon translated into higher employment (employment rates in 2002 were higher by respectively 1.6 and 3.0 percentage points than in 2000) and lower unemployment (in parallel, by 2.5 and 1.5 percentage points), in Lithuania and Slovakia, the inertia in the labour market was greater. It can be surmised that in the initial period of recovery companies in these two countries benefited above all from productivity growth reserves, making the labour demand increasing only slowly and leaving employment levels unchanged.[45] Finally, more profound slow-down in Poland than in other countries was accompanied by a progressing deterioration of the situation in the labour market, reflected in the decline of the employment rate by 3.5 percentage points and an increase in the unemployment rate by almost 4 percentage points in the period 2000-2002.

Chart I.34.
GDP growth rate in the NMS8 in the period 2001–2005



Source: Own elaboration based on GGDC data.

It should be noted at this point that Poland, although trade-connected with the EU15 to similar extent like other countries in the region (in 2000, 81 per cent of Polish exports was directed to the EU15, whereas the NMS8 average amounted to 80 per cent), as an economy with a clearly larger domestic market, was less vulnerable to the negative consequences of the slowdown in the EU than smaller countries. Indeed, in 2000, exports accounted for only 27 per cent of Polish GDP, whereas the average share of exports in GDP of the other countries in the region amounted to 63 per cent. Notwithstanding the above, the economic downturn of the period 2001-2002 was more pronounced in Poland (see Chart I.34) and out of all economies affected by the crises of 1997-1999, only Poland failed to achieve even a temporary recovery after their immediate effects disappeared. As for the other countries recovering from the earlier crises, i.e. the Czech Republic, Slovakia and the Baltic states, the gradual pick up of growth rates was halted in 2000-2001. In the Czech Republic and Estonia, this meant a decrease in GDP dynamics, whereas in the rest of the above-mentioned economies – into a temporary stabilisation of the growth rate and its acceleration after the year 2003. This revival can be linked with a rebound of world economy – the output of the EU15 was growing in real terms throughout the period 2003-2005 by an annual average of 2.5 per cent, compared to 1.3 per cent in 2001-2002,[46] whereas that of the United States of America by 5.3 per cent, compared with 1.4 per cent in the earlier period.

Similarly to the Russian crisis, the 2001-2002 slowdown spread, above all, through the international trade channel. The downturn of 2001 caused a decline of exports in the absolute terms in the CEE countries, however, in some of them imports slumped so significantly that net exports contributed positively to GDP growth. This concerned Poland, Hungary and Slovenia. In the face of lower external

[45] It should be noted that in Lithuania unemployment fell during the examined period, however, it did so at the cost of a decrease in participation and not because of a major increase in employment.
[46] This relatively low growth rate in the EU15 was connected with the persisting economic slowdown in Germany, France and Italy.

demand, in 2001-2002, GDP growth in the examined countries depended mostly on domestic absorption. Therefore, although the growth rates in these countries were generally lower than in 2000, the contribution of the two main domestic demand components, namely of consumption and investment, was larger. This phenomenon can be perceived as a result of the earlier increase in disposable incomes which could be explained in two ways: as a consequence of the improved labour market situation which could be observed – as the negative repercussions of the Russian crisis were gradually absorbed – above all in the Baltic states, whereas in countries such as the Czech Republic and Hungary, where the labour market situation did not improve much before 2002, this boost in consumption could be associated to some extent with rising public consumption (see Chart I.28).

On the other hand. Poland and Slovenia experienced an opposite phenomenon – the contribution of consumption and capital accumulation to output growth declined after the year 2000, and in Poland, the contribution of investment actually became evidently negative (see Chart I.35).[47] Consequently, the labour demand declined further, unemployment rose and employment fell. The situation in the Czech Republic unfolded in a similar way – a decline in capital accumulation was accompanied by a growth slowdown (growth depended almost entirely on consumption dynamics) and stagnation on the labour market. Slovenia, where the overall decrease of the share of investment in output was at that time relatively smaller then in Poland (see Table I.12), the increasing, though only slightly, trends in participation and employment continued, and consumption remained at relatively high level.

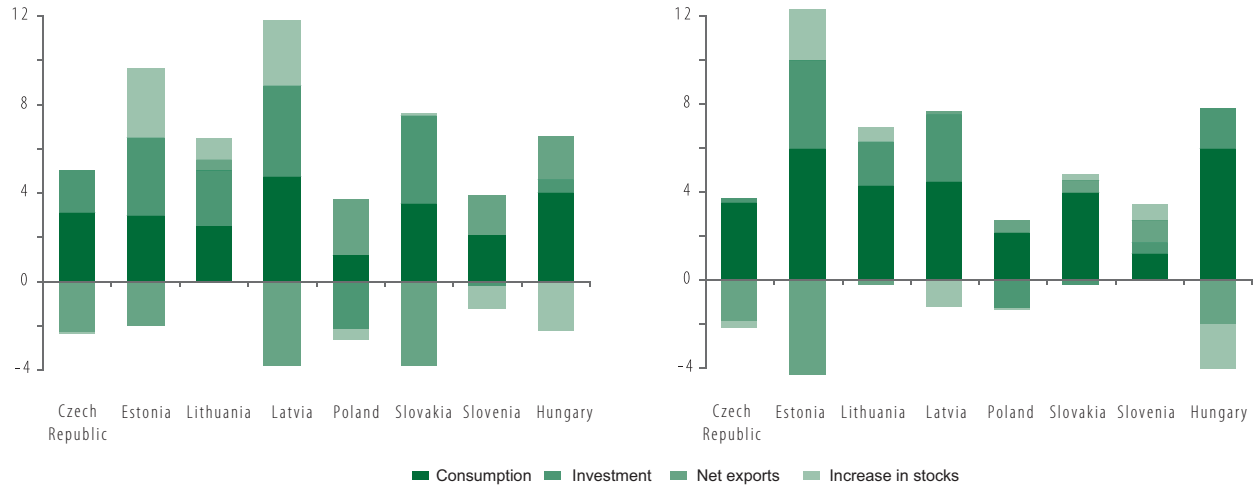
Thus, it appears that different evolution of the examined labour markets at that time, i.e. relatively fast absorption of consequences of the Russian crisis in the Baltic states, and stagnation in Poland, Slovakia and the Czech Republic, was shaped not so much in different dynamics of output growth but rather by contrasting intensity of capital accumulation which determined developments of labour productivity and labour demand. The above claim is supported by an observation that the factor distinguishing Slovakia from the Baltic states was the considerably smaller contribution of investment to growth in 2001-2002 (see Chart I.35). To some extent, Lithuania also performed poorer in the above respect only than Estonia and Latvia (see Table I.12). On the other hand, in the remaining countries significantly lower dynamics of investment was accompanied by stagnation, or even deterioration in Poland, of the situation on the labour market.

Table I.10.
Share of exports in the GDP in the NMS8 in the period 2000-2005 (percentages)

	Czech Republic	Estonia	Lithuania	Latvia	Poland	Slovakia	Slovenia	Hungary
2000	64.5	88.4	44.6	41.6	27.1	70.8	55.6	74.0
2001	66.5	84.0	49.9	41.6	27.1	73.4	57.2	72.8
2002	61.5	74.3	52.8	40.9	28.7	71.7	57.1	64.1
2003	62.2	74.3	51.3	42.1	33.4	77.7	55.8	62.7
2004	71.2	78.4	52.3	44.1	37.6	76.8	60.2	65.7
2005	72.8	84.2	58.4	47.2	37.0	78.7	64.8	67.7

Source: Ministry of Economy 2006

Chart I.35.
Contribution of final demand components to GDP growth in the NMS8 in the years 2001 (left graph) and 2002 (right graph)



Source: Own elaboration based on Eurostat data and Economic Survey of Europe.

[47] Consequently, the share of investment in Poland's GDP, which increased from 16 to 25 per cent between 1993 and 1999, decreased by 4 percentage points in the following two years.

Table I.11

Share of exports directed to EU15, Germany and Russia from the NMS8 countries in the period 2000-2005 (percentage share in total exports)

	Czech Republic	Estonia	Lithuania	Latvia	Poland	Slovakia	Slovenia	Hungary
European Union								
2000	85	81	72	81	81	89	71	81
2001	86	73	71	77	80	89	70	81
2002	85	72	68	77	80	88	67	82
2003	87	73	61	79	81	85	67	81
2004	86	80	67	74	79	85	68	80
2005	84	78	66	76	77	86	68	77
Including: Germany								
2000	41	8	14	17	35	27	27	37
2001	38	6	13	16	34	27	26	36
2002	37	8	10	15	32	26	25	35
2003	37	8	10	15	32	37	23	34
2004	36	8	10	12	30	35	18	31
2005	33	6	9	10	28	26	20	30
Russia								
2000	1	7	7	4	3	1	2	2
2001	1	9	11	6	3	1	3	2
2002	1	10	12	6	3	1	3	1
2003	1	11	10	5	3	1	3	2
2004	1	6	9	6	4	1	2	2
2005	2	6	10	8	4	2	4	2

Source: Own elaboration based on IMF data

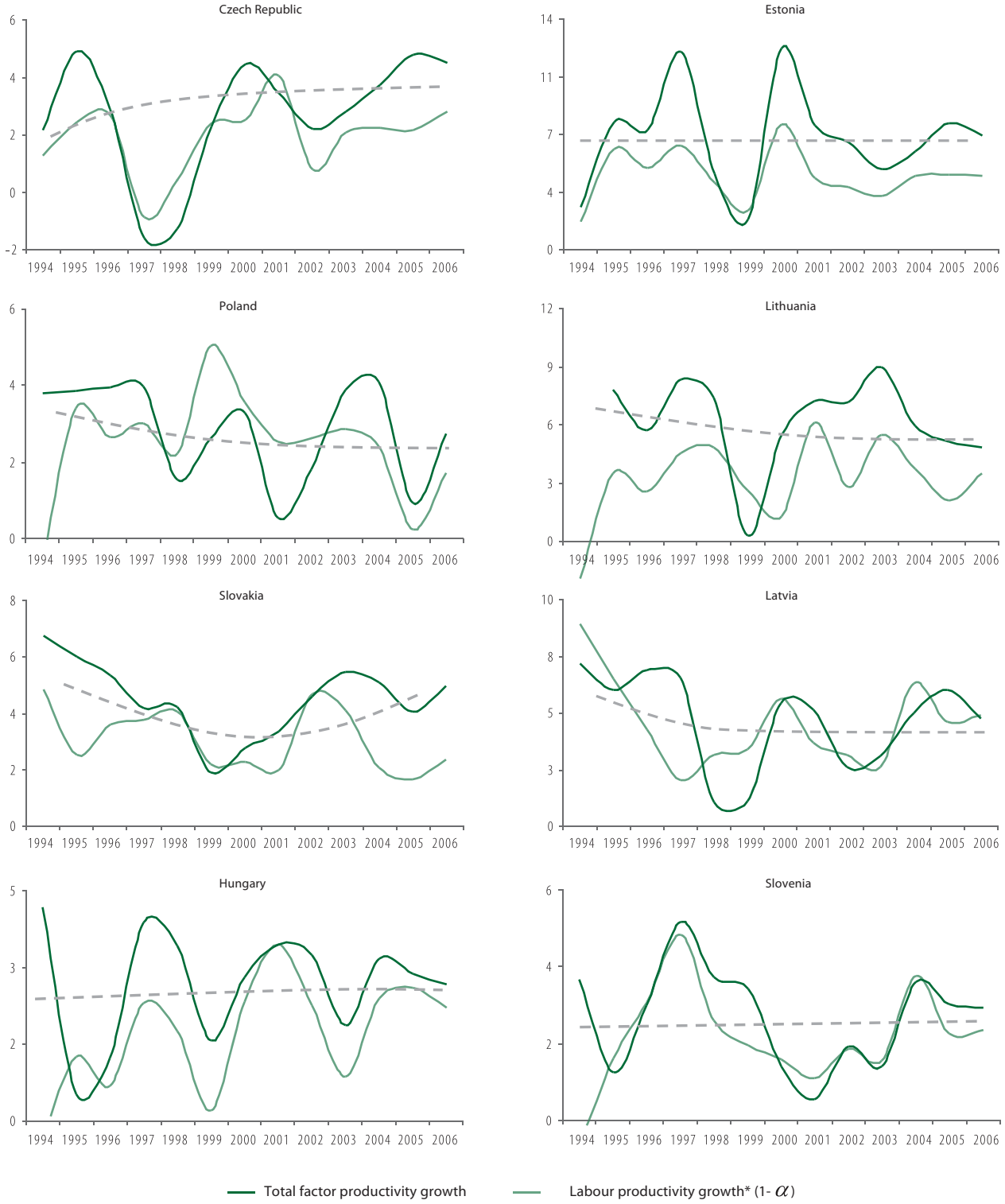
External factors, such as changes of demand connected to business cycle of the world economy, affected all countries in the CEE region in a undoubtedly similar manner, although the above-mentioned arguments indicate that, compared with smaller neighbouring countries, the Polish economy was less vulnerable to volatility of external demand. The reasons why in 2001-2002 Poland distinguished itself not only in terms of labour market developments (see Charts I.11 and I.12) but also in terms of macroeconomic performance should therefore be sought in external processes. One potential explanation could be the restrictive fiscal and monetary ***policy-mix*** which could compress consumption as well as aggregate investment. However, as argued in the subsequent part of this chapter, such an explanation is rather unlikely, above all, due to the opposite conduct of these policies in 2001, and length of period necessary for the investment to react to a transitory increase of real interest rates. Bukowski et al. (2005) put forward a hypothesis that primary reasons for this slowdown should be sought, above all, in the negative technological shock which led to a temporary decrease in capital productivity, which, in turn, resulted in investment breakdown (see Table I.12), growth slowdown as well as further employment contractions, and consequently also to a slump in consumption.

The above conjecture is supported by an analysis of total factor productivity (TFP). In 2001, only in Poland, the Czech Republic and Slovenia the TFP dynamics declined below its medium-term average trend, and only the above countries experienced a visible economic growth slowdown (see Chart I.36). Moreover, only in Poland the above resulted in a further decline in investment and labour demand as well as in an increase in unemployment. Hence, the economic breakdown in Poland was deeper than in the Czech Republic and Slovakia. It is worth noting that a considerable decrease in the TFP dynamics that occurred in Poland in 2001, apart from a similar one in Czech economy four years earlier and Latvian in 1999, was the only instance of TFP dynamics slump not accompanied by a decrease in labour productivity on a comparable scale. It was so because the capital productivity was declining at similar pace and its negative dynamics had been observed even two years earlier (see Chart I.37). Therefore, it seems that the main reason for the investment slowdown was the gradually decreasing profitability of the actual investment rather than the unfavourable ***policy-mix*** (more on this in

the section on monetary policy). Furthermore, the shrinking, from 1998 on, capital productivity indicates that the scope of necessary restructuring of Polish companies was at that time greater than in Slovenia, and therefore the structure of employment and output required more extensive improvement. Thus, the Russian crisis initiated the second wave of restructuring, the effects of which became visible at the aggregate level only in 2003, when GDP and returns on capital started to rise evidently.

Chart I.36

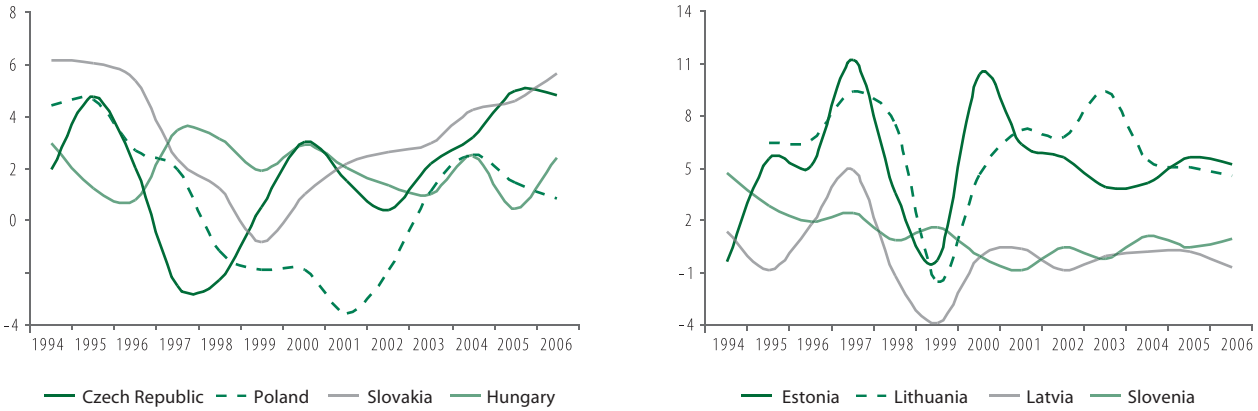
Labour productivity and total factor productivity (TFP) dynamics in the NMS8 in the period 1994-2006



Remarks: The dotted line represents the TFP growth trend. Alpha stands for the share of capital in output.

Source: Own elaboration based on GGDC data. Data for 2006 are preliminary.

Chart I.37.
Capital productivity dynamics in the NMS8 in the period 1994-2006



Source: Own elaboration based on GGDC data. Data for2006 are preliminary.

The year 2003, first of Polish economy recovery, triggered on the demand side by a dynamic increase in exports, brought greater than ever differences in growth rates among NMS8 – on the one hand, countries such as the Czech Republic, Poland, Latvia and particularly Lithuania experienced a considerable acceleration, but on the other hand, in the remaining countries, growth rates were comparable to those in 2001-2002 or even slightly lower. This slowdown was, however, only relative and temporary because, for instance, Estonia's growth in 2003, though lower than in 2002 by 1 percentage point, was still very high and amounted to 7 per cent. In Slovenia and Hungary, the decline growth rate to approximately 3 percentage points was negligible. Hence, the impact on the labour markets was very small – only in Slovenia employment declined slightly and temporarily, alongside a modest increase in unemployment (see Charts I.11 and I.12). In the Baltic states, the rising employment and decreasing unemployment were maintained, whereas in Slovakia and Hungary, the year 2003 brought – for the first time since 2000 – an increase in employment rates (by 1 percentage point).

Table I.12.
Total and foreign direct investment in the NMS8 in the period 2000-2005 (percentage share in GDP)

	2000	2001	2002	2003	2004	2005
	Total investment					
Czech Republic	28.0	28.0	27.5	26.7	26.2	24.9
Estonia	26.0	26.7	29.8	29.3	31.5	31.1
Lithuania	18.8	20.1	20.3	21.2	22.3	22.4
Latvia	24.2	24.9	23.8	24.4	27.5	29.8
Poland	23.7	20.7	18.7	18.3	18.1	18.2
Slovakia	25.7	28.5	27.3	25.0	24.1	26.8
Slovenia	25.6	24.1	22.6	23.3	24.5	24.4
Hungary	22.9	22.9	22.9	21.9	22.4	22.7
	Foreign direct investment					
Czech Republic	8.9	9.1	11.3	2.3	4.6	8.9
Estonia	7.0	8.7	4.0	9.7	8.3	21.2
Lithuania	3.3	3.7	5.1	1.0	3.4	4.0
Latvia	5.3	1.6	2.7	2.7	4.6	4.6
Poland	5.5	3.0	2.1	2.2	4.9	3.1
Slovakia	10.5	7.0	15.5	2.2	2.0	4.4
Slovenia	na	1.4	4.0	3.8	2.1	1.7
Hungary	3.4	7.4	4.5	2.5	4.4	6.3

Source: Own elaboration based on Eurostat data.

Fast-growing productivity in the Baltic states and optimistic expectations of their development prospects, particularly after the successfully completed negotiations on EU accession, resulted in the investment potential of these countries exceeding their capability to finance investment entirely with domestic savings, especially in view of considerable consumption aspirations of households. Considering the decreasing governmental borrowing needs, foreign capital inflows financed foreign direct investment which allowed these economies to maintain the total investment rates at a high level. At the same time, however, the price that the Baltic states had to pay for rapid growth of investment, output per capita and consumption were the international imbalances in the form of considerable deficits on their current account balances. In Lithuania, Latvia and Estonia, current account deficits were climbing steadily until they exceeded substantially their counterparts in the other countries in the region (see Table I.13). This phenomenon, symptomatic for fast-growing small open economies, had the specific feature in case of the Baltic states – although at the beginning of this decade, FDI constituted the main source of external financing, in the later period (as from 2003-2004) this role was taken over by foreign loans drawn by the domestic banking sector. This was due to the fact that a substantial part of foreign investment was invested in the financial brokerage and that the expansion of investment and consumption credit in the Baltic states was covered by loans raised by banks from parent companies.ie. from foreign banks.[48] Although this mechanism resulted in a negative net exports contribution to growth (see Chart I.38 and I.39), it also led to a situation where high deficits on the current account balance were to a lesser degree than usually in such cases a consequence of foreign trade imbalances. Moreover, even in the face of negative net exports contribution to growth in the Baltic states, it should be acknowledged that their development was largely based on international trade – in the period 2000-2005, the cumulated growth in exports (expressed in euro) was highest in Lithuania out of all NMS8, and in Estonia and Latvia it was close to the average for the NMS8. Moreover, apart from Latvia, the Baltic states saw a clear shift in exports structure in favour of technologically advanced goods. The above factors allowed for a rapid growth in output, consumption and capital accumulation, which entailed high imports dynamics. The latter is an explanation for the negative contribution of foreign trade to growth in particular years, alongside increasing competitiveness of these economies..

Table I.13.
Current account balance (percentage share in GDP) of the NMS8 in the period 2000-2005.

	Czech Republic	Estonia	Lithuania	Latvia	Poland	Slovakia	Slovenia	Hungary
2000	-4.9	-5.4	-5.9	-4.7	-5.8	-3.4	-2.8	-8.5
2001	-5.4	-5.7	-4.7	-7.5	-2.8	-7.4	0.2	-6.1
2002	-5.6	-10.2	-5.1	-6.7	-2.5	-8.4	1.5	-7.0
2003	-6.3	-12.1	-6.9	-8.1	-2.1	-0.9	-0.3	-8.7
2004	-6.0	-12.7	-7.7	-12.9	-4.1	-3.4	-2.1	-8.6
2005	-2.1	-10.5	-6.9	-12.6	-1.6	-4.9	-0.8	-7.3

Source: Ministry of Economy 2006

In the remaining countries, in the face of moderate dynamics in domestic consumption component of demand, diverse evolutions of economic situation were governed by different net exports performance. In 2003, global economic recovery was only started in the United States, whereas in the EU member states the output and internal demand dynamics were relatively low. Thus, the crucial role played by net exports for growth in Poland and Slovakia (see Chart I.39) resulted from the increased share of these economies in volume of global trade, thanks to gaining comparative advantage in the European markets. This applies especially to Slovakia, where high net exports dynamics was accompanied by real exchange rate appreciation.[49] In case of Poland, the producers' search for new foreign markets, triggered by idiosyncratic slowdown of 2001-2002 and meagre domestic demand, was facilitated by nominal and real depreciation. Economic growth reliant almost entirely on exports allowed to barely halt the negative developments in the labour market, which in both countries were reversed only later on.

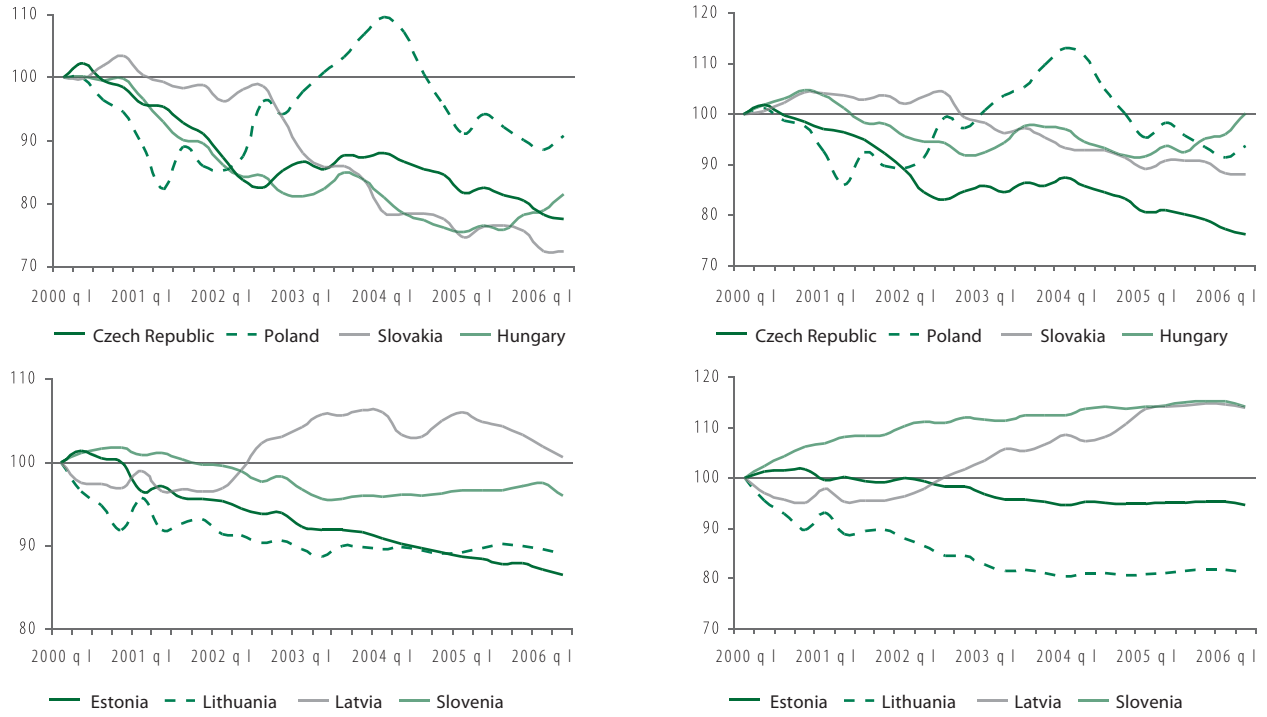
Strengthening integration with the global markets as well as increasing international competitiveness were of fundamental importance for the CEE countries in the period 2001-2005. The tendencies towards real exchange rate appreciation, which in the 1990s occurred independently from the evolution of nominal exchange rates (at that time, usually managed by the monetary authorities) as a result of rapid convergence of labour productivity to the EU15 levels, advanced after the year 2000. The only exceptions were the Czech Republic, Poland and Latvia in 2002-2004, although in their case temporary real depreciation resulted from nominal depreciation, reinforced by the fact that disinflation reduced price dynamics in these countries to levels similar to observed in EU15 economies (see Chart I.43). Alongside gradual real appreciation, the NMS8 (except for Slovenia and Latvia) commonly increased their shares in global international trade. Between 2000 and 2005, Poland and Slovakia achieved highest relative growth of their share in global international trade, which increased by half. However, it was of similar importance that exports structure shifted towards highly processed goods, more capital intensive and technologically advanced. According to Fabrizio, Igan and Mody (2006), Hungary, the Czech Republic and Slovakia were the countries with the highest share of high technology goods in total exports, whereas the Baltic states, excluding Estonia, were mainly exporting goods of a low degree of processing and high labour intensity.[50]

[48] Based on country profiles of the Baltic states prepared by the IMF.
[49] Real appreciation in Slovakia was driven by the productivity growth resulting from the intensification of FDI inflows which contributed to nominal appreciation. The FDI flows in Slovakia were on the rise throughout this period irrespective of a global decrease in FDI flows (OECD, 2004sk). At this point, it should be noted, however, that the FDI evolution in Slovakia was closely related to the privatisation processes. In particular, the less intense privatisation explains the decline in FDI in 2002.

However, after 2000, the largest shifts in the above respect occurred in Poland, Estonia and Slovakia, which indicates that the economic slowdown of 2001-2002 gave rise not only to the necessity to increase the competitiveness and find new markets and for already produced goods, but also played a role of reallocation shock, leading to considerable change of output structures in the above economies. In Estonia, the resulting temporary mismatch of demand and supply in the labour market could be assimilated faster thanks to high investment rate (including foreign investment), a factor that was absent in Poland and Slovakia. As presented in Charts I.36 and I.37, investment slowdown was followed the temporary decrease in the return on invested capital, which was visible since the first adverse shock that affected the CEE countries in 1998 and became visibly more intense from 2000 on. The observation that the Polish economy rebounded from recession thanks to a dynamic increase in exports, which evidently differed in terms of directions of flows and the goods structure from the situation preceding the shock, constitutes an argument in favour of the claim that indeed the so-called reallocation shock (see Davis, Haltiwanger, 1996) occurred in Poland. Surely in other countries in the region such impulse could have emerged, however, they were much l smaller economies which should have facilitated the absorption of this type of disturbance. In particular, in countries with relatively small population, such as Estonia, a change in production structure as well as a resulting shift in labour supply could have emerged easier and faster to effect than in nearly three-times larger Slovakia and incomparably faster than in Poland. The above factor played an significant role in much more prolonged absorption of the adverse labour market consequences of the economic slowdown of 2000-2002 in Poland and Slovakia, than in the small Baltic states.

Market expectations of maintaining relatively high and stable economic growth in the region contributed the appreciation of nominal exchange rates. However, the relative dynamics of real exchange rates and labour productivity evolved in a different manner than in the period 1996-1999. Productivity was growing at a faster pace than the real exchange rates appreciated Ein the Baltic states, Poland and Slovenia.[51] In Hungary, these changes were almost identical throughout the period 2000-2006, whereas in the Czech Republic and Slovakia, real appreciation exceeded the labour productivity growth. Moreover, after 2000, labour productivity was generally growing faster than average wages, especially so in the Baltic states and in Poland. Slovakia and the Czech Republic were exceptions in the above respect. In Slovakia, the dynamics of the two variables were similar, and in the Czech Republic, the increase in real wages exceeded the productivity growth, which could be a manifestation of certain rigidity of real wages, thus contributing to employment stagnation in the period 2000-2004 (see Chart I.21).

Chart I.38.
Effective real (left graph) and nominal (right graph) exchange rates of the NMS8 in the period 2000–2006 (1Apr2000=100)



Remarks: CPI deflated real exchange rate. Effective exchange rate is a weighted mean of exchange rates relative to 34 major trading partners of every country. Exchange rates have been calculated in accordance with the European method, meaning that index increases represent depreciation, whereas index decreases – appreciation.

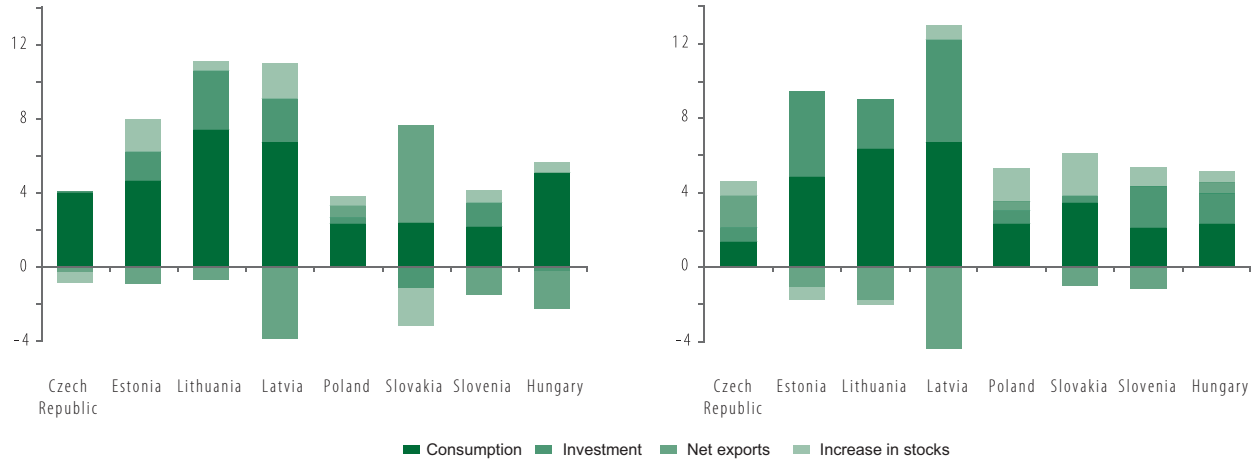
Source: Own elaboration based on Eurostat data

[50] The main category of exports in Latvia are timber and cork.
[51] The largest difference in the dynamics of these two variables occurred in Latvia, where, at the beginning of 2006, because transitory real depreciation, real exchange rate was basically identical to that from 2001, whereas labour productivity grew during this period by 36 per cent.

Negative correlation (of about -2/3) between dynamics of real wage relatively to labour productivity and the dynamics of real exchange rate relatively to productivity emerged in the period 2000-2006 among NMS8 countries, which means that the greater degree of spillover of the productivity increases to real wages growth was accompanied by higher relative appreciation in relation to increasing productivity. This trade-off indicates that the changes in relative prices of non-tradable goods constituted primary channel of real appreciation in the NMS8. In other words, the productivity gains in the tradables sector resulted in real wage increases across the economy, and consequently led to rising prices of non-tradable goods, i.e. real appreciation. Generally, it can be concluded that, throughout the examined period, international competitiveness of the CEE economies as well as their investment attractiveness, measured by the ratio of wage, productivity and real exchange dynamics, were on the rise. The rising international competitiveness of the countries in the region is confirmed by the fact that their share in the global volume of trade grew largely due to changes in the structure of exports in favour of technologically more advanced goods, as well as due to the considerable decline in relative, adjusted for quality, prices of exports (Fabrizio, Igan and Mody (2006)).

At the turn of 2003-2004, the acceleration in economic growth became widespread in the region. Moreover, even though in 2003 only the Baltic states and Slovenia were characterised by a substantially positive contribution of investment to GDP growth,[52] in the following years it became a common characteristic of all NMS8 economies. The improvement in the economic situation was partly due to boost in external demand. Slovakia should at that time be considered as a country where growth depended on exports to the greatest extent among NMS8 – in fact, the volume of Slovak exports in real terms exhibited the highest dynamics and its share in GDP had been on the rise since 2003 (see Table I.10). After 2004, the Czech Republic followed a similar path and its net exports became the main component of growth, which in 2005 reached the highest rate in ten years (see Chart I.18).

Chart I.39.
Contribution of final demand components to GDP growth in the NMS8 in the years 2003 (left graph) and 2004 (right graph)



Source: Own elaboration based on Eurostat data and Economic Survey of Europe.

In 2005, the rising GDP dynamics was sustained in the Baltic states, the Czech Republic and Slovakia, whereas in Poland, Slovenia and Hungary, growth rates were lower than the year before. The nature of this slowdown is well-illustrated by the case of Poland, where the decline in GDP dynamics by 2 percentage points compared with the previous year was nearly entirely due to an parallel decrease in private consumption dynamics, which accelerated in the year of EU accession, alongside stable growth of investment and public consumption. It can be assumed that the slightly lower growth rate in 2005 was above all a "technical" slowdown below the business cycle evolution driven by real economy factors, and this slowdown resulted from moving some of planned consumption and investment expenditures to 2004. Nevertheless, despite this temporary adjustment, the consolidation of growth translated into a clear improvement in the labour market situation across the region. In the Baltic states and Slovakia, employment and the employment rate increased further. Slovenia was characterised by an increase in both participation and employment rates as well as a decrease in unemployment already in 2004. However, the intensification of positive developments in the Polish labour market and the first case – since 2002 – of employment growth in Czech Republic are above all worth attention. This clear-cut picture of cyclical recovery in the labour markets is only distorted by stagnating employment and the increase in the unemployment rate in Hungary, where however, at the same time, participation grew although probably due to institutional rather than macroeconomic factors.

In this context, it is worth mentioning that economic growth rate in the Baltic states – much higher than in the remaining countries in the region – was consistently based on external (consumption and investment) demand, alongside growing deficit on the current account (see Table I.13), financed by large direct investment inflows. This applies especially to Estonia, which was characterised by the highest share of FDI in GDP and by the highest gross capital accumulation rate among all the NMS8 (see Table I.12). Comparably to

[52] It is worth noting that, apart from Estonia, these countries experienced from 2001 on an increasing share of public investment in GDP, irrespective of a decreasing share of total public expenditure in GDP (see Charts I.25 and I.30), and thus contributing to the accumulation of total capital stock.

Slovakia, a considerable fraction of exports of the Baltic states compounded of movements of goods within integrated cooperation chains of foreign companies investing the these countries. From the macroeconomic point of view, such phenomenon lowered the foreign debt of these countries and alleviated the pressures on exchange rate depreciation, in comparison to the economy where such considerable current account deficits would result from an excess of imports over exports, as it was actually the case in the second half of the 1990s. The possibility of financing domestic credit with seemingly foreign loans, which in fact constituted transfers within the same financial institutions, played equally important role in the Baltic states.

In other words, the Baltic states, thanks to their capability to attract substantial foreign investment and their clearly pro-export, or even re-export,[53] industry orientation[54] were able to – shortly after the Russian crisis – achieve high growth levels, which translated also into rapid improvement in their labour markets, increase in wages and in private consumption, and at the same time enabled this economies to avoid the negative consequences of the current account imbalances. These countries also pursued the best mix of macroeconomic policies – fiscal and monetary – out of all CEE countries.

2.3.2 Fiscal policy after the year 2000

After the year 2000, the contrast between the fiscal policy implemented in three groups of countries – the Czech Republic and Hungary constituting the first, Poland and Slovenia the second, and the Baltic states and Slovakia belonging to the third group – earlier merely detectable, was becoming more intense. The first group of countries was characterised by a clearly higher, stable or even increasing scope of income redistribution effected via public finance sector, alongside the higher average budgetary deficit. The second group conducted an unstable fiscal policy with episodes of rising and shrinking deficit, and exhibited generally stable and rather high share of public expenditures and revenues in GDP. However, the Baltic states and Slovakia had been pursuing from the beginning of the current decade a decrease in scope of government, measured by the share of public finance sector in GDP. Another fundamental difference was that in the first and second groups of countries, the fiscal consolidations were achieved by increasing revenues, which means increased taxation, whereas the third group was generally implemented simultaneous reductions in public revenues and expenditures, leading consistently to gradual reduction of deficits in the medium term (see Charts I.25-I.27). Due to the fact that in the first and second group fiscal policy played more active role, we describe it more extensively and pinpoint important differences above all between the four large-size countries.

The loosening of fiscal policy in the first group, which occurred towards the end of the 1990s, was at the beginning rather cautious and of cyclical character. However, it transformed into a lasting increase of public expenditures and of structural component of deficit. This was particularly visible in Hungary and the Czech Republic, where, as from the year 2001, expansive fiscal policy encompassing all major categories of expenditures can be detected. Both public consumption and investment were on the rise, as well as expenditures on wages in the public sector and social transfers spending. In both countries, the expenditure dynamics exceeded the scale that could be attributed to the functioning of automatic stabilisers, thus creating a positive demand-side impulse. The above is further evidenced by the fact that the increase in expenditures preceded the slowdown in global economy of 2001, and was intensified in both countries at the time of elections in 2002. In other words, fiscal policy conduct of these countries were not typically anticyclical but discretionally expansive and unconnected to the current economic situation.

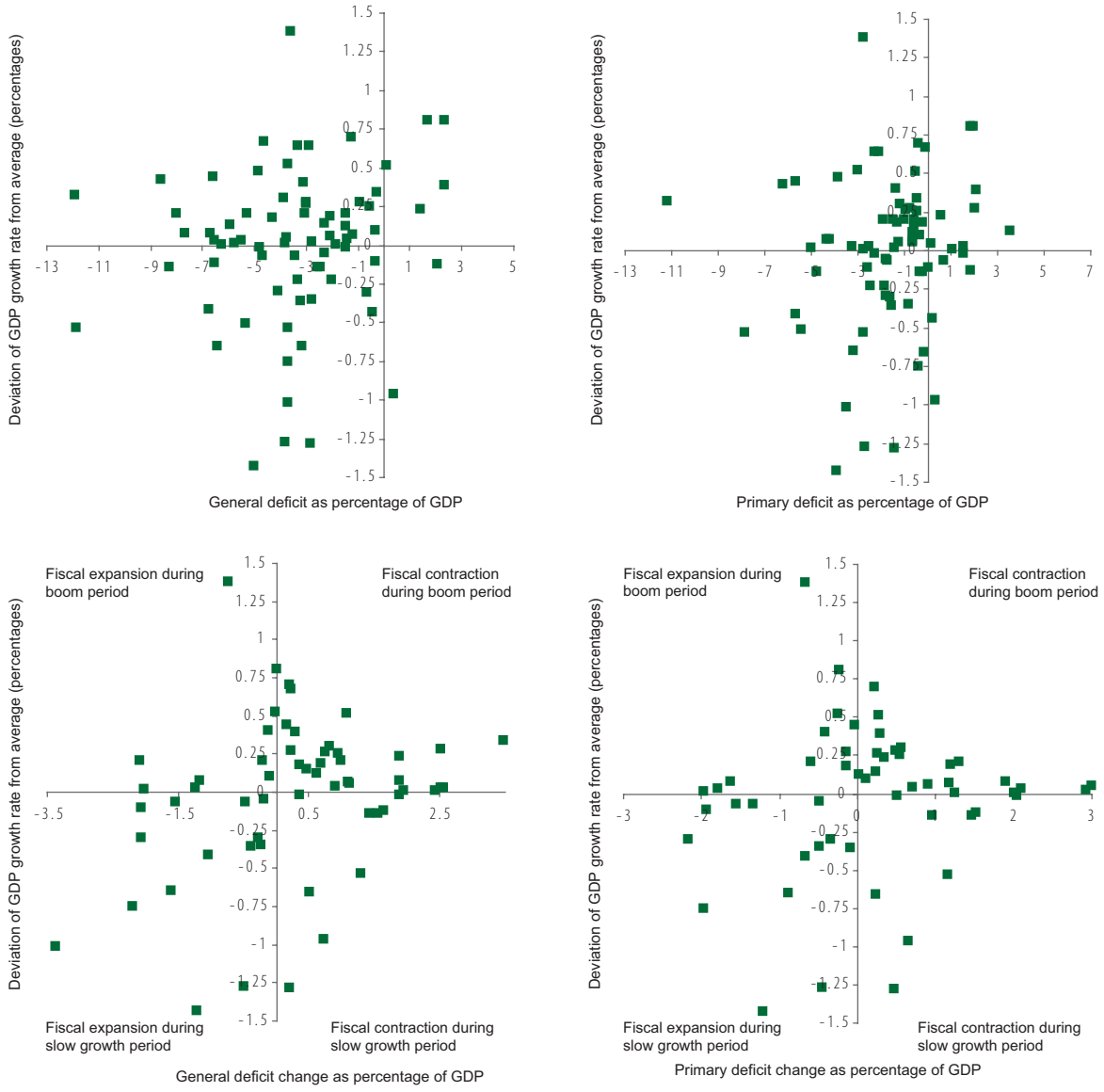
The loosening of the budgetary discipline, which followed until 2005 and was disrupted by a one-off improvement in the public finance balance in 2004, was associated in both countries with considerably higher levels of total and primary deficit than in the remaining countries in the region (see Charts I.24 and I.27). However, in the Czech Republic this meant an intensification of tendencies initiated at the end of the last decade and revealed the structural nature of deficit, the rapid deterioration of Hungarian public finance balance that began in 2002, when both total and primary deficit rose by 4 percentage points of GDP, allows the judgement that, in the period 2000-2006, Hungary conducted the most expansive fiscal policy among all NMS8. The initial spending impulse of 2002 was based on increasing public consumption and investment, but in the next years it was followed by a rapid increase in social transfers, irrespective of the fact that Hungary's output dynamics was relatively advantageous (see Chart I.34). The expansion of expenditures was accompanied by a decrease in revenues, thus leading to mounting public debt which amounted to 57.7 per cent of GDP in 2005.

It is worth emphasising that the Czech Republic, which built its fiscal expansion primarily on the increase in consumption and public investment and only to a small extent on a temporary increment in transfers, contrarily to Hungary, did not suffer the consequences of expansion in the form of lower labour supply. The above happened irrespective of the fact that the Czech GDP in 2002 (i.e. in the first year of fiscal expansion) was below the medium-term trend and reached only 1.5 per cent, whereas in Hungary, it did not deviate considerably from the average for the entire examined period and amounted to almost 4 per cent. This remark is in line with the hypothesis stating that the structure of fiscal impulses influences their impact on the economy and the labour market, and that the impulse based on increasing transfers results in decreasing labour supply and employment, whereas impulse made up of higher public investment and consumption – if financed by rising deficit or taxes –are rather neutral for equilibrium level of output (see Bukowski et al., 2006).

[53] It seems particularly probable in the case of Lithuania, where out of the main ten categories of exported goods, difference of share in total exports and imports greater than 2 percentage points is only observable in textiles (mainly exported), machines and electronic equipment (mainly imported). For instance, cars and other vehicles – which are the second largest category in terms of share in Lithuania's exports, constitute a virtually identical share of exports and imports of this country.
[54] The share of Estonia in global exports in 2004 amounted to 2.5 per cent and was higher than that of Poland (1.3 per cent) and equal to that of Lithuania (UN Comtrade data).

In Poland, due to a smaller share of public consumption and investment in GDP, and above all due to their lower dynamics,[55] in 2001-2002 the increase of public expenditure's share in GDP was smaller, and thus deficit also remained lower than in the Czech Republic and Hungary. Nevertheless, after a period of restrictive fiscal policy at the turn of decades, which resulted in primary surplus in 2001, primary and total deficit grew by as much as 2 percentage points of GDP. The inability to reform the public finance during the period of rapid economic growth in the second half of the 1990s led to a situation, where the measures introduced during the period 1998-2000 proved insufficient, and public finance balance deteriorated in the aftermath of economic breakdown in 2001, mainly due to lower revenues and higher social transfer expenditures than expected.[56] Thus, it can be reckoned that the deficit increase of 2001 was above all of cyclical nature.

Chart I.40.
GDP deviation from its long-term trend versus primary and general public finance deficit and government net borrowing in the NMS8 in the period 1996-2005



Source: Own elaboration based on Eurostat data.

The next episode of growing deficit, which occurred in 2002-2003, i.e. when the economic recovery started in Poland, seem to be of different nature. An increase in total and primary deficits by 1.5 percentage points of GDP, which can in two thirds be attributed to the increase in structural deficit, was above all a consequence of lower tax revenues because all major categories of expenditure essentially remained unchanged (see Charts I.28-I.30). The above evidences that the government implemented then a fiscal expansion based on

[55] Only in 2001 public investment, expressed as percentage of GDP, increased substantially, which, however, meant only return to medium-term average level and the reverse of public investment reduction in 2001, introduced to curtail the deficit.
[56] In years 2000-2001 certain "technical" displacement of deficit occurred, caused by underestimated inflation rate in 2000, which translated into lower spending on social transfer indexed with inflation rate. Decline of transfer incomes in real terms implied the necessity of their recompensating increase the following year. That way the fraction of deficit was transferred from 2000 to 2001 budget.

tax cuts.[57] This episode of expansive policy distorted the potentially anticyclical character of fiscal policy, which – if it had been pursued in accordance with such approach – after a period of slowdown and rising of deficit and public debt in 2001-2002 – would have been followed by an improvement of the balance during economic upturn. Nevertheless, compared with Hungary and the Czech Republic, fiscal policy in Poland should be considered moderately expansive due to considerably lower primary deficit increases. However, from today's perspective, it is difficult to assess the macroeconomic significance of the reductions of deficit in 2004 and 2005, because they were prompted by different factors – in 2004, public expenditures were curtailed (thanks to reduced transfers and public consumption), and in 2005, tax revenues rose (probably entirely due to cyclical factors).[58] It seems, however, that this policy could have contributed slightly to the improvement in the labour market, and in particular to the increase in labour supply. This was so because social transfers were curtailed and the revenue increases were predominantly due to increasing reliance on indirect taxes with a very broad tax base, which should not be expected to create any significant distortions in the allocation of resources in the economy.

In Slovenia, a country with the highest per capita income but, at the same time, with a lower growth rate than the remaining NMS8, from 2000 on public expenditures (at that time the highest in the region) were decreasing, alongside rising tax revenues, which ultimately resulted in shrinking deficit. It can be assessed that because the economic growth was gaining momentum, Slovenia was pursuing an anticyclical fiscal policy. Slovenia, which among countries denoted as countries with "large" governments,, is characterised by the highest share of public finance revenues and social expenditures in GDP (see Charts I.25 and I.26), stands out also due to larger budgetary discipline and a generally neutral fiscal policy.

Slovenia shares the above features with the Baltic states and Slovakia, which did not engage in expansive fiscal policy either, however, the scale of income redistribution via public finance in these countries is considerably lower. Moreover, from 2000 these countries managed a regular reduction in the share of budgetary expenditures and revenues in GDP, implying an improvement in the public finance balance . Consequently, by 2004 the Baltic states achieved the lowest scale of income redistribution through budget as well as the most advantageous budget balances out of all the NMS8. Moreover, they carried a certain change in the structure of expenditures, because the reduction of public finance share in GDP consisted mainly in declining public consumption and to a lesser extent decreasing social transfers (except for Estonia where the share of social expenditures in GDP was stable), and on the other hand public investment grew at the beginning of the decade only to fall again later on. It should be emphasised that even in the mid-1990s social transfer spending in the Baltic states were much lower than in the Czech Republic, Poland, Hungary and Slovenia. Although they increased at the turn of decades, as opposed to the Czech Republic and Hungary, this increase was only temporary. Consequently, distortions created on the labour market by this sector of public finance were considerably smaller already at the point of departure.

The general tendency of curtailing the size of the public sector and to simultaneously implement fiscal consolidation could also be observed in Slovakia in the period 2001-2005, with the exception of one expansive impulse in 2001-2002, which involved tax cuts but no extraordinary spending. It can be assessed that the government intended to level out the external demand slump, which at that time translated into large negative contribution of net exports to GDP growth (see Chart I.35). This episode constitutes the only positive fiscal impulse observed in the NMS8 after the year 2000. Thus, as much as in the 1990s Slovakia was a country with a loose and unstable fiscal policy, in the current decade it conducted prudent fiscal policy aiming at the reduction of taxation and public expenditures. Comparably to the Baltic states, this translated into a gradual improvement of the public finance balance, a process that was further prompted by rapid economic growth driven by exports (Slovakia) or private consumption and investment (Baltic states).

[57] In the current decade the public consumption grew faster than private consumption. Although initially it could be perceived as automatic stabilisers response to slowdown in 2001, from 2003 evidences for loosening of fiscal policy.
[58] To some extent it was connected to redirecting the VAT revenues from 2004 to 2005 because of unification of tax rules with UE legislation.

Table I.14.
Fiscal impulses in the NMS8 in the period 2001-2005

Country	Period	Fiscal impulse	Financing method	Expected impact on labour market and output
Czech Republic	2001-2003	Increase in public investment and consumption	Increase in taxes and deficit	Neutral on labour market, moderately positive on output
Hungary	2001-2002	Increase in public investment, consumption and transfers	Increase in taxes and deficit	Negative on participation and employment, neutral on output
Hungary	2003-2005	Increase in transfers and public investment	Increase in taxes and deficit	Negative on participation and employment, neutral on output
Poland	2001-2002	Increase in transfers	Increase in deficit	Negative on perticipation and employment
Poland	2002-2003	Decrease in income	Increase in deficit	Neutral or slightly positive on capital and labour supply
Poland	2003-2005	Decrease in transfers	Decrease in deficit	Positive on participation and employment
Slovenia	2001-2005	Decrease in public consumption and transfers	Decrease in deficit	Positive on participation and output
Lithuania	2001-2005	Decrease in public consumption, increase in investment	Decrease in deficit	Positive on employment and output
Latvia	2001-2005	Decrease in transfers, increase in public investment, temporary increase followed by a decrease in consumption	Decrease in deficit	Positive on participation, employment and output
Estonia	2002-2005	Decrease in public consumption, transfers and investment	Increase in budgetary surplus	Positive on participation and employment, neutral or positive on output
Slovakia	2001-2004	Decrease in public consumption, transfers and investment	Decrease in deficit	Positive on participation and employment, neutral or positive on output

Source: Own elaboration.

2.3.3 Monetary policy after the year 2000

The monetary policy in the CEE countries after 2000 was conducted in a specific context linked with European integration. Therefore, when examining monetary policy of that period, it is necessary to consider long- and medium-term objectives of macroeconomic policy (fiscal and monetary), implied by the approaching accession to the European Union as well as by the declared intention to join the Economic and Monetary Union (EMU). Countries planning to accede to the EMU must fulfil the criteria presented in the Maastricht Treaty, out of which three refer directly to monetary policy. They are: price stability , interest rates convergence and stability of exchange rate criterion (see Box I.8).

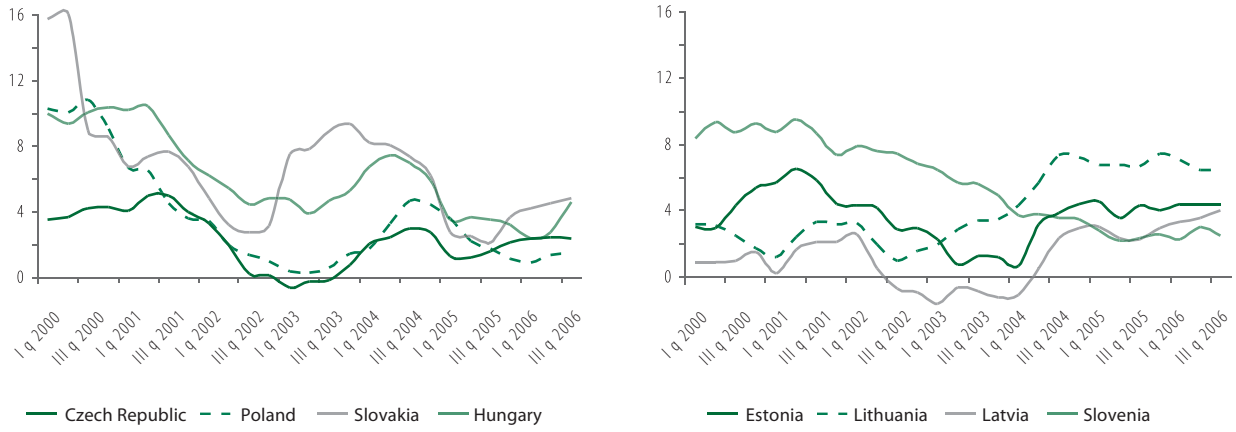
Bearing in mind the above, countries can be divided into two groups depending on the exchange rate regime. **The first group** includes the Baltic states which applied either the currency board or the fixed exchange rate. Their main objective was to maintain the above regimes until the adoption of the common currency under the EMU. It should be emphasised that in case of these countries monetary policy could not be either expansive or restrictive in precise sense of these terms because fixing of exchange rates implies the exogeneity of money supply, inflation and interest rates. Because these countries at the same time have been conducting prudent fiscal policy, it can be acknowledged that the monetary conditions in these economies were largely independent from the measures undertaken by the governments and related to monetary policy in the euro zone. **The second group**, relatively diversified in terms of not only level

and growth of GDP but also of the fiscal policy conducted, includes all remaining countries, with floating exchange rate regime. The monetary authorities in these countries aimed for greater flexibility of exchange rate regime in the pre-accession period so that the adjustments related to the prospective adoption of the so-called Exchange Rate Mechanism (ERM II) would gradually occur. Slovenia is to some extent specific in this respect because, since regaining independence, it had been applying (in practice, significantly) managed floating exchange rate in order to join the ERM II in mid-2004 and replace the Slovenian tolar with the euro in 2007. Because of the above factors, when analysing the restrictiveness of monetary policy we focus on the countries with floating exchange rates.

Similarly to evolution of economic situation and GDP which, in the period 2000-2005, were closely related to unfolding of global economic situation, the evolution of nominal variables in the NMS8 was related to the developments in price dynamics in the world markets. Thus, modifications of tradables' prices were of primary importance for the price movements in the CEE region. Two periods of homogeneous increase of the CPI dynamics across the region merit particular attention (see Chart I.41). The first period, covering the years 2000-2001, was connected above all to a considerable increase in oil prices, as a result of which relative prices of fuels and other categories of goods grew, thus leading to higher dynamics of the average price index. The second episode of common acceleration in price growth accompanied the EU accession in 2004. It was therefore specific for the NMS8 and applied to all of them except for Slovenia.

In 2000, the earlier widespread disinflation processes were halted or even reversed (see Chart I.41). However, both factors that stood behind the above development proved transitory – as from 2001 the global economy, and thus also the CEE countries, slowed down, and the oil prices were adjusted downwards. Consequently, the economic downturn, caused by a decline in global demand, was accompanied by a decrease of price dynamics, which was then followed by a gradual reductions of nominal interest rates. As a result consequence, as presented in Chart I.42, the stable expected real market interest rates were common feature of NMS8 economies in the period 2000-2001.

Chart I.41.
Inflation rates in the NMS8 in the period 2000-2005



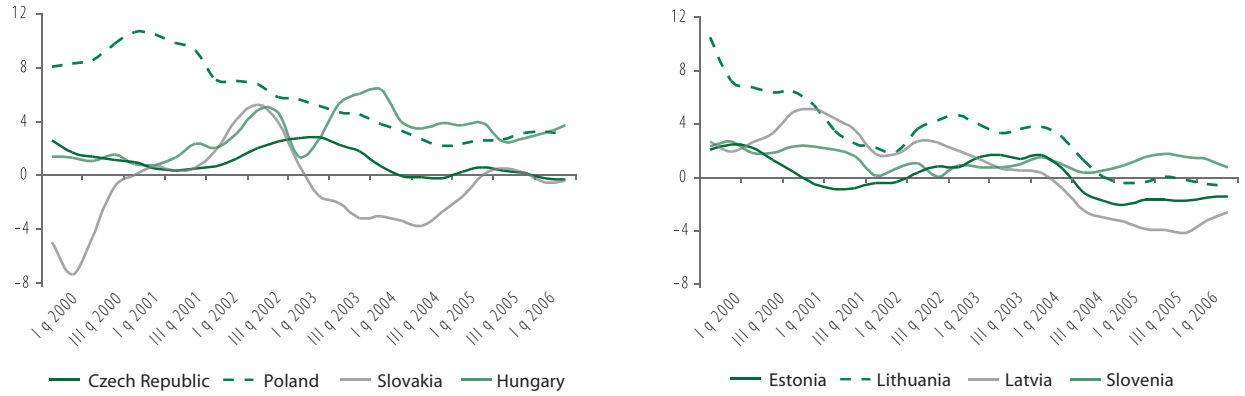
Remarks: Inflation rates on HCPI in accordance with the Eurostat methodology.

Source: Own elaboration based on Eurostat data.

Poland distinguished itself in this context with interest rates that were increasing for a longer period, in fact as long as until mid-2001. Consequently, the tightening of monetary policy in 1999 – prompted above all by the fact that actual inflation rate equalled almost double the target of the National Bank of Poland almost – and introduced concurrently to still high GDP growth, lasted so long that the global economic slowdown as well as the internal deterioration of productivity growth rate hit Poland when it had significantly higher real interest rates than the other countries in the region. Therefore, it can be claimed that the policy of the National Bank of Poland was then clearly restrictive and it markedly differed from the neutral attitude of the central banks of the other CEE countries. Hence, it seems that, for the first time as from the beginning of transition, monetary policy could – due to cautious and delayed cuts in interest rates – adversely affect real economy by contributing to the strengthening of the adverse shock that affected Poland at the turn of 2000-2001.

Chart I.42.

Expected short-term ex ante real interest rates in the NMS8 in the period 2000-2005



Remarks: Adaptive expectations have been assumed – the rate of price changes expected over the forthcoming 12 months is equal to the average 12 month inflation recorded in the last two quarters preceding the moment of prediction.

Source: Own elaboration based on Eurostat data.

Box I.8. Euro zone convergence criteria

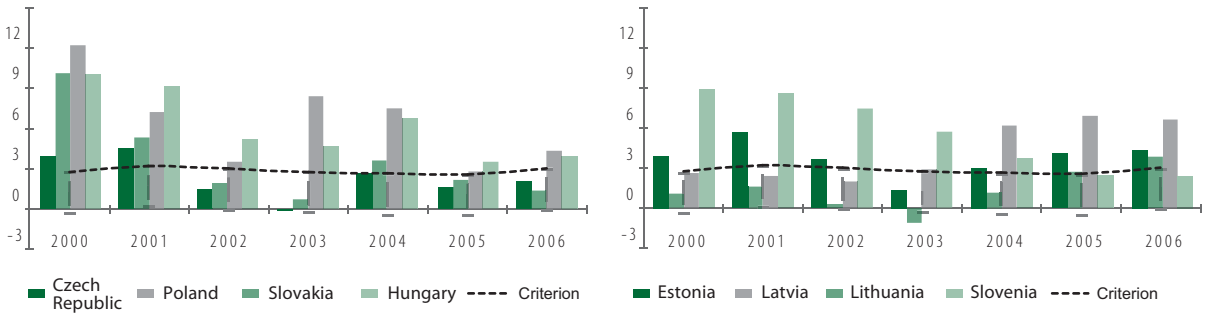
The European Union member states that aspire to join the Economic and Monetary Union and to adopt the common currency are obliged to first join the European Monetary System, the so-called Exchange Rate Mechanism II (ERM II). Hence, prior to their accession to the euro zone, these countries must fulfil the following monetary criteria provided for in the Maastricht Treaty:

- the rate of inflation must not exceed by more than 1.5 percentage points the average of the three best-performing EU member states in terms of price stability;
- the nominal long-term interest rate must not exceed by more than 2 percentage points the average of the three best-performing EU member states in terms of price stability,
- for at least two years the currency of given candidate country must remain within the so-called normal fluctuation margin established by the ERM II, which currently amounts to ±15 per cent. In addition, during the same period, currency must not be devalued against the currency of any other EU member state.

The fourth criterion concerns the condition of public finance – budget deficit must not exceed 3 per cent of GDP and public debt must not exceed 60 per cent of GDP.

Chart I.43.

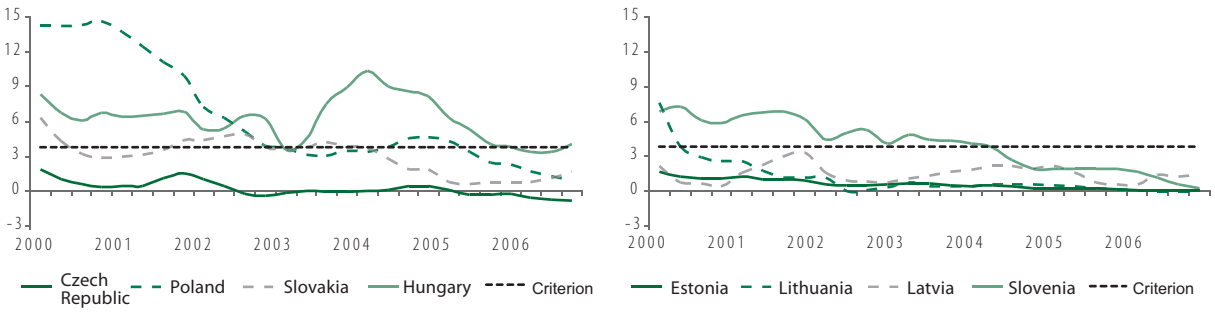
Inflation rates in the NMS8 versus the convergence criteria in the period 2000-2005



Source: Own elaboration based on Eurostat data.

Chart I.44.

Differences between nominal short-term interest rates in the NMS8 and the euro zone in the period 2000-2005.



Source: Own elaboration based on Eurostat data.

A gradual improvement in the economic situation from 2003 on implied a shift in the priorities of the macroeconomic policy towards maintaining the equilibrium and counteracting the overheating of economies. The conduct of a monetary policy with direct inflation target strategy, in view of the past disinflation trends, enabled the monetary authorities to influence the inflation expectations of economic agents more effectively than in the 1990s, which made it possible to lower benchmark nominal interest rates, alongside decreasing expected (ex-ante) real market interest rates and stable dynamics of prices (see Charts I.41 and I.43). Thus, monetary policies implemented in the countries in the region after the year 2003 were in fact neutral and focused on gradual convergence of inflation and nominal interest rates to the fluctuation margins established in the Maastricht Treaty.

Achieving the inflation targets was facilitated by the ongoing appreciation of exchange rates, which resulted from real appreciation caused by a productivity convergence (see Chart I.38). In the countries which with fixed exchange rate or currency board regime, the appreciation tendencies were absorbed by domestic prices. The above aspect was particularly important in the conduct of monetary policy in Hungary and Slovakia, where the monetary authorities strove to prevent "excessive" nominal appreciation by interest rate cuts and direct interventions in the market. In both countries, the nominal variables were at that time influenced by certain specific factors, nevertheless, Slovakia did not deviated from the above-mentioned neutral policy stance, whereas the Hungarian policy was motivated by exchange rate considerations[59] for a longer period, thus obscuring the interactions of monetary conditions with changes in macroeconomic situation.

The consolidation of economic growth after the year 2004 and the decreasing risk premium facilitated interest rate convergence with euro zone, whereas nominal appreciation – re-emerged in the NMS8 in 2004 – supported low price dynamics. On the other hand, the demand shock related to the EU accession brought about a temporary increase in price dynamics in 2004 (see Chart I.41). The monetary authorities in the NMS8 perceived differently the impact of this episode on inflation expectations. In particular, in the Czech Republic and Poland, the risk of a prolonged increase in expectations was considered enough significant to prompt a slight tightening of monetary policy. The fact that the private sector interpreted and anticipated this tightening to be only transitory prevented it from exerting any significant influence on the real economy. In the other NMS8 countries, monetary policies remained neutral and a one-off price impulse of 2004 was absorbed by fast-growing labour productivity.

The above considerations allow the claim that in the period 2000-2005 monetary policies were focused prominently on extending the disinflation tendencies, which, in the environment of floating exchange rates and real appreciation leading to a decline in prices of imported goods, was possible to achieve by adopting a neutral stance and influencing the inflation expectations of private sector. Moreover, due to more accurate inflation expectations, the anticipated policy measures manifested themselves in the real sphere to a very limited extent.

Thus, it can be argued that the only episode that stood out from the general tendencies, was the restrictive monetary policy pursued in Poland at the turn of 2000-2001. The evident slowdown in Poland's economic growth at that time entailed two disinflation factors which caused an abrupt decline in inflation and then, though relatively cautiously, also in benchmark interest rates of the central bank. Such restrictive character of monetary policy very probably intensified the investment slump but it was by no means its cause. Indeed, the reason behind this slowdown consisted, above all, in lower external demand and decreasing capital productivity, which both emerged much earlier.

[59] In 2003, Hungary experienced three speculation attacks on its currency and both the upper and the lower margin of fluctuation band was attacked. These attacks led to a loosening of monetary policy in the first half of 2003 and then to its tightening in the second half of 2003. One year later, the consequences of the crisis were still perceptible, however, gradual softening of monetary policy followed.

Summary

The last dozen or so years bring rapid bridging of the gap between the economies of the post-communist countries of Central and Eastern Europe and the Western European countries. The initial transition shock, i.e. the adjustment of the size and structure of production – previously centrally planned– to the requirements of the free market, was fading away throughout the region in 1994, even in the most affected Baltic republics. Since then, in all CEE countries, GDP per capita was steadily growing so at the time of EU accession in May 2004, all these countries were considerably more affluend than ten years earlier.

The **labour productivity growth, much faster in the NMS8 than in the EU15** was of key importance in levelling out the initial development handicap. The legacy of the previous economic regime included both excessively high deployment of labour force in the production process and low efficiency of utilising the existing resources. Convergence to the EU15 was accompanied by **internal convergence within the NMS8**, which means that the countries relatively poorer at the beginning of the transition were developing faster than the initially relatively richer countries. Poland was one exception as its average growth rate was much below the value enabling to keep up with the other countries in the region.

Apart from long-term convergence, each of the NMS8 experienced in the period 1994-2006 **episodes of transitory economic slowdown resulting from large aggregate disturbances**, out of which some were common for a number of countries and some were idiosyncratic. The sequence of common negative shocks, which affected the growth dynamics as well as labour markets, was generally similar throughout the last decade. However, the most considerable demand shock, which hit almost the entire region apart from the Czech Republic, Slovenia and Hungary, occurred in mid-1998 and was directly connected with the so-called **Russian crisis**.

The above shock fundamentally affected the situation in the CEE labour markets as, in most of them, it led to – whether directly or as a result of the so-called spill-over effects which propagated through the international trade channel – an **abrupt slump in output and labour demand**. The other common shocks included: a significant increase in oil prices in 2001, the global slowdown of 2001-2002 and subsequent recovery after 2003 as well as the demand shock connected with the accession of the examined group of countries to the EU in May 2004. The direct impact of these impulses on the trajectory the growth, and in particular on labour market developments, was smaller than in the case of the Russian crisis, although they both entailed evident changes in the evolution of the economic situation.

Apart from disturbances that affected the region uniformely, **some countries experienced idiosyncratic shocks** (country-specific) which **altered their relative labour market situation vis-à-vis the remaining NMS8**. Poland experienced exactly that kind of shock in form of the slowdown in mid-2000, which considerably affected the economy and the labour market. It was probably triggered by the internal negative technological shock spread over the period 1999-2002 which took the form of a lasting decline in capital productivity and a slump of the TFP dynamics much below the general trend. In the Czech Republic, the crisis of 1997 was of great importance as it slowed down the growth for about two years and adversely affected unemployment and employment rates.

The **pace of absorption of shocks** in the labour market was to some extent **influenced by fiscal policies of particular countries** – those countries (such as Poland throughout the examined period and Hungary until 1999) that reacted to shocks with a prolonged increase in social transfers for the working-age population, experienced declining in participation and employment rates, whereas those (such as the Baltic republics) that increased public consumption and investment, and where transfers only played the role of automatic stabilisers, and exhibited medium-term declining tendency, were much more successful in accommodating labour market shocks.

Initially, i.e. until the year 2000, **monetary policies in the NMS8** focused on disinflation and currency stabilisation, whereas in the later period their main objective was to fulfil the nominal convergence criteria defined in the accession treaties and obligatory for joining the euro zone. At the same time, these policies did not exert important influence on the economic and labour market situation in the region. The only **evident episode of restrictive monetary policy was observed in Poland** at the turn of 2000-2001, however, it was accompanied by a counteracting expansive fiscal policy. Although this episode could not be the reason for the economic slowdown of 2001-2002 because it emerged after the decline in capital productivity and the investment slowdown, however, it could slightly prolong the investment downturn. On the other hand, however, Poland was most successful out of all NMS8 in curbing inflation and in this respect managed to catch up with the mature and stable economies of the EU15.

In 2003, after a five-year period of continuous decline in employment, the situation in the Polish labour market begun to improve. The employment entered a steady increase period and the acceleration in employment growth – from the second quarter of 2005 – led to a decline in unemployment to 15.8 per cent in mid-2006 and to 13.0 towards the end of 2006, reaching the lowest level in seven years. These positive tendencies initially translated into the increase of employment of ***prime-age*** individuals, and then also of other age groups on the labour market, including youths. Moreover, the decline in labour supply was halted. Nevertheless, although increasing employment and the resulting decreasing unemployment slowly gained pace, the **participation rate of among people over 55 has not improved yet**.

The current **improvement of the situation in the Polish labour market is above all of a cyclical nature**, and Poland failed to bridge the gap in employment and participation rates with respect to the EU15, although the remaining countries in the region proved successful in achieving this goal. Consequently, the Polish labour market of 2006 distinguishes itself negatively from the NMS8 just as it did in 2002. **In all age groups employment rates in Poland are smaller than the respective shares in the EU15 and NMS8**, and the size of this gap is due also to lower employment of ***prime-age*** people, unknown in the remaining NMS8. A part of this distance vis-à-vis the EU15 could be levelled out, if the favourable economic situation is maintained for a couple of years. The example of the Baltic states evidences that an economic upsurge may lead to a considerable increase in employment and a decrease in unemployment of people aged 25-45. In the above respect, **a particular challenge of improving adjustment of labour supply to labour demand emerges**, and thus to lower structural unemployment which limits the scope of employment growth resulting from increasing labour demand.

Secondly, **increasing the, currently extremely low, labour supply of individuals at the start or end of their professional careers seems to be of crucial importance for rising overall employment rate**. However, the contribution of youths to the "Polish" employment gap is largely comparable with the contributions of their counterparts in the other countries in the region. The relative distance between Poland and the NMS8 results above all from low employment rates of the elderly. Therefore, there exists a scope for general employment growth in Poland which can be achieved with increasing the participation of older age groups, presently one of the lowest in Europe.

It will not be possible, however, to utilise the above-mentioned potential, if the currently operating excessive system of institutional incentives to withdraw early from the labour market, which consists above all of numerous social transfers available to individuals over prime-age, is maintained. Failure to introduce structural reforms addressing the above problem will make Poland constantly ranking as a country with one of the lowest employment rates in Europe. Moreover, at the same time employed would have to be burdened with high taxes necessary to finance such an expanded social benefits system. The experiences of the European countries indicate that, even in the face of a general stagnation in the labour market, **by limiting the possibilities and incentives to withdraw from the labour market, employment rates for the elderly as well as the general picture of the labour market can be improved**. However, favourable economic situation makes it considerably easier to implement the necessary reforms and their positive consequences for the labour market to emerge fast.

Part II. Regional Labour Markets

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Introduction

One of the most fundamental empirical regularities concerning labour market are considerable regional disparities of relevant basic statistics within a given country. In almost all developed countries, it can be observed that next to regions where unemployment is substantially lower and employment much higher than the national average, there are areas where the labour market situation is exactly opposite. What is more, in most cases, differences between regions are typically very persistent and they do not vanish even after a long time (OECD 2005).

Labour markets are specific markets because employee mobility is much lower than capital or product mobility. Therefore, one way of levelling out differences between regions is to increase the interregional mobility of production factors, including labour. Higher mobility enhances a more effective utilisation of existing resources and increase in productivity and wages. However, at the end of the day, as much as the intensification of migration flows between lower-developed and higher-developed regions contributed to a gradual increase in social well-being at the national level, it is only job creation in the disadvantaged regions that can lead to interregional convergence in employment, unemployment and output per capita levels. In order, however, to prevent convergence from levelling down standards and to encourage poorer regions to catch up, national social and economic policies, including regional and labour market policies, must be formulated accordingly. For the purpose of determining development priorities and selecting relevant tools, it is necessary to provide a detailed analysis of regional disparities in the national labour market and to assess their causes from micro- and macro-perspectives. We attempt at providing such analysis in this part of the report.

Poland, which on the scale of the EU is a relatively large country, distinguishes herself by considerable disparities between the situation both in regional and local labour markets. These markets see a number of phenomena typical for other countries, for instance, the most pre-eminent standing – in terms of employment rate and productivity level – of the largest metropolises, the emergence of areas around them that benefit from their proximity, and a much worse situation of the peripheries. On the other hand, however, some of the observed phenomena are typical for Poland as they stem from her history – for example, very high employment in the fragmented small-scale farming in the eastern and south-eastern parts of the country, alongside very low output per capita; continuing pathologically high unemployment, including long-term unemployment in the western and north-western Poland, and in particular in rural areas where state farms used to operate in the past; or the unfavourable evolution of the situation in the Silesian labour market, alongside relatively high output per capita and productivity levels.

The first chapter is devoted to the analysis of disparities among voivodeship, subregional and poviat labour markets, as well as to output and productivity developments. This analysis, together with the taxonomy (in the form of a cluster analysis) of poviat labour markets, constitutes a point of departure for a more detailed overview of enterprise and job creation and destruction in Poland, which we present in the second chapter. The key objective of chapter two is to describe and explain reasons for regional disparities in terms of new enterprises and their development. This part of the report ends with a summary in which we draw particular attention to the impact of the dynamically developing urban conglomerations on regional labour markets. Moreover, in the summary, we also emphasise the importance of high-productivity enterprises and of general economic activity levels in a given region not only for the pace but above all for the sustainability of the process of improvement of local labour market performance.

1. Situation in regional labour markets

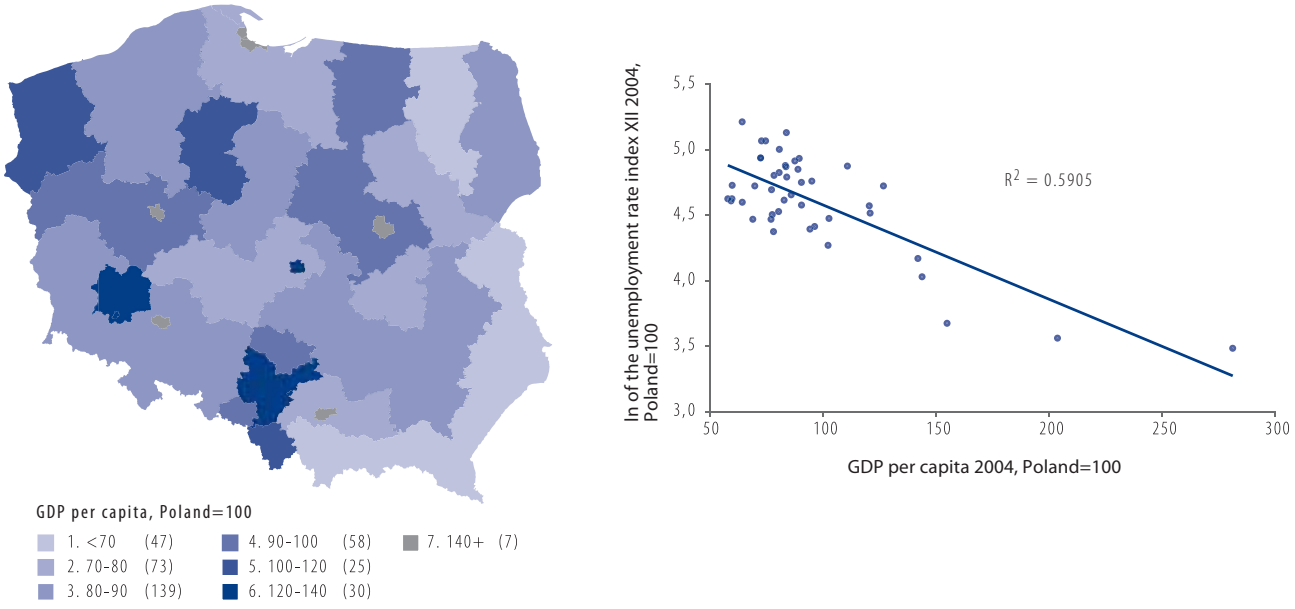
This chapter aims at providing an illustration of disparities between particular regional and local labour markets. We present their evolution in the recent years and attempt at answering the question of what are the fundamental causes for the emergence of the key differences as well as for the relative changes in labour market indicators between regions. One important element of this analysis is the clustering of poviat labour markets, which we use to divide poviat labour markets into six categories and analyse the above-mentioned changes within particular group categories. For the sake of complementing the resulting illustration of regional disparities, we provide an analysis of productivity and employment developments in industry and services sector performed at the subregional level.

1.1. Basic differences in the development of Polish regions

The most fundamental tool for measuring the level of social and economic development of a given country or region is the level of generated output per capita. This measure strongly correlates with other important variables (such as levels of wages, consumption, unemployment, economic activity, etc.) and can be used in both international and interregional comparative studies.

In accordance with data for 2004, Poland's GDP amounted to PLN 923 billion – or approximately PLN 24,000 per inhabitant. Large cities ranked far beyond this average, and particularly so Warszawa (with its output per capita three times higher than the average) and Poznań (twice the average), but also the Gdańsk-Sopot-Gdynia Tricity, Wrocław and Kraków which GDPs per capita higher by approximately 50 per cent than the average for Poland. It is worth noting that in terms of population the above five conglomerations account for 12 per cent of the population of Poland. There are also other relatively densely populated areas such as the *centralny śląski* and *łódzki* subregions, where GDPs per capita are much higher than the average. However, a vast majority of subregions (34 out of 45) generate output which, after its calculation in per-capita terms, does reach the average rate for Poland. In other words, the distribution of subregions by GDP per capital levels is strongly right-skewed. In the above context, it is worth stressing that there is no correlation between size (measured in populations) of a given region and its output per capita, whereas there is one between population density and output per capita. What is more, it is the more urbanised regions that are more developed, which points to the advantages derived from the existence of a metropolis and a regional development centre in a given region.

Map II.1.
GDP per capita and correlation between unemployment rate and GDP per capita by subregions (2004)



GDP data for subregions and thus the map is to be interpreted accordingly (when preparing the map, the authors adopted GDP per capita levels for subregions to which particular poviats belong).

Source: Own calculations based on BDR data.

Data presented in Map II.1 are to some extent incomparable – due to different approaches to particular regional centres. And thus, for instance, the szczeciński subregion, including the city of Szczecin, is not fully comparable with, say, the gdański subregion, which does not include the Tricity (separates as a separate subregion). Notwithstanding the above, the backwardness of the eastern and south-eastern parts of Poland is clearly visible – the nowosądecki, chełmsko-zamojski, krośnieńsko-przemyski, bialskopodlaski, ełcki

and łomżyński subregions are among the lowest-developed areas in Poland with their GDP per capita rates of less than 70 per cent of the national average.

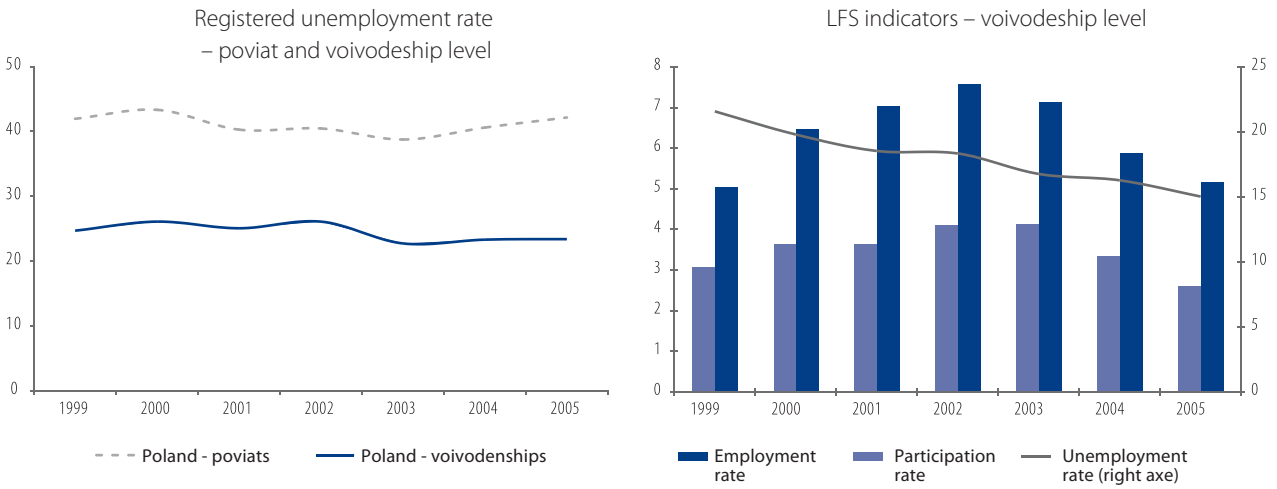
It is worth noting that regardless of significant, negative and rather strong correlation between GDP and unemployment rate, GDP level itself explains the variation of unemployment rates only to a small degree – this concerns above all the low-GDP per capita subregions. As much as the subregions which are at the same time Poland's largest cities combine high output levels with low unemployment, in eastern Poland very low output levels are not connected with high unemployment (which should be largely explained by high employment in *low-productivity agriculture*) and, for instance, in the szczeciński subregion, high unemployment coincides with above-average GDP per capita. Interestingly enough, these differences cannot be explained in terms of different long-term unemployment levels (which, to some extent, can be regarded as a reflection of structural unemployment).

The statement that the GDP level is not the only factor determining the extent of differentiation in the situation of regional labour markets is rather obvious – in fact, this situation depends on a vast range of causes, such as the quality of the locally available labour force, extent of investment opportunities, and number of newly-established companies (and hence, of newly-created work places), existing history-bound social and economic tissue[1] and natural conditions. At this point, we must content ourselves with the statement that output levels do not necessarily have to reflect the situation in local labour markets. Therefore, before we move on to further analysis of causes for the regional disparities, we present a clear-cut description of the fundamental features of these markets.

1.2. Differentiation in labour market situation

Most studies concerning the Polish labour market in territorial perspective focus on relevant analysis at the voivodeship level. The above is probably due to greater availability and better quality of data at the aggregate level,[2] as well as to the ease of their presentation. Irrespective of the advantages of such analysis and the possibility of capturing the main differences between voivodeships (see, for instance, Bukowski et al. 2005), it has one great disadvantage, namely that it completely passes over the differences within the voivodeship labour markets. A straightforward analysis of the coefficient of variation[3] of unemployment and participation rates based on the data extracted from the National Population Census, as well as of registered unemployment, indicates that the disparities among local labour markets within voivodeships are much wider than that between voivodeships. For instance, in accordance with the NPC data, in the case of only one voivodeship was the variation of employment rates between poviats lower than total variation for Poland, and for unemployment rates – there were four such voivodeships. In the case of differentiation measured by the registered unemployment rate, the situation was similar – however, it is worth noting that, in accordance with this measure, although differentiation in unemployment between voivodeships decreased slightly in the period 2000-2005, it remained unchanged within most of them (and in the period 2003-2005 it even increased), i.e. at the poviat level. Of course, coefficients for Poland and for particular voivodeships are not fully comparable (the average number of poviats in a voivodeship amounts to approximately 24 and is greater than the number of voivodeships), nevertheless, they demonstrate that analyses limited to inter-voivodeship differences not only pass over material and much greater internal differences, but they can also gave rise to completely opposite conclusions.

Chart II.1.
Coefficients of variation of labour market indicators



Registered unemployment – 2002 is not fully comparable with 2003 due to the fact that CSO re-calculated unemployment rates following the NPC.

Source: Own calculations.

[1] No doubt such historical events as partitions, border changes after the Second World War and selective industrialisation of some regions have left lasting marks on the economic map of Poland, which we demonstrate in the subsequent paragraphs of this part.
[2] BAEL data are not representative at the poviat level and thus all indicators calculated for this level of disaggregation and based on them are characterised by unacceptably high estimation error. The above drawback can be remedied to some extent by applying the statistical methods of small area estimation (SAE) – see Lewandowski et al. (2007).
[3] The coefficient of variation used in this report with geographical analysis is calculated in accordance with the Eurostat methodology, i.e. the standard deviation for a set of unit indicators within a given area is referred to relevant indicators for the entire area (rather than to the unweighted mean of all unit indicators – as it is usually done with the classical coefficient of variation).

An analysis of coefficients of variation of the Polish labour market for poviats in the recent years (see Chart II.1.), though imperfect due to limited availability of data on registered unemployment rates as well as of the NPC data, points to a slight decrease – as from 2003, i.e. the year when the situation in the Polish labour market started to improve alongside the improving economic situation – in disparities between voivodeships. At the same time, in the period 2003-2005, differences between registered unemployment rates between poviats grew slightly at the national level, although there were voivodeships which saw a very significant increase in the internal differentiation of the above rate.

The group of voivodeships with the **lowest disparities** in labour market performance includes the kujawsko-pomorskie, lubelskie, warmińsko-mazurskie and łódzkie voivodeships; whereas the **highest disparities** occur in the świętokrzyskie, mazowieckie and pomorskie voivodeships. However, it is worth noting that, due to the differences in participation levels, it is not always that higher differentiation in unemployment is connected with higher differentiation in employment. In accordance with records data and the NPC data alike, there is no correlation between dispersion within a given voivodeship and the general situation in the regional labour market. This remark is, of course, coherent with the observable, relatively higher differentiation within voivodeships, and it boils down to the statement that deep crises (as well as exceptionally good performance) in a given local labour market are levelled out at the voivodeship level by other local markets which are in a relatively better (or worse) situation.
The increased disparities, in accordance with LFS, in employment and participation indicators at the regional level in the period 1999--2003 was due to the fact that in the better-performing voivodeships the employment rate was declining relatively slower than in the voivodeships where its initial value was lower. It is worth noting at this point that the above concerned not only relatively higher-developed voivodeships but above all the typically agricultural voivodeships, such as the *lubelskie* and *podkarpackie* voivodeships (where the pace of declining employment was surely lower because of a high share of employment in agriculture, in accordance with LFS). The decreased differentiation in the period 2002-2005 was, in turn, a consequence of an opposite process.

It is noteworthy that, compared with international developments in the above respect, the differentiation between labour markets at the voivodeship level in Poland is relatively insignificant in terms of both unemployment and employment rates. Moreover, it should be emphasised that such data is obtained by applying the coefficient of variation in accordance with the Eurostat measure, i.e. unweighted for population sizes of particular regions. In the case of the coefficient which accounts for differences in population sizes of particular regions, as used by OECD (2005), the above picture becomes less straightforward. Although Poland still distinguishes herself, compared with other countries, by her low regional differentiation in unemployment, when it comes to the differentiation in employment, she ranks above the average of the OECD countries. It is worth noting that the coefficients for Poland obtained under two methodologies are very similar and the differences in the ranking performance result from different results obtained for other countries.

Table II.1.
Coefficient of variation (percentage) for the employment rate and unemployment rate (inter-poviat variation for voivodeships and inter-poviat and inter-voivodeship for Poland)

	National Population Census 2002		Registered unemployment rate in December	
	Employment rate	Unemployment rate	2003	2005
dolnośląskie	9.7	16.1	24.7	30,6
kujawsko-pomorskie	4.6	12.3	22.8	25,5
lubelskie	6.5	18.1	17.0	16,8
lubuskie	7.9	16.4	26.1	31,9
łódzkie	8.3	18.0	18.8	21,6
małopolskie	9.1	18.0	30.6	32,9
mazowieckie	8.1	27.7	45.6	49,3
opolskie	6.8	24.4	36.3	35,5
podkarpackie	7.3	18.0	26.0	26,5
podlaskie	7.0	22.6	29.5	28,6
pomorskie	8.0	26.0	42.8	47,3
śląskie	7.8	13.5	30.3	29,9
świętokrzyskie	13.9	31.7	32.4	31,6
warmińsko-mazurskie	7.3	15.5	21.8	25,9
wielkopolskie	7.0	20.3	31.9	36,8
zachodniopomorskie	10.0	18.4	27.7	29,9
Poland – voivodeships	6.2	16.1	22.7	23,4
Poland – poviats	11.0	27.1	38.8	42,1

The above table uses data for registered unemployment for the year 2003 because of the incomparability of data for 2005 and 2002 due to the fact that CSO re-calculated unemployment rates following the NPC.

Source: Own calculations based on the NPC and BDR data.

1.3. Basic labour market indicators in voivodeships and poviats

An analysis of changes in disparities in the last five years suggests – although the results are not completely unambiguous – that as the situation in the labour market was deteriorating, differentiation between voivodeships and poviats was increasing, whereas as of the 2002-2003 economic upturn in the macro perspective, the above differences have been gradually bridged, at least in between voivodeships.[4]

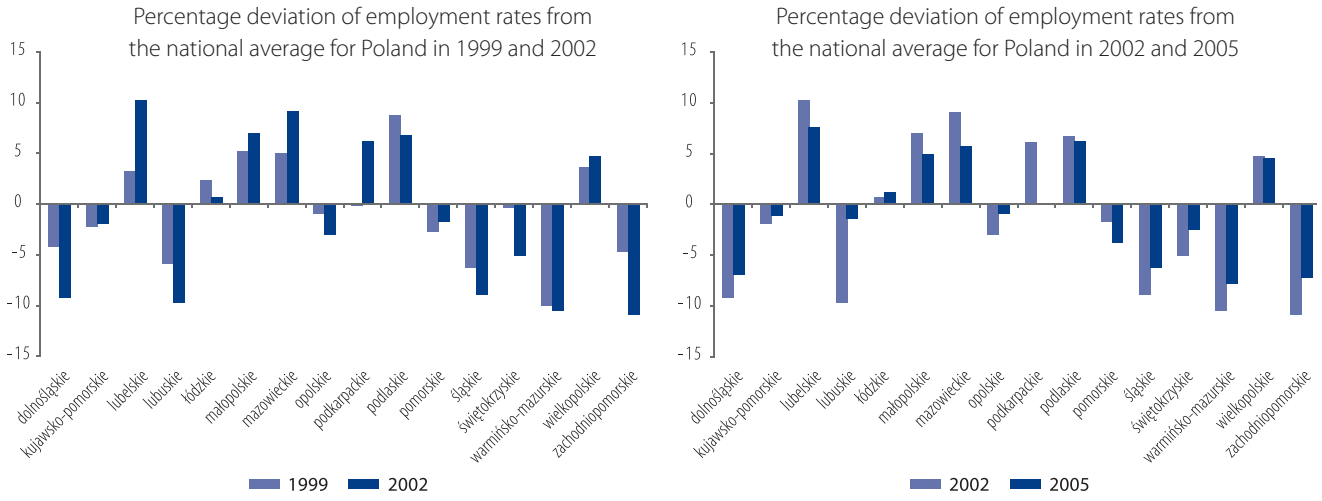
In view of the supreme significance of the employment rate on the assessment of labour market performance, it is worthwhile to examine how, in the recent years, this indicator deviated in particular voivodeships from the national average. For that purpose, we have adopted the following time landmarks: 1999 (beginning of a considerable increase in unemployment and decrease in employment), 2002 (the worst slump in the labour market) and 2005 (most recent data). In the period 1999-2002, the situation in all voivodeship labour markets was deteriorating, whereas the period 2002-2005 saw a slight improvement – nevertheless, in the former and in the latter period alike, these processes were irregular.

As demonstrated in Chart II.2., in 2005, the employment rate for the *lubelskie*, *małopolskie*, *mazowieckie*, *podlaskie* and *wielkopolskie* voivodeships was evidently higher than the national average, whereas it was considerably lower for the *dolnośląskie*, *śląskie*, *warmińsko-mazurskie* and *zachodniopomorskie* voivodeships. In relation to the employment decrease-increase sequence, in the first period (1999-2002), the decrease in employment was particularly high in the *dolnośląskie*, *lubuskie*, *świętokrzyskie* and *zachodniopomorskie* voivodeships, and not so high in the lubelskie, mazowieckie and podkarpackie voivodeships. In the second period (2002-2005), a particularly rapid increase in employment was to be observed in the lubuskie, dolnośląskie, śląskie, świętokrzyskie, warmińsko-mazurskie and zachodniopomorskie voivodeships, whereas it was visibly slower than the average in the lubelskie, małopolskie, mazowieckie and podkarpackie voivodeships.

Based on the above observations, it can be acknowledged that:

- the **decrease in employment** of 1999-2002 was **highest** in those areas which had had the worst initial labour market performance (irrespective of their initial output levels);
- the relatively **smallest deterioration in labour market performance** was observed in the highest- (mazowieckie, wielkopolskie) and lowest-developed regions (lubelskie, podkarpackie). The above may indicate that two factors played a role, on the one hand, the "modern" regions adapted relatively easiest to the changing situation, on the other hand, the "traditional" regions – largely dependent on agriculture – were scarcely vulnerable to these changes (at least in terms of employment levels);
- during the period of **employment increase**, changes constituted an almost **mirror reflection of the processes from the previous period**, i.e. the regions with the worst initial situation experienced the most rapid improvement in performance what is more, employment rate convergence could be observed in almost all voivodeships (apart from the *pomorskie* and *łódzkie* voivodeships).

Chart II.2.
Employment rate changes



Source: Own calculations based on LFS data.

Similar relations occur at the voivodeship level when unemployment rates are analysed in accordance with LFS data. Due to the fact that, as indicated in the analysis presented in the previous sub-chapter, differentiation at the local level is far greater than at the regional

[4] Again, when assessing the situation in the poviat labour markets – and particularly when looking at changes in time – there appears a drawback in the form of imperfect data pertaining to the situation at the poviat level. See also remarks in the box presenting labour market statistics.

level (also within particular voivodeships), it is worth noting how the situation evolves in the local, namely poviat, labour markets. In this endeavour, we limit ourselves – out of necessity – to the rate and indicator of unemployment (see Box II.1.), and we do not look at changes in time (with 379 poviats such comparative studies would be unclear – they are presented in the next sub-chapter devoted to clusters of poviats).

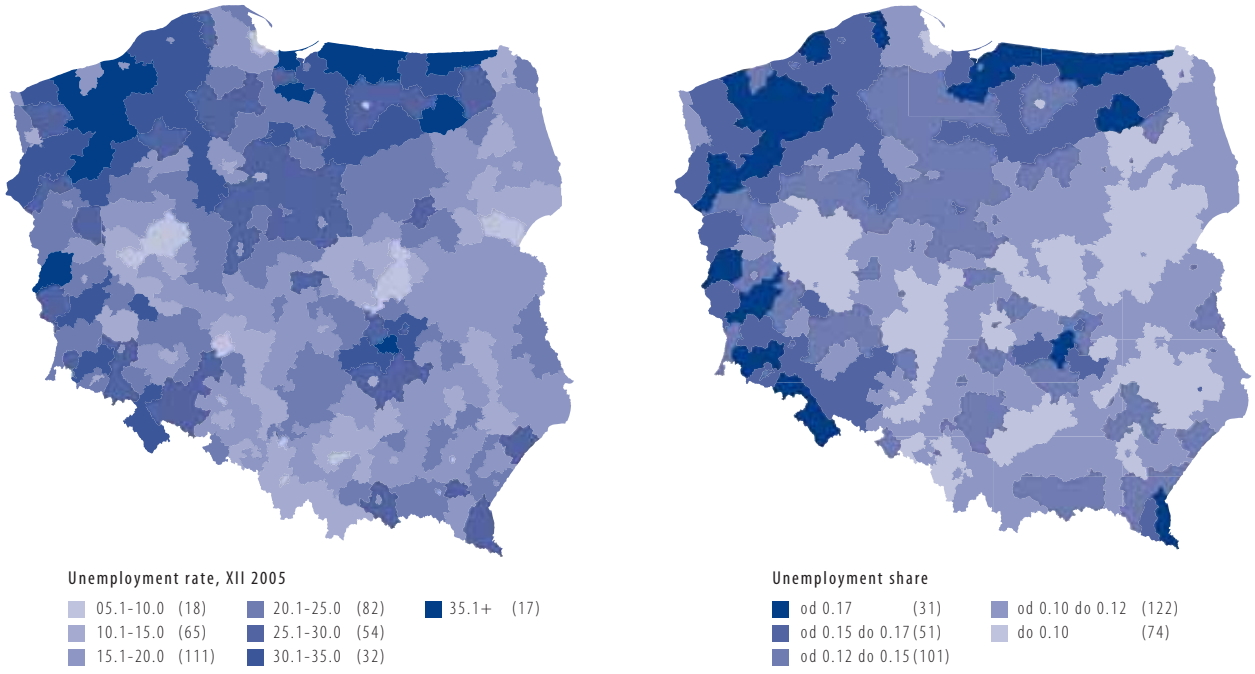
Map II.2. presents the registered unemployment rate as well as an estimate of the unemployment share[5] at the local level based on regional unemployment shares calculated in accordance with LFS (using the Small Area Estimation method, see Lewandowski et al. (2007)). These measures, although different exhibit a clearly very similar spatial differentiation (although LFS data estimated using the SAE method are more reliable – see Lewandowski et al. (2007) and Box II.1.). In line with our previous observations, highest unemployment can be observed in the northern and western parts of Poland, as well as a part of the świętokrzyskie voivodeship and the region of Bieszczady, whereas unemployment is low in cities, especially so in large cities and their surrounding areas, as well as in the eastern and central parts of Poland. It should be noted again that low unemployment levels do not necessarily correlate with a generally good social and economic situation or with the welfare of a given poviat.

Another finding that merits emphasis is that data obtained from two completely different sources and calculated with the use of different methods provide a similar picture in local labour markets. Thus, their reliance, irrespective of the reservation presented in Box II.1., should be considered high.

Map II.2.
Unemployment in 2005 by poviats

Registered unemployment rate in December 2005

Unemployment share for 2005 estimated by applying the SAE method to LFS data



Source: Right graph – Lewandowski et al. (2007), left graph – own calculations based on BDR data.

When analysing the above maps, it is worth noting that they present shares of the unemployed population (in the economically active population and in the total population) and not their number – the territorial distribution of the unemployed is different and much more regular. In particular, almost 50 per cent of the unemployed population live in poviats with registered unemployment rates below 20 per cent (i.e. poviats with low and average unemployment), approximately 20 per cent – in poviats with unemployment rates between 20 and 25 per cent (i.e. poviats with high unemployment), and the remaining 30 per cent live in poviats with unemployment rates above 25 per cent (i.e. poviats with very high unemployment). The fact that the unemployed do not necessarily group in poviats with the highest unemployment ensues from the fact that normally poviats with higher unemployment rates have smaller populations (unemployment is lowest in large cities which are inhabited by a large share of the unemployed). A similar correlation, although weaker, occurs for long-term unemployment. Approximately 56 per cent of the unemployed population live in poviats with an above-average – i.e. exceeding 50 per cent – share of the long-term unemployed, whereas only 18 per cent live in poviats with a share of the long-term unemployed exceeding 55 per cent.

[5] We define here the unemployment share as a ratio of unemployed persons in the total population and the unemployment rate as a ratio of unemployed in the labour force. The unemployment share is used here due to the specificity of estimation using the SAE method. Later we use it also for the registry data due to the problems with estimating economically active population on the local level.

Box II.1. Data sources for local labour market analysis

The following data sources can be used when assessing performance in the labour markets at poviat and voivodeship levels:

1. Data on registered unemployment

These data come from the registers of poviat labour offices and they cover individuals registered in the offices at a given time (most analyses use the number of unemployed registered towards the end of the analysed period). Based on the data provided by labour offices as well as on its own estimations as to the number of the working population (unpublished), CSO makes an estimation of the unemployment rate. One advantage of data concerning registered unemployment is that they are easily accessible at the poviat level (at least in their basic aggregations) and that they form long time series (including monthly). Unfortunately, these data are subject to severe drawbacks.

Firstly, it is often stressed that a **large share of registered individuals do not fall within** the widely accepted **definition of an unemployed person** (that is, according to LFS, a person who does not have employment but who is actively seeking employment and who is ready to accept it). Although the numbers of the registered unemployed and unemployed according to LFS are similar, they refer to different populations.

Secondly, upon closer examination, **unemployment rate estimates** at the poviat level prove to be **hardly reliant**. This is probably due to the drawbacks associated with estimating the number of the working population by CSO, which constitutes a basis for calculating the number of the economically active (i.e. the denominator of the unemployment rate).

Thirdly, both the **number of the unemployed** and the **unemployment rate are sensitive to methodology changes** as well as other factors unrelated with the labour market situation. For instance, the number of the unemployed is affected by changes in the statutory definition of an unemployed person, and other regulations (e.g. registration requirement to qualify for healthcare coverage). As for the rate of unemployment, following the National Population Census of 2002, CSO modified its unemployment rate estimates by 2 percentage point – at the same time, there is no data which would make it possible to adjust accordingly the available time series for the unemployment rate on poviat level.

In view of the above, in this report, we use data on unemployment, above all, to illustrate changes in regional differentiation and we refer to the unemployment share (i.e. the share of the unemployed in the total population) rather than the unemployment rate. The former has also been used in the data clustering procedure.

2. LFS data

The Labour Force Survey (LFS) provides reliable data on the numbers of the working population and of the unemployed, as well as on the unemployment rate. These data are available in different profiles and they enable a very thorough analysis of the labour market, and in particular of its supply side. LFS data for Poland are available as from 1992 and regardless of some methodological changes, they emerge as one of the fundamental data sources concerning labour market performance.

However, LFS is a survey and it provides satisfactory representativeness only at the level of voivodeships, and it does not enable a direct analysis at poviat level. LFS data can be used in estimating poviat indicators with the SAE method and in fact we present some poviat indicators calculated in this way (Lewandowski et al. (2007)). In the subsequent parts of this report, we also use LFS data to illustrate the situation in poviat labour markets having previously grouped them into clusters, which is admissible because for the selected six clusters LFS data are fully representative. Moreover, comparative assessments of the results of our cluster analysis based on LFS data and data obtained using the SAE method indicate that the LFS system of weights does not constitute an obstacle for applying LFS in cluster analysis.

3. Statistical reporting system for the employed (CSO)

Data on the number of the working population at the poviat level are available from CSO as part of its statistical reporting system, and in particular from the Regional Data Bank (*Bank Danych Regionalnych*; BDR). Despite the no doubt high utility of this data source, there are obstacles for their use, namely methodological changes (in particular, with respect to agriculture) and the fact that data are available for a relatively short period. Moreover, data on employment at the poviat level only include information from enterprises that employ more than 9 employees, which also limits their research potential. These data have been used in the process of clustering and to illustrate some changes in the sector structure.

4. Results of the National Population Census of 2002

The National Population Census (NPC) provided full and reliable labour market data at all levels of aggregation. However, there are two drawbacks of this data gathering method – firstly, for obvious reasons, they do not provide a time series, and secondly, they are only available in the form of basic data sheets (CSO does not make available any microdata in any form whatsoever). We have used some NPC data to illustrate disparities and in the clustering procedure.

1.4. Poviat labour markets – cluster analysis

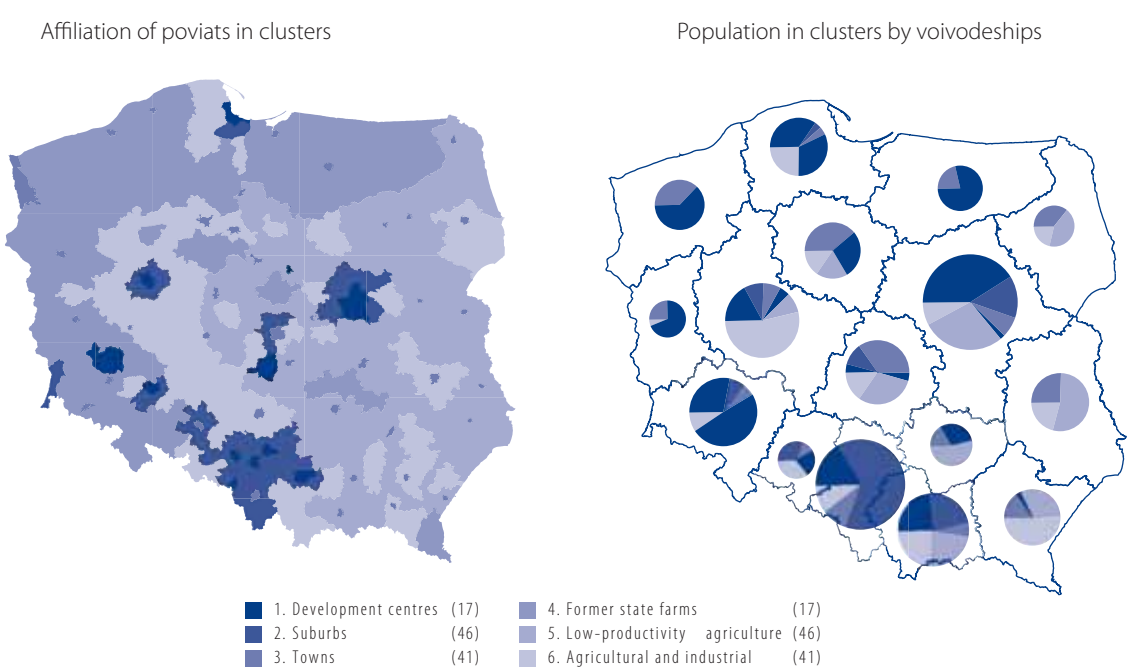
As noted in the previous sub-chapter, in order to get a full picture of regional disparities in labour market in Poland, it is advisable to perform an analysis at the poviat level. As there are currently 379 poviats, it is necessary to group them based on certain fundamental characteristics for the purpose of capturing some empirical regularities. Therefore, we have made an attempt at classifying poviats in accordance with local labour market features (share of the registered unemployed in the population aged 15+, share of persons working in agriculture in the population aged 15+, average wages, number of vacancies per one unemployed person), as well as with

other variables material for this market (population index illustrating population size of the given poviat and its neighbours, share of higher education graduates in the population aged 15+ in accordance with the NPC, own proceeds of administrative districts per capita). The above variables have been taken into account because:

- **unemployment share** – is the only measure that allows for a precise and objective assessment of labour market developments at the poviat level (see Box II.1.);
- **share of persons working in agriculture** in the population – there is no doubt that the specificity of the Polish agriculture greatly affects local labour markets; it was impossible to use the share of persons working in agriculture in the total working population because of low reliability of data on the total working population;
- **average wages** – constitutes an approximation of productivity and welfare;
- **number of vacancies per one unemployed person** – is, next to the unemployment share, an approximation of local labour market performance – and particularly of its dynamics;
- **population index**, is a ratio of the "available" population – i.e. poviat population and the population of neighbouring poviats adjusted for distance between poviat central cities, related to the population of Poland;
- **share of higher education graduates** – constitutes an approximation of human capital;
- **poviat's own revenues per capita** – constitutes an approximation of poviat welfare and of the infrastructure available within a given poviat.

Despite the fact that between some of the above-mentioned variable there are certain (though not strong) correlations, we have recognised that taken together they convey sufficiently the basic and largely distinct dimensions of local development and as such are suitable variables for the clustering procedure. As a result we have distinguished six clusters, or poviat groups. Of course, poviats that belong to particular clusters are not identical, however, variation of indicators used during data clustering is much smaller than for all poviats, alongside – even more importantly – very different distributions and average values. The histograms presented in Chart II.3. illustrate the above variables typical for particular clusters.

Map II.3.
Affiliation of poviats in clusters and population by voivodeships depending of cluster affiliation



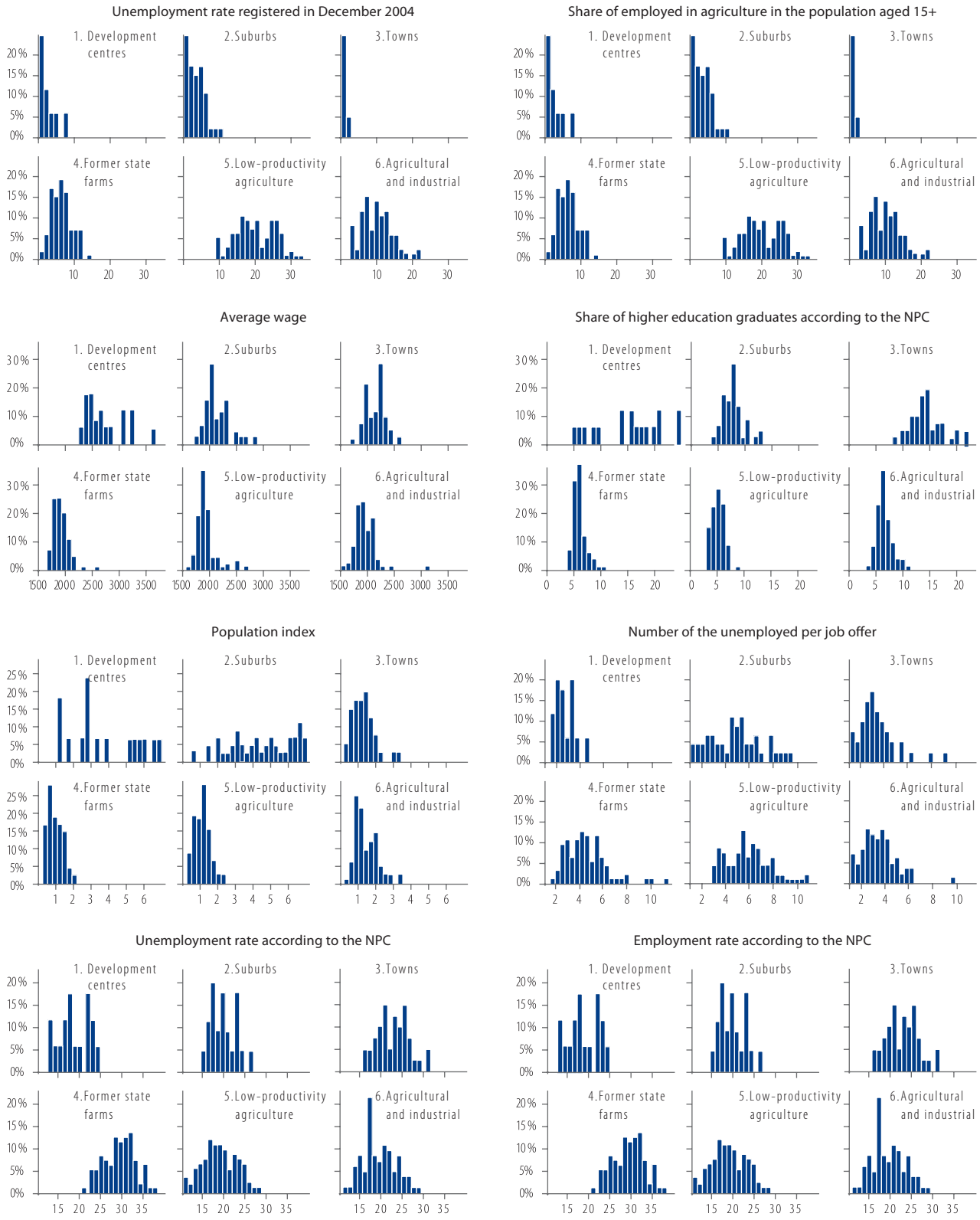
Source: Own calculations based on BDR data.

For greater clarity, clusters – apart from numbers – have been given names depending on their characteristics, namely: 1. *Development centres*, 2. *Suburbs*, 3. *Towns*, 4. *Former state farms*, 5. *Low-productivity agriculture* and 6. *Agricultural and industrial*. These names, although symbolic and descriptive, generally convey well the specificity of particular groups.

Table II.8. contains basic statistical data – derived from the Regional Data Bank – for particular clusters. Map II.3., in turn, presents a territorial distribution of particular clusters as well as population structures in voivodeships depending on cluster affiliation. Thanks to clustering poviats by certain features, we analyse six segments of the labour market which are more internally cohesive (although, obviously, not territorially) than voivodeships which, as demonstrated in the map, in most cases are a mosaic of poviats belonging to different groups.

In the subsequent part of this sub-chapter, we present characteristics of clusters using LFS data for 2005. One great advantage of shifting from the analysis of particular poviats to the analysis of groups of poviats is that it enables us to use this research. With six groups, results are even more representative and reliable than in the case of LFS analysis at the voivodeship level.

Chart II.3.
Selected feature histograms by clusters in 2004 or in accordance with the National Population Census (NPC)



Source: Own calculations based on BDR data.

Table II.2.

Selected statistics for clusters, data for the year 2004 unless indicated otherwise

	1	2	3	4	5	6	Poland
Features deciding about cluster affiliation (unweighted mean of indicators)							
employment share (number of the unemployed in the population aged 15+)	6.9	7.8	9.0	14.7	11.0	9.1	10.7
average wages	2 878	2 189	2 170	1 922	1 938	1 921	2 028
number of the unemployed per one job offer	2.8	5.0	3.4	4.6	6.0	3.5	4.5
share of farmers in the population aged 15+	1.4	2.9	0.6	6.2	20.3	10.1	9.3
share of higher education graduates according to the NPC	15.3	8.1	14.8	6.4	5.5	6.6	7.8
population index*	3.6	4.4	1.3	0.9	1.0	1.4	1.6
own proceeds of administrative districts per capita	2 619	1 780	2 268	1 655	1 523	1 516	1 716
Other indicators (weighted mean)							
number of poviats in a given cluster	17	46	41	97	93	85	379
share in the total population of Poland	15.3	14.9	15.8	17.4	17.8	18.8	100.0
share in the total area of Poland (km^2)	1.9	7.4	1.4	32.9	32.6	24.0	100.0
number of persons per km2	1 008	247	1 421	65	67	96	122
registered unemployment rate in 2000	6.2	14.1	13.6	26.2	16.3	15.5	15.2
registered unemployment rate in 2002	9.5	17.7	17.0	29.7	17.5	17.6	18.0
registered unemployment rate in 2004**	9.1	18.4	16.3	31.2	21.5	19.2	19.0
percentage change in the number of the unemployed 2002-2000	52.2	27.5	21.9	15.0	9.0	16.0	19.0
percentage change in the number of the unemployed 2004-2002	-5.7	-5.9	-7.4	-5.0	-6.1	-8.3	-6.3
percentage share of urban population	96.3	64.1	99.6	53.5	25.5	40.4	61.5
share of persons working in agriculture in the population aged 15+	0.6	3.0	0.5	5.7	19.2	9.7	6.7
share of persons working in industry in the population aged 15+***	11.4	10.2	10.6	7.7	5.2	9.0	8.9
share of persons working in services in the population aged 15+	29.2	11.6	21.9	10.1	9.0	10.4	15.2
percentage change in the number of persons working in industry 2002-2000***	-13.2	-9.5	-13.3	-12.7	-8.4	-6.7	-11.0
percentage change in the number of persons working in industry 2004-2002***	-5.6	-5.7	-4.5	3.1	1.7	7.8	-1.2
percentage change in the number of persons working in services 2002-2000***	-0.4	-0.1	-3.6	-4.5	-3.8	-2.2	-2.2
percentage change in the number of persons working in services 2004-2002***	3.6	2.0	1.9	1.4	9.3	6.6	3.7
employment rate according to the NPC	44.3	41.4	41.1	37.7	45.4	43.5	42.3
activity rate according to the NPC	53.1	51.8	52.9	53.4	56.0	54.3	53.6
unemployment rate according to the NPC	16.6	20.0	22.3	29.3	18.9	19.8	21.2
coefficient of variation of the unemployment rate	52.4	23.7	27.0	16.6	24.5	26.2	37.6

* Population index is a percentage share of the population that forms the labour market in a given poviat as well as in the neighbouring poviats in the total population of the country.

** Not fully comparable with 2000 and 2002.

*** Only enterprises with more than 9 employees..

Source: Own calculations based on BDR data.

1.4.1. Development centres

Development centres is a small group of 17 poviats – including, above all, the largest dynamically developing cities (city poviats), but also some smaller (in terms of population) poviats (also land poviats), where large and potent enterprises operate thus determining high living standards and favourable labour market indicators (we are talking here about the bełchatowski and lubiński poviats as well as about the city of Płock). *Development centres* occur in seven voivodeships and one third of their population is concentrated in the Warsaw conglomeration. More than 90 per cent of the population of *Development centres* live in cities with more than 100,000 inhabitants. The poviats that belong to this group do not exhibit a tendency to concentrate (apart from the conglomeration areas – i.e. the warszawska and śląska conglomerations as well as the Tricity), and therefore they appear as islands on the map of Poland, usually surrounded by *Suburbs*. They are located in the central and south-western parts of the country. To the north of the Warsaw-Płock-Poznań line, only the Tricity belongs to the examined cluster. *Development centres* do not include any cities from eastern Poland. The only large city (with more than 500,000 inhabitants) that does not belong to this cluster is Łódź. The sector structure of *Development centres* reflects that of developed countries, with the share of industry (and construction) and services amounting to approximately 24.5 and 74 per cent respectively. What is more, employment levels in market services (the highest share out of all clusters) as well as public services (slightly lower that in the case of *Towns*) are also very high.[6]

The employment rate is high, although it is not the highest – it reaches higher values in *Low-productivity agriculture*. High employment is accompanied by high wages and the lowest unemployment, alongside average participation. This barely average participation – in view of the good labour market situation – can be explained by the fact that the population is slightly older (average age in the age group 15+ amounts to 45.7 years whereas the average for Poland is 44.2 years). In the age group 15-64 participation is above-average, although it is still lower that in *Low-productivity agriculture*. Higher participation and employment in agriculture are presented in greater detail together with the description of clusters 5 and 6.[7]

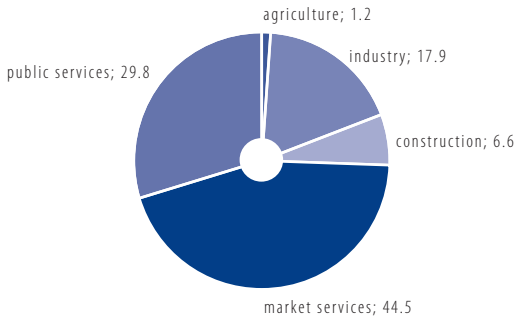
As for the clustering variables, *Development centres* are characterised by highest wages, lowest (together with *Towns*) employment in agriculture, lowest unemployment, highest share of higher education graduates and lowest number of unemployed persons per job offer.

Table II.3.
Basic characteristics of the cluster Development Centres in 2005 based on LFS data

Population structure (Ps) and basic labour market indicators (Poland=100) by size of place of residence in the cluster

size of place of residence	Ps	LFPR	ER	UNR
>100 000	92	100	106	72
<100 000	8	104	101	110
total	100	100	106	76

Employment structure in the cluster



Source: Own elaboration based on LFS data.

1.4.2. Suburbs

This category includes, above all, poviats from the śląska conglomeration which do not belong to cluster 1. *Suburbs* also comprise land poviats located in the vicinity of large cities which are *Development centres* (plus Łódź and Opole), as well as some borderland poviats, where the positive impact of a nearby metropolis is replaced by the possibility of economic cooperation with foreign partners and of foreign investment. *Suburbs* can be found in eight voivodeships – the same as *Development centres* plus the opolskie voivodeship, with the only difference that 50 per cent of the population of this cluster live in the śląskie voivodeship (within the conglomeration as well as in the borderland poviats). The population of this cluster is evenly distributed between location classes, with one third living in rural areas.

[6] We define public services to include public administration (including such areas as obligatory social security, security and army), healthcare and education – and we identify the remaining services as market services.
[7] It is worth emphasising at this point that in *Development Centres* too agriculture has a considerable impact on participation – as presented in Table II.2, in towns with less than 100,000 inhabitants, approximately half of the population originates from rural backgrounds, which affects the observed level of participation. The inclusion of rural areas in *Development centres* results from the fact that they take land poviats (powiaty ziemskie) into account – the analysis is performed at the poviat level, and not at size of place of residence level.

The significance of agriculture in this cluster is marginal, whereas the share of industry is (the highest out of all examined clusters and share of services higher than in clusters 4-6 but lower than in clusters 1 and 3. Labour market indicators for *Suburbs* are close to the average for Poland, however, the employment rate is evidently lower in larger cities from this cluster (they include nearly exclusively cities from the śląska conglomeration).

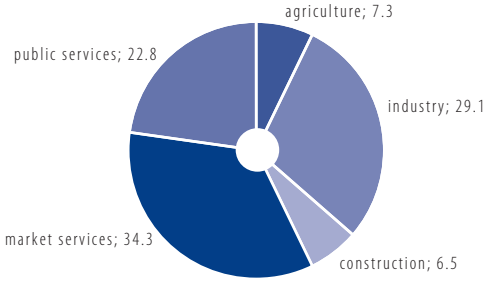
As for the clustering variables, *Suburbs* are characterised by lower than average unemployment,[8] relatively high average wages, low share of farmers in the population aged 15+ – although the share of rural population is not low. Moreover, the share of higher education graduates in the age groups 15+ is only slightly higher than in clusters 4-6 (the nature of which is mainly agricultural or post-agricultural – see below). The number of unemployed persons per vacancy is actually rather high, however, it should be borne in mind that this indicator is much lower in the often neighbouring *Development centres*. Moreover, employment levels are rather low in *Suburbs,* most probably due to employment sought in *Development centres*.[9] Generally, *Suburbs* are regions where the labour market situation is relatively goods thanks to the proximity of dynamic *Development centres*. *Suburbs*, mainly thanks to poviats from the śląska conglomeration, have the highest – higher even than *Development centres* – average value of the population index.

Table II.4.
Basic characteristics of the cluster Suburbs in 2005 based on LFS data

Population structure (Ps) and basic labour market indicators (Poland=100) by size of place of residence in the cluster

size of place of residence	Ps	LFPR	ER	UNR
>100 000	20	97	93	118
50-100 000	17	98	96	109
20-50 000	15	98	97	106
<20 000	12	97	99	89
wieś	35	98	102	85
razem	100	98	98	99

Employment structure in the cluster



Source: Own elaboration based on LFS data.

1.4.3. Towns

Towns are town poviats (towns with the status of poviats) which do not qualify as either *Development centres* or *Suburbs*.[10] However, in terms of their spatial structure, *Towns* generally do not generate *Suburbs* around themselves (apart from Opole and Łódź, which is the only large city that does not belong to *Development centres* – above all due to its high – as for a city of this size – unemployment rate) and they are typically surrounded by lower-developed regions. *Towns* can be found in all voivodeships, although in some of them the share of the population of this cluster is not high – due to shifts of some city poviats to *Development centres* or *Suburbs*. Despite the fact that poviats from this cluster do not belong to the largest conglomerations, a majority of its population live in towns with more than 100,000 inhabitants.

For *Towns*, services are of primary importance (the second highest share after *Development centres*), whereas the share of industry can be assessed as medium. For obvious reasons, the significance of agriculture is marginal. Labour market indicators are generally close to the average for Poland, alongside slightly lower employment and considerably higher unemployment. What is particularly striking, however, is the high unemployment rate in small towns (50,000-100,000 inhabitants), whereas the situation in labour markets of the largest and smallest towns is better.

As for the clustering variables, *Towns* are characterised by almost near absence of agriculture, unemployment lower that the average for Poland (although higher than in *Development centres*), considerable share of higher education graduates, relatively high wages and a not very high number of unemployed persons per vacancy.

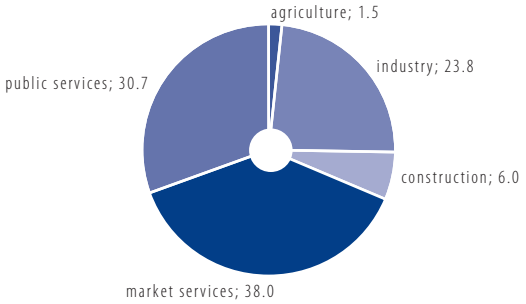
[8] The registered unemployment rate is surprisingly high for these poviats compared with the unemployment share (share of the unemployed in the age group 15+), which most probably results from methodological shortcomings of the process of estimating the unemployment rate. When making such estimation, working populations by work place and unemployed by place of residence are taken into account, which – in conglomeration areas – may lead to considerable inconsistencies. In particular, it seems that the unemployment rate is actually higher in *Development Centres* and lower in *Suburbs*. The above observations are further supported by the NPC data.
[9] In accordance with the methodology adopted by CSO, these persons are counted among the working by work place and not by place of residence.
[10] This group includes also – due to its characteristics – the policki poviat, which is a land poviat.

Table II.5.
Basic characteristics of the cluster Towns in 2005 based on LFS data

Population structure (Ps) and basic labour market indicators (Poland=100) by size of place of residence in the cluster

size of place of residence	Ps	LFPR	ER	UNR
>100 000	80	99	98	104
50-100 000	17	97	92	125
20-50 000	3	103	103	103
total	100	99	97	108

Employment structure in the cluster



Source: Own elaboration based on LFS data.

1.4.4. Former state farms

It should be emphasises that the label *Former state farms* does not mean that all poviats from this cluster housed state farms (*Państwowe Gospodarstwa Rolne*) in the past – although most of them did, and the remaining poviats have very similar labour market characteristics, not necessarily due to the operation of state farms in the past. Similarly, not all poviats where state farms used to operate belong to this cluster.[11]

Former state farms consist of land poviats which are characterised by very high unemployment rates (the highest out of all clusters), relatively high employment in agriculture, although much lower than in *Low-productivity agriculture* and *Agricultural and industrial*, alongside the lowest total employment out of all clusters. One distinguishing feature of this cluster is that employment in rural areas is below and unemployment above the national average – it is the only cluster where such situation occurs.

Poviats from this cluster can be found in twelve voivodeships, however, 75 per cent of their population is concentrated in the dolnośląskie, lubuskie, pomorskie, warmińsko-mazurskie and zachodniopomorskie voivodeships. In the lubuskie, warmińsko-mazurskie and zachodniopomorskie voivodeships, persons living in poviats grouped in this cluster account for more than 60 per cent of population.

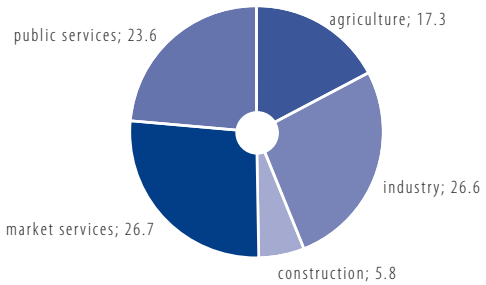
Wages are comparable to those in clusters 5 and 6 and much lower than in the remaining clusters. It is worth noting that the difference between this cluster and *Towns* is much greater in terms of own proceeds of administrative districts per capita than in terms of wages. The above indicates that – alongside lower employment and higher unemployment – the economic activity dynamics are much lower in these areas (similarly to clusters 5 and 6). Interestingly enough, poviats belonging to this group are characterised by the lowest population density, irrespective of the relatively large (compared with clusters 5 and 6) share of urban population in the total population. This is a consequence of high concentration of people in small towns and low concentration in villages.

Table II.6.
Basic characteristics of the cluster Former state farms in 2005 based on LFS data

Population structure (Ps) and basic labour market indicators (Poland=100) by size of place of residence in the cluster

size of place of residence	Ps	LFPR	ER	UNR
>100 000	2	87	77	152
50-100 000	7	99	89	148
20-50 000	19	94	87	135
10-20 000	15	98	91	133
<10 000	13	96	88	142
rural	45	96	88	142
total	100	96	88	140

Employment structure in the cluster



Source: Own elaboration based on LFS data.

[11] We have not managed to get hold of data which would allow us to precisely determine in which poviats state farms were located and what was the share of people working in such farms in the total number of employees.

1.4.5. Low-productivity agriculture

The cluster labelled *Low-productivity agriculture* includes land poviats characterised by very high employment in agriculture and, at the same time, by relatively high unemployment levels and the largest number of unemployed persons per vacancy. Affiliation of poviats results not only from the indicator of employment in agriculture, but also from the generally worse labour market situation than in poviats belonging to *Agricultural and industrial* (and hence, this cluster also consists of poviats which have the share of persons working in agriculture close to the average in cluster 6).

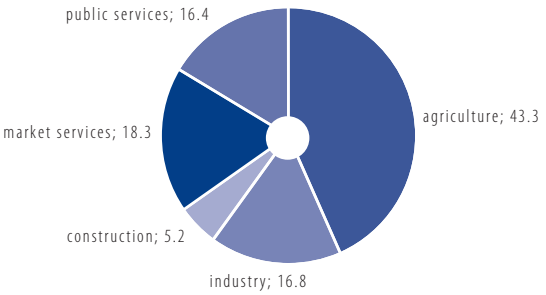
The disadvantage of labour market in the cluster (in comparing to the sixth cluster) is visible not only in the unemployment statistics but also in the share of persons working in industry and – to a lesser degree – also in services in the population. Poviats from *Low-productivity agriculture* are also characterised by the lowest share of urban population, very low population index and the lowest share of higher education graduates. It should be emphasised that, according to the NPC, this cluster has the highest employment and participation indicators. The above results from the fact that the number of persons working in agriculture is barely vulnerable to economic cycle[12] (the overall labour market situation was very bad at the time of the NPC) and therefore, to some extent, it does not reflect the tough situation in the labour markets of poviats belonging to this cluster. It should be assumed that a considerable part of people employed in agriculture generate in fact hidden unemployment (hence the name of the cluster). Poviats belonging to this cluster can be found in nine voivodeships, and in the świętokrzyskie and lubelskie voivodeships, they are inhabited by more than 50 percent of the total populations of these voivodeships. In terms of population numbers, most people from this cluster live in the mazowieckie voivodeship (almost 1.5 million people).

Table II.7.
Basic characteristics of the cluster Low-productivity agriculture in 2005 based on LFS data

Population structure (Ps) and basic labour market indicators (Poland=100) by size of place of residence in the cluster

size of place of residence	Ps	LFPR	ER	UNR
50-100 000	1	94	84	146
20-50 000	9	103	99	118
10-20 000	9	100	95	123
<10 000	7	100	95	125
rural	75	106	112	73
total	100	105	108	86

Employment structure in the cluster



Source: Own elaboration based on LFS data.

1.4.6. Agricultural and industrial

This cluster only consists of land poviats. In many ways they are similar to *Low-productivity agriculture*, however, the level of employment in agriculture is in their case twice lower and the share of employment in industry is high (the second highest after *Suburbs*). The labour market situation – in terms of unemployment rates and the number of unemployed persons per vacancy – is visibly better. What is more, the share of urban population is also higher, alongside similar average wages and barely higher share of higher education graduates.

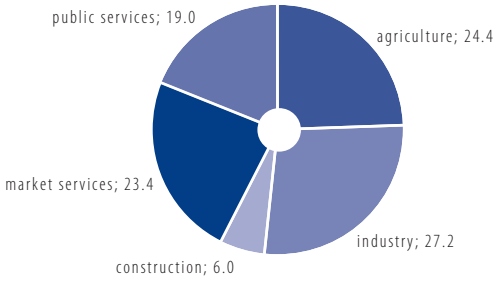
It can be assumed that this cluster groups poviats which either historically have had a less dispersed ownership structure of arable lands, or which saw certain progress thanks to the development of the neighbouring *Development centres* and – to a lesser extent – *Towns*. Poviats belonging to *Agricultural and industrial* can be found in all voivodeships apart from the świętokrzyskie, warmińsko-mazurskie and zachodniopomorskie voivodeships, and they are particularly numerous in the wielkopolskie and podkarpackie voivodeship, where they are inhabited by more than 50 per cent of the total populations of these voivodeships.

The role of industry in *Agricultural and industrial* is striking. On the one hand, it illustrates the higher level of urbanisation of these (land) poviats, and on the other hand, it evidences a more dynamic development of industry in this cluster in the recent years (see the next sub-chapter).

Table II.8.
Basic characteristics of the cluster Agricultural and industrial in 2005 based on LFS data

Population structure (Ps) and basic labour market indicators (Poland=100) by size of place of residence in the cluster				
size of place of residence	Ps	LFPR	ER	UNR
50-100 000	7	100	98	109
20-50 000	16	101	98	114
10-20 000	10	100	97	112
<10 000	9	102	104	89
rural	58	103	107	82
total	100	102	103	93

Employment structure in the cluster



Source: Own elaboration based on LFS data.

1.5. Recent developments within particular clusters

One drawback of research studies conducted at the poviat level is the impossibility of analysing longer time series. In fact, reliable data are available as from the year 2000 (only in some cases). Earlier administrative and methodological changes make it effectively impossible to compare data concerning larger groups of poviats. In view of the above, in this analysis, we focus on time series for particular clusters derived from LFS. As regards the employment rate and the number of the working population, relevant data seem to support – to some extent at least – the observations resulting from earlier analyses at the voivodeship level. What is particularly striking, however, is the weak reaction of the employment rate in *Low-productivity agriculture* to the economic slowdown of 2001-2002 (poviats from this cluster saw even an increase in the number of the working population in 2001 compared with 2000). Interestingly enough, in this cluster, as well as in the *Development centres*, the decline in the employment rate lasted one year longer than in the other clusters (and generally in Poland), and in the following years its increase was smaller than average. Consequently, towards the end of the examined period, the standing of *Low-productivity agriculture*, compared with the rest of the country, was similar – in terms of the employment rate and the number of the working population – to that in 2000 (in 2000, the employment rate amounted to 107.6 per cent of employment rate for Poland, and in 2005 – 107.9 per cent). Notwithstanding the above, in 2005, the employment rate in this cluster was the highest in Poland.

Irrespective of the decline – though slightly lower than average – in employment in the period 2000-2002, in the following years, *Development centres* failed to create as many new work places as the other clusters. In particular, the above is clearly visible for the number of the working population which, throughout the entire period, was characterised by greatest stability. Consequently, the relation between the employment rate for this cluster and the employment rate for Poland deteriorated from 106.8 per cent in 2000 to 105.6 per cent in 2005. Nevertheless, *Development centres* retained its second best rank in terms of the employment rate after *Low-productivity agriculture*.

The greatest improvement – in terms of the employment rate – in comparison with the remaining clusters was experienced by *Suburbs*. The initial decrease in the employment rate was levelled out by its considerable increase in the period 2002-2005, whereas the increase in the number of the working population was even greater. Consequently, the relation of the employment rate in *Suburbs* and in Poland grew from 94.7 per cent in 2000 to 97.8 in 2005.

As for *Former state farms*, the results are somewhat surprising and to some extent incompliant with the expectations based on earlier analysis conducted at the voivodeship level. According to the earlier analysis, the initial strong divergence of the employment rate was followed by its considerable convergence. Notwithstanding the above, as demonstrated in Chart II.4., changes in the employment rate for the above cluster reached similar levels as changes in this indicator for Poland, and therefore their relation was relatively stable (87.7 per cent in 2000 and 87.8 in 2005).[13]

[12] As we argue in the subsequent part of this analysis, it seems that the process of restructuring of Polish agriculture has been taking place, however, in the period 2001-2002, it slowed down due to the unfavourable situation in the labour market. At the moment the number of people working in agriculture diminishes especially rapidly in the cluster *Low-productivity agriculture*, although not in all voivodeships.
[13] This was the lowest indicator in all groups throughout the examined period.

Box II.2. Advantages of proximity – Suburbs and subregions around cities versus development opportunities

It clearly ensues from analyses of both changes in and levels of employment and productivity that subregions surrounding larger cities (i.e. the warszawski, poznański, wrocławski, and, to a lesser extent, gdański and łódzki regions), as well as poviats belonging to *Suburbs* benefit from the proximity of larger dynamically developing metropolises.

This positive impact of a large and rich neighbour results from a range of factors. Among the key benefits, there are human flows (i.e. work available in the metropolis for the inhabitants of the surrounding areas) as well as greater investment attractiveness, which relies on the proximity of a large market and usually better-developed infrastructure. One obvious example is the tendency to build large shopping centres and warehouses in the suburban areas, however the development of the manufacturing was also of importance.

Another particularly interesting phenomenon, which can currently be observed in Poland, is the so-called suburbanisation of large cities – meaning that the economic significance of the surrounding areas increases in relation to the city itself. The above trend manifests itself in the improving labour market situation, but also in a considerable increase in the population of *Suburbs*.

Some of the data that we have obtained indicate that the largest cities may in fact encounter certain development obstacles, which also enhances the partial transfer of economic activity to the neighbouring areas. Among factors that encourage such transfers, there are, above all real property prices (of both accommodation as well as land and facilities for business use), limitations imposed by the existing transport infrastructure, labour cost and labour force availability.

However, the proximity of a large centre does not automatically guarantee success, which is well exemplified in the central śląski subregion. Although it constitutes the largest conglomeration in Poland (and, for that matter, one of the largest in the CEE region), it lags behind the other *Development Centres* and their *Suburbs*. The share of the declining industries is surely of importance. Nevertheless, it is worth noting that the śląska conglomeration, irrespective of its barely impressive labour market indicators and unfavourable dynamics of such GDP per capita or productivity, is still a subregion which has one of the highest population income levels.

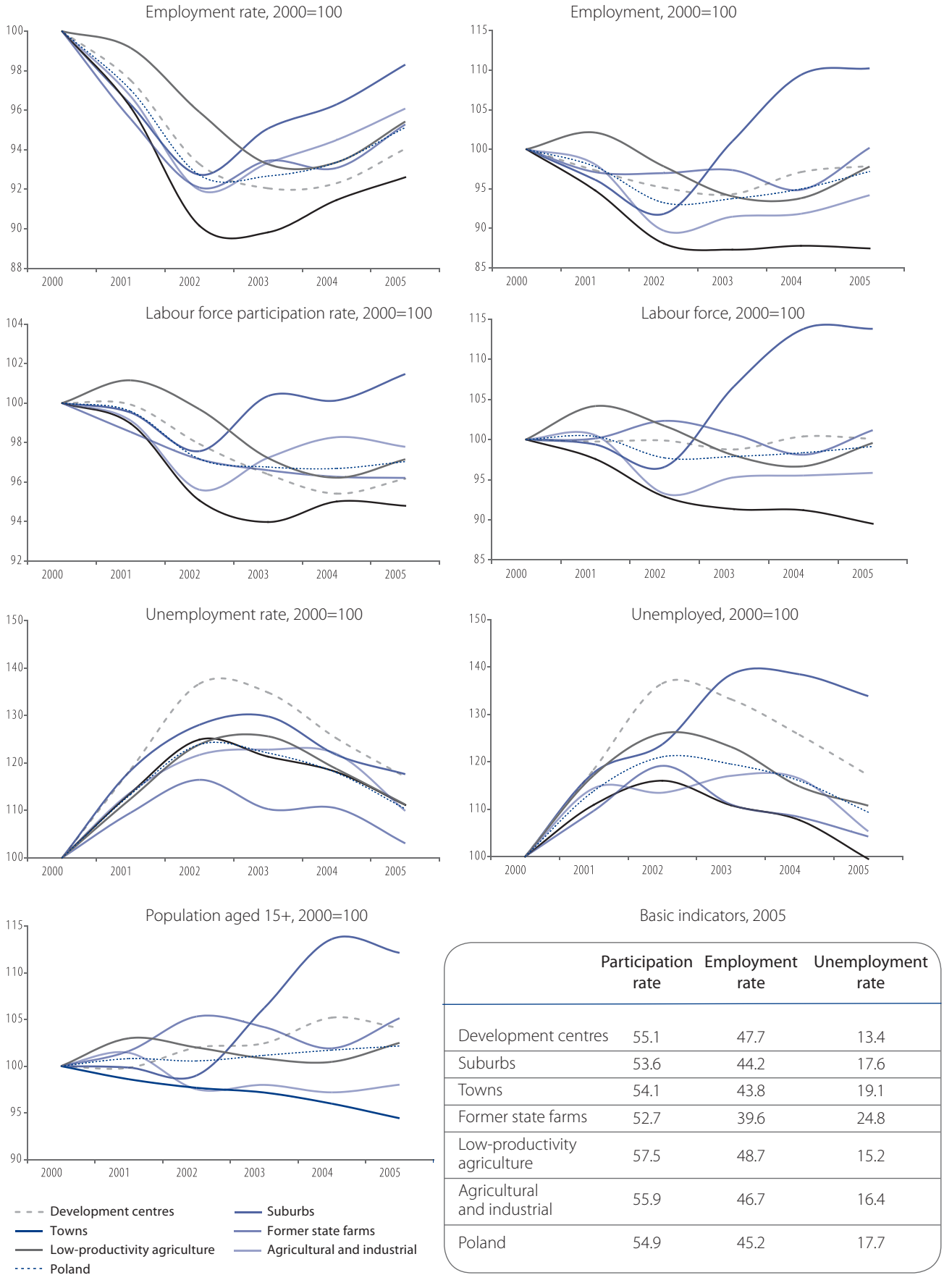
Poviats belonging to *Towns* saw the highest decline in employment and participation, alongside the unemployment rate comparable to the average trend for Poland. Moreover, there was a considerable reduction in population levels and its scale suggests extensive migrations from *Towns* to other clusters (see part on migrations). In *Agricultural and industrial*, changes in the employment rate were in line with the general trend throughout the entire period, which resulted in levels marginally higher than the employment rate for Poland. The evolution of participation and unemployment rates (as well as the numbers of the economically active and of the unemployed), as presented in Chart II.4., unfolded accordingly to changes in employment. An opposite relationship of unemployment is obvious, whereas the correlation between participation and employment rates – self-explanatory in the long term – has also been proven empirically to be a short-term relationship. In view of the previously presented data, the decrease of the participation rate for *Towns* cannot be explained by the changes of the labour market situation. Neither can this decrease be explained by reference to demographic factors because a similar decrease in participation was observed in the examined period in the age group 15-64. Moreover, the evolution of the unemployment rate for *Development centres* and *Suburbs* is also somewhat puzzling.

To sum up, it seems that differences in the initial (in 2000) employment, participation and unemployment levels did not affect the evolution of the labour market situation too much and that this evolution followed a similar path in all clusters. In particular, the good initial performance in *Development centres* did not improve later on but it deteriorated slightly. *Towns* was the cluster that saw the highest decrease in employment and participation, irrespective of its relatively stable unemployment and a considerable decrease in population. Urban centres in this group not only failed to exert a positive influence on the surrounding poviats but they also were not attractive enough for some inhabitants (in terms of living and working conditions), thus leading to population outflows from *Towns* – probably above all to *Development centres* and *Suburbs*. Almost certainly the reason for this migration tendency was that with the human capital comparable to that in *Development centres*, average wage in *Towns* was lower by an average of about 25 per cent.

In some clusters there occurred a curious evolution of the unemployment rate. What is most striking, in *Development centres* and *Suburbs* this indicator increased most in relation to the average for Poland. As for *Development centres*, this can be explained by the base effect, i.e. the lowest unemployment rate at the beginning of the examined period (and despite a considerable increase – also at the end of it) out of all clusters. In *Suburbs*, the relative increase in unemployment was accompanied (in 2002-2005) with the highest increase in the employment rate. *Suburbs* was the only cluster where, during the examined period, there was an increase in participation and in total population (especially in *Suburbs* within the śląskie voivodeship). The scale of this phenomenon indicates clearly that it occurred as a result of migration and not demographic processes. An evident increase in population, although not as considerable as in *Suburbs*, could be observed in *Development centres*. These observations are in line with the analysis of internal migration discussed in Part III of this report.

Chart II.4.

Index of basic labour market indicators and numbers of the working, economically active and unemployed populations in particular clusters (age group 15+)



Basic indicators, 2005

	Participation rate	Employment rate	Unemployment rate
Development centres	55.1	47.7	13.4
Suburbs	53.6	44.2	17.6
Towns	54.1	43.8	19.1
Former state farms	52.7	39.6	24.8
Low-productivity agriculture	57.5	48.7	15.2
Agricultural and industrial	55.9	46.7	16.4
Poland	54.9	45.2	17.7

Source: Own calculations based on LFS data.

Table II.9.

Basic labour market indicators for the age group 15+ by clusters

	PL 2000=100	2000	2001	2002	2003	2004	2005	PL 2005=100
employment rate								
Development centres	106.8	50.7	49.4	47.3	46.7	46.8	47.7	105.6
Suburbs	94.7	44.9	43.3	41.7	42.7	43.3	44.2	97.8
Towns	99.6	47.3	45.5	42.6	42.5	43.2	43.8	97.0
Former state farms	87.7	41.6	39.8	38.3	38.9	38.7	39.6	87.8
Low-productivity agriculture	107.6	51.1	50.6	49.0	47.6	47.7	48.7	107.9
Agricultural and industrial	102.4	48.6	47.0	44.7	45.4	45.9	46.7	103.5
Poland	100.0	47.5	46.1	44.0	44.0	44.3	45.2	100.0
labour force participation rate								
Development centres	101.2	57.3	57.2	56.1	55.2	54.6	55.1	100.3
Suburbs	93.4	52.9	52.6	51.6	53.1	52.9	53.6	97.7
Towns	100.9	57.1	56.5	54.3	53.7	54.3	54.1	98.6
Former state farms	96.9	54.8	54.0	53.3	53.0	52.8	52.7	96.1
Low-productivity agriculture	104.6	59.2	59.8	59.0	57.5	56.9	57.5	104.7
Agricultural and industrial	101.0	57.2	56.7	54.7	55.6	56.2	55.9	101.8
Poland	100.0	56.6	56.3	55.0	54.7	54.7	54.9	100.0
unemployment rate								
Development centres	71.2	11.5	13.6	15.7	15.4	14.3	13.4	75.5
Suburbs	93.2	15.0	17.8	19.2	19.5	18.3	17.6	99.4
Towns	106.8	17.2	19.5	21.5	20.8	20.3	19.1	107.6
Former state farms	149.7	24.1	26.4	28.1	26.6	26.6	24.8	139.9
Low-productivity agriculture	85.0	13.7	15.4	17.0	17.2	16.2	15.2	85.7
Agricultural and industrial	92.9	14.9	17.0	18.2	18.4	18.2	16.4	92.5
Poland	100.0	16.1	18.2	19.9	19.6	19.0	17.7	100.0

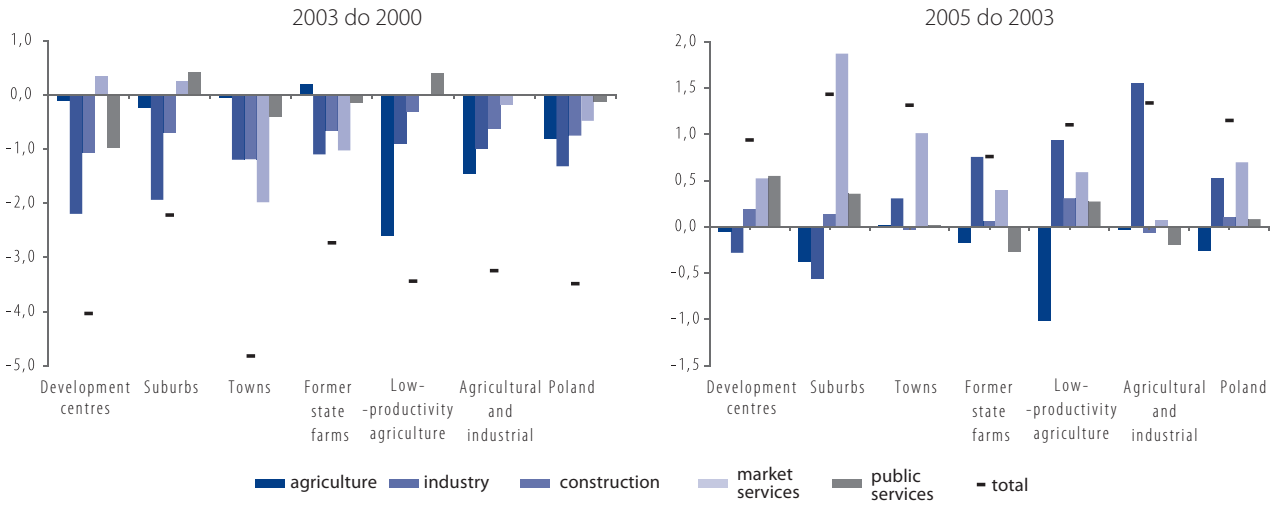
Source: Own calculations based on LFS data.

Another important element of the analysis of changes in employment is the observation of its structure from the perspective of sectors of the economy. During the examined period, there occurred certain material reallocations of labour resources in all clusters. We have divided our analysis into two periods, namely 2000-2003 and 2003-2005 (the years 2002-2003 constituted a period of stabilisation in labour markets and a beginning of an era of growth in employment in all clusters) and we measure the changes as a ratio of employment change in the sector to the population aged 15+ (hence, Chart II.5. illustrates contributions of specific sectors to changes in the overall employment rate in percentage points).

In the first of the above-mentioned periods, there occurred a nation-wide decline in employment in all sections, with the largest contribution of industry, then agriculture and construction and smallest in market services and public services. The total decline in employment amounted to approximately 3.5 percentage points and was highest in *Towns*, and lowest – in *Suburbs*. Due to the fact that we are looking at net changes in particular sectors, one can hardly talk about reallocation in the situation where employment was on the decline in nearly all sections. Private services (in *Development centres* and *Suburbs*) and public services (in *Development centres* and *Low-productivity agriculture*) constituted a certain exception here; an increase in employment was also observed in agriculture in *Former state farms*.

It is also striking that, despite the previously illustrated relative stability of employment in *Low-productivity agriculture*, this cluster – as well as *Agricultural and industrial* – saw a considerable decrease in employment exactly in agriculture. The above finding undermines the opinion that agriculture behaves – at least at the national level – countercyclical and constitutes a kind of "buffer". This sort of phenomenon was probably also perceptible to some extent in the period 2000-2001, however, it seems that in the later period restructuring processes in agriculture were getting more intense, although these changes were not even across particular voivodeships (see Box II.4.). It is particularly noteworthy that in *Low-productivity agriculture* the decline in employment in agriculture extended also into the period 2003-2005. As for the relative stability of employment in 2000-2003 in this cluster, it resulted above all from the marginal contribution of sections other than agriculture in the said employment decline.

Chart II.5.
Changes in the employment by sections as percentage points of overall employment rate



Source: Own calculations based on LFS data.

In *Development centres* and *Suburbs*, the largest contribution to the employment decrease was due to industry – which is to some extent in line with expectations concerning the transition to modern economy based essentially on employment in services. As for the period 2000-2003, the problem was that the job destruction in industry was not matched by their sufficient job creation in services. It should also be emphasised that in the case of *Suburbs* the general picture of the situation in industry was essentially affected by the high contribution of the śląska conglomeration and its high employment in mining. The manufacturing in this cluster was only a minor decrease in employment in 2000-2003, whereas in 2003-2005, the number of the working population already went up by 6 per cent.

Table II.10.
Employment in clusters by sections in 2005 (2000=100)

	Development centres	Suburbs	Towns	Former state farms	Low-productivity agriculture	Agricultural and industrial	Poland
farming and fishery	81.1*	94.0	89.1*	105.5	87.5	86.7	89.9
mining	97.2	73.2	76.7*	63.8*	72.2*	83.8*	77.0
manufacturing	79.1	103.0	88.6	105.3	103.2	103.8	97.6
energy	78.1	97.8	74.2	76.2	118.3	91.6	86.5
construction	81.2	93.9	64.5	83.2	102.3	78.9	82.3
trade	93.6	129.6	90.3	96.4	104.1	90.9	98.8
hotels and restaurants	121.6	101.5	88.4	101.0	111.0	95.6	102.7
transport and communication	103.2	120.2	73.7	97.6	111.4	89.1	96.5
financial intermediation	77.9	129.0	59.8	73.3	71.7	84.2	77.5
real estate and company management	163.2	165.2	130.7	135.2	197.9	170.3	154.7
administration and defence	130.8	142.6	100.7	109.6	126.5	110.5	116.7
education	104.5	130.1	108.0	106.4	112.5	99.6	108.9
healthcare and social aid	85.1	116.5	71.9	82.7	108.0	82.5	87.4
communal, social and individual services	86.4	94.1	84.8	103.1	90.9	92.5	90.6
Total	97.9	110.2	87.4	100.2	97.8	94.2	97.2

* – these data are not fully reliable due to small sample size

Source: Own calculations based on LFS data.

The situation changed radically in 2003-2005, when – particularly in *Suburbs* and *Towns* but also in *Development centres* – there was an employment increase driven by market services. Their development, however, was uneven, and, what is more, it seems that the more rapid increase of employment in *Suburbs* suggests that this is where activity was transferred from *Development centres*. In *Suburbs*, sections that saw the most dynamic development were transport services, financial brokerage (in both sections, the working

populations grew by almost 30 per cent in 2000-2005) and trade (20 per cent increase), whereas the number of persons working in these same sections in *Development centres* were diminishing (with the exception of a slight increase in transport). Similar tendencies were apparent in public services (apart from a comparable increase in administration). It is noteworthy that in 2005 employment in the above-mentioned sections accounted in *Development centres* for a highest share of total employment comparing to other cluster (except for trade in *Suburbs*).

The section *hotels and restaurants* saw an employment increase above all in *Development centres* and *Low-productivity agriculture*. In the latter case, this increase could be linked with, for instance, the development of tourism in some rural areas, however, it should be noted that the share of this section in total employment in cluster 5 remains marginal. Similarly, the employment dynamics in real estate and company management in *Low-productivity agriculture* and *Agricultural and industrial* should be linked, above all, with very low initial employment in these sections. As for *Low-productivity agriculture,* increased total employment in market services was largely due to the employment increase in transport.

Box II.3. Special Economic Zones

Special Economic Zones are administratively separated areas within the territory of Poland created to enhance business activity on preferential terms. The main idea behind them was to attract new investment to areas with particularly harsh labour market situation by using a variety of business incentives. The rules and procedure of establishing SEZs were provided for in the Act dated 20 October 1994 on special economic zones. At that time, the statutory incentives provided a strong impulse for investors to set up their companies within SEZs:

Entrepreneurs holding relevant licences were entitled to:

- total exemption from corporate income tax for the initial period of 10 years of business,
- 50 per cent exemption from corporation income tax in the following years as long as a given SEZ exists,
- exemption from real estate tax.

Total exemption from tax – under the conditions dictated by extensive tax burden – was a powerful tool for luring new investment. However, the investment support system used in SEZs was not in line with the rules of public aid in the European Union. Hence, after accession to the EU, Poland was compelled to harmonise the rules of public aid in SEZs, which largely diminished their attractiveness. At present, the rules governing public aid granted to entrepreneurs operating in SEZs are varied and they depend above all on the date of issue of a licence.

Presently, there are 14 SEZs in Poland: three in the dolnośląskie voivodeship (Legnica, Kamienna Góra, Wałbrzych), one in the lubuskie voivodeship (Kostrzyn), two in the pomorskie voivodeship (Słupsk, Sopot), two in the warmińsko-mazurskie voivodeship (Olsztyn, Suwałki), one in the łódzkie voivodeship (Łódź), one in the śląskie voivodeship (Katowice), one in the małopolskie voivodeship (Kraków), one in the świętokrzyskie voivodeship (Starachowice) and two in the podkarpackie voivodeship (Mielec and Tarnobrzeg). Some SEZs operate in the territory of more than one voivodeship (e.g. the Tarnobrzeska Economic Zone, which also covers the lubelskie, mazowieckie and świętokrzyskie voivodeships). In total, SEZs cover 99 poviats, out of which 45 belong to *Former state farms*, whereas in the other clusters the number of poviats covered by SEZ oscillates between 8 and 13. From the spatial perspective, there is a near absence of SEZs in eastern Poland (in the podlaskie and lubelskie voivodeships) and a remarkable over-representation in the northern and north-western Poland.

At the end of 2005, the overall SEZ area of 8,000 hectares attracted investment which amounted to more than PLN 25 billion with employment of more than 110,000 people. Public aid amounted to approx. 11 per cent of all investment outlays (in 2004). The share of the automobile sector in total investment was the greatest (especially in the katowicka, wałbrzyska and legnicka zones), whereas timber processing was crucial in the mielecka zone, electronics – in the pomorska zone, paper, stationary and information carriers in the krakowska and kostrzyńsko-słubicka zones.

The emergence of new investment in SEZs entailed a development in related production and services – above all, geodetic, design, construction, hotel and transport services, but also in real estate agency and IT services. For instance, in the mielecka SEZ, the number of providers in the market for IT, photocopy, facsimile, switchboard and cash register equipment increased five-fold. There was also excessive investment in infrastructure which served not only investors but also local communities.

As for changes in employment in industry, it is worth noting that in the recent years there has been a considerable expansion in employment in lower-developed clusters, i.e. above all in *Agricultural and industrial*, but also in *Low-productivity agriculture* and *Former state farms*. Based on the analysed data, it is difficult to firmly establish causes of the above phenomenon. It probably ensues from the fact that – alongside lower labour cost and reservation wages in these regions – industry can be relatively more competitive, especially labour-intensive industry. On the other hand, however, due to low wages and large shares of rural population involved in agriculture, there is hardly any place now for an expansion of market services. It should also be emphasised that the decline in the number of people working in industry in *Suburbs* should be totally attributed to the restructuring of mining (as previously mentioned, *Suburbs* cover a considerable part of the śląska conglomeration). In the manufacturing alone operating within *Suburbs*, there occurred an employment increase. As for *Former state farms*, the increase in employment was surely due to the fact that SEZ were often established in poviats belonging to this cluster (see Box II.3.).

Box II.4. Employment in agriculture and the situation in local labour markets

In the last years, there has been a continuing decreasing trend in the number of people working in agriculture. Between 1992 and 2005, employment in this sector decreased from 3.5 million people to less than 2.5 million. However, in the particularly harsh period for the Polish labour market, namely the years 1999-2002, the outflows form agriculture were smaller, which suggests that employment in agriculture was a kind of "buffer" in periods of deteriorating labour market performance. Despite this considerable decline in labour input in agriculture, people involved in this sector still account for approx. 17 per cent of the working population, which is a share several times greater than in the developed countries. In addition, Polish agriculture still distinguishes itself because of its low productivity which accounts for as little as approx. 4 per cent of GDP.

Employment in agriculture and its productivity are subject to strong regional disparities. Generally, *Low-productivity agriculture*, which is characterised by small farm sizes and high employment, is largely concentrated in eastern and south-eastern Poland. The western and north-western Poland cover areas where numerous state farms used to operate in the past, which results in lower (at least for the time being) employment in agriculture and much greater average farm sizes. Leaving aside historical reasons of the territorial diversification of Polish agriculture, it should be noted that this diversification entailed different employment evolution patterns in particular voivodeship, whereas these changes have not always been overlapping with the processes unfolding within particular clusters. In the period 2000-2005, there occurred a decrease in the employment in agriculture by almost 10 per cent, with an even greater decrease in *Agricultural and industrial* and *Low-productivity agriculture*, and a minor increase in *Former state farms*. The above indicates that the process of modernisation in agriculture as well as the levelling out of differences between regions in this respect are to some extent a consequence of demographic and migration processes (aging of people working in agriculture, outflow of younger people to other sections). Moreover, in some of the traditionally agricultural voivodeships – such as the podlaskie, podkarpackie and małopolskie voivodeships – there were poviats which saw a rather considerable increase in employment in agriculture, including low-productivity agriculture, and where the general decrease in employment in agriculture was lower than average (in the małopolskie voivodeship there even occurred an increase due to the increased number of people working in agriculture in *Low-productivity agriculture*). The increase in the number of people working in agriculture was also significant in some poviats belonging to *Former state farms* – particularly in the zachodniopomorskie, lubuskie and pomorskie voivodeships.

Table II.11.
People working in agriculture in 2005 (2000=100) based on LFS data

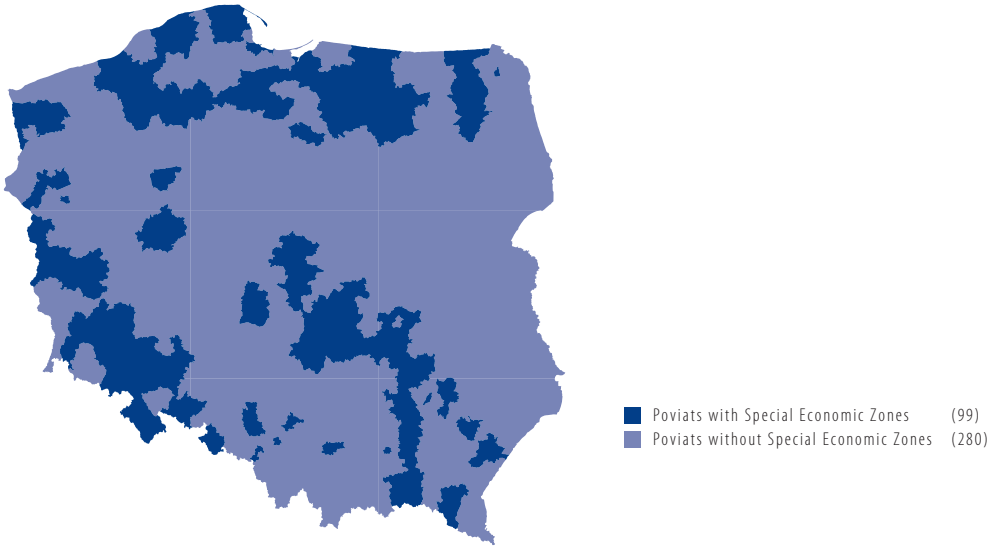
	Former state farms	Low-productivity agriculture	Agricultural and industrial	Total (all clusters)
dolnośląskie	104.0	x	37.9*	86.5
kujawsko-pomorskie	69.5	80.5	147.7*	85.8
lubelskie	x	82.9	123.6	90.3
lubuskie	147.1	x	.	142.1
łódzkie	.	109.4	106.0*	97.3
małopolskie	x	120.7	84.0	105.1
mazowieckie	61.5*	72.6	66.3	74.5
opolskie	180.7*	x	82.7	82.9
podkarpackie	.	109.3	80.6	94.4
podlaskie	x	84.5	119.7	91.5
pomorskie	114.5	x	110.4	106.5
śląskie	x	x	95.4	90.6
świętokrzyskie	163.5*	91.8	x	97.0
warmińsko-mazurskie	106.9	x	x	107.7
wielkopolskie	.	57.4	72.3	71.4
zachodniopomorskie	121.9	x	x	112.4
Poland	105.5	87.5	86.7	89.9

Due to the fact that clusters 3-6 are inhabited by more than 90 per cent of people working in agriculture, clusters 1-3 were omitted.
x – no poviats belonging to a given cluster can be found in a particular voivodeship
* – data are not fully reliable due to small sample size;
. – data are unreliable due to small sample size.

Source: Own calculations based on LFS data.

To sum up, the processes of restructuring and modernisation in agriculture unfold unevenly. As much as in *Former state farms*, the increased role of agriculture ensues from the development of modern, productive farming, only some poviats in clusters 5 and 6 have seen a remarkable decrease in employment in agriculture. The above may indicate serious problems with job creation outside agriculture in such voivodeships as the małopolskie (excluding Kraków), podkarpackie and podlaskie voivodeships.

Map II.4.
Poviats with Special Economic Zones (2005)



Source: Own elaboration based on information provided on websites of particular SEZs.

Towns had the lowest employment dynamics in most sections. This finding is understandable considering that this cluster had seen a decrease in the number of its population, and thus in the working population. Nevertheless, it is the structure of changes that is astonishing – alongside stable or increasing employment in education and administration as well as real estate and company management, there were considerable falls in the remaining service sections. What is more, the above changes were often much deeper than in the processing industry. Although these developments unfolded above all in the period 2000-2003, followed by a period of increasing employment in market services, the changes in the employment structure point to a labour market stagnation in *Towns*.

Table II.12.
Summary on labour market developments by clusters

	Development centres	Suburbs	Towns	Former state farms	Low-productivity agriculture	Agricultural and industrial
General labour market situation (2005)	High employment, average participation, lowest unemployment	Employment and participation slightly below the average, unemployment slightly below the average	Employment and participation slightly below the average, unemployment slightly above-average	Lowest employment and participation, highest unemployment	Highest employment and participation, low unemployment	Above-average employment and participation, rather low unemployment
Relative change in situation 2000-2005	Slight deterioration	Considerable improvement	Deterioration	Slight improvement in unemployment	No change	Slight improvement
agriculture*	None	Marginal, rapidly decreasing	None	Average, increasing	Crucial, rapidly decreasing	Crucial, decreasing
industry*	Average, rapidly decreasing	High, rapidly decreasing	Average, decreasing	Average, decreasing	Marginal, increasing	Average, increasing
market services*	Crucial, rapidly increasing	Average, rapidly increasing	High, increasing	Average, decreasing	Marginal, rapidly increasing	Marginal, increasing
public services*	High, increasing	Average, rapidly increasing	High, increasing	Average, increasing	Marginal, rapidly increasing	Average, increasing

*Based on the employment structure and its changes.

Source: Own elaboration.

In order to complement the analysis of changes in particular clusters, we make an attempt at tracing these changes with one additional element in mind, namely the division into voivodeships. In a number of cases, affiliation to a given cluster is not as important – when it comes to changes in employment – as affiliation to a given voivodeship. In other words, by additionally introducing a division into voivodeships to the analysis of clusters, we wish to better grasp the differences within clusters.

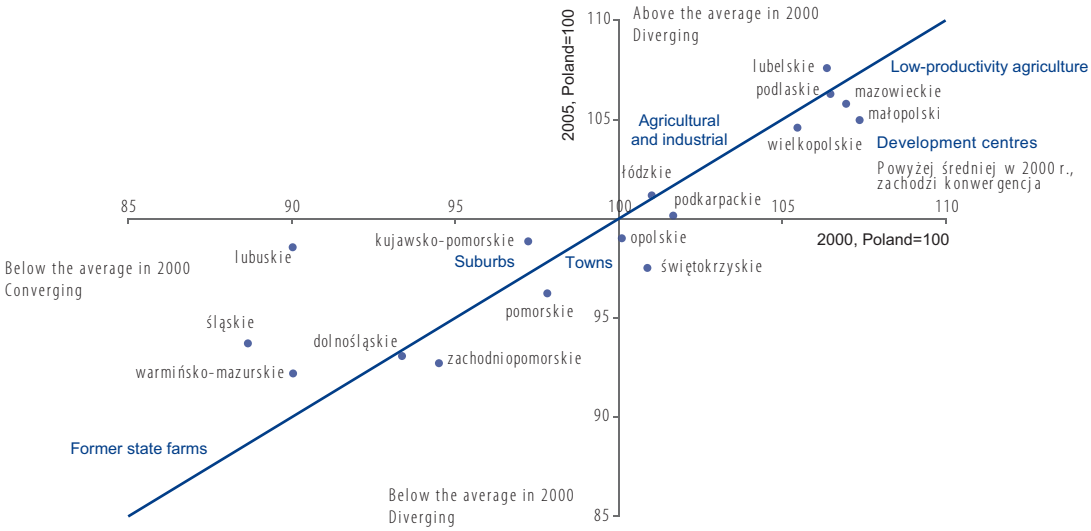
Out of all clusters, changes in *Development centres* and *Towns* were most homogeneous – in the period 2000-2005, nearly all voivodeships registered a decline in the number of the working population similar to the total decline for the above clusters. *Development centres* and *Towns* in the śląskie voivodeship departed from this trend and experienced an increase in the number of the working population, which was particularly considerable for *Development centres*.[14]

As for *Suburbs*, which registered the largest total percentage increase in employment, it seems that the said increase occurred in all voivodeships where poviats from this cluster can be found. Nevertheless, all conclusions in this respect should be cautious because in most cases LFS data for this cluster – taking into account the division into voivodeships – fall short of being fully representative.

In the remaining three clusters, the differentiation of changes in the number of the working population by voivodeships was much greater. The above concerns above all *Former state farms,* which recorded an overall increase in employment. However, this increase was concentrated mainly in the lubuskie voivodeship and – to a much lesser extent – in the zachodniopomorskie and opolskie voivodeships, alongside a significant decline in poviats belonging to this cluster found in other voivodeships. As for *Low-productivity agriculture*, the increase in the number of the working population occurred above all in the małopolskie voivodeship (and to a lesser extent in the podkarpackie and łódzkie voivodeships). In *Agricultural and industrial*, employment increased mainly in the śląskie, pomorskie and lubelskie voivodeships.

In general, in the period 2000-2005, there occurred moderate convergence at the level of clusters as well as at the level of voivodeships. Our previous considerations pertaining to changes in the employment rate presented in Chart II.6. As can be seen, four clusters (1, 4, 5 and 6) effectively did not change their relative positions.[15] One cluster – *Suburbia* – converged by catching up with the average, whereas another – *Towns* – diverged by increasing the distance from the average. Convergence is a little bit better visible at the voivodeship level (also because of their greater number) and so three voivodeships did not change their relative employment rates, eight converged (out of which four by decreasing the advantage and four by decreasing the advantage), five diverged (out of which one by increasing the advantage and four by increasing the disadvantage).

Chart II.6
Employment rate (Poland=100) in 2000 and 2005 in clusters and voivodeships



Source: Own calculations based on LFS data.

[14] However, the observation concerning the increasing number of the working population in the śląskie voivodeship seems doubtful to the extent that it is not supported by any of the other data sources. In particular, data on employment, presented in the decomposition of productivity (see sub-chapter 1.6.2), exhibit an opposite direction of changes. What is more, data on the number of the registered unemployed do not imply an improvement in the labour market situation which is advocated by BAEL. On the other hand, however, the improvement resulting from BAEL is evident, spread out in time, and it is also apparent in the case of the employment indicator. To sum up, the nature of changes in the labour market in the śląskie voivodeship in ambiguous.

[15] Although in *Development centres* there was marginal convergence by decreasing the advantage, and in *Agricultural and industrial* – a marginal divergence by increasing the advantage.

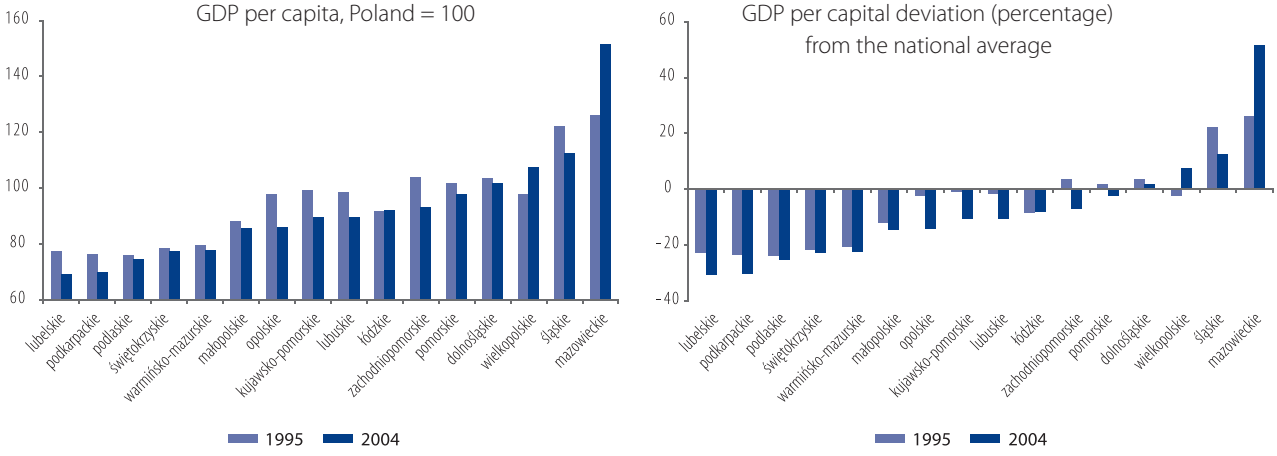
1.6. Developments in regional labour markets versus GDP and productivity

We begin our analysis of recent changes in regional GDP disparities by looking at them from the perspective of voivodeships. In 2004, the only voivodeship with decidedly higher-than-average GDP per capita levels was the mazowieckie voivodeship, and three other voivodeships had GDPs per capita levels marginally above the average, namely the dolnośląskie, śląskie and wielkopolskie voivodeships. The outstanding weight of the mazowieckie voivodeship results from the fact that it is the most densely populated and at the same time the richest out of all voivodeships. It is worth noting, however, that it is the Warsaw city subregion that determines this high standing. In 2004, the remaining subregions of the mazowieckie voivodeship (including the Warsaw subregion, i.e. the surroundings of Warsaw) had GDPs per capita below the average for Poland, and the ostrołęcko-siedlecki and radomski subregions were among the lowest-developed areas in the country. The lowest output (less than 80 per cent of the average) was recorded in the lubelskie, opolskie, podkarpackie, podlaskie, świętokrzyskie and warmińsko-mazurskie voivodeships.

As demonstrated in Chart II.7., in the period 1995-2004, there was a considerable increase in the GDP per capita inequalities between voivodeships. As much as in 1995, the lowest-developed voivodeship at that time, i.e. the podlaskie voivodeship (meaning the areas which now belong to this voivodeship) was characterised by GDP per capita of 76 per cent of Poland's average, compared with 126 per cent recorded by the mazowieckie voivodeship, in 2004, these figures amounted to 69 per cent (for the lubelskie voivodeship) and 152 per cent (for the mazowieckie voivodeship). In relation to the national average, the situation got relatively better only in the łódzkie, wielkopolskie and obviously in the mazowieckie voivodeships. Surely it must be emphasised that in absolute terms all voivodeships saw a considerable increase in output (total and per capita), notwithstanding the above, in he mazowieckie voivodeship it was much faster than in the rest of the country, whereas in the kujawsko-pomorskie, lubuskie, opolskie, śląskie and zachodniopomorskie, it was much slower than the national average for Poland.

The study of changes in value added per capita at the subregional level (see Table II.13.) demonstrates an even greater disparities – and a considerable growth thereof. As much as in 2004, value added per capita in Warsaw was almost three times higher than the average for Poland, in 1995, it was twice as high. What is more, none of the subregions developed as dynamically as Warsaw, and only Poznań developed much faster than average. The remaining large cities only managed to slightly improve their situation in relation to the average for Poland (Kraków, Łódź, Wrocław), whereas some of them lost slightly (Tricity). In the remaining regions it was more common that their distance to the average increased – this concerned in particular regions considered lower-developed as early as 1995.

Chart II.7.
GDP per capita by voivodeships in 1995 and 2004



Source: Own elaboration based on BDR data.

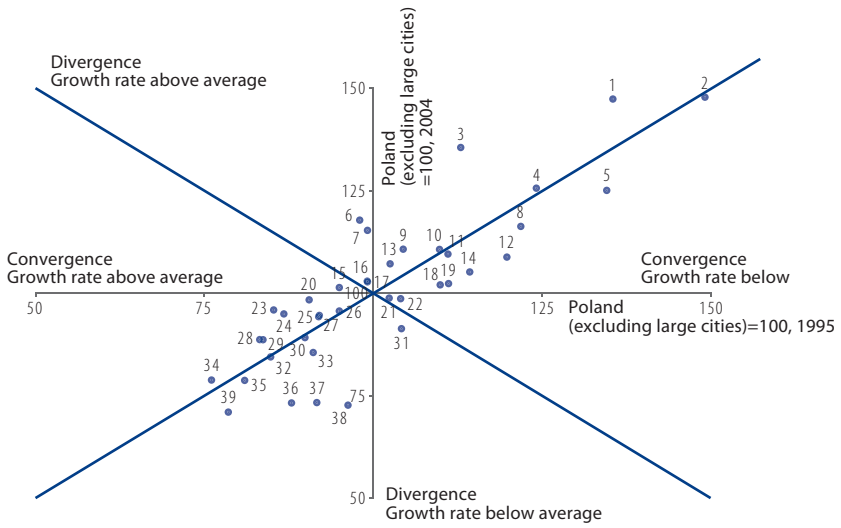
It should be emphasised again that the situation for particular regions deteriorated only relatively because all of them recorded an increase in output and value added per capita. At the same time, however, there occurred – at the level of voivodeships as well as of subregions – an excessive real divergence which stemmed from the fact that lower-developed regions had been lagging behind better-developed regions.

It should be noted, however, that the above observations are distorted by the rapid development of the largest metropolises – above all, Warsaw but also Poznań and Kraków. Changes unfolding in these cities had a considerable impact on the level of output per capita for Poland and thus they make the national average an imperfect measure of differentiation.

In view of the above, in order to examine the relative changes in the situation of particular regions in the period 1995-2004, we have conducted an analysis of deviations from the adjusted national average for Poland – calculated without large cities.[16] We present our findings in Chart II.8. which is divided into four parts. Subregions in the upmost and bottom quarters exhibited an increase in deviation from the average (and thus these subregions contributed to divergence) due to faster-than-average growth rates for subregions from the upmost quarter, and slower-than-average for subregions in the bottom quarter. Subregions in the left and right quarters contributed to the decrease in differentiation – and so subregions from the left quarter recorded faster-than-average growth rates in the examined period, whereas those from the right quarter – slower-than-average.

Thanks to their higher-than-average development rate, the increase in divergence was due to subregions surrounding the largest cities and to the ciechanowsko-płocki subregion, which increased the distance from the adjusted national average by more than 20 percentage points – most probably this increase can be attributed to the development of the largest enterprise in Poland which is seated in Płock.[17]

Chart II.8.
GDP per capita by voivodeships in 1995 and 2004



1. Łódź
2. centralny śląski
3. ciechanowsko-płocki
4. rybnicko-jastrzębski
5. bielsko-bialski
6. poznański
7. warszawski
8. bydgoski
9. częstochowski
10. świętokrzyski
11. zielonogórski
12. gorzowski
13. olsztyński
14. opolski
15. piotrkowsko-skierniewicki
16. pilski
17. koszaliński
18. szczeciński
19. toruńsko-włocławski
20. kaliski
21. koniński
22. jeleniogórsko-wałbrzyski
23. rzeszowsko-tarnobrzeski
24. wrocławski
25. łódzki
26. białostocko-suwalski
27. lubelski
28. radomski
29. gdański
30. elbląski
31. słupski
32. krakowsko-tarnowski
33. ostrołęcko-siedlecki
34. łomżyński
35. ełcki
36. krośnieńsko-przemyski
37. chełmsko-zamojski
38. bialskopodlaski
39. nowosądecki

The above chart does not present the following subregions: legnicki, Wrocław, Tricity, Kraków, Poznań and Warsaw – they all belong to the upmost quarter which means that they develop at a rate higher than the adjusted national average and that the deviation from this average is so great that their inclusion in the chart would confound the clarity of results.
Divergence / Convergence – means greater / smaller distance from the national average in the period 2000-2005.
Decrease / Increase – mean that convergence or divergence occurred thanks to the relatively slower or faster growth comparing to the growth of adjusted averagee.

Source: Own calculations based on CSO data (2006).

However, some subregions in the eastern and south-eastern part of Poland – in particular the bielsko-podlaski, chełmsko-zamojski and krośnieńsko-przemyski subregions – were developing slower than average, thus increasing the negative deviation from the adjusted average. There where no diverging subregions in central and western Poland, although in some cases these subregions were developing at a slower-than-average rate, irrespective of their above-average initial GDP per capita levels. This concerned in particular the szczeciński, jeleniogórsko-wałbrzyski, gorzowski, bydgoski and toruńsko-włocławski subregions, and the słupski subregion in the north of Poland.

The exclusion of the largest cities from the average and the coefficient of variation provides a less clear-cut picture of changes in the relative situation of particular subregions. It seems that – with the coefficient of variation of GDP per capita at the level of 16.1 in 1995 and 17.8 in 2004 – divergence between regions was small. Chart II.8. also indicates that in terms of the GDP per capita dynamics there are no "losers" – apart from the above-mentioned exceptions – among the Polish subregions. It is possible, however, to identify subregions where the results are decidedly above-average.

Irrespective of the fact that the GDP per capita analysis is conducted at the level of subregions, whereas clustering – at the level of poviats, it should be noted that in the case of the largest cities, subregions overlap with poviats and thus best-performing subregions in terms of GDP per capita belong to *Development centres*. The issue of affiliation is not so straightforward in the case of subregions with worse results – nevertheless, there is no doubt as to the fact that these subregions are inhabited above all by the populations of *Low-productivity agriculture* and *Agricultural and industrial* (with the exception of the słupski subregion dominated by *Former state farms*).

[16] This category includes the following subregions: centralny śląski, Tricity, Kraków, Łódź, Poznań, Warsaw and Wrocław.
[17] Out of regions not presented in the chart, Wrocław, Tricity and the legnicki subregion retained deviations from the adjusted average at almost the same levels and thus did not contribute much to the increase in convergence / divergence.

1.6.1. Developments in productivity and employment

Differences in the level of development – measured in GDP per capita and in the closely-related value added per capita – are considered a factor that is inherent to the labour market to the extent that more attention should be paid to the analysis of causes of interregional differentiation and its evolution. Developments in average productivity at the national level are dictated by its increasing values in particular sectors as well as by the reallocation of labour resources between sectors having different productivity levels. As follows from the analyses conducted by Bukowski et al. (2006b), in Poland, similarly to other countries, convergence of labour productivity results from its increasing values in particular sections of industry and services, and not from the reallocation of employment between sections.[18] Unfortunately, we do not have sufficiently detailed data on value added at the level of subregions to be able to conduct the above-mentioned analysis because some of its elements are only possible at the level of companies (see chapter 2 of this part).

As for labour productivity and employment level (analysed upon the exclusion of agriculture, i.e. for industry and services only[19]), the processes unfolding in the period 1995-2004 were not even and the relative positions of particular regions were subject to material shifts in time. In order to emphasise the changes, we have divided this analysis into three subperiods, namely 1995-1998 (increase in employment and productivity), 1998-2002 (decrease in employment, increase in productivity) and 2002-2004 (another increase in employment and productivity).

During the period 1995-1998, there was a striking difference in performance of "urban" subregions which overlapped to some extent with *Development centres*. Although in Warsaw, Poznań and Kraków (and in the surrounding subregions), there occurred a concurrent dynamics increase in productivity and employment, in the Tricity, Silesia and Łódź, the increase in productivity was lower and it was accompanied by a decrease in employment. In the second group – similarly to all other subregions where there had been a decrease in employment – the above resulted from decreased employment in industry and decreased – or only marginally increased – employment in services.

In the subsequent period, namely in the years 1998-2002, all subregions experienced a decrease in employment, which means that not all subregions that had done well in 1995-1998 managed to maintain their relative advantage in the later period. In particular, subregions that in the earlier period had registered an above-average increase in employment and only a slight increase in productivity, were more likely to experience a faster-than-average slump in employment in the second period. This phenomenon could be observed above all in lower-developed subregions, such as the bialskopodlaski, białostocko-suwalski, elbląski, ełcki, gorzowski, koszaliński, słupski and toruńsko-włocławski subregions. As far as Warsaw and Poznań are concerned, their advantage persisted regardless of a decreasing trend in employment, mainly because the decrease was considerably lower than the average. Notwithstanding the above, this deterioration in the labour market situation generally concerned all subregions and it is difficult to firmly establish the causes for some minor differences in this respect – although it seems that subregions with lower labour productivity dynamics were characterised by greater vulnerability.

The picture of the period 2002-2004 is most confusing (partly because it is the shortest out of the examined periods). The reversal of trends in the labour market and the revival of the economy brought an increase in both the number of the working population and productivity in most subregions. However, for the first time it was possible to identify subregions where an increase in employment coincided with a decrease in productivity. What is more, they were the subregions which were characterised by the highest increase in employment and which saw a decrease in productivity in services and industry alike (although it was more obvious in services than in industry). As for the group of subregions where the decreasing trend in the number of the working population continued (with different developments in productivity), it was rather numerous. Moreover, in a number of cases this continuation concerned negative (compared to other subregions) trends from earlier period.

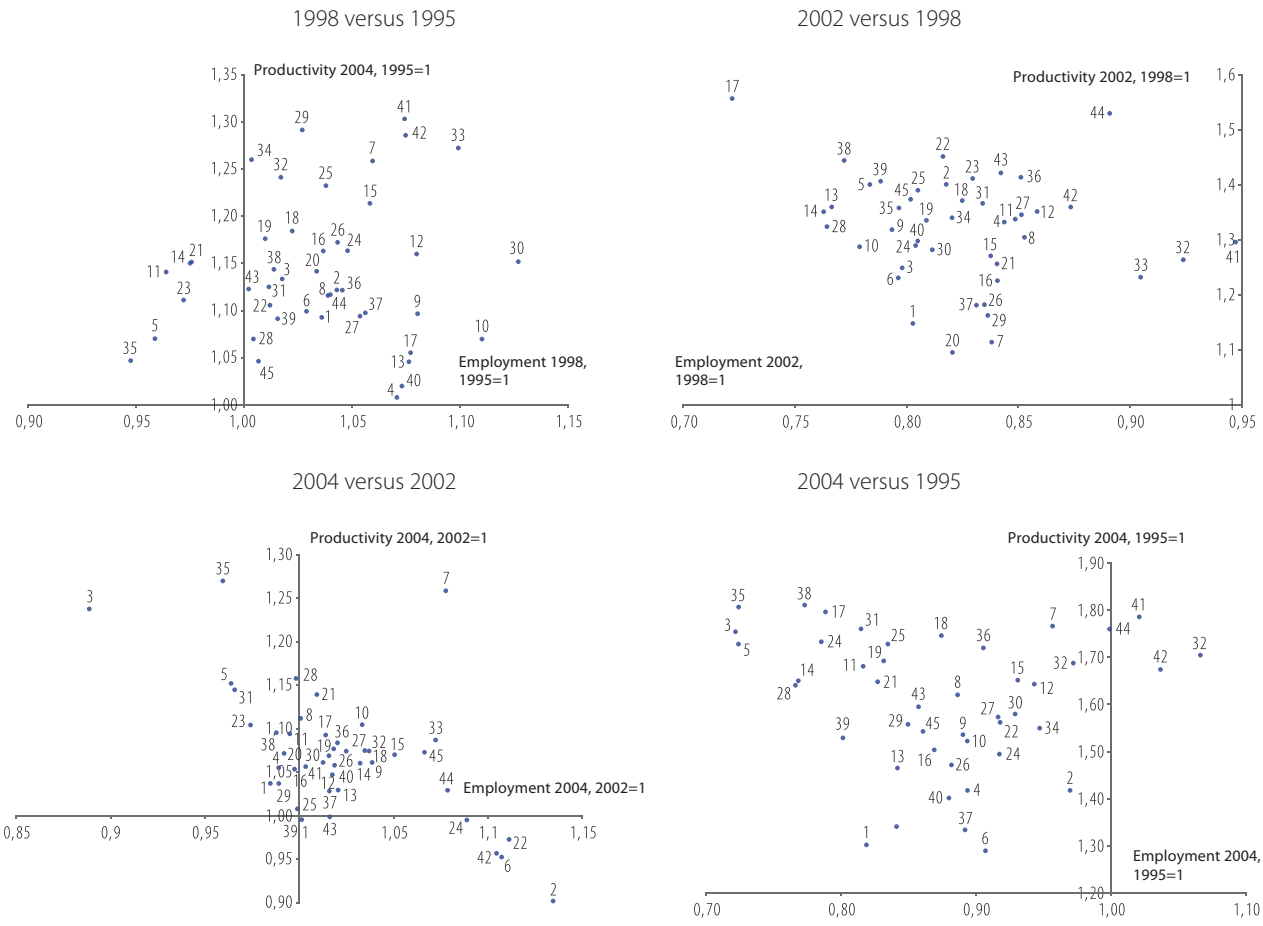
One fundamental observation is that the disparities in productivity between subregions increased throughout the examined period, however, only due to the productivity increase in industry (see Chart II.9.).[20] The exclusion of Warsaw and Poznań from the study lowers the increase in disparities only marginally – these cities are untypical because of their concurrent increasing trends in productivity and employment (and thus their highly above-average output per capita growth), whereas their productivity dynamics was similar to that of a number of other regions (see Chart II.9.).

Throughout the examined period, the situation was best in Warsaw, Poznań and in the subregions that surround them (plus in the wrocławski subregion). The other cities too recorded some increase in productivity, however, at the expense of lower employment. The subregions where the slump in the employment was highest, also experienced a large increase in productivity (although not larger than, for instance, in Warsaw which saw an increase in employment).[21]

[18] By no means does this imply, however, that no reallocation occurs because it does so on a huge scale at the level of companies, see charter 2 devoted to analysis at the company level.
[19] This approach is dictated by serious difficulties with estimating the number of people working in agriculture in particular subregions.
[20] Productivity and employment changes by subregions in 2004 compared with 1995 are presented in Table II.18. in the Appendix.
[21] A firm assessment is difficult due to modifications in the borders of particular subregions because these modifications exerted a great influence of the process of shaping of the discussed indicators. During the examined period, the above-mentioned modifications concerned the following subregions: centralny śląski, rybnicko-jastrzębski, bielsko-bialski, częstochowski, krakowsko-tarnowski and krośnieńsko-przemyski – thus, the results for the above subregions should be approached with particular caution.

Chart II.9

Productivity and employment changes (for industry and services only) in subregions



1. białskopodlaski
2. białostocko-suwalski
3. bielsko-bialski
4. bydgoski
5. centralny śląski
6. chełmsko-zamojski
7. ciechanowsko-płocki
8. częstochowski
9. elbląski
10. ełcki
11. Gdańsk-Gdynia-Sopot
12. gdański
13. gorzowski
14. jeleniogórsko-wałbrzyski
15. kaliski
16. koniński
17. koszaliński
18. Kraków
19. krakowsko-tarnowski
20. krośnieńsko-przemyski
21. legnicki
22. lubelski
23. łódź
24. łódzki
25. łomżyński
26. nowosądecki
27. olsztyński
28. opolski
29. ostrołęcko-siedlecki
30. pilski
31. piotrkowsko-skierniewicki
32. Poznań
33. poznański
34. radomski
35. rybnicko-jastrzębski
36. rzeszowsko-tarnobrzeski
37. słupski
38. świętokrzyski
39. szczeciński
40. toruńsko-włocławski
41. Warszawa
42. warszawski
43. Wrocław
44. wrocławski
45. zielonogórski

Source: Own calculations based on BDR data.

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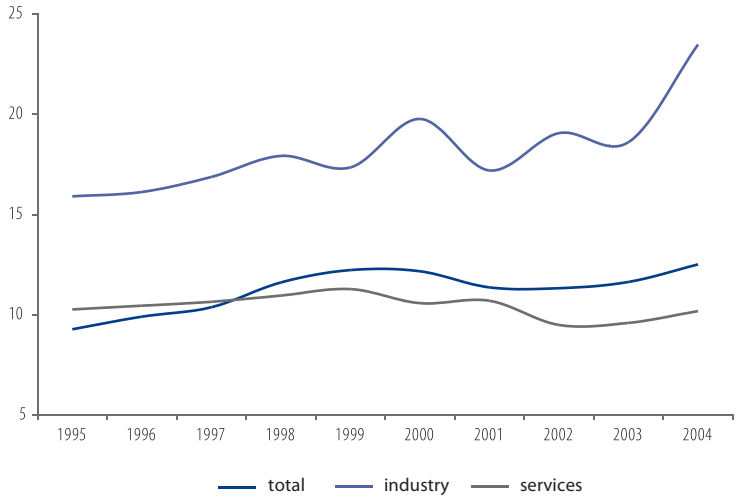
Chart II.10.

Changes in coefficient of variation of value added per employee by regions



Source: Own calculations based on BDR data.

1.6.2. Decomposition of factors determining different levels of value added per capita

Different levels of output per capita depend on both the share of people who have work (employment rate) and on the productivity of the labour force (which is, in turn, linked with the sector structure). In order to capture the causes for differences in the level of output per capita, we present a decomposition of the percentage deviation of value added per capita of a given subregion from the national average for Poland. Moreover, we have divided them into factors relating to labour input (share of the working population in total population – higher or lower than average) and labour productivity (value added per employee). We have also accounted for differences in the sector structure of the economy and taken into consideration value added and employment in industry and services only, excluding agriculture.

Table II.13. demonstrates how particular factors in industry and services contributed (in percentage points) to the change of percentage deviation from the average between 1995 and 2004 (in the Appendix, we present decomposition of levels for both these years). We have selected these two years due to high data availability (they constitute the first and last years of the available time series for subregions). Positive (negative) contribution means that that there was an increase (decrease) in a given factor (i.e. employment or productivity in industry or services) in relation to the national average for Poland. The methodology used is presented in detail in the Appendix.

Both in 1995 and in 2004, most differences between subregions could be explained by referring to different labour input in services, then to input in industry and to productivity in industry and services. In particular, it was higher employment in large cities that played a crucial role. For instance, in 20004, more than two thirds of the (positive) deviation from the average of Warsaw and Poznań could be attributed to higher employment in services. The importance of the latter was equally extensive in explaining low levels of GDP per capita in lower-developed regions. The decomposition of changes in the deviation from average labour productivity is of particular significance when it comes to understanding the phenomenon of changes in regional disparities. Increased differentiation was mainly affected by the services sector – in almost equal measures by labour input and productivity developments – whereas the role of industry was minor, although it is worth noting that in the case of industry changes in labour input were of greater significance. Particularly, increases in regional dispersion were dictated by the productivity and labour input dynamics in services in lower-developed subregions – much lower than in higher-developed subregions.
Curiously enough, it is viable to distinguish subregions (mainly those linked to large cities) where it was the increase in labour input it industry that largely contributed to the increase in differentiation – this was the case, for instance, in the warszawski, poznański, gdański, wrocławski and łódzki subregions. What is more, in nearly all large cities, the contribution of employment in industry was negative, alongside the generally positive contribution of productivity in industry, however, these changes were marginal compared with the positive contribution of services. In the largest urban areas only the katowicka conglomeration (centralny śląski subregion) and the Tricity (Gdańsk-Sopot-Gdynia subregion) saw a deterioration in relation to the national average (although in 2004 these regions still generated above-average outputs per capita). It seems that the above is due to the intense restructuring processes in industry which were not accompanied by – as opposed to Warsaw, Kraków and Poznań – a considerable increase in employment in services. In the case of the Tricity, what mattered was the relative decrease in industrial productivity.

Summing up the conclusions from the above decomposition, it can be stated that:

- subregions which were most successful included above all **large cities**, where there occurred a **rapid expansions of services**, mainly due to the increase in labour input, and to a lesser degree – and not in all cases – to the above-average increase in productivity in services;
- profound **restructuring of industry**, which manifested itself in the considerable decrease in labour input, did not necessarily have to bring about a deterioration in relation to other regions, if it was accompanied by a development in services and an increase in industry productivity – this process could be observed, for instance, in Kraków, Łódź, Wrocław and the radomski subregion (in the latter case, no increased role of services was observed but a very high increase in productivity alongside a marginal decline in labour input in industry), whereas it failed in the centralny śląski and rybnicko-jastrzębski subregions as well as in the Tricity;
- positive contribution of **industry in terms of employment** was also considerable in some lower-developed, peripheral subregions (namely in the kaliski, pilski, olsztyński, ełcki, białostocko-suwalski, chełmsko-zamojski, elbląski and słupski subregions), however, it was not accompanied by an increase in productivity, and the contribution of services was negative (in terms of both employment and – in most cases – productivity),
- in thirty-three subregions which saw a deterioration in the value added per working person comparing to the national average, the reasons for this were **low increase in productivity in services as well as lack of reallocation of labour resources to services**; moreover, irrespective of an unimpressive performance in industry, the above group of subregions was more likely to make a positive rather than negative contribution to changes in deviation – however, mainly because of the relative (to the average) increase in labour input (in 21 subregions) rather than in productivity (in twelve subregions); the above results are in line with the total employment changes in industry and in services in the period 2000-2005 in clusters 4-6 (and in particular in *Agricultural and industrial*).

Table II.13.
Decomposition of sources of changes in value added per inhabitant - 2004 to 1995 (Total includes percentage changes representing deviations from Poland's national average in the examined period)

		industry		services		
	total	employment	productivity	employment	productivity	residual
Warszawa	53.8	-5.6	-1.7	30.3	10.4	20.3
Poznań	29.4	-0.9	-3.2	23.9	5.3	4.3
ciechanowsko-płocki	17.7	4.1	13.8	5.8	-6.4	0.5
poznański	15.4	12.4	-1.0	-0.2	8.1	-3.8
wrocławski	12.6	10.1	3.7	-3.1	5.0	-3.0
warszawski	10.5	0.7	-1.8	8.8	3.1	-0.4
Kraków	6.6	-12.1	4.9	10.6	1.7	1.6
rzeszowsko-tarnobrzeski	5.6	2.6	1.9	-0.1	1.9	-0.8
kaliski	4.7	9.3	0.0	-5.2	4.1	-3.4
radomski	3.2	-0.3	8.7	9.9	-14.8	-0.3
gdański	2.2	7.5	-1.7	-6.5	3.3	-0.4
częstochowski	1.9	5.8	2.7	-3.0	-3.6	0.1
pilski	1.8	11.6	0.3	-8.4	0.5	-2.2
piotrkowsko-skierniewicki	1.6	0.7	1.1	-4.5	5.6	-1.4
łomżyński	1.4	4.4	5.8	-6.7	0.7	-2.8
olsztyński	1.2	6.1	-3.5	-1.9	0.2	0.3
lubelski	0.8	3.4	-3.7	1.9	-0.8	0.1
koszaliński	0.6	3.6	-1.6	-11.8	12.2	-1.8
Łódź	0.5	-6.7	3.9	1.1	1.2	1.0
łódzki	-1.6	4.6	4.9	1.5	-14.3	1.9
świętokrzyski	-1.7	-1.5	3.9	-10.6	5.2	1.2
ełcki	-2.0	7.4	-4.1	-5.9	-0.8	1.4
białostocko-suwalski	-2.6	7.9	-5.2	0.8	-6.0	-0.1
krakowsko-tarnowski	-2.8	-0.6	1.5	-4.0	0.7	-0.3
elbląski	-2.8	7.3	-6.9	-6.3	2.9	0.2
legnicki	-3.5	0.2	1.0	-3.4	-3.0	1.7
ostrołęcko-siedlecki	-3.8	3.9	8.4	-5.1	-10.1	-0.9
jeleniogórsko-wałbrzyski	-5.7	-0.3	-1.1	-5.3	1.8	-0.9
rybnicko-jastrzębski	-6.4	-11.2	8.4	-2.9	-4.5	3.7
Gdańsk-Gdynia-Sopot	-6.5	-7.8	-1.2	-1.3	3.3	0.5
Wrocław	-6.7	-8.8	1.3	7.7	-3.8	-3.2
zielonogórski	-6.8	2.2	6.6	-3.6	-12.3	0.3
koniński	-6.9	4.4	-6.6	-5.1	1.3	-0.9
nowosądecki	-8.6	4.2	-6.9	-7.1	-2.4	3.5
opolski	-8.8	-3.3	3.6	-4.6	-4.9	0.5
chełmsko-zamojski	-10.1	8.7	-11.2	-5.2	-9.2	6.8
centralny śląski	-11.0	-15.5	4.0	1.2	-2.2	1.5
bydgoski	-11.1	2.1	-7.8	1.4	-6.8	0.0
szczeciński	-11.6	-1.1	-3.2	-3.4	-5.3	1.3
toruńsko-włocławski	-12.8	4.0	-6.1	-3.7	-8.6	1.6
słupski	-14.3	6.3	-0.9	-5.0	-15.2	0.5
gorzowski	-14.9	1.5	0.5	-6.2	-10.6	-0.1
krośnieńsko-przemyski	-15.7	1.5	-7.1	-3.9	-10.3	4.1
bielsko-bialski	-15.8	-10.8	3.6	-8.8	2.2	-2.0
bialskopodlaski	-16.3	5.5	-6.4	-9.4	-11.3	5.5

Source: Own calculation based on regional calculations by CSO.

2. Entrepreneurship and job creation at the regional level

Although in the previous chapter, we analysed only the basic indicators which thus provided us with aggregates of various phenomena at the level of poviats, subregions and voivodeships, it should be emphasised that their evolution is an outcome of developments that take place within particular economic entities. In view of the above, in order to present a complete picture of changes in the regional labour markets, it is necessary to take closer look at the situation within enterprises – namely, at how and where they are established, how they increase employment and productivity and what are the determinants of these changes.

New firms play a key role in the creation of jobs and in increasing employment. Hence, we look at them in subchapter 2.1. as we make an attempt at explaining where companies are set up and at determining what factors decide about their location. In subchapter 2.2., we look at existing companies and we analyse, among others, how and why they affect (increase or decrease) employment also on the regional scale.

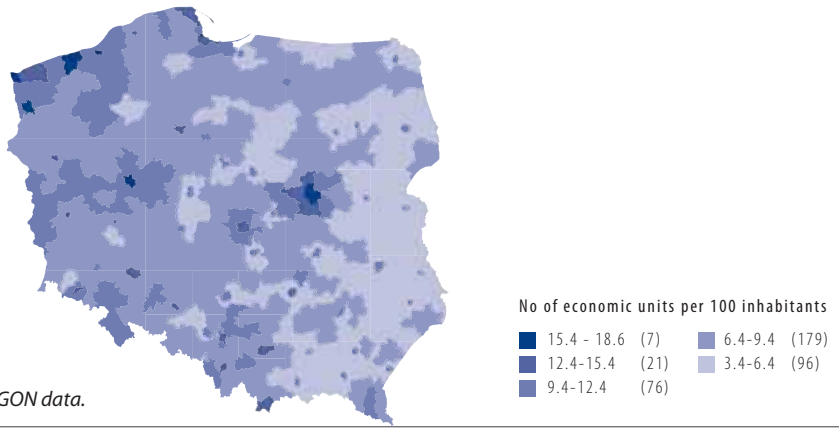
In the subsequent part of this chapter, we investigate the question of productivity and its growth at the regional level. From a microeconomic perspective, we analyse recent developments in labour productivity in recent years , linking it to developments in employment and wages. Throughout this part, we use micro data on enterprises drawn from the financial statement database *TEGIEL*,[22] which covers approx. 30,000 companies registered within the territory of Poland, operating in all sectors apart from banking and insurance. The above-mentioned data covers the period 1995-2004. Due to largely incomplete and imperfect data, the final number of companies included in this analysis amounts to approx. 10,300.[23]

2.1. Entrepreneurship, creation and development of new firms

In the 1990s, a considerable expansion of entrepreneurship could be observed in Poland. In the period 1993-2005, the number of enterprises grew by more than 1.5 million.[24] The greatest increase in the number of newly-registered enterprises was recorded during the period of rapid economic growth in 1995-1998. A vast majority (around 98 per cent) of the newly-registered enterprises had a similar profile – they were small entities with up to 9 employees (the so-called microenterprises). In 2004, out of the officially existing 3.4 million microenterprises, around 1.65 million were actually operating and they employed approx. 3,400,000 people.[25] The number of large enterprises amounted to more than 40,000 units, employing in total 4.4 million people.

The expansion of entrepreneurship was not, however, homogeneous across the country. The largest number of new economic units (per capita) emerged in the mazowiecki region and – surprisingly enough – in the zachodniopomorski region. The least enterprises operate in the lower-developed, rural areas in eastern Poland (for instance, the number of microenterprises per capita in the podkarpackie voivodeship is nearly twice smaller than in the zachodniopomorskie voivodeship).[26] Moreover, the share of entrepreneurs in the total employment excluding agriculture is strongly diversified depending on the size of place of residence – it is lowest in rural areas and highest in towns of up to 2,000 inhabitants, where most probably scarce employment opportunities encourage people to set up their own businesses (80 per cent of them do not employ anyone, compared with the 62 per cent average for Poland) offering simple services. On the other hand, larger cities normally house enterprises that offer "high-productivity" services. Map II.5. presents a geographic distribution of enterprises in Poland.

Map II.5.
Number of registered economic units per 100 inhabitants by poviats in 2004



Source: Own calculation based on REGON data.

[22] This database has been made available to IBS by the company Infocredit, which cooperates with the leading European database producer – the Belgian company Bureau Van Dijk on establishing a standardised base of financial statements of companies from all around Europe, called AMADEUS.
[23] They are companies employing at least 20 persons. More than 75 per cent (i.e. 7,500) of companies included in the database employ at least 50 persons, which constitutes a substantial part (approx. 25 per cent) of the total number of enterprises employing 50 employees or more registered with REGON (National Official Business Register).
[24] These data derive from REGON where all newly-established enterprises are registered. Unfortunately, liquidated enterprises had not been removed from the register on a regular basis (as it is a time-consuming process) and it is estimated that even as many as half of the entries in REGON may be outdated.
[25] For more than 75 per cent of them, this was the main work place.
[26] Regardless of the imperfect nature of data derived from REGON, these observations are confirmed in LFS data (share of people working on their own account in the total number of the working population excluding agriculture).

It is worth noting that the correlation between the number of economic units operating within a given poviat and the indicators characterising the labour market situation is weak, although statistically significant. By excluding poviats with an above-average share of agriculture considerably increases the correlation between the above-mentioned variables (according to data for 2004, it amounts to 0.6). The level of economic activity of a given region is very closely related to the level of entrepreneurship within such region and it results in better labour market performance.

Box II.5. Entrepreneurship

Entrepreneurship, in its broad meaning, is one of the key elements of economic growth. The role of enterprises in stimulating social and economic development was emphasised, among others, by Joseph Schumpeter, who presented – in his creative destruction theory, how the emergence of new enterprises affects productivity and market efficiency by introducing competitive pressure.

The creation of new enterprises is determined by both pull factors, such as rising demand in particular sections or regions, decreased competition from other companies) and push factor:. for instance, limited alternative employment opportunities, but also tax system solutions, product market regulations, access to financing, etc.

2.1.1. Regional disparities in economic activity in Poland

A vast majority of the analysed enterprises are located in *Development centres.* This is due to relatively high levels of entrepreneurship in these poviats as well as to the nature of database used for the purposes of this study.

Development centres attract above all service providing enterprises. Their share in employment is higher by almost half than the national average, alongside a low share of employment in industry. Moreover, more frequently than in other regions, these enterprises operate in the high-productivity services sector (financial intermediation, real estate management), and therefore they require highly qualified staff. The highest share of higher education graduates in the country is no doubt one of the factors that determine the localisation of enterprises in poviats belonging to this cluster. Warsaw and its surrounding areas have a special position in *Development centres* because this is where an extensive share of foreign direct investment has been channelled (Wiśniewski 2005), thus enhancing the creation and development of numerous high-productivity enterprises which dispose of advanced technologies and *know-how*. Other research (see Cieślik, Kaniewska 2004) demonstrated that the localisation of enterprises with foreign capital had been largely affected by the conglomeration effect and the available telecommunications infrastructure, which also constituted an incentive to invest and set up companies in *Development centres*.

In the remaining clusters, industrial enterprises dominate. In particular, in poviats belonging to *Former state farms,* more than 64 per cent of the employees work in the manufacturing.[27] In *Towns,* it is also services that are of importance, however, they are above all simple services.

2.1.2. Where are new jobs created?

During the last decade, *Development centres* have been most successful in terms of entrepreneurship. Both the number of companies and employment have been growing faster than the average rate in the country.[28] Their structure has also been changing for the better – the share of people working in industry has declined in favour of the service sector. The scale of entrepreneurship in *Development centres* is also reflected in the REGON data, according to which, in 2005, the number of economic units registered in *Development centres* per capita was higher by half than the national average.

In *Suburbs,* in 1996-2004, employment in enterprises grew at a marginally higher rate than in the other regions of Poland (apart from *Development centres*). In these areas enterprises were relatively most rare to be set up, however, they were also the largest. Economic units operating in *Suburbs* in mid-1990s were gradually decreasing employment, whereas employment in newly-established enterprises was on the rise. The job reallocation occurred both within particular industries and between sectors.[29]

[27] The enterprises are, on the one hand, involved in unmodernized industry, and on the other – new companies operating in manufacturing set up in SEZs.
[28] Please note that we are talking here about different data than these analysed in the previous chapter. We are now looking at a different group (previously – entire working population, now – only enterprises entered in the database), but above all the database used in these calculations presents the working population by work place, whereas the previously used LFS data presents them by place of residence. Therefore, the increase in employment in enterprises from *Development centres* that can be observed in Table II.14. is in line with the observations pertaining to the positive impact of this cluster on *Suburbs* – and in particular on the employment of the inhabitants of *Suburbs* in *Development centres*.
[29] The share of employment in simple services grew, similarly to employment in enterprises offering public services, such as education, healthcare, waste management, sport and leisure.

Table II.14.
Employment in enterprises by clusters in the period 1996-2004

	Average employment 1996 Poland=100	Average employment, 2004 Poland=100	Change in the number of firms 1996 – 2004 Poland=100	Overall change in employment 1996 – 2004 Poland=100
1 - Development centres	114	115	108	112
2 - Suburbs	85	97	87	102
3 - Towns	95	97	88	87
4 - Formers state farms	84	82	98	94
5 - Low-productivity agriculture	130	87	123	71
6 - Agricultural and industrial	84	83	109	109
Total	100	100	100	100

Source: Infocredit data.

The situation in *Towns*, compared with other clusters, was very unfavourable; the increase in the number of enterprises was much lower than Poland's average, and the same applied to the increase in employment. Moreover, these regions were characterised by the lowest job creation rate and the lowest survival of jobs (see Box II.7.). However, this gloomy picture based on data from individual enterprises is negated by the relatively good labour market performance. It seems that the above phenomenon can to some extent be explained by scarce data on the smallest companies in the database that we refer to in our analysis. This assumption is supported by the relatively high number of newly-registered enterprises (based on REGON data) out of which the share of microenterprises was pre-eminent. Thus, it can be acknowledged that *Towns* was largely a market filled with microenterprises which stimulate their economic activity and thus affect the labour market situation in a positive manner. What is more, large employer activity, including high-productivity foreign investment, in these regions is rather unimpressive. The above is coherent with the observation that although the situation in *Towns* is relatively good in terms of labour market indicators, it has deteriorated in the recent years in relation to the remaining clusters.

Large share of employment in industry was typical for poviats belonging to *Former state farms,* although the reallocation of employment from industry to services in 1995-2004 was evident. This group is strongly heterogeneous. Regardless of a relatively low overall indicator of the number of firms per capita, it includes poviats where the level of entrepreneurship is high. Importantly enough, compared with other clusters, *Former state farms* have the largest share of enterprises from poviats where Special Economic Zones are located. It can be assumed that investment generated by SEZs contributed to the substantial development of local enterprise in these regions.

In the period 1996 – 2004, the number of enterprises grew most in poviats from *Low-productivity agriculture,* although, at the same time, the increase in total employment in enterprises in this region was the lowest. The above resulted from a substantial decline in average employment in firms – much to a surprise, in the mid-1990s, the average number of employees in enterprises in this cluster was the highest in Poland. This was largely due to very low initial level of small entrepreneurship. These poviats accommodated above all large enterprises operating in the declining sections of industry. A vast majority of them have substantially lowered employment in the course of the last decade (in total, it declined by more than 40 per cent), which implies large-scale restructuring. In the examined period, in *Low-productivity agriculture*, there occurred a diversification of activity as new enterprises started to operate – in manufacturing as well as in trade and services, although on a smaller scale than in the other parts of the country. REGON data confirm that irrespective of a significant increase in the number of enterprises, the level of entrepreneurship (measured by the number of firms per capita) in these regions is still the lowest in the country. It can be observed that the creation of enterprises in *Low-productivity agriculture* is not followed by their resulting development or by an increase in employment. As opposed to the tendencies observed in *Former state farms* and in *Agricultural and industrial,* where both the number of enterprises and employment were of the rise, in *Low-productivity agriculture*, there exist certain structural obstacles to the development of entrepreneurship and the improvement of the economic situation. These obstacles include large share of employment in agriculture and low incomes of population, as well as limited professional qualifications of the labour force.

Interestingly enough, in poviats belonging to *Development centres, Former state farms* and *Low-productivity agriculture*, the numbers of newly-established firms (and in the case of the first two groups – also of the existing ones) vary substantially depending on the existence of SEZs within a given poviat (see Box II.3). Barak (2001), in his research on foreign investment in Poland, noted that foreign investment was partly channelled to "old industrial areas" in order to renew the physical capital. Hence, SEZs were frequently established in these regions – at least at the beginning, however, these initiatives resulted above all in an increased productivity and not employment.

Box II.6. One-person enterprises

The survey of one-person enterprises conducted in 2004 at the request of the European Commission made it possible to compare the situation and specificity of the self-employed in Poland with results from eighteen other European countries. One-person enterprises in Poland distinguish themselves in terms of their experiences in the scope of their own development – half of the respondents declared that they had been employing an employee under a regular contract in the past, compared with 28 per cent in Europe. It can be assumed that the reduction of size of microenterprises to their owners only was connected with the economic slowdown in the period preceding the survey. What is more, the expectations [in Poland] as to the hiring of employees in the future were also higher.

One-person enterprises in Poland also distinguish themselves when it comes to their answers to the question about the number of institutions that they would have to deal with when hiring an additional employee. More than 40 per cent of entrepreneurs in Poland reckon that they would have to deal with three or more institutions, which is by far the highest result out of all examined countries. Moreover, relatively many Polish companies regard recruitment procedures as time-consuming (40 per cent of the respondents pointed out that administrative procedures enabling the hiring of the first employee would last more than one week, compared with 31 per cent in the rest of the EU).

In comparison with the other examined countries, Polish entrepreneurs were least likely to confirm that there was a possibility that the hired employee begins his work immediately (23 per cent of responses, compared with the average of 28 per cent in the EU, and 39 per cent in Estonia which scores highest in the above respect).

Source: European Commission, Flash barometer, Hiring and employment procedures for one-person-enterprises, 2004.

2.1.3. Existing jobs

The situation in local labour market depends not only on whether and on what scale new enterprises are set up, but also on their development potential. The process of increasing employment by existing firms is determined by a range of factors at micro- (above all, by productivity and management efficiency within companies, access to capital and technologies) and macro-levels (economic situation in the country, in global and local markets). Research on changes in employment in enterprises, covering the period of economic transformation (early 1990s), mostly confirmed the opinion that state companies – sustained by soft budgetary constraints – were characterised by inertia in employment restructuring processes. This means that excessive labour resources, inherited from the socialist era, were not shed (? were retained?). Relevant adjustments on the part of enterprises started to show in the second half of the 1990s, although available research point to a substantial heterogeneity of companies in this respect and an assymetry in adjustments– companies which saw decreasing revenues would lower employment, however, increasing revenues were necessarily resulted in increased number of staff. The scale of adjustments depended, above all, on the size of a given company, its ownership structure, and the conditions in the local labour market (Grosfeld, Nivet, 1997). Mickiewicz, Gerry, Bishop (2004), who studied a panel of large Polish companies in the later period (in 1996-2002), proved that in fact increased employment was a consequence of changes in revenues, in both new private-owned companies and in privatised companies, but not in state companies. What is more, employment response to negative demand shocks (decrease in revenues) was much lower in the state sector. The local labour market situation proved unimportant in the analysed model. Moreover, the authors demonstrated that increasing employment was associated with better regional infrastructure.

Survival of new jobs in Poland varies considerably across regions. Companies that increase employment tend to preserve them for a relatively long time in *Development centres, Suburbs* and in *Agricultural and industrial.* Chances of preserving increased employment are slimmest in the case of companies that operate in poviats belonging to *Towns* and *Former state farms.* Box II.7. presents hazard functions (of declining employment) using Cox regression model for enterprises that increased employment in 1998. Greater survival rates of jobs created in *Development centres* result, to some extent, from the sector structure of enterprises operating in these poviats and from the relatively low share of employment in companies operating in industries characterised by higher risk of employment loss.

Box II.7. Survival analysis

Survival analysis allows for examination of time (interval) until a specific event occurs (e.g. company close-down, employment reduction). This interval is commonly referred to as survival time. Its goal is to assess the probability of survival past a certain time t and the cumulative survival function provides a total proportion of cases surviving until a given point in time (assuming that the probabilities of survival are independent across intervals). The cumulative hazard (risk) function is a non-survival function which models the probabilityof the given event occurring in that time period, given survival through all prior time intervals (for instance, the probability that a company which has been operating for 5 years closes down in the sixth year of operation).

One of the most general and popular regression models used in survival analysis is the Cox proportional hazards model. It does not specify any baseline hazard rate.. This model identifies the incidence of risk in time t for the analysed combination of independent variables. It can be expressed as the following formula:

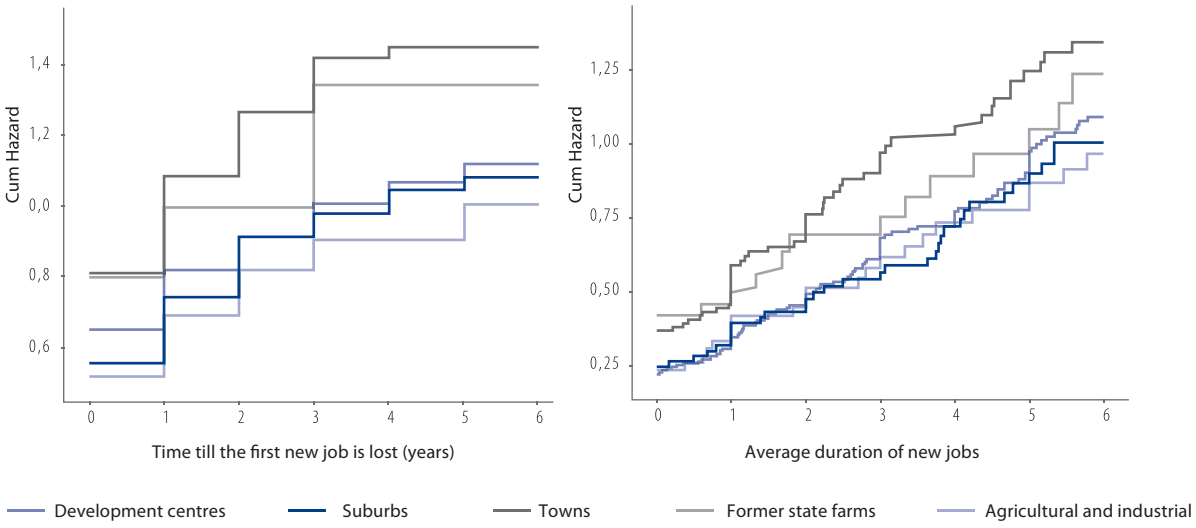
$$h(t : x_1, x_2, ..., x_n) = h_0(t)e^{\sum_{i-1}^{n} a_i x_i}$$

where $h(t: x_1, x_2, ..., x_n)$ is the resulting hazard function with given n explicatory variables $x_1, x_2, ..., x_n$ In the Cox model formula, the hazard is calculated as a product of two values: $h_0(t)$ is n unspecified baseline hazard or zero line hazard (i.e. hazard where the values of all independent variables are equal to zero); the second component, after taking the logarithm, gives a „simple" linear model, which makes the model easy to estimate. For two units with identical explanatory variables the estimated hazard rate will be constant in time, hence the name of the model (proportional hazard model).

Using the Cox hazard model, we have studied changes in employment in firms. We have included the following dependent variables: time until the loss of the first of the new jobs in the company and average duration of the new jobs. It ensues from our analysis that age of the company impacts the survival of jobs (every year increases the probability of employment reduction by approx. 1.5 per cent) as well as its size (it marginally increases the probability of decline in the number of employees). Moreover, sector coefficients – although insignificant – indicate that companies operating in industry face higher, and those operating in simple services, lower probability of employment reductions than enterprises from the high-productivity services section (I – K).

Chart II.11. presents hazard functions for time until the loss of the first new job in a given company and for the average duration of new jobs, in accordance with the methodology of Boheim et al. (2005). Jobs created in 1998 constitute a point of reference in our analysis. In both analysed cases, hazard function curves for jobs created in companies operating in *Towns* and *Former state farms* reach highest, and thus the probability of employment reduction at any time is higher. The lowest risk of new jobs loss is typical for regions in *Agricultural and industrial* and *Suburbs*.

Chart II.11.
Hazard functions for time until first new-created job is lost (left graph) and average duration of new jobs (right graph)



Source: Own calculations based on Infocredit data.

2.2. Creation, destruction and reallocation of jobs s in regional perspective

Creation and destruction of jobs is a lasting element of every market economy. Turnover of workers is to some degree natural and is connected with retirement decisions or voluntary resignations as well as dismissals. The intensity of such flows on the labour market determines its flexibility which allows for a rapid reallocation of resources to more productive firms and thus for a more effective utilisation of labour resources. In the United States, one in ten employees quits his/her job every quarter (Davis et al. 2006). What is more, it is also workers' flows between companies that are important. According to research presented by Hamermesh et al. (1996), in Dutch enterprises a substantial share of successful recruitments occurs in companies which actually limit employment.

Box II.8. Job creation and destruction

Thanks to firm level data, the analysis of job flows on the labour market allows to investigate a very interesting part of the labour market, namely job creation and destruction at the company level. This analysis uses the following indicators: job creation, destruction and reallocation rates, as well as net employment growth and excessive reallocation.

Job creation rate is calculated as the total employment gains in companies expanding in the period (t-1, t) in relation to employment in all companies at time t-1. Job destruction rate is the total of destroyed jobs (i.e. difference between employment at t-1 and t in companies which have reduced employment) in relation to employment in all existing companies. The sum of the above two rates is referred to as gross reallocation rate, whereas the difference between them as net employment growth. The difference between the gross reallocation rate and the absolute value of net employment growth provides the "excess reallocation" rate.

By referring to the above-mentioned indicators, we can characterise the flexibility of a given labour market. A net decrease (increase) in the number of jobs can result from a range of events – liquidation of an according number of jobs without creating new ones – or from a much higher job destruction rate alongside a positive job creation rate. Higher job creation and destruction rates indicate that a given market is dynamic and that it experiences an unending relocation of labour resources.

The excess reallocation rate is treated in the literature as an approximation of the restructuring index which reflects its intensity. If a given company wishes to survive (prevail over other competitors operating in the market), it is compelled to modify the production structure, dismiss ineffective employees and hire performing ones. If indeed there is a reallocation of resources from exiting firms to the ones entering the market, as well as between sectors and regions, one might reasonably expect that the excess reallocation rate and level of restructuring are positively correlated.

In our analysis, we have employed the methodology proposed by Davis and Haltiwanger (1990), and used also by Faggio and Konings (2001). We have decomposed the excess reallocation rate between- and within components, in accordance with the following formula:

$$GJR * Z_{t-1} - |NEG * Z_{t-1}| = (\sum_{p} |NEG_r * Z_{t-1}| - |NEG * Z_{t-1}|) + \sum_{p} EJR * Z_{t-1}$$

where GJR is the gross reallocation rate, Z is the size of employment, NEG – net employment growth rate, EJR – excess job reallocation and p stands for a regional unit (this analysis has been conducted for both clusters and poviats). In 1997, approximately 34 per cent of "excess job reallocation" in enterprises was still occurring between clusters (employment decreased mainly if firms operating in *Development centres* and *Former state farms*). In later years (1998-2001), employment was declining in all regions and all reallocation of jobs took place within clusters. This trend continued also following the year 2003 thus confirming the claim that the improvement of the labour market situation and the increase in employment applied to all clusters.

Table II.15.
Reallocation of jobs within and between poviats

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004
Between	79%	36%	21%	26%	28%	31%	42%	32%
Within	21%	64%	79%	74%	72%	69%	58%	68%

As from 1998, employment reallocation between enterprises has been taking place, also at the poviat level, above all within such local labour markets.

Table II.16. demonstrates how the rates of job creation and destruction evolved in Poland in the period 1997-2004. Prior to 2003, employment in existing companies has been on the decline, which is in line with the general employment developments at the level of enterprises (employing more than 9 people) in the economy of that time. The only episodes when there were substantial divergences in relation to the available data on all enterprises in Poland took place in 1998-1999 and 2001-2002. During the period of crisis and economic slowdown, the decrease in the number of jobs in the existing companies was much greater than the total net employment fall. This proves that the net entries of companies into the market (entries of new companies minus exits of the existing ones) largely mitigated the situation in the labour market.[30]

[30] This difference can probably also be explained by under representation [of small firms (less than 49 employees) in our database. International research indicates that in case of an economic slowdown these companies exhibit slower and lower decrease in employment than in the largest companies (PARP, 2001).

Table II.16.
Job flows in the period 1997-2004 (percentages)

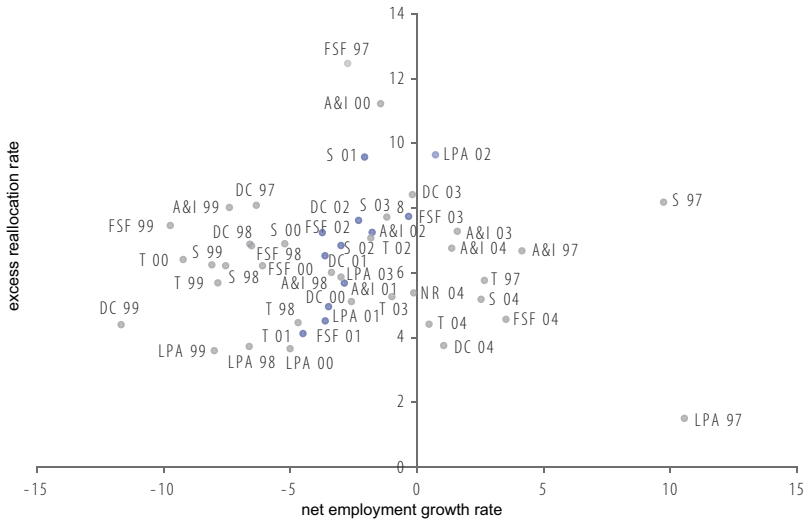
	Job creation rate	Job destruction rate	Gross reallocation rate	Net employment change	Excessive reallocation rate
1997	5.8	7.3	13.1	-1.6	11.5
1998	3.0	9.1	12.1	-6.0	6.0
1999	3	13	15	-10	5
2000	3.0	7.3	10.3	-4.4	6.0
2001	3.0	6.6	9.6	-3.6	6.0
2002	3.8	5.9	9.7	-2.2	7.6
2003	3.8	4.3	8.1	-0.5	7.6
2004	3.5	2.3	5.8	1.2	4.5

Source: Own calculations based on Infocredit data.

These job flows were not, however, evenly distributed across the country. Job creation was characterised by relatively low differentiation in the examined period, although in *Towns* and *Low-productivity agriculture,* in 1998-2001, it was much lower than in the other regions. Downsizing took place in companies from all clusters and was determined by high job destruction rates, which increased substantially in 1999. What is more, companies in *Towns* reacted to the economic crisis of 1998 with a slight delay and the greatest decrease in employment occurred there in 2000 (see Chart II.13.). The reaction of companies that continued operation to the economic revival was the weakest in *Low-productivity agriculture*, which confirms the conclusions on their poor market position.

As demonstrated in Box II.8., the rate of excess reallocation is often treated as an approximation of the employment restructuring that takes places in the market. It is widely argued in the literature (e.g. Faggio and Konings, 2001) that greater "turbulence" in the labour market (measured in excess reallocation) leads to a greater employment increase. The above authors, in their analysis of regional labour market developments in a number of CEE countries, observed a positive correlation between the excess reallocation rate and net employment growth. Similar correlations (although substantially varied in time) were observed in the clusters that we have singled out (see Chart II.12). Although the excess reallocation within clusters for the entire examined period (1996-2004) was not correlated with net employment changes (coefficient of correlation for the entire period is close to zero), during the period of crisis of the end of 1990s, and even more so during the economic slowdown of 2001-2002, high rates of excess reallocation evidently correlated with the increase (or lower decrease) in net employment (coefficient of correlation for the period 2001-2002 amounted to 0.79).

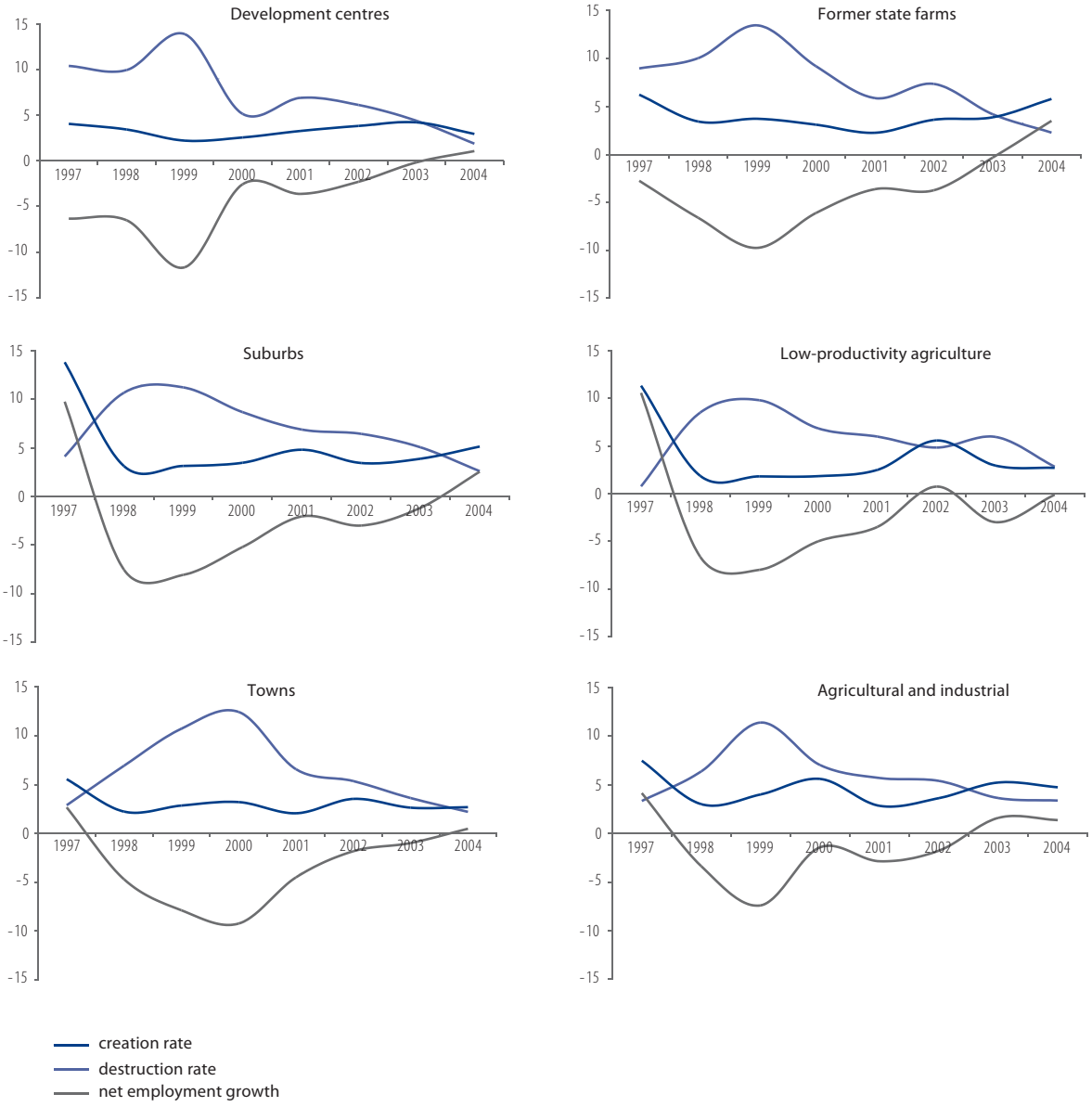
Charts II.12.
Net employment growth and excess reallocation rate in clusters in the period 1996-2004



Blue dots represent values for 2001-2002.

Source: Own calculations based on Infocredit data.

Charts II.13.
Job flows within clusters in the period 1997-2004



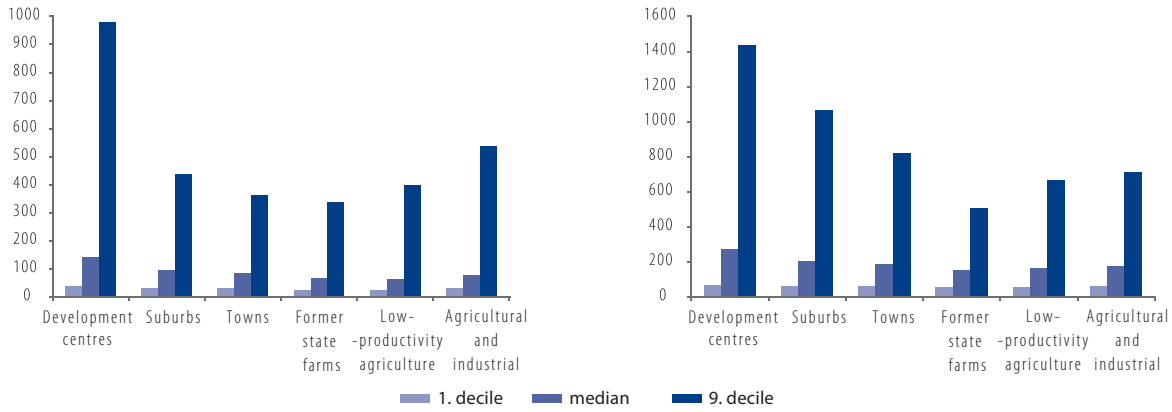
Source: Own calculations based on Infocredit data.

Faster and deeper restructuring and reallocation of jobs to more efficient and productive firms was mitigating total employment falls in enterprises. Moreover, restructuring i that took place at that time often exerted a positive influence on labour market performance in the later years – correlations between the employment growth in 2004 (in poviats) and the rate of excess reallocation in 2001-2002 are weak but statistically significant. During boom periods, the situation would change radically – in regions where companies increased employment at a higher rate, the excess reallocation rates were lower. However, the rates of jobs creation in poviats in 1996-1997 and then after the period of economic slowdown (2004) are not correlated, which indicates that the "regional map" of firms traditionally increasing employment has changed. The literature provides evidence that employment growth tends to be greater in companies located in regions with better infrastructure (see Mickiewicz, Gerry and Bishop, 2004). Aidis and Mickiewicz (2005) have demonstrated that regional job creation in was enhanced by the region's links with foreign markets. Rutkowski and Przybyla (2002) have proven also that job creation rates are positively correlated with infrastructure indicators (such as the number of telephone lines) as well as with the level of human capital. These results seem to be further supported by our analysis which implies that the highest level of entrepreneurship achieved in *Development centres* is related to their relatively highest levels of infrastructure and human capital, which we had taken into account when creating the six clusters of regional labour markets.

2.3. Productivity and employment in regional perspective

In this section, we make an attempt at answering the question about the degree of regional disparities in productivity between Polish companies and about their potential sources. The level of firm productivity[31] in particular clusters was characterised by significant – although declining with time – differences demonstrated in Chart II.14. Both in 1995 and in 2004, enterprises from *Development centres* distinguished themselves by the highest productivity, nearly twice higher than productivity in the worst-performing - in terms of productivity- enterprises in *Former state farms* and *Low-productivity agriculture*. Although differences between regions for the worst and average productive enterprises (i.e. at the level of 1st. and 5th. decile) were diminished in the course of the examined decade, the gap between companies with the highest productivity in *Development centres* and *Former state farms* persisted, which points to the inability of the latter to attract capital and high-productivity investment. The situation got much better in this respect in *Suburbs* and *Towns* where a number of enterprises with above-average productivity emerged in the period 1996-2004.

Chart II.14.
Average firm-level productivity by clusters in the years 1995 (left graph) and 2004 (right graph)



Source: Own calculation based on Infocredit data.

Regional differences in productivity result from differences in the sector composition of firms within clusters as well as from differences in the firms productivity among particular sections. The level of firm-level productivity depends on a range of factors which characterise a given enterprise (i.e. section of the economy, where it operates, its ownership structure, capital intensity, level of innovativeness, etc.). Available literature[32] indicates that certain characteristics of the region where a given company operates may also play a role. Among these, the significance of conglomeration effects (including the so-called s*pillover effects*, knowledge and skills diffusion patterns) is particularly worth stressing. According to research conducted in Great Britain (Boddy et al., 2005), it is population density in particular regions and distance (time of travel) from the capital that shape differences in productivity between regions. Other factors include production structures of particular regions (regions with high productivity are often characterised by a large share of employment in services, although their structure is also of importance[33]), as well as human capital levels in a given region.

Data on Polish enterprises indicate that the correlation between the level of firm productivity and population density in the poviat where it operates is weak, but statistically significant. These observations were reflected in a regression analysis, the results of which we present in Table II.17. The above-mentioned analysis demonstrated that greater population density in a given poviat is associated with higher average company productivity. Population density is an indication of the size of local labour markets and it most probably translates into economies of scale for entrepreneurs, thus leading to higher average productivity. Moreover, the structure of production in a given poviat is also significant, and even more so the share of employment in industry because the latter is negatively correlated with the average level of productivity.[34] Firm level productivity is also positively influenced by local employment rates although the direction of this causality is not obvious. The results of our analysis are in line with the observations of similar phenomena in other countries, namely that often "younger" companies are characterised by higher productivity. What is more, enterprises operating in some sections of the economy typically exhibit substantially higher productivity than companies that offer "other services" (section 93) – these are the sections that have been highlighted in bold in Table II.17.

[31] In this chapter productivity is approximated by revenues from sales per one employee.
[32] See for instance "European Competitiveness Report 2003" by the European Commission.
[33] For instance, tourism-related services are characterised by relatively lower productivity.
[34] Which is rather astonishing. Nevertheless, data from regional accounts confirm that productivity in services is in most regions slightly higher than productivity in industry.

Table II.17.

Estimation results of parameters in the model explaining labour productivity in enterprises in the period 1995-2004

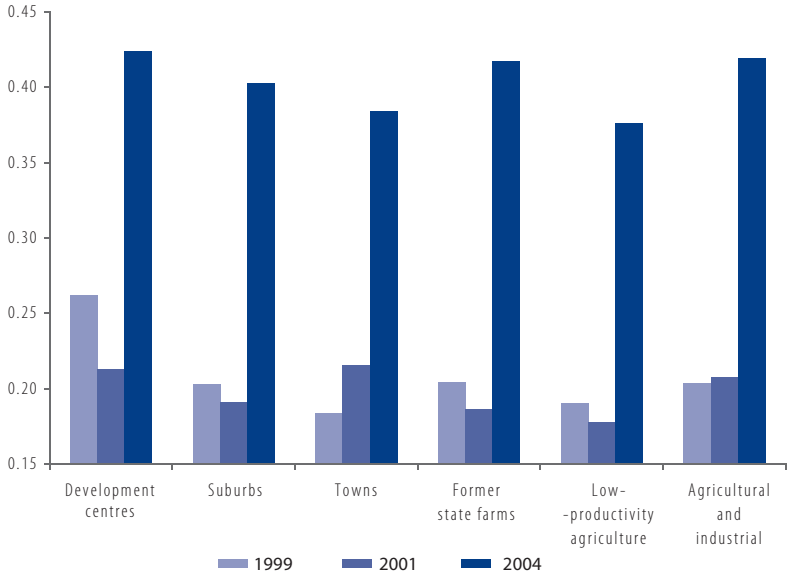
parametr	Estimates	Standard error	Significance level
constant	123.6	172.6	.474
employment in industry, % in 2004	-273.5	81.7	.000
firm age (2004)	-2.2	.293	.000
NACE			
Mining and quarrying	257.4	248.5	0.30
Mining and quarrying of energy producing materials	150.4	198.6	0.45
Mining and quarrying, except of energy producing materials	130.3	184.7	0.48
Manufacture of food products, beverages	376.5	172.6	0.03
Manufacture of tobacco	2096.9	328.2	0.00
textiles	149.8	183.9	0.42
Manufacture of wearing apparel	84.9	184.3	0.65
Manufacture of leather and related products	103.0	205.7	0.62
wood and of products of wood and cork	249.7	182.6	0.17
Manufacture of paper and paper products	395.7	185.6	0.03
Printing and reproduction of recorded media	140.0	180.7	0.44
Manufacture of coke and refined petroleum products	1408.4	270.7	0.00
Manufacture of chemicals and chemical products	380.3	178.2	0.03
Manufacture of rubber and plastic products	254.2	177.2	0.15
Manufacture of other non-metallic mineral products	209.4	176.5	0.24
Manufacture of basic metals	395.8	186.7	0.03
Manufacture of machinery and equipment	171.4	174.6	0.33
Manufacture of office equipment	1019.2	305.3	0.00
Manufacture of computer, electronic and optical products	138.3	180.9	0.45
manufacture of radio, tv and communication equipment	284.7	197.1	0.15
manufacture of medical instruments	94.4	190.6	0.62
manufacture of transport equipment	392.4	186.8	0.04
manufacture of other transport equipment	146.8	194.3	0.45
manufacture of furniture	194.9	178.9	0.28
recycling	462.2	223.0	0.04
electricity, water and gas supply	248.3	174.7	0.16
Collection and distribution of water	73.5	178.4	0.68
construction	158.4	171.8	0.36
sale of motor vehicles	1115.4	174.6	0.00
wholesale and commission trade	996.6	171.0	0.00
retail trade	233.2	174.1	0.18
hotels and restaurants	-35.6	188.8	0.85
land transport	99.0	174.6	0.57
water transport	602.3	297.2	0.04
air transport	90.2	539.754	0.87
supporting transport activities	300.9	178.3	0.09
post and telecommunications	534.1	200.7	0.01
financial intermediation	837.7	185.6	0.00
insurance	419.6	281.1	0.14
auxiliary activities to financial intermediation	1873.2	219.2	0.00
real estate	299.7	172.9	0.08
renting of machinery and equipment	640.9	260.3	0.01
IT	134.5	182.3	0.46
R&D	-42.5	183.3	0.82
other business activities	315.5	174.2	0.07
public administration	2730.8	422.9	0.00
education	-21.7	185.8	0.91
health and social policy	23.7	177.9	0.89
sewage disposal	62.0	183.4	0.74
Activities of membership organizations	-91.9	286.8	0.75
cultural activities	359.2	188.1	0.06
employment rate	58.8	6.8	0.00
population density	16.0	6.6	0.02

* "Other service" serve as a reference group (93).

An increase in productivity of a given enterprise depends above all on its individual features (such as level of innovativeness, ownership structure, size, etc.) and to a lesser degree on the macroeconomic environment or section of the economy in which it operates (Bukowski et al., 2006b). The decline in the differences in the average level of company productivity between clusters in 1995-2004 was mainly due to the rapid increase in productivity in companies with the lowest initial levels of productivity (Bukowski et al., 2006b), which were more numerous in worse-performing – in terms of productivity – clusters. The factor of localisation of an enterprise in a given region was of no intrinsic significance for changes in its productivity.

The substantial increase in productivity in the recent years – at the level of the entire economy – has been accompanied by a considerable decrease in employment. At the same time, data on individual firms show a far-reaching heterogeneity of the situation in the above respect: companies which saw an increase in productivity mainly at the expense of employment operated alongside expanding companies which saw increasing productivity and employment. Their share was subject to considerable fluctuations – it was lowest during the period of economic slowdown in 2001-2002, and it grew rapidly in 2003-2004, that is as soon as the economic situation improved (see Chart II.15.).

Chart II.15.
Share of enterprises increasing productivity and employment against all enterprises



Remark: due to the specificity of the data base, enterprises increasing employment / productivity include also those enterprises that declare no changes in relation to the previous year.

Source: Own calculations based on Infocredit data.

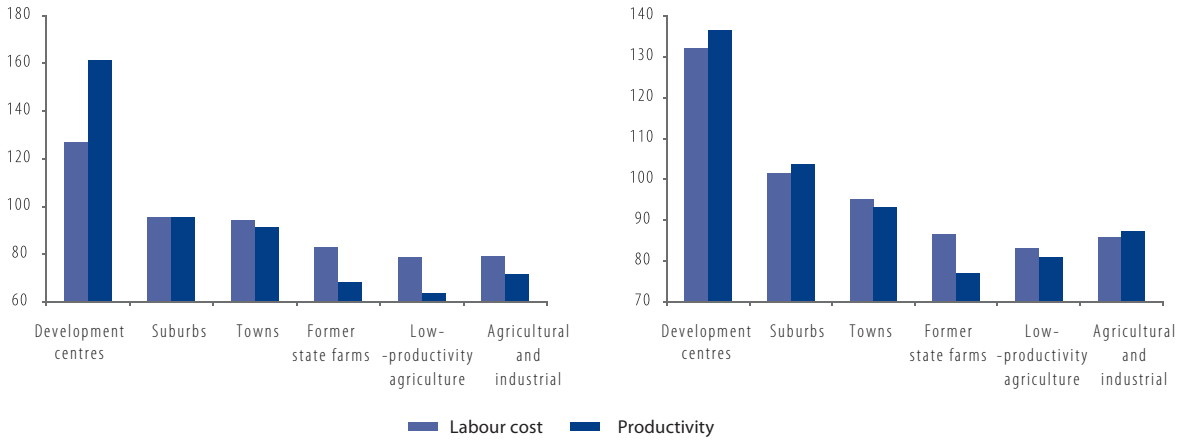
Regional differences in the extent of "defensive restructuring" (understood as enhancing productivity at the expense of employment) were significant especially during the period of economic crisis towards the end of the 1990s and during the period of slowdown in 2001–2002, when the share of enterprises increasing productivity and employment in *Development centres* was twice larger than in *Towns*. Moreover, the above observations confirm that *Towns* were most affected by the decline in economic activity and by the restructuring processes. In the later period, differences between clusters were scaled down.

During the economic transformation of the early 1990s, some 20-25 per cent of companies entered or exited the market in the CEE countries every year (compared with 10 per cent in the OECD countries). According to the World Bank data, the entry of new firms at that time accounted for the creation of approx. 40 per cent of all jobs in Estonia, Hungary and Latvia, and as much as 70 per cent in Romania and Slovenia (Rutkowski, Scarpetta, 2005). Moreover, the correlation between the number of new firms in a given country or sector and total job creation was much stronger in the transforming countries than in the case of mature OECD economies. On the other hand, however, job destruction was effectively not associated with firm exit because the job destruction resulted almost completely from job reductions in companies which continued operating. As the economic transformation unfolded, job flows in the labour market became similar to those observed in mature market economies, where job creation and destruction is related above all to adjustments within companies and not to their entry and exit.

Regional discrepancies in firm-level productivity between the examined clusters, in accordance with the classical economic theory, should be reflected also in differences in average labour costs incurred by companies. The latter differences seem to be much smaller than differences in revenues from sales per employee. Although, in 2004, in the distribution of average labour cost in enterprises at

the poviat level the 9th. decile was higher than the first by a little bit more than 60 per cent, differences in productivity reached up to 260 per cent. As demonstrated in Chart II.16., particularly enterprises in poviats belonging to *Former state farms* were characterised by relatively high wages in relation to productivity. These observations may suggest there exists downward wages rigidity, which even in companies with relatively low productivity are not shaped freely.

Chart II.16.
Median value of labour cost and productivity in enterprises in the years 1998 (left graph) and 2004 (right graph), Poland=100



Remark: Productivity measured by revenues from sales per employee.

Source: Own calculations based on Infocredit data.

Differences in productivity and labour costs incurred by companies in different regions remain extensive, however, in the last couple of years, they have been largely scaled down. In 1998, average productivity of companies from the 9th decile of poviats was almost nine times higher than that on poviats from the 1st decile, whereas labour costs were only twice higher. As for the situation of companies in *Former state farms,* it changed only slightly as also in 1998 their average labour cost was relatively high in relation to productivity. Firms operating in poviats belonging to *Low-productivity agriculture* saw diminishing differences in the above respect, above all thanks to the relatively rapid growth in their productivity. As previously mentioned, the gap in firm productivity in *Former state farms* remained invariably high.

Summary

Disparities among **voivodeship labour markets** in Poland – in terms of both the unemployment rate and the employment indicator – are **average in international comparison**. At the same time, however, greater disparities among local (poviat) labour markets are evident – both within particular voivodeships and at the national level. One typical feature for Poland is the **lack of a strong correlation (at the subregional level) between the labour market situation and GDP per capita.** Although subregions with high GDP per capita are characterised by low unemployment, subregions with low GDP per capita include subregions with very low and very high unemployment. The above ensues from nominally good labour market indicators for subregions with a large share of employment in agriculture, which is largely backward and characterised by low productivity.

As much as differences between local labour markets are significant, there are certain similarities that can be captured between groups of poviats. In our cluster analysis **we have distinguished six such groups**, which we have symbolically labelled as *Development centres, Suburbs, Towns, Former state farms, Low-productivity agriculture* and *Agricultural and industrial*. Poviats belonging to these groups differ greatly as to the characteristics of their labour markets as well as other statistics describing the level of social and economic development. However, the analysis of changes in the labour market indicates that both between the labour markets of particular clusters and between voivodeships **the differences in the employment rates persisted over the years 2000-2005**. At the same time, however, there occurred significant changes in the level of output per capita, productivity and in the employment structure.

Best-performing *Development centres* not only maintain their dominant position but they are also able to generate positive outcomes in the labour markets of the surrounding *Suburbs*. This impact is reflected not only in employment and unemployment indicators but also in favourable changes in the sector structure of the economy and in labour productivity growth. *Towns*, although in many ways similar to *Development centres*, find themselves in the midst of stagnation and their position has been subject to gradual deterioration – not only in relation to *Development centres* but also to other clusters. In particular, *Towns* (with some exceptions) are not able to generate any greater positive outcomes for the neighbouring poviats. Some poviats belonging to *Former state farms*, recorded a substantial improvement in their situation, irrespective of the highest unemployment rate throughout the entire examined period. In particular, the above concerns those poviats that are located in the western part of Poland, however, this group was characterised by high degree of heterogeneity. *Low-productivity agriculture* did not change its relative position but it saw high labour reallocation from agriculture to industry and services. Growth of employment in industry at the cost of agriculture and services could also be observed in *Agricultural and industrial* cluster.

It is possible that the **increase in employment in industry in the last three clusters** (*Former state farms, Low-productivity agriculture, Agricultural and industrial*) **was accompanied by only a marginal increase in industry productivity**, however, this claim cannot be firmly asserted on basis of available data. Moreover, although regional differences in labour market indicators was scaled down, there emerged evident differences in GDP per capita and productivity (especially in industry). The above can be deduced from the fact that in large areas in Poland the improvement of labour market performance is due to the expansion of low-productivity and highly labour-intensive manufacturing. In the long term, this may mean that, firstly, the low ability of the Polish labour market to accommodate economic shocks will persist, and secondly, the absence of high-productivity industry will limit the expansion of services – accordingly, data on changes in the employment structure by clusters indeed evidence no increase in employment in services in *Agricultural and industrial*.

Our observations of changes in employment and productivity are further confirmed by the analysis of the situation in companies. In particular, data on firm entry and job survival are in line with the relatively good situation in *Development centres* and *Suburbs*, whereas low scale of economic activity (especially with respect to larger units) in *Towns* corresponds to the stagnation that has plagued poviats belonging to this cluster.

As for other clusters, it should be emphasised that in **rural areas the relation between the situation of enterprises and labour market indicators is less direct** because of the high employment in agriculture. Notwithstanding the above, firm – level data substantiate the rather good, although uneven, results of *Former state farms*, especially in poviats where SEZs are located, as well as certain reallocation and expansion of industry in *Agricultural and industrial*. When it comes to *Low-productivity agriculture,* one feature attracts attention, namely **very low level of economic activity** – both in terms of the number of existing firms and their results – however, also in this respect, there have been certain shifts in the employment structure, mainly due to the high dynamics of the firm entry..

As far as firm-level productivity is concerned, our analysis has revealed that **regions (i.e. location of firms) are relevant to their productivity.** What is more, as much as in the period 1995-2004, the distance between the median values of firm productivity in particular clusters was gradually decreasing, in the case of more productive companies (10th decile) this gap actually widened. This finding is fully coherent with the earlier observations concerning the increase in productivity disparities at the level of subregions.

Part III. Spatial Mobility

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Introduction

This Part looks at spatial mobility of human resources, which has been in the focus of interest of a number of social sciences – including, above all, demography, sociology and economics, but also psychology, political sciences and history. The terminology used in these research studies is rather varied and it does not constitute a coherent system. Therefore, for the avoidance of doubt, in Box III.1, we briefly present the forms of mobility which are the subject of our further investigations.

The purpose of the analyses presented in this Part of the report is to describe migration movements that are directly or indirectly connected with employment, namely **internal** and **international migration** as well as **work commuting**. For each of the above, we attempt at estimating the scale of migration and at assessing the factors which – at individual and aggregate levels – determine the probability of changes in residence. we put, at the same time, special emphasis on economic factors, including those which are directly or indirectly related to the labour market.

Alongside separate analyses of internal and international migration as well as work commuting, we give a lot of attention to mutual relations between these three forms of spatial mobility. We intend to determine to what extent these phenomena substitute or complement each other. In the conclusions, we also present an assessment of the potential impact that international and internal migration as well as work commuting have on the Polish economy and labour market in the medium and long term.

Box III.1. Analysed types of migration

The most important criteria that allow the identification of different types of mobility are (1) distance at which a given person moves and borders s/he crosses and (2) time spent away from the primary place of residence. The range of individual motives for change in residence is an essential – although often difficult to incorporate in the analyses – aspect of this concept.

Considering the distance and border criterion, we can distinguish **internal migration** (within a given country) and **international migration**. If we take into account the time spent away from the primary residence, we can make a distinction – commonly referred to in the literature on the subject – between (1) **work commuting** – when migration movements are daily there-and-back commutes between home and work, (2) **short-term migration** – when an uninterrupted stay away from the permanent place of residence lasts between approx. 2 and 12 months, and (3) **long-term migration** – when a stay away from the permanent place of residence lasts more than a year. We investigate work commuting alongside migration due to the substitutability of these forms of spatial mobility.

The literature on the subject sometimes also distinguishes permanent residence migration which refers to people who have fulfilled all the relevant administrative procedures (e.g. permanent stay registration at the municipal council). Bearing in mind the divergences – well-documented in the literature on the subject – between migration records and the actual scale of this process, it should be assumed that such approach is subject to a number of limitations and it may give rise to confusion (see, for instance, Bijak, Koryś 2006, Sakson 2002).

In accordance with the recommendations of the UN, a stay away from the primary place of residence should be uninterrupted for a certain period to be regarded as migration (internal or international, excluding work commuting) – where a period of 2-3 months is most commonly accepted as a minimum duration. It is also assumed in the research practice that shorter stays away from the primary place of residence do not usually entail employment and are more likely to be connected with tourism, business travels, etc. However, the above assumption is not always valid. The literature on spatial mobility of the CEE inhabitants gives an account of the phenomenon of **seasonal migration**, which consists in cyclical periods of approx. 7-8 weeks (Kaczmarczyk, Okólski 2005), when people engage – for a specified period – in work away from the place of their residence. This type of migration is typically connected with employment in sectors that are characterised by extensive seasonality (e.g. in construction, agriculture, hotel and catering services), often (although not always) outside the country of origin. Therefore, when estimating the scale of migration movements – especially international migration – we also account for seasonal workers, bearing in mind that they pursue different strategies of their stay and work away from the usual place of their residence than long-term migrants.

In our examination of various forms of migration, we also give attention to the phenomenon of **return migration.** This term refers to situations where people who had left and settled in a different country or region, return to the place of their original residence after a certain period. Irrespective of the fact that they have the potential to largely modify the long-term impact of migration movements on economies and labour markets of both **source** and **destination regions**, they constitute the least researched form of spatial mobility because data necessary for its quantitative description are either incomplete or unavailable. The above also gives rise to difficulties which hinder the establishment of an accurate assessment of population reallocation processes – in terms of internal and international mobility – in Poland, which we discuss in the subsequent part of the report.

1. International migration from Poland before and after EU accession

1.1 Introduction

The accession to the European Union of ten new member states in May 2004 was undoubtedly one of the most significant factors influencing migration movements in Central Europe – a region the population of which accounts for a vast majority of the new EU citizens and which has had an invariably negative international migration balance for the last several dozen years.

In view of the above migration trend as well as low GDP per capita levels in relation to the EU15 average (see part I) and a relatively more difficult labour market situation in the new member states than in the countries of the "old" EU, even before the EU enlargement it had been expected that a large wave of economic migration would come from this region to Western Europe. The public debate about the likely scale of the inflow of immigrants which took place in most EU15 countries was accompanied by various estimations of the migration potential of candidate countries. The results of these studies often gave rise to totally divergent conclusions, which partly resulted from different methodologies used (not always appropriate, as indicated by, for instance, Kupiszewski (2002)) but which had to do also with the political context of the discussions about future migration processes.

In accordance with the results of calculations performed by an international research consortium at the request of the European Commission in 1999, the migration potential of the new member states in the long term (until 2030) amounts to approximately 2.7 million people. It was assumed that the volume (intensity) of migration would increase abruptly and reach its maximum value of about 335,000 people immediately after the accession. Then, it was supposed to decrease gradually (to approx. 83,000 people in 2015) and stabilise at a low level between a few and several thousand . According to the estimates provided by the said consortium, approximately 25-35 per cent of all people emigrating during the above-mentioned period, i.e. 700,000-900,000, were supposed to be of Polish origin (see Brucker et al. 2003, Kaczmarczyk, Okólski 2005). These estimates are in line with the picture painted by a Polish research team (Orłowski, Zienkowski 1999), which estimated that in the 10-12 years following the accession the total outflow of emigrants from Poland should amount to approx. 770,000 people.

In this chapter we attempt at verifying the accuracy of these prognoses as well as the scale of increase in migration from Poland to the EU member states after 1 May 2004. Moreover, we intend to answer a number of questions that should be posed in the context of migration analysis, among others, how do the Poles do in the European labour market, how does the volume of migration from Poland compare to other new member states, what individual- and aggregate-level factors encourage people to move abroad and what are the consequences of this migration for the economy and labour market in Poland.

1.2. External migration from Poland before and after EU accession.

1.2.1 Introduction

The task of estimating the actual scale of international migration from Poland is hindered by the absence of data of relevant quality. It is a problem which concerns most of the CEE countries – Poland is no exception in this respect (see Bijak, Koryś 2006). Presently, there are a couple of databases which enable the development of independent (also in terms of methodology) estimates of the number of Polish international migrants (see Box III.2).

Box III.2. Potential data sources on international migration

Potential data sources which enable estimation of changes in the volume of international migration in the recent years include:

- district records (*ewidencja gmin*) of people notifying the authorities about the abandonment of permanent residence in Poland,
- European Social Survey (ESS),
- Polish Labour Force Surveys (LFS), which records members of households who were staying abroad at the time of a given survey,
- data on work permits issued and registration procedures processed at labour offices throughout the EU,
- data derived from labour force surveys carried out in countries receiving Polish migrants,
- data derived from the National Population Census (NPC) carried out in Poland in 2002 as well as from national censuses carried out in other EU countries,
- data generated by the National Bank of Poland and the Ministry of Finance concerning private transfers and tax returns (PIT, bank transfers) transferred to Poland from abroad.

As for data from the district records, the literature on the subject commonly regards them as statistical fiction (Kędelski 1990) and therefore in this report we do not treat them as the principal source of information but only as a supplement to the presented quantitative estimates.[1] We have decided not to employ information from the European Social Survey because of small sample and missing information on migration dates. Data derived from the Polish LFS are also subject to considerable methodological deficiencies which lower the reliability of potential estimates. On the one hand, they cover people who were away from a given sample household due to their stay abroad. On the other hand, however, they do not cover those who – prior to emigration – had lived in one-person households or in collective households. People aged 18-34[2] have a large share in the total number of migrants and probably many of them had lived in one-person households before emigration so they are not included in the LFS. The above undermines the potential migration estimates based on this data source. A similar problem applies to students who constitute a large share of all migrants (especially seasonal). Students who had lived in halls of residence prior to departure are not registered in the LFS because collective households [are not included in the random sample. Consequently, data derived from the LFS can be used in the study of migration processes, only if the specific features of this survey are borne in mind.

Considering the above-mentioned drawbacks, when estimating the scale of emigration before the accession, we have used above all data from the NPC as well as information about the number of work permits issued in the EEA countries. In our estimates of the number of people working abroad after 1 May 2004, we have relied above all on data on the number of work permits issued throughout Europe. Our calculations have been supplemented by data derived from labour force surveys carried out in Poland and in other countries, as well as by figures taken from the literature on the subject. As for data on the growth dynamics of the number of people emigrating, we have used BAEL and data on private transfers published by the NBP.

Box III.3. Polish communities abroad

The Polish have one of the most numerous diasporas in the world. The number of people of Polish origin who are staying abroad is estimated at approx. 20 million (Pieślak 2006). Other numerous diasporas include: the Chinese – approx. 30 million, Russians – 27 million and Italians – 22 million. Therefore, the Polish diaspora ranks fourth in terms of total population size. However, if we look at the size of particular diasporas in relation to the number of a given country's population, Poles come after: the Irish (approx. 80 per cent), Jews (approx. 75 per cent), Armenians (approx. 66 per cent), Albanians (approx. 50 per cent), and the Portuguese (approx. 35 per cent). The share of people of Polish origin who are staying abroad in relation to the total Polish population is estimated at 33 per cent. The largest Polish communities live in the United States (approx. 10.6 million), Germany (approx. 2 million), Brazil (approx. 1.8 million), France (approx. 1.05 million), Great Britain (approx. 1 million), Belarussia (approx. 0.9 million), Canada (approx. 0.9 million) and Ukraine (approx. 0.9 million) (Pieślak, 2006).

It should be noted that a vast majority of people included in the Polish community abroad have Polish ancestors and cultivate their national past, however, they are already culturally closer to the societies to which they belong. It is rare that they are interested in reviving their cultural bonds with Poland. In the above respect, it is the Polish community living beyond the eastern border, i.e. in the former USSR countries, that exhibits a different attitude (Koseski, 1998).

Polish culture and contacts with Poland are maintained through social and cultural organisations, Polish Houses (*Domy Polskie*) as well as institutes, parishes and sports clubs. Moreover, Polish media also play an important role (e.g. the weekly „Cooltura" published in Great Britain, the daily "Dziennik Chicagowski", radio stations such as "Wietrzne Radio" in Chicago and "Rytm" in New York). Poland-related materials can also be found in foreign museums and archives such as the Museum at Montrésor in France, the Budapest Museum and Archives of the Polish Community in Hungary. Social and cultural organisations activate the Polish community and stimulate them into action – for instance, they get involved in charity fund collection (e.g. aid to the Polish homeless, meals for the poorest children in Polish schools). One example of a recent initiative undertaken by the Polish community in Great Britain is the protest campaign against double taxation of income.

1.2.2 International migration before Poland's accession to the EU

In accordance with the NPC, in 2002, the number of Polish citizens staying abroad for more than 12 months can be estimated at **626,000** people, of whom approx. **356,000** had moved to the EEA countries (see Table III.1.) The number of people who decided to emigrate in the period 1989-2001 amounts to approx. 528,000. The NPC does not cover emigrants who notified the local authorities before leaving the country, however, this figure can be estimated based on the district records and it amounts to approx. 300,000 people. This means that in the period 1989-2001 an average of approx. 70,000 people emigrated from Poland every year, which sums up to more than 800,000 emigrants. Notwithstanding the above, the actual number of long-term departures in particular years was greater because some people had returned to Poland in the meantime, whereas the NPC only recorded their last departure abroad. The above figures are in line with the OECD estimates, according to which approx. 94,000 people emigrated from Poland in 2000 (OECD 2006). Moreover, the OECD estimates that at the beginning of the 21st century approx. **1.3** million people born in Poland were staying in the OECD countries with the largest Polish populations in the United States, Germany, France and Great Britain. It should be noted that the above figure includes people who emigrated after 1989 as well as those who had been living abroad for much longer.

[1] Prior to the transformation, there was a requirement that people who were changing their place of residence had to notify the relevant district authorities about the fact of abandoning permanent residence. In theory, this requirement is still in force, however, very few people observe it when moving abroad or to a different place in Poland. Data derived from this source are of little research value (see Okólski, 1997, Bijak, Koryś, 2006).

[2] This fact is evidenced among others by economic migration monitoring reports in Great Britain and Ireland, which are now the principal – apart from Germany – migration destinations.

Table III.1.
Number of Polish long-term migrants before EU accession

Country	NPC	OECD
Germany	244.0	205
USA	136.4	477
Italy	26.2	34
France	15.3	106.7
Great Britain	15.0	60.7
Belgium	9.7	19.9
Spain	9.4	16.4
Austria	8.0	41.7
Netherlands	5.9	17.4
Sweden	4.0	41.6
Ireland	0.7	2.2
Australia	-	58.1
Other	151.4	324.5
Total:	**626**	**1347**

The NPC data cover people who have their permanent residence in Poland but who – in 2002 – stayed abroad for more than 12 months.

Source: NPC, OECD.

It should be emphasised that the NPC and OECD data do not account for seasonal migration which became increasingly important in the 1990s (see Box III.4.). It is estimated that in 2000 the scale of seasonal migration came to approx. 550,000 people, of whom approx. 200,000 departed illegally, i.e. in disregard of the bilateral agreements between Poland and the receiving countries (Kaczmarczyk, Okólski 2005). These estimates are confirmed by data of the Ministry of Labour and Social Policy on the number of work permits issued in the EEA countries. Based on this data source, it can be estimated that approx. **400,000** Poles undertook work in the EEA countries in 2003 (see Table III.3.). Most of them, i.e. around **320,000** people, were seasonal workers, especially in Germany (approx. 265,000 people).

Rough estimates of the number of emigrants from Poland can be obtained based on the NBP data on private foreign transfers. The literature on the subject (European Commission, 2004rem, USGAO, 2006) estimates that emigrants who decide to make such transfers, send on average about 15-20 per cent of income derived from work to their families back home. Hence, monthly income of about EUR 1,400-1,700 generates transfers of about EUR 3,000-3,600 per year. In view of the fact that private transfers in 2003 reached the level of EUR 4,054,000,000 of which most transfers (80-90 per cent) were effected by people working abroad, the number of migrants regularly sending a share of their income back home can be estimated at approx. 900,000-1,200,000 people. Working on the assumption (supported among others by USGAO 2006) that they account for about 75 per cent of the total population of immigrants allows to estimate the number of the latter at 1,200,000-1,450,000 people. It can be presumed that this figure includes only a limited number of seasonal migrants, who are probably less likely than other migrants to transfer their income via the banking system and who tend to bring the money along with them in cash.

To sum up, based on the NCP, OECD and administrative data, it can be assumed that immediately before the EU enlargement in May 2004, some 1,700,000[3]-1,900,000 migrants from Poland stayed abroad every year and that about one third of them (550,000-600,000 people) were short-term migrants (above all, engaged in seasonal work) and two thirds (approx. 1,150,000-1,300,000 people) – migrants who stayed abroad for more than one year. The estimates based on the NBP data are slightly higher. In accordance with the latter, in 2003, the total number of emigrants – mostly non-seasonal[4] – amounted to about 1,200,000-1,450,000 people. However, this estimate involves a greater degree of uncertainty due to some necessary ad hoc assumptions. Moreover, it should be emphasised that many long-term emigrants have maintained strong links with their homeland, especially in the situation where emigration was induced by economic motives and where it did not concern the entire family. On the other hand, there is a significant group of emigrants (according to the OECD data – around a half of them, i.e. some 600,000-650,000 people) who already hold the citizenship of the current country of residence and who identify less with Poland. The principal direction of long-term migration routes was the EEA, which received approx. 50-60 per cent of all migrants. The United States and Australia emerged as the principal non-European receiving countries, with approx. 30-35 per cent of all migrants.

[3] In the NPC estimates we included people who notified the district authorities about the abandonment of permanent residence in the period 1980-2002and we assumed that some 560,000 of people from this group are still living abroad.
[4] Data on private foreign transfers do not allow to estimate the number of seasonal migrants because these transfers are typically seasonal and they peak in the last quarter of every year – which does not overlap with the departures themselves. It can be assumed, however, that seasonal workers are more likely to bring the money along with them in cash than to transfer it by wire.

Box III.4. Seasonal migration – why do the Polish do seasonal work abroad?

Seasonal migration is an inherent element of mobility in Poland. The formal basis of this type of mobility includes bilateral agreements between the Polish government and the governments of other countries, which usually provide for a yearly quota of seasonal work permits to be issued to Polish citizens.

It should be borne in mind that seasonal migration is a specific form of mobility and that it rarely transforms into permanent emigration. Moreover, seasonal migration is typical for only some societies and some social groups. Therefore, international statistics and comparisons exclude seasonal migration from international migration analyses. Seasonal migration movements are generated by demand for relatively cheap labour force in some labour-intensive sectors of the economy (mainly in agriculture). Seasonal work opportunities abroad emerge in particular when low (compared with the average wage in the destination country) income derived from seasonal work constitutes a significant supplement to the household budgets of families in the country of origin (especially in the poorer regions and in the relatively lower-qualified social groups).

One example for the above can be found in German agriculture which provides seasonal employment to approx. 250,000-300,000 Poles every year. The average net hourly wage offered to seasonal workers in agriculture comes to about 4-5 euros. Assuming that the daily working time is 10 hours and that the living cost amounts to about 15 per cent of income (Łukowski 2004), it can be estimated that people who engage in 2-month seasonal work in Germany generate an additional income of about EUR 1,800-2,400.

In accordance with the Eurostat data, the annual average gross income earned by manual workers in Poland in 2002 amounted to EUR 5,522, which translates into net income of about EUR 3,780. Hence, for low-skill workers, the opportunity to engage in seasonal work abroad may produce income equal to approx. 50-60 per cent of their annual proceeds in Poland.

1.2.3 International migration after Poland's accession to the EU

Dynamics – how strong was growth in the number of migrating Poles after the EU enlargement?

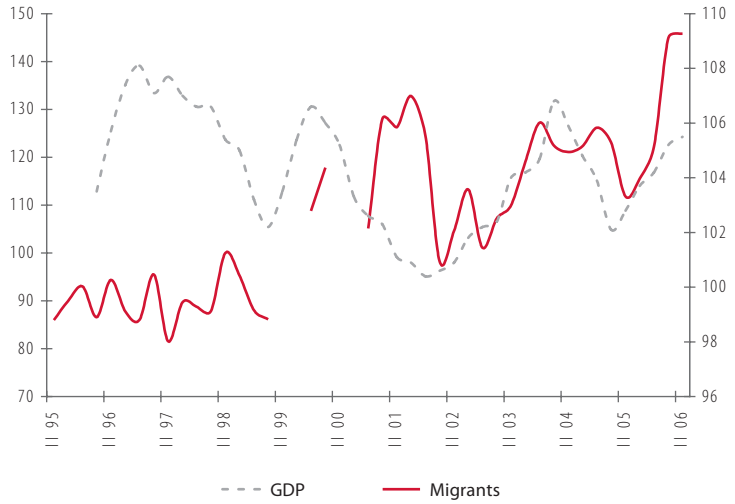
Irrespective of the methodological problems, it can be stated that the volume of emigration from Poland has clearly augmented in the last couple of years. This fact is evidenced, among others, by data on the number of household members staying abroad derived from the LFS[5]. According to these data, the number of people staying abroad every year decreased in the second half of the 1990s, i.e. during the period of a relatively good economic performance in Poland. This decreasing trend was reversed after the year 2000 when the economy slowed down. It can be assumed that the increased number of emigrants was closely related to the difficult situation in the labour market which was a consequence of the Russian crisis and of the later cyclical economic slowdown (see Bukowski et al. 2005 and part I). In view of the fact that Polish migration is largely induced by economic motives (approx. 70-85 per cent of migrants recorded in the LFS are included in this category), it is not surprising that during periods of economic downturn people are more likely to look for jobs abroad.

It can also be noted that the dynamics of the number of migrants gained pace in the second half of the year 2003 which was connected with the EU enlargement prospects. The intensity of migration processes has not weakened since then, although the GDP growth rate in Poland has increased considerably since 2003, and especially so in 2004 and 2006 (see Chart III.1). Nevertheless, it can be presumed that this improvement in the economic situation in the country, including above all increasing employment and wage levels and decreasing unemployment, will lead to the relative decrease in the inclination of the Polish to engage in work abroad in the next couple of years. This tendency will be further reinforced by the increasing saturation of labour markets in the receiving countries, the capacity of which is limited (in the short term).

According to the LFS, there were approx. 45 per cent more migrants per year in 2005 than in 2003. It should be borne in mind that, as mentioned earlier, the LFS only covers people who are members of Polish households and whose stay abroad lasts more than 2 months. Therefore, if we assumed – in accordance with the NCP – that 786,000 people stayed abroad prior to Poland's accession to the EU, then this 45 per cent increase in 2005 would mean that the number of Polish emigrants increased by approx. 350,000 per year. This figure should be treated as the maximum limit of the post-accession emigration growth. However, bearing in mind that a large share of these people would have emigrated even if the EU enlargement had not taken place, it should not be regarded as "pure" impact of the accession on the volume of international migration. The above-mentioned value is slightly higher that the forecasts referred to earlier, according to which immediately after Poland's accession to the EU, the number of migrants would have reached the level of approx. 335,000 people.

[5] Despite problems relating to the representativeness of the LFS in terms of the number of emigrants, this survey can be used to assess the migration dynamics, if we make an assumption that it is similar for households of different types – those included and those excluded from the LFS.

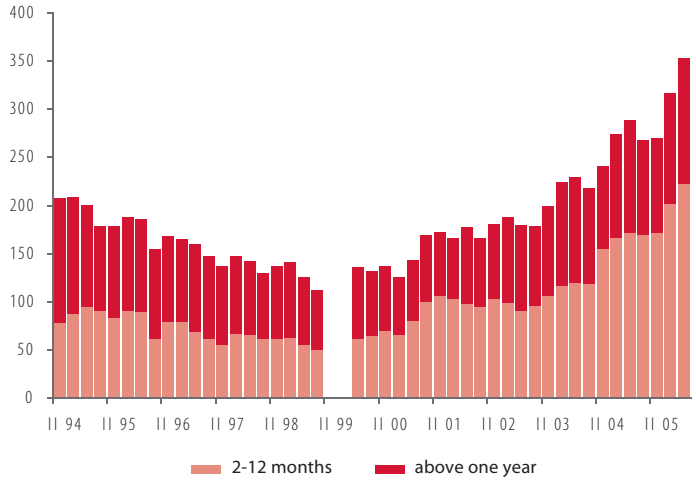
Chart III.1.
Growth rate for the number of people staying abroad (left axis) (compared with a given quarter of the preceding year) and of real GDP (right axis)



Source: Own calculations based on the LFS and CSO data.

In this context, we should bear in mind that according to the LFS, the post-accession growth in migration results above all from greater interest of Poles in short-term departures for two to twelve months. Based on the LFS data, the growth rate for the number of people staying abroad for more than one year can be estimated at about 10 per cent (see Chart III.2). Even if we assume that this value is understated due to the relatively short observation period, these data allow a statement that as a result of the accession the total number of long-term migrants increased by no more than 15,000-30,000 people by 2005.

Chart III.2.
Number of migrants (in thousands) by duration of stay abroad (quarterly data)



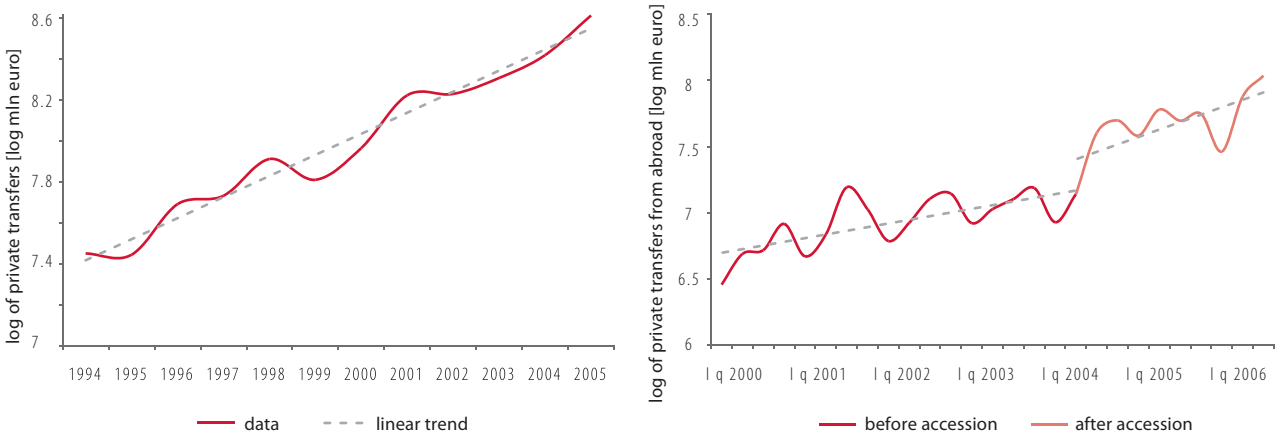
Source: Own calculations based on the LFS, Kępińska 2005.

An independent estimate of growth in the number of migrants from Poland after the EU enlargement can be developed by measuring the scale of underestimation of the number of migrants in the LFS, based on the NPC of 2002. In accordance with the NPC, the number of people staying abroad from (two to twelve months amounted to 159,000 people, whereas the LFS provides the figure of approx. 97,000 people. Working on the assumption that the scale of underestimation did not change, it can be assumed that if, according to the LFS, the number of people staying abroad for less than one year in 2005 increased in relation to 2003 by approx. 80,000 people, in fact, as from the accession, there have been approx. 130,000 more short-term migrants every year. What is more, during the post-accession period, the number of migrants staying abroad for more than one year also went up. However, this growth was relatively insignificant – according to the LFS it only concerned 8,000 people. Notwithstanding the above, it can be presumed that the LFS tends to underestimate the number of long-term rather than short-term migrants (for instance, because long-term migrants include more young people, e.g. graduates who had lived in one-person households or halls of residence prior to migration). Therefore, the actual growth in the number of long-term migrants can oscillate within the range of 15,000-35,000 people. Based on the above calculations,

it can be established that in 2005 the number of migrants living abroad every year was greater by approx. 145,000-165,000 than before the EU enlargement. This figure is smaller by about a half that the above-mentioned estimates developed using the LFS, and therefore we treat it as the minimum limit of the volume of migration. Similarly to the previous estimate, this figure should also account for permanent residence migration, as recorded by the district authorities, i.e. an outflow of about 10,000 people a year.

The growth dynamics of Polish economic migration after 1 May 2004 is evidenced by the NBP data on private transfers from abroad (see Chart III.3). Revenues from these transfers have been exhibiting an increasing tendency since the beginning of the 1990s, which, even assuming some increase in real wages obtained abroad, clearly proves that the number of emigrants from Poland has been on the rise, especially so in the EU countries where most such transfers are effected. It is worth noting that the growth rate for the volume of transfers has been rather stable in the medium term, despite evident fluctuations from one period to another. An exceptionally low or even negative dynamics was only observed at the turn of the years 1998 and 1999, which can probably be associated with the impact of the Russian crisis on transfers from countries which were directly or indirectly affected by it. Due to a short period since Poland's accession to the EU, it is only possible to provide an approximate answer to the question whether the dynamics of private transfers has increased significantly since 2004. It seems certain, however, that immediately after the accession, the number of transfers soared, which implies a considerable increase in the number of migrants. The NBP data suggest also that in the successive quarters the dynamics of migration slowed down a little, although it was still noticeably higher than before the accession (see Chart III.3).

Chart III.3.
Private current transfers – revenues (ln / log / natural logarithm of million euros) in the period 1994-2005 and 2001 (first quarter)-2006 (third quarter)



Source: Balance of payments – annual and quarterly NBP data.

Assuming that an average monthly transfer was the same (approx. 250-300 euros) before and after accession, according to the balance of payments data which indicate that current private transfers from abroad (payments) in 2004 and 2005 amounted to 4,532,000,000 and 5,495,000,000 euros accordingly, it can be estimated that in 2005 about 1,630,000-1,950,000 people stayed abroad long enough so that transfers via the banking system would be justified. This figure was higher by approx. 285,000-340,000 than one year earlier. A migration flow of this intensity was previously observed in 2001 as a reaction to the economic slowdown of 2001-2002 (see Chart III.2).

To sum up the above calculations, it can be said that data derived from the LFS, NPC and the administrative records imply that in 2005 the number of people staying abroad for more than two months was greater by approx. **165,000-370,000** people a year than immediately before the EU enlargement. These estimates are confirmed by the NBP data on private transfers from abroad which provide a narrower range of **285,000-340,000** people. The NBP data also allow to think that an abrupt increase in the number of emigrants took place only immediately after the enlargement (in the initial 1-2 quarters), whereas later the dynamics of migration weakened, although it was probably still higher than before the accession. It is highly probable that the number of migrants intending to stay for less than 2 months (e.g. some seasonal workers) also went up. However, the dynamics of the latter phenomenon is difficult to assess, among others, due to the fact that this type of migration is not recorded in the LFS or NPC, as well as that in a number of countries (e.g. in Great Britain and – for stays shorter than one month – also in Finland and Sweden) Polish migrants are not required to hold a work permit or registration confirmation in order to work for such a short period.

It is also worthwhile to investigate the directions of Polish migration before and after the EU enlargement as well as their possible evolutions. The top receiving country for Poles was Germany, although her leading position has been growing weaker. Moreover, the interest in migration to the Anglo-Saxon countries, namely Great Britain and Ireland, has been evidently on the rise. Before the accession these countries had not been considered popular destinations – in accordance with the LFS, they had been receiving an average

of approx. 10 per cent of all migrants. In 2005, this share increased to reach the level of 28 per cent. It can also be presumed that migration to Great Britain and Ireland takes the place of migration to the United States, which has been decreasing in popularity since the EU enlargement (with 20 per cent of migrants before the accession and approx. 13 per cent after). This shift is most probably associated with the relatively higher cost of moving to the US, lengthy visa procedures and the declining average exchange rate of the US dollar.

Table III.2.
Main Polish migration destinations before and after EU accession

Before accession			After accession		
Country	Number (thousands)	Share (percentage)	Country	Number (thousands)	Share (percentage)
Germany	52.0	31	Great Britain	65.9	22
USA	33.5	20	Germany	63.3	21
Italy	21.0	13	USA	37.4	13
Great Britain	15.1	9	Italy	35.9	12
Spain	6.7	4	Ireland	17.6	6
France	6.7	4	France	12.5	4
Netherlands	6.7	4	Spain	11.1	4
Belgium	5.0	3	Netherlands	7.7	3
Sweden	3.4	2	Belgium	6.8	2
Austria	3.4	2	Sweden	6.0	2
Ireland	1.7	1	Austria	6.0	2
Other	12.5	7	Other	24.8	8
Total	**167.7**	**100**	**Total**	**295.0**	**100**

The average annual number of migrants before the accession covers the period from the first quarter of 1994 to the second quarter of 2004 and the migration share to particular countries is based on data for 2002-2005; post-accession estimates cover the period from the second quarter of 2004 to the fourth quarter of 2005.

Source: Own calculations based on the LFS, Kępińska 2005.

Forecasts – how is the number of Polish migrants likely to evolve in the future?

The abrupt growth in the volume of migration in 2004 is in line with the earlier expectations described in forecast studies on emigration from the CEE countries. The phenomenon of an abrupt increase in the number of people coming to a given country which is followed by a stabilisation of immigrant inflows is referred to in the literature as the so-called migration hump (Martin, Taylor 1996; Widgren, Martin 2002). Such abrupt growth results among others from the fact that at the initial stage of integration trade and labour migration are of complementary nature and it is only with time that they become substitutes. According to the migration hump model, the volume of migration decreases rapidly as the economic situation in the country of residence improves and as the differences in wages between the receiving and sending countries decline.

Presently, Poland's experiences with emigration are too scarce to allow a firm assessment as to whether the emigration growth proves lasting, and in particular how long it will take to weaken the dynamics of economic emigration. Nevertheless, the experiences of such countries as Spain or Ireland demonstrate that thanks to structural reforms and the resulting improvement in labour market performance (decrease in unemployment and increase in wages), which ameliorate the economic situation of households, it is possible to totally reverse migration trends in a relatively short time (see Box III.5).

Box III.5. Migration movements in Spain after European Community accession

Concerns relating to mass inflows of immigrants resulting from EU enlargements are nothing new. They emerged, among others, at the time of the accession of Spain and Portugal in 1986. The most commonly quoted motives inducing the inhabitants of Southern Europe to emigrate included much lower income levels, high unemployment rates and traditionally negative migration balances – in the 1960s and 1970s, Spain saw an exodus of more than 1 million people, mainly to Western Europe, and especially to Germany and France (Bover, Velilla 1999).

Fearing a mass inflow of immigrants, the EU member states decided to introduce a 7-year transition period which imposed limits on the access of Spanish and Portuguese workers to the EU labour markets. Models based on differences in unemployment and income levels forecasted that the inflow of migrants from new member states to Western Europe after the transition period would come to approx. 1,500,000-1,600,000 people (Straubhaar 1984).

However, the subsequent years showed that the forecasts predicting a significant increase in the volume of migration from Spain did not materialise. Thanks to the implemented structural reforms as well as increased income levels and living standards, from a country with a negative migration balance, Spain turned into a country attracting migrants.

The number of Spanish emigrants in the other EU countries was on the decrease during the transition period and after the expiry of restrictions on worker flows. At the time of the enlargement, the countries of the European Community had a population of approx. 495,000 Spaniards. In 1991, that is in the last year of the transition period, this figure was only 474,000 people, and in 1997 – 470,000 people. As for the population of foreigners in Spain, it nearly grew twice during the above period – from 293,000 to 539,000 (Dustmann et al. 2003).

Scale of economic migration – how many Poles have been working in the EEA countries after 1 May 2004?

Apart from overall migration dynamics, it is also important to estimate the number of emigrants moving to the EEA countries with the intention to work there. In order to develop an estimate of the volume of economic migration from Poland after 2004, one can refer to information about work permits issued in some European countries as well as to statistics derived from the employee registration system in Great Britain and Ireland.[6]

The creation of collation, which will summarise information about issued work permits is difficult due to different definitions and structures of the registration systems used in particular countries.[7] Data presented in Table III.3 may also not reflect the actual scale of migration because in some countries, such as Sweden, Finland and Lithuania, there is no requirement that seasonal workers be registered. It seems, however, that the above countries are not among the principal destination countries for economic migrants from Poland and therefore an adjustment including migrants to these countries would be insignificant.

After the first glimpse of the available statistics, one may conclude that the number of work permits and registrations of Polish citizens in the EEA countries amounted to approx. **610,000** in 2004 and **645,000** in 2005. These figures seem high, however, **at least half** of all permits were for seasonal work. The share of seasonal workers estimated on the basis of the above data is surely lower than its actual value because for some countries (e.g. Spain, Norway) no data is available on the nature of work covered by issued work permits. What is more, based on data derived from the British LFS, it can be assumed that probably about a half of Poles who came to Great Britain after the EU enlargement engaged in short-term work. This fact implies that the estimated yearly number of non-seasonal migrants from Poland should be decreased by approx. 40,000 people.

A similar situation can be observed in Ireland. The comparison of the results of the Quarterly National Household Survey with the number of granted PPS numbers[8] indicates that approx. 65 per cent of foreigners coming from the new member states to Ireland return to their homelands after a couple of months or even weeks. The above allows to adjust downwards the annual average number of Polish migrants by another 30,000 people.

Data on the number of issued work permits obviously do not account for illegal stays – this probably concerns above all those countries which have not opened their labour markets. What is more, since 2004, as legal employment in the "old" EU has been becoming increasingly available to Polish citizens, the share of illegal migrants has probably been on the decline. Some people who after 1 May 2004 registered with the relevant institutions in countries such as Great Britain and Ireland, had been working there before the above date and therefore to some extent the relevant statistics reflect the process of employment legalisation rather than the inflow of new immigrants. Research studies on immigration to Great Britain imply that the share of people who had been working in Great Britain prior to the EU enlargement and their registration under the Worker Registration Scheme amounts to approx. 18 per cent (this concerns registrations effected before June 2005) (Drinkwater et al. 2006). This means that the outflow of migrants from Poland should be further decreased by approx. 20,000 people per year.

[6] Despite positive assessments of the impact of migration on the economies of countries which fully opened their labour market to NMS8 citizens, some countries from the former EU15 still apply transition periods. At the time of this report, workers from the NMS8 had an unlimited access to labour markets in Great Britain, Ireland, Sweden, Spain, Portugal, Finland and Greece.
[7] Data on the employment of Polish citizens abroad are collected on a regular basis by the Ministry of Labour and Social Policy, which maintains contacts with relevant ministries and institutions charged with the task of registering people engaging in overseas work. These data pertain to issued work permits and registration procedures processed by relevant offices in the receiving countries that are responsible for monitoring economic immigration (e.g. Worker Registration Scheme in Great Britain, FAS in Ireland).
[8] PPS number (Personal Public Service) is an insurance and tax identification number which is necessary, among others, to engage in work in Ireland and to deal with social insurance institutions and the tax office.

Table III.3.
Number of work permits issued to Polish citizens engaging in work in selected EEA countries

Country	2003	2004	2005	
Austria	9,7a)	16,7	10	including 5,200 seasonal
Belgium	3,9b)	1,8	3,4	including approx. 3,100 seasonal
Czech Republic	7,4	-	3,8	estimates, net inflow
Finland	0,7	-	0,2	seasonal workers are not covered by the permit requirement
France	7,8b)	9,2	9,7	including 8,200 seasonal
Greece	8,4c)	-	0,2-0,3	
Spain	6,9d)	13,8	11,6	no information about the share of seasonal workers
Ireland	2,7	27,3	64,7	
Iceland	-	1,2	1,2	issued between May 2004 and August 2005
Netherlands	9,5	20,9	26,5	including 17,900 in gardening, 4,200 in agriculture
Germany	274,9	392,6	321,8	including 273,00 seasonal
Norway	15,3e)	13	23,8	data accounts for work permit extensions, no information about the share of seasonal workers
Slovakia	0,1	-	0,3	
Switzerland	-	16,7	3,8	including approx. 2,600 seasonal
Sweden	6,6	2,1	2,8	seasonal workers are not covered by the permit requirement
Great Britain	1,4c)	75,5	129,4	
Italy	45,7	37	33,5	including approx. 20,500 seasonal
Total	**401**	**610**	**645**	

a) data for the period from 1 January to 30 September 2003, b) data for 2002, c) estimates, d) average for the years 2002 and 2003, e) data for the period from 1 January to 30 August 2003.
For Cyprus, Denmark, Malta, Estonia, Lithuania, Latvia, Liechtenstein, Luxembourg, Portugal, Slovenia and Hungary no data on inflows are available or official estimates below 100 persons.

Source: Ministry of Labour and Social Policy.

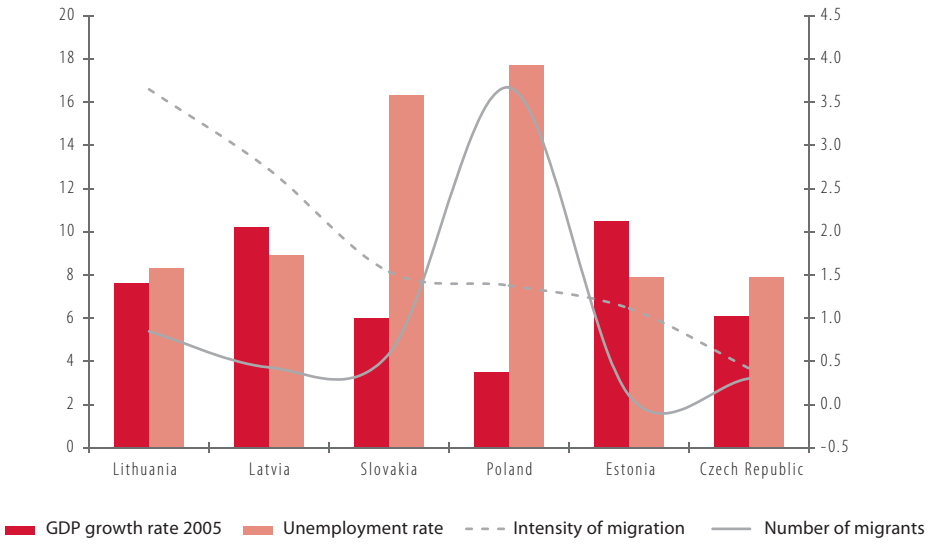
To sum up, in order to interpret data on the number of issued work permits in terms of inflow of long-term immigrants from Poland to other EEA countries 9 one should deduct all people who left with the intention of engaging in seasonal work and returning home after a couple of months (or weeks). Considering the above estimates as well as conclusions derived from the analysis of the LFS data and data on private money transfers, it can be assumed that out of **610,000-645,000 people who are granted work permits in the EEA countries every year, at most 180,000-200,000 people decide to stay abroad for a longer period, whereas the others only engage in seasonal work**. When assessing the number of long-term migrants who left Poland in 2004, the OECD has obtained similar results, i.e. 169,000 people (OECD 2006). This means that, according to the OECD, the volume of international migration from Poland increased after the accession by approx. 80 per cent – compared with the earlier period (94,000 in 2000). Nevertheless, this phenomenon was probably of individual nature and it made Poland head the league of the NMS10 in the ranking of the top emigration source countries (in terms of the number of emigrants rather than migration intensity).[10] The calculated measure of population outflow due to long-term emigration amounts to approx. 1.1 per cent of the population aged 18-44 per year. It is worth emphasising, however, that this indicator is considerably lower than in a number of other new member states (see Box III.5) also these which have higher growth rates and better labour market performance than Poland. This fact implies that the nature of increased migration intensity after the EU accession was universal and that probably the main reasons behind it were differences in wage levels and living standards between Central and Western Europe and not the economic situation per se. Consequently, the period necessary to weaken the intensity of economic migration may be longer than in the case of Spain, which was relatively wealthier at the time of its accession to the EU than it is the case for the new member states.

[9] Data on work permits issued in the EEA countries should not be regarded as information on the number of people who left Poland in the period 2004-2005 and who are currently staying abroad. The aggregation of data on work permits issued in the period 2004-2005 in particular European countries and the interpretation of this figure as reflecting the stock of immigrants constitutes a methodological error. The above is evidenced by the example of Great Britain: although approx. 125,000 workers from the NMS8 were registered in 2004 under the British Worker Registration Scheme, the estimates of the National Statistics Office imply that – compared with 2003 – the number of emigrants from these countries increased by as little as approx. 48,000 people. Hence, a clear distinction should be made between the notions of inflow and stock of immigrants, which unfortunately is often not the case in press releases on migration.
[10] The number of emigrants depends above all on the population size of a given country. Poland has the largest population out of all NMS. Therefore, the fact that the share of Poles in the total number of migrants to Western Europe amounts to more than 50 per cent can be explained by the differences in the number of the early working age population.

Box III.6. Is Polish migration exceptional compared with other new EU Member States?

When assessing the scale of inflow of Polish workers, it is often stressed that they constitute the largest national group migrating from the new member states to the former EU15. However, comparisons of migration intensity do not explicitly imply that Poles are typically most inclined to move abroad. When collating the number of people engaging in work in Great Britain, Ireland and Sweden after the EU enlargement with the numbers of the working-age population in the source countries, one may conclude that thus calculated Polish migration flow rate is three times lower than that of Lithuanians, twice lower than that of Latvians and comparable to that of Estonians and Slovaks. The above implies that the increased volume of migration after the EU accession is a widespread phenomenon and that it also took place in the new member states with higher economic growth dynamics and better labour market performance than Poland.

Chart III.4.
Number of people engaging in work in Great Britain, Ireland and Sweden (in hundreds of thousands) and migration intensity after EU enlargement versus growth and unemployment rates (2005) in the NMS



Source: Own calculations based on Accession Monitoring Report, Doyle et al. 2006, Eurostat.

1.3 Migration to Germany, Great Britain, Ireland and Sweden.

The opening of labour markets in Great Britain, Ireland and Sweden in May 2004 changed the framework for decisions made by Polish citizens as to whether engage in work in Poland or try to find employment abroad (see Box III.7). The introduction of the free movement of workers in the English-speaking countries, namely Ireland and Great Britain was of particular importance because human capital and skills acquired in Poland can be used relatively more easily in these countries than in non-English speaking countries (except for Germany). This is so because, according to social studies, the knowledge of English is relatively common, especially among young people who are potentially most mobile. In fact, approx. 26 per cent of Poles declare that they have an active and passive knowledge of English, whereas for the population of below-24-year-old this figure increases to 73 per cent and for the age group 25-34 – 43 per cent. As far as the German language is concerned, analogous shares amount to 19.6, 44 and 24 per cent respectively. The level of command of the remaining European languages is marginal (see Diagnoza Społeczna / Social Diagnosis 2005). Consequently, it is much easier for Poles to find a job in the Anglo-Saxon countries as well as in Germany and Austria than, for instance, in Sweden. Alongside relatively high chances of finding a job and receiving higher wages than in Poland, the above constitutes a natural incentive to migrate to these countries.

In view of the fact that the increase in the number of people who decide to engage in work abroad was above all a consequence of the increased interest in emigration to the EU countries, it seems worthwhile to give more attention to the assessment of the labour market situation, wages and prospects of return of people who have moved to Great Britain, Ireland and Sweden. It could also be useful to look closer at migration to Germany as this country still remains the most popular migration destination of the Polish.

Box III.7. Legal grounds for freedom of worker mobility in the EU

The observable changes in Polish migration trends after the accession to the EU are connected, among others, with the freedom of movement for workers within the European Communities. At present, this freedom applied to Poles to a limited degree. Only some member states decided to open their labour markets to the Polish citizens after 1 May 2004 (new member states, excluding Malta, and three "old" member states, namely Great Britain, Sweden and Ireland). The remaining countries introduced transition periods thus postponing the possibility Poles enjoying full freedom of movement for workers within the EU.

The legal grounds for the free movement of workers have been provided in the Treaty establishing the European Community dated 1957. In accordance with Article 39 of the Treaty, which guarantees freedom of movement for workers within the Community, "such freedom of movement shall entail the abolition of any discrimination based on nationality between workers of the Member States as regards employment, remuneration and other conditions of work and employment". The Treaty also guarantees freedom of enterprise and of provision of services by citizens of one Member State within the territory of another Member State. Community law provides also for an equal treatment of workers who are citizens of the employer's home country and those who are citizens of other EU countries, as well as for the right of families of such workers to migrate and join them in the country of their employment.

The Treaty also contains provisions on measures in the field of social security, namely it provides that all periods taken into account under the laws of other countries be aggregated for the purpose of acquiring and retaining the right to benefit, and of calculating the amount of such benefit. Regulations pertaining to social security within the European Union also stipulate the right to unemployment benefit for 3 months in the amount to which a given citizen would be eligible in his/her home country.

Polish economic migration to the EU countries which have not yet opened their labour markets are regulated by bilateral agreements.

Great Britain and Ireland

Research studies carried out prior to the EU enlargement by the British Home Office estimated the expected number of immigrants from the new member states after 1 May 2004 at 5,000-13,000 people per year (Dustmann et al. 2003). These estimates turned out to be much understated and Great Britain became the preferred migration destination for workers from new member states.

According to data derived from the British Worker Registration Scheme, there were approx. 307,000 registration applications submitted by Poles between May 2004 and September 2006.[11] This does not mean of course that this figure reflects the increase in the stock of immigrants from Poland in Great Britain because, as mentioned earlier, some of these people had been working in Great Britain before the accession and some of them returned to Poland after a short stay.

Data from the WRS and the LFS conducted in the United Kingdom (see Table III.4) clearly demonstrate that a significant share of new registration applications submitted to the WRS system in 2004 concerned people who had been working in Great Britain before that date. What is more, the number of Poles staying in Great Britain in a given year estimated on the basis of the LFS was increasing about twice slower than suggested by the dynamics of registrations with the WRS system, which implies that a significant share (probably about a half) of people searching for jobs in Great Britain return to Poland after a relatively short time.[12] Unfortunately, there is no information available about the structure of the Polish immigrants in Great Britain and therefore it is difficult to asses what are the shares of workers who came after the EU enlargement and of workers who had been living there before the accession. Thus, it is hard to establish accurately what share of workers return to Poland and after what period.

Nevertheless, the claim that migration after 1 May 2004 has been of short-term nature is supported by the survey carried out by the British Home Office. The most frequent answer given by immigrants from the new member states to the question concerning the planned duration of their stay in Great Britain – posed at the time of employee registration, i.e. usually at the beginning of their stay – was "less than three months" (45 per cent).

Table III.4.
Inflow and number of Polish immigrants in Great Britain (in thousands)

Year	Employee registrations	Stock of immigrants (according to LFS)	Inflow of immigrants (according to LFS)
2002	-	49,5	-
2003	-	65	15,5
2004	75,5	77,5	12,5
2005	129	132,5	55
2006	109(*)	219,5	87

(*) data covering the period before September 2006
Remark: inflow of workers estimated on the basis of the WRS, stock of immigrants from Poland based on the LFS for the period spring 2001 - spring 2006

Source: Home Office calculations.

[11] Registration under the WRS system is obligatory for people who plan to work in Great Britain for more than one month. This requirement does not apply to the self-employed.
[12] It can be assumed that the estimates of the number of immigrants from Poland based on the British LFS reflect quite accurately the actual size of migration to this country, and that they understate only the number of people who, for various reasons, intentionally avoided interviews with the pollster.

The LFS also allow to assess the situation of Polish workers in Great Britain in relation to immigrants from other new member states and from English-speaking countries.[13] According to relevant research studies (Drinkwater et al. 2006), Polish workers who arrived in Great Britain after the accession are very young – about a half of them are aged 16-25, and together with the population from the age group 26-35 they account for more than 80 per cent of all Poles who came to the United Kingdom after the EU enlargement. The age of immigrants from the remaining NMS is similar, although the share of people aged 35+ is slightly higher. The information about the young age of workers from the NMS8 is line with data derived from the WRS register, from the NINO (British counterpart of the Polish Social Insurance Institution – ZUS) and from the International Passenger Survey.

The average age of education completion for Polish workers is 20.6 years and the average duration of education – 13.6 years. The above figures imply that a considerable part of Polish workers in Great Britain consists of students (including bachelor's degree holders) and people with secondary education.[14] The Polish LFS also provide information about the level of education of Polish migrants in Great Britain and in accordance with these data, in 2005, 35 per cent of people leaving for Great Britain for longer than 2 months had higher education qualifications. High qualifications of Polish workers are also confirmed by the results of research studies carried out by the British organisation called Learning and Skills Development Agency (Sachdev, Harries 2006).

The employment rate for the Polish immigrants who came to Great Britain after the accession amounts to 82.1 per cent. It is higher than the employment rates for immigrants from other new member states and close to that typical for people from the English-speaking countries. An average worker from Poland works similar number of hours as immigrants from the English-speaking countries, i.e. almost 42 hours per week (compared with 42.6 hours for workers from the English-speaking countries), however, he earns less – his hourly wage amounts to approx. 6 pounds. As for Anglo-Saxon immigrants, they make more than twice as much, i.e. 14 pounds per hour. This disparity is above all a consequence of different employment structures. Poles, similarly to workers from other NMS, are mainly employed in positions which do not require high qualifications (the share of people involved in elementary occupations[15] amounts to 74 per cent), whereas migrants from the English-speaking countries most frequently work as managerial and specialist staff (approx. 68 per cent) (Drinkwater et al. 2006). By way of comparison, in accordance with the LFS, the share of people involved in elementary occupations in the total population of employees in Great Britain amounts to approx. 12 per cent.

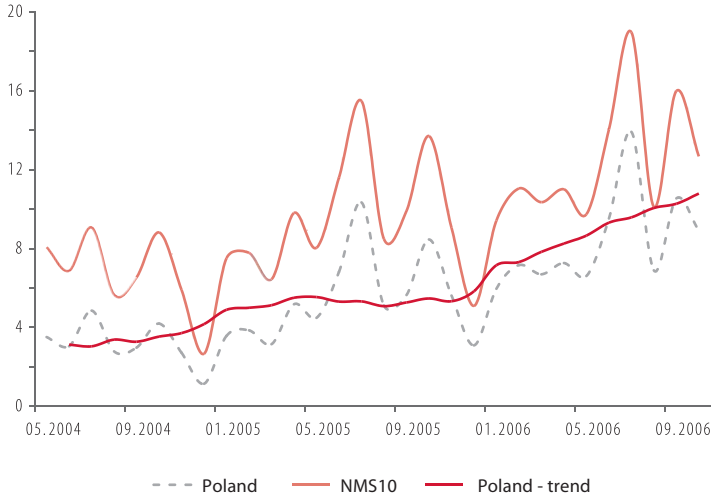
According to the British Home Office, out of all 307,000 Polish workers registered after 1 May 2004, more than 35 per cent have engaged in work in administration and business, 20.5 per cent in the hotel and catering industry, 10 per cent in agriculture, 7 per cent in industrial production, 5.1 per cent in healthcare, almost 5 per cent in food processing industry, 4.3 per cent in retail and 4 per cent in construction. According to the LFS data from 2005, some 20 per cent of all hired workers in Great Britain were employed in distribution, hotel and catering services, approx. 1 per cent in agriculture, fishery and forestry, 11.7 per cent in industrial production, 4.6 per cent in construction and 47 per cent in administration, business, education and healthcare. Thus, there is an evident overrepresentation of Polish workers in agriculture, whereas in the remaining sectors the above are similar.

It is also worthwhile to look at how the nature of economic activities of the Polish in Great Britain has changed after 1 May 2004. Prior to the EU enlargement, workers from the CEE countries could legally undertake onlyself-employment activity. According to the LFS, the share of people running their own businesses in the total number of Polish workers amounted to approx. 26.5-32.4 per cent prior to the accession. As restrictions on engagement in hired work were lifted, the share of entrepreneurs in the total number of new migrants declined to 3.5 per cent. Similar patterns can be observed for citizens from other new member states (see Drinkwater et al. 2006). Even the assumption that the above could be a consequence of a significant increase in the number of new immigrants, who either did not yet set up a company or who were less inclined to start with their own entrepreneurial undertakings, does not explain such a considerable decrease in the share of self-employed. It can be rather presumed that before 1 May 2004 a lot of Poles used to set up their own businesses in order to circumvent the requirement to obtain a (hired) work permit. Therefore, the opening of the British labour market resulted not only in increased inflows of workers from the new member states but also in less law circumvention and smaller shadow economy in this country.

After the EU enlargement, Ireland has also become a popular migration destination among Poles. The number of PPS numbers issued in 2005 was 16 times greater than in 2003. What is more, some 156,000 Polish citizens have registered with this system to date. However, it should be emphasised again that these data cover all migrants – irrespective of whether they are still working in Ireland or how long they have been working there. Although as from the EU enlargement, the trend in the number of issued PPS numbers is clearly rising, seasonal workers from Poland and from other new member states account for a substantial share in the above number (see Chart III.5).

[13] Immigrants from English-speaking countries (USA, Canada, Australia, New Zealand, South Africa) constitute a suitable group for comparison because research studies carried out in Great Britain point to the occurrence of a phenomenon referred to as "language penalty" (Dustmann, Fabbri 2003; Leslie, Lindley 2001 from: Drinkwater et al. 2006).
[14] Although the average does not always reflect accurately the mainstream trend – these may as well be people with basic vocational education and university graduates.
[15] Including routine and semi routine occupations.

Chart III.5.
Number of personal public service numbers issued in Ireland to the citizens of Poland and the NMS10 in the period 2004-2006 (thousands).



Source: Department of Social and Family Affairs.

As indicated by the Polish Ministry of Labour and Social Policy, according to the Irish Department of Enterprise, Trade and Employment, in May 2006, there were 35,000 Poles working in Ireland. Similar results are provided by the Quarterly National Household Survey, which estimated that in the fourth quarter of 2005 almost 73,000 of citizens from the new members states stayed in Ireland. In view of the fact that in the period 2001-2005 Poles accounted for about a half of all NMS citizens applying for PPS number, the number of Poles staying in Ireland can be estimated at approx. 36,000 people.

Relevant research studies demonstrate that the phenomenon of Polish immigrants engaging in employment below their qualifications in Great Britain is not an exception. Ireland, similarly to Great Britain, attracts young people who are relatively well-educated but who work in positions which do not require high qualifications, i.e. below their nominal level of education (Minns 2005). This phenomenon does not concern Polish citizens only, it is relatively common in all OECD countries (see, for instance, OECD 2005, Barrett et al. 2006). Data on the employment of citizens from the NMS10 in Ireland indicate that they work above all in production and construction (approx. 31 per cent) as well as in the services sector, especially in the hotel and catering industry (8.6 per cent) and in trade (8 per cent) (Doyle et al. 2006).

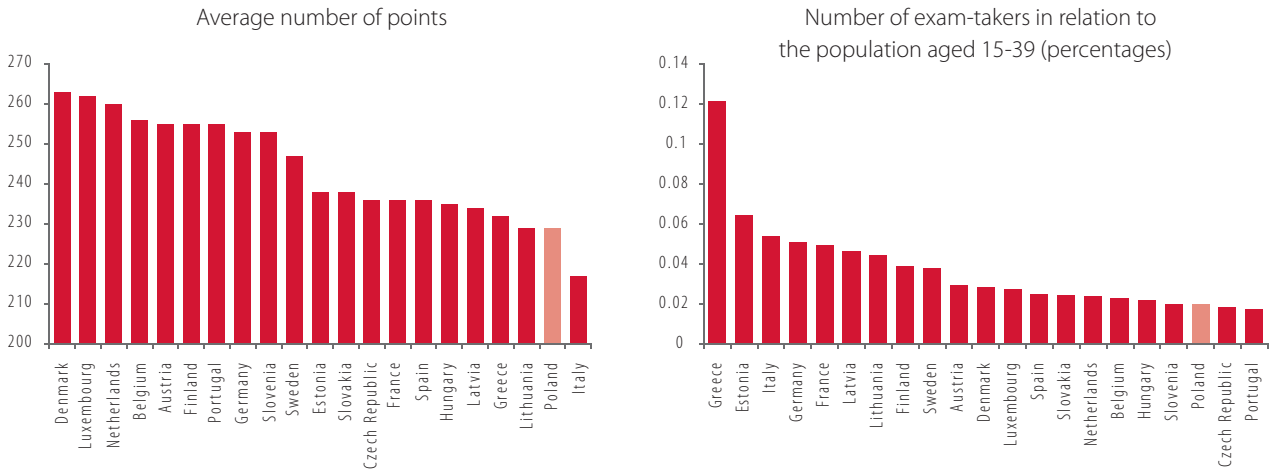
At the first glimpse, the picture which emerges from the employment statistics for Polish migrants in Great Britain and Ireland does not seems optimistic. It is worthwhile to consider why Poles – despite their rather high average level of education, work in positions which do not require high qualifications and are paid relatively low wages.

Potential reasons for the above may include:

- actual qualifications of Polish immigrants **are no match for the qualifications** of people with the same nominal level of education from other regions, especially from the Anglo-Saxon countries,
- some Polish immigrants with high qualifications – comparable to those of the British – are not well recognised by British employers (possibly due to large information asymmetry) and consequently end up working in positions which are below their skills and receiving wages which are relatively lower,
- relatively young age of Polish migrants translates into scarce work experience and thus limits their options and bargaining power in the labour market compared with older immigrants from other countries,
- **insufficient English language skills** may be an obstacle to finding a job. In order to engage in work as a specialist, it is necessary to have a good command of professional terminology. It is worthwhile to note that Poles do much worse in tests of English not only than the Danish and Dutch but also than people from the other NMS (see Chart III.6).

Chart III.6.

Average score obtained in the TOEFL (CBT) exam by the citizens of the EU countries and the share of exam-takers in the population aged 15-39 in the period 2003-2004.



Source: TOEFL Test and Summary Score Data, 2003/2004.

- wages indicated in the statistics are wages which Polish workers received in their first jobs. It is difficult to assess to what extent registration data reflect pay rises, which may be granted at the end of the trial period, or promotion. Moreover, because a large share of Polish workers is employed in sectors such as hotel and catering services, wages might not reflect the whole income of such workers (which might largely depend on, for instance, tips),
- when going abroad, many people do not intend to leave Poland for more than a couple of months. They do not devote much time to look for a job prior to departure. Moreover, the temporary work sector typically offers employment in elementary occupations which do not require qualifications. Some migrants return to Poland, some decide to stay and they probably find better jobs. This fact is not always reflected in the statistics which – as they demonstrated the present state of things – do not allow for an accurate assessment of how migrants improve their labour market status,
- referenced research studies concerned above all Polish workers who have come to the EU countries relatively recently (not earlier than in May 2004), whereas research studies on overeducation indicate that with time immigrants tend to find better jobs as they acquire knowledge and skills necessary to operate within the new labour market (Weiss 2000). This is possible among others thanks to their work experience acquired in the receiving country and their improved command of English.

Of course, these conjectures must be verified – as time goes by, new data and information about Polish migrants will make it possible to conduct more detailed analyses which should be used in future research.

It should also be emphasised that although the inclination of Poles to leave for the Anglo-Saxon countries is considerable and Polish migrants do relatively well in the British and Irish labour markets, they also encounter many difficulties in the process of assimilation and integration with the local community and their decision to go abroad often gives rise to numerous concerns (see Box III.8).

Box III.8. Obstacles and difficulties encountered by emigrants in Ireland and Great Britain

Research studies carried out by the European Citizen Action Service in October 2006 showed that the most common obstacle (which appears already at the time of making a decision about departure abroad) is the lack of sufficient foreign language skills (Radiukiewicz 2006). Emigrants also pointed to cultural and social barriers. When moving abroad they feared loosing their jobs and contacts with relatives staying in Poland. In particular, emigrants' concerns concerned their ability to maintain close contacts with partners and children.

The first problems after departure from Poland with which migrants are faced are usually connected with finding accommodation. Migration networks are of particular importance in this respect, especially at the early stage of stay abroad. Difficulties encountered by emigrants result from their lack of knowledge of the legal and tax systems of the receiving country, as well as of procedures for bank account opening and for receiving social assistance or unemployment benefits.

Economic migrants also have to face difficulties connected with their participation in the labour market. People who enjoy support of family members and friends while looking for a job, find employment fastest. According to Polish workers in Ireland and Great Britain, work-related problems include above all unpaid overtime work, work below potential, lack of employment contracts and health insurance as well as a sense of discrimination.

One additional difficulty for emigrants is the insufficient consular assistance provided to Poles in London, which is a consequence, among others, of an inadequate number of employees of the consulate in relation to the number of the population of Polish emigrants.

Germany

The introduction of a transitory period, which has limited the access of workers from the CEE countries to the German labour market, resulted in there being no increased interest among Poles in emigrating to Germany after 1 May 2004. On the contrary – although Germany is still the most popular Polish migration destination, in the recent years it has been decreasing in popularity in favour of Great Britain and Ireland. According to the LFS, in 2000, some 35 per cent of all Polish migrants went to Germany, whereas in 2005 this number came to only approx. 22 per cent.
Economic migration to Germany is mainly of short-term nature. Most people leaving for Germany, i.e. approx. 85 per cent, engage in seasonal work (up to four months) – above all in agriculture – in accordance with the bilateral agreement of 1990. The annual quota of seasonal work permits is approx. 300,000 permits. Research studies (data from the Ministry of Labour and Social Policy, Łukowski 2004) on this type of work in Germany indicate that Poles often work for the same employer every year, which allows to minimise risk under circumstances of incomplete information. When searching for jobs, migration networks prove essential – almost 85 per cent of people found seasonal occupation thanks to their family members or friends. The fact of engaging in seasonal work abroad often entails operation in two labour markets. More than a half of people who decide to go to Germany to work have permanent jobs in Poland. They do seasonal work in Germany during holiday or sick leaves in Poland..

One typical characteristic of people migrating to Germany is their average age (37 years) which is higher than that of other migrant groups. Almost 40 per cent of seasonal workers are 40+. Moreover, the population of people engaging in seasonal work is clearly overrepresented by men, inhabitants of rural areas and people with secondary education. What is more, more than 62 per cent of seasonal workers leaving for Germany did not know German before their first departure to work, and only 4 per cent of them had a good command of this language.

Sweden

Sweden is one of the countries which decided to remove all restrictions on access to their labour market by citizens of the new EU member states. It was often emphasised in the public debate that this decision may entail an abrupt increase in the number of immigrants attracted by high wages and low unemployment on the one hand, and by an extensive social security system on the other (see Box III.9). Contrary to expectations, although the volume of immigration from the CEE countries has been on the rise since the EU enlargement, it remains insignificant mainly due to the small base size.

Data from the Swedish Statistical Office indicate that, compared with 2003, the number of long-term immigrants[16] from the new EU member states went up by approx. 77 per cent after the enlargement. This growth trend was maintained in 2005 which means that the inflow of immigrants did actually take place and that is was not only a consequence of the legalisation of stay by people who had been living in Sweden before 1 May 2004. Poles accounted for approx. 60 per cent of all immigrants from the new member states who came to Sweden after the EU enlargement (see Table III.5).

Table III.5.
Inflow of immigrants from Poland and other NMS to Sweden in the period 2000-2005

	2000	2001	2002	2003	2004	2005
Poland	780	908	1186	1134	2521	3516
NMS10	1890	2095	2584	2381	4232	5559

Source: Statistics Sweden

In 2004, [17] the employment rate for Polish migrants amounted to 59.2 per cent, which means that it was lower then the national average by 15 percentage points. Poles living in Sweden work above all in healthcare (24 per cent), trade (17 per cent) and manufacturing and mining (16 per cent). It is mainly well-qualified people that leave for Sweden – as many as 36 per cent of Polish migrants have tertiary education qualifications and 44 per cent – secondary. These shares clearly diverge from the education distribution in the Polish population, even if we account for an overrepresentation of young people among migrants. It is worth to note that the average salary of Poles in Sweden amounts to 23,000 Swedish crowns, which is an amount comparable to the national average (SEK 25,700) (Doyle et al. 2006).

To sum up, it should be stated that although the number of immigrants went up after the EU enlargement, this inflow – in absolute terms – seems to be marginal in view of the size of Swedish labour market and the fact that Sweden is one of three countries which lifted all restrictions on access to the labour market upon the EU enlargement. The above-referenced data imply that the inclination of the Polish to engage in work in Sweden has been small compared with their efforts to find jobs in Ireland and Great Britain. Nev-

[16] Immigrants are defined here as people who intend to stay in Sweden for at least one year.
[17] Data covering the period before 2004.

ertheless, it should be taken into account that people who leave for Sweden for less than three months are not obliged to apply for residence or work permits and therefore Swedish statistics – as opposed data in Ireland and Great Britain – do not cover seasonal workers. Despite this fact, even if seasonal workers were included, it seems unlikely that the total number of people who came to work in Sweden would be even close to the numbers recorded in the Anglo-Saxon countries.

Box III.9. Immigrants versus social security – what do the Polish do in other EU countries?

In the midst of the debate which preceded the EU enlargement, opponents of the liberalisation of the movement of workers had warned that immigrants from the new member countries would abuse social insurance systems in the Western European countries. This type of concerns emerged also in countries which decided to remove barriers to access to their labour markets. Consequently, Great Britain and Ireland restricted access to their social security systems, whereas Sweden – which was an exception in this respect – offered immigrants from the new member states free access to the national social insurance system immediately after the EU enlargement.

The concerns that immigrants from the new member states, including Poles, would engage in temporary employment in order to be eligible for social insurance benefits did not materialise. Migrants move to the Western European countries above all in order to work and generous social insurance systems do not constitute a strong incentive attracting immigrants, which is evidenced, among others, by the fact that relatively few people migrate to Sweden.

The employment rate for Poles who arrived in Great Britain after the EU enlargement is estimated at 82.1 per cent, which is a figure that exceeds the national average. Neither did the Irish feels the pressure on their social insurance system – in the second quarter of 2006, the rate of employment for immigrants from the new member states amounted to 87 per cent. As for Sweden, towards the end of 2004, the employment rate for Poles reached the level of 59.2 per cent. What is more, in accordance with the data of the Swedish National Board of Health and Welfare (Socialstyrelsen), the number of social benefit applications submitted by Poles has not increased. Both in 2003 and 2004, Polish citizens filed approx. 1,700 such applications (Doyle et al. 2006).

At the same time, the number of Poles who apply for family benefits abroad has been on the increase. This is so because child benefits in Western Europe are much higher than in Poland, they are usually granted to families irrespective of their income and they can be obtained even if one family member works abroad and the child stays in the home country. According to the Home Office in Great Britain, from January to September 2006, 22,900 family benefit applications submitted by citizens from the new member states were positively evaluated – compared with 6,200 during the same period in 2005.

1.4 Individual determinants of Polish international migration.

1.4.1 Introduction

Knowing the facts concerning Polish emigration before and after the accession, we can take a closer look at the reasons why Polish citizens decide to leave Poland and make an attempt at assessing why certain social groups are more likely to go to work abroad than others.

Research studies on factors that affect the scale of Polish emigration tend to focus on the labour market situation. It is often raised that wages are much lower in Poland than abroad and that job opportunities are scarcer. It should be borne in mind that these opportunities are varied and that they depend on a range of factors, including above all level of education and of professional experience. It can be assumed, however, that for many people it pays to go to work to another country than to search or continue a job in Poland. The outcome of such calculation is also affected by such factors as decreasing costs of job hunting and of working abroad, due to Internet expansion, lower cost of transport, etc.

The approach to the analysis of migration processes based on the comparison of profits and losses associated with emigration refers to the human capital theory (see, for instance, Bauer, Zimmermann 1999; Kaczmarczyk, Okólski 2005). In accordance with this theory, emigration is a kind of investment in future income of an individual and the decision about departure abroad is made as a result of a comparison of individual expected benefits and costs connected with going to work to a different country or staying at home (see Box III.10). [18]

The assessment of migration in terms of an individual investment allows to explain not only the reasons for but also the **age selectiveness of this process** – most migrants are young people. The relatively high migration potential of the young Poles is evidenced among others by the results of the Eurobarometer of 2002, which indicate that people aged 15-24 account for approx. 64 per cent of all people declaring their intention to go abroad, and together with the age groups 25-39 – more than 92 per cent (Krieger 2004). Among others, this is so because the expected discounted benefit from migration is lower for elderly people. Similarly, if we take into account the risk of failure, for young people, losses associated with a potential fiasco can be stretched out for a number of years. The cost of migra-

[18] In most theoretical models it is assumed that this decision is irreversible – they do not account for either return or incomplete migration.

tion includes financial outlays as well as emotional losses connected with breaking family and social ties and having to adapt to new circumstances. Therefore, it can be reasonably expected that there are relatively many single people among migrants – people who do not have family commitments, i.e. mostly young people. The above observations find their confirmation in the results of empirical studies (see, for instance, Bauer, Zimmermann 1999).

Box III.10. Migration as investment

Migration can be regarded as investment in the future income of an individual. When making a decision about going abroad, a potential migrant compares expected benefits and costs of migration. Benefits from migration include above all expected wages in relation to chances of finding a job (offering hourly rates at a certain level) abroad. What is more, at least in the case of people who are characterised by a high initial level of human capital, advantages also include professional experience and skills acquired abroad. As for costs, they include:

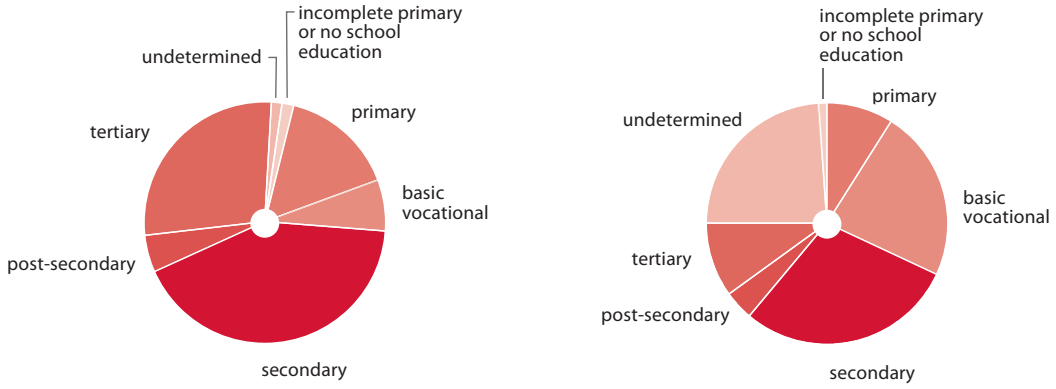
- alternative income which a potential migrant might earn, if s/he found (or continued) work in Poland;
- transaction costs connected with looking for a job abroad;
- cost of breaking the social bonds and adapting to new conditions;
- differences in living cost in the home country and in the migration destination (above all cost of accommodation).

The issue of **human capital selectiveness** is not as obvious under the model of migration as investment. On the one hand, high capacity for collecting and processing information (e.g. Internet literacy, foreign language skills) which is typical for highly educated people, allows for a more effective job search abroad and – what comes with it – greater expected net benefit from migration due to lower transaction cost and higher probability of finding a better paid job. On the other hand, however, highly educated people have relatively high chances of finding a job in their home country, which means that for them migration entails higher alternative cost.

Box III.11. Migration versus level of education – can we talk about brain drain?

The phenomenon of mobility of professionals which consists in their employment in the destination country in positions and professions which are in line with their qualifications is commonly referred to as brain exchange. It is a two-way flow. In the case of a much greater net outflow of skilled labour force, we are dealing with a brain drain. An opposite trend is referred to as brain gain. However, when a highly qualified worker engages in work which requires lower qualifications and less experience than s/he can offer, we are dealing with depreciation of skills which leads to brain waste.

Chart III.7.
Level of education of Polish long-term emigrants (left graph) and level of education of Polish emigrants aged 13+ who stayed abroad for more than 2 months in the period 1989-2002.



Source: Own calculations based on the NPC 2002

In the period 1989-1991, the share of university graduates in the total number of Polish migrants staying abroad temporarily amounted to 9 per cent. In the period 1998-2001, this share grew to 11.5 per cent, which surely has to do with the increased interest in tertiary education in the Polish population. At that time, Polish graduates most frequently moved to: the US – 25.8 per cent, Germany – 19.4 per cent, Great Britain – 9.8 per cent and Canada – 3.2 per cent, and they tended to choose Anglo-Saxon countries more frequently than lower qualified workers. Similarly to other migrants, people with tertiary education who go to work abroad are usually young – aged 25-34. The increase in the volume of emigration of Poles with tertiary education does not yet deserve to be referred to as brain drain. In 2000, the share of Polish emigrants with tertiary education amounted to approx. 10 per cent, whereas for the Irish it was as high as 26.1 per cent, and for New Zealanders – 24.4 per cent (OECD 2006). Therefore, the growth trend in the number of migrants with tertiary education is mainly connected with the increasing intensity of migration, growing share of people with higher education in the total population and young age (up to 35 years) of migrants as their level of education is high.

When applying the above considerations to the situation in Poland, it can be observed that theoretically groups with relatively high level of qualifications should be more inclined to migrate. It would be difficult to carry out a regular study which would allow a verification of these conjectures due to the lack of representative and sufficiently detailed data, although the above-referenced statistics for Great Britain and Ireland seem to support this thesis. We can also refer to examples of groups for which the "migration as investment" theory appears to illustrate well the process of engaging in work abroad. However, the case studies presented below, which concern particular social and economic groups, cannot be considered arguments in favour or against the above theory in its strict sense.

1.4.2 Migration of healthcare workers

A relatively well-documented example of workers for whom the difference in expected salaries may play a significant role when making emigration decisions are people employed in healthcare services. Their propensity to emigrate is evidenced by data of the Ministry of Health on the number of issued certificates confirming professional qualifications. Such certificates are issued to doctors and nurses intending to work abroad(see Kaczmarczyk, Okólski 2005). The number of certificates issued should not be seen as an exact reflection of the outflow of healthcare workers abroad, however, it provides an approximation of the extent of interest in emigration. Although in most EU countries salaries in the healthcare sector are relatively low compared with salaries in other sectors, they may seem very high in relation to those offered by Polish healthcare institutions. Considering the number of certificates issued by the end of May 2005, it can be assumed that the tendency of healthcare staff to emigrate was not dramatically high, although it exceeded slightly the relevant values reflecting tendencies in the entire population –qualification certificates were issued to approx. 2.2 per cent of doctors and approx. 1.2-1.5 per cent of nurses in Poland. At the same time, considerably higher percentages were observed for certain groups of medical consultants and for some regions in Poland. The former included in particular anaesthesiologists (7.7 per cent), chest surgeons (7.1 per cent), plastic surgeons (7.2 per cent) and emergency rescue specialists (4.1 per cent). By way of comparison, the share of pharmacists (i.e. people with relatively high salaries in this sector) who applied to have their qualifications recognised abroad amounted to as little as approx. 0.6 per cent. As for nurses and midwives, more than 8 per cent of them applied for the above-mentioned certificates at the District Nursing Council in Krosno and almost 0 per cent in Warsaw. Hence, it seems that it is mainly healthcare employees in low pay areas or those who work in the less developed regions – where salaries are low and it is difficult to find additional jobs (and additional income) in private healthcare institutions – that tend to emigrate. In less developed regions, migration may be a noteworthy alternative also from the perspective of entire household, because it is less likely that income earned by spouse would compensate for low income derived from work in the Polish healthcare sector. At the same time, strong demand for employees with particular qualifications (e.g. plastic surgeons) and the possibility of achieving high income abroad are of great importance.

1.4.3 Migration of students

Students seem to be a group which can benefit a lot from migration. The level of employment of young people in Poland – similarly to other NMS8 – is rather low, irrespective of their relatively high (nominal) level of education (see part I). To some extent this results from high education activity of the young which can hardly be combined with work, especially full-time work. On the other hand, it should be noted that in Poland small – in international context - share of working students coexists with high share of students in evening and part-time education(see, for instance, Bukowski et al. 2005). Low employment rate of students is probably associated with the insufficient development of the service sector in Poland because it is a service sector where young people and students are usually employed (Bukowski et al. 2005). The above applies above all to students from smaller towns. Consequently, despite language and cultural barriers, students have more opportunities to find work abroad than in Poland. . The Eurobarometer survey of 2002 indicates that students accounted for almost 53 per cent of all Poles declaring intention to migrate (Krieger 2004). However, it can be assumed that students' migrations are mainly of short-term nature. This is so because a decision to stay abroad for a long time would entail a high risk of not completing the studies, which would lead, in turn, to the l decrease of potential future incomes and to the wasting of outlays related to hitherto education.

The above-presented mechanism of migration of young people and students is in line with the results of relevant empirical studies. They imply, among others, that students constitute a relatively large group in the total number of people arriving in Great Britain with the intention to work and that most of them engage in employment in hotel and catering services, i.e. in the same sectors in which most students from Western Europe find employment and which are characterised by evident seasonality in labour demand.

1.4.4 Migration of university graduates

People who have recently completed studies are another example of potential emigrants . Although in Poland tertiary education graduates find jobs relatively easily, due to their scarce work experience they earn relatively low salaries (in relation to the average salary offered to a person with tertiary education). Most graduates do not yet have any family obligations. What is more, due to their young age, the rate of return from migration (if, according to plan, migration is of long-term nature) is likely to be positive (they will live long enough for potential discounted profits or losses connected with migration to generate expected net benefits). Moreover, in view of the rather high level of foreign language skills among young people (see Diagnoza Społeczna / Social Diagnosis 2005), it can be expected that in their case the adaptation process goes rather smoothly. Even if jobs undertaken abroad are not well-suited to the level or area of their education, in the short term (i.e. in the horizon of a few months), decisions to go abroad may prove very beneficial. It seems, however, that in the long term, benefits from working abroad may no longer outweigh the costs. This is because after working for a few years in Poland, tertiary education graduates would probably make a satisfactory professional career, whereas abroad an average Polish worker takes a high risk of working below his/her level of qualifications permanently, which in the long term leads to human capital depreciation and limits work opportunities abroad or after return to Poland. Thus, it is important how tight is the boundary between particular labour market segments in countries, which constitute migration destinations for young people, what are their chances for professional development and when do they decide to return to Poland.

1.4.5 Migration of the unemployed

Theoretically, the unemployed constitute one of the socio-economic groups which could benefit a lot from migration. The alternative costs of migration are lower for them than for workers because for the latter a departure abroad would be associated with change of employer and loss of income in Poland. Moreover, the unemployed are in the position to devote relatively more time to a job search abroad than workers. At the same time, empirical studies indicate that the unemployed are rather reluctant to migrate – both at the international and regional levels (see, for instance, World Bank, 2006)..

Low mobility of the unemployed can be explained by:

- **problem of structure** – elderly people, who do not tend to go abroad (for reasons mentioned earlier)constitute a large share of the unemployed population. Moreover, a large share of the unemployed in Poland work in grey economy (approx. 20-30 per cent). These people have a source of income which they might not want to give up in order to take up employment abroad.

- **liquidity problem** – for the unemployed, especially those living in less developed, poorer regions, low incomes may constitute an obstacle to migration (Olesen 2002 after: Krieger 2004). Similarly to other investment decisions, a decision to emigrate may only be made on condition that a potential emigrant has sufficient funds to cover the direct costs of departure (transport, job searching and initial living costs), which may be high at the first stage of emigration.

- **problem of job search method** – the unemployed are often characterised by low level of human capital. This can make their job search less effective or limit them to local or regional labour markets. Moreover, when looking for jobs, some of the unemployed (especially low-skilled or from small towns and villages) tend to rely mostly on informal information sources (see World Bank, 2006), which largely limits the spatial range of their job search efforts. On the other hand, however, the existence of a family network in the place of potential migration is a factor which substantially increases the probability of finding a job abroad (see Box III.12).

Anecdotal information as well as quantitative research imply that the unemployed are relatively more likely to opt for seasonal work abroad rather than for long-term emigration (see Kaczmarczyk, Okólski 2005).

Box III.12. Social networks and migration

A large share of emigrants find work abroad thanks to social networks (Radiukiewicz 2006). Migration networks are defined as "sets of interpersonal relations that link migrants, former migrants and non-migrants in the source and destination countries by way of social connections" (Faist 1997). Social networks can connect family members, friends or can even be based on indirect relations. Family is of the greatest importance for migration network. In the literature on the subject, the following functions of migration networks are usually presented:

- security against cost and risk connected with migration,
- maintenance of contacts with the sending community,
- isolation from the receiving community,
- influence on the decision which household members migrate,
- influence on types of activities undertaken by migrants,
- transfer of information, goods and norms,
- influence on the choice of migration destination,
- influence on the extent of migration flows and their dynamics (Gurak, Cases 1992).

Thanks to migration networks people can obtain first-hand information on the living and working conditions in the receiving country from people whom they can trust. These connections are an essential element of the social capital of an emigrant. Considering the size of the Polish community abroad, the potential of Polish migration networks can be considered as high.

The strong influence of migration networks on decisions about moving abroad and on choices of migration destinations is reflected, among others, in strong migration trends of people from particular towns in Poland to particular countries or even towns in Western Europe. For instance, large numbers of inhabitants of Siemiatycze, a town of 16,000 people in the podlaskie voivodeship, engage in work in Brussels. First migrations from this town to Belgium took place in the 1980s. The inhabitants of Siemiatycze soon gained a reputation of diligent and honest workers which opened the door to chain migration. According to the authorities of Siemiatycze, more than a half of the town's inhabitants have been working abroad in the past (Tygodnik Przegląd 2002).

Social networks also play an important role for seasonal workers in Germany – as demonstrated in relevant research studies, almost 85 per cent of them found employment thanks to the help of family members or friends (Łukowski 2004).

Although the neoclassical theory of migration seems to be intuitively coherent and consistent with facts, it is now commonly claimed in the literature on the subject that it does not provide an exhaustive picture of the observed migration trends (e.g. it does not explain migrations which involve engagement in work abroad when wage levels are higher in the country of residence than in the destination country). The New Economic Theory of Migration gives an explanation, among others, of the above behaviour. In accordance with the above theory, migration decisions are usually made by entire households rather than by individuals. Economic migration may result not only from the desire to make additional income but also to diversify its sources in a particular household. This allows to reduce the risk of income loss, e.g. as a result of a shock in the local labour market.

Another key tenant of the New Economic Theory of Migration is the notion of relative deprivation, which postulates that the satisfaction of a given individual with his/her income is not only a function of its absolute level but that it rather depends on the position attained in relation to other people from the reference group (e.g. local community). This means that the inclination to migrate should be greater in social groups and regions where there is a particularly large differentiation in income levels. [19]

Box III.13. Methods for searching jobs abroad

Most jobs performed by Poles abroad are those commended to migrants by family members or acquaintances. Since decisions about emigration and chances of finding a job are most frequently conditioned by contacts with other migrants, it is said that there exists the so-called "**supranational social space**" (Kaczmarczyk, Okólski 2005). Another commonly used source of information is the Internet (Radiukiewicz 2006) – thanks to, among others, online discussion forums potential emigrants acquire information about job and accommodation search methods, living costs, etc. from people who have gone abroad earlier. Moreover, the role of employment agencies, press articles and other official sources of information is more and more significant.

The intensification of economic migration has given rise to the necessity of developing employment agency services. Regrettably, they are not always reliable or even legal. It is rather frequent that jobs offered to migrants prove to be fictional or they are performed in conditions that are much worse than agreed. At the same time, agents charge a lot for all the information provided. The said fees are usually one-time payments equal to the amount of the first monthly salary, or less frequently periodical – in the form of a fixed percentage of the wage.

The following employment institutions help in the process of finding jobs abroad: employment agencies in Poland, HR advisory, professional and temporary work agencies. Moreover, upon Poland's accession to the European Union, Poles gained access to the European Employment Service (EURES), which is an information exchange network which brings together public employment services in the countries belonging to the EEA with other regional, national or international organisations which operate in the sphere of employment.

[19] The term "relative deprivation" in the context of migration theory was used by Stark and Taylor (1989, 1991)

The New Economic Theory of Migration helps also to explain the fact that it is mainly young people who tend to emigrate. The success of the generation of Poles who entered the labour market in mid-1990s incited the professional expectations of the young. Nowadays, however, the situation of graduates in the labour market is more difficult and career opportunities which were available to their older colleagues are now scarcer. Hence, we can talk about a relative deprivation between particular cohorts entering the labour market.

What is more, it can be assumed that young Poles tend to more frequently compare themselves with their peers from Western Europe than older people (e.g. due to their better command of foreign languages, better Internet skills, participation in international student exchange programmes, etc.). Such wider reference group boosts the professional aspirations and expectations of the young generation of Poles who may thus sense greater dissatisfaction with their own economic situation. Consequently, they tend to decide more often to go abroad where they can count on better wages, although often at the cost of performing jobs that are below their qualifications.

1.5 Determinants of Polish international migration at aggregate level

In the preceding section, we have presented an overview of factors which affect individual decisions about migration. Factors which form such decisions at the individual level should translate into the extent of migration at the aggregate level and be reflected in the composition of the migration flow. Determinants of international migration at the aggregate level can be divided into:

- **push factors** from the sending country (relatively low wages, high unemployment, low employment growth, relatively high living costs, etc.)
- **pull factors** to the receiving country (high wages, high absorption of labour force which leads to low unemployment and dynamic employment growth, relatively low living costs).

The public debate on Polish economic migration is dominated by the view that relatively high international mobility is mainly due to the difficult situation in the labour market as well as to low wages in Poland. Hence, it is assessed that push factors are of decisive importance. Discussions in the media in the countries which have opened their labour markets often emphasise that robust economic growth, high wages and high labour demand in the rapidly developing services sector in the receiving countries are the factors which attracted workers from the new member states:. Another important group of factors affecting the movement of human resources between countries are **institutional factors**, e.g. immigration policy of the receiving country[2] which pertains mostly to the use and removal of barriers to the free movement of workers. The fact of channelling the flow of migration immediately after the accession of ten new member states to those Western European countries which have opened their labour markets (Great Britain, Ireland, Sweden) evidently illustrates how institutional factors can affect the destinations migration flows. In particular, under common market conditions, limitations to the free movement of labour force – although they can decrease the scale of immigration to some extent – lead above all to the application of illegal practices when employing immigrants. If demand for foreign labour and supply of foreign workers are high, restrictive immigration policies lead inevitably to the development of the shadow economy. This phenomenon can be observed nowadays in a number of European countries, especially with respect to immigrants from Africa but also to seasonal workers from Central and Eastern Europe.

It is difficult to objectively assess the role of particular aggregate and individual determinants of migration not only because of the quality of the available data but also because of the multidimensional nature of migration. In the literature on the subject, however, there is a consensus that the main factors responsible for increased migration from relatively poorer to richer countries, including from the NMS8 to the EU15 following the EU enlargement, are on the one hand: lower wages and living standards as well as the insufficiently developed services sector in the sending countries, and on the other hand, high labour demand in the receiving countries.

Moreover, the migration flow should be:

- **the larger**, the more numerous the early working age population, characterised by relatively low wages in the sending country, and the greater the probability that these people find jobs abroad and generate higher income than that generated in their country of residence,
- **the larger,** the greater the differences in income levels between the sending and the receiving countries,
- **the smaller**, the higher the transaction costs (connected with the legal terms and conditions of engaging in work abroad, overseas family network, cost of travel between the sending and the receiving countries),
- **the smaller**, the greater the difference in living cost levels,
- **the smaller**, the stronger the institutional and cultural barriers between countries.

A synthetic collation of individual and aggregate determinants of migration is presented in Table III.6.

[20] It seems that emigration policies in democratic countries are of smaller extent – they are limited to a more or less active participation in the establishment of conditions for a free choice of jobs for citizens.

Table III.6.
Determinants of inclination to migrate at the individual level and their impact on factors at the aggregate level

Determinants at the individual level	Determinants at the aggregate level
higher expected income abroad	• average wage offered to employees (with a given level and type of qualifications) in the country of residence of a potential emigrant • expected wage in the destination country of potential migration (with assumptions concerning the type of work which can – with a degree of probability – be undertaken in such country) • unemployment and employment rates (number of new jobs) in the country of residence of a potential emigrant • unemployment and employment rates (number of new jobs) for groups of people with a similar level and type of qualifications in the destination country of potential migration
transaction cost	• legal regulations determining the possibility of engaging in legal work in the country of potential migration (risk connected with illegal employment, cost of the work permit application) • distance between the destination and the source countries • existence of a contact network connecting family members and acquaintances in the destination country of potential migration (diaspora size and level of migration in preceding years)
difference in living cost levels	• difference in average living costs in the destination and source countries (mainly cost of accommodation)
relative deprivation	• risk of relative deprivation in the sending country reflected in income inequalities in a given region or social group
professional experience and skills	• barriers which make it difficult to fully use the knowledge and skills acquired in the source country when working in the destination country of potential migration (cultural links, language, etc.)
cost of breaking social ties and adapting to new environment	• role of family and traditions versus taste for migration in the culture of the sending country, • population structure by age and education • general living conditions: climate, political and economic stability • share of homeowners, degree of urbanisation

Source: Own elaboration

1.6. Impact of international migration on the labour market and economy

The process of international migration gives rise to many controversies both in the country which is the source of emigration (sending country) and in the destination country of the flow of migrants (receiving country). Opponents of migration pronounce many critical views thus pointing to its adverse impact on the economies of sending and receiving countries alike. Migration supporters, on the other hand, stress the evidently positive – in their opinion – aspects of international movements of people. According to the former, the net outcome of the economic processes is bound to be negative, whereas the latter claim that this outcome is in fact positive.

According to migration sceptics, potential threats that international migration may pose are generally similar for countries receiving and sending migrants. Negative phenomena that emigration apparently causes in sending countries include above all concerns that it can lead to increased deficits in the labour market – especially in certain professions and specialist areas, and accelerate the imbalance in public finances due to lost tax income generated by people at the age of maximum economic activity and unchanged expenditures on benefits for the elderly. Additionally, emigration gives rise to concerns about the economic growth potential in sending countries when the most motivated and enterprising as well as best educated people decide to migrate. As for receiving countries, fears are often voiced about excessive competition in the labour market as a consequence of large population inflows and about the resulting wage drops and increased unemployment among local workers. At the same time, the imbalance in public finances is said to increase because budgetary expenditures on benefits granted to immigrants would exceed income from taxes paid by them. Moreover, immigrants are said to slow down (temporarily) economic growth because their human capital and savings are too low to quickly fill the gap in capital per capita and in investment on research and development.

Migration enthusiasts provide a similar catalogue of positive phenomena which are said to arise in connection with migration processes and concern countries sending and receiving migrants alike. They claim that immigration of better qualified and highly industrious people constitutes an additional pro-growth impulse in the destination country. Consequently, they argue that immigrants help to fill the employment gap in sectors which lack sufficiently qualified local workers and to remedy the problem of aging society thus allowing the population of the receiving country to keep up high social insurance and retirement benefits. As for sending countries, supporters of migration emphasise that migration is a cure for high unemployment because it relieves the local labour market and that emigrants, who tend to send significant amounts of money back home, support the home economy and increase the living standards of their families who stay in the source country. What is more, the potentiality of emigrating may encourage a number to people to improve their qualifications and invest in human capital, whereas in the long run only some of them would actually go abroad. Also, many today's emigrants are likely to return to their home country in the future and bring along their savings thus feeding and developing the national economy.

A number of empirical studies in the field of labour economics have been carried out to verify the views of supporters and opponents of international migration (see, for instance, Friedberg, Hunt 1995, Ghatak et al. 1996, Borjas 1999, Commander et al. 2003, Drinkwater et al. 2003). Based on the above research it can be stated that in the case of receiving countries both concerns and hopes are justified to some extent, although the actual impact of immigration on the economy and labour market is generally not excessively large, mainly due to the moderate contribution of migrants to total human capital resources in the economy of the receiving country.

It seems that the postulate about the pressure exerted by immigrants resulting in the limitation of growth of wages offered to local workers is in fact viable, although this pressure is actually rather small (i.e. 10 per cent increase in the number of workers causes a 1-3 per cent drop in wages of local workers). There are, however, some specific sectors which are exceptions to the above rule and which tend to become dominated by immigrants who thus fill deficits in the labour market of the receiving country. Secondly, most first-generation immigrants work and pay taxes and therefore do not constitute a burden for the social insurance system or public finances. At the same time, examples of some countries demonstrate that the situation is slightly different for second-generation immigrants, although this depends on how well they assimilate in the receiving country.

One economic conclusion is that the impact of immigration on the level of output in receiving countries is positive though relatively small (i.e. 10 per cent increase in the number of workers causes a 1-2 per cent increase in output levels), which is due to the fact that because of immigration the labour supply of local workers slightly decreases and that immigrants engage in simple, low-productivity and low-wage jobs. This impact is greater, if a large share of migrants consists of highly qualified people. As a result, immigration helps to remedy problems connected with the ageing of the population at most to a marginal extent and because immigrants often assume the procreation model of the receiving country it is also a remedy that only delays these problems rather than prevent them.

Although the economic literature seems to support immigration related hopes rather than concerns of receiving countries, in the case of sending countries the situation is right the opposite – even though the actual impact of immigration on sending countries is also relatively limited. To begin with, it should be noted that the extent of emigration varies significantly between countries as well as in time. It also strongly depends on the scale of individual benefits that emigrants expect to derive from migration as well as on various institutional possibilities of leaving the source country for destination countries. Thus, emigration rarely exceeds 5 per cent of the population in the economically productive age and in fact it is more likely to reach much lower levels. Hence, concerns about potential depopulation of sending countries are unfounded.

Despite the confirmed negative impact of emigration on output due to brain drain, it usually is not very large because of the limited scale of this phenomenon and the positive effect on the accumulation of human capital in sending countries (i.e. brain gain prevails over brain drain). As for money transfers to source countries, they often exert a considerable positive impact on the living standards and drop in poverty of the families of emigrants – especially in Third World countries – but at the same time they often lead to the strengthening of economic and social inactivity behaviour. When it comes to return migration, the situation is a little bit more complex. Although only a small share of migrants from Third World countries returns to their home countries, the extent of return migration among European emigrants is much higher. What is more, former emigrants are more inclined than their families back home to productively use the income earned from their work abroad.

To sum up, it can be said that international migration brings advantages and disadvantages to sending and receiving countries alike. Benefits derived by receiving countries are smaller but they last longer, whereas drawbacks concern only some social groups. The latter are the greater, the more educated the immigrants are. As for drawbacks on the part of sending countries, they are temporarily minimalised by the flow of money transfers sent to the families of emigrants as well as by increased accumulation of human capital. Economic policies which minimalise these drawbacks in sending countries are simply policies that enhance rapid economic growth and real convergence in relation to receiving countries

2. Internal mobility and work commuting

2.1 Intensity of internal migration in Poland compared with other EU countries

In accordance with the NPC data, the number of people who changed their region of residence in the period 1989-2002 and moved elsewhere in the country can be estimated at 3,924,300, out of whom approx. 70 per cent moved within one poviat and approx. 25 per cent – within one voivodeship.[21] The average annual share of migrants aged 15-64 amounted to approx. 1 per cent in 1989-2002. Their actual intensity, however, was most probably higher because some migrants recorded in the NPC moved at least twice, whereas the methodology did not allow for multiple entries.[22] Hence, a question emerges about how Poland compares to other European countries in terms of mobility.

In the literature on spatial mobility in Poland, it is often assessed that the extent of internal migration is relatively low as compared with other Western European countries (see, for instance, OECD 2005, World Bank 2006a). Such statement should be subject some reservations, however. Above all, when comparing the intensity of internal migration across countries, one should keep in mind that the European countries differ substantially with respect to the size and density of populations of territorial units across countries or differences in the number of regions. This concerns in particular the NUTS classification and NUTS-2 regions, which correspond to voivodeships in Poland and for which the comparative analysis is feasible. In accordance with the basic "laws of gravity" formulated by the forerunners of research on the processes of mobility, the number of inhabitants and the distance to the migration destination are the key determinants of the intensity of migration (see Box III.14). Hence, the level of migration intensity (measured as a percentage share of people moving to a different region within one year) should decrease as the area of a given territorial unit increases. For this reason, only in the case of some European countries – namely France, Hungary, Italy and Spain – migration statistics are comparable at the NUTS-2 level with data for Poland. As for comparisons with the Czech Republic, Greece, Slovakia ad Germany, the average area of regions in these countries in approximately twice as small as in Poland (see Table III.7). When it comes to the Baltic states, Netherlands and New Zealand, internal migration data are not comparable with those for Poland, because in each of the above countries the largest region is smaller than the smallest of all Polish voivodeships.

The comparability of migration intensity across countries is also hindered by differences in the number of territorial units. The more regions between which people can migrate within one country, the greater ceteris paribus the potential intensity of migration.[23] For this reason, for instance in Hungary, due to the small number of NUTS-2 units, migration intensity is slightly understated in relation to the rate for Poland. Hence, comparing the mobility of these two countries, has to be conducted with caution.

Data presented in Table III.7 indicate that in the group of countries which are best comparable with Poland only in France the share of people aged 15-64 moving to a different region – corresponding to Polish voivodeships (NUTS-2), is considerably higher than in Poland.[24] For other countries in this group, i.e. Spain, Hungary and Italy, migration intensity rates are similar to that of Poland. The same can be said about Germany, if we take into consideration the size, area and population as well as the number of German territorial units. Migration intensity is much lower in Greece than in Poland – although if we take into account the average size of NUTS-2 regions in Greece, internal migration intensity at this level should in fact be higher.

Box III.14. The gravity models

In the so-called *laws of migration*, the forerunner of migration research, Ernest Ravenstein, stated among others that most people move at small distances and that they tend to move from rural areas to towns. A hierarchy of mobility is thus established, because migrants, who move to larger cities, create "gaps" which are filled by migrants from more peripheral areas. This observation has been generalised using an analogy to the physical notion of gravity. The basic gravity model assumes that the number of migrants is inversely proportional to the square root of the distance between the place of residence and the migration destination as well as directly proportional to the product of the numbers of populations of the two places. Although the currently used models are much more complex (they account for, among others, the endogeneity of population size), Ravenstein's laws are still used in research on mobility – both regional and international – as well as in commuting models.

[21] In the NPC, migration means a change of place of residence within one district (NUTS-5) as well as movements from rural to urban areas (and vice versa) within one district. Moreover, all migrants were accounted for, including those aged 15- at the time of migration. This approach differs from that used in international comparisons which used LFS data (see, for instance, Table III.7. which uses OECD data).

[22] This problem has been observed in all countries. Since national censuses are carried out every five years and the migration intensity rate, which is estimated baseing on registration data, concerns the number of changes of place of residence, the literature on the subject often makes references to the "1-year-5-year problem". This problem consists in migration intensity estimated basing on annual data being higher than the average annual value of migration intensity estimated based on data from national censuses carried out every five years. This is so because if a person migrates a number of times during the five-year period, the national census will only take account of the last migration, whereas the annually collected data will take account of every single migration.

[23] The relationship between migration intensity and the number of regions can be expressed by the following formula: $m = K * \log (n^2)$, where m = migration intensity rate, n = number of regions (so-called Courgeau index, see Bell et al. 2002)

[24] Unfortunately, at this point a problem arises which is connected with methodological differences between LFSs with respect to the definition of household members. It has been confirmed in an official publication of Eurostat that in France students can be considered twice, if they live in rented accommodation.

Table III.7.
Spatial description of regions versus internal migration intensity

Country	Number of regions (NUTS2	Regions				Migration intensity rate
		Area (km2) min.	max.	average	Average population density (persons/km2)	Annual flows (% of 15-64) LFS 2003
POLAND	16	9 412	35 412	19 543	88.3	0.3
High degree of comparability with Poland						
Spain	16	5 014	94 193	31 095	93.6	0.2
France	22	8 280	45 348	24 726	88.3	2.11
Italy	20	3 263	25 703	14 756	119.7	0.58
Hungary	7	6 198	18 314	13 290	89.5	0.4
Lower degree of comparability with Poland						
Greece	13	2 307	18 811	10 125	83.4	0.21
Czech Republic	8	496	17 616	9 858	286.8	2.11
Austria	9	415	19 173	9 318	334.3	0.64
Germany	36	404	29 477	9 917	303.8	1.36
Great Britain	11	321	39 777	6 590	531.6	2.28
No comparability with Poland						
Slovakia	4	2 053	16 243	12 259	57.4	0.14
Netherlands	12	1 363	4 983	2 823	328.3	2.15

Source: OECD 2005

Apart from the different numbers, sizes and population densities of territorial units, one should also take into consideration the fact that EULFS, a database used for cross-country comparisons of migration, covers not only economic migration, but also changes in place of residence driven by motives such as starting a family and taking up education at tertiary level as well as movements of people in pre-retirement or retirement age (retirement migration). Migration of this type may be more common in other countries than in Poland because of different housing market situation. We elaborate more on this problem in chapters on individual determinants of migration and on work commuting.[25]

Migration intensity level in Poland has fluctuated considerably in the last decades. In the 1960s and 1970s, the intensity of spatial mobility was rather high, above all due to large inflows of people from rural areas to towns. Firstly, "large-scale socialist investment" attracted workers from peripheries, and secondly, poor infrastructure and limited access to services often pushed families to move from rural areas to towns in order to increase their living standards (Kupiszewski 2001). The crisis of the 1980s brought a halt to the flow of rural population to urban areas thus lowering the intensity of migration. In the 1990s, migration intensity decreased further – increased unemployment, housing shortages as well as changes in the population age structure (decreasing share of the most mobile age group i.e. 18-34, in the total population), caused another drop in migration intensity (Chłoń 1997, Kupiszewski 2001). This issue is worth stressing, because in some studies it is posited that, considering the increasing regional disparities in the labour market situation, an intensification of migration should have occured. Nevertheless, as indicated by Pissarides and Wadsworth (1989), an increase in the aggregate level of unemployment and the resulting economic uncertainty may discourage migration, which could prevail over the effects of increased regional differentiation of chances to find a job. Considering that dismissals effected in Poland within last between twenty years were often accompanied by policies which encouraged redundant workers to withdraw from the labour market and discouraged them to seek other employment opportunities – even in their region of residence, it should not come as a surprise that the internal migration level in Poland did not increase in that period.

Understanding the causes of changes in migration intensity in Poland as well as an examination of their relatively low levels requires discussion over the mechanisms involved in making decisions on migration. Individual determinants of migration are examined in the following sections of this chapter. We also discuss regional determinants of migration and the issue of substitution of internal migration by international migration or by commuting to other regions. This chapter ends with an analysis of implication of the process of migration for the labour market.

[25] At the same time, in Poland, the group of potentially (and actually) most mobile people – namely those who take up studies away from their place of residence and then, having completed their studies, they take a job in that place instead of returning to their original place of residence – is not counted as migrants because of the construction of the survey. During their studies, when they live in halls of residence, they cannot be selected and included in the sample, whereas when they finish their studies they are included in the subpopulation which has been living in a given place for more than one year.

2.2 Individual determinants of internal migration

The literature refers to a range of individual determinants of migration, such as **age, education attainment**, **family status**, **stage in the life course** and **status on the labour market** (see, for instance, van der Gaag et al., 2003). Authors studying the processes of internal migration in Poland usually focus on describing migrants by certain characteristics that reflect their situation after moving to another place of residence. Such static approach ignores changes in education, family status and economic situation, which could potentially be the direct reasons for such move. Events such as starting and completing education, taking up or loosing a job, starting a family or joining another one, may be of importance for decisions about migration as status attained after their occurrence, although their impact might have a different direction. For instance, the fact of starting a family is often connected with the change of residence but in the same time people, who already have set up families, are less likely to move at a longer distance. As much then, as the process of starting a family may increase the chances of migration, the fact of having a partner and children reduces the tendency to migrate.

Another illustration of problems connected with static approach are the diverging conclusions about the relationship between the current status on the labour market and the probability of migration derived from two models: hiring model and speculative migration model. In the speculative migration model, migration occurs before taking up employment, so migrants can be observed as unemployed for a certain stage of their stay in the new place of residence. In the hiring model it is assumed that an unemployed person can search for a job using media, which are available irrespective of the actual distance from the migration destination (e.g. Internet) and decides to migrate only after conclusion of a contract with the employer. This means that after migration most people should be employed. If the hiring model accurately explains the process of spatial job search in Poland, the interpretation of the correlation between the current status on the labour market and the inclination to migrate may be misleading. The fact that people, who already have a job at the time of the survey, were relatively more likely to have migrated than those who are unemployed, does not mean that unemployment does not generally encourage migration.

Summing up, a distinction between the impact of certain event on the probability of migration and the impact of status attained as a result of the occurrence of this event should be made:

- the impact of the **level of education** should be assessed considering the possible co-occurrence of migration and the starting or completing education,
- impact of **having a family** should be assessed taking account of the timing of setting up a family,
- relationship between migration and the **situation in the labour market** should be analysed in the context of changes in abour market status (taking a job, loosing a job, withdrawing from the labour market, etc.) rather than the current labour market situation of a migrant.

Such dynamic approach has been attempted in the model, the results of which are provided in the subsequent part of this chapter. From the point of view of discussions presented in this report, the most important of the above three issues is the last one, i.e. the question about the impact of certain events in the labour market career on the probability of migrating. The impact of other factors must be, however, also taken into account.[26] One should expect that if age and education levels are controlled for, people without jobs should typically be more likely to migrate than the employed because for them alternative costs of such decision are lower (Pissarides, Wadsworth 1989). However, as much as the empirical studies based on data from the 1960s, 1970s and 1980s for the United States, the Netherlands and Great Britain confirm the fact of being out of employment largely increases the tendency to migrate, later studies of selected Western European countries published by OECD (2005e) as well as those on the CEE countries by World Bank (2006a) indicated that no such relationship existed. The lack of a clear and easily identifiable relationship between unemployment and the probability of migrating is usually explained by the lack of creditworthiness of the unemployed and by a relatively easy access to various transfers (e.g. unemployment benefits, accommodation allowances) for which an unemployed persons would not be eligible outside the place of origin.

The impact of individual labour market status on the probability of migrating in Poland can be assessed basing on individual LFS data. In doing so one should keep in mind that according to the hiring model the unemployed may first look for a job and migrate only after accepting an appropriate job offer, and so the current individual unemployment can be negatively correlated with the probability of migration. On the other hand, however, it seems that in Poland – due to the structural nature of unemployment – a large share of jobseekers do not have access or skills to search for jobs at a distance. Since it is difficult to establish a priori which of the two models (hiring model or speculative migration model) better reflects the typical method of searching for a job away from the place of residence in Poland, we have taken account of the individual labour market status both before and after the timing of migration.[27] The results of this analysis are presented in Table III.8.

[26] Unfortunately, due to the LFS providing no data on the date of marriage, it was impossible to include this factor implicite – hence, the interaction of age and family position with respect to the head of the household was introduced as a proxy variable. It can be assumed that daughters- and sons-in-law of the head of the household had to change their place of residence. Such approach should give better results than the inclusion of family status explicite because in Poland, marriage often entails joining another household instead of starting a new one. At the same time, it is impossible to assess the impact of taking up education on migration because the LFS does not cover people who live in collective households. It does not seem, however, that this fact downgrades the quality of this analysis because it intends rather to assess the impact of the labour market situation of a given person. Yet, the impact of completing education and starting to look for a job or actually finding one has been taken into account.

[27] The LFS data allow to create a panel in which data bases from two consecutive periods are combined into a single data base. However, in view of the fact that address of residence is an element of the observation identifier, as a result of the above-mentioned operation observations for migrants are lost. In order to determine how labour market status of a given person in Poland affects his/her inclination to migrate, one could compare past information about such status from one year before the survey with the current information and thus estimate the extent of shifts between employment, unemployment and economic inactivity based on a quasi-panel.

It emerges that in 2001-2005 the share of people who were out of employment and who actually found a job is greater by about 4 percentage points for migrants than for the entire population. Migration coincided not only with taking up a job but also with loosing or giving it up, however. In the group of people, who had a job one year before the survey and then – within the subsequent 12 months – changed their place of residence, there are more people who became unemployed or economically inactive than in the entire population (by 3.3 and 1.4 percentage points respectively). At the same time, migration was also associated with taking up employment by people who – one year before the survey – used to be unemployed, ill or disabled, or who had family obligations. It is worth remarking that for the group of economically inactive due to bad health or family obligations the share of people taking up employment was higher for migrants by 3.3 and 3.6 percentage points, respectively. As for other groups of economically inactive, changes of place of residence were closely associated with a job search – the percentage share of people in this group who became economically active was greater by approx. 10 percentage points than in average for the entire population.

Interesting conclusions can be drawn from a comparison of the results presented in Table III.8 with the estimates included in Employment in Europe 2006 for the EU15. It appears that in the EU15, in the group of migrants who had jobs one year before the survey, 11 per cent became economically inactive after migration (76 per cent were still in employment and 12 per cent lost their jobs). This means that in that countries, as opposed to Poland, the changes of place of residence connected with the birth of a child or retirement might play a significant role. This seems to be confirmed by the observation that in Poland the share of people aged 35-64 in the total population of migrants comes to 17 per cent, whereas in the EU15 – to 40 per cent. On the other hand, however, in the EU15, in the group of migrants who were out of employment one year before the survey, 55 per cent found jobs after migration and only 3 per cent withdrew from the labour market. In Poland, migration of the unemployed was relatively more often associated with the unemployed withdrawing from the labour market rather than finding jobs – this, however, is mainly due to a different structure of migration flows in the Polish labour market and not to a different profile of Polish migrants moving within the country.

Table III.8.
Structure of migrants and population of 15-year-olds and over by labour market status prior to migration (percentages)

Status one year before the survey	Status at the time of the survey					
	Migrants			Total		
	working	unemployed	inactive	working	unemployed	inactive
work	82.7	11.6	5.8	87.3	8.3	4.4
unemployment	33.3	40.0	26.7	29.3	43.7	27.0
schooling, training	27.2	18.6	54.2	18.2	14.1	67.8
(early) retirement	0.9	3.5	95.6	2.2	3.5	94.3
disability	6.3	4.8	88.9	3.1	4.1	92.9
military service	37.8	50.7	11.5	37.6	51.3	11.1
family obligations	10.1	14.6	75.3	6.5	16.3	77.1
other forms of economic inactivity	3.8	30.2	66.0	5.5	18.2	76.4
total	52.0	20.5	27.5	49.7	15.6	34.7

Source: Own calculations based on LFS.

As indicated earlier, the impact of the current labour market status of people changing their place of residence can be misleading because the events that affect the probability of employment, such as taking up studies or starting a family, can be the actual reason for migration. The co-occurrence of changes of residence and of changes in labour market status could reflect coincidence rather than from a causal relationship. Therefore, the above observations concerning the relationship between changes in labour market status and place of residence are confronted with the **results of logistic regression**, which allows to control for the impact of all analysed factors which potentially determine the probability of changing the place of residence in a given year. The reference group in the presented model are women aged 30-34, with secondary education, who were economically inactive 12 months before and at the moment of the survey.

The results of the regression (see Table III.9) confirm that **age is the primary factor which determines the probability of migration**. At the same time, a high probability of migration for the age group 20-29 often has to do with the fact of entering into marriages. The inclusion of the interaction between age and position in the household is intended to control for this effect. In line with the expectations based on results of studies carried out for other countries, irrespective of the impact of completing studies on the probability of

changing residence, **the level of education does affect migration probability** – people with tertiary education are much more likely to migrate than those with secondary education (those who are still in education and those who have completed it). People with basic vocational and primary education decide to migrate much less frequently. In addition, graduates who have taken up employment or who have started looking for jobs are typically characterised by a much higher probability of migration than people who were unemployed one year before or at the time of the survey. These results suggest that graduates entering the labour market are particularly spatially mobile, although, at the same time, it cannot be assessed on the basis of the LFS data whether this greater inclination to migrate is associated with their return to the place of origin or with a greater spatial job-search range. At the same time, for people who were still in education one year before the survey and who are still economically inactive, the tendency to migrate is considerably smaller.

Table III.9.
Logit model results for change in residence during 12 months before survey

Variables	Significance level	Parameter estimate [a)]	Variables	Significance level	Paremeter estimation[a)]
Age and position in relation to the head of household			Labour market status one year before and at the time of the survey		
15-19	0.12	0.71	work-work	0.01	0.75
20-24 son-/daughter-in-law	0.00	24.39	unemployment- work	0.37	0.82
20-24 other family member	0.00	1.94	education-work	0.03	2.02
25-29 son-/daughter-in-law	0.00	9.57	inactivity-work	0.00	3.40
25-29 other family member	0.00	1.57	work-unemployment	0.00	2.60
35-64 son-/daughter-in-law	0.22	2.17	unemployment-unemployment	0.00	0.56
35-64 other family member	0.00	0.27	schooling-unemployment	0.54	1.19
Education			inactivity-unemployment	0.00	3.30
tertiary	0.00	1.83	work-inactivity	0.01	1.98
basic vocational or less	0.00	0.55	unemployment-inactivity	0.96	1.01
Gender			schooling-inactivity	0.00	0.56
male	0.00	1.58			

Reference category: women aged 30-34 irrespective of their family status, with secondary education, economically inactive one year before and at the time of the survey. For additional methodological remarks see Appendix 11.
a) odds ratios indicate how the probability of Y=1 changes, when X is 1 (for other binary variables)

Source: Own calculations based on BAEL 2001-2005 (first waves)

A change of residence appears to coincide with the fact of taking up employment mainly in the group of young and well-educated people – in other words, when such factors as age and level of education are controlled for, there is no significant association between the fact of an unemployed person finding a job and migration. As for the labour market integration of people who used to be inactive, it has a statistically strong and considerable impact on the probability of migration. However, the relatively greater probability of migration for the economically inactive taking up employment may be a result of temporary leave due to illness, disability, family obligations or military service. Taking up employment could then be then associated not so much with an effective job search in the destination region but with return to work after an absence in the place of residence. In this group of people return migration might in fact prevail over economic migration.

The results of the logit model indicate that there is **no substantial relationship between individual unemployment and the inclination to migrate**. These conclusions are in line with the results of a similar analysis carried out based on LFS 1994 (see Chłoń 1997). At the macro level the absence of such relationship may be reflected in local or regional unemployment rates not increasing the risk of migration, unless the aggregate labour market situation has an impact on decisions made by the employed. This would mean, however, that migration not only does not constitute an effective mechanism which decreases the differences in the level of employment but that it may actually increase the regional labour market disparities.[28] The mechanism of influence of regional unemployment and of other labour market features on outmigration will be discussed in detail in the next section, whereas a broader description of consequences of migration for regional development – in the summary section.

One drawback of the above-presented model is the lack of control over unemployment rates within regions – unfortunately, relevant rates reflecting the situation in the previous place of residence can only be determined at the voivodeship level, which – due the size of these units – does not provide information allowing to draw useful conclusions. In accordance with most empirical studies on internal migration, however, regional unemployment rates do not have a substantial impact on the individual probability of migration

[28] In fact, OECD (2005e) confirms the existence of this phenomenon in the Czech Republic.

(Greenwood, 1997). Nonetheless, in this analysis, the control of this factor is important to the extent that comparisons involve people who were not in employment one year before the survey and who then found jobs within 12 months. The absence of a clear-cut relationship between the migration and the fact of an unemployed person engaging in work may therefore result from the fact that throughout the preceding period this person was aware that the situation in his/her region of residence is favourable and that there are reasonable chances of finding a job within less than one year. All attempts at including the unemployment rate estimated using small area estimation (see Lewandowski et al., 2007) suggested that the direction and intensity of the relationship between finding a job and migration are not affected when the labour market situation is controlled for, whereas the rate itself which shows the differences between unemployment in the previous and current places of residence was of no considerable impact on the risk of changing residence.

To sum up, factors which affect individual decisions about changing residence distinguished in the results of the logit model are following:

- **entering into marriage or a change of living arrangements** which includes joining a household – especially for people of less than 29 years (it was only possible to distinguish people who joined their partner's household; the lack of detailed data does not allow for an assessment of the impact of starting a new household);
- **men** and **people aged 20-20** as well as **people with higher education** are typically characterised by a higher relative probability of migration;
- **job search undertaken by people completing education** as well as loosing (or giving up) a job are associated with migration more frequently than staying inactive, whereas there is no substantial relationship between the transition from unemployment to employment and migration.

At the same time, although shifts from economic inactivity caused by illness, disability or family obligation to employment are of vital importance when it comes to the change of place of residence, it seems that the occurrence of such events does not determine the level or patterns of economic regional migration movements.

2.3 Regional determinants of internal migration

Migration determinants at the regional level can be analysed basing on the same theoretical concepts, which explain the process of international migration (Willekens, 1995). The extent of outmigration and structure of population movements from regions may be determined by a range of factors such as location of the source region in relation to other regions "pulling" workers and economic situation of the region, which constitutes one of the "pushing" factors. This issue is discussed in detail in Box III.15.

The NPC data covering the period 1989-2002 indicate that internal migration trends in Poland are in line with the basic laws of migration. People mainly migrate away from regions which are relatively less developed to those offering much better working and living conditions. Table III.10 shows outflows and inflows of people in poviats grouped according to the classification established in the Part concerning regional differences in labour market situation (see Part II). The largest outmigration has been recorded in clusters of poviats with the **lowest level of development**: *Former state farms* and *Low-productivity agriculture*. As for poviats belonging to *Agricultural and industrial* cluster, the extent of outmigration is only slightly higher than average and they are characterised by a rather dynamic population inflow. Consequently, the balance is migration in these poviats is close to zero – as opposed to *Former state farms* and Low-productivity agriculture, where this balance is definitely negative.

Box III.15. Local labour market characteristics versus migration intensity

One element of the analysis of internal migration is the assessment of processes which take place in the labour market and which determine the attractiveness of a given region for its inhabitants and for potential immigrants.

Firstly, one should take into account the **unemployment rate**. If it is higher in a given area than in the neighbouring areas, jobless people are more likely to look for employment outside their place of residence, which might increase the intensity of migration. What is more, higher unemployment levels make the employed more sceptical about their chances of getting a promotion, pay rise or of finding a better job within their region, which also encourages them to move. Thus, higher regional unemployment rates should be related to greater average outflows from a given region. In the same time, relatively higher unemployment in the given region discourages people from other regions from settling down and decreases the intensity of migration inflow.

Another feature of regional labour markets which may exert an impact on the intensity of migration are **wages**, which determine (together with chances for finding a job) the expected amount of net return from investment in changing residence. In regions, where wage levels are relatively lower, the outflow of human resources should be, ceteris paribus, higher (as long as, for instance, lower nominal wages are not levelled out by lower living costs).

The third issue worth mentioning in the context of migration is the **sector employment structure** in the local labour market. The above results from a long-term trend of changes in the employment structure – increasing numbers of jobs are generated in the services sector, whereas less and less of them – in agriculture. The greater the share of services in a given region, the higher the living standards, which affects other, non-employment migration flows, motivated by, for instance, looking for better living conditions, access to better education opportunities, health services, etc.

Poviats characterised by **higher level of development**, namely *Development centres* and *Suburbs* tend to attract migrants strongly and are characterised by low outmigration. *Towns* constitute a distinct group of poviats from the point of view of internal mobility. They not only have the smallest level of outmigration but also low level of immigration. The balance of migration in these poviats is therefore positive but lower than that in *Suburbs* or *Development centres*.

Tabela III.10.
Average migration outflow and inflow in poviats by clusters (percentages)

	Outflow (emigration) from poviats belonging to a given cluster	Inflow (immigration) to poviats belonging to a given cluster	Difference (inflow – outflow)
Development centres	15	18	+3
Suburbs	14	18	+4
Towns	13	15	+2
Former state farms	21	19	-2
Low-productivity agriculture	22	16	-6
Agricultural and industrial	18	18	0
Total	**19**	**17**	**-2**

Remark: intensity rates have been estimated for people in the economically productive age (aged 18-59/64) as the population at risk

Source: Own calculations based on the NPC 2002.

A measure allowing to assess the effectiveness and symmetry of migration as a process of population reallocation is the percentage share of the migration balance in the total volume of gross flows within a given region. A high positive rate value indicates that outflows from a given source region are not levelled out by inflows to it and vice versa.[29] Data presented in Table III.11 show an evident outflow from *Development centres* to *Suburbs* (so-called suburbanisation) and a dynamic inflow to *Development centres* from all other clusters. It is worth noting that the population of *Towns* which moves to *Development centres* is then replaced by a flow of people for agricultural areas (*Former state farms*, *Agricultural and industrial* and *Low-productivity agriculture*).

[29] The classical index of migration effectiveness is estimated using the following formula:
$EI = \Sigma_i |D_i - O_i| / \Sigma_i (D_i + O_i)$, where D_i is the total inflow to the region i and O_i is the total outflow from the territorial unit i.
(after: Bell et al. 2002). However, since thus estimated index informs only about the symmetry of migration flows but (as opposed to the net migration index) it does not tell us anything about their direction, it has been modified to better illustrate migration flows between clusters:
$EI^* = \Sigma_i (D_{k,i} - O_{i,k}) / \Sigma_i (D_{k,i} + O_{i,k})$, where $D_{k,i}$ is the total inflow from poviats belonging to cluster k to poviats belonging to cluster i and $O_{i,k}$ is the total migration outflow from cluster i to cluster k.

Table III.11.
Migration effectiveness in poviats by clusters (percentages)

Cluster of residence prior to migration	Cluster of residence after migration					
	Development centres	Suburbs	Towns	Forme state farms	Low-productivity agriculture	Agricultural and industrial
Development centres	-					
Suburbs	-10	-				
Towns	32	1	-			
Former state farms	26	3	24	-		
Low-productivity agriculture	31	9	31	11	-	
Agricultural and industrial	8	3	20	5	-2	-

Source: Own calculations based on the NPC 2002.

In the literature, it is often suggested that migration in Poland is weakly related to the situation on the local labour markets and that it does not alleviate problems arising from the spatial mismatch of labour demand and labour supply. It is stated that in a number of regions unemployment could be lower, if jobless people were more inclined to engage in job search outside their place of residence. This conclusion has often been formulated on the basis of regression model results, in which unemployment levels had no effect for the intensity of migration (see, for instance, Firdmuc 2003, Mainardi, 2004, Huber 2003). Slightly divergent results emerged from multivariate analyses based on LFS data (see World Bank 2006a) – the relationship between the level of unemployment in a given region and the intensity of migration appeared relevant but it was associated with the mobility of workers rather than of the unemployed. In this report, the design of study assessing the impact of aggregate labour market situation on migration follows the one taken in the final report presenting the model of internal mobility in Great Britain prepared for Eurostat (van der Gaag N. et al., 2003). The key features of the applied approach are discussed in Box III.16

Box III.16. Two-stage model of decision-making about migration

The underlying assumptions of the model are based on the observation that the process of making decision on migration consists of two stages. The **first stage** involves the assessment of the situation in the region of residence – if it is unfavourable compared with other regions, individuals may decide to look for a job in another region. The **second stage** comes down to choosing a new place of residence.

This concept of migration leads to the estimation of two equations: one of them describes the intensity of labour resources outflow from particular regions, and the other examines the distribution of migrant population between destination regions. The study uses data on migration derived from the NPC covering the period 1989-2002 (for detailed information labour estimation models see Appendix 3). This model allows to give a better insight into the factors, which determine the directions and intensity of human resources flows as presented in Table III.11.

First stage – impact of place of residence on probability of migration

In the model of the first stage of migration, the impact of variables describing the labour market situation **is consistent with the predictions of the classical model of migration**. The higher the ratio of the number of the unemployed to the number of job offers in a given region (in relation to the average for all poviats), i.e. the smaller the relative chances of finding a job – the greater the intensity of labour resources outflow. The relationship between unemployment and migration has proven to be statistically significant. At the same time, migration was motivated by low average wages. Moreover, the model accounts for the value of the population index, which illustrates the availability of other regions.[30] The latter is proved to be strongly negatively correlated with the intensity of migration. The above conclusion seems to be counterintuitive, however, it can be explained by the results on the interdependence between the availability of large agglomerations and the intensity of work commuting, which are discussed in greater detail in the next section. If a relatively underdeveloped region is located near to an attractive region, and the commuting time is not too long, workers may prefer to commute rather than to migrate. This suggests a substantial degree of **substitutive interaction between work commuting and migration** in Poland. Similar observation for Sweden have been made by Eliasson et al. (2003) – his study pointed that in regions located near to attractive labour markets, there was a significant mutual substitution of migration and commuting to work. Considering the problem of low availability of flats in Poland, it can be assumed that the choice between commuting and migration to a different region is additionally modified by the situation in the local housing market (Reichmann, Henderson 2000). The inclusion of a variable reflecting the availability of housing in the sending region (which is measured by the standardised number of newly provided rooms per capita) shows that a relatively large supply of flats is negatively correlated with the intensity of migration and therefore a favourable situation in the housing market in the sending region may discourage from migrating elsewhere.

[30] The construction of this variable is discussed in greater detail in the Part on regional labour markets. At this point, it has been modified to take account of populations available in regions other than the region of residence.

Table III.12.
Model results for the first stage of the migration process – decision on emigrating from the source region

Explanatory variables	Parameter estimate [a)]	Significance level
logarithm of the function of population availability in other regions (weighted by distance)	-0.47	0.00
standardised average amount of wage in the region	-0.08	0.05
standardised ratio of the number of the unemployed to the number of job offers	0.13	0.00
standardised share of people working in agriculture in the total population of workers in the region	0.27	0.00
standardised share of people working in services in the total population of workers	-0.02	0.60
standardised number of newly delivered rooms per capita	-0.15	0.00

a) Standardised regression coefficient

Source: Own calculations based on the NPC 2002.

From the point of view of labour resources outflow from a given region, high employment levels in services are of no significant importance, whereas **regions with a large share of people working in agriculture** (with distance and areas of potential destination regions being controlled for) **saw a dynamic outflow of workers**. This result is in line with the above-observed direction of population outflows from less- to better-developed regions, and may be connected with the inhabitants of rural areas searching for jobs in sectors other than agriculture.

Second stage – impact of destination region characteristics on probability of migration

In the model examining the determinants of choice of destination regions, all variables – apart from the number of unemployed people per job offer, proved to have a considerable impact, which was in line with the theoretical predictions concerning interregional migration flows. On the basis of the obtained results, it can be stated that **high wages constituted a strong pulling factor** for people who decided to change residence, similarly to the **large share of services in employment**. The larger the share of people working in agriculture in a given region, the lower the migration inflow. The situation is similar for distance and accommodation supply. The fact that a vast number of unemployed people per job offer did not discourage migrants from moving to a given region can be explained by referring to the results of the model examining an individual inclination to migrate (as presented in the previous subchapter) – migrants are often young and well-educated, whereas high unemployment in regions which see high inflows of migrants may result from difficulties in finding jobs for low-skilled workers and it may have nothing to do with the chances of finding employment by 'typical migrants'.

Table III.13.
Model results for the second stage of the migration process – choice of destination (region)

Explanatory variables	Parameter estimate	Significance level
number of unemployed people per job offer (ln)	0.0	0.40
wages (ln of the average for the region)	2.9	0.01
share of people working in service in the total population of workers in the region (ln)	2.0	0.01
share of people working in agriculture in the total population of workers in the region (ln)	–0.2	0.01
ln of the reverse function of distance	1.8	0.01
number of newly delivered rooms ber capita (ln)	0.3	0.01

Source: Own calculations based on the NPC 2002.

To sum up the results of the models for the both stages of the migration process, it can be stated that they confirm the theoretical predictions concerning migration flows. The higher the level of development of a given region, the greater the extent of outmigration. The more developed regions generally tend to attract migrants, but the extent to which they encourage migration inflow depends on the distance between the region of residence and the source region. The above results allow to assess the impact of labour market situation on mobility and they indicate that unemployment, wages and employment structure in a given region largely determine the tendency to change residence and affect the choice of the destination region. In general, **the more distant the region, the weaker the pulling strength**, although this relationship is not linear – it can be assumed that in the case of small distances work commuting constitutes an attractive alternative to migration. In the next chapter, we make an attempt at assessing this thesis. However, before we do this, we intend to classify the interdependencies between various forms of mobility.

2.4 Substitution of internal migration with other forms of mobility

The extent of internal migration in Poland – although obviously not one of the highest in the EU – does not seem to be exceptionally low, taking into account Poland's spatial structure. On the other hand, however, if we put together information about international and internal migration, it may seem that the level of the internal mobility of the Polish people contrasts with the level of international mobility. Nevertheless, there is no contradiction between a relatively high intensity of one type of mobility and a relatively low intensity of another type, because they are mutually competitive. The **substitution of decisions about moving to another region or to another country** has been documented in empirical studies on population mobility in Poland (see, for instance, Korcelli et al., 1992) and is further confirmed by the observations presented in this report. Assuming that the total annual long- and short-term as well as seasonal migration abroad comes to the level of a several hundred of thousands, it can be assessed that more than 1 in 3 individuals, who decides to leave their home town (permanently, for a number of months or weeks) chooses to go to a different country rather than to a different region in Poland. In other words, for some jobseekers it is more profitable to take up employment abroad and earn higher or additional income than to migrate elsewhere in Poland.

In the recent years, the attractiveness of international migration has increased – due to both the opening of foreign labour markets and as a consequence of **decreasing costs of taking up employment abroad**, including, among others, the emergence of low-cost airlines, development of road transport services and increasing availability of the Internet. Moreover, the recent frequency of international migration may also be a reason why more and more people know other people who once moved or are currently staying in one of the EU countries and can give advice or assistance in decision about emigration. The existence of **extensive social networks** further lowers the cost of international economic migration.

The attractiveness of engaging in work abroad – due to its aggregate level – only partly explains the relatively low level of internal migration in Poland, especially that in the context of the entire population in the economically productive age international migration does not have a considerable impact of regional labour resources. For most people, **work commuting constitutes a more available alternative to internal migration**. The substitution of commuting and internal migration is often referred to in theoretical and empirical literature (see, for instance, van Ommeren, 2004, van Ommeren et al., 1997, Cameron, Muellbauer, 1998). However, very few studies address both commuting and migration as alternative mobility forms and no attempts have been made to assess the relationship between them (OECD 2005, World Bank 2006a).[31]

Commuting can play an important role especially when the direct cost of migration is high. In countries, where the conditions for migration are not favourable, people who are looking for employment outside their regions of residence tend to commute to work rather than move somewhere closer to it. Thus, the average level of migration is lower, which is often misinterpreted as low general mobility of labour resources. Commuting can also play a complementary role to migration. The choice of place of residence is then usually motivated not only by low availability of accommodation in towns but also by more favourable living conditions within areas surrounding large urban centres. The complementary nature of relationship between migration and commuting should make the general levels of these forms of mobility ceteris paribus higher than in countries, where commuting substitutes migration. For example, in the 1970s and 1980s, suburbanisation trends were observed in a range of EU countries. These trends were connected with moving households to suburban areas characterised by easier access to leisure services as well as less noise and pollution.[32] The beginning of these trends can also be observed in some regions in Poland (see Box III.18). It seems, however, that the process of suburbanisation is currently still rather limited due to lower income level in the Polish society.

[31] Empirical studies on the relationship between mobility and labour market situation rarely account for work commuting mainly because of the lack of available and comparable data. In this report, we have given up the idea of including implicite flows of people commuting to work in the internal migration model because data on migration cover the entire period 1989-2002, whereas data on work commuting are only available for the year 2002. Although in general the impact of migration is cumulative, it seems that referring to cumulative flows for such a long period would entail a too large burden of error. However, work commuting is indirectly instrumentalised by the population index and accommodation availability.

[32] The so-called green wave phenomenon in Sweden, Great Britain, and some regions in France – see the results of research studies performed as part of the project Internal Migration and Regional Population Dynamics in Europe carried out at the School of Geography, University of Leeds.

Box III.17. Moving to Warsaw or to Dublin?

The costs of moving to Warsaw and abroad may be similar, whereas the benefits may prove higher in the the latter case – mainly due to higher wages, which exceed the differences in the difference in the level of costs of living. Obviously, the above comparison involves a great deal of generalisation, nevertheless, it shows that for a lot of people, especially those who speak foreign languages, going abroad is more profitable than moving to another region in Poland.

From Eurostat data it emerges that in the EU15 the wages offered to workers in almost all professional groups are several times higher than in Poland. However, one should also take into consideration the higher living costs, different level of taxes and the fact that the migrants – at least at the beginning of their stay abroad – tend to get relatively lower wages (e.g. average monthly net wages of Poles who came to Great Britain after the recent EU enlargement amount to approx. 1,300 EUR, which is approx. 53 per cent of the British average wage – see Drinkwater 2006). When we take all the above issues into account, it appears that an average single person in Ireland could generate a net income 1.7 times larger than the income that this worker would be able to earn in Poland, providing that that s/he is paid 2/3 of the average wage abroad and the average wage in Poland (see Table III.14).

Table III.14.
Gross and net monthly pay of a childless person with a wage equal to 100 per cent of the average wage in Poland and 67 per cent in other EU countries in 2004 (in EUR and PPSa)

Country	Gross wage (EUR)	Net wage (EUR)	Net wage (PPS)	Net wage ratio in PPS (Poland=1)
Poland	539	368	701	1.00
Great Britain	2223	1711	1620	2.31
Netherlands	2057	1430	1359	1.94
Germany	2280	1437	1349	1.92
Austria	1826	1335	1288	1.84
Belgium	1977	1292	1240	1.77
Ireland	1676	1476	1199	1.71
France	1642	1219	1129	1.61
Finland	1752	1317	1072	1.53
Spain	1102	933	1068	1.52
Sweden	1832	1286	1062	1.51
Denmark	2363	1447	1056	1.51
Italy	1225	956	931	1.33

a) Purchasing Power Standard (PPS) – artificial currency which reflects differences in national price levels which are not accounted for by exchange rates.

Source: Eurostat

Although generally PPS reflects the differences in the purchasing power of wages by making international comparisons of living costs, it is worth taking a look at flat rental prices because they usually constitute the largest cost incurred by migrants. According to data of the Irish real estate agency – Daft, the rental of a one-room flat in Dublin costs approx. 590 EUR. A similar flat in Warsaw can be rented for about 250 EUR (www.szybko.pl). In Ireland, the cost of renting accommodation takes up about 40 per cent of the monthly income of a migrant, whereas in Warsaw, where net average wages amount to approx. 560 EUR, this share amounts to almost 45 per cent. When moving to Warsaw, the ratio of wages and rent is slightly better than in the case of migration to Dublin. What is more, taking into account the fact that durable goods prices (electrical devices and household appliances, etc.) in Poland are comparable to those in Western Europe, it can be expected that moving to Ireland makes it easier to attain higher living standards.

The above example shows that international migration poses an attractive alternative to internal mobility because benefits derived from higher wages and living standards may make up for losses resulting from engaging in work below qualifications and from differences in the level of costs of living.

Based on the Polish Social Insurance Institution data, it can be estimated that the share of people commuting to work to another poviat in the total population of workers amounted to approx. 30 per cent in 2002. To compare, in 1999, in France, this share amounted to approx. 23 per cent and in Hungary – to approx. 10-11 per cent.[33] The lack of fully comparable international data makes it more difficult to assess the extent of the phenomenon of commuting in Poland, however, it seems that compared with other countries, and taking into account Poland's spatial structure, the **intensity of commuting in Poland is relatively high.**

[33] NPC data (2001)

In the subsequent part of this chapter, we analyse regional determinants of the intensity of labour force flows between regions, using data from the Polish Social Insurance Institution on places of work and residence for workers who pay social insurance contributions.[34] We also present results of our analysis of individual features that have an impact on commuting time which allow to better assess the consequences of regional determinants of spatial mobility in Poland.

Box III.18. Migration versus commuting

The migration model can be extended to allow for situations where the places of work and residence are located in two different regions. Every combination of place of work and residence represents a determined level of utility decreased by the loss of utility connected with the necessity to devote additional amounts of time and money to commute. For people who decide to work away from their place of residence, commuting constitutes a form of mobility that substitutes migration. The effect of substitution may be particularly strong in case if the places of work and residence are located close to each other. However, if this distance is considerable, then the only option is to migrate. Decisions about migration and commuting do not necessarily have to be mutually excluding options – for people who change their residence but do not change their jobs, commuting is complementary. One illustration of the latter interaction between migration, commuting and employment are the observation of the local district authorities in Serock:

…the entire Serock district (in the period 1995-2004, author's note) has seen a dynamic increase in the number of population. The rural areas within the Serock district are characterised by unique environmental resources which makes them great places to live. People who move to our district mainly come from Warsaw. However, it should be noted that these people are not employed in the local area (…) but they commute to work in Warsaw. Similarly to most towns and district surrounding the Warsaw agglomeration, migration in the Serock district is characterised by positive rates. (…) The farther from Warsaw, the smaller the values of positive migration balance. Districts which are rather far from Warsaw are in fact characterised by large negative migration balances .These are, among others, inhabitants of these districts that move closer to Warsaw in an attempt to find better living and working conditions.[35]

The complementary relationship of migration and work commuting is rather common in more developed countries, where the suburbanisation trends are more advanced. In such countries, there exists a distinct social stratification across different areas – suburban areas are occupied by wealthy and better-educated inhabitants, whereas town centres are inhabited by people who are relatively less well-off. In Poland, similar trends have recently emerged, however, they are not yet so much widespread. As indicated by the authors of the above quote, on the one hand Serock is a migration destination for people who want to settle in a quiet areas, but on the other it attracts people from more remote and poorer areas who decide to settle in Serock and not in Warsaw (where they often work), because of lower accommodation costs. It seems that in Poland people tend to commute to work from smaller towns because they cannot afford buying or renting accommodation near the workplace rather than because they are wealthy enough to build a house outside Warsaw or some other large city.

2.5 Regional determinants of work commuting

The largest share of employees commuting to work in other poviats can be observed in *Suburbs* – more than one in four people working outside their region of residence lives in a poviat belonging to this cluster. Considering the observations of the interaction between the intensity of human resources flows and distances involved, the above observation is not surprising. *Suburbs* are located in close to attractive labour markets in *Development centres*. Inhabitants of poviats surrounding large agglomerations can find relatively well-paid jobs there and take advantage of lower living costs. At the same time, commuting time to work in *Development centres* – given the fact that the average commuting distance is not too large – is acceptable. Inhabitants of poviats belonging to other clusters, such as *Former state farms*, *Agricultural and industrial* and *Low-productivity agriculture*, are in a more difficult situation. In their case the decision about commuting to work is usually associated with the necessity to travel much longer distances. Therefore, the share of employees living in these regions in the total number of people commuting to work to other poviats is proportional to the share of inhabitants in the total population of Poland. Despite the fact that commuting from less-developed regions to *Development centres* and to *Towns* is less intense, taking into consideration differences in average distances from source and destination regions, the **mobility of inhabitants of poviats belonging to** *Former state farms*, *Agricultural and industrial* **and** *Low-productivity agriculture* **should be considered as relatively high.** As for the low tendency of workers living in *Development centres* and *Towns* to commute to work in other poviats, it results from their ability to find satisfactory jobs in their regions of residence.

Similarly to migration, we have estimated the effectiveness of flows of people taking up employment in poviats other than their poviat of residence. The **level of effectiveness of work commuting is higher that than of migration** because the former is motivated exclusively by economic reasons, whereas demographic considerations have no impact whatsoever. The higher effectiveness coefficient confirms the thesis pronounced earlier that **work commuting contribute to a much greater degree than migration to the optimalisation of labour resources reallocation** between regions that differ in terms of development level and labour market situation.

[34] The source database contains information about the place of reported place of residence, actual place of residence and place of work of a given person. Due to the fact that many people in Poland do not register with the district authorities after migration, our analysis accounts for data on the place of residence. For a detailed description of how relevant data has been handled see Appendix 3.

[35] Selected fragments of the Appendix to the resolution no 370/XLIV/05 of the Town Council in Serock dated 4 November 2005 on the "Local revitalisation programme of the town of Serock and the post-military areas in Zegrze for 2005-2013" Footnote and comments were added by the authors of the report.

Table III.15.
Volume of interregional commuting by region of residence and structure of employees commuting to work outside their region of residence

Region of residence	Share of people commuting to other regions in the total number of all employees living in the region*	Share of employees living in the region in the total number of people commuting to other regions	Share of people commuting to a given destination region in the total number of people commuting to other regions	Share in the population of Poland
Development centres	28	11.6	39.2	15.3
Suburbs	42	25.5	14.0	14.9
Towns	19	11.5	28.6	15.8
Former state farms	26	14.2	4.9	17.4
Low-productivity agriculture	35	17.5	5.3	17.8
Agriculture	30	19.7	8.0	18.8
Total	30	100.0	100.0	100.0

*Number of all inhabitants in a given region who are in employment and for whom social insurance contributions are paid

Source: Own calculations based on ZUS 2002.

When the results presented in Table III.16 are compared with migration effectiveness coefficients, a conclusion can be drawn that the effect of substitution of interregional migration with interregional commuting is strong in *Former state farms* and in agricultural poviats. The relationship between commuting and migration between *Suburbs* and *Development centres* – in accordance with the tendencies illustrated in Box III.18 – is of complementary nature. Commuting does not constitute a factor which would outbalance low migration levels from *Towns*. It can be argued that, on the one hand, the distance from Towns to other areas which offer attractive job opportunities is too high for their inhabitants to be able to commute from them, but on the other hand, differences in unemployment and wage levels are probably not significant enough to make migration profitable.

Table III.16.
Effectiveness of work commuting between regions

Region of residence	Region of work					
	Development centres	Suburbs	Towns	Former state farms	Low-productivity agriculture	Agriculture
Development centres						
Suburbs	63					
Towns	64	-46				
Former state farms	83	56	70			
Low-productivity agriculture	72	65	67	12		
Agriculture	80	50	61	-24	-33	

Source: Own calculations based on ZUS 2002.

Based on the model assessing the extent to which the intensity of commuting from one region to other poviats depends on the situation in the local labour market, it can be stated that apart from the availability of attractive labour markets, the **inclination to commute to work in another regions is mostly affected by: large shares of agriculture in employment, available job opportunities** (measured as a ratio of the number of the unemployed to the number of job offers) and **wage levels**.[37] Thus, the interaction between the intensity of commuting and the situation in the local labour market are analogous to that involving migration. Greater inclination to commute to work in regions other than the regions of residence is also associated with the **better average availability of private means of transport** – in regions characterised by higher numbers of registered cars, the intensity of commuting to other regions is greater. As for railway and road networks density, it proved to be of no significant importance.

Table III.17.
Model results for work commuting volume outside the region of residence

Explanatory variables	Parameter estimate [a)]	Significance level
standardised ratio of the number of unemployed people to the number of job offers	0.20	0.00
standardised amount of wages	-0.18	0.00
logarithm of the function of population availability in other regions (weighted by distance)	0.42	0.00
number of newly delivered rooms ber capita	0.07	0.13
standardised share of people working in agriculture in the total population of workers	0.21	0.00
standardised share of people working in services in the total population of workers	-0.01	0.82
standardised number of cars registered in a given region per capita	0.11	0.02

a) standardised regression coefficient

Source: Own calculations based on data from the Polish Social Insurance Institution (2002).

The results of the model are in line with the theoretical predictions as well as with the observations concerning internal migration. These are marginal chances of finding a well-paid job in the services sector or in industry in a given area that encourage people to start searching for jobs in other regions. Jobs are easiest to find in areas which are closely located and hence these regions attract a large share of nearby population. If a region where a job was found is located relatively close to the place of residence, many people – especially those with cars – decide to commute instead of migrating to that region. It can be assumed that such decision makes it possible for people whose potential wages are not sufficiently high and whose employment is not secure and stable, to find jobs outside their place of residence without any additional costs which would be otherwise necessitated by migration. Thus, to the extent to which migration – as a process of redistribution of labour resources across regions – is very selective and offers possibilities of improving the situation of young and well-educated people above all, commuting provides such possibility to a relatively broader group of workers.

High intensity and lower selectivity makes commuting to work an important form of spatial mobility. In Poland, due to high accommodation prices compared with wage levels, poor access to information about vacancies outside the place of residence and long job-searching time, work commuting may even play a greater role in alleviating the consequences of spatial differences in labour market situation than migration. This hypothesis can be supported by the results of studies on spatial mobility in Germany. They proved that for people who were unemployed, taking up work outside the region of residence was more frequently associated with commuting than with migration (Hunt 2000). Unfortunately, in Poland so far no longitudinal surveys that provide data on commuting have been carried out and it is impossible to conduct similar analysis.

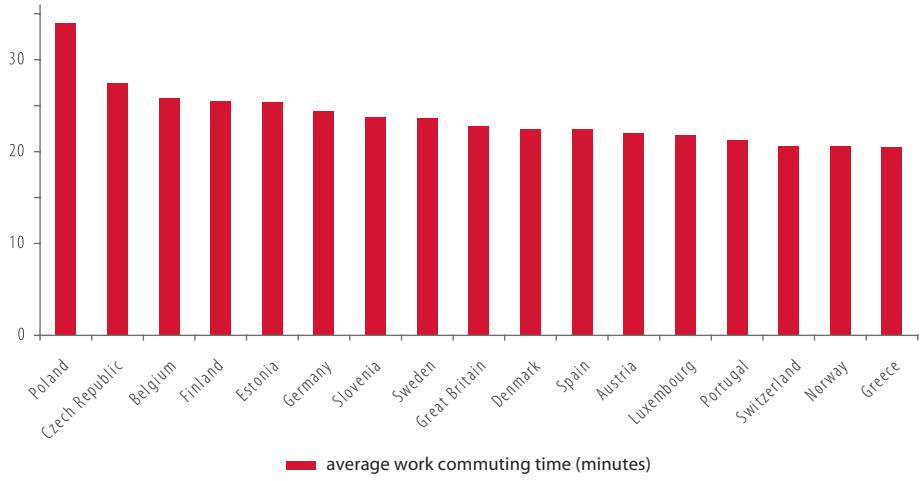
[36] The model estimation method – similarly to the first of the two migration models – see Appendix 3.

2.6 Individual determinants of commuting duration

Basing on the results of empirical studies carried out in different countries, it can be established that the average commuting duration does not vary across countries to much extent and its similar level can be observed in countries at different levels of social and economic development and with different cultures (Rouwendal, 2004a). This can be considered as an argument that there are certain behavioural determinants which affect the choice of place of work depending on the distance from the place of residence. One typical feature of the distribution of commuting duration is not only that is the average is not very differentiated across countries but also that commuting frequency is concentrated below a certain threshold value of commuting duration. In other words, the empirical research results imply that up to a certain point **workers do not care how much time it takes them to commute to work as long as this commuting duration does not exceed a certain threshold value**. Empirical observations indicate that the range of tolerance comes to about 30-40 minutes, whereas after this level is exceeded, the number of commuters drastically diminishes. At the same time, workers who must commute longer than 30-40 minutes tend to declare more frequently that they are looking for another job. In the literature on the subject, this maximum threshold is referred to as "critical isochrone" or maximum acceptable distance (Ommeren, 1996, Getis 1969).

Although in general the average work commuting duration is not very varied across countries, in Poland, similarly to other CEE countries, it is evidently much longer than the typical commuting time in Western Europe (see Chart III.8). It emerges from the ESS data that in Poland people spend more then 30 minutes per day on commuting, whereas in other EU countries work commuting usually takes approx. 20-25 minutes. Similar results have been obtained in the research study carried out by the European Foundation for the Improvement of Living and Working Conditions in 2001 (see Stutzer, Lalive 2004). Longer average commuting time in Poland is mainly due to a large number of workers whose commuting time exceeds the threshold of "acceptable" distance.

Chart III.8.
Average commuting time



Source: Own calculations based on ESS 2004.

From the economic point of view the tendency to spend considerable amounts of time on commuting to work should not be interpreted as 'being more mobile', because **commuting time is an income earning cost which should be minimalised**. Therefore, workers should reduce this time by either moving closer to the place of work or by changing their job and taking up one which does not involve long work commutes (Rouwendal, van der Vlist, 2002, Clark et al., 2003). The long average commuting time in Poland suggests that – for a number of reasons – this mechanism does not work. On the one hand, the labour market situation makes the job search last long and require a lot of effort, and on the other hand, the supply of housing in potential migration destinations is usually limited. Thus, it can be assumed that long commuting is – at least to some extent – a result of an interaction of substantial spatial differences in labour market situation and of low cost-effectiveness of migration to regions characterised by high chances of finding a job. In Poland, high migration costs hit above all the group of people with a relatively weaker position in the labour marker and with greater financial liquidity constraints, which results in their smaller inclination to change residence. It should be emphasised that the high incidence and duration of commuting may be a manifestation of the ineffectiveness of the market mechanism, if workers commute to work although they could find a comparable job closer to their place of residence. The primary factor leading to the risk of such wasteful commuting is incomplete and asymmetrical information about available vacancies, which decreases the effectiveness of job searching (see Hamilton, 1982, Kim, 1995). As indicated by empirical studies (see, for instance, van Ommeren, van der Straaten, 2005), a large share of commuting may be ineffective in this sense. It can be assumed that the above phenomenon concerns in particular commuting in strongly urbanised areas, whereas its significance is probably marginal in the case of commutes within regions which are not located in the near proximity of major urban centres.

The above observations allow for a conclusion that if migration is an employment option less accessible to people with lower income, the alternative offered by commuting may be particularly beneficial for them. There are also some theoretical premises allowing to formulate such thesis. In most studies on commuting to work, it is often stated that one of the factors explaining the differences in commuting duration is individual value of time (see, for instance, van Ommeren, Rietveld, 2002). In this context, the greater the productivity of a worker and the higher his/her income, the higher the value of his/her time and – what comes with it – the smaller the tendency to devote this valuable resource on commuting (unless the employer makes up for it by paying additional benefits). On the other hand, however, people with tertiary education are typically characterised by greater specialisation and for this reason they can be more inclined to commute longer distances in order to work in the profession which matches their qualifications (see Buchel, van Ham, 2003), and therefore for them the commuting can last longer on average. As indicated by the OECD (2005eo), this effect can be observed in Great Britain and in Germany, whereas such countries as Austria, France and Italy, these are low-skilled workers that commute longer distances. Hence, the inclination to commute depends essentially on the overall benefit in terms of wages in relation to the individual cost of time spent on commuting. What is more, in spite of the expectations of the theory of individual value of time, empirical studies usually provide evidence that women tend to commute shorter distances – irrespective of their lower wages. In their case, this fact is determined by certain constraints resulting from time budgeting which is often limited by family and domestic obligations. Shorter commuting time is typical especially for women who take care of their children. This fact, however, does not go against the concept of value of time per se but it indicates that when assessing the benefits arising from work commuting, non-financial factors are also taken into account.

When assessing the individual determinants of commuting time, one has to bear in mind that in accordance with the so-called theory of compensating differentials, inconveniences connected with long distance commuting can be compensated by benefits resulting from lower living costs – it would mean that people commuting should inhabit suburban or rural areas. On the other hand, however, the spatial structure, greater population density and higher heterogeneity of labour supply and demand in large cities may be associated with the fact that the commuting time for the inhabitants of large agglomerations is long.

Therefore, as much as in the case of migration it is relatively easy to predict which socio-economic groups will prove to be most likely to move, the identification of determinants of work commuting is not so straightforward. Due to Poland's different – in comparison to the Western European countries – patterns of choosing the place of work and residence, it is worth making such attempt. The analysis covers people aged 18-44 who are in employment and who commute to work. Apart from factors which, according to theoretical premises, may potentially affect the commuting time, we have also accounted for the possible emergence of effects – distinct for Poland – which would explain which groups of workers are prone to spend more time on commuting than expected based on the observable patterns of behaviour of European workers.

Table III.18.
Logit model results for commutes lasting longer than 30 minutes in the EEA countries

Variables	Significance level	Parameter estimate[a)]	Variables	Significance level	Parameter estimate[a)]
work below qualifications	0.01	1.24			
Gender and family situation	0.00		**Interactions with the fact of living in Polan**	0.07	–
mother with a child	0.00	0.79	mother with a child, Poland	0.14	0.60
woman without children	0.35	1.07	woman without children, Poland	0.81	1.09
man without children	0.70	1.03	man without children, Poland	0.15	1.60
Education	0.00		primary, Poland	0.29	1.46
primary	0.00	0.58	secondary, Poland	0.05	1.92
secondary	0.00	0.79	large city, Poland	0.42	1.31
Place of residence	0.00		village, Poland	0.02	2.18
large city	0.00	1.35			
village	0.01	1.19			
Poland	0.52	0.78			

The analysis covers people aged 18-44 who completed their education, are in employment and commute to work. Reference group: men with children from medium-sized towns in the EEA (excluding Poland), with tertiary education and not engaging in work below their qualifications. For additional methodological comments see Appendix 11.
a) Odds ratios indicate how the probability of Y=1 changes, when X is 1 (for binary variables)

Source: ESS 2004.

The results of the regression confirm the interdependencies – described in the literature on the subject – between time spent on commuting and gender or position in the household. **In the EEA, women are less inclined to spend more than 30 minutes on commuting**, although this impact is only significant in families with children – women who do not take care of children are typically characterised by a similar inclination to commute long distances to men.[38] In Poland, this effect is even more pronounced, namely mothers with children are more reluctant to commute long distances than women in other EEA countries. This may be so due to relatively higher predominance of the traditional model of family in which women are burdened more with child care and domestic duties. Thus, they are relatively more inclined than women in other countries to give up better-paid jobs which require long-distance commuting to take care of their children.

Long-distance commuting of inhabitants of large cities is a feature typical for all examined countries and neither level of education nor residence in a given country differentiate greatly the relative probability of long-distance commuting in this group. **Workers in Poland differ from other countries by the exceptionally long commutes of rural inhabitants**. The above statement is in line with the observations concerning regional determinants of work commuting and in particular with the fact that the inhabitants of poviats belonging to *Low-productivity agriculture* and *Agricultural and industrial* tend to commute relatively frequently to work in other regions.[39] It appears that the intensity of work commuting in the case of inhabitants of such areas is large not only compared with workers from other regions in Poland but also compared with agricultural regions in other countries.

The model also indicates that in general **less-qualified workers in Europe are less inclined to commute long distances** – although the value of time of low-productivity workers is lower in financial terms, they are less inclined to devote it to commuting.[40] The above suggests that for them the eventual gain from commuting is relatively smaller than for better-educated people who can benefit more from the fact of having a job which is better suited to their qualifications even if it requires that they commute. This feature is somewhat **reversed in Poland** where these are **people with secondary education that are typically tend to commute long distances.** Since the above does not concern people with primary education, it can be assumed that the relatively more intense work commuting in the case of people with secondary education consists above all in people commuting from small *towns* to larger towns, e.g. poviat centres, which offer jobs in the services sector (transport, retail and public services) and in small-scale manufacturing.

Therefore, it can be stated that – next to inhabitants of large agglomerations – another group of people in Poland characterised by greater average inclination to commute long distances are rural inhabitants. It is largely due to the mobility of the latter group that Poland is marked by longer average work commuting time compared with other European countries. Taking into account the results of the model of regional determinants of commuting, it can be assumed that commuting to another region makes it possible for these people to find employment outside agriculture which probably generates higher income than that available in the place of residence. For them, commuting constitutes a beneficial option because it doesn't mean the necessity of investing in new accommodation. Even if commuting requires considerable amounts of time, these costs are relatively low due to the low-productivity (and low value of time) of these workers. In the case of some employees, especially those with secondary education and living in remote areas, commuting to larger towns can be the only way to engage in work which matches their skills.

2.7 Consequences of internal migration and commuting for the labour market and economy

Internal migration (leaving aside its crucial social and demographic dimensions) should be perceived as a manifestation of labour resource allocation in the economy. Economic mechanisms which affect population movements within one country do not differ all that much from the mechanisms relevant in the case of international migration. In both cases, the primary factor which enhances changes of residence is the difference between expected wages and living standards in the destination region and those in the sending region. Dynamic population movements tend to occur when differences in living standards and economic growth rates between regions are extensive, and when they are not associated with barriers such as accommodation shortage in better-developed areas. Rapid economic development of large agglomerations – *Development centres* surrounded by *Suburbs* (see Part II), which see the concentration of investment in sectors with the highest potential for productivity increase, should then lead to sufficiently high increase in labour demand and in wages that migration from poorer regions would become attractive to the inhabitants of the latter.

In this context, internal migration is above all a result of the market mechanism of balancing demand and supply in the conditions of an increasing price of a rare good (in this case, wages). Moreover, internal migration is important mainly from the point of view of changes in local and regional labour markets at least in the medium term, thus leading to the expansion of larger urban centres and their surrounding areas at the cost of progressing depopulation of poorer and more remote areas. This phenomenon is sometimes regarded as undesirable due to human resources being drained from peripheries to the centre. However, it is at the same time a necessary condition for effective economic allocation of human resources which flow in the same directions as investment. Since investment tend to cluster due to the positive scale effects at the local level, labour resources also have to conform to this pattern.

[38] The explanatory variables in the model is the probability that commuting time exceeds 30 minutes, increasing this threshold to 40 minutes does not affect the discussed interactions.
[39] Unfortunately, the small survey sample of the ESS makes it impossible to establish a connection between respondents' place of residence and data characterising poviats and therefore the verification of these two relationships is not feasible.
[40] This means that even in the EU countries where less-educated people are characterised by greater wealth than in Poland, they also rarely commute to work longer than 30 minutes.

If the above process is hindered by, among others, obstacles related to accommodation supply or bureaucratic requirements, including, for instance, limits on the right to settle in the capital city, investment as well as economic growth must also be slowed down.

In view of the above, one should consider to what extent internal migration can be substituted by work commuting. Based on the obtained results, it can be argued that this extent can be large on condition that transport infrastructure is sufficient and available. In such case, improved mass transport infrastructure allowing large numbers of people commuting to work from peripheral areas to urban agglomerations can to some degree be an alternative to migration from less-developed regions which enhances the emergence of a more balanced national development model. Work commuting can somewhat diminish the effect of "draining" labour resources to the centres. It should be borne in mind, however, that the inclination to commute drops abruptly after a certain threshold amount of time devoted to commuting is exceeded, which means that daily commutes to *Development centres* and *Suburbs* can be an alternative available only to some inhabitants of peripheries. Better transport infrastructure allows to make agglomerations available to people living in more remote areas only to a limited extent. Consequently, increased intensity of work commuting should be regarded as a complement rather than an alternative for internal migration from smaller to larger settlements.

Last but not least, it should be emphasised that neither internal migration nor work commuting constitute an effective adaptation mechanism to changes resulting from economic fluctuations. This is so because the latter are occasioned by aggregate shocks and what comes with it they affect the entire economy and all regional labour markets more or less to the same degree and at the same time. They can provide, however, a means to accommodate local shocks (such as, for instance, bankruptcy of the key employer in a given poviat). If local communities are mobile enough, migration and in particular commuting – due to much smaller selectivity in terms of age and education – could soon become a remedy for the problematic advantage of labour supply over labour demand at the local level.

Summary

The analyses presented in this Part allow to draw a number of important conclusions concerning the nature and consequences of international and internal economic migration as well as of work commuting in contemporary Poland.

To begin with, it must be noted that migration behaviours (both internal and international) in Poland seem to follow the same basic laws as those identified in the literature on the subject based on experiences of other countries. In particular, Polish **migrants are above all young people aged 30 and less, relatively better educated** (mainly tertiary degree holders). As for internal migration, migrants are also people who face important personal events in their lives such as starting a family or entering an alternative living arrangement.

People who move elsewhere in Poland or go to work abroad tend to relatively more frequently **attain a different labour market status**, such as re-entering the labour market after a period of economic inactivity (including due to studies) or unemployment, than people who do not migrate. Relatively low spatial mobility is usually associated with long-term unemployment. Thus, it can be stated that migration plays a positive role from the point of view of individuals participating in the labour market and the **situation of migrants is relatively better** than that of people who did not make any such attempt.

The probability of migration is largely affected by the economic situation in both the sending region and the receiving region. Hence, the **principal motive for international migration is the desire to improve one's living standards** thanks to higher income from work which can be achieved in relatively wealthier countries even in the case of work below one's qualifications. As for **internal migration**, an **evident correlation can be observed between the inclination to move and the level of local development**. The general pattern of migration is fully compliant with the gravity laws of migration. Greater outmigration is enhanced by a relatively worse labour market situation and by relatively lower wages as well as by high share of employment in agriculture. Migrants tend to move to regions with higher average GDP and wage levels and more modern production structures, however, they also try to choose regions which are located as close as possible to their places of origin.

Consequently, **better-developed poviats – namely those belonging to** *Development centres* **and** *Suburbs* **– strongly attract new inhabitants**, alongside relatively low outmigration trends which results in the total populations of these areas being on a constant increase. The situation is quite the opposite in clusters which gather poorer poviats such as *Former state farms* and *Low-productivity agriculture*. These poviats see outmigration trends which greatly exceed in migration trends. Poviats from *Agricultural and industrial* are subject to the smallest population shifts as a result of migration because in their case population outflows are largely levelled out by inflows. *Towns* is a distinct group of poviats which is characterised by the lowest level of migrant outflows and inflows alike. Therefore, the migration balance in these poviats is positive but lower than in *Suburbs* and *Development centres*.

The overall **intensity of internal migration in Poland is not the highest** compared with other European states, although, at the same time, it is not as low as it is often claimed. Given the fact that **Poland is a country which is relatively scarcely urbanised**, where the process of dynamic migration movements from rural areas to towns was halted some 20-30 years ago after a much shorter period than in other European countries, it can be stated that migration intensity in Poland is lower than it potentially could be. On the one hand, its increase depends on **rapid development of large and medium-size urban centres and suburbs**, and on the other hand, on the availability of accommodation which is a factor that greatly affects the probability of migration.

The evident **substitution of migration by work commuting** merits special attention. In other words, in regions where it is possible – thanks to relatively easy transport access – to participate in an attractive labour market in, for instance, *Development centres*, the extent of migration is smaller than when such facilities are scarcer. Combined with the availability of accommodation, the above gives rise to the **phenomenon of suburbanisation** as a result of which particularly many inhabitants are attracted to suburban areas surrounding *Development Centres* or (less frequently) towns. In Poland, apart from inhabitants of large agglomerations and their suburbs, it is **inhabitants of rural areas** (often less-educated) who are also ready to commute long distances. Notwithstanding the above, out of all rural inhabitants, it seems that it is people with slightly higher qualifications who are still more inclined to commute. Consequently, work commuting plays a role of a factors which increases (although not excessively) the effectiveness of labour resources allocation in Poland.

International migration also has a certain (although smaller than work commuting) impact on bringing the intensity of internal migration in Poland to lower levels. Moving to another town within one country can be marginally less costly than moving abroad, where the latter is an alternative which is also more attractive from the economic point of view. At the same time, the extent of international migration, although large, is not large enough to exert a decisive impact on the intensity of internal migration and in this respect it is no match for work commuting. **For many years, Poland has been a country with a negative balance on net international migration**. Throughout the period 1989-2001, an average of approx. 70,000 people emigrated from Poland every year. At the same time, the number of migrants going abroad to work largely exceeds the number of people leaving Poland for good because **most people who seek employment beyond Polish borders are workers engaging in seasonal work or staying abroad only temporarily**.

This situation has not changed after Poland's accession to the EU in May 20004. The accession led to an **abrupt increase in the number of people staying abroad every year** by about 165,000-370,000 people, that is by approx. 10-20 per cent of the total number of Poles participating in foreign labour markets every year. The above increase is mainly due to the intensification of departures to Great Britain and Ireland, although people seeking employment abroad tended to take up seasonal or temporary jobs and only about one third of them stayed in destination countries for longer periods. The abrupt increase in the intensity of migration of 2004 was a **one-off event** which bore the features of the so-called **migration hump**, or a sudden increase in the number of people coming to a given country followed by a stabilisation of immigration at more or less the previous level. It can be expected that the intensity of migration will decline when the economic situation in Poland improves and when the **differences in income levels between receiving and sending countries become smaller**. The past experiences of such countries as Spain and Ireland prove that as a result of structural changes, which brought about an improvement in the labour market situation (decreased unemployment and increased wages) and – what comes with it – an improvement in the economic situation of households, it is possible that the emigration trend will be reversed within a couple or a dozen or so years.

In the case of Poland and of other CEE countries for which the productivity and wages gap as compared with the wealthiest European economies is greater than that of Spain twenty years ago, it can be expected that the time necessary for their inhabitants to stop migrating to work abroad in such large numbers will be relatively longer. Nevertheless, the shortening of this time should be the more realistic, the **more dynamic and steady the economic growth** in Poland and in particular regions. In this manner, the levelling of living standards within the European Union could be achieved sooner.

Part IV. Labour in Non-Observed Economy

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Introduction

Informal economy is a universal phenomenon. It occurs on a larger or smaller scale in all countries around the world and it generates a range of adverse effects on the social and economic spheres alike. The existence of a shadow economy obscures the picture of the working population and makes it difficult to implement an appropriate labour market policy. People working in the black economy are not protected by law and they are not eligible for any support from the social security system in case they become unable to work (due to health deterioration or accident), neither do they provide for their old age.

In the literature, one can come across numerous terms for economic activity that is not reported to public authorities or statistical offices. Among these, the most common are such expressions as unregistered work or economy, shadow economy, informal work, work in the black economy, clandestine economy, etc. Despite so many expressions in use, what is commonly understood as denoting this form of economic activity is work performed without a formal work agreement with the employer or services provided without reporting the resulting income to the tax authorities and without paying any social security contributions. In reality, however, black economy covers a much broader range of phenomena. This is so because activities undeclared to relevant public authorities can include legally-prohibited activities as well as legal activities the scale of which is partly or entirely concealed. What is more, black economy may refer to both people working outside the official sector of the economy, and those who have registered work but who understate the number of hours worked or who conceal the fact of performing an additional job. This "hidden" sector of the economy may also comprise a part of household production for own use and activities performed by entities which are not under the obligation to register with relevant authorities.

The nature of unregistered work and the legal consequences of providing services in the grey market render extremely difficult all attempts to measure the size of the black economy or to estimate the number of people working within it. Survey studies and indirect methods based on econometric analyses allow to describe only certain aspects of this phenomenon. Moreover, the emerging results are only an approximation of the actual numbers. In view of the above, the existence of the black economy gives rise to considerable challenges for economic and social policies – including protection against illegitimate collection of social benefits, assistance to people who are ineligible for retirement / pension benefits due to their past work in the black economy as well as to those who for various reasons cannot undertake official employment.

In the subsequent chapters of this Part, we will present various methods of estimating the size of the black economy and of unregistered employment. We analyse the causes for the above phenomena and we make an attempt at characterising people who turn to unregistered work. This Part ends with a chapter in which we demonstrate how the existence of the black economy may influence the economy and with a summary which encapsulates our key conclusions and findings.

1. NOE and Unregistered Employment Estimation Methods

Estimating the size and structure of unregistered work is a very difficult task. Considering the nature of this phenomenon, namely the fact that it is neither observable nor registered, it is rather problematic to obtain reliable estimates. Most unregistered work estimation methods focus on demonstrating its outcome as a share in GDP. Only a few methods allow to estimate the number of people involved in this sector of the economy. This ensues above all from methodological drawbacks which prevent a reliable estimation of the number of people involved or the number of hours worked, whereas the estimation of the approximate value of income from unregistered work in total terms is a relatively easier task. It should be emphasised that none of the groups of methods presented below provides a fully reliable estimates of the size of unregistered work or NOE, nor does it allow to exhibit all of its dimensions. This is so because each of these methods examines the phenomenon of unregistered work in a different context (which is not always entirely defined).

The accepted definition of black economy plays a key role in determining the scale of this phenomenon. In the literature a number of expressions are employed to denote this phenomenon, however, all of them refer to the definition provided for in the System of National Accounts.

Box IV.1. Definition of NOE according to the System of National Accounts

Most statistical studies normally use the terminology drawn from the System of National Accounts (SNA93). In accordance with SNA93, all activities which are not included in any statistical registers are jointly referred to as **non-observed economy** (**NOE**). The term NOE has been introduced above all to standardise the methodology of estimating basic aggregates of national accounts by national statistical offices – especially when estimating the value of GDP with a view to those forms of activity that are hidden from the national statistical and public authorities.

NOE encompasses all productive economic activities that may not be captured in the basic data sources used for national accounts. SNA93 distinguishes four problem areas of NOE: **underground production** (production activities that are legal but deliberately concealed from public authorities), **illegal activities** (productive activities forbidden by law), **informal activities of household for own use** and **other forms of activity**, which are outside the official statistics due to deficiencies of national data collection and compilation systems (UNECE 2003).

Simiarly there are numerous definitions of work in NOE. The most commonly used approach is to adopt that the basic criterion that determines participation in NOE is the failure to report employment. This approach has been employed by the European Commission, OECD and CSO alike.

The definition adopted by the European Commission describes **undeclared work** as: *any paid activities that are lawful as regards their nature but not declared to the public authorities (taking into account differences in the regulatory system of Member States)* (COM 1998). The report released by the European Commission in 2004 describes undeclared work as: *productive activities that are lawful as regards to their nature, but are not declared to the public authorities, taking into account the differences in the regulatory system between Member States* (Renooy et al 2004)[1]. Consequently, the scope of undeclared work was extended to include also unpaid activities which are productive (e.g. housework). As for the OECD definition of hidden employment, it refers to *employment (...) which although not illegal in itself, has not been declared to one or more administrative authorities* (OECD 2004a).

More precisely, the above definitions (apart from the definition employed by Renooy et al. 2004) do not cover illegal production and they do not always specify whether activities regarded as concealed work constitute productive activities. Therefore, it can be assumed that they cover the sector of underground production (tax evasion and failure to pay social security contributions are not productive activities) as well as of informal production. Moreover, the European Commission definition is narrower than the OECD definition because it refers only to those activities that are paid and it leaves out a considerable part of home production.

In Poland, NOE is mainly handled by CSO as part of estimation of aggregates of national accounts. The term "hidden economy" (*gospodarka ukryta*), as understood by CSO, means hidden production which includes: underreporting some economic values by registered entities, non-registered economic activity conducted on own account and illegal production, i.e. all activities prohibited by law (e.g. drug production and sale, prostitution, theft, fencing and smuggling). However, in the **national accounts**, similarly to the practices of other EU member states, CSO presents only **underground production estimates**. When it comes to defining the concept of undeclared work,[2] according to CSO, it covers work performed without a formal employment relationship, i.e. without an employment contract, order agreement, assignment agreement or any other written agreement between the employer and the employee irrespective of ownership sector (including natural persons and individual agricultural holdings). Neither can such work be performed as a result of nomination, appointment or election. People performing undeclared work are not eligible for social insurance and therefore they do not have the right to receive any social security benefits. Moreover, the period when undeclared work is performed is not counted as a contribution period from the point of view of the Social Insurance Institution (SII), employers do not deduct relevant SII

[1] This definition has been hammered out for the purposes of the mentioned Report, whereas the official definition used by the European Commission is included in the Communication of 1998.
[2] This definition was employed in the LFS module survey on "Undeclared work" which was conducted in August 1995, August 1998 and in the 4th quarter of 2004.

or Labour Fund contributions from remuneration and income from undeclared work is not taxed with personal income tax. According to CSO, undeclared work also means work performed on one's own account, if the resulting financial obligations towards the state are not fulfilled (CSO 2005).

In the subsequent parts of this chapter, whenever referring to undeclared work, we use this term as understood by CSO. By NOE,[3] we mean legal activities or their parts which have not been registered, or activities where income is not reported and consequently taxes and social insurance contributions are evaded. Whenever possible, we also take into consideration work performed for households or other entities, if the resulting financial obligations towards the state are not fulfilled. Undeclared workers will be included irrespective of whether their work is principal, additional, permanent or temporary.

In the literature it is possible to distinguish some groups of methods of measuring undeclared economy and work, namely **direct** and **indirect** methods as well as **macroeconomic modelling** (see Box IV.2.). Regardless of different characteristics of these methods, they all have one drawback in common, namely they provide only roughly approximate estimates as to the size of NOE. Another shared characteristic of majority of methods is that they measure the undeclared economy as a whole and the result is presented in absolute terms or as a share in GDP.

Box IV.2. NOE measurement methods

Direct methods include different types of random sample survey studies and interviews (of enterprises, households and individuals). These methods allow to work out estimates of the scale of undeclared work (expressed as the number of employed persons or of hours worked) together with information on social and economic characteristics of the entites involved, on motives for undertaking such work and income derived therefrom. The use of direct methods in estimating the scale of undeclared work entails considerable cost and risk of a low response rate as well as of missing or untrue data. In view of the above, it is commonly accepted that results based on questionnaire surveys constitute the lower bound of undeclared labour estimates. This is so because respondents tend to conceal their current status in the labour market rather than to lie that they work as unregistered employees. Irrespective of the above-mentioned drawbacks, questionnaire surveys – if conducted appropriately – seem to be the best source of data on economic and social aspects of undeclared work and on motives for undertaking it.

Indirect methods are methods which are much more commonly used in estimating the scale of undeclared work. They are based on interpreting phenomena observed in the economy as the so-called tracks of undeclared economy. These methods are used by all EU member states in their national accounts when estimating total outcome generated in the economy with a view to outcome generated in the non-observed economy (exhaustiveness of national accounts). Indirect methods comprise, for instance, discrepancy analyses between data sources and sensitivity analyses. These methods usually provide data on the size of undeclared economy as a share in GDP, although the use of discrepancy analysis for data on labour demand and supply allows to generate an estimated number of people working in NOE. It should be emphasised that results obtained with these methods may be distorted due to methodological differences between the compared data bases.

Modelling the scale of non-observed employment and economy is carried out using a range of econometric techniques which comprise:

- monetary methods,
- electricity consumption methods,
- structural equation modelling – used above all in social and marketing studies,
- methods based on simple growth models and on rational behaviour theory.

Macroeconomic modelling used to measure NOE only to some extent allows to determine the number of people involved in this sector of the economy. Most of these methods present the size of NOE as a percentage share of GDP and they do not allow for a disaggregation of results for sectors of the economy or categories of expenditures. Moreover, there exist a number of reservations as to both assumptions made and results obtained. Among them, the most significant are:

- no well-defined object of a study – it is difficult to determine which areas of NOE it measures,
- adoption of incorrect or simplified model assumptions, which renders impossible the use of results obtained (it concerns especially the monetary and electricity methods),
- divergent results when estimating NOE for one country using the same assumptions but different methods or using the same method by a number of authors,
- results thus obtained cannot be used with other estimates, especially with results obtained with indirect methods.

As indicated at the beginning of this chapter, questionnaire surveys allow only to determine the **lower bound of shadow economy estimates**. Therefore, in order to identify its role in the economy in a more precise way, one should refer to other methods. The official data source on the share of NOE in GDP is the national accounts published by CSO. CSO obtains its estimate by applying a combination of methods (among others, they use data from direct studies and discrepancy analyses). In accordance with data provided by CSO, the share of the shadow economy in total GDP in Poland amounts to approximately 12-15 per cent, where about 2/3 of outcome generated in NOE are produced by registered units which understate their revenues and profits. As opposed to data on employment, the

[3] In the subsequent parts of this report the following terms are used interchangeably: non-observed economy, grey economy and informal economy.

largest share in outcome generated by NOE does not fall on construction but on the trade and repairs, whereas agriculture plays a relatively insignificant role. The marginal share of agriculture results above all from low productivity in agriculture in Poland. Consequently, a large share of people informally employed in agriculture translates into a minor contribution of this sector in outcome generated by NOE. Interestingly enough, the share of GDP produced in the shadow economy has been on a steady decline,[4] which is a tendency opposite to those observable in most OECD countries.

Table IV.1.
Share of NOE in GDP for 1994-2004 in current prices

Details	percentages										
	1994	1995	1996	1997	1998	1999	2000*	2001*	2002*	2003*	2004*
Gross domestic product (excluding NOE, unpublished category)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Gross domestic product (including NOE)	117.2	116.6	115.9	115.2	115.3	114.5	117	116.3	115.3	115.4	114.4
NOE estimate:	17.2	16.6	15.9	15.2	15.3	14.5	17	16.3	15.3	15.4	14.4
- in registered units	12.1	11.9	11.3	11.0	11.0	10.4	11.7	11.1	10.1	10.3	9.5
- undeclared work performance	5.1	4.7	4.6	4.2	4.3	4.1	5.3	5.2	5.2	5.1	4.9
Industry	1.9	1.9	1.6	1.5	1.6	1.4	1.3	1.2	1	0.9	1.2
Construction	3.0	3.1	2.9	2.5	2.5	2.5	2.5	2.4	2.2	2.2	2.1
Trade, repairs, hotels and restaurants	8.6	8.6	7.8	7.2	6.9	6.5	6.5	7.3	6.4	6.5	6
Transport, storage and communications	1.2	1.0	1.0	0.9	0.9	0.8	1	0.4	0.6	0.6	0.5
Real estate and business activities	0.9	0.6	1.0	1.6	1.9	1.9	2.6	2.3	2.3	2.4	1.9
Other sections	1.6	1.4	1.6	1.5	1.5	1.4	3.1	2.7	2.8	2.8	2.7

* Data for 2000-2004 are not comparable with data for previous years. In 2006, CSO updated estimates of shadow economy for 2000-2004, taking into account, among others, results of the module survey of 2004.

Source: CSO (2002), CSO (2006b).

Apart from official statistics, there are also estimates of shadow economy in Poland based on other sources and other methods (see Table IV.2). It is only the results obtained by Johnson et al. (1997) for the period 1994-1995 that are similar to the figures published by CSO. The remaining studies indicate that the scale of the black economy in Poland is even twice larger than the official estimates. What is more, the results obtained by Schneider (2002) suggest that the share of the black economy in the Polish economy has been increasing in the last years. The interpretation of these results gives rise to certain difficulties. It is not clear whether the shadow economy definitions used in the above two estimation procedures are identical. For instance, Schneider (2006) limits shadow economy to legal paid activities that involve pecuniary payoff, whereas he leaves out – similarly to CSO – illegal production and home production. On the other hand, he makes an assumption that one of the indicators describing the evolution of NOE is the rate of currency per capita which may in fact depend on the scale of illegal production. Consequently, there is a discrepancy between the definition of hidden production as employed by CSO and the definition of shadow economy as used by Schneider. Unfortunately, it is very frequent that estimates of the black economy do not clearly refer to any definition of the term, which hinders comparisons of results between different data sources.

Table IV.2.
Scale of NOE in Poland according to various measurement methods

Method	Share of NOE in GDP					
	1989 -1990	1990 -1993	1994 -1995	1999 -2000	2001 -2002	2002 -2003
Electricity consumption method*	17.7	20.3	13.9	–	–	–
Electricity consumption method**	27.2	31.8	25.9	–	–	–
DYMIMIC***	–	22.3	–	27.6	28.2	28.9

*Source: * Johnson et al. (1997), Johnson et al. (1998); ** Lackó (1999); *** Schneider (2002), Schneider (2006).*

Moreover the problem of reliability of the results based on econometric methods comes to light.[5] This is so because the same electricity consumption method produced completely different results for the period 1989-1995. Thus, it is controversial which estimates are

[4] A major increase in the NOE estimates between 1999 and 2000 was rather artificial and resulted from an upward adjustment of NOE estimates starting from the year 2000. The unadjusted values suggested that the share of NOE declines slowly but steadily

[5] A critical review of the electricity consumption method as well as of other econometric methods is presented, among others, in Thomas (1999), OECD (2002a).

closer to the actual number. On the other hand, the estimates worked out by Schneider can also be questioned as overstated. Is it really probable and reliable that almost one third of production is effected in the shadow economy? Notwithstanding the above, there is no certainty that the estimates calculated by CSO are closer to reality than the above-mentioned results. All in all, it should be acknowledged that the shadow economy constitutes a significant element of the Polish economy and that it accounts for a considerable share of GDP. The scale of the black economy is greater than in such countries as Germany, France and Great Britain, but it is comparable to that of other countries in the CEE region.

2. NOE and Undeclared Employment Determinants

When analysing the phenomenon of undeclared work, one should begin with answering the question about what makes particular persons, enterprises and households to conceal their activity or income. The key factor is the **financial motive** – higher income from business activity or performed work, or lower payments relating to the purchase of goods or services produced or provided in NOE as a result of avoidance of taxes and other related contributions imposed by the state. Apart from taxes and social insurance contributions, the following are often quoted as factors determining the scale of NOE: **regulations** – in particular those pertaining to the labour market, **social transfers**, **quality of public sector services** (see, for instance, Schneider, Enste 2000, Johnson, Kaufmann, Zoido-Lobaton 1998). In practice, each of the above-mentioned factors is a set of more detailed factors which affect the scale of the black economy in different ways, shape the structure of this phenomenon and motivate people to get involved in NOE. The final extent of the shadow economy depends of the intensity and characteristics of each of the above-mentioned groups of factors as well as of other determinants – much more difficult to measure – which arise from the **general macroeconomic situation** of a given country, nature of relationships between particular macroeconomic aggregates, production structure, level of education and **strictly sociological factors** such as mentality of a given society, risk-aversion, civic virtue, confidence in public authorities and the integrity of the tax system (Schneider, Enste 2000, Hanousek, Palda 2003, OECD 2004a).

The subsequent part of this chapter provides a description of basic groups of factors shaping the scale of NOE and of undeclared work. Moreover, we analyse the impact of minimum wage and typically sociological factors on NOE.

2.1 Tax burden and social insurance contributions

A vast majority of authors who study NOE and undeclared work consider taxation as the fundamental or one of the key causes that influence the extent of the above phenomena. Most commonly, tax burden is defined as the amount of mandatory contributions to be paid to the state or public institutions that are imposed on the employer or the employee. It is assumed that it is the amount of tax burden that is the basic motive for undertaking undeclared employment and for concealing a part or all of performed work to avoid taxation.

The impact of taxation on the process of shaping labour demand and supply translates above all into the disturbed relationship between work and leisure. A change in labour demand resulting from increased taxes occurs if the total labour costs (i.e. the total amount of wage effectively paid by the employer and comprising the net wage plus all additional labour charges) increase due to the increase of the fiscal burden. On the other hand, labour supply decreases, if the increased tax burden adversely affects the amount of net wage, thus lowering the attractiveness of work in relation to untaxed leisure (see Bukowski et al. 2006). The final influence of taxation on the labour market depends on the elasticity of labour supply and demand, and consequently on the impact of income and substitution effects on employees and employers.[6] The transition from employment to non-employment (i.e. to unemployment or inactivity) is also affected by the tax elasticity of net wages that determines the possibility of shifting the tax burden from the employer to the employee. Also the availability and financial attractiveness of social insurance benefits which influence the extent of labour supply elasticity in relation to net wages plays an important role in this process. Based on theoretical premises, it can be reasonably assumed that the substitution effect generally prevails over the income effect, and that in an economy which comprises both official and undeclared labour markets, tax increases lead to the substitution of registered work for undeclared work or leisure (see Bukowski et al. 2006). Whether individuals chose the former or the latter depends largely on individual factors but also on the combination of other identified determinants shaping the size of the shadow economy – in particular on the integrity and complexity of the tax system, degree of detectability of tax evasion, and on the general economic conditions. Moreover, it is very difficult to empirically demonstrate to what extent changes in tax burden lead to changes in overall labour supply and demand, and when do they bring about shifts in supply and demand between the official and informal sectors of the economy. These difficulties stem from, among others, scarce availability of statistical data. For this reason, in the empirical literature which examines the impact of increased taxation on the labour market, the existence of informal economy is very rarely taken into account.

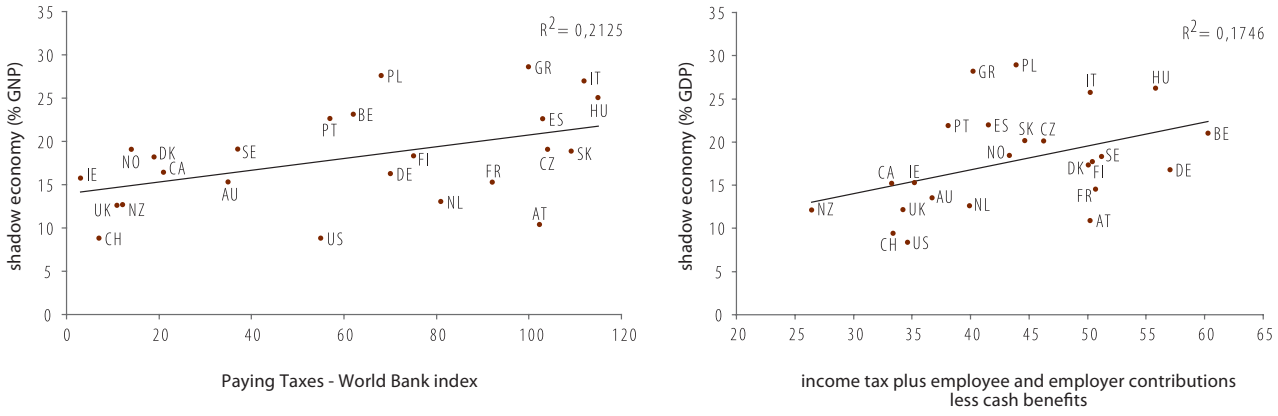
[6] We refer to the income effect when, as a consequence of increased taxes, the actual income from work of a given household decreases, which leads to increased labour supply. This mechanism is supposed to result in bringing net income to the level from before the tax increase. As for the substitution effect, a decrease in the relative cost of leisure, alongside an increased cost of income from work, makes workers substitute work for leisure.

When analysing links between taxation and the extent of the black economy, it should be borne in mind that the key condition for the emergence of the above phenomenon is the possibility of gaining notable profits by those offering work and by those benefiting from it. In other words, undeclared work must be cheaper than taxed employment and wages must be higher or at least comparable with net wages offered in the official sector of the economy (in both cases, with a view to the cost of potential disclosure of the tax evasion). If the employer have the possibility of flexible adjusting the net wages in reaction to tax changes, then the additional taxation of income from work in the official economy will bring about a decrease in the households disposable income in comparison with the situation from before the tax increase. The greater the change in the tax wedge, the greater this decrease. Therefore, theoretical arguments (see Bukowski et al. 2006) prove that in the long term when wages are fully flexible, changes in tax burden affect the labour market exclusively through changes in labour supply. Nevertheless, in the short term, if downward wage rigidity occurs (for instance, in the presence of statutory minimum wage or powerful trade unions), this mechanism is limited. In the latter situation, an increase in taxes leads to decrease in labour demand for low-productivity, low-paid workers. These people, in view of the possibility of working in the shadow economy, are more likely to react to tax impulses by replacing the legal labour supply rather than by decreasing overall labour supply (see Bukowski et al. 2006).

In fact, nearly all available empirical studies show that taxation is positively correlated with the size of the shadow economy. This correlation emerges, in most cases[7], irrespective of the applied taxation indicator. Taxation can be measured by variables that refer to indirect or direct taxes as well as social insurance contributions, or by indices that cover all or some of the above-mentioned elements. Effective tax rates imposed on the average production worker income (APW) or Paying Taxes Index of the World Bank are such indicators. The former measure takes into account additional labour costs as well as any other monetary benefits. The World Bank index refers to the total tax burden incurred on the business activity of a medium size enterprise together with administrative burden related to paying taxes.[8] In both cases, increased levels of these indicators are accompanied by greater share of the black economy. The above connections, although measured only by simple correlations, seem to be significant but not strong enough to regard taxes as the only factor deciding on the total size of the shadow economy.

Chart IV.1.

The size of the shadow economy (as percentage share of GDP) versus the World Bank taxation index and the sum of income tax and social insurance contributions decreased by monetary benefits expressed as a percentage share in the average production worker income (APW) for a single person at the level of 167 per cent of APW



Note: In the left graph, the extent of the shadow economy and the index value have been derived from the World Bank 2006b and they pertain to the year 2005. In the right graph, the extent of the shadow economy has been derived from Schneider 2006 and it pertains to the estimates for 2002-2003.

Source: Own calculation based on data provided in Schneider 2006, World Bank 2006b and OECD 2004a.

Although to some extent high taxes enhance the expansion of NOE and increase the share of the population involved in undeclared work, they do not constitute an imperative or – even more so – sufficient condition of its growth. In other words, a high tax wedge between net and gross wages as well as high tax rates are not the only motive for undertaking employment in the black economy. Although the CEE and Southern European countries are characterised by a positive correlation between the above two factors, as indicated in Chart IV.1, in some developed Western European countries, high tax rates are accompanied by low levels of undeclared work and small NOE. This indicates that there must be other factors related to taxation which affect the size of the shadow economy to a greater extent than tax rates. Johnson et al. (1998) argues that it is not the level of tax rates but the functioning of the tax system as a whole that is mainly responsible for the scale of NOE. According to him, it is high instability of tax regulations, precariousness of procedures and high level of discretion in tax decision making that are more likely to push people to switch to NOE than the effective and marginal tax rates. Countries which reconcile high marginal and average tax rates with a low burden stemming from functioning

[7] Friedman et. al. (2000) attained a negative correlation between direct taxes and the size of the shadow economy. However, after the introduction of the GDP per capita variable (which reflects the wealth of a given country) to the model, this negative correlation ceased to play a role. The authors explain this by referring to the fact that wealthier countries are characterised by better-functioning administration and higher tax rates.

[8] For a more detailed description of the index see the Appendix 5 to this report.

of the tax system exhibit small level of NOEs expressed as a share in GDP (e.g. Austria, Sweden). Countries which experience an opposite relationship between the above two factors – low marginal tax rates and highly bureaucratic tax systems – are often characterised by higher shares of NOE in GDP. Corruption exerts a similar impact on the shadow economy because it constitutes an informal burden which is supplementary to or which partly replaces taxes. Another explanation for the low correlation between tax rates and the scale of the shadow economy can be found in the dual equilibria model (see subchapter 2.3).

Schneider (2006) also claims that a large number of available tax deductions as well as deficiencies of the tax system – such as narrow tax base – exert an adverse effect on the rate of undeclared labour supply. This ensues from the fact that a malfunctioning tax system allows for lawful and relatively simple evasion of higher taxes, that in turn increases the cost of functioning in the informal sector and makes it scarcely competitive compared with official employment. In this context, the governmental measures intending to widen the tax base by way of eliminating tax deductions as well as legal loopholes may paradoxically lead to the expansion of the black economy. This pattern could be observed in Austria towards the end of the 1980s. The tax reform implemented in 1989 was supposed to lower marginal tax rates as well as eliminate some tax deductions and loopholes in the tax law that applied in Austria at that time by simplifying the tax system and by covering more areas by relevant tax law regulations. One consequence of these developments was an increase in the size of the shadow economy, which means that the resulting widening of the tax base to cover previously untaxed areas and increased regulation cancelled out the positive impact of lower average and marginal tax rates. The above example demonstrates how greatly changes in the tax system and regulations can influence the size of the informal economy. However, the literature does not provide any firm consensus as to how the impact of these factors should be assessed and consequently what panacea should be applied. On the one hand, DeSoto (2000) argues that the increased size of the shadow economy in such circumstances results above all from increased regulation and public intervention in the fields where they should never occur or from their completely unacceptable nature from the perspective of business entities and units. On the other hand, however, Schneider 2002 (after Cebula 1997) points to the fact that maintaining maximum marginal tax rates at the same level may at most limit the shadow economy expansion in the long run, whereas in order to actually decrease the size of this phenomenon tax inspections must also be rendered more rigid and penalties for failure to fulfil tax obligations must be increased. The impact of the scope and nature of regulations on the shadow economy is further discussed in the next subchapter.

2.2. Regulations

Labour market regulations and institutions also constitute a very important factor which affects the size of the informal economy. In this context, it is the labour market regulations that are particularly significant as they set out the rules of establishing and carrying on business activities, employing workers, securing appropriate working conditions, etc. They also have a great influence on the future business prospects as well as on any additional business costs (not only financial). Similarly to taxation, there is no consensus in the literature as to whether it is the regulations themselves and their number or the way they are enforced (or not) by the state that have an impact of the extent of the shadow economy.

Participation in the official economy is characterised by relatively high costs of entering and lasting in the market compared with the informal sector.[9] In order to commence a legal business activity one has to register the enterprise as well as obtain all required licenses and permits. The necessity to fulfil all formalities related to running a business and employing workers generates additional costs. Empirical studies[10] indicate that these costs (financial, time needed to complete all formalities, deferred income when waiting the issue of relevant licenses and permits, etc.) often make the setting-up and running of a registered business "costly" and thus hardly competitive in relation to activities carried on in the shadow economy. This concerns above all small enterprises which employ one or a couple of employees and which carry on their activity on a small scale without it being necessary to apply for special licenses or permits, enterprises that do not need to establish an easily identifiable office, or to maintain contacts with the public sector, etc.

One characteristic of work in the official economy is the requirement to fully regulate employment relationship. This means that the employer is under the obligation to conclude a contract with the employee (most commonly in writing), which determines the terms and conditions of performing work and provides the employee with at least the minimum of protection. The employer is also obliged to register the fact of hiring an employee with the relevant institutions, to apply for social insurance, to inform the tax authorities and other institutions, as required by law, and to provide such employee with appropriate working conditions, which in particular are safe and healthy. Hence, entrepreneurs who intend to legally employ their employees may shift some employment costs to the latter by, for instance paying them lower wages (than possible). Alternately, employers can offer higher wages on condition that the employment relationship remains undeclared and the above-mentioned costs are avoided.

Regulations are often measured by referring to the number of legal acts, restrictions on employing foreigners, trade barriers, etc. An increased number of legal acts regulating the process of setting up and running an enterprise, of building and purchasing real properties and of employing workers may constitute a considerable obstacle impeding the entrance of small companies into the official sector

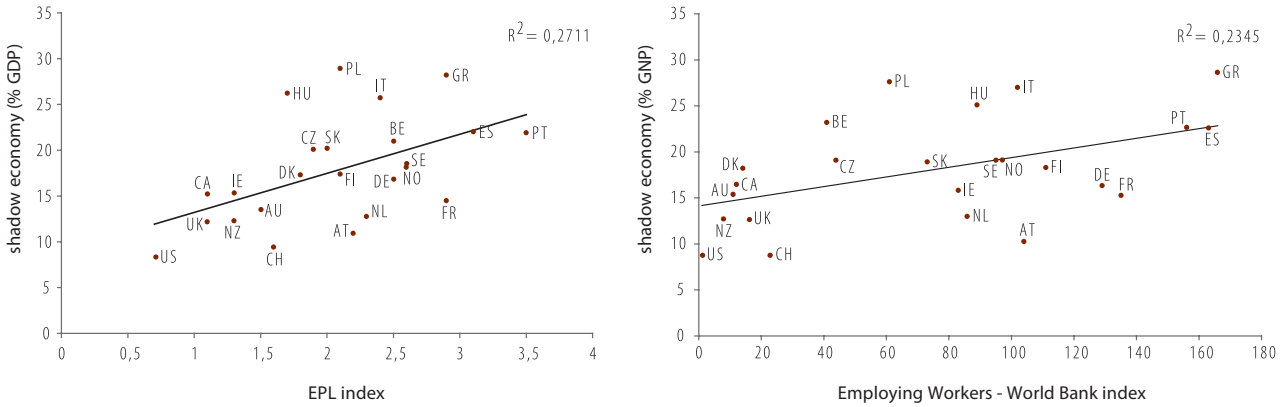
[9] In the case of the shadow economy, these entrance costs include above all information about employers, principles of functioning of this sector as well as about employment opportunities. The collection of this information also requires time and therefore generates certain costs (including financial costs, in the form of, for instance, bribes)
[10] This concept is discussed in greater detail in, among others, Schneider (2000), Johnson et al. (1998), OECD (2004a).

of the economy and narrowing their chances of surviving within it. Too large a number of obligations imposed by the law in the form of concessions, licenses, barriers to trade or limited access to capital can entail increased costs: direct costs – relating to the taxation of labour, and indirect costs – relating to the fulfilment of obligations imposed by them. These increased costs lead to the expansion of NOE because a great part of the above obligations can be shifted onto employees thus causing a rise in undeclared employment (DeSoto 2000, Schneider, Enste 2000).

The question of how labour law flexibility affects the extent of undeclared work has not been thoroughly examined in theoretical or empirical research studies. The indicated effects are often of intuitive nature which results from the assessment of the impact that this factor has on the labour market as a whole and on particular age groups. In the literature on the subject, no consensus has been reached as to the impact of labour law flexibility on the overall labour market. This is so because the degree of legal regulation may bring different results in different countries as it depends on the entire situation in the labour market (Bukowski et al. 2005). In the short term, the degree of labour law flexibility shapes the relative status of various social groups, i.e. the employment structure, although it has no influence over the actual level of employment. In the long term, the impact of flexible labour law regulations is largely determined by other social and economic factors as well as by the institutional framework of the labour market.

Regulations, including broadly understood labour law, may be treated as a certain specific form of burden the nature of which is similar to that of the tax burden and as such it exerts a comparable influence on the shadow economy. High flexibility in employing and dismissing workers lowers the relative cost of participation in the official sector of the economy and allows to adapt relatively easily to the changing business environment without infringing the labour law. Moreover, taking into account the cost relating to undeclared employment, the latter becomes less competitive (other factors remaining unchanged) in relation to employment in the official economy, which leads to a decrease in the size of the shadow economy. This correlation is evidenced by a simple comparison of the size of the black economy with the Employing Workers Index used by the World Bank as well as with the Employment Protection Legislation (EPL) index, as presented in Chart IV.2.

Chart IV.2.
Employing Workers Index used by the World Bank and the Employment Protection Legislation (EPL) index versus the shadow economy



Note: In the left graph, the extent of the shadow economy has been derived from Schneider 2006 and it pertains to the estimates for 2002-2003. In the right graph, the extent of the shadow economy and the index value have been derived from the World Bank 2006b and they pertain to the year 2005.

Source: Own calculation based on data provided in Schneider (2006), World Bank (2006b) and OECD (2004a).

In the two cases presented above, the increase in the index value means less flexible and more restrictive labour law. The EPL index[11] consists of three elements: regulations relating to permanent contracts, regulations relating to fixed term contracts and temporary work and regulations relating to collective layoffs. The World Bank index[12] comprises the following elements: rigidity of employment index (including regulations relating to hiring and firing employees, rigidity of working hours), non-salary costs of hiring a worker and costs involved in dismissing a redundant worker (costs resulting from the statutory periods of notice, severance pays and penalties imposed on the employer for firing an employee). Irrespective of differences in the construction of the above-mentioned indices and of a different scope of information that they carry, in both cases, a positive correlation was observed between the increase in the index value and the size of the shadow economy. This may mean that rigid labour law, which does not allow to hire and fire employees in a relatively simple manner or to freely shape working hours, may affect the extent of undeclared work. However, it should also be borne in mind that the above conclusions are not supported by a rigorous empirical verification and thus they do not take account of a range of other factors which may shape the presented relationships. In particular, the above correlation may be spurious, if the degree of labour market regulation – which does not in itself have any impact on the size of the shadow economy – is at the same time correlated with another factor (e.g. the degree of overall regulation of business activity), which effectively determines the size of NOE. In this

[11] The EPL index has been worked out by the OECD to measure labour law regulation flexibility. This issue is discussed in greater detail in Bukowski et. al. 2005.
[12] The values of particular components of this index are determined for a particular type of employer who hires employees with features indicated in the index methodology. See Appendix 6 for details.

context, De Soto (2000) points to regulations concerning the real property market which, in a number of countries, make it impossible to accumulate enough capital to carry on an official business activity and thus force numerous companies into the black economy.

As in the case of taxation, Johnson, Kaufmann, and Shleifer (1997) argue that the most significant factor affecting the size of the shadow economy is the effectiveness of enforcing particular regulations rather than the regulations themselves. An extensive number of legal acts and of the resulting obligations for entrepreneurs, if it is not efficiently enforced by state authorities, should not have any significant impact on the size of the black economy. In view of the above, failure of state authorities to effectively fulfil their duties, similarly to taxation, may modify the impact of law, including labour law, on the extent of black economy.

2.3 Quality of public services and dual equilibria hypothesis

One of the many tasks of public administration consists in ensuring a smooth law enforcement, safety of business activity (e.g. by effective contract enforcement) and assistance to people, who for various reasons are unable to generate income from work (unemployed people, working poor). These services are financed from the state budget revenues or from the local government budgets which are fed mainly by revenues from taxes and social insurance contributions. The existence of the informal sector of the economy results in a decrease in public revenues and consequently in the deterioration of the quality of services provided by the state. This may manifest itself in deficient judicial system, lack of effective protection of employee rights, low efficiency of the social insurance system or ineffective civil and business law enforcement. In such case, irrespective of good-quality legal solutions, the lack of effective control over their enforcement as well as low probability of detecting illegal activities leads to the increased size of the shadow economy (Schneider 2006). This, in turn, results in the lowering of state revenues which usually translates into higher tax rates.

An alternative mechanism where the quality of public services affects the size of the shadow economy is presented in the so-called **dual equilibria hypothesis**. This hypothesis allows also to explain the rather weak correlation between tax rates and the extent of NOE in European countries. The above concept was formalized in the study of Johnson et al. (1997). It treats the quality of public services as a factor affecting the size of the informal economy, however, not it terms of the effectiveness of the system of controlling and monitoring the economy, but in terms of incentives faced by entrepreneurs and employees . A significant role within this concept is played by the non-tax obligations imposed on entrepreneurs, i.e. obligations that do not finance the delivery of public services. This group of obligations includes various types of regulations which determine the degree of complexity of procedures related to the setting-up and running of business activities, as well as a burden resulting from corruptive practices in the public and private sectors. The key factors determining the quality of public services include above all the level of spending on the provision of these services (depending on the tax revenue) and the procedural effectiveness of public institutions in fulfilling their tasks.

Assuming that, in a given economy, the quality of public services, the amounts of proceeds from taxes and the size of the shadow economy are moderate. Moreover, tax rates are more or less stable and fixed at a high level. At some point, as a consequence of a reform, the efficiency of state institutions increases and – what comes with it – the quality of public services improves (e.g. improved functioning of the judicial system consisting in shortening the time necessary to handle business cases and thus increasing the degree of protection of ownership rights by the state). Entities which have not been prone to pay taxes and social insurance contributions due to insufficient quality of public services[13] register their business activity.[14] The tax base increases and thus gives a green light to further improvement of the quality and scope of public services. The process continues until an equilibrium is attained which is characterised by small extent of the black economy, low degree of regulation, wide tax base, considerable tax revenue and high quality of public services (A equilibrium). In accordance with the second scenario, increased regulation, decreased effectiveness of public institutions and increased corruption discourage entrepreneurs to register their business activity. Tax revenue goes down and the quality of public services gets worse which results in further decrease in tax proceeds. In the final phase, the economy attains an equilibrium where tax revenue and the quality of public services are low, the scope of non-tax obligations is wide and the size of the shadow economy is considerable (B equilibrium).

Both scenarios leave tax rates fixed. According to the dual equilibria hypothesis a certain level of taxation may be accompanied by a number of combinations of the size of NOE and the level of tax revenue. Relatively high tax rates may coincide with relatively small extent of the shadow economy, if the institutions function well enough and provide high-quality public services, and the burden resulting from regulations, corruption and complexity of procedures relating to the setting-up and running a business activity is small. If the dual equilibria hypothesis is indeed valid, then the low correlation between the share of NOE in the economy and the amount of tax burden suggests that it is above all regulations and institutional efficiency and – to a lesser extent taxes *sensu stricto* – that are behind the differences within the OECD countries.

[13] It can be assumed that they purchased these services from private entities or delivered them themselves. For instance, Johnson et al. (2000) claims that 90 per cent of the polled Russian managers declared that companies operating within their sector pay for "private protection". In Slovakia and Poland this share amounted to 15 and 8 per cent respectively.
[14] A similar effect would be prompted by the lowering of non-tax obligations imposed on entrepreneurs.

In order to illustrate the results of the above-mentioned theory, we have referred to the cluster analysis, thus dividing European countries into 3 sets in accordance with three groups of factors:

- size of the shadow economy,
- share of total taxes in GDP (as a measure of tax revenue),
- rule of law and government effectiveness indices (as a measure of the quality of public services).[15]

Table IV.3.
Dual equilibria hypothesis in the group of European countries (in 2002-2003)

	Factors	N	Minimum	Maximum	Average	Standard deviation
A	shadow economy as % of GDP	10	10.9	18.4	15.4	2.71
	% share of taxes and contributions in GDP	10	28.8	50.1	41.5	6.12
	rule of law index	10	1.4	2.0	1.8	0.18
	government effectiveness index	10	1.5	2.1	1.9	0.26
	regulation index	10	1.0	3.0	2.5	0.71
	corruption perception index	10	6.9	9.7	8.5	0.93
	cost of setting up and carrying on business activity*	10	5	47	17.7	12.93
	including the Scandinavian countries:					
	shadow economy as % of GDP	4	17.3	18.4	17.9	0.58
	% share of taxes and contributions in GDP	4	43.3	50.1	46.4	3.15
	rule of law index	4	1.9	2.0	1.9	0.02
	government effectiveness index	4	2.0	2.1	2.1	0.05
	regulation index	4	1.0	3.0	2.3	0.96
	corruption perception index	4	8.8	9.7	9.3	0.39
	cost of setting up and carrying on business activity*	4	7	14	10.5	3.51
B	shadow economy as % of GDP	5	32.6	41.3	37.9	3.35
	% share of taxes and contributions in GDP	5	27.9	33.1	29.8	2.30
	rule of law index	5	-0.2	0.7	0.3	0.41
	government effectiveness index	5	-0.2	1.0	0.5	0.54
	regulation index	5	2.0	4.0	3.2	0.84
	corruption perception index	5	2.8	5.5	4.1	1.02
	cost of setting up and carrying on business activity*	5	15	71	38.6	25.23
other	shadow economy as % of GDP	10	20.1	29.4	24.4	3.72
	% share of taxes and contributions in GDP	10	31.4	45.1	37.0	4.08
	rule of law index	10	0.3	1.5	0.9	0.36
	government effectiveness index	10	0.6	1.8	1.0	0.40
	regulation index	10	2.0	3.0	2.9	0.32
	corruption perception index	10	3.6	7.6	5.3	1.44
	cost of setting up and carrying on business activity*	10	20	111	55.7	25.37

*data for 2005.

Source: shadow economy as percentage of GDP – Schneider (2006); percentage share of taxes in GDP (share of total receipts from taxes and social contributions after deduction of amounts assessed but unlikely to be collected in GDP) – Eurostat; Rule of Law Index, Government Effectiveness Index – World Bank; Regulation Index – Heritage Foundation; Corruption Perception Index – Transparency International; cost of setting up and carrying on business activity (position in the "Doing Business"ranking) – World Bank.

[15] Higher index values mean a higher quality of public services. See Appendices 7 to 9 for a more detailed description of indices presented in Table IV.3.

The results seem to confirm the dual equilibria hypothesis in the group of European countries. The first cluster may be attributed to **A equilibrium** and is characterised by the low share of NOE, high quality of public services (high index values for rule of law and government effectiveness) and a relatively high share of tax proceeds in GDP. The Scandinavian countries distinguish themselves in the first group by their particularly high level of taxation. Moreover, they are characterised by very high quality of public services and an exceptionally small burden resulting from regulations, corruption and barriers to running business.[16] Consequently, the size of the shadow economy in these countries is rather small. The group of countries which are in a similar situation to that described by the hypothesis includes: Austria, France, Germany, Netherlands, Ireland and Great Britain. These countries are characterised by lower proceeds from taxes, a bit lower quality of public services and similar size of NOE compared with the Scandinavian countries.

At the other extreme, there are countries such as Bulgaria, Estonia, Lithuania, Latvia and Romania. They are typically characterised by the large size of the shadow economy and the low share of proceeds from taxes and social contributions in GDP, which suggests that their situation can, to some extent, be explained by referring to the concept of **B equilibrium**. It is worth noting that irrespective of relatively low tax and social insurance contributions rates, the extent of non-tax obligations in the above countries is considerable, which is evidenced by the high regulation and low corruption perception indices as well as by low positions in the "Doing Business" ranking published by the World Bank. The general burden relating to the running of a registered business activity and hiring employees legally is large, which discourages numerous entities from operating in the official sector of the economy.

In the group of other European countries, which apart from Poland includes other countries in the CEE region, namely the Czech Republic, Hungary, Slovakia, Southern European countries – Greece, Slovenia, Italy, Portugal, Spain, and Belgium (the only representative of the western part of the continent), particular index values are close to the average levels for Europe. This group is very heterogeneous and particular countries are characterised by different combinations of the above-mentioned factors. The model proposed by Johnson et al. (1997) cannot describe the situation in these countries.

2.4. Individual factors

The decision to undertake undeclared work or employment often depends on, apart from the previously discussed factors, many other determinants which are often specific for a given individual and thus difficult to measure. The motives of particular persons for starting work in NOE may differ based on their education, labour market status or source of income. Persons with high professional qualifications and a good labour market position are relatively less likely to undertake work in NOE and in particular work that is completely unofficial. The fact of undertaking work in NOE may in such case be perceived as a professional degradation. This is so because work in the shadow economy usually consists in simple, low-skill and low-wage tasks, and for educated people even a temporary experience of this kind can have adverse effect on later attempts at finding work that matches their competences. It seems that persons with higher professional qualifications tend to conceal some of their income from undeclared activities in the official sector (e.g. working longer hours), which require the use of their qualifications and knowledge, whereas they are relatively less likely to get involved in work typical for NOE. One example of such activities is the provisions of medical services during or outside the official working hours, which generated income that can be entirely concealed from the public authorities. Persons with lower professional qualifications turn to undeclared work in NOE much more frequently than better-educated people. There is an evident overrepresentation of people with vocational secondary or lower education among all people working in the black economy (according to the LFS module – in 2004, approximately 70 per cent). Another argument is the length of employment in NOE – the average duration of work in NOE in Poland in the period from January to September 2004 for people with vocational secondary or lower education amounted to almost 37 days, whereas for persons with post-secondary or higher education – 22 days.

The decision about selecting a job in the official or informal sector of the economy may also depend on the quality and availability of labour-related social benefits that can be obtained from the employer or from the social security system after a certain defined and documented period of work in the official sector. Existing theoretical studies show that higher levels of unemployment benefits have an extensive influence on people searching and taking jobs in the official economy (see, for instance, Fugazza, Jacques 2001). In this respect the connection between eligibility for unemployment benefit, which compensates (at least partly) the income lost as a result of job loss, and the contributions paid in the past plays an important role. This means that in countries where the systems of unemployment insurance and of unemployment assistance operate side by side (e.g. Finland, Great Britain), and where certain groups of people are outside the obligation to prove a minimum period of insured work in the official sector of the economy in order to become eligible for unemployment benefit, the level of the above benefits should not affect the size of the shadow economy.

As indicated by Hanousek and Palda (2003), the impact of individual factors on the extent of tax evasion and of the shadow economy is not clear (see Box IV.3). The obtained high correlation between morality and tax evasion may result from reverse causation. A person who evades the payment of taxes may excuse his/her behaviour by stating that it does not go against his/her morals. On the other hand, a person who considers tax evasion as moral may evade the payment of taxes without any scruples. This means that the observa-

[16] Higher regulations index value means greater extent of regulation. The higher the corruption perception index and the higher the "Doing Business" ranking, the smaller the extent of corruption and the more friendly the business environment.

tions of certain significant correlations between the fact of being employed in NOE or consuming goods or services generated in the shadow economy and such factors as morality or remorse does not necessarily have to imply that there is a causal relation between them.

Box IV.3. Social and individual perception of the black economy

The persistence of considerable size of black economy in particular countries is possible among others because there is a widespread acceptance of this type of activity. The fact of working within NOE often does not entail social ostracism and, what is more, the inclination of particular communities to cooperate with the authorities by reporting companies that employ unregistered workers is scarce. Consequently, undeclared work is associated with lower cost (among others, due to lower expected fines in case irregularities come to light) compared to the situation of non-acceptance of such practices. In the questionnaire survey carried out in Germany (Schneider (2006)) as many as 2/3 of respondents considered the fact of participating in the shadow economy merely as a minor offence (in German, *Kavalierdelikt*).[17] Moreover, less than one in ten respondents said that those working in the shadow economy should be prosecuted and that people should inform relevant authorities about all undeclared employees that they become aware of. In addition, only approx. 5 per cent of respondents acknowledged that a person working in NOE, if caught, should be severely punished.

The impact of individual attitudes and opinions of the close environment on tax evasion was described by Hanousek and Palda (2003). The analysis of results of survey studies conducted on a sample of approx. 1,500 Czechs and Slovaks evidenced that in the case of respondents who come from circles where there is a firm disapproval of tax evasion practices, tax avoidance is rather rare. Moreover, the above research demonstrated a positive correlation between the inclination to avoid taxes and the perceived extent of this phenomenon in the closest environment. People who claimed that the degree of tax avoidance by others – both in the country and among acquaintances – is high, often failed to pay taxes themselves. Therefore, the fact that the perceived scale of the shadow economy goes down with frequency of tax evasion practices may effectively be due to moral factors. Persons convinced that only very few people in their circles avoid paying taxes are less likely to get involved in the shadow economy themselves. Notwithstanding the above, it is also possible that those who resort to fraudulent practices may excuse their own behaviour by pointing out that everybody in their environment does it.

3. Employment in the Shadow Economy in Poland

3.1. Introduction

The relatively most exhaustive source of information about undeclared work, revenues and expenditures relating to this phenomenon as well as about the social and economic features of persons who perform such work in Poland are the LFS module surveys. Until now, CSO carried out three surveys of this type: in August 1995, August 1998 and in the fourth quarter of 2004.

In the above-mentioned module surveys, undeclared work is defined as work performed in the absence of a formal employment agreement between the employer and the employee, irrespective of sector (including natural persons and individual agricultural holdings), which cannot be performed as a result of nomination, appointment or election. Undeclared work does not entitle to social insurance benefits. Employers do not deduct any taxes or SII or Labour Fund contributions and employees do not pay the personal income tax. The module surveys also took into consideration self-employment, if no relevant financial obligations towards the state are fulfilled (e.g. taxes).

In principle, module surveys involve questions pertaining to three subject groups:

- opinions about undeclared work in Poland – expressed by people performing such work, people benefiting from such work and people who know this phenomenon from observation only,
- performing undeclared work,
- using services offered by people performing undeclared work.

The module surveys cover half of the sample used in LFS, i.e. it is limited to people involved in the latter survey for the second time and people involved in LFS for the fourth (and last) time. The reason behind the above was to minimise the risk of refusal to participate in the survey.

In 1995 and 1998, the samples included approx. 11,000 households, which gave a total number of more than 25,000 people 15 years old and over. In 2004, the survey sample included approx. 9,500 households, i.e. about 23,700 people. In all three cases, the response rate was very high taking into consideration their specific subject-matter. The share of provided answers amounted to 91.2 per cent in 1998 and 88.9 per cent in 2004 (compared with the number of people from all reference groups that responded to the basic LFS questionnaire). The share of refusals to participate in the survey amounted to 1.8 and 3 per cent respectively. In the remaining cases, missing answers were due to the fact that a given respondent was not available at home when the survey was conducted (it should be

[17] The results of the survey indicate that the Germans perceive stealing a newspaper from the letter box as a much more serious offence.

emphasised that, as opposed to the basic questionnaire study, questions included in the module questionnaire had to be answered in person). However, preliminary data analyses demonstrated that in the case of some questions – pertaining above all to income from undeclared work and to related expenses – there is a lot of missing information, i.e. more than 20 per cent in all studies.

The estimates of the number of people involved in undeclared work, as referred to in the subsequent part of this chapter, have been supplemented with the results of the Time Use Survey (TUS). The above study allows to determine the lower limit of estimates as to the size of the shadow economy among employees and their structure in terms of some basic social and economic characteristics. The TUS was conducted by CSO between June 2003 and May 2004, using a sample of more than 25,000 people 15 years old and over (out of whom more than 20,000 completed the questionnaires and time sheets), i.e. a sample similar to that of the LFS module.

Box IV.4. LFS module survey and TUS

Due to the specific nature of the LFS module survey, the characteristics of informal workers as well as of employers offering such work is deficient and subject to significant error. Therefore, the number of people declaring to work in NOE should be treated as a minimum value of the actual extent of the shadow economy in Poland. The above results from the fact that a certain proportion of respondents could have concealed their real status in the labour market. Moreover, LFS does not cover people who live in collective accommodation establishments (lodging-houses for employees, student hostels, boarding-schools, army barracks, houses for the poor and the old, etc.) or people staying abroad for more than 2 months. Another factor that argues for a cautious interpretation of data resulting from the module survey is the fact that it refers to the first eight – or nine in the 2004 study – months of the year, and that the answers to questions included in the module questionnaire were of retrospective nature. This means that the respondents answered questions relating to past activity in NOE, which is always subject to a certain error. Moreover, the comparability of data for 2004 with data from previous periods is limited due to changes in data collection methods (observation of the reference week in the middle month of the quarter has been replaced by continuous observation) as well as changes in the base of generalising the results to the entire population as from 2003 (on the basis of the NPC 2002 data). Nevertheless, the LFS module conducted by CSO are the only such extensive research initiative pertaining to the phenomenon of undeclared work in Poland. Bearing in mind all deficiencies of this study, one can still derive therefrom some basic social and economic characteristics of informal workers, determine the lower bound of wage estimates, and establish some characteristics of shadow employers.

As opposed to the LFS module survey, TUS allows to determine the number of people working without a formal employment contract. Under Polish law, employment contracts must be in writing and, in case this written form requirement is not observed, the employer must confirm in writing all previous arrangements concerning the type and content of the agreement not later than on the day of commencement of work by the employee.[18] The absence of such confirmation may suggest that the employee is engaged in undeclared work. TUS makes it possible to identify employees hired without a formal contract at the time when the survey was conducted. The above fact carries some consequences for the resulting estimates. The module survey provides a number of people who in the first 8-9 months of the year have performed work within NOE, irrespective of whether they were in undeclared employment when surveyed or not. Therefore, relevant figures should be greater for the module survey than for TUS. Although the time use survey was conducted in the course of 12 months, it allows only to identify those working without a written contract in the week preceding the survey. For instance, a person who terminates or completes work in NOE at least 8 days before the study, is not considered a person participating in NOE. On the other hand, the module survey would regard such person as engaged in the shadow economy. What is more, answers to questions about the past are in principle imprecise. In view of the above, it is possibly that a person who was employed in NOE in January, simply does not recall this fact three quarters later and denies having participated in undeclared work. If this person was examined in January as part of TUS, s/he would probably be identified as a NOE participant. One of the deficiencies of TUS is the fact that it does not enable the identification of people carrying on unregistered business activity.

In accordance with the LFS module survey of 2004, approximately 1,317 people declared that they have been involved in undeclared work in the course of three quarters of that year. This is the lowest value, compared with the previous surveys which recorded approx. 2,199 people engaged in NOE in 1995 and 1,431 people in 1998 (these values refer to the first 8 months of the year).[19] This means that about 7.6 per cent of over-15-year-olds were in undeclared employment in 1995, and 4.7 per cent and 4.2 per cent in 1998 and 2004 respectively. A decreasing tendency in the number of informal workers is observable in all groups. In view of the above and taking into consideration the imperfect comparability of data for 2004 with data resulting from earlier surveys, all figures provided in the subsequent part of this subchapter are data for 2004, unless otherwise stated.

The TUS results indicate that in the second half of 2003 and in the first half of 2004 there were 764,000 employees (541,000 men and 223,000 women) on the main job in the shadow economy, which accounted for 5.1 per cent of the total employment. This number was close to that derived from the module survey, which identified 829,000 employees (505,000 men and 324,000 women) on the main job performing work in the shadow economy.

[18] Moreover, the employer is under the obligation to advise the employee in writing, not later than 7 days as from the conclusion of the employment agreement, about working time, salary payment schedule, paid leavetermination notice and, if the employer is not compelled to provide work regulations – about night time (work), place and time of wage payment and the adopted methods of clocking in, confirming attendance at work and excusing absences.

[19] It is not possible to determine the number of people working in the shadow economy in particular months (due to the fact that some people undertook undeclared employment a couple of times). Therefore, the figures provided in the subsequent parts of this subchapter relate only to the first eight months of 1994 and 1998 and to the first nine months of 2004.

3.2. Motives for undertaking undeclared work according to LFS module survey

In the LFS module survey, questions about undertaking undeclared work were directed to all respondents, irrespective of whether a given person participated in undeclared work or not, or whether a given household benefited from such work. Opinions on motives for undertaking undeclared work did not differ considerably between people involved in NOE and persons who have never had anything to do with it. Hence, information provided in the subsequent part of this chapter refer to the entire population.

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In the years 1995 and 1998, among the most commonly indicated reasons for undertaking undeclared work there were **insufficient income** and **lack of job opportunities**, **taxation of income**, and **higher wage offers from employers**. In total, in 1995 and in 1998, these factors accounted for 78.5 per cent of all responses. In 2004, the respondents also pointed to the above causes, however, in a different frequency order positions. In 2004, the most common motive for undertaking undeclared work was the lack of job opportunities. Most probably this was a reflection of the difficult situation in the Polish labour market at the beginning of this decade. What is more, in 2004, the answer patterns for two factors changed, namely for the amount of taxes and social insurance contributions. In 1995 and 1998, the respondents tended to point to high taxes as a motivation to conceal income (13.3 and 10.9 per cent respectively) and slightly less frequently to high social insurance contributions (8.8 and 9.4 per cent respectively). In 2004, the frequency order position for the above two factors was reversed. The respondents pointed to high social insurance contributions (12 per cent) more frequently than to high taxes (7.5 per cent). This shift can be attributed to the switch from net to a gross earnings concept which took place in 1999 and which consisted in dividing the payment of the mandatory social insurance contribution between the employer and the employee and in increasing the employee's gross wage accordingly. Although this mechanism did not result in increased net wages, it was of considerable psychological significance. Employees, who realised that certain social insurance obligations were paid from their gross wages, could have started perceiving these obligations as an additional and heavy burden, which, in accordance with their subjective perception lowered their potential net wage.

Table IV.4.
Motives for undertaking undeclared work in Poland (percentage share of all answers)[20]

Motives	1995	1998	2004
insufficient income	34.7	33.6	26.5
lack of job opportunities	21.5	23.3	36.0
taxes discouraging to declare income	13.3	10.9	7.5
employer offers higher wages on condition that work is undeclared	8.9	10.6	10.3
high social insurance contributions	8.8	9.4	12.0
potential loss of some benefits in the case of performing declared work	5.7	5.3	4.3
family or life situation (taking care of one's child, state of health, event in life, etc.)	4.8	4.5	3.2
reluctance to lastingly bind oneself to one work place	0.7	0.9	0.3

Source: Own calculation based on CSO 1996, CSO 1999, CSO 2005.

The results of the LFS module survey indicate that, according to the subjective judgement of employees, labour taxation does not constitute the key motive for undertaking undeclared work. In all three surveys, high taxes and high social insurance contributions accounted for approximately 19.5-22 per cent of all answers, which, in view of the possibility of selecting multiple answers, is not a considerable share. On the other hand the general presentation of other motives in the questionnaire does not allow to establish firmly whether such causes as insufficient income and the lack of employment opportunities do not result indirectly from taxation.

3.3 Undeclared work versus real status in the labour market

The construction of the module survey of 1995 and 1998 makes it possible to determine the actual labour market status of people engaged in the shadow economy in August of a given year by referring to the basic LFS survey. The above surveys included a question about the performance of undeclared work also in the month when the survey was conducted (i.e. in August) and thus it was possible to indicate the labour market status (according to the basic LFS survey) of informal workers. In 1998, approximately 60 per cent of people involved in undeclared work was classified in the basic LFS survey as employed, whereas approximately 18 per cent as unemployed. This means that approximately 5.5 per cent of the working population (according to LFS) is involved in undeclared work in the main and/or additional job. Moreover, some 14.6 per cent of the unemployed and 2.4 per cent of the economically inactive engage in work in NOE. If the number of the working unemployed and the working inactive was included in the total number of the working population, the value of the employment rate would increase by 1.9 pp., whereas the unemployment rate would decrease by 1.7 pp.

[20] The values for particular years may not add up to 100 per cent because refusals to answers and other answers were left out.

In 2004, the module survey was carried out in the fourth quarter and the questions pertaining to undeclared work referred to the first three quarters of the year. In view of the above, it is very difficult to firmly establish the labour market status of people engaged in undeclared work. This is so because flows between different status groups (in particular age and education groups) of the respondents should also be taken into account. Leaving these flows aside, in 2004, approximately 50 per cent of informal workers were classified in the basic LFS survey as working people, 30 per cent – as unemployed, and 20 per cent – as economically inactive. The above values reflect the situation in the labour market as of the fourth quarter of 2004, i.e. not at the time when undeclared work was performed. In view of the aforementioned, the values are only approximate and they may differ considerably from the actual labour market status of those involved in undeclared work at the time of its actual performance.

3.4. Characteristics of people involved in undeclared work by age

In 2004, according to the LFS module survey, an average of 4.2 per cent of over-15-year-olds was involved in undeclared work. Most frequently, this type of work is performed by people at the age of the highest participation rates i.e. those aged 25-44. In 1995, these people constituted more than half of all people engaged in undeclared work. This share was declining in the subsequent surveys and in 2004 it reached the level of 46 per cent. Marginal involvement in undeclared work can be observed among the elderly (aged 60+), which reflects the generally very low participation in this age group.[21]

The level of involvement of young people (aged 15-24) in undeclared work is considerable. In 2004, this group accounted for more than 20 per cent of all people declaring their participation in undeclared work as well as 4.8 per cent of the total population in this age group. Interestingly enough young people undertake undeclared work relatively more frequently than older people (at the age of 45 and more). As for the official sector of the economy, it is young people who have lower employment rates compared with older people, whereas in NOE these rates are the same or higher for the young.

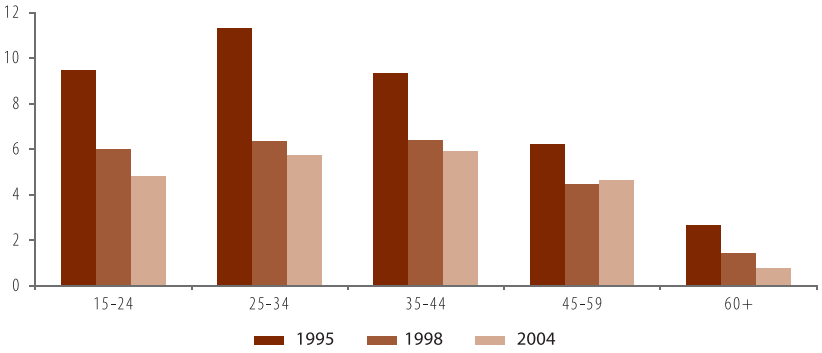
Table IV.5.
Structure of the population of informal workers by age (percentages)

age	1995	1998	2004
15-24	22.4	23.1	20.5
25-34	25.5	22.2	24.4
35-44	26.9	26.8	22.0
45-59	17.6	21.4	29.2
60+	7.6	6.4	3.9

Source: Own calculations based on CSO 1996, CSO 1999, CSO 2005.

The highest shadow employment rate[22] was recorded in 1995 and it amounted to 7.6 per cent. In the subsequent survey periods, it was declining until it reached the level of 4.2 per cent in 2004. This tendency is typical for all age groups, apart from people aged 45-59. As presented in Chart IV.3., the latter group is the only group which saw a (slight) increase in the above-mentioned indicator compared with 1998. In absolute terms, it is also the only group where the number of people declaring their involvement in the shadow economy had not changed significantly compared with 1995.

Chart IV.3.
Shadow employment rate by age groups in 1995, 1998 and 2004 (percentages)

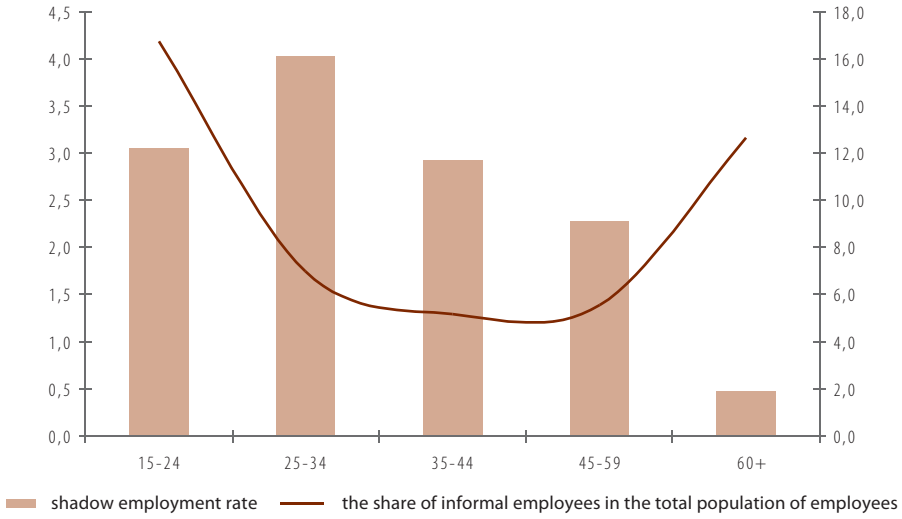


Source: Own calculations based on CSO 1996, CSO 1999, CSO 2005.

[21] In 1995, the participation rate for over-60-year-olds was at the level of 16 per cent and it decreased to 9 per cent in 2004.
[22] Shadow employment rate represents persons in shadow employment as a percentage of the total population.

The TUS results provide a similar age characteristics of employees working in the shadow economy. Undeclared employment constitutes the largest problem in the youngest age group. Although the share of people aged 15-24 involved in the black economy in the total number of informal employees is smaller than that of people aged 25-34, however, the smaller share of the former group is due to lower probability of participation and engagement in work in general. In the age group 15-24, approximately 16.7 per cent of employees used to work without a written employment contract, compared with 7.2 per cent for the total population. About a half of them were in education at that time (in the overall population of people aged 15-24 it was 77 per cent), and a quarter did tetriary education courses and postgraduate university courses.

Chart IV.4.
Shadow employment rate (left axis) and the share of informal employees in the total population of employees (right axis) by age groups (percentages)



The employment rate pertains only to employees.

Source: Own calculations based on TUS.

When entering the labour market, young people find themselves in a relatively difficult situation compared with the rest of the population. It can be observed that in the LFS module survey of 2004 young people tended to indicate the lack of job opportunities in the official sector as the key reason for shadow employment. Difficulties in finding a job result from the lack of work experience and the unidentified level of their professional qualifications.[23] As a rule, these people, and in particular people with low qualifications, lack bargaining power in negotiations with potential employers. Moreover, average wage that employers are willing to offer to people entering the labour market is lower than the average wage in the economy.[24] Hence, low wages as well as employers' reluctance to employ people without prior work experience may force young people into the black economy.

Another interesting finding is that the proportion of elderly workers hired in the shadow economy in the total number of employees aged 60+ is larger than average.[25] This fact may result from two things: firstly, for elderly people the lack of retirement, pension and social insurances is of lesser significance than for other age groups which may regard the above as a factor that discourages from engaging in undeclared work. The elderly, who already receive old-age pension are not inclined to pay social insurance contributions and thus, they are relatively more likely to decide to undertake undeclared work. Secondly, for people who decide to retire early (and thus receive early retirement benefits) the fact of engaging in official work may result in the reduction of retirement benefits. In line with the provisions of the Act on retirement and pension benefits from the Social Insurance Fund (FUS), retirement pay is reduced, if the gross wage exceeds 70 per cent of the average wage in the economy, and suspended, if the gross wage exceeds 130 per cent of the above figure.

3.5. People involved in undeclared work by education and work type

In general, work in the shadow economy is commonly thought to be dominated by people with low professional qualifications and low level of nominal education. This claim is supported by the findings of the LFS module survey and of TUS. According to the module survey, approx. **70 per cent of all people declaring their participation in undeclared work are people with at most basic vocational**

[23] The analysis of the situation of young people in other EU and OECD member states proves that the rate of unemployment for young people is usually twice higher – or even more than that – than the average unemployment rate in a particular country. The situation of young people in the labour market has been discussed in greater detail in Bukowski et. al (2005).
[24] In October 2004, the average wage of people aged 15-24 amounted to approx. 60 per cent of the average wage in the economy. In view of the currently applicable regulations, employers can employ a young person for wage amounting to 80 per cent of the minimum wage in the first year of such person's employment (Act dated 10 October 2002 on minimum wage; Journal of Laws No. 200, item 1679, as amended). This means that in 2004 the minimum gross wage of a young person could amount to PLN 659.20, whereas the net wage to as little as PLN 497.
[25] In view of the rather low sample size used in the calculation of this indicator, the presented result should be treated with a degree of caution.

education. This pertains above all to men, for whom this proportion amounted to 75 per cent in 2004, thus reaching the level which was higher by almost 17 percentage points than the analogous share for women. An opposite situation can be observed in the case of people with tertiary and post-secondary education. In this group women were more likely to turn to undeclared work, which can be associated with the fact that they are statistically better educated than men. This argument is confirmed by the absence of significant differences in the levels of employment rates by gender.

Table IV.6.
Structure of the population of informal workers by level of education (percentages)

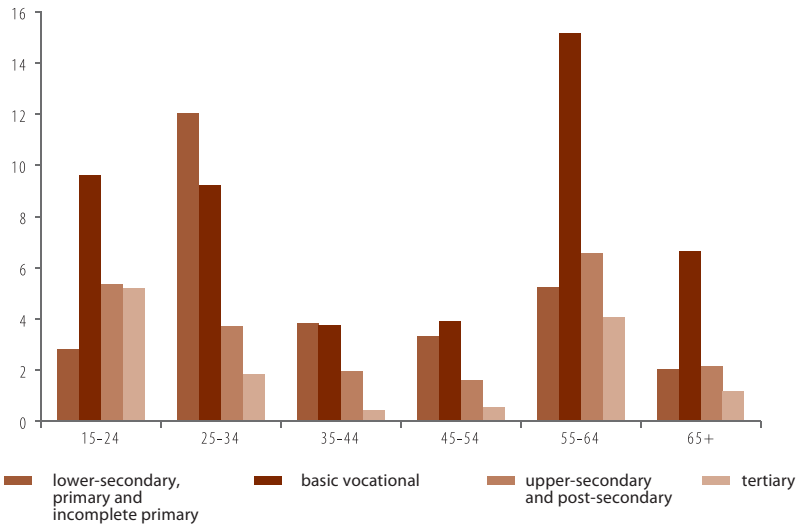
	1995	1998	2004
primary and incomplete primary	33.8	31.9	24.1
basic vocational	38.4	41.6	44.8
secondary	20.8	20.8	25.1
post-secondary and tertiary	7.0	5.7	6.0

Source: Own calculation based on CSO 1996, CSO 1999, CSO 2005.

In 2004, the shadow employment rate for people with basic vocational education amounted to 5.2 per cent. After eliminating the youngest group who are still in education, the employment rate increases slightly (by mere 0.2 percentage point). As demonstrated in Chart IV.5., the group of people with basic vocational education is typically characterised by the highest shadow employment rates.

Similar results were obtained in TUS – undeclared work is most widespread among people with low level of education. The largest group of people employed without formal employment contract consists of people with at most lower secondary education (20.7 per cent of all employees in this education group). In the group of employees with basic vocational education almost one in ten had been employed in the informal sector of the economy. It can be reasonably concluded that the higher the level of education, the lower the share of employment in the shadow economy.

Chart IV.5
Shadow employment rate in 2004 by age groups and level of education



Source: Own calculations based on CSO data.

The informal sector of the economy demands above all low-qualified work – in all module surveys, the respondents pointed most frequently to gardening and agricultural services, construction and installation services, neighbour services, renovation and repair services. The share of people providing the above-mentioned types of services oscillated between 63 per cent (in 1995 and in 2004) and 71 per cent (in 1998). On the other hand, the share of people providing high-qualified work amounted to 6-7 per cent of all people involved in undeclared work. High-qualified work was deemed to include private tuition and translation, medical and nursing services, accounting and legal advisory services. The above services are provided almost exclusively by people with at least higher secondary education.

Table IV.7.
Frequency of informal work by type of activity in 1995, 1998, 2004 (percentages)

Details	1995	1998	2004
gardening and agricultural services	24.7	20.3	21.1
construction and installation services	14.2	19.4	11.3
neighbour services	12.9	17.3	17.2
renovation and repair services	11.4	14.5	14.3
trade	8.2	5.8	6.3
sewing services	6.7	4.4	4.0
servicing and repair of vehicles and machinery	6.4	5.3	6.3
transport services	5.2	5.2	5.2
baby-sitting and long-term care	4.3	4.5	4.6
private tuition and translation services	4.1	3.3	3.7
house-keeping (e.g. cleaning)	3.0	3.8	3.5
medical and nursing services	2.2	1.4	1.2
accounting and legal advisory services	1.1	1.3	1.4
other	12.5	12.1	13.2

Source: Own calculations based on CSO 1996, CSO 1999, CSO 2005.

It should be noted that, according to the 1995 and 1998 surveys, only people with higher secondary (vocational and general) education were engaged in all types of services examined as part of the undeclared work survey. Moreover, this group of people most frequently provided gardening and agricultural services, neighbour services, construction and installation services and were involved in trade. People with at most basic vocational education undertook above all gardening and agricultural services, neighbour services, construction and installation services as well as renovations and repair services.

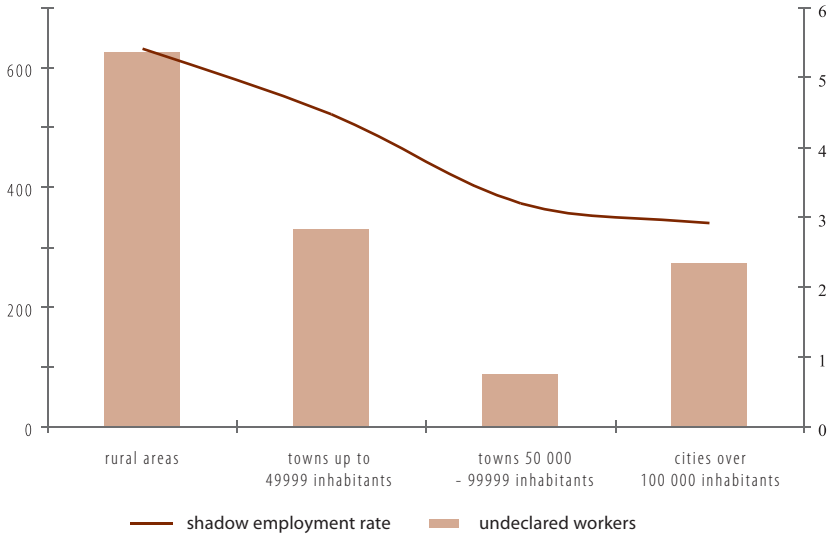
3.6. Spatial diversity of undeclared work

In accordance with the LFS module survey, the share of undeclared workers is similar for those living in rural areas and for those living in towns. Nevertheless, considering the degree of urbanisation of the country, it is the **population of rural areas that is more likely to engage in work in NOE**. This relationship is valid for any age, gender, or education group. The above argument is reflected in the frequency of undertaking gardening and agricultural tasks by people working in the shadow economy. As indicated in the previous subchapter, in all three surveys the share of this work category was the largest. Moreover, the LFS module survey of 2004 allows to identify types of work performed as part of neighbour services. As for neighbour services, gardening and agricultural tasks dominated this category with a great majority share of more than 62 per cent, thus increasing the total share of all people engaging in this type of activity within NOE to 31.8 per cent.

The size of the place of residence is a variable that is of smaller importance than age or level of education when it comes to explaining propensity to work in NOE. In 2004, participation in the shadow economy was least popular in medium-size towns (50,000-99,999 inhabitants). Undeclared work attracted above all the inhabitants of rural areas and of small towns (up to 50,000 inhabitants) – in 2004, almost 73 per cent of all people involved in NOE came from these areas. What is more, rural areas and small towns saw the highest shadow employment rates which amounted to 5.4 and 4.5 per cent respectively.

The TUS results suggest that shadow employment rates (without self-employed) vary even less with the size of the place of residence. The largest extent of unregistered work can be observed in rural areas. One out of ten employees living in a rural area had been employed without a formal contract, whereas in large cities (more than 500,000) the share of NOE amounted to 6.8 per cent (similar results were obtained for other towns).

Chart IV.6.
People engaged in unregistered work – left axis (thousands) and the shadow employment rate – right axis (percentages) by size of the place of residence in 2004

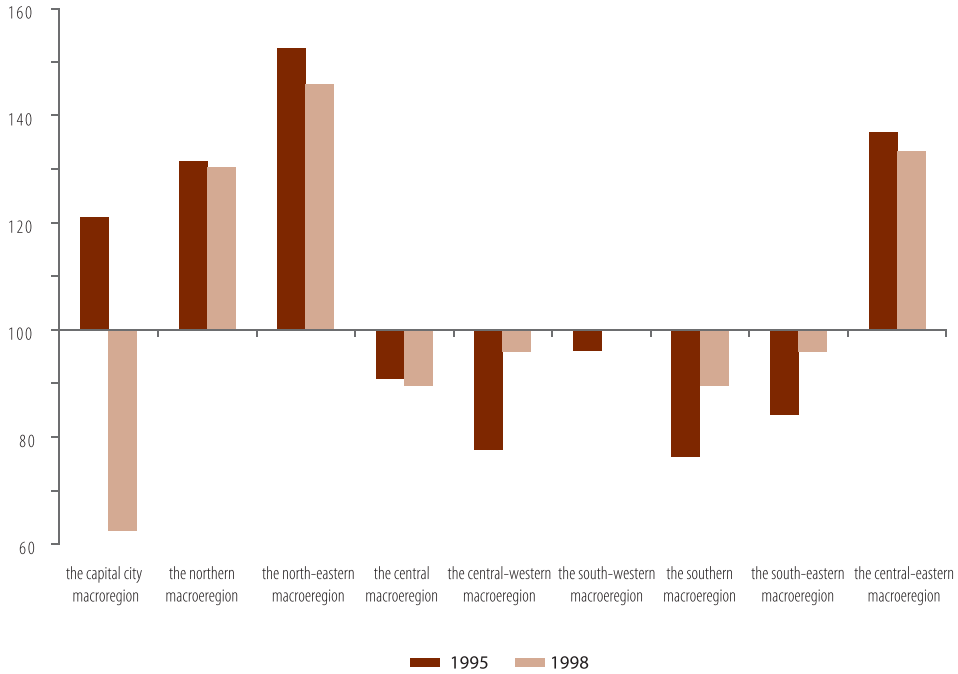


Source: Own calculations based on CSO data.

Greater concentration of black economy in rural areas may have to do with two factors, namely higher participation of people living in rural areas in the official economy and the nature of performed work, including above all low-qualification tasks. In 2004, 48 per cent of all people living in rural areas provided gardening and agricultural services, including neighbour services.

The results of the module survey on undeclared work of 2004 do not allow to determine the degree of regional differentiation in unregistered work intensity. In earlier surveys, spatial diversity of undeclared work was presented at the level of macroregions.[26]

Chart IV.7.
Relation between shadow employment rates in NOE in particular macroregions and the overall shadow employment rate in NOE for Poland (percentages)



Source: Own calculations base on CSO 1996, CSO 1999.

[26] It should be borne in mind that the first two surveys were conducted at the time when the territorial division of the country into 49 voivodeships was still in place. In view of the above, the regional analysis of involvement in undeclared work has been presented for 9 (1995) and 10 (1998) macroregions. Data derived from the 2004 survey have not been included in the regional analysis.

According to both surveys, the **greatest concentration of unregistered work**, as presented in Chart IV.7., was recorded in the **voivodeships of northern and north-eastern Poland** and pertained to the following macroregions: north-eastern, central-eastern and northern (in 1998 divided into northern and north-western macroregions).[27] Moreover, in 1995, above-average concentration of unregistered work was observed in the capital and its surrounding areas.

3.7. People involved in the shadow economy by occupation and economic activity

Considering the types of work performed in NOE as well as the level of education of people engaging in their performance, it can be reasonably assumed that a **considerable proportion of people work in occupations that do not require high professional qualifications**. The analysis of data from the LFS module survey indicates that in 2004 approx. 85 per cent of people involved in unregistered work, who were classified as employed in the basic LFS survey, worked in the following groups of occupations:

- service workers and shop and market sales workers,
- skilled agricultural and fishery workers,
- craft and related trades workers,
- plant and machine operators and assemblers,
- elementary occupations.

The above estimate is incomplete and therefore it mirrors only the nature and not the scale of the phenomenon. This is so because it only refers to working people, who are asked in the basic LFS survey about their occupations. Moreover, this information refers to the IV quarter of 2004, whereas the questions about unregistered work included in the module survey refer to quarters I-III of the year. Therefore, a more precise description of the structure of unregistered work by occupation could be generated from individual data after taking into account the scale of flows between labour market status groups and between large occupational groups.

As opposed to the LFS module survey, TUS enables to establish a more precise description of the occupational profile of people working without formal employment contracts. The analysis of data indicates that the problem of unregistered work touches above all low-qualification manual workers, whereas it is less significant in the case of people with higher qualifications (specialists), people involved in office work, and it is virtually non-existent in the case of people in managerial positions. According to TUS, the share of the above-mentioned groups in the total number of people working in the black economy amounted by nearly 90 per cent, i.e. it reached the level similar to that resulting from the LFS module survey. In the period from June 2003 to May 2004, craft and related trades workers, with **construction workers** constituting the majority,[28] accounted for approx. 1/3 of all people working in the clandestine economy. Elementary occupations constituted another large group, including **mining and construction labourers**, who accounted for 30 per cent of the group population (it is highly probable that, in view of the small extent of black economy in mining, this group mainly consists of construction workers[29]), **agricultural labourers** (27 per cent), **domestic and related helpers, cleaners and launderers** (18 per cent). Moreover, service and sales workers were also numerous in terms of involvement in unregistered work. Drivers of motor vehicles accounted for 60 per cent of all informally employed plant and machine operators and assemblers.

The share of informal employees was largest in elementary occupations. It should be emphasised that people involved in NOE accounted for more than a half of all mining and construction labourers as well as agricultural labourers. In the group of craft and related trades workers, approximately one in ten employees did not have a formal employment contract. In the case of extraction and building trades workers, this share amounted to approx. 25 per cent. In the group including service and sales workers, the highest share of people working in NOE was recorded for personal care workers (21 per cent), whereas only 5.5 per cent of all car drivers worked in the shadow economy.

[27] The capital city macroregion covers the following former voivodeships: ciechanowskie, ostrołęckie, radomskie, siedleckie, warszawskie; the north-eastern macroregion: białostockie, łomżyńskie, olsztyńskie, suwalskie, the northern macroeregion: elbląskie, gdańskie, słupskie, the north-western macroregion: gorzowskie, koszalińskie, szczecińskie, the southern macroregion: bielskie, częstochowskie, katowickie, opolskie, the south-eastern macroregion: kieleckie, krakowskie, krośnieńskie, nowosądeckie, przemyskie, rzeszowskie, tarnobrzeskie, tarnowskie, the central-eastern macroregion: bialskopodlaskie, chełmskie, lubelskie, zamojskie, the central macroregion: łódzkie, piotrkowskie, płockie, sieradzkie, skierniewickie, the central-western macreoregion: bydgoskie, kaliskie konińskie, leszczyńskie, pilskie, poznańskie, toruńskie, włocławskie, the south-western macroregion: jeleniogórskie, legnickie, wałbrzyskie, wrocławskie, zielonogórskie. In 1995, the northern and north-western macroregions constituted one macroregion, namely the northern macroregion.

[28] Other professions that were relatively well-represented were wood treaters (11 per cent), mechanics (7.5 per cent), people employed in the textile industry and in apparel production (6.4 per cent).

[29] The ratio of the number of employees in NOE in the mining sector to the number of people employed illegally in the construction sector is 1:7.

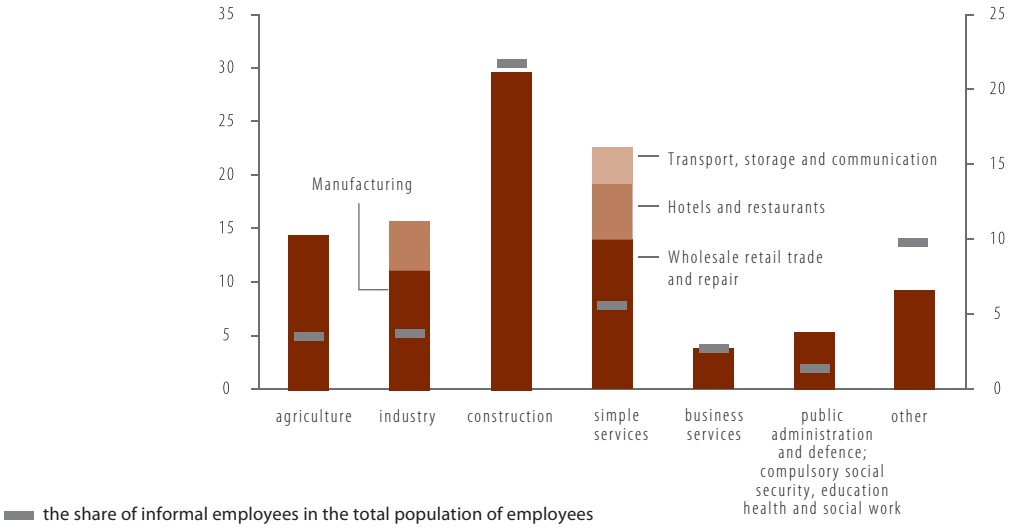
Table IV.8.
Structure of the population of informal workers by occupation.

Occupation group	Share in the number of people working in the black economy	Share in the number of people in a given occupation
professionals	2.9	1.3
technicians and associate professionals	4.5	1.9
clerks	2.3	1.6
service workers and shop and market sales	15.8	6.9
workers	4.9	1.2
skilled agricultural and fishery workers	35.5	11.0
craft and related trades workers	6.2	3.7
plant and machine operators and assemblers elementary occupations	27.2	19.0

Source: Own calculations based on TUS data.

The type of performed unregistered work points indirectly to sectors where it is performed most frequently. According to TUS, the largest group of people involved in undeclared work consisted of those employed in the **construction sector** and in the **simple services sector**.[30] Their share in the total number of people involved in NOE amounted to 29.5 and 22.4 per cent respectively. It should be noted that in the construction sector, more than **one in five employees ended up working in the shadow economy**.[31] As for simple services, the share of people working without a formal contract amounted to 5.6 per cent.[32] What is more, a considerable proportion of people engaged in unregistered work were employed in agriculture (14.3 per cent) and in industry (15.6 per cent), where the latter included above all workers in manufacturing.[33]

Chart IV.8.
Structure of the population of informal employees (percentages) (left axis) and the share of informal employees (percentages) (right axis) by economic activity



Source: Own calculations based on TUS data.

The problem of unregistered work largely touches **people working part-time**. About 54 per cent out of all employees working without a formal employment contract performed part-time work, whereas this share in the overall population of employees amounted to 12 per cent. The share of people working part-time was highest for the oldest age groups (55+), where it amounted to approx. 90 per cent, and the lowest for the age group 25-34 (37.7 per cent). For young people aged 15-24, this share reached 57.7 per cent. One in three part-time employees worked in the black economy.

[30] NACE branches G to I.
[31] This percentage share was the highest in the 15-24 age group (34.5 per cent).
[32] The highest share of unregistered employees was recorded in the section "Hotels and restaurants" – 14 per cent. This was mainly due to the large extent of the shadow economy among young people working in this section (35.3 per cent involved in the black economy).
[33] As for the relative significance of the shadow economy, the section "Activities of households" stood out because 34,000 of 43,000 employees in this section were involved in unregistered work (TUS data).

A considerable part of cost of legal employment is a fixed cost – invariant with work time and wage. The cost consists of time or expenses (in the case of outsourcing) relating, among others, to registering an employee with social insurance and tax authorities, and to deducting taxes and contributions. Therefore, as the number of hours worked decreases, the hourly cost of formal employment relatively increases. Hence, in the case of part-time work, motives in favour of employing workers without registering are stronger.

3.8. Work in the shadow economy in the main and additional job

From the point of view of the labour market, it is important whether work in the shadow economy constitutes the principal economic activity or whether it is treated as additional one and it does not constitute the principal source of income or of a considerable part thereof. The LFS module survey allows to determine the nature of the recently undertaken unregistered work, its frequency and duration.

In accordance with the LFS module survey, in 1995 and 1998, the nature of unregistered work was above all additional. In those years, respectively 56.5 and 53.7 per cent of respondents combined unregistered employment with legal employment. In 2004, only 37 per cent of respondents declaring participation in the black economy considered their undeclared work additional. This means that in 2004 **for a majority of people involved in the black economy unregistered work was the main job**. This is supported by the fact that in 2004, as opposed to the previous surveys, unregistered work was delivered once a month. In 1995 and 1998, approximately 65-66 per cent of people engaged in undeclared work a number of times every month, in 2004, this share decreased to 3.8 per cent. The two above-mentioned processes were accompanied by an extension of an average duration of unregistered jobs during the surveyed period (eight/nine months) from 20 days in 1995 and 24 days in 1998 to 35 days in 2004. In the period 1995-2004, the number of people engaging in undeclared work for a period longer than 60 days almost trebled. The above-mentioned changes could have been due to the general situation in the Polish labour market at the beginning of the 21st century. Harsh labour market conditions which manifested themselves in very high unemployment rates as well as in considerable difficulties in finding employment could not have been without any impact on the nature of unregistered work. What is more, this situation could have caused a proportion of people experiencing problems with finding an official job to undertake permanent unregistered work. In 2004, the most commonly cited motive for engaging in unregistered work was exactly the lack of job opportunities. The share of answers pointing this cause increased by approx. 10 percentage points compared with the earlier surveys. Moreover, during this period, employment in the shadow economy lost the typical features of this form of economic activity, namely short period of work, occasionality and impermanence of the work relationship. As demonstrated in Box IV.5, **undeclared work may be procyclical**. Therefore the economic slowdown of the beginning of this century with all its consequences in the labour market was reflected in increased stability of unregistered work. Moreover, the slump in employment levels in the official sector of the economy translated into the decrease in shadow employment. Although the data collection period was extended in 2004 from eight to nine months, the number of people declaring their participation in unregistered work went down by approx. 8 per cent compared with 1998.

For women and town dwellers, unregistered work was more frequently the main job. Women, who are statistically less likely to engage in unregistered work than men, tend not to combine it with registered employment. A similar situation occurs in the case of town dwellers for whom – according to all surveys – unregistered work was above all their main job (only in 1995, the share of informal workers in the main job amounted to 50 per cent). This means that **although men and people from rural areas are characterised by higher probability of shadow employment, in their case unregistered work typically constitutes an additional job which provides extra income on top of income from official employment.**

Unregistered work as the main job is a typical form of employment for young people. In the 2004 module survey, approx. 78 per cent of the young population engaged in unregistered work pointed to this form of employment. Considering that the employment rate in the official sector of the economy is low (in 2004, it amounted to 20 per cent), it can be assumed that the exclusive engagement in undeclared work is widespread in this group. In accordance with the basic LFS survey, in 2004, the share of young people engaged in unregistered work on the main job in the total working population amounted to 19.3 per cent. For older age groups, this indicator came to approx. 5 percent.[34]

Similarly to age, the probability of engaging in unregistered work on the main job also varies with the level of education. In fact, the higher the level of education, the more often unregistered work is an additional occupation. In 2004, people with tertiary and post-secondary education constituted the only group for which unregistered work was above all an additional occupation, whereas in the case of all other groups it constitutes the main job.

In accordance with TUS, there were 103,500 informal employees in an additional job and almost all of them were employed officially on the main job. Therefore, people performing an additional job without a formal employment contract constitute a separate category (from the one mentioned above) of shadow employees. The above figure is much lower than the number of people engaged in unregistered work as an additional occupation, as identified in the above-discussed module survey. Nevertheless, it should be borne in mind

[34] This measure reflects only an approximate scale of the phenomenon because a proportion of people involved in undeclared work – also in the main job – is classified in the basic LFS survey as employed, which results in referring to the same people in the denominator and in the numerator.

that the questions included in the module survey asked about the fact of involvement in NOE throughout the period of eight/nine months, whereas TUS asked about the fact of performing an additional job at the time of the survey. Moreover, in TUS, the group of people performing an additional job is strongly underrepresented. In TUS it includes 337,000 people, whereas only in the 1st quarter of 2004, LFS identified more than three times more people belonging to this group.[35]

Box IV.5. Undeclared work and the business cycle in Italy

When analysing the role of the shadow economy in the economy, the question of the cyclical nature of NOE can hardly be neglected. One significant drawback in the empirical verification of the hypothesis about the acyclical, anticyclical or procyclical nature of unregistered employment is the absence of sufficiently long and reliable time series. Italy is an exception in the above respect as the Italian statistical office – ISTAT – published data on the extent of employment in NOE throughout a period of more than 20 years (1980-2002). These statistics were used, for instance, by Bovi (2006) who conducted an econometric study on changes in unregistered employment in the course of an economic cycle in Italy. Although due to the low frequency of available data as well as modest sample size the results of this study should be treated with a certain caution, it surely allows to form some view on the nature of NOE.

In his article, Bovi divides labour into three components: registered workers, self-employed workers and unregistered workers, and then he examines the correlation between the above-mentioned aggregates and the size of the GDP gap in Italy.[36] The key conclusions from the study are as follows:

- **shadow employment is procyclical** and there is a instantaneous causality between the GDP gap and unregistered work (however, there is no Granger causality);
- **number of employees in the official sector behaves in a procyclical manner** but its adjustment to the GDP gap occurs with a delay that exceeds one year (Granger causality from GDP to official employment);
- **no clear correlation between the number of self-employed and the GDP gap in the course of an economic cycle.**

There is no rigidity connected with the adjustment of the number of employees and the amount of hours worked in the unofficial economy. Therefore companies may react immediately to the improving (deteriorating) economic conditions with an increase (decrease) in undeclared employment. Moreover, in view of the repressive measures undertaken by the state, there exists a certain limit to the increase in unregistered employment. Thus, the number of people engaged in the shadow economy increases until it reaches a certain level and than remains relatively stable. Hence, there is no correlation between the shadow economy and the lagged GDP gap. On the other hand, the fact of employing a worker on the basis of a formal contract incurs much greater cost, whereas the fact of dismissing a worker may necessitate the payment of a considerable severance pay. Therefore, when making decisions on hiring a worker, enterprises that go for registered work are bound to take into account – to a much greater extent than companies operating in NOE – the future size of the GDP gap. It is only after they establish that the economic revival is of a lasting nature, and thus that the expected demand for goods and services can be reasonably assumed to remain high, that they may want to increase employment. As for self-employment, it is similar to work in the shadow economy because the cost of employment partly shifts to the employee (among others, the cost of time spent on registering a business activity as well as calculating and deducting taxes and social insurance contributions) and there is no severance pay obligation with respect to dismissed employees. The acyclical nature of self-employment, as demonstrated by Bovi, may be due to the fact that unregistered work assumes the role of this form of employment as an instrument that enables an immediate adjustment of the labour input in response to economic shocks.

As opposed to the module survey, TUS makes it possible to describe the characteristics of the group of people who undertake additional employment in NOE and to compare it with other employees who decide to engage in additional work. One in three people performing an additional job did not have a formal employment contract. Men accounted for approximately 2/3 of people engaged in unregistered work (exactly the same result was derived from the module survey). The largest share of people working without formal contract in the total population of people performing an additional job can be observed in the youngest population where it amounted to 75 per cent. This is reflected also in the high value of this share for people with at most lower secondary education. People with tertiary and post-secondary education also make up a large group of people with an additional job in NOE, which is a consequence of greater inclination of better-educated people towards taking up additional jobs. The reason for this is that for better-educated people the price of leisure is higher than for worse-educated people, and that the former dispose of a wider range of skills that they can offer. Another reason for this state of things is that people of this profile are overrepresented in the TUS sample. The share of people working in NOE in the total number of the population performing an additional job in this group does not exceed 16 per cent which is much lower than the average for the total population of people working multiple jobs. Thus, similarly to shadow employees on the main job, it can be stated that the problem of employment in NOE affects well-educated people only marginally.

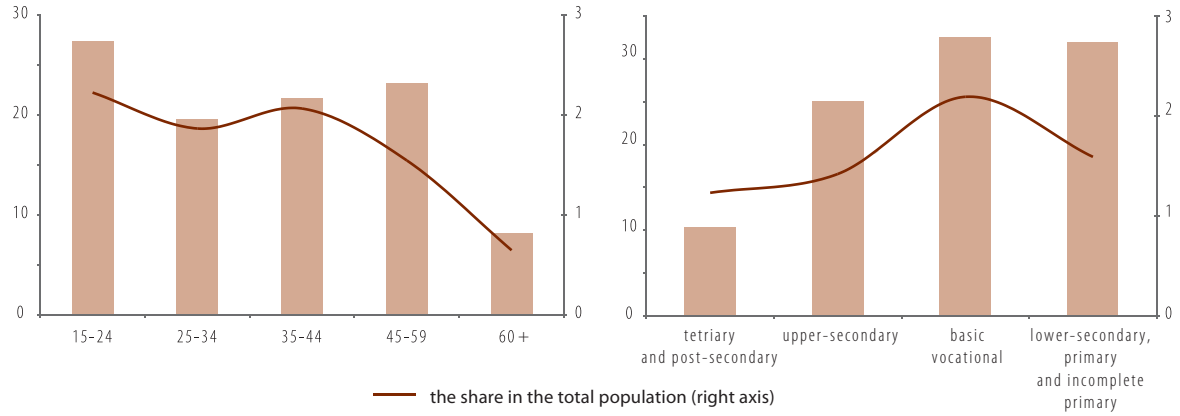
[35] Moreover, the fact of underrepresentation of this group may distort the results. If it was not random, e.g. if there was a greater probability of not including young people who perform an additional job in the TUS sample, the statistics and sampling distributions presented below would be biased estimators of the statistics and distributions in the population. With TUS, we might actually be facing this sort of problem. This is so because compared with LFS, the share of people with university degrees in the total number of people performing an additional job is higher by approx. 15 percentage points. This finding has been taken into account when analysing the employment structure by level of education.
[36] Bovi examines the presence for Granger causality and instantaneous causality (Geweke test) using bivariate VAR analysis (labour input component, GDP gap).

Box IV.6. Paid assistance

Apart from employees involved in regular unregistered work, TUS allows also to identify people who provide other household with small services for a consideration. With a degree of certainty, we can establish that such activities are usually unregistered due to low profitability. Moreover, the probability of such activites being detected by tax or control authorities is low.

Within the four weeks preceding the survey, 506,000 people provided small services to other households in return for a consideration. What is more, for one person in four it had been one-time assistance, whereas for more than a half such assistance had been provided on average less frequently than once a week. Only 17 per cent of the above group had been providing such services on average more frequently than twice a week. Thus, the performance of this type of work is above all of casual nature. The structure of the discussed group by gender, age and level of education is very similar to the structure of NOE workers, as derived from the module survey.

Chart IV.9:
Structure of people providing small services for a consideration by age and level of education



Source: Own calculation based on TUS data.

The population of people providing small services was dominated by men (their share amounted to approx. 2/3), although, compared with women, they provided them sporadically (on average less frequently than once a week). As for types of provided services, they included above all construction and renovation services, gardening services (mainly men), baby-sitting and care for elderly or ill (mainly women), and cleaning services. At the time of the survey, people classified as employed accounted for 42 per cent of the population providing paid assistance, and the unemployed and inactive – 20 and 38 per cent respectively. Almost 1/3 of employees providing small services were employed without a formal employment contract, and they engaged mainly in construction and renovation services as well as in vehicle-related services. The examined group overlaps only to some extent with the population of informal employees, as identified in this subchapter, and the provision of small services constitutes the (additional) source of income also for those working in the official sector of the economy as well as for the unemployed and inactive.

The largest group involved in providing small services consists of young people aged 15-24. Considering the relatively small inclination of this group for any economic activity, it can be stated that, similarly to employees, the problem of participation in the black economy concerns above all those who enter the labour market for the first time. Almost 3/4 of the young population providing small services were still in school education. This fact was reflected in the high share of people with lower secondary and lower education in the population of small service providers. Another, equally numerous, group was made up of people with basic vocational education who had the highest share of small service providers of all groups. This share was similar for the group with tertiary and post-secondary education and the group with secondary education. It should be noted that in the group of people with secondary and tertiary education paid assistance was provided on a more systematic basis (the share of people providing small services on average less frequently than once a week was lower than in other groups). As for types of services provided, these people are likely to engage in baby-sitting and private tuition, i.e. tasks which in principle are not incidental. Although people aged 60+ constitute the least numerous group when in comes to providing small services, this form of money-making is in their case of greater importance than in the case of people aged 25-59. The elderly exhibit a marginal inclination towards taking up any job and if they nevertheless do engage in employment, they tend to opt for the provision of small services for a consideration.

3.9. Income from work in the shadow economy

It is very difficult to make judgements about wages of informal employees. All attempts at comparing the average wage in the official and black economies provide a rather distorted picture due to different sectoral structures of these two parts of the economy and what comes with it due to different structures in terms of occupation and level of education. As mentioned above, people employed in NOE are usually low-qualified which is the reason for the average wage in NOE being generally lower. Moreover, any comparison of wages between people with the same level of education and belonging to the same occupational group (at the second level of desag-

gregation), taking into account number of hours worked, is bound to lead to the conclusion that net wages in the official economy are slightly higher than in NOE. The more the analysed groups are alike in terms of occupational structure and education, the smaller the difference in average wage. The main reason for this is that people involved in unregistered work have more motivation to understate their income. This claim is supported by the low amounts of income declared in the LFS module survey. Moreover, shadow workers who are well paid tend to either avoid providing information about their income or conceal some of it, thus lowering the estimates for relevant average values in the population. What is more, it is scarcely probable for such a large proportion of people to declare their readiness to work in NOE for a net pay which does not exceed that of a person working in the same profession and having the same level of education in the official economy. If net wages are identical in the two sectors, it is more beneficial for employees to undertake work on the basis of a formal employment contract because they not only get the same wage but they also acquire the right to social insurance. Notwithstanding the above, the ratio of the average wage for unregistered work to the average wage in the official economy or the minimum wage allows to compare the purchasing power of income from unregistered work for particular years.

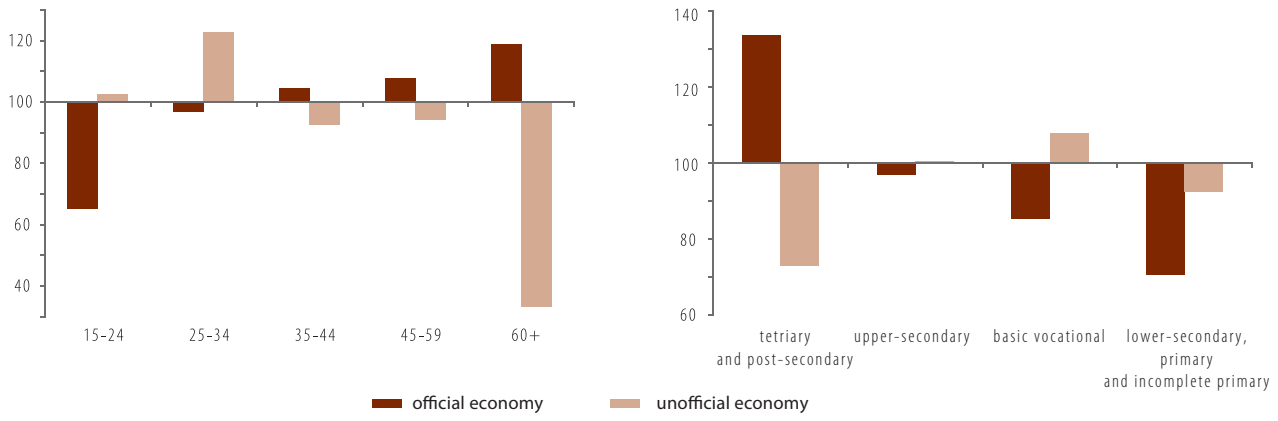
The LFS module survey on undeclared work makes it possible to determine the **lower bound of estimates for income** derived from undeclared employment and it is the only survey which allows to observe how these values evolved in time. Nonetheless, these data refer only to income from the recently performed work and they do not cover income from all jobs performed throughout the year. Moreover, the available figures are only declarations of the respondents and, as they pertain to past events, they may be subject to significant distortions.

In gross terms, between 1995 and 2004, the average income derived from unregistered work increased more than twofold from PLN 172 to PLN 392. However, if we refer these figures to the average wage in a given year, we may well observe that income from unregistered work oscillated around the level of 35-40 per cent of the net average wage, as estimated from LFS.[37] The average income from undeclared work amounted to 78.2 per cent of the net minimum wage in 1995, 68.1 per cent in 1998 and 65.1 per cent in 2004. These figures were a consequence of a more rapid growth of the real minimum wage in relation to real income from unregistered work.

The average wage for unregistered work, similarly to the official sector, is lower for women than it is for men. For women, this amount oscillated around the level of 35 per cent of the average wage obtained by women in the official sector, whereas for men it amounted to more than 41 per cent. This means that gender pay gap in NOE is greater than in the official economy. In the official sector, the average wage for women in October 2004 amounted to approx. 83.6 per cent of that for men, whereas the average income derived by women from undeclared work in 2004 constituted merely 80 per cent of the average income for men. Moreover, women worked on average one day longer than men and this fact affected the statistics to the extent that the amount of daily pay for women came to PLN 9.38, compared with PLN 12.10 for men. Similar conclusions can be drawn from the analysis of wages presented by TUS.

Apart from gender, age and education affect the amount of income derived from unregistered work. As demonstrated in Chart IV.10, the structure of the average wage for unregistered work by age and education differs greatly from an analogous structure in the official economy.

Chart IV.10.
Wage indicator for people working in the official and informal economy by age and education in 2004 (percentages)



100 per cent refers to the average wage in the shadow economy and in the official economy.

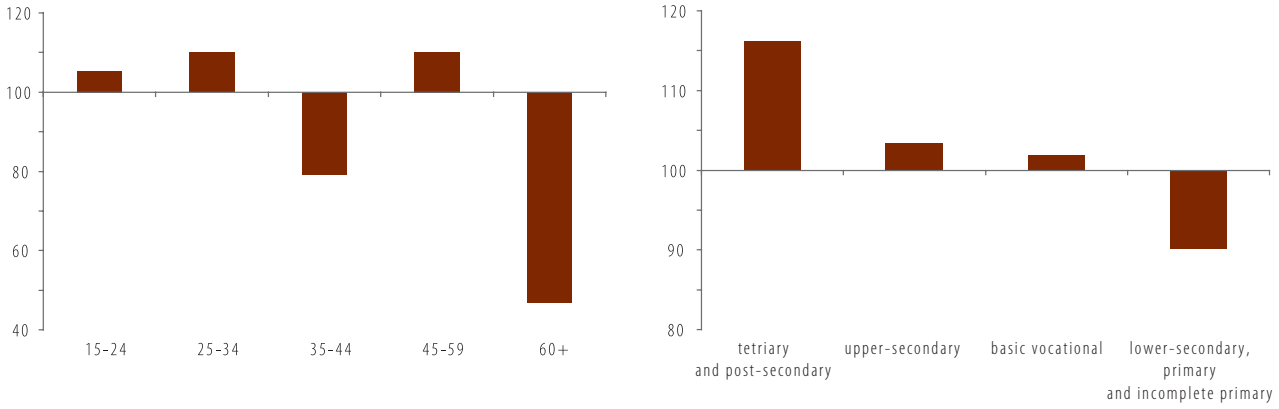
Source: Own calculation based of LFS data and CSO 2005.

[37] According to LFS, wages are values declared by the respondents and therefore the reliability of the indicated absolute values of net wages is limited. However, information about income derived from unregistered work is collected in the same manner. In view of the above, it can be assumed that the deficiencies of the presented measures are of similar nature and therefore that the comparison of the two wage levels is in fact more appropriate than any references to values worked out in the average wage estimates and based on other sources.

Particularly large differences in terms of the average wage/income are typical for the "extreme" age groups, i.e. 15-24 and 60+. Generally, it is younger people who receive higher wages for their work in the shadow economy, whereas in the official economy the situation is exactly the opposite. The above may stem from the fact that almost 78 per cent of the young population engage in unregistered work as their main job which means that their income is higher compared with income derived from additional work. Moreover, the share of people earning more than PLN 400 per month in this age group was the largest (more than 30 per cent). When it comes to the level of education, it can be observed that in the young population – more frequently than in the other age groups – undeclared work is performed by people with secondary and post-secondary education. This may mean that students who wish to earn some extra money, make up a considerable proportion of the young population (aged 15-24) engaged in NOE.[38] The average income for unregistered work received by the elderly (aged 60+) amounts to as little as 30 per cent of the average income derived from unregistered work, whereas in the official sector they typically receive wages that are much higher than the average. Such large differences in the relation of average income derived from work in particular age groups to the average income in the official and informal sector of the economy are probably connected with different profiles of people performing work in the two sectors. Over-60-year-olds involved in work in the official economy are usually men, out of whom 25 per cent have tertiary education. Wages offered to people from this group in the official economy are the highest. Elderly people participating in unregistered work are usually women who engage in work sporadically.

The relationship between income from work and education is different in the official and inofficial economy. In NOE, the highest income is obtained by people with basic vocational education and in fact this is the only group the income of which is higher than the average income derived from unregistered work. As for people with secondary education, the average income from unregistered work is very similar to the average income. The largest differences in relative average income levels derived from work in NOE and in the official economy concerned people with tertiary and post-secondary education. For this group, the average income from unregistered work was considerably lower than the average income in the informal economy, whereas in the official economy this group enjoys the highest wages. However, taking into consideration the average time of work in the shadow economy, i.e. the average daily income from unregistered work, the above patterns change, which is demonstrated in Chart IV.11.

Chart IV.11.
Indicator of daily income derived from undeclared work by age and education in 2004 (percentages)



100 per cent refers to the average amount of wage in the shadow economy.

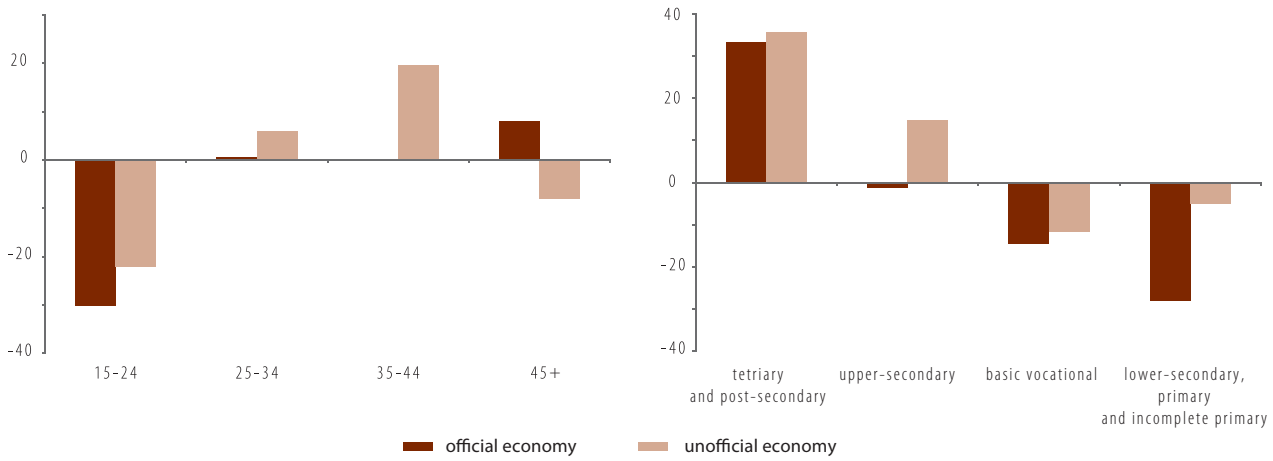
Source: Own calculations based on CSO 2005.

Having taken the average work time of particular groups into account, the relative average income by age did not change significantly. Only in the case of people aged 45-59, the average daily income turned out to be higher than the average for the total population, which is probably due to a much lower average number of days worked in the shadow economy compared with younger age groups (30 days compared with 39 days for people aged 25-34). Much greater differences may be observed in the case of division into education groups. If we consider the average time of work in NOE, it turns out that people with the highest level of education attain the average daily wage which is much higher than for other groups. In 2004, people with post-secondary and tertiary education worked on average about 22 days, whereas people with basic vocational – 37 days. Therefore, **similarly to the official economy, there is a strong relationship between wage and nominal level of education in the shadow economy.**

[38] Moreover, compared with other age groups, young people were more eager to provide information about their income from unregistered work. Assuming that it was those with high income that refused to reveal such information, the average income for other age groups could be understated more heavily than the average income in 15-24 age group.

Chart IV.12.

Wage structure of full-time employees in the official and informal economy by age and education



The above chart presents percentage deviations from the average wage in the official and informal economy accordingly. The over-60-year-olds are not distinguished due to insufficient sample.

Source: Own calculations based on TUS data.

As indicated above, relatively high wages offered to young people involved in the shadow economy are probably a consequence of a different profile of performed work. The assessment of average wages of full-time employees engaging in unregistered work on the main job (TUS data) allows for a conclusion that this could be the exact reason for the occurrence of considerable differences in the wage structure by age between the shadow and official economy. The lowest wages in NOE are offered to the youngest people aged 15-24. Therefore, it can be firmly established that, similarly to the official economy, in NOE work experience constitutes a considerable determinant of wage levels.[39]

3.10. Entities declaring demand for undeclared work

The LFS module survey on unregistered work makes it possible to determine which entities benefited from unregistered work as well as what was the resulting amount of expenses. In 2004, questions about employers in the shadow economy were directed to both entities performing work as well as to those benefiting from it. People involved in undeclared work provided a type of their last employer. The following types of units were distinguished: an individual (a household), a private company or a cooperative in the system of home work, a private company or cooperative in a system other than home work, a state or municipal company, self-employment. Separate questions were directed to households, people carrying on a business activity, company and farm owners. In this case, the questions referred to their resorting to unregistered labour within the preceding year.

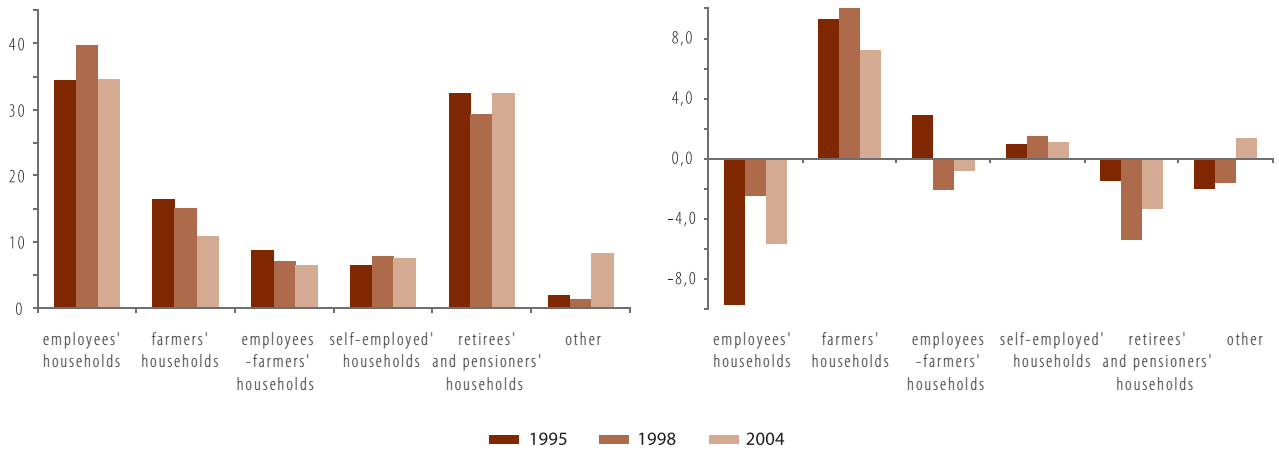
People involved in NOE indicated that private individuals were the key employer category in the shadow economy. In 2004, more than 65 per cent of all unregistered workers performed work in favour of households, which constituted a decrease compared with 74 per cent in 1998. In the subsequent surveys, the share of people performing unregistered work to companies and associations was on the rise from as little as 14 per cent in 1995 to nearly 22 per cent in 2004.

In 2004, approximately 1,019,000 households benefited from undeclared work. Compared with 1995, this figure decreased by nearly a half (from 1,911,000 households). In the subsequent part of this subchapter, we present profiles of shadow employers.

When it comes to benefiting from unregistered work, it is above all employees' households (in 2004, they accounted for approx. 34.5 per cent of all households benefiting from unregistered work) as well as retirees' and pensioners' households (32.5 per cent) that resort to unregistered labour. Moreover, the above types of households are most common in the economy and, in 2004, they accounted for 40 per cent and nearly 36 per cent of all households. In the rural areas, it is mainly farmers' households and employee-farmers' households (in total, they constituted 33 per cent of all households in the country) that are most likely to employ unregistered workers. What is more, as demonstrated in Chart IV.13, the subsequent surveys proved the share of farmers' households was on the decline. This phenomenon should be attributed to the gradually decreasing share of people for whom work in their own farms was the primary source of income in the total rural population. In 1995, this share amounted to 20.6 per cent, whereas in 2004, it went down as low as 14 per cent. However, as demonstrated in Chart IV.13., only in the case of these two types of households, there was a strong overrepresentation of households which benefited from unregistered work in relation to their number in the total number of households.

[39] Differences in the results derived from the module survey and from TUS may arise, among others, from the fact that the former allows to determine – apart from people who declared their participation in unregistered work – income derived from such work by the unemployed and the economically inactive (according to LFS), which, in view of the low participation rate for the young population and the relatively high uemployment rate, may affect the estimation of income from unregistered work.

Chart IV.13.
Households benefiting from unregistered work by household type (percentages)



Source: Own calculation based on data from CSO 1996, CSO 1999, CSO 2005.

Retirees' and pensioners' households tended to resort to unregistered work nearly as frequently as employees' households. In all surveys, they accounted for an average of approx. 30 per cent of all households benefiting from unregistered work. These households usually included elderly and disabled people and people whose income was much lower then the average wage in the economy. Due to their health condition, these people were more likely than other groups to benefit from small services – mostly consisting in housekeeping (e.g. cleaning, washing, etc.), neighbour services, gardening services and long-term care. It can be reasonably assumed that the key motive for avoiding registration in this respect is the desire to avoid the bureaucratic inconveniencies relating to their legalisation. Moreover, low income from pensions and retirement benefits compels their recipients to minimize the cost of these services by failing to register them for tax purposes.

Work performed in favour of households used to be occasional. In 2004, its average duration came to 13 days (for urban households 16 days and for rural households – 10 days). Nevertheless, urban households spent more on the unregistered services provided to them than rural households. These differences stem from different types of work involved. Urban households were more likely to hire "well-paid unregistered workers" providing services which require certain knowledge and skill (for instance, private tuition, medical and nursing services, accounting and legal advisory services).

4. Probit-Probit Sample Selection Model

In order to fully identify the factors affecting the individual probability of undertaking work in NOE, taking into account the non-random selection to the sample of employees, a sample selection model was estimated, where both the equation describing the sample selection and the probability of undertaking work without a formal contract take the form of a probit regression. The parameter values have been estimated by ML, whereas their standard errors have been calculated using the Huber-White sandwich estimator. As the base category we have selected a married woman aged 45-54, living in a town of 20,000-50,000 people, having secondary education, who is not longer in education, who does not have any health problems and who is employed as a full-time service/sales worker in the simple services sector.

The following variables have been included in the selection equation:

- gender
- age group (15-24, 25-34, 35-44, 45-54, 55-59/64, 60/65+)
- level of education
- marital status
- size of place of residence
- school/university education
- health condition (illness, disability)
- unemployment rate in a given voivodeship.

Apart from the last one, all of the above variables have been introduced by a relevant set of dummies. The results are in line with common intuition. The probability of being employed is, among others, smaller for women, it decreases alongside decreasing level of

education and is highest for people aged 25-44. In the case of the equation describing the probability of employment in the shadow economy, we have used two different specifications. In the first one, we included occupation (broad occupational groups) and sector of the economy, where a given employee is employed, among explanatory variables. In the second one, we have adopted a different approach. We have assumed that the key factors that explain the variance of the extent of the shadow economy between different occupational groups and NACE sections are: the share of people receiving wages below the minimum cost of labour and the average company size in the official sector.

The first variable measures the proportion of people in a given occupational group (second level of desaggregation) who receive the lowest wages, i.e. equal to the minimum wage or marginally higher. It can reasonably be expected that for occupations for which this share is high, both the proportion of people who cannot undertake work due to their low level of education and the resulting low level of (potential) wages, which does not exceed the minimum cost of labour, and the proportion of companies ready to employ workers below the minimum statutory cost, are high. By way of introducing this variable, we intended to demonstrate to some extent the impact of legislation relating to the minimum wage and the tax wedge for the lowest income on individual probability of employment in the shadow economy. In view of the fact that wages are on average lower in smaller companies, the assessment of the extent of this impact can be distorted. Small companies have more possibilities in terms of concealing employment from tax and social security authorities and thus the probability of detecting unregistered employment in their case is smaller. In view of the above, we can expect that there exists a relationship between company size and the probability of engaging in NOE. Bearing this in mind, we have introduced an additional variable into the model which reflects the number of people employed in a given company. Due to the fact that the questions in TUS do not cover company size, we have used an approximation, i.e. for every employee in TUS, we assigned the average number of employees in a given NACE section (second level of desaggregation) based on individual data from the wage structure survey carried out by CSO in October 2004. This source has been also used to derive the share of people receiving wages below the minimum cost of labour.

By comparing the goodness-of-fit measures for both specifications, we can reasonably conclude that they fit the data equally well, with a slightly better result for Model 1. Although the value of likelihood function[40] for Model 2 exceeds the relevant value for the first specification, the value of R^2 argues for the choice of Model 1. The results of the Wald test for the second model indicate that the fact of including the selection equation largely affects the parameter estimates. Therefore, the non-random selection to the sample of employees may give rise to significant bias in the parameter estimates.

The estimation results for both models provide slightly different results for the shared parameters. Although in both cases the probability of employment in the shadow economy is higher for the younger population (aged 15-34), and in particular for the youngest age group of 15-24, as well as for large city dwellers and single people[41], a direct inclusion of the occupational and sectoral variables in the model (Model 1) leads to different conclusions as to the role of education. In such case, it can be noted that only the fact of having a lower education (max. lower secondary) does significantly increase the tendency to undertake employment in NOE. In Model 2, in turn, differences in education seem to play a greater role, although it can also be observed that the probability of shadow employment decreases considerably for people with higher education. Similar results have been obtained for the gender variable. If the explanatory variables set explicitly accounts for occupation and type of economic activity, the probability of engaging in unregistered work is the same for women and men. Therefore, it should be acknowledged that **the occupational choice constitutes a decisive factor which shapes the tendency to engage in unregistered employment**, and that neither education nor gender play a similar role. It is only people with the lowest education that distinguish themselves with a higher probability of engaging in the shadow economy. What is more, **the significance of the sector in which a given person works is equally essential as that of the occupational choice.**

Significant parameter estimates for the youngest age groups mean that **work experience** is also one of the crucial factors that shapes the chances of undertaking work in the official economy. Firstly, young people who have not been in employment sufficiently long lack the required work experience, and therefore, even if they have relevant nominal education, they are not able to match the level of productivity typical for long-serving employees. Secondly, the qualifications of young people who enter the labour market for the first time are not easily recognised by employers because these people are not able to document the level of their productivity. What is more, the model indicates that the probability of older people (aged 55+) engaging in unregistered work is not, *ceteris paribus*, considerably greater than that for employees aged 35-54. Therefore, the observed high share of people from the above age group in NOE is essentially due to other factors, including above all their involvement in part-time work. As indicated above, elderly people are more likely to opt for part-time employment (according to TUS, 38 per cent of all employees aged 55+ worked part-time[42]) because they usually have another source of income, namely their retirement, pension or pre-retirement benefit, and they consider their income from work mainly as a supplement to income derived from other sources. Due weak incentives to register part-time employees, a large proportion of them stay in NOE. Consequently, elderly people end up working in the shadow economy relatively more frequently.

[40] Strictly speaking, of a pseudo-likelihood function.
[41] All findings described at this point should be interpreted with the ceteris paribus assumption in mind, i.e. assuming that all other factors are equal. For instance, a significant and positive parameter value for the single person dummy means, among others, that if there are two men with the same education, in the same age, living in the same town and working in the same profession and sector but where only one of them is married, the probability that the other man engages in the shadow economy is greater.
[42] According to BAEL, this share amounts to 20-25 per cent.

Table IV.9.
Sample selection model estimation results

Variables	Model 1	Model 2
male	0.10	0.39***
age group 15-24	0.35***	0.32***
age group 25-34	0.31***	0.26***
age group 35-44	0.03	0.01
age group 55-60/64	-0.11	-0.16
age group 65+	0.03	0.25
single	0.33***	0.33***
tertiary education	0.07	-0.35***
post-secondary education	0.15	0.03
basic vocational education	0.08	0.28***
lower secondary or less	0.29**	0.64***
town of more than 500,000	0.23**	0.25***
town of less than 20,000	0.11	0.09
rural area	0.05	0.16**
part-time work	1.26***	1.27***
legislators, senior officials and managers, clerks	-0.58***	–
professionals, technicians and associate professionals	-0.37***	–
skilled agricultural and fishery workers	0.23	–
craft and related trades workers	0.39***	–
plant and machine operators and assemblers	-0.03	–
elementary occupations	0.42***	–
agriculture	0.85***	–
industry	-0.33***	–
construction	0.65***	–
business services	-0.48***	–
public administration and national defence, education, healthcare	-0.45***	–
other NACE sections	0.16	–
households maintained from non-earned sources	0.46**	0.52***
average number of workers in a given division (two-digit code)	–	-0.08***
share of workers receiving wage below the minimum cost of labour in a given occupational group (two-digit code)	–	1.08***
unemployment rate in a given voivodeship	0.01	0.01
constant	-2.30***	-2.19***
R^2	0.52	0.45
log-likelihood	-16205056	-16201736
Wald test for non-random sample selection (H0: bias due to non-random selection is insignificant)	do not reject H0	reject H0

Wald test at 10 per cent significance level.
(*), (**), (***) stands for significance at 10-, 5- and 1 per cent level respectively.

Source: Own calculations based on TUS data.

The parameter estimates for occupational and sectoral dummies are in line with intuition as well as with the earlier findings. For people involved in occupations that require a high level of education, i.e. professionals and technicians, the probability of ending up in the black economy is relatively lower. What is more, the highest parameter estimates were obtained for the occupational groups which **are characterised by a relatively low required level of qualification**, i.e. for craft and related trades workers and elementary occupations. As for farmers, plant and machine operators, service and sales workers they exhibit *ceteris paribus* a similar tendency to engage in employment in NOE. The analysis of the role of sector in which a given employee is hired, allows for a conclusion that the chances

of undertaking unregistered work is much greater for those involved in agriculture and construction. The probability of participation in informal work in the simple services sector is higher than in industry or in the other sectors. It is worth noting that the first three of the above-mentioned sectors are characterised by lower productivity indicators than the remaining ones.

When analysing the impact of other factors, it should be emphasised that **part-time employees** are more likely to engage in the shadow economy than other employees. The above claim is connected with the above-discussed decreasing relative advantages of unregistered work alongside the increasing work time. Moreover, there is a considerably higher probability that employees from households earning their living from non-wage sources (benefits and other allowances) engage in undeclared employment. As eligibility for benefits and allowances, as well as their amount, depends on whether a given person is formally employed or not (e.g. unemployment benefit) and on the official amount of income (social assistance), people living in households maintained from non-earned sources, including people receiving benefits or allowances, are less inclined to start work in the official sector. This is so because the fact of engaging in work on the basis of a written employment contract may entail the loss or reduction of income from benefits or allowances. As for the unemployment rate in a given voivodeship, it does not affect the probability of engagement in the shadow economy. In view of the observations presented in the previous part of this report, this finding should not be surprising. Considering the high level of aggregation, it is impossible that the unemployment rate at the voivodeship level could reflect the existing disparities among the local labour markets.

Some interesting conclusions can be derived from the second model. The probability of engagement in the shadow economy decreases with the average company size in a given division. Another significant factor is the **share of people working for a wage below the minimum cost of labour**. People who are in occupations where wages are close to the minimum wage have limited options when it comes to finding official employment and thus the probability of their participation in unregistered work is greater. The above results suggest that the currently applicable regulations on minimum wage, in view of high tax wedge for the lowest income group, may exert a considerable influence on the extent of NOE. The fact that the minimum wage is determined centrally – without any differentiation between occupations or sectors – may pose an obstacle to legal employment in low-productivity, and thus low-wage, occupations.[43]

Table IV.10.
Comparison of conditional shadow employment probabilities for some selected profiles (Model 1)

	Profiles	Ratio of probabilities (denominator: conditional shadow employment probability for the base category*)
1	married (male) retiree with primary education, living in Wrocław, working part-time in a security company	14.9
2	single (female) university student living in Kraków, working part-time as a waitress in a restaurant	40.4
3	married man aged 35-44 with basic vocational education, living in a village in the zachodniopomorskie voivodeship, working full-time as a bricklayer at a construction site	16.8
4	single man aged 25-34 with secondary education, living in a town of less than 20,000 inhabitants in the podlaskie voivodeship, working full-time as a driver in a shipping company	6.8
5	single woman aged 55-59 with primary education, living in a town of 20,000-500,000 inhabitants in the śląskie voivodeship, working part-time as a domestic help, member of a retirees'/pensioners' household	33.1
6	married man aged 45-54 with tertiary education, living in a town of 20,000-500,000 inhabitants in the wielkopolskie voivodeship, working full-time as a health professional	0.2
7	single man aged 15-24 with basic vocational education, living in a village in the podkarpackie voivodeship, part-time employee, member of a households maintained from non-earned sources	88.4

* The mazowieckie voivodeship was adopted as a place of residence for the base category.
The income source was the same as the main source of income for the household, unless indicated otherwise.

Source: Own calculations based on TUS data.

[43] These findings do not constitute a firm evidence for the existence of a relationship between the minimum wage and the size of the shadow economy. They prove only that people who are in professions that are characterised by low labour productivity and thus by low wages, are more likely to engage in NOE. It can be reasonably expected that in such occupations the minimum wage constitutes a more significant obstacle to official employment.

In order to better illustrate the results of the model, we have estimated conditional shadow employment probability ratios[44] for some selected profiles and we have related them to the probability for the base category. Only in the case of the man from point 6, we can observe a lower inclination to engage in unregistered work than for the woman portrayed in the base category description. The fact that this man performed a job of a specialist working in the sector "public administration and national defence, education, healthcare" was of key importance in this case because the above constitutes a factor which largely decreases the probability of engaging in unregistered employment. It should also be noted that this probability is only approximate because the variables describing the occupational group and sector are defined at a high level of aggregation. The young man living in a village in the podkarpackie voivodeship is most likely to engage in work without a formal contract. The reason for this is that in his case we can observe most risk factors that increase such probability, namely part-time work, employment in agriculture, young age, singleness and belonging to a household for which transfers are the main source of income. As for the student from Kraków, she is much less likely to engage in NOE, although she belongs to the same age group and she also works part-time. However, as opposed to the above man, she belongs to an employees' household. A similar probability of participation in NOE can be observed in the case of the married woman from point 5 who has a lower level of education in relation to the base category. The relative probability for the retiree from point 1 is considerably lower than for the student and similar to that of the construction worker from point 3. Compared with the remaining profiles, the married man working in a shipping company (point 4) has a relatively low probability of shifting into the shadow economy, although this probability is still higher than that for the base category. Although, similarly to the base category, he works full-time in the simple services sector but due to his young age he has little work experience, which decreases the probability of finding employment in the official economy.

To sum up, one important factor affecting the probability of engaging in undeclared work is **company size**. Smaller companies tend to more commonly hire workers without formal employment contracts. The greater the extent of the business, the more difficult it becomes to conceal such practices from the inspection authorities. Therefore, the risk of punishment increases and – what comes with it – the advantages of operating in NOE decrease. Another factor which greatly affects the probability of participation in the shadow economy is the **ratio of wages in a given occupation to the minimum wage**. The lower the average wage in a given occupational group, the greater obstacle the statutory minimum wage poses to legal employment. The negative impact of the regulations on minimum wages is further enhanced by high taxation in the lowest income group. Moreover, people who decide to **work part-time** also have greater probability of shifting into illegal employment than full-time workers. Last but not least, employment in the shadow economy tends to attract **young and single people**.

5. Impact of NOE on the Economy and Labour Market

The existence of the shadow economy is a common phenomenon and an inherent feature of all economies worldwide. However, the extent of this phenomenon in Poland is remarkable compared with those recorded in the developed countries, and in particular in a majority of EU member states. In this context a question emerges of whether the large share of NOE should be perceived as a threat to the economy or whether it is a factor which exerts a positive influence on the levels of employment, consumption and investment.

NOE is often seen as an undesirable phenomenon. The argument that labour productivity in the shadow economy is lower than in the official economy (see Johnson et al. (1997)) is often raised in order to substantiate its negative impact on the level of economic growth. This is so because enterprises operating in NOE have a limited access to capital and therefore the fact of shifting production from the official to the informal sector may result in a decrease in accumulation of capital and in average productivity in the economy. Moreover, in the face of repressive measures undertaken by the state, companies which resort to unregistered employment must incur certain costs to conceal their activity which generates pure loss because these funds are not invested in the production process (see Schneider (2003)).

On the other hand, however, high flexibility of employment in NOE as well as the scope of jobs performed (neighbour services or small scale production) within it may enhance competition and boost efficiency in entities involved in production or services of similar type as well as restrict the extent of public intervention in the economy (Enste (2002)). It is highly probable that a proportion of goods and services generated in the shadow economy would not have been otherwise generated in the official economy due to much higher cost. The presented survey carried out in Germany indicates that as little as 25 per cent of goods and services generated in NOE overlap with goods and services generated in the official production, and therefore, a vast majority of businesses carried on in NOE would not have been started in the official sector (see Schneider (2006)). If this effect was of decisive importance, the expansion of NOE would lead to increased GDP levels. From this perspective, the intensification of repressive measures undertaken by the state may in fact result in the increase of the number of the unemployed (see Boeri, Garibaldi (2006)).

The total impact of the shadow economy on welfare is not straightforward not only when we focus on the total output and economic growth but also from the point of view of purely social considerations. NOE and unregistered work may be perceived in a positive manner, if they help to prevent poverty, create new jobs for those who are ready to work but for various reasons are not able to find

[44] We are not talking at this point about the traditional conditioning against the values of explanatory variables but about the probability of becoming an unregistered employee calculated in accordance with the following formula:

a job in the official market. This pertains above all to low-qualified workers and the simple services sector. The value of production generated by these people is often comparable or lower than the cost incurred by employers for officially registered employment, which renders the legal employment of people from this group scarcely profitable. On the other hand, the income derived by this group from unregistered work is immediately spent in the official sector of the economy thus increasing total consumption and aggregate demand. Schneider and Enste (2000) claim that at least two thirds of income generated by NOE is spent in the official market which stimulates its development.

Nevertheless, there are also opinions which point to the negative externalities of the shadow economy. Firstly, it is often raised that companies which operate in the informal sector or which resort to unregistered work give rise to unfair competition for entities operating legally (OECD (2004)). Unregistered employment, especially in those countries where the informal sector is large, affects the tax and social insurance systems. Large size of the shadow economy is reflected in low tax revenue, decreased quality of public services and increased social allowances paid from central budget or from state earmarked funds. The above produces a considerable pressure on public expenditure and results in increased tax burden. Higher taxation, in turn, is an additional motive encouraging people to engage in NOE because officially employed workers (and their employers) incur greater employment costs and thus become less attractive compared with those operating in NOE. This situation concerns in particular low-skill workers and workers involved in low-productivity jobs and has an adverse effect on official employment rates in this group of workers.

A similar mechanism may concern social insurance. On the one hand, people operating in NOE have a limited access to social insurance benefits and they are excluded from most systems that guarantee basic social safety (paid holiday and maternity leave, sick leave, retirement insurance, etc.). On the other hand, however, it is sometimes possible to free-ride, meaning a situation where some people engaged in unregistered work benefit from loopholes in the system and receive benefits which are essentially intended for the poor and unemployed, although they actually have (unregistered) jobs and fail to pay relevant taxes or contributions. The above situation renders it difficult or even impossible to manage the social insurance system effectively. In the absence of means to effectively verify entitlement to benefits, including the verification of the lack of income from work or of the amount thereof, hinders measures intended to help those who are most needy and diminishes the effectiveness of the social policy.

To sum up, it can be stated that the existence of the shadow economy may be perceived in a negative or positive light, and therefore a decision whether its existence in a given country is welfare enhancing or welfare reducing is an empirical question which requires individual approach. Generally, it can be said that a shadow economy of a moderate size, that is of up to 20 per cent, do not give rise to a situation where attempts at decreasing its size could bring about large positive aggregate outcomes. On the other hand, however, if the black economy generates more than 20-30 per cent of total outcome, it can be assumed that the regulations as well as the tax system do not match the expectations of the society, and that structural reforms could bring about not only a reduction in the size of the shadow economy but above all a more efficient utilisation of the existing resources.

The implementation of regulatory reforms intending to decrease the size of the shadow economy may also put into motion the mechanism of positive feedback. Measures set to reduce the extent of NOE (see OECD (2004)), including the deregulation and loosening of the existing, though unnecessary, legal straitjacket, the simplification of the tax system and rationalisation of the tax base, the liberalisation of the Labour Code and its improved enforcement by relevant authorities, should result in registering some of the entities operating in NOE. As a result of these policies, more individuals would pay taxes and social security contributions (the tax base would widen), the pressure on the budget would be smaller and consequently, the marginal tax rates could be lowered and the participation in NOE would become relatively less profitable.

Summary

The assessment of the extent and structure of informal work and economy is a very difficult venture and therefore different methods intended to measure this phenomenon in Poland often generate extremely divergent estimates. In accordance with the estimates of the Central Statistical Office, which are based on a combination of several methods, NOE accounts for approx. 12-15 per cent of GDP. This figure is approx. twice, three times lower than estimates derived from studies based on other methods (e.g. electricity and other econometric estimation methods) and it should, above all, be treated with caution, as an indication that **the actual size of the shadow economy in Poland is not excessively large compared with other countries worldwide**.

The factors that we have identified in this part of the report as encouraging people to engage in undeclared work and thus leading to the larger black economy include, on the one hand, a **financial motive – i.e. escape from excessive taxation**, and on the other hand, **refusal to subject to excessive regulations**. These factors can interact thus enhancing or cancelling out their effects. Hence, there are countries where high taxation and large public sector providing high-quality services coexist with small-sized shadow economy as well as others, where this situation is right the opposite or which represent a mixed model.

In this context, Poland can be included in the relatively heterogeneous group of countries such as the Czech Republic, Hungary, Slovakia, and the countries of Southern Europe – Greece, Slovenia, Italy, Portugal, Spain, where average (on the European scale) size of public sector is accompanied by average or poor quality public services and different (medium or large) sizes of their shadow economies. Poland is not one of the countries where the small size of NOE coexists with effective but expensive State (e.g. Sweden, Norway, Denmark, Austria, France, Germany), or of the countries with relatively small public sector and poor quality of public services which have large shadow economies (Bulgaria, Romania, Lithuania, Latvia, Estonia).

At the individual level, it can be stated that **young and poorly educated people** are relatively more likely to engage in the shadow economy as well as people whose work experience is scarce. Moreover,the shadow economy mostly attracts people to work in sectors and jobs which do not require specialist qualifications, namely **construction, agriculture and simple services**. Consequently, wages in the shadow economy are relatively low and employment is less stable, shorter-term and often performed as an additional job or part--time job. Moreover, according to the available data, people who belong to households that earn their living from non-wage sources also tend to engage in unregistered employment more frequently.

Conclusions for The Economic Policy

Despite the current cyclical economic upturn, Poland has not managed to narrow the gap between her and the EU15 in terms of employment and participation rates, although other countries in the CEE region have. Consequently, the Polish labour market of 2006 is in a similar position with respect to other EU member states to that of 2002. In all age groups the share of economically active and working people is much smaller, whereas unemployment is much higher.

Continued good economic performance in the forthcoming years is likely to bring Poland closer to the EU15, however, total and rapid convergence of social welfare levels will not be achieved without complex structural and institutional reforms. One factor which makes it easier to address these challenges is good economic situation. Hence, in the Conclusions, we focus on actions intended to bring rapid increase in labour productivity and wages and we complement them with the key tenets of a policy aimed to boost labour supply and employment in the long term.

Macroeconomic stabilisation policy, labour supply and demand

As demonstrated in Part I, for the last dozen years, the Polish labour market has been greatly impacted by macroeconomic shocks and economic fluctuations. In this respect, reallocation shocks have been of major importance as they lead to changes in the structure of labour supply and demand and made considerable structural maladjustments between expectations of new and restructured companies and labour supply. At the same time, the macroeconomic policy-mix pursued during that period exerted a mixed influence on the economy. Monetary policy resulted in the fall of inflation expectations, in the reduction and stabilisation of inflation at a low level, and – what comes with it – in the effective decrease in real exchange rates which in the long term should boost investment and create new jobs. Notwithstanding the above, the period of excessively restrictive monetary policy which took place at the beginning of this decade probably deepened (but not caused) the economic slowdown of 2001-2002, thus contributing to lasting unemployment hysteresis.

In general, the impact of monetary impulses on the labour market has not been as great as that of broadly understood fiscal policy. This is so because as much as the public sector deficit has been under control throughout the last dozen or so years and its fluctuations contributed only marginally to fluctuations of aggregate demand and output, it was permanent in nature and all fiscal impulses that we have identified – apart from one – had a negative effect on labour supply and employment. The main reason for the above state of things was the increase in social transfers to people in the economically productive age at times of downturn financed by the reduction of productive government expenditures or by the increase in deficit or debt. The first alternative could be observed in 1998-2000, when increased transfers were financed by the contraction of government investment, whereas the second – in 2001-2022, when the public finance balance, which had been left unreformed, deteriorated. Thus, it can be assumed that in both cases fiscal impulses had an adverse impact on the accumulation of capital, labour supply and employment.

The social policy model adopted in Poland determines above all the long-term trends which have been visible in the Polish labour market since the beginning of the 1990s. The arguments delivered in Part I, which further support the conclusions presented in the previous issue of *Employment in Poland,* prove that labour supply and employment have been at an invariably low level throughout the period of transformation in the economically productive age group of 55+ (and in some cases of 50+), who can only count on the easily available social transfers, including in particular early retirement and pre-retirement benefit schemes. Although in the conditions of improved economic performance employment increases and unemployment decreases for younger age groups, the oldest labour market participants – similarly to previous years – are highly inclined to withdraw from it earlier than in other European countries, including the NMS8. This means that the employment gap between Poland and the EU will not be bridged in the long term without a necessary review of the passive labour market policy directed at people in the immobile age, especially that other EU countries have seen far-reaching reforms in this respect which gradually increase the effective retirement age, irrespective of it presently being higher by 5-7 years than in Poland. The analysis of participation and employment trends among the elderly during the period of strong economic revival in 2003-2006 clearly confirmed the appropriateness of recommendations included in the previous issue of *Employment in Poland* which indicated that failure to implement reforms in the area of social transfers would lead to Poland being a country with one of the lowest employment rates in Europe. The moment that unemployment falls to its natural level, i.e. within the next 2-3 years given the current dynamics, companies are bound to face a firm supply barrier in the labour market resulting from an effective limitation of labour resources to people aged 55 and less. Consequently, total output generated by the economy as well as wealth of households will be lower, whereas wages of those in employment will have to be burdended with higher taxes which are indispensable to finance the extensive benefit system. In other words, early withdrawals from the labour market lead to, firstly, lower income from work for the young and prime-age populations (i.e. those bringing up children), and secondly, relatively lower retirement benefits for the elderly which are financed by levies imposed on the young generation of workers. If the average period of participation in the labour market in Poland was extended to match that typical for other EU countries, both the average amount of retirement benefit and the living standard of the elderly could be increased and the tax burden imposed on working households could be cut down. The latter would, in turn, open up new implementation opportunities for an effective pro-family policy and it would favour the increase of one of the lowest reproduction rates in Europe.

The above remarks prove that it should be a priority for macroeconomic policy to stabilise public finances above all through the re--shaping of the social policy so that a smaller flow of transfers would be directed to people in the pre-retirement age. In other words, it is necessary to reduce social expenditures in areas where they affect labour supply in an adverse manner, namely those which are intended to finance consumption of people in the economically productive age. In the long term, decreasing public expenditures would allow not only to reduce deficits, which would create better conditions for a flexible anticyclical fiscal policy and lead to increased public investment and productivity of government expenditures (e.g. on research and development), but also to lower taxes thus improving capital and labour supply. It seems that that it would be particularly justified to introduce mechanisms which lower taxes imposed on lowest-income workers (e.g. through higher tax relief for work related expenses) and pro-family allowances for young workers with children. The implementation of structural reforms in public finances would favour the pursuit of a neutral monetary policy. This aspect of the policy-mix requires particular attention so that past achievements consisting in relatively low interest rates, low inflation expectations and low inflation would be sustained. The social cost of disinflation including slightly higher unemployment in 2001-2002 has already been paid and therefore another increase in price dynamics would be a proof of extravagance. On the other hand, however, more attention and insight ought to be given to mechanisms of transmission of monetary impulses and of propagation of supply and demand shocks in the Polish economy in order to minimise the risk of overly restrictive or expansive monetary policy adopted in response to inappropriately identified aggregate disruptions. For exactly the same reasons, the coordination of fiscal and monetary policies should be strengthened to make Poland's accession to the Euro zone possible within a relatively short time horizon. This would, in turn, allow for a decrease in the market evaluation of risk and return on Polish T-bonds and – what comes with it – in real interest rates, which would positively affect investment and decrease the public debt servicing cost in Poland.

Investment, real convergence and international migration

In Part I, we have demonstrated that although the last between ten and twenty years were a period of rapid closing the development gap between Poland and the EU-15 countries, the average output growth rate was lower than that necessary to keep up with the other CEE group. In other words, although Poland has been developing at a relatively fast rate, if we look at the initial level of wealth, it becomes apparent that the Czech Republic, Slovenia, Hungary and particularly the Baltic states have been developing even faster thus improving their relative position with respect to Poland. Based on the above diagnosis, it can be claimed that the reason for such state of things was Poland's relatively lower growth dynamics of total production factor productivity which was partly due to the fact that the level of capital equipment of labour was initially lower in Poland than in the other NMS8 – relatively more industrialised and urbanised. Consequently, despite relatively low investment rates, the contribution of accumulation in Poland was greater than, for instance, in the Czech Republic, Hungary, Slovenia and Estonia. Nevertheless, even if we bear in mind these differences, the fact that Poland's average TFP growth rate in 1994-2006, which amounted to less than 4 per cent per year, was much lower than that of Slovakia (6 per cent) and the Baltic states (7-9 per cent), and marginally higher than that of countries which were considerably richer at the point of departure, such as Hungary, the Czech Republic and Slovenia (3-3.5 per cent), is bound to have substantial consequences on the overall assessment of Poland's economic potential. This is so because as much as in the short term increased capital accumulation or labour input per capita may lead to changes in the level of GDP per capita, it is exclusively the TFP dynamics that determines the real level of wealth in the long term. Hence, it is a priority for the economic policy to increase this dynamics by at least 2 percentage points annually. It should be emphasised at this point that, conversely to some occasionally voiced concerns, there is no choice between labour and growth. On the contrary, the popularly called non-employment economic growth, i.e. a situation where high labour productivity dynamics is obtained at the cost of increased unemployment, is only temporary as a response to economic slowdown. In medium term, it leads to increased return on capital which in turn entails an acceleration of investment and labour demand and – what comes with it – a decrease in unemployment. Such situation could be observed in Poland in 2000-2006. Therefore, the task of increasing the average productivity dynamics in the long term should be regarded as a challenge to improve the convergence rate of living standards between Poland and Western Europe. In the long term, higher TFP variation rate must lead to faster dynamics of equalizing the real wage levels in Poland and the UE15. As demonstrated in Part III, it is exactly differences in living standards and wage levels that constitute the primary motive for Polish international migration. Hence, the intensity of economic migration from Poland – including permanent migration – can only be curbed by way of closing the income gap between Poland and the other EU countries.

From the macroeconomic perspective, this means that the primary challenge for the national economic policy is to build a regulatory environment and infrastructure which would favour fast accumulation of physical and human capital as well as a dynamic increase in the productivity of the above two production factors. As for the regulatory framework, it is necessary to enhance privatisation, deregulate the economy and remove bureaucratic barriers inherited from the past wherever they hinder the opening and operation of businesses and especially investment. A number of independent rankings on economic freedom and competitiveness drawn up by different institutions indicate that in these respects Poland comes after most EU countries. Reservations are pronounced in particular with respect to the lengthiness of judiciary procedures, high cost and lengthiness of investment procedures, excessive state bureaucracy in business, including lengthy registration and firm setting up procedures, legislative inflation and overregulation, especially in tax law. The simplification of the regulatory framework, which hinders business activity and increases business costs, including in particular decreasing the number of procedures and shortening the time necessary to start investment (including construction and

infrastructure investment), is bound to increase the capital accumulation dynamics and labour demand. The successes of other CEE countries, especially of Slovakia and the Baltic states, in attracting foreign investment, as well as the example of Special Economic Zones operating in Poland allow for a conclusion that by commonly applying certain tax instruments, such as low and simple taxes on corporate income (since recently applicable also in Poland), accelerated amortisation and investment concessions (applied, for instance in Estonia), favour the accumulation of capital and the creation of new productive jobs. In this context, the role of the central government and local governments is essential, especially when it comes to constructing road and railway networks, developing land intended for investment and performing IT infrastructure – wherever they cannot be provided by the private sector, increasing outlays on research and innovations and increasing the quality of human capital.

As for the last of the above-mentioned tasks, our recommendations included in the previous issue of *Employment in Poland* remain fully valid. We stress the necessity of paying more attention than in the past to the development of young people's ability to think creatively and independently as well as to reason logically and we call for the promotion of science education and attempts at increasing the number of graduates with scientific and technical degrees. The increase in labour supply of engineers and scientists is particularly important, if we think about a model of long term development for Poland. It is the development of the innovation potential in Poland through modern and market-oriented research and development centres established by private companies that is expected to bring the highest returns in the future. As the gap between Poland and better-developed countries will be levelled out, the mechanism of growth based entirely on imitation and comparative benefits derived from lower labour costs will diminish. The development of R&D centres as well as of the highest-productivity sectors of the economy is conditioned on the one hand by appropriate tax regulations and infrastructure support on the part of the national and local authorities, and on the other, by sufficient labour supply of people with relevant qualifications. Since the consequences of the implementation or failure to implement reforms of the educational system in Poland will only become visible after many years, this problem should be considered now when the scale of deficiencies in this area has not fully come to light. It is worthwhile to consider the introduction of both a mandatory A-level examination in mathematics as well as preferential treatment of those secondary education graduates who decide to take scientific and technical university courses – one example of this attitude is the inititive of the city of Wrocław which has started a special assistance programme targeting this group of graduates.

Internal migration, work commuting, infrastructure and urbanisation

The analyses discussed in Part II devoted to regional labour markets provide an additional dimension to the discussion on the necessity of increasing the average economic growth rate as well as the labour productivity dynamics. We indicate that one indisputably positive phenomenon of the recent years is no increase in differentiation between voivodeships and poviats (and in some aspects even a marginal decrease) and the progressing modernisation and restructuring of agriculture which has been occurring throughout Poland (although with different intensity). At the same time, however, in a large number of subregions, there have been some barriers to productivity, especially to the productivity of industry, as well as to enterprise development. This fact places the permanence of the recent positive labour market developments in some subregions under a question mark. The absence of rapid labour productivity growth is particularly evident in peripheral areas located far from the largest urban centres, whereas the largest agglomerations – together with the surrounding areas – achieve relatively high growth dynamics in the above respect. It seems that although different levels of infrastructure and human capital are of great importance here, it is the mere benefits the metropolises bring that are the main differentiating factor, namely the existence of a large, compact market which allow companies to achieve the scale effect on their operations, including in particular access to the benefits of a large local labour market.
In international comparison, Poland distinguishes herself by low level of urbanisation and a small number – for a rather large and populous country in the European context – of large cities. What is more, the largest and most dynamic Polish agglomerations, such as Warsaw (1,700,000 inhabitants in the city / approx. 2.5 million in the entire agglomeration), Łódź (approx. 770,000 / 1.3 million), Kraków (approx. 757,000 / 1.5 million), Tricity (approx. 750,000 / 1 million), Wrocław (approx. 635,000 / 1 million) and Poznań (568,000 / 1 million) are relatively small not only in relation to the agglomerations of Paris (9.8 million), London (7.2 million) and Berlin (5.1 million) but also to those of Manchester (2.5 million), Hamburg (2.7 million) and Milan (4.3 million). Hence, compared with the other EU countries, a much smaller share of the Polish population lives not only in cities but above all in the largest urban agglomerations. Consequently, the growth potential of *Development centres* and of the surrounding *Suburbs* is smaller than it could be. This, in turn, undermines the development potential of the entire country the dispersed population of which can hardly benefit from the spill-over and diffusion effects of large agglomerations. In the context of the above analysis, we can conclude that the priorities of the social and economic policy should include extending support to the existing *Development centres* and enhancing factors that facilitate immigration from other, relatively poorer and peripheral regions to *Development centres*.

The research analysis presented in Part III persuades that the process of dynamic urbanisation in the conditions of rapid economic growth is largely natural. Internal migration, similarly to international migration, is clearly determined by economic factors and therefore, Poland's current acceleration of economic growth rate, especially in large urban centres, should be associated with the intensification of migration movements from the relatively less-developed areas, particularly from *Towns* and to some extent from regions from *Former state farms* and *Low-productivity agriculture*. These movements will be further reinforced by populous cohorts of young and

relatively well-educated people entering the labour market as these people are much more spatially and professionally mobile than the average population. This flow could possibly be relatively smaller due to the increased intensity of international migration in the recent period, which does not necessarily translate into decreased outflows from peripheral regions. However, even now, in all large agglomerations, one comes across considerable structural barriers which prevent rapid increases in the number of their populations, although they would in fact be of great benefit to these agglomerations and to the social and economic development of the entire country. The above-mentioned barriers have to do above all with the (non-)availability of accommodation – both for purchase or rent, and they result mainly from the absence of detailed spatial development plans, from low supply of land intended, for residential development for which local governments are responsible, as well as from lengthy investment procedures. Consequently, the number of residential construction projects and of delivered buildings is rather scarce. This situation should be remedied by both the central government (simplification of relevant regulations, strengthening of public services charged with state-financed construction) and by local and self-government authorities (spatial development plans, sale of land for development and of council flats to individuals). Another serious obstacle is the lack of economic incentives to build and offer accommodation for rent. In the latter case, the problem is the excessive protection of tenant interests in relation to that of real property owners. Consequently, some houses and flats remain unoccupied irrespective of the large market demand for residential premises, and some (especially those managed by districts) are rented at below market rates to people who are marginally involved in the labour market. In this context, it is worthwhile considering two possibilities: firstly, that of diminishing the extent of protection offered to tenants who fail to pay rent and other charges, and secondly, that of abandoning such protection in the case of newly-constructed flats intended for rent.

Since, as stressed in Part III, migrants are usually young people and internal migration largely depends on such factors as going to university in a different city, it seems that the process of urbanisation could also be enhanced by increasing access to university education in large urban centres to students from other regions. This could be achieved through increased numbers of full-time day students as well as of places available in halls of residence and student houses. Infrastructure deficiencies and financial problems faced by public universities are mainly due to the abolishing of cross-financing of day studies by extramural students. Remedies to these problems should be sought either in increased public expenditures on tertiary education or in greater co-financing by students themselves. Whatever the measures, they should aim to increase the accessibility of university studies in large urban centres, including the largest agglomerations, because the urbanisation process could thus be enhanced and Poland's dynamics of accumulation of human capital – which is currently one of the lowest in the EU – could be increased.

The removal of barriers which are at the root of insufficient supply of accommodation in *Development centres* and *Suburbs*, as well as the development and improvement of transport infrastructure (especially railways) to allow large numbers of people to commute to work relatively cheaply and quickly (up to 1 hour) from more distant areas, would surely boost rapid economic growth and wage levels not only at the local but also at the national level as a result of diffusion and spill-over effects. As for peripheral areas which are located too far from *Development centres* to commute – even with the best transport infrastructure, their key objective should consist above in developing the nearby *Towns*. If this condition is not met, it can hardly be expected that the gradual depopulation of these regions will be halted in the long term. Only if strong, attractive growth centres are created within such peripheral areas, positive outcomes can be achieved for the surrounding areas. As evidenced by the extent of positive impact exerted by the existing *Development centres*, in Poland, poviats can greatly benefit from the proximity of dynamically developing regions. Nevertheless, if such medium-size cities as Szczecin, Bydgoszcz and Toruń, Olsztyn, Białystok and Lublin were to take on the role of regional centres, it would be necessary for them to implement appropriate policies in the areas of investment and education and to focus on pro-development objectives rather than on increasing consumption and living standards of the current generation. This concerns in particular the use of EU structural funds, both those intended for the development and revitalisation of infrastructure as well as those meant to enhance the accumulation of human capital within regions. In the conditions of increased availability of such funds, or even of their relative excess, it is essential that they not only be spent but effectively channelled to support projects with high social and economic rates of return. This issue is of particular importance in the context of urban centres of relatively smaller populations which are not as attractive to investors as larger agglomerations.

Economic regulations, taxes and shadow economy

Another topic that we have looked into in this issue of *Employment in Poland* is unregistered work and non-observed economy. Although work in NOE has both positive and negative consequences for the economy, it seems that in the literature on the subject there prevails an opinion that the reduction of NOE by including parts of it in the official sector of the economy is generally justified from the economic point of view. This is so because companies operating in the shadow economy have much smaller potential development opportunities than companies operating in the official economy. They do not have access to external financing, they cannot insure their assets or use marketing services. What is more, they are not in the position to fully benefit from scale effects due to considerable diffusion of their businesses. As for workers engaging in undeclared work in companies which operate in the official economy, although they evade taxation, they are also excluded from most mechanisms which guarantee basic social security to people employed officially (e.g. paid annual holiday and maternity leaves, sick leaves, retirement and pension coverage, etc.).

Having analysed determinants of participation in unregistered employment, we indicate that the sources of non-observed economy should be sought not only in excessive state fiscalism but also in overly burdensome economic regulations which are in total disregard of social expectations. In other words, people engage in undeclared work in the first place when access to official employment is limited and in the second place when it is financially unattractive. In view of the above reasons, the only method to reduce the size of NOE is essentially by applying recommendations intended to improve the dynamics of economic growth and labour productivity, namely by eliminating bureaucratic barriers and cutting taxes. Moreover, the reduction of the shadow economy may be further enhanced, if law regulations are loosened wherever their rigorousness reaches levels which commonly induce entrepreneurs to conceal their businesses or to employ workers without registering them. The above pertains above all to labour law the liberalisation and tightening of which seems to decrease and increase the shadow economy respectively. By way of example, let us mention the obligations to register and complete tax returns when employing people to help in households and farms. In some cases, these obligations may constitute a greater barrier to official employment than the amount of tax itself. From a broader perspective, it can be stated that the promotion of more liberal forms of employment and the liberalisation of the labour code would be a great advantage to all companies which employ workers on an intermittent and irregular basis, in accordance with the fluctuating demand for their services or products (e.g. renovation teams, small-scale gastronomy, etc.).

For similar reasons, solutions which directly limit labour demand among lowest-wage workers should be replaced by solutions which increase such people's net wages without increasing the gross labour costs. In this context, high average tax rates, which effectively encourage low-productive workers to engage in unregistered work, are of particular significance. Thus, NOE can be reduced through, for instance, the introduction of a high revenue earning cost, which effectively increases tax progression right at the beginning of the tax scale without increasing the burden imposed on employers hiring low-productivity workers. From the economic perspective, the above solution is more viable than some suggested measures which limit employers' ability to adjust offered wages to the actual employee productivity levels. Of course, one condition which must be met in order to implement the above solution is the public finance reform and – what comes with it – a fiscal consolidation. As argued above, the reform of public finance which would involve a reduction of social transfers directed to people in the economically productive age, would have a strong pro-employment effect. If it was supported by concurrent changes in the tax system, its likely outcome would consist in the reduction of undeclared work and of NOE. Therefore, if the authorities implemented and pursued a coordinated macroeconomic and pro-development structural policy at the national level, it might be expected that both the number of people working in NOE as well as the output generated in the informal sector would be decreased without any loss in total output or employment.

Appendix

Appendix 1. Decomposition of changes in value added

This report provides a decomposition of deviation in value added per capita in the region from the national average value added for Poland into industry and services, where each of these sections includes a further division into employment (labour input), productivity and residual. For the economy we explain the value added index I_{VA}, which can be expressed as follows:

$$I_{VA} = \frac{VAP_i}{VAP_K} = \frac{VA_i}{P_i}\frac{P_K}{VA_K} = \frac{ER_i P_i W_i}{P_i}\frac{P_K}{ER_K P_K W_K} = \frac{ER_i}{ER_K}\frac{W_i}{W_K}$$

where:

i – examined region
K – country where the region is located
VAP – value added per capita
VA – value added
P – population
ER – employment rate (in the overall population)
W – productivity (VA per worker)

In view of the above, the index value is simply a product of quotients of employment rates and productivity indicators. The result can be expressed as follows:

$$I_{VA} = \frac{ER_i}{ER_K} + \frac{W_i}{W_K} + R_i$$

$$R_i = \frac{ER_i}{ER_K}\frac{W_i}{W_K} - \left(\frac{ER_i}{ER_K} + \frac{W_i}{W_K}\right)$$

The above decomposition can be applied in analyses for the economy as a whole, without any division into sectors. For sector decomposition, contributions of particular sectors need to be additionally weighted by the share of value added of a given sector s in the total national value added. Thus, the equation takes the following form:

$$I_{VA} = \sum_s \left(\frac{VA_{sK}\dfrac{ER_{si}}{ER_{sK}} - VA_{sK}}{\sum_s VA_{sK}} + \frac{VA_{sK}\dfrac{W_{si}}{W_{sK}} - VA_{sK}}{\sum_s VA_{sK}} + \frac{VA_{sK}R_{si} - VA_{sK}}{\sum_s VA_{sK}} \right)$$

In this report, the analysis is limited to two sectors – industry and services – due to the lack of reliable time series on employment in agriculture at the subregional level.

Table A.1.

Change in productivity and employment in subregions in 2005 compared with 1995 (1995=100)

	employment			productivity		
	total	industry	services	total	industry	services
bialskopodlaski	81.9	80.4	82.5	130.2	121.7	132.1
białostocko-suwalski	97.0	91.2	100.3	141.8	130.8	144.6
bielsko-bialski	72.2	58.0	87.7	175.4	187.4	162.7
bydgoski	89.4	76.2	101.1	141.8	133.6	142.8
centralny śląski	72.4	55.3	95.1	172.8	188.2	153.0
chełmsko-zamojski	90.7	94.7	88.8	129.0	111.9	136.8
ciechanowsko-płocki	95.7	78.5	110.7	176.7	230.0	143.7
częstochowski	88.6	83.6	93.7	162.1	177.9	150.0
elbląski	89.0	88.6	89.3	153.6	130.3	169.5
ełcki	89.4	90.1	89.0	152.2	139.3	157.5
Gdańsk-Gdynia-Sopot	81.7	60.4	94.5	168.1	166.4	166.4
gdański	94.3	94.8	93.9	164.3	160.4	167.0
gorzowski	84.2	75.6	90.8	146.5	165.5	134.9
jeleniogórsko-wałbrzyski	76.8	66.7	87.1	165.1	160.5	160.7
kaliski	93.1	93.7	92.5	165.2	155.4	172.2
koniński	86.9	81.9	92.4	150.4	132.2	163.0
koszaliński	78.9	76.5	80.3	179.7	155.3	188.9
krakowsko-tarnowski	83.2	70.3	96.9	169.3	171.8	160.4
Kraków	87.5	59.2	106.3	174.6	192.6	164.5
krośnieńsko-przemyski	84.1	71.8	93.7	134.1	126.2	134.1
legnicki	82.7	74.2	92.2	164.8	179.9	151.4
lubelski	91.8	77.2	101.4	156.2	144.4	159.7
łomżyński	83.5	76.3	87.5	172.8	197.3	161.9
łódzki	91.8	80.0	102.8	149.5	190.0	126.8
Łódź	78.5	58.3	92.7	173.3	186.9	161.8
nowosądecki	88.2	81.9	92.2	147.2	130.1	154.0
olsztyński	91.6	85.1	95.6	157.3	145.9	161.2
opolski	76.6	62.9	89.9	164.1	186.2	147.0
ostrołęcko-siedlecki	85.0	75.5	90.8	155.8	217.2	135.7
pilski	92.9	101.1	86.4	158.0	160.4	160.9
piotrkowsko-skierniewicki	81.5	72.2	91.8	176.1	172.5	176.0
Poznań	97.2	74.3	111.5	168.8	160.0	172.3
poznański	106.6	105.8	107.6	170.5	157.7	180.3
radomski	94.7	64.8	120.7	155.0	217.2	124.1
rybnicko-jastrzębski	72.4	59.1	92.9	180.7	211.2	148.0
rzeszowsko-tarnobrzeski	90.6	79.2	101.8	172.0	172.0	168.0
słupski	89.2	85.8	91.6	133.4	150.2	126.0
szczeciński	80.2	64.9	92.7	152.9	148.0	145.9
świętokrzyski	77.3	66.5	84.3	181.1	187.2	176.8
toruńsko-włocławski	88.0	80.0	94.3	140.2	135.6	139.2
Warszawa	102.1	67.6	116.4	178.6	167.4	177.1
warszawski	103.7	77.2	128.6	167.4	163.5	166.5
Wrocław	85.8	57.6	102.3	159.5	175.2	149.5
wrocławski	99.9	100.2	99.7	176.0	184.3	170.8
zielonogórski	86.1	76.1	94.0	154.3	202.1	131.6
Poland	**86.6**	**71.7**	**98.8**	**164.6**	**166.9**	**158.5**
Poland excluding Warsaw	85.2	71.9	96.7	161.9	167.0	154.7
Poland excluding cities	87.2	77.1	95.8	158.9	163.1	153.0

Below-average changes are presented in grey colour.

Source: Own calculation based on CSO regional accounts.

Table A.2.
Decomposition of sources of variation in value added per inhabitant from national average - 1995

		industry		services		
	total	employment	productivity	employment	productivity	residual
bialskopodlaski	-20.6	-5.6	3.1	-6.9	-0.5	0.1
białostocko-suwalski	-12.3	-4.8	1.6	-2.7	-5.8	0.3
bielsko-bialski	12.5	5.5	1.8	-0.9	3.0	0.0
bydgoski	0.8	4.5	0.1	-4.4	3.4	-0.2
centralny śląski	29.2	0.2	0.2	5.4	2.3	0.2
chełmsko-zamojski	-19.9	1.6	-0.8	-12.9	-3.0	0.6
ciechanowsko-płocki	-6.9	11.4	-2.1	-14.8	-1.7	0.4
częstochowski	2.8	-6.0	-0.4	-7.4	0.4	0.0
elbląski	-8.0	-0.3	0.1	-10.5	-10.3	1.7
ełcki	-19.0	-4.0	2.0	-15.5	-3.9	1.0
Gdańsk-Gdynia-Sopot	9.0	7.1	1.7	41.2	-0.6	-0.4
gdański	-11.8	2.2	-0.7	-18.4	-2.5	0.7
gorzowski	-1.0	-4.6	0.1	1.6	6.5	0.2
jeleniogórsko-wałbrzyski	-2.2	-0.6	0.0	-15.5	7.6	-1.9
kaliski	-0.5	-9.8	0.1	-13.3	-9.6	2.1
koniński	-0.8	0.0	0.0	-16.8	-4.7	1.3
koszaliński	-11.0	-2.9	0.8	-2.5	-2.9	0.1
krakowsko-tarnowski	-3.9	-3.9	0.4	-19.6	-1.3	0.4
Kraków	17.9	0.8	0.4	49.3	-6.6	-5.2
krośnieńsko-przemyski	-8.5	-1.9	0.4	-11.9	-2.4	0.5
legnicki	13.4	14.8	5.3	-1.2	0.9	0.0
lubelski	-8.3	-2.1	0.5	-2.2	-12.3	0.4
łomżyński	-19.8	-3.8	2.0	-18.8	-6.3	1.9
łódzki	-5.1	-11.1	1.5	-15.7	5.8	-1.5
Łódź	7.5	-2.3	-0.5	24.5	-2.1	-0.8
nowosądecki	-14.8	-0.3	0.1	-13.8	-6.2	1.4
olsztyński	-8.9	-1.7	0.4	2.7	-8.3	-0.4
opolski	0.8	1.2	0.0	-8.8	1.1	-0.2
ostrołęcko-siedlecki	-16.9	-12.5	5.6	-17.1	4.6	-1.3
pilski	-7.1	-7.9	1.5	-10.5	-4.7	0.8
piotrkowsko-skierniewicki	-0.1	-0.5	0.0	-16.8	-8.5	2.3
Poznań	18.6	9.6	4.7	59.1	-3.5	-3.3
poznański	-1.0	-3.4	0.1	-16.9	-5.3	1.4
radomski	-9.5	-10.0	2.5	-18.6	-0.2	0.1
rybnicko-jastrzębski	22.1	0.0	0.0	-10.4	1.8	-0.3
rzeszowsko-tarnobrzeski	1.4	-6.7	-0.3	-8.9	-13.2	1.9
słupski	-7.5	-9.2	1.8	-6.4	9.3	-1.0
szczeciński	-5.7	-1.5	0.2	-10.0	14.9	-2.4
świętokrzyski	-3.8	-1.0	0.1	8.1	-11.9	-1.6
toruńsko-włocławski	-5.8	0.4	-0.1	-8.5	7.7	-1.1
Warszawa	10.2	11.1	3.0	92.0	10.6	15.6
warszawski	-5.1	6.5	-0.9	-15.7	-1.9	0.5
Wrocław	7.5	2.5	0.5	41.0	2.8	1.9
wrocławski	-9.0	-5.0	1.2	-22.0	-1.8	0.6
zielonogórski	-2.7	-6.3	0.5	-2.9	8.1	-0.4

Source: Own calculations based on CSO regional accounts.

Table A.3.

Decomposition of sources of variation in value added per inhabitant from national average - 2004

		industry		services		
	total	employment	productivity	employment	productivity	residual
bialskopodlaski	-15.2	-12.0	5.7	-16.3	-11.8	2.8
białostocko-suwalski	-4.4	-10.0	1.4	-1.9	-11.8	0.3
bielsko-bialski	1.8	9.0	0.5	-9.7	5.2	-0.7
bydgoski	2.9	-3.3	-0.3	-3.0	-3.4	0.1
centralny śląski	13.7	4.2	1.8	6.5	0.1	0.0
chełmsko-zamojski	-11.2	-9.6	3.4	-18.1	-12.2	3.2
ciechanowsko-płocki	-2.8	25.2	-2.2	-9.1	-8.1	1.1
częstochowski	8.6	-3.2	-0.9	-10.4	-3.3	0.5
elbląski	-0.7	-7.1	0.2	-16.8	-7.4	1.8
ełcki	-11.6	-8.0	2.9	-21.5	-4.6	1.5
Gdańsk-Gdynia-Sopot	1.3	5.8	0.2	39.8	2.7	1.6
gdański	-4.4	0.6	-0.1	-24.9	0.8	-0.3
gorzowski	0.4	-4.1	-0.1	-4.7	-4.0	0.3
jeleniogórsko-wałbrzyski	-2.5	-1.7	0.1	-20.8	9.4	-2.9
kaliski	8.9	-9.8	-2.7	-18.5	-5.5	1.5
koniński	3.6	-6.6	-0.7	-21.9	-3.4	1.1
koszaliński	-7.4	-4.5	1.0	-14.2	9.2	-1.9
krakowsko-tarnowski	-4.6	-2.5	0.4	-23.6	-0.6	0.2
Kraków	5.8	5.7	1.0	59.9	-4.9	-4.3
krośnieńsko-przemyski	-7.1	-9.0	2.0	-15.8	-12.8	3.0
legnicki	13.6	15.9	6.8	-4.6	-2.1	0.1
lubelski	-4.9	-5.8	0.9	-0.4	-13.0	0.1
łomżyński	-15.4	2.1	-1.0	-25.6	-5.6	2.1
łódzki	-0.6	-6.2	0.1	-14.2	-8.5	1.8
Łódź	0.8	1.7	0.0	25.7	-0.9	-0.3
nowosądecki	-10.7	-7.2	2.4	-20.9	-8.6	2.6
olsztyński	-2.8	-5.2	0.5	0.8	-8.1	-0.1
opolski	-2.5	4.8	-0.4	-13.5	-3.8	0.7
ostrołęcko-siedlecki	-13.0	-4.1	1.7	-22.2	-5.5	1.8
pilski	4.4	-7.6	-1.1	-18.9	-4.2	1.2
piotrkowsko-skierniewicki	0.6	0.6	0.0	-21.3	-2.9	0.9
Poznań	17.7	6.4	3.6	82.9	1.8	2.1
poznański	11.4	-4.4	-1.6	-17.1	2.8	-0.7
radomski	-9.9	-1.3	0.4	-8.6	-15.0	1.9
rybnicko-jastrzębski	11.0	8.5	2.9	-13.3	-2.7	0.5
rzeszowsko-tarnobrzeski	4.1	-4.8	-0.6	-8.9	-11.3	1.5
słupski	-1.3	-10.2	0.4	-11.4	-5.9	1.0
szczeciński	-6.8	-4.7	1.0	-13.3	9.6	-1.9
świętokrzyski	-5.3	2.9	-0.5	-2.5	-6.7	0.2
toruńsko-włocławski	-1.8	-5.7	0.3	-12.2	-0.9	0.2
Warszawa	4.5	9.5	1.4	122.3	21.0	37.6
warszawski	-4.4	4.7	-0.7	-6.9	1.2	-0.1
Wrocław	-1.2	3.8	-0.1	48.7	-0.9	-0.7
wrocławski	1.1	-1.3	0.0	-25.1	3.1	-1.2
zielonogórski	-0.6	0.3	0.0	-6.5	-4.2	0.4

Source: Own calculations based on CSO regional accounts.

Appendix 2. Methodological remarks on LFS data

In order to estimate the intensity of migration, one can use LFS data basing on the answers to questions about the place of residence one year before the survey. A migrant is then defined as a person who lived in a different district or voivodeship one year before the interview (the survey does not provide for a division at the poviat level). Thus, it is only possible to compare the intensity of migration in Poland with other countries at the NUTS-2 level .

When using LFS data one should take into account the fact that selection of quarterly samples is performed according to the rotation system so the probability of observing migrants in the subsamples might differ. In the Polish survey, one quarter of the sample are households drawn for the first time, one quarter – those which participated in the previous round of the survey (three months earlier), one quarter – those which participated in the preceding year, and one quarter – those which participated 15 months before the examined round (see sample rotation system, Economic Activity of the Population, CSO). This means that for half of the sample the probability that it includes migrants is lower (there might be migration which involved returning to the household after an absence of more than one year or which occured due to the rent or purchase of a flat in the secondary market – whereas people who bought flats in the new place of residence should by no means be included in the sample). Members of households which participate in the survey for the second time (three months after the first round of interviews) are typically characterised by lower probability of migration than those which participate in the survey for the first time. If we ignore the above problem, the estimation of the intensity of migration is biased downwards and the structure of migrant's population is distorted. The LFS sample rotation systems in other countries (Eurostat 2003) indicate that in some countries one third (see France, Spain, Hungary, Greece) or one fifth (see Great Britain, Slovakia, etc.) of the sample is characterised by lower probability of migration related to the purchase of a new flat.

Bearing the above in mind, when comparing migration intensity internationally, one would have to use data from subsamples which participated in the survey for the first time and calibrate weights depending on the rotation system and the number of such subsamples in a given country. For a greater comparability of migration data, the definition of a household, the methodology of determining membership in a household and place of permanent residence as well as of collecting information about people living in collective households should also be standardised.

To some extent the comparability of migration data can be affected by the accuracy of data on new flats, because the sample is drawn based on them.. In Poland, many flats are registered a few years after construction and therefore their occupiers can take part in the survey only a few years after the change of residence.

Moreover, people from villages and small towns who study outside their place of residence and live in halls of residence are not included in the LFS. At the same time - when they graduate and engage in work in the place of study, they are - according to the LFS methodology - classified as people who used to live in a given city for more than one year, i.e. they are not classified as migrants.

Appendix 3. Methodological remarks on the migration model

Model 1: intensity of outmigration from regions

The dependent variable is the intensity of outmigration from particular poviats based on data from the National Population Census on internal migration (Internal population migration, CSO). The intensity of outmigration is calculated as a share of migrants who left a given poviat in the period 1989-2002 in its total population aged 18-59/64 in 2002. At this point, certain reservations concerning the analysis should be made: the above data are subject to an error resulting from the retrospective nature of the migration survey which recorded only the last migration. Moreover, the aggregation of data published by the CSO for the entire period 1989-2002 makes it impossible to establish a panel for poviats and difficult to select explanatory variables (variables describing the situation in poviats are available for 1995-2004). An alternative solution is to use data at the voivodeship level which are disaggregated in time. However, taking into consideration the strong auto-correlation of the basic variables (unemployment rates, wage levels, etc.) for particular poviats in time and the large differences between poviats within voivodeships, it seems better to estimate the model using the data aggregated in time but with little spatial aggregation.

In view of the above (greater "weight" of migration, which occurred at the end of the studied period and strong auto-correlation of explanatory variables) only the data from 2002 were taken into account. The model was reestimated using the data from 1999 – the direction of the interdependence relationship proved the same and only its strength was smaller.

The general formulation of the model is as follows:

$$M_{ri} = f(X_i, Z_i) \qquad \text{where:}$$

M_{Ri} = migration intensity from particular poviats

X_{Ii} = attractiveness of other regions weighted by distance
The "Population Index" was used as a proxy. This index is calculated by multiplying the population in all potential destination poviats by the decay function, derived from the distance from the capitals of these poviats. In spatial mobility models, population of potential destination regions is often used as a measure of their attractiveness.

Z_{Ii} = vector of standardised variables describing the situation in region i

The aim of the study is to measure the impact of the labour market situation on the propensity to migrate to other regions and therefore the set of explanatory variables includes the amount of wages and the ratio of the number of the unemployed to the number of job offers. Attempts were made to include the unemployment rate as a measure of chances for finding employment, however, given the arguments presented by Pissarides and Wadsworth (1989), it seems that the relationship between the number of the unemployed and job offers – irrespective of an imprecision of this statistics –reflects the situation in the region better (what is more this variable was also used to create clusters in Part II). Statistics on the employment structure (shares of people working in agriculture and in services) at the poviat level were also used in the analysis. . In view of the possibility of migration being substituted by work commuting (see Rouvendal 1999), the variables such as number of rooms per capita and road density in poviats were included in the set of control variables (assuming that the greater the supply of flats in a given region, the lesser the tendency of its inhabitants to migrate to the regions of their employment and the greater the tendency to commute – where the latter is further enhanced by greater road density). Explanatory variables (apart from the population index which is "weighted" for all potential destination regions) were standardised working on the assumption that it is not their absolute level but deviations from the average level for all regions that are of key importance.

The model can be formulated as follows

$$M_{ri} = IP * e^{\sum_{i=1}^{k} a_i Z_i}$$

which after the linearization can be estimated by the Ordinary Least Square method:

$$\ln(M_{ri}) = \ln(IP) + \sum_{i=1}^{k} a_i Z_i$$

M_{ri} = log Population Index

Values predicted by the basic model (which included four explanatory variables – logarithm of the population index and standardised values of the supply of flats, number of the unemployed per job offer and wages), are not very well adjusted to the observed values of the intensity of migration in particular poviats However, given the deficiencies of data used in the analysis, this result can be deemed acceptable (road density was also taken into account, which improved the quality of the adjustment but resulted in the collinearity between the population index and road density – in highly populated poviats road density is usually substantially greater. Hence, this

explanatory variable was abandoned). The model explains approx. 44% of dependent variable variation, which should be considered significant given the results of the variation analysis.

The variable which exerts the largest influence on the outflow of migrants from a region is the value of the population index which indicates the availability of other attractive regions. There is a strong negative correlation between the value of the population index and the intensity of migration which seems to be unintuitive but which can be explained by the results concerning the interdependence between population size, distance between regions and the intensity of work commuting. If a less developed region borders with an attractive region which attracts labour resources, workers may prefer commuting to migration given the distance is short. This is so especially when the choice between commuting and migration is additionally motivated by the situation in the real estate market. If flat prices and rents are high in the potential migration destination region, the migration might not be cost-effective even if the wages are relatively high. Because data on flat prices or rents are not available at poviat level, we used statistics on the number of newly built rooms per capita . It turned out that large availability of accommodation encourages people to migrate. It must be specified that this variable may be endogenous, however, we did not find any suitable instrument. What is more, it seems improbable that a small – compared with the total population of a given region – group of work commuters should have a significant influence on the situation in the poviat real estate market. Last but not least, the conclusion that the supply of flats in the region of residence is a factor which affects the choice between commuting and migration and which thus decreases the intensity of outmigration from regions located in the vicinity of attractive regions – is supported by the results of the model of work commuting.

Model 2: Destination choice model

The second model explains the allocation of people who decided to migrated in the period of 1989-2002 between particular regions. The general formulation of the model is as follows:

$$\frac{M_{ij}}{O_i} = \frac{d_{ij}\prod_{i=1}^{k} a_i X_i}{\sum_j d_{ij}} \quad \text{where:}$$

M_{ij} / O_i - share of all migrants originating from the region i who lived in region j in 2002
d_{ij} - function of the distance between regions (reverse)

In view of the fact that the denominator in the equation on the right hand side is the same for each outflow region i , the equation can be transformed to the form which, upon the logarithmisation of both sides, can be estimated using the OLS method:

$$ms_{ij} = k_i d_{ij} \prod_{i=1}^{k} a_i X_i \quad \text{where:} \quad ms_{ij} = \frac{M_{ij}}{O_i}$$

ms_{ij} - all migrants originating from the region i who lived in region j in 2002
k_i - attractiveness of destination regions weighted by distance

In view of the fact that the CSO data on flows below ten people are not available, a tobit model was used and the natural logarithm of 10 was set as the lower limit value. The model is significant, however, it explains only approx. 32 per cent of the variance in the migration flows. All variables apart from the number of the unemployed per job offer are statistically significant and affect the outcome variable in the expected direction.

Appendix 4. World Bank Ease of Doing Business Index

This index allows to rank and rate the economies of 175 countries worldwide for their ease of doing business. Rankings of particular countries on the index are based on the arithmetic mean derived from their rankings in each of the ten examined areas. Country rankings are expressed as percentiles within which the result for a given country falls.

The Ease of Doing Business Index is based on the following subindices:

- **starting a business** – records all procedures that are required for an entrepreneur to start up and operate a business; these include obtaining all necessary licences and permits and completing any required notifications, verifications or inscriptions for the company and employees with relevant authorities, costs of complying with the above procedures and minimum capital requirements;

- **dealing with licenses** – records all procedures required for a business in the construction industry to build a warehouse of a given size (including time necessary to obtain all licences and permits, to receive all required inspections and to complete and submit the relevant documents); the index also records procedures for obtaining utility connections (water, electricity, etc.) and time necessary to obtain a permit for transferring or selling the said warehouse;

- **employing workers** – records activities that employers are obliged to perform when hiring or firing employees, as well as costs relating to dismissals and rigidity of working hours;

- **registering property** – records all procedures necessary when a business purchases land and buildings to transfer the property title from the seller to the buyer so that the buyer could use the property; all procedures are included irrespective of whether it is the responsibility of the seller or the buyer or must be completed by a third party on their behalf;

- **getting credit** – constructs measures of the legal rights of borrowers and lenders, describes how well bankruptcy and collateral laws facilitate landing and indicates how to access credit information (loan terms and conditions and information about borrowers) available through public and private credit registers;

- **protecting investors** – measures the strength of minority shareholder protection against directors' misuse of corporate assets for personal gain; the index distinguishes three dimensions of investor protection: transparency of transactions, directors' liability for self-dealing (profits derived from confidential information) and shareholders' ability to sue officers and directors for misconduct;

- **paying taxes** – records taxes which a medium-size company must pay or withhold in a given tax year, as well as to administrative burden in paying taxes with respect to all components of the tax burden (corporate income tax, social insurance contributions and other labour taxes, property taxes, property transfer – including sale – taxes, dividend tax, capital gains tax, financial transactions tax, road taxes and waste collection taxes);

- **trading across borders** – compiles all procedural requirements for exporting and importing goods – from the contractual agreement between the seller and the buyer to the delivery of goods, along with time and cost necessary for completion;

- **enforcing contracts** – measures the efficient of the judicial system in resolving commercial disputes;

- **closing a business** – studies the time, cost and outcomes of bankruptcy proceedings involving domestic entities.

Appendix 5. Paying Taxes

For each country included in the Ease of Doing Business Index, the Paying Taxes Index was estimated using a case study with a set of financial statements and assumptions about transactions made over the year. Experts in each country calculate taxes to be paid in their jurisdictions. Moreover, information was gathered about the frequency of tax return filings, audits and other costs of compliance with tax obligations.

The index was computed for a business with certain set characteristics, identical for all countries. The business:

- is a limited liability, taxable company,
- started operation on 1 January 2004; at the same time the company purchased all the assets shown in its balance sheet and hired all its workers,
- operates in the country's most populous city,
- is 100 per cent domestically owned and has five owners, all of whom are natural persons,
- has a start-up capital of 102 times income per capita at the end of 2004,
- performs general industrial and commercial activities; specifically, it produces ceramic flowerpots and sells them at retail,
- does not participate in foreign trade and does not handle products subject to a special tax regime (e.g. alcohol, tobacco),
- owns two plots of land, one building, machinery, office equipment, computers and one truck and leases another truck,
- does not qualify for investment incentives or any special benefits apart from those related to the age or size of the company,
- had sixty employees – four managers (including one owner), eight assistants and forty-eight workers – all nationals,
- has a turnover of 1,050 times income per capita,
- makes loss in the first year of operation,
- has the same gross margin (pre-tax) across all economies,
- distributes 50 per cent of its profits as dividends to the owners at the end of the second year,
- sells one of its plots of land at a profit during the second year.

Moreover, relevant assumptions were also made about taxes. All the taxes were paid in the second year of operation, i.e. in 2005. All the taxes paid over the year were taken into consideration, however, taxes with the same name and taxes collected by the same agency (though charged at different rates) are counted as the same tax. The frequency of payment for taxes includes advance payments or withholding as well as regular payments or withholding.

The index consists of three elements:

- tax payments (total number of taxes paid, method of payment, frequency of payment and number of agencies involved);
- time – recorded in hours per year – to collect all information necessary to compute the tax payable, to file a tax return and to pay the amount due for three major types of taxes: corporate income tax, value added tax or sales tax and labour taxes, including payroll taxes and social insurance contributions;
- total tax rate which measures the amount of taxes payable by the business in the second year of operation, expressed as a share of commercial profits (sales minus cost of goods sold, minus gross salaries, minus deductible provisions, etc. plus capital gains from the sale of property).

Appendix 6. Employing workers

This index measures the regulation of employment, specifically as it affects the hiring and firing of workers and the rigidity of working hours. To make the data comparable across countries, several assumptions about the worker and the business are used. The information on employing workers is based on a detailed survey of applicable employment regulations that is completed by local law firms. Laws and regulations as well as secondary sources are reviewed to ensure accuracy. Conflicting answers are further checked against two additional employment regulation sources.

The index applies to a worker who:

- is a non-executive, full-time male employee who has worked in the same company for 20 years,
- earns a salary plus benefits equal to the country's average wage during the entire period of his employment,
- is a lawful citizen with a wife and 2 children,
- resides in the country's most populous city,
- is not a member of a labour union, unless membership is mandatory.

The business which employs the worker:

- is a limited liability company,
- operates in the country's most populous city,
- is 100 per cent domestically owned,
- operates in the manufacturing sector,
- has 201 employees,
- abides by every law and regulation but does not grant workers more benefits than what is legally mandated.

The Employing Workers Index consists of three indices:

- the rigidity of employment index which is the average of three subindices: (i) difficulty of hiring index (i.e. whether term contracts can be used only for temporary tasks, what is the maximum cumulative duration of term contracts, what is the ratio of the minimum wage for a trainee or first-time employee to the average value added per worker), (ii) rigidity of hours index (i.e. whether night and weekend work is restricted, whether the workweek can consist of 5.5 days or 50 hours for two months a year, what is the length of paid annual vacation), and (iii) difficulty of firing index (i.e. whether redundancy is disallowed as a basis for terminating employment relationship, whether the employer needs to notify a third party to terminate one redundant worker or a group of at least 25 redundant workers, whether the employer needs approval from a third party to terminate one redundant worker or a group of at least 25 workers, whether the law requires the employer to consider reassignment or retraining options before redundancy termination, and whether priority rules apply for redundancies and reemployment);
- he non-wage labour cost index which measures all social insurance payments and payroll taxes associated with hiring an employee in fiscal year 2005, which are expressed as a percentage of the worker's salary;
- the firing cost index measures the cost of advance notice, severance payments and penalties due when terminating a redundant worker, expressed in weekly wages.

Appendix 7. Rule of Law and Government Effectiveness

The Rule of Law Index and the Government Effectiveness Index are two of six indices developed to measure governance in particular countries (Governance Indicators) and published by the World Bank. These indices are computed based on surveys and polls carried out by different international institutions such as the World Bank, Gallup International, Heritage Foundation, Reporters Without Borders (for a detailed description of data sources see Kaufmann et al. (2006)). Data from particular sources are standardised and aggregated into indices using an unobserved components model (see Kaufman et al. (2004)). Higher values indicate greater governance.

The Rule of Law Index measures the extent of compliance with the rules of society and the inclination to abide by them. In particular, this index reflects the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence.

The Government Effectiveness Index studies the quality of public service provision, the competence of civil servants and the independence of the civil service from political pressures. Moreover, this index measures the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies (see Kaufmann et al. (2006)).

Appendix 8. Heritage Foundation Regulations Index

The Regulations Index constitutes one of measures used to compute the Index of Economic Freedom published by the Heritage Foundation. In accordance with the methodology applicable in 2003, the index could take discrete values within a 1-5 performance bracket. The lowest results mean that the regulatory burden in a given country is not significant, regulations are transparent and they do not discriminate any particular type of business and that the scale of corruption is small. On the other hand, the highest index value characterised countries where government regulations hindered the ability to start new businesses, where corruption had grown to considerable proportions, regulations were non-transparent and selective.

Index values were computed for particular countries based on a set of quantifying variables, such as the extent of licence requirements when starting a business and the ease of obtaining licences, the scale of corruption, the extent of labour regulations as well as other regulations which are a burden on businesses. Data was derived, among others, from reports published by the Economist Intelligence Unit and from publications prepared by national governments. Relevant descriptions were ascribed to every index value. The condition for classifying in a given category was the fact of having most features identified with a given index level.

Appendix 9. Transparency International Corruption Perceptions Index

The Corruption Perceptions Index is based on survey and questionnaire results as well as interviews carried out by international institutions. The 2003 value of the index was computed from 17 variables derived from 13 sources (including World Bank, EBRD, World Economic Forum). All sources used to compute the index referred to the same definition of corruption. Questions related to subjective perceptions of the frequency of corruption in the closest environment, in a given sector or on the national level. All sources provided a ranking of countries. The values were compiled and standardised with the use of statistical techniques so that results would remain between 0 and 10. Higher index values are typical for lower extent of corruption in a given country.

Appendix 10. Sample selection model

In the situation where the selection of observations to the sample is non-random, there may arise a problem of quality of parameter estimates. The estimated values may provide a distorted image of the direction and strength of the relationship between the explained variable and the explanatory variables. For instance, estimation of the traditional regression model which quantifies the impact of secondary school performance on performance at the university level, may lead to the conclusion that there is no significant relationship between these variables. However, **in population**, an evident relationship can be observed between educational achievements at particular steps of the education ladder. The lack of such correlation in the model results from the fact that the probability of going to university, which is practically tantamount with being included in the examined sample (not all people who enter universities actually graduate), depends on the secondary school performance. Good performance in secondary school increases the chances of being admitted to university and thus of completing university studies. Similarly, attempts at determining the impact of particular factors on the probability of shadow employment in the population may be distorted due to different inclinatons to engage in hired work by members of different social and economic groups.

Non-random sample selection makes the OLS estimator inconsitent. Let us assume that we are estimating parameters of the following equation:

$$\mathbf{y}_i = \mathbf{x}'_i \beta + \varepsilon_i$$

where sample selection is determined by the following equation:

$$\mathbf{z}_i = \mathbf{w}'_i \gamma + \upsilon_i$$

The value of the explanatory variable is observed when $z_i > 0$. The correlation coefficient between disturbance terms is ρ. The regression function in the observed sample takes the following form:

$$E[\mathbf{y}_i \mid \mathbf{z}_i > 0] = E[\mathbf{y}_i \mid \upsilon_i > -\mathbf{w}'_i \gamma] = \mathbf{x}_i' \beta + \rho\sigma_\varepsilon \lambda_i(\mathbf{w}_i, \gamma, \sigma_\upsilon)$$

where λ_i means a function of explanatory variables and selection equation parameters, and σ_υ means a standard deviation of the random disturbance ε_i. Clearly the above equation differs from the regression equation in the population which is as follows:

$$E[\mathbf{y}_i] = \mathbf{x}_i' \beta$$

Hence, the estimation of the above function on the observed sample gives rise to the specification error. The β estimator is not consistent in this case (see Greene (2000)).

The most commonly used estimation method when dealing with non-random sample selection is Heckman's two-step method (see Heckman (1979)). In the first step, the probit model is estimated which describes sample selection and determines λ_i values for particular observations. In the second step, it is the parameters of the main equation that are estimated and this equation also takes the form of probit regression.

Appendix 11. Methodological remarks concerning the analysis of internal migration and work commuting

Internal migration

Model of individual determinants of internal migration was estimated using Polish LFS data. A migrant was defined as a person who had lived in a different district or voivodeship one year before the interview (LFS does not provide for a division at the poviat level).

When using the LFS data to analyze migration, it should be borne in mind that due to the sample rotation system the probability of observing migrants in the subsamples might differ. (See Appendix 2). Members of households which participate in the survey for the second time (three months after the first round of interviews) are typically characterised by lower probability of migration than those which participate in the survey for the first time. If we ignore the above problem, the estimation of the intensity of migration is biased downwards and the structure of migrant's population is distorted.

In order to eliminate the above-mentioned problem, in the logit model of migrations we used LFS data only from the first quarters of 2001-2005. In order to obtain a balanced sample, we included all the observations on migrants and we drew a subsample of people who did not changed their place of residence. The model was estimated using Maximum Likelihood Method on the subsample of 4,284 observations.

Work commuting

Model of individual determinants of work commuting, was estimated using the data from the European Social Survey (ESS). The total ESS sample consisted of 45,000 observations, however, we only included people in the productive age, commuting to work and living in the EEA – hence, the analysis was based on 11,044 observations. The model was estimated using Maximum Likelihood Method.

Abbreviations used in the report

APW – average production worker income

CEE – Central and Eastern Europe

CPI – consumer price index

CSO – Central Statistical Office

DEA MLSP – Department of Economic Analyses and Forecasts of the Ministry of Labour and Social Policy

EBRD – European Bank for Reconstruction and Development

EEA – European Economic Area

EMU – Economic and Monetary Union

EPL – employment protection legislation

ERM II – Exchange Rate Mechanism II

ESA – European System of Accounts

ESS – European Social Survey

EURES – European Employment Service

FDI – foreign direct investment

GGDC – Groningen Growth and Development Centre

HCPI – harmonised consumer price index

IBS – Institute for Structural Research

IDA – Industrial Development Agency

ILO – International Labour Organisation

IMF – International Monetary Fund

LFS – Labour Force Survey

MLSP – Ministry of Labour and Social Policy

NBP – National Bank of Poland

NMS – New Member States; admitted to the EU on 1 May 2004

NOE – non-observed economy

NPC – National Population Census

NUTS – Nomenclature of Units for Territorial Statistics

OECD – Organisation for Economic Cooperation and Development

PCA – Polish Classification of Activities

PFS – public finance sector

PPS – purchasing power standard)

RDB – Regional Data Bank

SAE – small area estimation

SEZ – Special Economic Zone

SII – Social Insurance Institution

TFP – total factor productivity

TUS – Time Use Survey

WRS – Worker Registration Scheme

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