



Skill shortages, emigration and unemployment in Poland – causes and implications

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Abstract

The paper analyses a constellation of factors concerning, on the one hand, the erosion of skills caused by the systemic transition from communism to capitalism, and on the other hand, the failure to create the skills in need in the quantities required. The aim is to explain the co-existence of skill shortages, emigration and high unemployment in Poland. The analysis is mostly based on regional differentiations in Poland, which are the best means for explaining the causes and foreseeing the implications of these shortages.

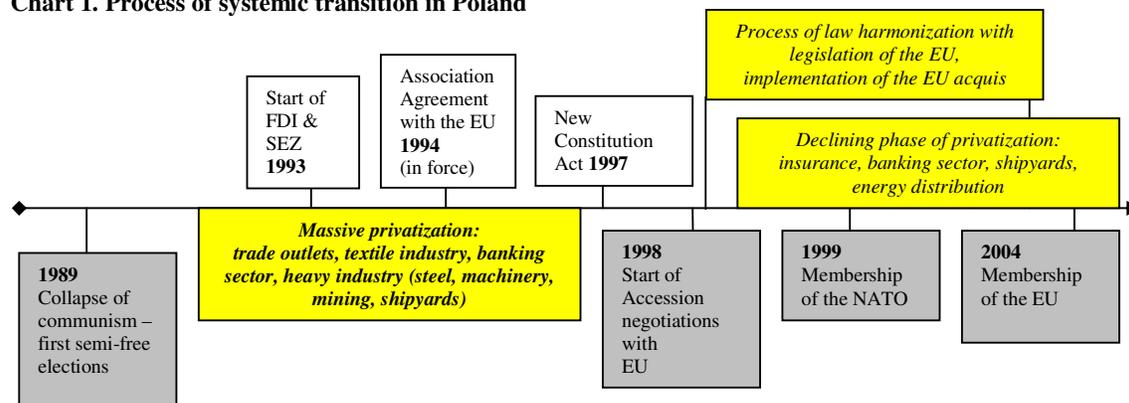
1. Introduction and problem definition

The causes of skill shortages in Poland are both complex and varied. A host of factors that operate singularly or in combination influence the content and nature of these shortages. The characteristics of the causes and implications of skill shortages in Poland also vary across the labour market and are determined by the rationale of certain changes in the Polish economy. In addition, they may co-exist with high unemployment and labour outflows (emigration). The scale of the skill shortages and their diversity are a key characteristic of the systemic transition in Poland.

2. Labour market adjustments in Poland – a synopsis

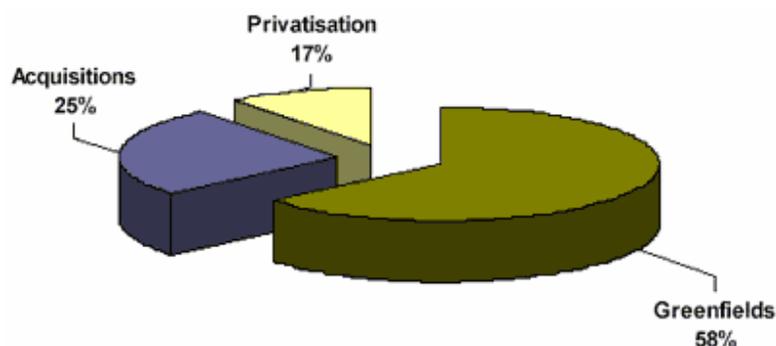
The transformation from a centrally planned economy to a market economy has been accompanied by far-reaching changes in the labour market. *“Excess demand for labour and shortage of labour were replaced by a surplus of labour and shortage of jobs. Consequently, unemployment emerged and grew rapidly: the former centrally planned economy converted from ‘job rights’ economy to ‘job search’ economy”* (Dorenbos 1999: 1). The next stage of this transformation seems to be the **‘skill search’ economy**.

Chart 1. Process of systemic transition in Poland



Source: own analysis

Chart 2. Structure of Foreign Direct Investment in Poland 1993-2004



Source: Polish Information and Investment Agency

The role of the labour market's structure is crucial in the process of systemic transition and economic growth, both in qualitative and quantitative respects. The optimal allocation of labour, namely putting the right person with the right skills in the right place, is an enormous and complicated process. The quality of labour is now crucial to match the needs of the transformed economic structures. The selection of workers on the basis of their labour market characteristics, rather than on the basis of central planning, reflects their labour productivity because wages determined by economic forces have driven economic change since the systemic transition. Moreover, job competition and crowding out effects may lead to the segmentation of the labour market (Piore 1979) – for example, a labour market which contains 'insiders' doing relatively well in growing industries and 'outsiders' either employed in declining industries or unable to enter the labour market because of their inappropriate skills. Poland's employment structure is a good example of this (tables 1 and 2).

Table 1. Key economic indicators for Poland 2000-2005

POLAND	2000	2001	2002	2003	2004	2005
GDP (%) real growth	4.2	1.1	1.4	3.8	5.3	3.4
Inflation rate (%)	10.1	5.5	1.9	0.8	3.6	2.1
Economically active population ('000)	17 311.00	17376.00	17213.00	16945.00	17025.00	16960.00
Employed population ('000)	14526.00	14206.00	13782.00	13612.00	13795.00	13868.00
Unemployment rate (%)	16.09	18.24	19.93	19.65	18.97	18.23
Net migration ('000)	-19.67	-16.74	-14.95	-44.00	-51.79	-48.44
Population mid year ('000)	38648.9	38638.3	38627.1	38605.3	38569.1	38530.1

Source: Euromonitor International – Global Market Information Database

Table 2. Employment structure in Poland 1980-2005

Year	Agriculture	Industry & Construction*	Services
	MF	MF	MF
1980	29.9	40.0	32.2
1990	25.2	37.0	35.8
1991	25.4	36.0	38.0
1992	25.0	34.6	39.8
1993	25.7	31.5	42.6
1994	24.0	31.9	43.9
1995	22.6	32.0	45.3
1996	22.1	31.7	46.2
1997	20.5	31.9	47.6
1998	19.2	32.1	48.7
1999	18.7	29.9	49.8
2000	18.7	30.8	50.3
2001	19.2	30.6	50.6
2002	19.3	28.6	52.0
2003	18.4	28.5	52.9
2004	18.0	30.3	53.1
2005 (mid year)	16.8	29.4	53.7

MF – male + female;

* I+ C since 1999

Source: Own calculations based on Key Indicators of the Labour Market 2001-2002, ILO; Central Statistical Office Poland (various years) and BAEL.

The production structure, the sectoral composition of firms and the occupational structure of the labour force have undergone radical changes. Undoubtedly some branches have been affected more strongly by these changes than others. The current unemployed certainly need additional training and schooling to fit into the new conditions in terms of the occupational structure. Furthermore, the skills of those in employment and also the new entrants to the labour market have to be adjusted to cope with the new production structure. It is clear that this reallocation process has had to take place much more quickly than any recent economic adjustment in Western Europe has required, and it has resulted in both labour surpluses and skill shortages (Dorenbos 1999).

3. Mismatches, shortages, unemployment and labour mobility

As seen above, a mismatch between supply and demand creates the basis of the skill shortages. An important literature researches the differences between certain segments and dimensions of the labour market, based on these criteria: territory, occupation, demographics, branch of economy, and level of education. F.P. Schioppa et al. (1991) present four key interpretations of skill mismatches developed in economic analyses, the most important for this paper relating to the **turbulences in the economy**. This approach was developed by D.M. Lilien (1982), K. Abraham, L. Katz (1986), P. Loungani (1986), P. Loungani, M. Rush, W. Tave (1990) and S. Davies and J. Haltiwanger (1992). The collapse of certain industries and the growth of new forms of entrepreneurship may generate economic shocks. This process is connected to certain technological innovations, changes in foreign competition and changes in the relative prices of resources. These factors affect the structure of employment. The unemployment rate grows in the declining sectors and/or regions while at the same time vacancies grow in the growing sectors and/or regions. This implies deepening mismatches of demand and supply of labour across sectors and/or regions within the national economy. In order to eliminate these mismatches, flexibility in the labour market is demanded: this means flexibility of wages and prices, high mobility of labour and free access to information on the labour market (Brunello 1991: 57).

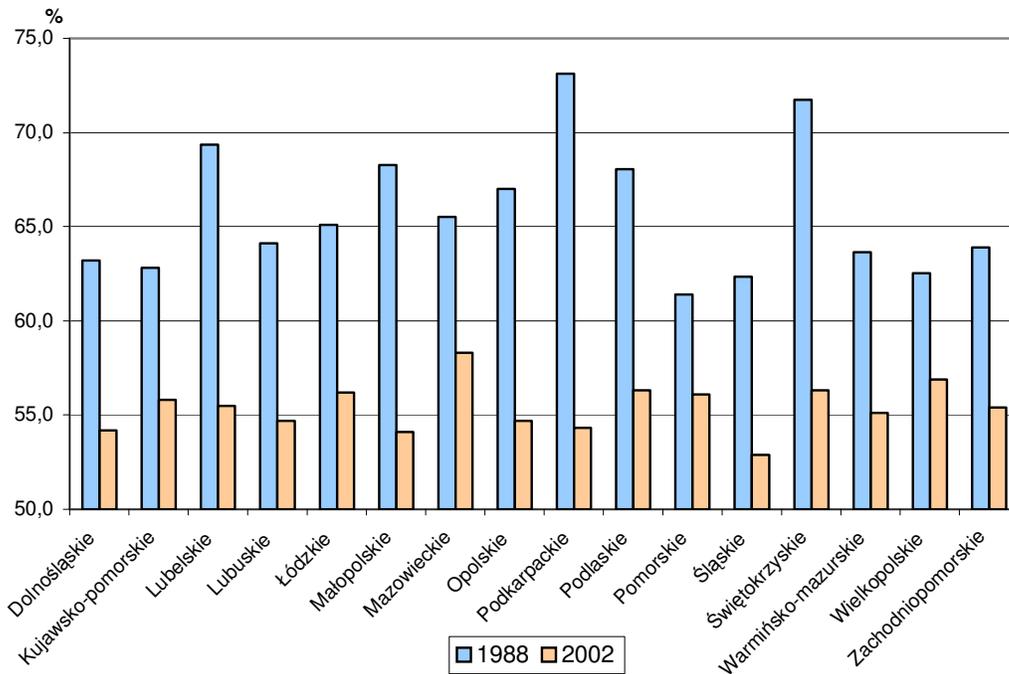
The process of restructuring the Polish economy may also have created its regional diversification. This process has caused regional mismatches of demand and supply in Poland, which in turn created the skill shortages. Moreover, this is well grounded in the labour market geography of Poland. Some branches of the economy are attached to certain regions, e.g. shipping industry, heavy industry, agriculture. This means that certain regions have been defined by certain production activities. One may assume that regional variations in the labour markets may cause structural mismatches (Gawronska-Nowak, Kaczorowski 2000). A thesis on the influence of economic restructuring on unemployment was verified by Kaczorowski, Tokarski (1997) and Gawronska-Nowak, Kwiatkowski, Kubiak (1998). There is also little flexibility in the labour market from the perspective of the level of real wages and labour mobility. This may have a negative impact on the flexibility of the labour market and thus may enhance and perpetuate regional mismatches of supply and demand (Gawronska-Nowak, Kaczorowski 2000).

3.1. Regional variations of economic and labour market performance

Full employment was a major policy goal in all former centrally planned economies. Job security was anchored in the socialist welfare state. On the whole, every person over school age and under retirement age was entitled to work (Dorenbos 1999). Nowadays the situation is totally different. Excess demand for labour and shortage of labour were replaced by a surplus of labour and a shortage of jobs, and consequently the shortage of skills. The change

is shown in chart 3 on regional labour activity rates in Poland, which compares the years 1988 (towards the end of the communist era) and 2002 (towards the end of the transition period).

Chart 3. Regional employment activity rate in Poland in Censuses 1988 and 2002



Source: Central Statistical Office

Moreover, Poland's economic geography highlights the differential impact of the changes across the country. Poland's regions differ considerably with regard to their economies. The variation refers mainly to their economic structures, levels of development, living standards and their labour markets. This is mainly manifested in the three sector structure of the economy (agriculture/industry and construction/services) which can be described and defined by the sectoral split of total employment and value added across regions (see table 3). The situation in Poland is unusual because of the relatively large shares of agriculture in employment but – at the same time – small shares of this sector in the value added (Kwiatkowski, Kucharski, Tokarski 2004). It is worth noting that the dynamics of changes in the employment structure are significant.

Table 3. Structure of employment (E) and value added (VA) in regions of Poland 1995-2001 (period average, in %)

Region (voivodship)		Agriculture	Industry and Construction	Services
Dolnośląskie	E	11.4	34.8	53.8
	VA	4.4	39.1	56.5
Kujawsko-pomorskie	E	21.0	31.0	48.0
	VA	6.0	36.8	57.2
Lubelskie	E	41.1	19.4	39.5
	VA	9.8	29.5	60.7
Lubuskie	E	12.4	34.8	52.8

	VA	5.3	31.9	62.8
Łódzkie	E	21.0	32.8	46.2
	VA	5.6	35.5	58.9
Małopolskie	E	27.5	29.8	42.7
	VA	4.0	36.5	59.5
Mazowieckie	E	21.4	25.0	53.6
	VA	4.8	29.6	65.6
Opolskie	E	18.2	37.7	44.1
	VA	8.0	39.6	52.4
Podkarpackie	E	33.2	28.0	38.8
	VA	6.0	38.5	55.5
Podlaskie	E	39.4	21.7	38.9
	VA	10.5	27.9	61.6
Pomorskie	E	11.5	30.5	57.0
	VA	3.8	35.4	60.8
Śląskie	E	6.7	46.4	46.9
	VA	1.8	45.5	52.7
Świętokrzyskie	E	34.8	28.1	37.1
	VA	8.1	35.0	56.9
Warmińsko-mazurskie	E	20.0	29.0	51.0
	VA	9.5	31.9	58.6
Wielkopolskie	E	19.3	34.5	46.2
	VA	8.5	37.3	54.2
Zachodniopomorskie	E	8.7	30.2	61.1
	VA	5.8	30.7	63.4

Source: Kwiatkowski, Kucharski, Tokarski 2004

Although the labour productivity in agriculture (measured by value added per employee) is well below average in certain regions, labour productivity in the service sector is well above average (Kwiatkowski, Kucharski, Tokarski 2004).

The Świętokrzyskie, Podlaskie, Podkarpackie, and Lubelskie regions can be regarded as typically agricultural. They are located in the eastern part of Poland and are characterized by a dispersed agrarian structure (small farms) with a predominance of private farms which appeared in the communist era. During the transition period these farms acted as “containers” absorbing excess labour, reducing social tensions in the labour market (Kwiatkowski, Kucharski, Tokarski 2004). By the end of the 20th century these containers had blown up, uncovering and diffusing unadjusted labour resources into the labour market, thus increasing its segmentation. As mentioned before, the transition period was accompanied by weakening and even collapsing branches of industry. However, the relative role of industry is still large in some regions: the Śląskie and Dolnośląskie but also the Opolskie, Lubuskie, Wielkopolskie and the Kujawsko-Pomorskie regions. The high level of industrialization in the Śląskie region comes from the mining and metal industries, which have been facing advanced restructuring in the final phase of the transition. Large shares in services, which are a testimony to modern economic structures, can be found in the Mazowieckie Region (capital region, i.e. it includes Warsaw) and Northern Poland (the Zachodniopomorskie, Pomorskie, Warmińsko-Mazurskie), where the large shares of services are mostly associated with tourism.

Regions differ also with respect to their GDP per capita. The highest GDP per capita is the Mazowieckie region, and the second one is the Slaskie region, which is the most industrialized part of Poland. The lowest values are found in eastern Poland (the Lubelskie, Podkarpackie, Podlaskie regions) but also in the Warminsko-Mazurskie, Swietokrzyskie, Opolskie, Malopolskie and Lodzkie. Interestingly, the sets of regions with the highest and lowest GDP per capita haven't changed over the period of transition, and these differences have tended to deepen over time. In 1995 GDP per capita in the Mazowieckie region was 64 per cent higher than the lowest regional GDP while in 2002 the difference peaked at 98 per cent (Kwiatkowski, Kucharski, Tokarski 2004). Crucially, regional gaps in GDP per capita are closely linked to regional variations in labour productivity (GDP per employee). The Mazowieckie and Slaskie regions have the highest level of labour productivity, followed by the western regions. The lowest are in eastern, agricultural regions, namely the Lubuskie, Podkarpackie, Podlaskie regions. Regional differentiations in wages are considerably lower than that of labour productivity but cover the same map: the Mazowieckie region has the highest wages, followed by the Slaskie Region and eastern regions with the lowest wages.

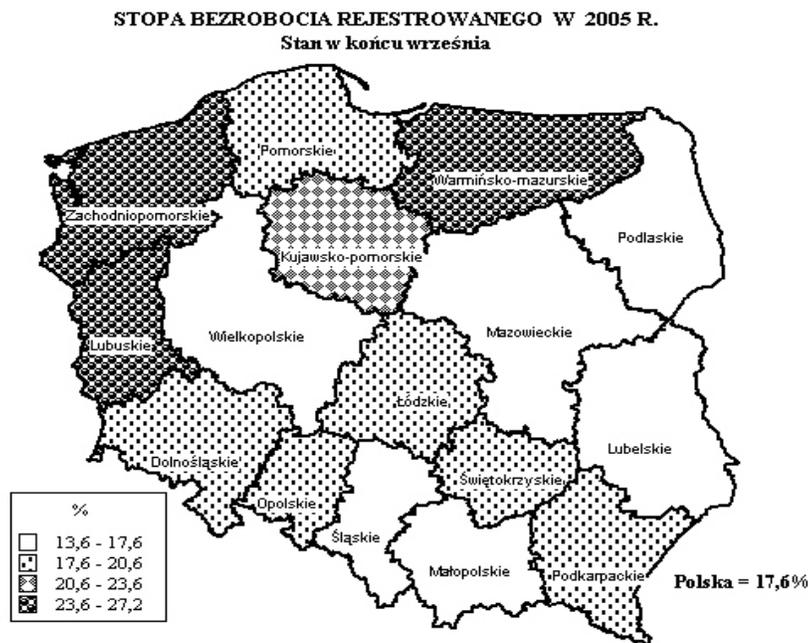
The regional map of unemployment is also interesting. The three groups of regions identified in the analysis of employment structure, GDP per capita and productivity levels, are present with regard to unemployment rates as well. The shock of the systemic transformation made regions vulnerable to its effects to differing degrees. The first group of regions is defined by the process of agricultural restructuring. Among them are the biggest inheritors of the centrally planned economy: the Warminsko-Mazurskie, Zachodnipomorskie, Lubuskie, Pomorskie and Kujawsko-Pomorskie regions, which experienced restructuring that was not protected by government measures, leading to a large drop in labour demand and thus the emergence of high unemployment. The second group of regions is dominated by traditional industries which experienced a strong drop in labour demand. Among them are the Lodzkie, Dolnoslaskie and Lubuskie regions.¹ The smallest decrease in labour demand was in the three regions with modern economic structures, i.e. with high shares of services in the employment structure: the Mazowieckie, Malopolskie and Wielkopolskie regions. The economies of these regions managed to adapt quite flexibly to meet the requirements of the market-driven economy. Their adaptation was enhanced mainly by the agglomeration effect of the cities of Warsaw, Krakow and Poznan (Kwiatkowski, Kucharski, Tokarski 2004).

The general unemployment rate in Poland mirrors the dynamics of the transformation process, which was conditioned by changes in the economic structure (e.g. sectoral restructuring). The unemployment rate rose rapidly from 1992 (12 per cent) to 1995 (16.2 per cent), and then started falling due to the stabilization of the restructuring process (10 per cent by 1998). The unemployment rate started rising again in 1999 and increased very quickly up to the end of 2005. After mid-2006 the unemployment rate started falling, reaching 14.8 per cent in the November of that year. This may have been the result of different factors that may or may not

¹ The fall in demand in heavy industries was fairly mild and dispersed over time. Soft not shock measures were implemented during the process of restructuring the heavy industries. This was achieved thanks to the strong pressures of trade unions who managed to win special treatment from the state.

have been related to joining the EU: economic growth effect, forwarded seasonal demand (due to a mild winter) in agriculture, construction and services, and systematic outflow of labour and systematic inflow of remittances.

Chart 4. Unemployment rate in regions (voivodships) in 2005 (the end of September)

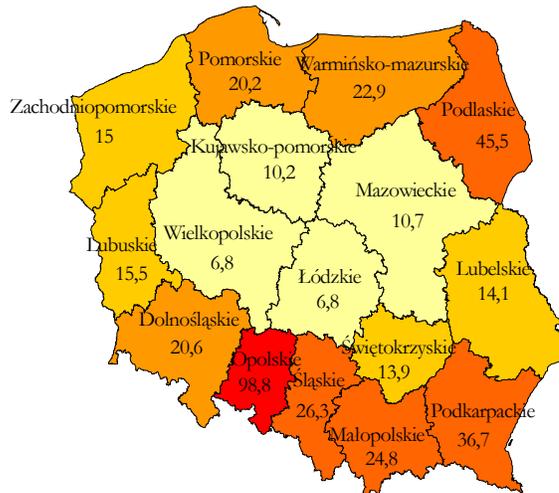


Source: Central Statistical Office

Poland also experiences the problem of hidden unemployment, which is mostly related to work in the black economy and/or seasonal work abroad. This is the best example of the increasing segmentation of the Polish labour market, with a primary sector with well-paid, stable jobs and a secondary sector (Piore 1979) with '3 D' jobs (difficult or dull, dangerous, dirty). This structure, as discussed earlier, may also perpetuate the mismatches of supply and demand that are responsible for the skill shortages.

Taking all of these factors together, it can be seen how a strong propensity to inter-regional migration could be one of the characteristics of the Polish labour market. In fact, inter-regional mobility is very low in Poland (inter-regional rates amounted to 0.2-0.3 per cent of the population), which may perpetuate regional skill shortages and create unfulfilled demand. Inter-regional flows depend on regional variation in GDP per capita as well as on regional variations of unemployment rates. The econometric analysis of E. Kwiatkowski, L. Kucharski, T. Tokarski (2004) found that the regional variation in GDP affected migration outflows more strongly than the regional variations in unemployment rates. The below map of Poland shows how the regional outflow of population mirrors regional macroeconomic changes (see chart 5).

Chart 5. Emigration from Polish regions per 1000 inhabitants in 2002 Census



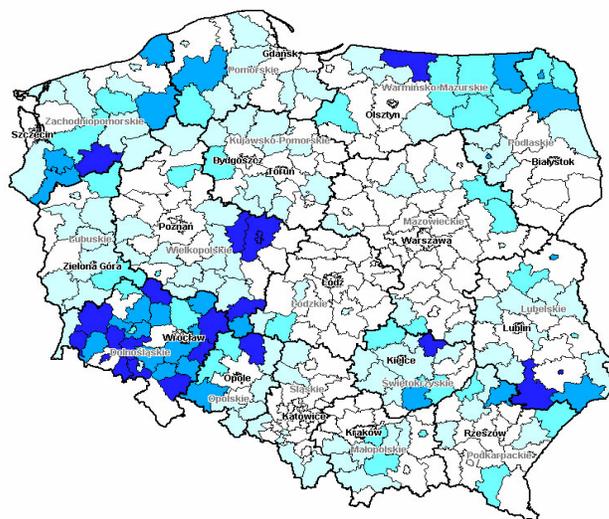
Source: Central Statistical Office

Data derived by the Central Statistical Office from the Central Population Register for 2004 show that 18,877 people emigrated from Poland, while 9,495 people immigrated to Poland. However, other sources that do not draw on the registration of permanent departures from Poland and those sources of receiving countries indicate that emigration from Poland has been strongly increasing since the end of the 20th century, a trend that has accelerated with Polish membership of the European Union since May 1st 2004.² Data compiled from the Labour Force Survey show that in the second quarter of 2005 approximately 225,000 Poles stayed abroad for more than two months for work purposes, as compared with 193,000 in the corresponding quarter of 2004 and 106,000 in the same quarter in 2000 (SOPEMI, Kepinska 2005). The portrait of post-accession migration from Poland is a mixture of continuity and change. The portfolio of countries receiving migrant workers from Poland is revised somewhat, without new destinations replacing old destinations (Germany still predominates), yet with the proportional representations shifting (the United Kingdom and Ireland gaining). Change is occurring mainly through the substitution of legal migration for illegal migration, with the young and the better-educated in the migration stream, and with those who migrate for the purpose of studying (SOPEMI, Kepinska 2005).

² One should note that today the migration outflow is much lower than in the decades of communism – mainly in the 1960s-1980s decades of the 20th century (Iglicka 2001). However, the *dynamics* are much bigger. Unfortunately the Polish data do not capture this outflow because they relate only to those who left Poland permanently. Labour market sources in receiving countries inform us mostly of the dynamics of emigration from Poland and not of the stock of Polish migrants. E.g. the PPS Number system in Ireland informs us of the number of Poles who appeared in Ireland (not necessarily in the labour market). When we match the PPS Number issued with employment details we can learn more about those who had commenced their employment. No Irish source gives data on the stock of migrants from Poland in Ireland, either working, non-working or unemployed. The number of PPS Numbers allocated to Polish Nationals from January 2004 to November 2006 was 183,106. Of this number, 125,720 had employment details recorded under their PPS Number. We have more information from British migration sources (Labour Force Survey (LFS), Work Registration Scheme (WRS), NINO) but still we do not have information on the stock of migrants from Poland. According to the LFS 104,000 Poles were in the UK by the end of 2005; according to WRS 197 000, according to NINO 171 000.

Poland still experiences pendal mobility – a phenomenon of the transition period. Pental mobility reflects the movement of a person on a swing: people are pushed out from their homes in order to earn good money in the destination country and then quickly pulled back to in order to spend the money. This movement generates the main source of the household’s income and also makes the majority of people involved in this movement economically inactive in Poland. This has created a new form of migration, called, as based upon a survey of the Centre for Migration Research, ‘incomplete migration’, which means temporal migration abroad without becoming rooted in another country. This is mostly about being outside Poland, which is often connected to work in a secondary segment of the labour market (Jazwinska, Okolski 2001). Chart 6 reflects the situation and establishes that incomplete migration affects mostly peripheral regions or those – e.g. Opolskie – who were linked historically with neighbouring countries to Poland (Jonczy 2006). Germany still predominates: seasonal migration from Poland to Germany persists as a major migratory outflow – in the first three quarters of 2005 approximately 305,000 contracts were issued for seasonal jobs in Germany, as compared to 307,000 in 2004 as a whole, and 292,000 in 2003 (SOPEMI, Kepinska 2005).

Chart 6. Rates of seasonal workers in the economically active population in Poland (%)



Mapa 1. Udział pracowników sezonowych w ogóle aktywnych zawodowo (w %)

4,01 - 6,71	(21)
3,01 - 4	(29)
2,01 - 3	(35)
1,01 - 2	(101)
pon. 1	(163)

Source: Łukowski, Kaczmarczyk 2004

4. Education gaps

The process of transformation also covered the education system in Poland. Until 1989 the education system was autonomous in practice and also very loosely connected to the labour market. The first years of transformation mostly reflected a low correlation between education programmes and education levels with the needs of the labour market. In particular, the lack of matches between occupational education and the labour market has generated a high rate of unemployment among those graduating from vocational schools. The system of occupational education was mainly blamed for generating this unemployment (Kwiatkowski 2000): excessively narrow educational perspectives made it difficult for graduates to change occupation and specialization (i.e. it was difficult to move into another industry). Furthermore, the liquidation of occupational schools put occupational education in limbo and it is still subject to inertia. No substitution measures have been implemented in order to narrow future skill gaps. A net effect is that there are nowadays very few vocational schools. With deepening skill shortages and limited access to state programmes helping to alleviate these gaps (e.g. occupational training courses), employers have taken vocational education into their own hands and train workers on the site. This is often connected with very quick, unsystematic, ungrounded, narrow training which may lead to exploitation. Skill shortages as revealed by the data (see next section) reflect the existing education gaps in Poland.

The other side of the coin of the education gaps relates to the emergence of new occupations in areas such as: information, telecommunication, Internet and information technologies; biotechnology and its applications; environmental protection; sea and seabed exploitation; servicing regional integration process; modern financial operations and e-banking, e-trade; health care, health promotion and home assistance for elderly people; information, popular culture and entertainment industry; education and e-learning (Borkowska, Karpinski 2001). Specialists in some of these areas already exist in the Polish labour market, some need to be educated or properly trained in order to fill the gap, while others need to be imported in order to narrow existing skill gaps and even more importantly future skill gaps.

5. Skill shortages in Poland – what have the data³ revealed?

Poland is now facing skill shortages and the gaps are worsening. Poland faces, for example, a shortage of: engineers, welders, ironworkers, upholsterers, bricklayers, drivers and crane operators. Fourteen per cent of employers call for workers and in fact have problems in finding proper skills, which in the end may limit the firm's productivity. The problem has been increasing: at the beginning of 2004 8.2 per cent of employers had called for skills while in 2005, after EU enlargement in 2004, the number had increased to 14 per cent. The skill gaps vary across branches and regions. E.g. every fourth furniture producer in Poland cannot find proper skills while two years ago only every tenth had problems. In the forestry industry the situation is critical: every third employer has problems in finding proper skills while before enlargement this was only every fifth one. In the construction sector, which is about to

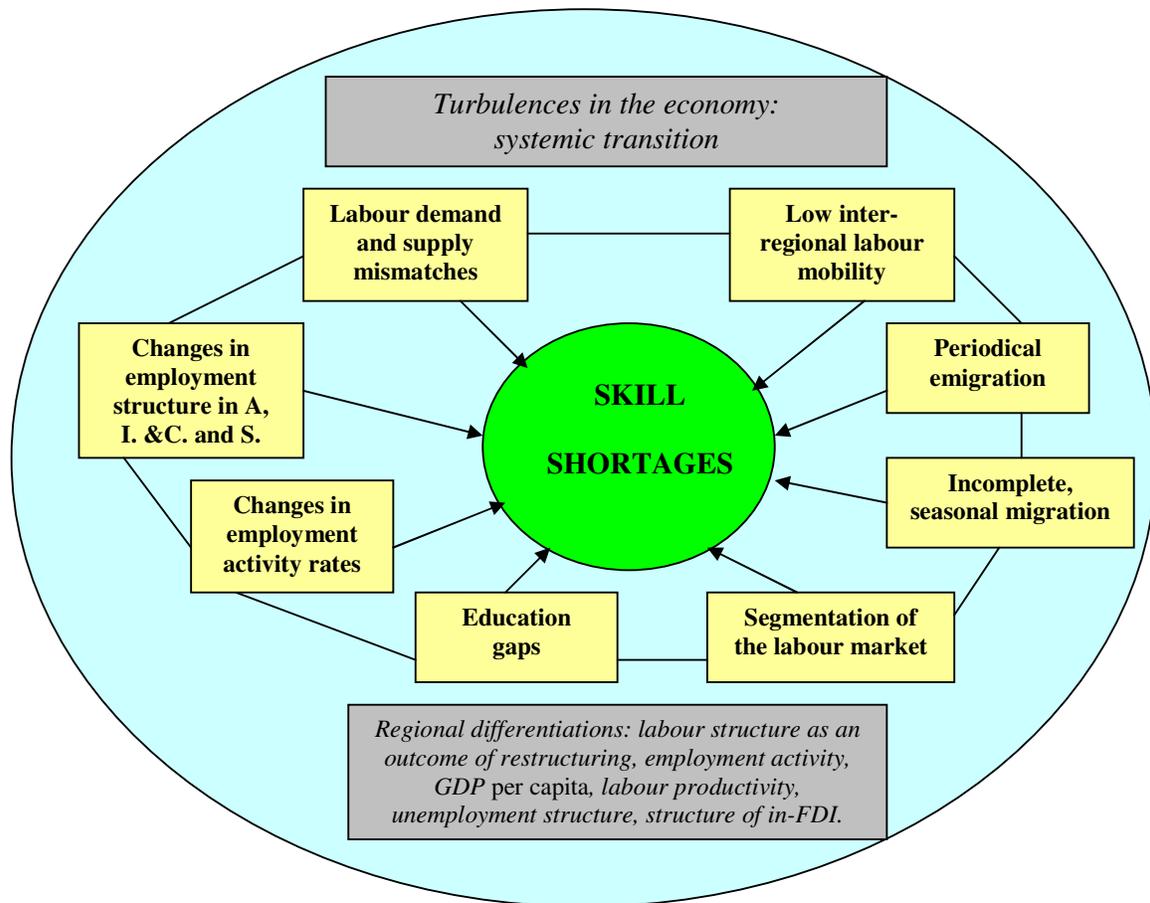
³ Data extracted from Central Statistics Office.

boom in Poland, every fifth company cannot find workers while before enlargement only 3.7% of construction companies suffered from shortages. In the electronics sector in 2005 22.7 per cent of companies called for workers, while before May 1st 2004 this was only 2.2 per cent. Finally, in the car industry in 2005 20.8 per cent of companies suffered from shortages in contrast to 7.4 per cent before enlargement.

6. Causes and implications of skill shortages in Poland – a synthesis and conclusion

One needs to assume that Poland is experiencing skill shortages at the same time as an outflow of labour and high unemployment. This is caused by a constellation of factors which surely operate in combination. Chart 6 reflects all of the factors derived from the above analysis. Among the factors causing skill shortages one needs to include: changes in the labour structure; labour demand and supply mismatches; changes in employment activity; segmentation of the labour market; incomplete migration; periodical migration; low inter-regional labour mobility; education gaps.

Chart 6. Constellation of factors causing skill shortages



Source: own analysis

The combination of factors causing skill shortages may lead to different implications in the labour market.

Implication 1: Deepening mismatches of supply and demand across sectors, regions and occupations may lead to disharmony and may deepen disequilibrium in the labour market.

Implication 2: The high share of agriculture in the employment structure and the low share of services may lead to slow adaptation to the global market, resulting in high long-term unemployment and low employment activity rates.

Implication 3: Low inter-regional labour mobility may lead to the maintenance of the *status quo* of skill shortages and skill surpluses, which may result in a considerable waste of labour and the enlargement of labour pools, which in turn may deepen the systemic transition gaps between regions.

Implication 4: Segmentation of the Polish labour market with an enlarging secondary sector may lead to a growing excess of labour along with increasing shortages, which may lead to an (unevenly) increasing demand for foreign labour.

Implication 5: Lack of fit between the education system and labour demand may progressively complicate the situation in the labour market as a result of the development of new technologies on the one hand and from the narrowing specialization of the economy, which along with changes in the education system hadn't been properly managed, on the other. These gaps could create an urgent need for the recognition of new occupations and specializations as well as changes in the hitherto existing occupations in order to meet labour market requirements. Otherwise skill shortages will be an endogenous defect of the transition process, which can be cured only by recruiting labour from outside Poland.⁴

Implication 6: In the short-term, periodic emigration may be a solution for high unemployment (i.e. unemployment is exported) but in the long-term this may be symptomatic of a 'brain drain'. Incomplete migration both in the short- and long-term may lead to labour market disharmonies because people working abroad seasonally prefer to be inactive in the Polish labour market. This also means the deactivation of created, existing skills, to the detriment of the Polish economy.

⁴ Indeed, Poland has created visa programmes for Belarusian and Ukrainian workers with this in mind. See also Bruff's papers on Ireland in this theme.

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