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Regional Labour Market Developments in Transition: A Survey of the Empirical Literature

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Abstract

We summarize the empirical literature on regional labour market development in transition. This literature suggests that transition has been associated with increased regional disparities and there is some indication of polarisation. Capital cities and regions closer to EU-borders developed better and increased integration has also contributed to divergence. Spill-overs within countries, however, tend to be small. Regional disparities are also unlikely to diminish through migration, wage flexibility and capital mobility. Migration is lower in most transition economies than in the EU and capital mobility tends to reinforce existing regional disparities. Only wage flexibility is higher than in most European labour markets.

JEL Classification: P25, R23, P23
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1. Introduction

Over the past decade the transition countries experienced significant structural change due to transition to a market economy and increased integration in the world economy. In virtually all of these countries this led to a substantial increase in regional disparities. Starting from a situation of an extremely equal distribution of economic activity as measured for instance by employment rates and wages during socialism, these economies developed regional disparities which parallel or even exceed those of many European economies.

This development raises a number of issues relating to the causes for regional disparities, the efficiency of labour market mechanisms such as wage flexibility, migration and new firm creation in equilibrating regional labour markets and appropriate policies to deal with the uneven development of regions in transition. Assessing labour market conditions, as well as the ability of labour markets in transition countries to deal with regional disparities, is of primary importance from an economic point of view, because regional mismatch of workers and work opportunities may be a cause of high and persistent unemployment and because in many countries substantial funds are devoted to subsidising poorer regions with the aim of reducing regional disparities. Thus understanding the workings of regional labour markets in transition may be an important contribution to combating national unemployment and may help to increase the efficiency of regional as well as labour market policy.

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Furthermore, with the accession of a number of transition countries to the European Union (EU) additional issues arise. These concern the use and administration of EU structural funds, the optimal timing of accession to the European Monetary Union and the end of derogation periods for freedom of movement of labour and services. Analysing regional developments in the new member states can contribute to a better understanding of each of these issues. For instance, analysing regional labour market adjustment mechanisms can provide insights on the flexibility of labour markets, which is important for an assessment of the viability of a monetary union as well as of the appropriate structural funds policy. In addition, high and persistent regional disparities may have repercussions which go far beyond narrow economic analysis, which may reach as far as the disintegration of existing countries.[2] Thus understanding the causes and potential remedies of regional disparities is also of a wider political importance.

Finally, from an analytical point of view, the experience of the transition economies of Central and Eastern Europe and the former Soviet Union provides an opportunity to analyse the workings of nascent market economies. In these economies in the last one and a half decades a market system was gradually developed from a centrally planned system. This was accompanied by output decline, resource reallocation, trade reorientation and institutional reforms (see: Campos and Coricelli, 2002). As a consequence transition economies provide a natural testing ground to address some of the central questions of regional economics such as the role of institutions in regional development, the effects of trade re-orientation and globalisation on location of economic activity and on the capability of regional economies to adjust to increasing regional disparities.

Given both the analytic as well as political importance of developments in transition, it is not surprising that a number of previous surveys of the transition literature exist. These have focused on various aspects such as macro-economic developments (Campos and Coricelli, 2002) labour market developments (Boeri, 2000, Svejnar, 1999), enterprise restructuring (Djankov and Murrell, 2002, Kornai, Maskin and Gérard, 2003) and regional developments (Ferragina and Pastore, 2005 and 2007) and present the background for this survey.

Campos and Coricelli (2002) and Svejnar (1999) present overviews over macroeconomic developments and labour market research in transition economies. While both these surveys do not consider regional disparities they present important stylised facts on the macroeconomic and labour market environment against which regional developments took place. In particular Campos and Coricelli (2002) argue that while the determinants of the relative importance of various factors affecting the heterogeneous growth experiences of transition economies are likely to remain part of the research agenda for some time to come, transition has been associated with a set of stylised facts which they summarize under the headings of a massive decline in output, a substantial reallocation of resources (both capital and labour), a spectacular reorientation of trade towards western European countries and a collapse and restructuring of institutions.

Similarly, Svejnar (1999) stresses the substantial national differences among transition countries and makes comparisons with mature market economies. In

[2] Fidrmuc, Horvath and Fidrmuc (1999) argue that the economic reasons for disintegration of Czechoslovakia were high regional disparities between what is now the Czech Republic and Slovakia.

particular with respect to this second topic he suggests that in the more advanced Central and Eastern European (CEE) countries labour markets quickly developed a set of stylized facts that parallel those of mature market economies: "firms in all CEE economies started adjusting employment to output changes and the estimated elasticities rapidly rose to levels that are by and large comparable to those in western economies" (p. 2827) and "wages started to vary systematically with revenues per worker, suggesting that rent sharing appeared as a phenomenon in all CEE economies" (p. 2833). Furthermore, the early literature summarised by Svejnar (1999) finds that transition was associated with an increase in returns to human capital and that reductions in generous unemployment benefits at the beginning of transition only had a modest impact on unemployment rates.

Boeri (2000) by contrast focuses on labour market flows. He shows that labour market flows during transition – in contrast to prior expectations – were characterised by relatively low flows from employment to unemployment but high flows from employment to employment and into inactivity. Thus the substantial increase in unemployment rates experienced in almost all transition economies at the outset of transition, was due to low escape probabilities from unemployment. Furthermore, he shows that the massive structural change experienced by transition economies was achieved with relatively low firm level churning rates. In consequence labour market flows remained small in transition despite substantial structural change. Building on these stylised facts as well as the fact that although formally highly educated, the workforce in transition was also relatively narrowly qualified, he proposes a model, which is able to capture these stylised facts and performs a number of policy simulations, to explain how labour policy and transition interacted to lead to the high and persistent unemployment found in transition.

More closely related to this paper Ferragina and Pastore (2005 and 2007) survey the literature on regional labour market development in transition from a theoretical perspective. They argue that the optimal speed of transition (OST) theory (see Aghion and Blanchard, 1994 and Boeri, 2000) provides two possible explanations for high and persistent disparities in regional unemployment rates. In the one case (termed H0 by Ferragina and Pastore, 2007) regional unemployment rate disparities arise from different equilibrium outcomes of transition with high unemployment rate regions experiencing similar labour market flows as low unemployment regions in all periods but early transition and little correlation between measures of restructuring and regional unemployment. In this case high unemployment regions suffer from low job creation rates. In the second case (termed H1) regional disparities reflect different speeds of restructuring. In this case high unemployment regions are characterised by higher worker flow rates than low unemployment rate regions and correlations between regional unemployment rates and measures of restructuring should be high. Based on these two hypotheses Ferragina and Pastore (2007) find that the evidence presented in the literature they survey favours an interpretation where persistent unemployment rate disparities reflect differences in the speed of restructuring and isolate a number of supply and demand side factors which affect regional labour market flows and unemployment rates, such as the concentration patterns inherited from the previous regime, the advantages of urbanised regions to take advantage of trade integration and FDI as well as market access and the educational attainment of the labour force.

In this paper we also summarise the empirical literature on regional development in transition. In contrast to earlier contributions we, however, focus on the empirical literature for a wider set of countries than previous surveys, review the literature on regional growth in transition and pay special attention to regional labour market adjustment. We organise our discussion around three central issues covered by this literature. First, in the next section, we focus on results concerning the size and development of regional disparities. We show that aside from the common macro-economic developments surveyed in Campos and Corricelli (2002) most transition economies also experienced a rapid increase in regional disparities in early transition which turned out to be stable over time. In addition we show that while sectoral structural change was large in all countries there are substantial regional differences in this indicator too. However, our results as well as those in the literature suggest that these differences do not follow easily visible patterns.

Second, in section three we review the literature on the long-run causes for regional disparities in transition. In this section aside from reviewing the literature on long-run regional labour market developments we also summarize studies that focus on the determinants of regional growth in transition countries. We find that the major differences between regional growth in transition and mature market economies seem to be the privileged position of urban agglomerations (in particular capital cities) and openness to international trade and FDI's in shaping regional growth. This suggests that a substantial part of the divergence process during transition can be explained in terms of differences in initial strengths of regions and their interaction with the capability to adjust to market oriented reforms. We, however, also find that mono-industrialisation, which was often considered an important aspect of regional development in much of the early literature, was a less important impediment to growth. Furthermore, we argue that one of the missing elements in the analysis of regional developments in transition is the lack of analysis concerning the potential asymmetric impact of transition policies on regional development.

Third, in section four we summarise the literature on regional labour market adjustment in transition and develop on the topic of comparison with mature market economies by summarising the literature on regional labour market adjustment in transition and comparing results to those for pre – 2004 EU member states. We argue that by and large regional labour market adjustment mechanisms are within the realms of what could be expected from most EU economies. In particular labour mobility is lower in most transition economies than in the EU, investments primarily go to regions which are already performing better and evidence on wage flexibility suggests that wages are only slightly more flexible than in EU labour markets, which are often considered sclerotic and incapable to adjust to asymmetric shocks. Section five, finally, concludes the paper and identifies a number of areas on which, in our opinion, future research should concentrate.

2. Size and development of regional disparities in transition

While in the majority of the literature on regional development in transition national data sets have been used, recently there has been an increased interest in comparative work. This was primarily conducted on privately collected data sets and Eurostat's Regio data base. For the purpose of this survey we have access to the

AccessLab/Regspec dataset[3] (see Iara and Traistaru, 2002 and Iara et al. 2004 for descriptions), the Cambridge Econometrics Database[4] and Eurostat data. In addition we have some limited data available on Russia. These data (table 1) provide information for different time periods and different regionalisations of the countries considered. This causes a number of problems, which make direct comparisons of results, across countries and country groups as well as over time, difficult. In particular transition countries differ substantially in geography and regional autonomy granted to subnational administrative bodies. For instance in some of the smaller countries (e.g. Slovenia) first tier regions may cover territories of just over 100.000 inhabitants that do not have regional authorities. By contrast in the larger transition economies such as Russia first tier regions cover territories which exceed the area of large EU countries by a factor of over 2, extend across a number of climatic zones and enjoy substantially higher regional autonomy, since Russia is a federal state. Clearly this will have implications for the findings of research.

Table 1: Regional breakdown of transition countries

Country	Tier of regions	Number of regions	Average population per region	Time period for which data is available
Bulgaria	NUTS III	28	309,162	a) 1991-1998 b) 1999-2005
Czech Republic (after 1998)	NUTS III	14	730,314	b) 1999-2005
Czech Republic (before 1998)[1)]	okres	77	137,773	a) 1991-1998
Hungary	NUTS III	20	509,385	a) 1991-1998 b) 1999-2005
Poland (after 1998)	NUTS III	41	792,226	b) 1999-2005
Poland (before 1998	Voivodships	49	779,248	a) 1991-1998
Romania	NUTS III	41	566,017	a) 1991 -1998 b) 1999-2005
Estonia	NUTS III	5	305,306	a) 1991-1998 b) 1999-2005
Latvia	NUTS III	5	470,980	b) 1999-2005
Lithuania	NUTS III	10	348,130	b) 1999-2005
Slovenia	NUTS III	12	165,784	a) 1991-1998 b) 1999-2005
Slovakia (after 1996)	NUTS III	8	667,463	b) 1999-2005
Slovakia (until 1996)	okres	38	139,646	a) 1991-1998
Russia	Oblast	79	1,823,684	c) 1992, 1995 1998 - 2002

Notes: a) RegSpec/AccesLab data base (see Iara et al 2004) includes indicators on wages, unemployment rates and employment as well as population b) New Cronos Database includes indicators on GDP per capita, unemployment rates and employment rates. c) Data supplied by Goskomstat 1) before 1996 only 76 regions, NUTS = Nomenclature of Territorial Units for Statistics.

[3] This data has been used inter alia by Bornhorst and Commander (2006), Brülhart and König (2006), Huber (2004), Gacs and Huber (2005), Fidrmuc (2004)

[4] This includes sectoral GVA estimates back to the beginning of the 1990s for some regions of the new EU – Member States and has been used inter alia by Herz and Vogel (2003) and Vuksic and Tondl (2003).

Furthermore, in particular in the CEE countries, regionalisations were repeatedly reformed during transition. This leads to complications in comparisons of regional disparities over time. In the Slovak Republic in 1996 the current Nomenclature of Territorial Units for Statistics (NUTS) II and NUTS III regions replaced the old system. The pre-existing 38 third tier regions were abolished and new regions were introduced, so that data pre- and post 1996 are incomparable. In Poland a new regionalisation was introduced in 1998. In other cases it is possible to overcome changes in regionalisation, since at least the lowest tier regions remained unchanged (as in Slovenia and in the Czech Republic since 1998) and comparisons can either be conducted at this level or data can be aggregated. Finally, harmonisation of regional statistical information among countries has progressed less far than for data on the national level; thus data definitions differ among countries.[5] This has implications when comparing results across countries, in particular when administrative data such as on registered unemployed are influenced by national institutions.

2. 1 Large and stable but increasing regional disparities

Despite these problems a number of similarities in regional development exist among transition countries. As shown in table 2, which uses the most recent data available from Eurostat, regional disparities in unemployment rates, employment rates and GDP per capita levels are comparable to those in many of the high unemployment countries in the EU. Differences between the regions with the highest and the lowest unemployment rate range at a factor of around 3 in all but the smallest transition countries (Slovenia, Latvia, and Lithuania). *G*DP per capital levels ranged from 70 - 80% to over 200% of the national average in the majority of transition economies and differences between regions with the maximum and minimum employment rates ranged from 10 percentage points to over 25 percentage points at the NUTS III level of regional aggregation in the year 2000.[6]

The development of these sizeable regional disparities is closely linked to the process of transition. In socialist times regional disparities in wages and employment rates tended to be small. For instance Huber and Palme (2001) show that the ratio of regions with the highest wages relative to that with the lowest ranged at about 1.3 in the Czech Republic and at around 1.2 in Slovakia in the 1980s. Once market oriented reforms were undertaken, regional disparities quickly increased. To illustrate this, figures 1 and 2 display the coefficient of variation (i.e. we present evidence on sigma – convergence) in regional unemployment rates and wages for the sample of transition economies for which we have data available for the time period from 1992 to 1998, from the Regspec/AccessLab data set, and of unemployment rates and GDP for the period from 1999, using the Eurostat sources.[7]

[5] These caveats are most relevant for the early transition period (see Iara et al, 2004 for details).

[6] Regional disparities for countries not covered by our data may be even larger. Babetski, Kolev and Maurel (2003) note that for the Kyrgyz Republic unemployment rates among the six regions of the country range from 13.1% to 45.9% in 1997 and 11.9% to 49.5% a year later.

[7] We use the coefficient of variation because it is a dimensionless indicator. This is important when measuring regional disparities in nominal values, since otherwise inflation and currency reforms impact on measures of regional disparities.

Table 2: Indicators of regional labour market disparities in transition economies at NUTS III level

Registered Unemployment Rate 2005

	Average	Minimum	Maximum	Coefficient of variation	Capital City Region
Bulgaria	12.4	5.4	22.5	0.400	7.6
Czech Republic	7.8	3.5	14.5	0.428	3.5
Hungary	7.8	4.3	12.0	0.238	4.7
Poland	18.2	9.6	27.3	0.223	13.8
Romania	7.8	3.8	16.3	0.402	6.8
Estonia	8.1	5.7	14.6	0.402	7.6
Latvia	9.1	6.2	13.1	0.250	7.9
Lithuania	8.4	6.0	10.8	0.172	8.6
Slovenia	6.7	4.2	11.0	0.306	4.9
Slovakia	15.9	5.3	24.7	0.433	5.3
Russia (2002)	8.0	1.4	44.0	0.563	1.4

GDP per capita (Mio. Euro) 2004

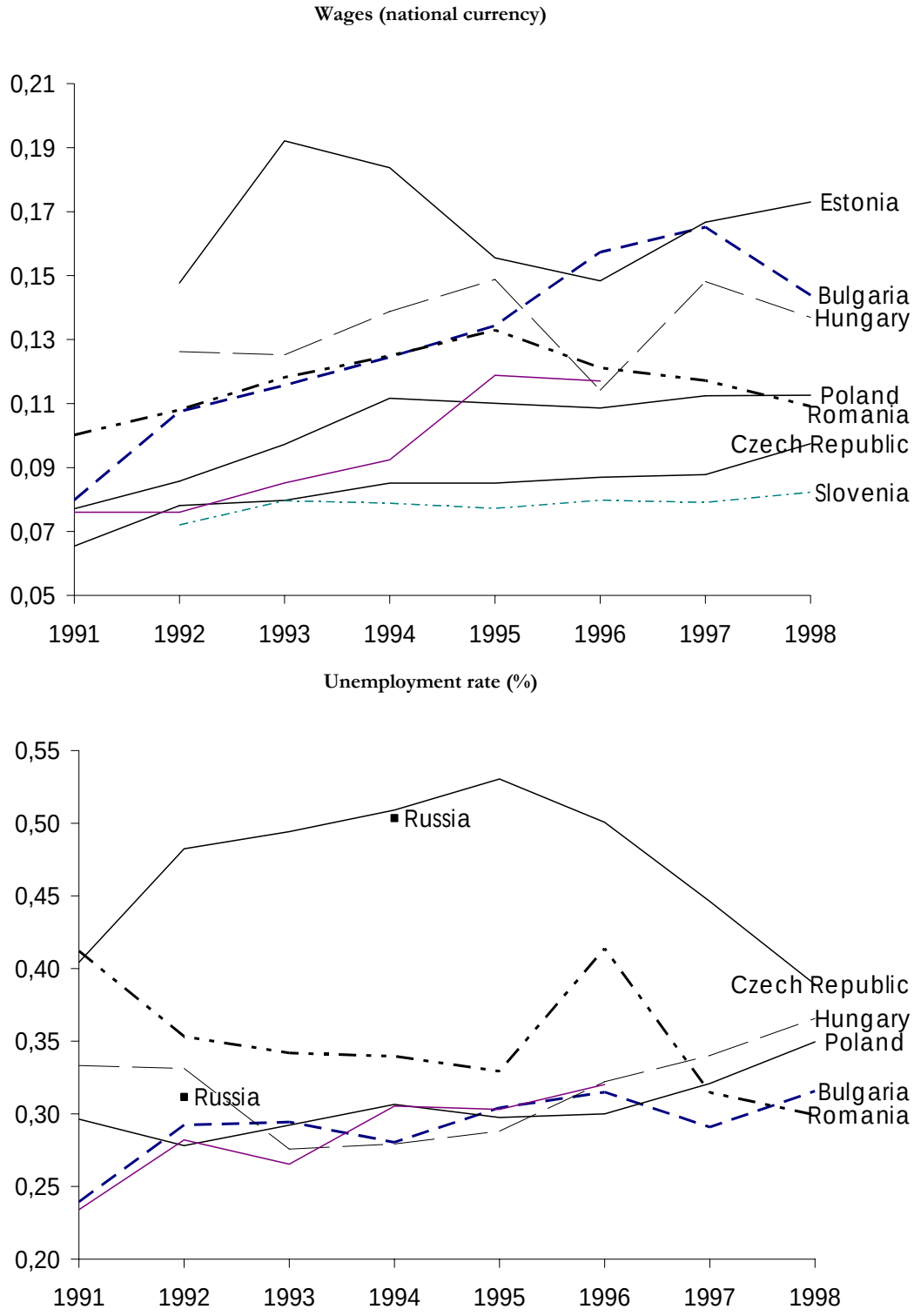
	Average	Minimum (% of average)	Maximum (% of average)	Coefficient of variation	Capital City Region
Bulgaria	2,128	78.0	225.6	0.284	4,800
Czech Republic	8,028	83.1	222.3	0.345	17,849
Hungary	6,929	63.6	241.3	0.380	16,718
Poland	5,082	61.2	296.1	0.417	15,050
Romania	2,575	54.2	215.3	0.291	5,544
Estonia	5,724	72.2	188.9	0.446	10,810
Latvia	4,075	55.0	217.0	0.523	8,844
Lithuania	4,576	60.7	165.4	0.272	7,568
Slovenia	11,684	77.6	160.6	0.211	18,760
Slovakia	6,472	59.0	221.6	0.472	14,342

Employment rate 2000(in % of total population)

	Average	Minimum	Maximum	Coefficient of variation	Capital city region
Bulgaria	35.61	31.40	42.62	0.0778	42.6
Czech Republic	45.24	40.42	58.29	0.0964	58.3
Hungary	36.90	28.53	51.01	0.1507	51.0
Poland	37.67	28.67	52.27	0.1362	-
Romania	-	-	-	-	-
Estonia	39.69	35.67	48.93	0.1199	48.9
Latvia	42.66	35.66	47.14	0.0927	47.1
Lithuania	41.43	38.10	48.82	0.0710	48.8
Slovenia	-	-	-	-	-
Slovakia	37.19	30.78	57.58	0.2131	57.6
Russia	41.10	22.14	53.18	0.1401	48.2

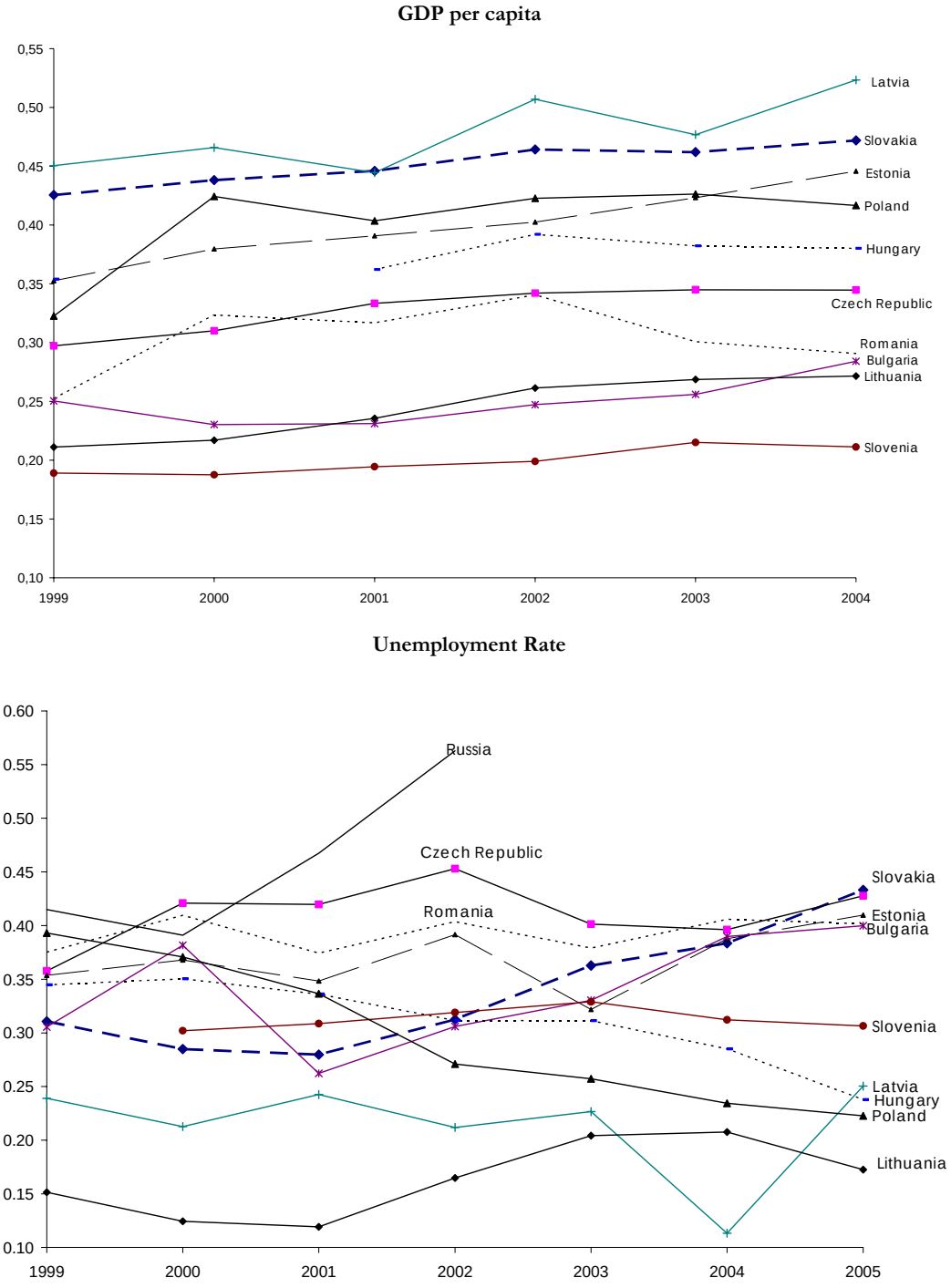
Source: Eurostat, New Cronos and Goskomstat.

Figure 1: Coefficient of variation in wages and registered unemployment rates in transition countries 1991/2-1998



Coefficient of variation is measured across regions (see table 1 for number of regions),
Source: Regspec/AcessLab data base.

Figure 2: Coefficient of variation in GDP per capita and unemployment rates in transition countries 1999-2004/5 (NUTS III)



Coefficient of variation is measured across regions (see table 1 for number of regions) Source: Eurostat, New Cronos and Goskomstat. – Romania at Nuts II level.

Sigma divergence of regions was particularly pronounced in early transition in terms of wage levels, which, as measured by the coefficient of variation, increased by over 50% in countries such as Slovakia, Poland, the Czech Republic and Bulgaria and somewhat more modestly in Hungary, Slovenia and Estonia. The only exception is Romania. Similarly, for regional unemployment rates there has been a – less pronounced[8] - tendency of divergence in all countries with the exceptions of the Czech Republic and Romania.[9] In the later transition period by contrast divergence in unemployment rates has almost come to a stop in all countries but Russia and Slovakia, but regional disparities in per capita GDP levels still increased. None of the countries in figure 2 had lower GDP disparities in 2005 than in 1999.

Thus sigma-divergence seems to have been the predominant feature of regional development in transition. The magnitudes and timing of this divergence processes differed among countries, however, with some of the early starters to market oriented reforms such as Hungary or Slovenia diverging more slowly and divergence proceeding less slowly in many of the more advanced transition economies in the later transition period.[10] This tendency is also widely documented in the literature. For the CEE countries Boeri and Scarpetta (1996) were among the first to document the large increase in regional labour market disparities. Smith (1998), Gorzelak (1996), Petrakos (1996), Römisch (2003) and Solanko (2003) present evidence on sigma divergence of unemployment, wages and GDP per capita for the CEE countries and Russia.

More recent studies using data for longer and more recent time periods by Perugini and Signorelli (2004), Marelli (2007) and Tyrowicz and Wojczik (2006) suggest that divergence in transition countries are weaker but still pronounced in later transition. In particular Marelli (2007) comparing the EU15 and the 10 new EU member states finds that increasing regional disparities were a feature of early transition, but also documents that rates of β-convergence are still insignificant in the new member states for GDP per capita and employment rates in the period from 1999 to 2005. Perugini and Signorelli (2004) analysing total employment rates as well as employment rates of females and the elder for the period 2000-2003, find that sigma convergence was limited to the employment rate of the elder but that both conditional and unconditional beta convergence characterised the regional development in the 10 new EU member states. Tyrowicz and Wojczik (2006), finally,

[8] This lower divergence in unemployment rates may partially be related to measurement issues. Regional unemployment is positively correlated to non-participation in all transition countries but Lithuania and Romania, indicating that at least some of the labour force is discouraged from searching for employment (see EBRD, 2003 and Hazans, 2007). Thus disparities in the degree of under-utilization of labour are higher than implied by registered unemployment data.

[9] In the Czech Republic this is, however, solely due to the statistical effect of extremely low average unemployment rates in the beginning of transition.

[10] The evidence on the later transition period suggests that with respect to GDP per capita the process of unconditional sigma divergence was associated with some conditional beta convergence. Recent studies performing econometric analyses of conditional beta convergence for individual transition countries and/or CEEC regions (see table 4) typically find conditional beta convergence for value added. For most of the studies which focus on cross-section regressions the parameter of convergence is typically in the order of magnitude of 2%-3% annually. Furthermore, as in the literature on mature market economies, studies using panel econometric techniques find much higher rates of converge.

using monthly unemployment rates for 1999 to 2006 find divergence in unemployment rates in Poland.

Table 3: Correlation of unemployment rates, wages and participation rates in the regions of transition countries 1992 – 1998 and 1999 - 2005

	Registered unemployment rate	Participation rate[a)]	Wages
	1992-1998	1992-1998	1992-1998
Bulgaria (NUTS II)	0.46	-	0.89
Czech Republic (okres)	0.65	-	0.84
Hungary (NUTS III)	0.90	0.86	0.91
Poland (old voivodships)	0.90	0.85	0.95
Romania (NUTS II)	0.42	0.96	0.78
Estonia (NUTS II) (1995-98)	0.97	0.98	0.46
Latvia (NUTS III)	-	-	-
Lithuania (NUTS III)	-	-	-
Slovenia (NUTS III)	-	-	-
Slovakia (okres)	0.80	0.68	0.93
Russia (Oblast)	0.63		0.94

Source: Regspec/Accesslab, Goskomstat a) in % of total population

	Registered Unemployment rate	Participation Rate	GDP per capita
	1999-2005	1999-2004	1999-2004
Bulgaria	0.474	0.666	0.906
Czech Republic	0.815	0.881	0.995
Hungary	0.828	0.928	0.941
Poland	0.757	0.232	0.984
Romania	0.310	0,467	0.831
Estonia	0.912	0.976	0.994
Latvia	0.595	0.837	0,997
Lithuania	0.331	0.556	0.973
Slovenia	0.822	0,210	0.989
Slovakia	0.989	0.896	0.999

Source: Eurostat, New Cronos. – all data at NUTS III level.

At the same time the ranking of regions has remained relatively stable throughout transition. Thus regional disparities in wage and unemployment rate levels have been highly persistent. Regions showing better performance at the outset also tended to perform better in later phases. Correlation coefficients over time periods for different indicators of regional labour market conditions (table 3) are high and significant in almost all countries. There are, however, some exceptions. In particular in Bulgaria, Romania and Russia, which may be considered countries, which were slightly slower in their reform process, some important changes in the distribution of unemployment rates occurred in early transition. In Estonia similar observations apply to wage levels. In addition econometric evidence by Römisch (2003) for the CEE countries, Profit (1999) for the Czech Republic, Tyrowicz and Wojczik (2006) for Poland and Solanko (2003) as well as Granberg and Zaitseva

(2002a) for Russia suggest that divergence has been accompanied by an increased polarisation of regions. The distribution of regional unemployment rates and GDP per capita has become increasingly bi-modal with two distinct groups arising: one large group characterised by high unemployment and relatively low income levels, and another smaller group with low unemployment and high income levels.

2. 2 Substantial structural change at the regional level

Aside from divergence and polarisation tendencies, transition has also been associated with substantial structural change in the composition of employment in the last decade. Boeri and Terrel (2002) report that the private sector employment shares in CEE countries increased to 67.7% from virtually zero, while the share of services in total employment increased by 10.1 percentage points from 1989 to 1998. These stylised facts are of particular interest in the context of regional development during transition because on the one hand transition itself can be seen as a massive process of reallocation of resources and thus it has to be expected (as stressed in Ferragina and Pastore, 2005) that structural change is closely linked to different growth experiences and because, on the other hand, during the last two decades there has been a growing academic and policy interest in the spatial impact of economic integration, related to a general concern that structural change accompanying integration is likely to result in increasing regional specialisation and concentration of industrial activity, which in turn may cause increased regional disparities and may make regions vulnerable to asymmetric shocks. In such a case, industry-wide demand shocks may become region-specific and short-term adjustment costs may be high if firms are closed or relocated.[11]

Recently, there has thus been an increased interest in regional structural change in transition. For instance Traistaru, Nijkamp and Resmini (2002) investigate patterns of regional specialisation and geographic concentration of manufacturing and their determinants in Bulgaria, Estonia, Hungary, Romania and Slovenia using regional manufacturing employment data for the period 1990-1999. The overall findings, however, as well as the existing country studies (see: Spindrova, 2002, Redei, 2001, Traistaru and Pauna, 2002, Damijan and Kostevc 2002, Fainshtein and Lubenets, 2002) suggest few common features. Regional specialisation has increased in Bulgaria and Romania, decreased in Estonia and has not significantly changed in Hungary and Slovenia.

Furthermore, patterns are also relatively heterogeneous concerning the development of border regions as well as region types. As shown by Resmini (2002) regions bordering the EU are found to be less specialised than the national average in Estonia, Hungary and Slovenia while they are more specialised in Bulgaria. Regions bordering other accession countries are found more specialised compared to the national averages in Estonia and Hungary, while in Bulgaria and Romania this type of regions are less specialised. Regions bordering other countries (non EU, non accession countries) have become more specialised with the exception of Romania. Non border regions are less specialised in Bulgaria and Hungary and more specialised in Romania and Slovenia.

[11] This point has been forcefully made in the literature by the so called "new economic geography" models surveyed in Fujita, Krugman and Venables (1999).

This heterogeneity also applies to other indicators of structural change. Römisch and Ward (2005) show that, while employment in services is still 17 to 29% lower in the average region of the new member states than in the pre-2004 EU members, changes in employment as well as occupational and educational structure of the population show little consistent variation with respect to regions classified by industrial specialisation and urbanisation. This is also documented in figure 3, where we use data on sectoral employment shares from 1992 to 1998 in a limited number of transition economies for which we have data (Czech Republic, Hungary, Romania and Bulgaria) and data from the EUROSTAT Regio database for 2000 to 2005 on 9 CEE countries to document that structural change has varied substantially across regions by plotting the structural turbulence indicator[12]. As can be seen sectoral employment shares shifted most dramatically in regions closer to the west in both Hungary and the Czech Republic in early transition, while in both Romania and Bulgaria a more even dispersion of such structural change emerged. Furthermore, in the later transition period (i.e. from 2000 to 2005) we find no easily visible regional differentiation of sectoral structural change.[13]

There is a stronger link, which is broadly consistent with theoretical expectations between regional characteristics and location of industries. Traistaru, Nijkamp and Longhi (2002) find that labour intensive industries tend to locate in regions with labour abundance, regions endowed with researchers attract research intensive industries and industries with large economies of scale tend to locate in regions close to industrial centres (the capital cities in Bulgaria, Romania and Hungary; European markets in the cases of Estonia, Hungary and Romania).

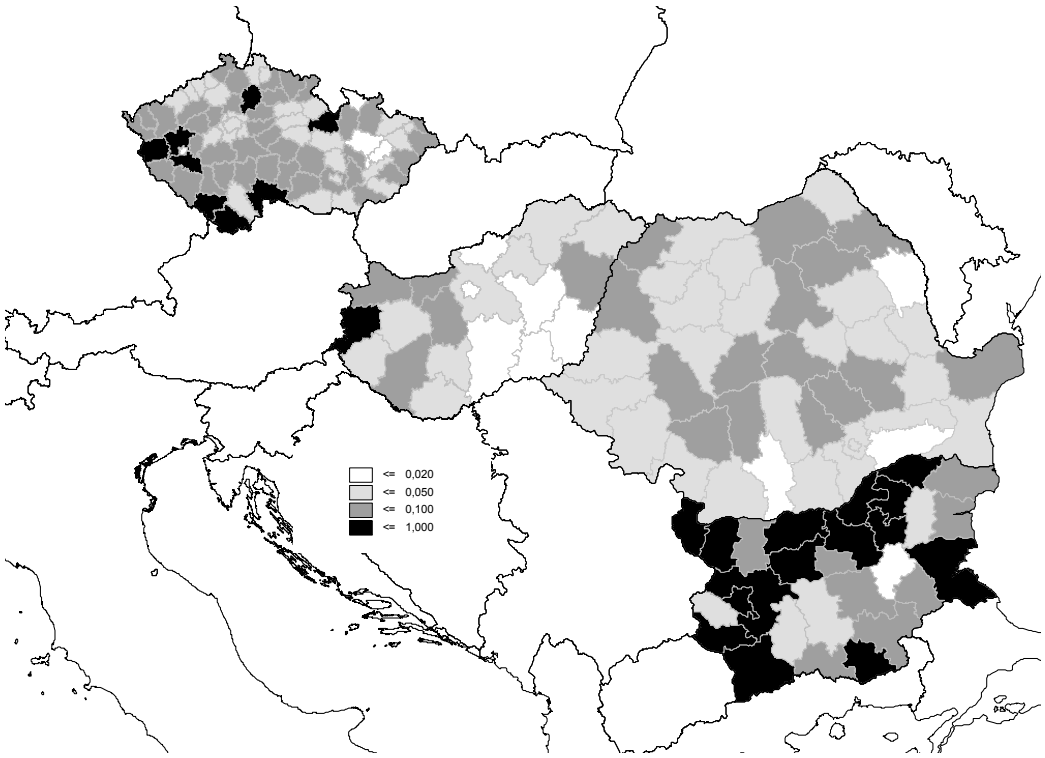
3. The long-run causes for regional disparities

Given the evidence of divergence, polarisation as well as structural change and the long run nature of labour market disparities, the question arises what have been the causes for the differentiation of regional growth processes and to what degree aspects of transition policy and structural change are linked to regional growth. The early literature on regional development in transition in this respect was often concerned with the issue to what degree the "legacies of socialism" were responsible for the rapid development of regional disparities and stressed that disparities in underlying "growth factors" were large in transition countries already pre-transition.

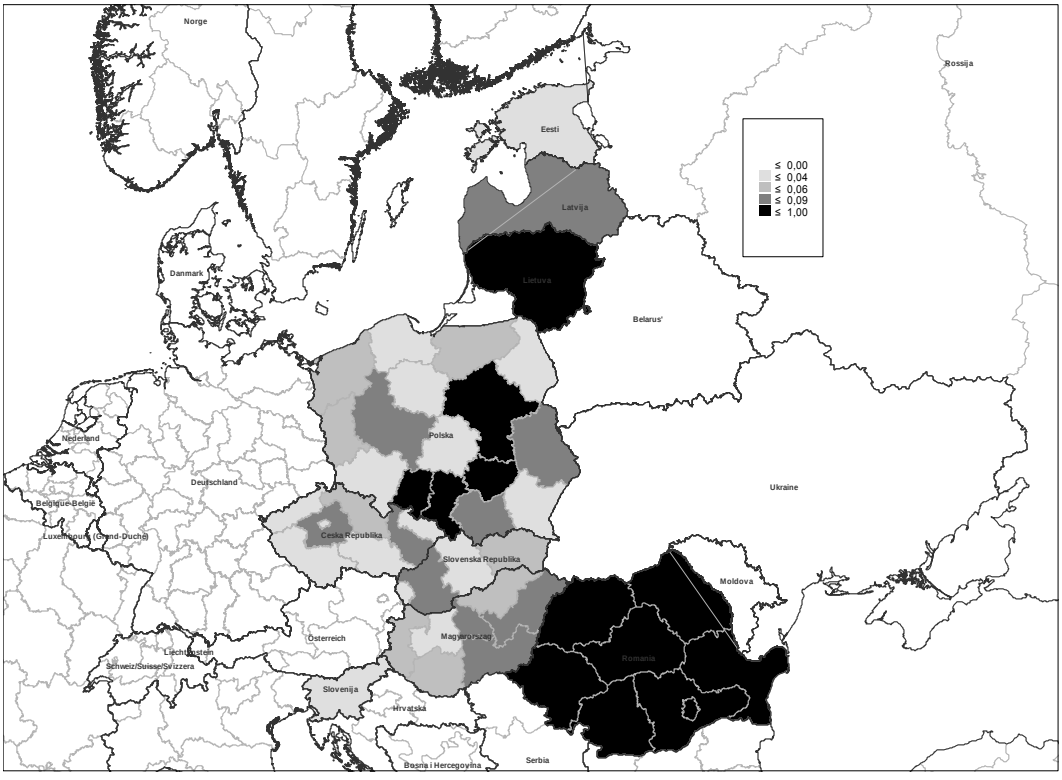
[12] This is defined as half the sum of changes in sectoral (agriculture, industry and services) employment shares between 1992 and 1998 in the region i.e. as $s_j = 1/2 \sum_i abs(s_{ijt} - s_{ijt-1})$ with s_{ijt} the share of sector i in region j at time t. It takes on values between 0 (no changes in shares) and 1 (complete change from one sector to another). It can be interpreted as the minimum number of employees changing sector of employment within a given time period.

[13] To test whether regional typologies and/or vicinity to borders had a significant impact on the speed of structural change as measured by the turbulence indicator we ran regressions on a family of country dummies, region type dummies (taken from Scarpetta Huber, 1995 for the 1992 to 1998 period and Römisch and Ward, 2005 for the later period) and a dummy variable for the border region. In the first period only the border dummy is significant, in the second period only national variables were significant.

Figure 3: Regional – Sectoral Structural Change
1992 – 1998



2000-2005



Note: Figure displays turbulence indicator (see: footnote 11 for a definition) of structural change at the sectoral level

For instance Smith (1998) in his early account of regional disparities in Slovakia presents evidence that regions, which turned out with worse performance in transition, were usually industrialised in the socialist era. He argues that regional development in transition cannot be understood without reference to history. Under socialism regional policy put more emphasis on the goal of regional equalisation and bringing work to workers than is the case in most market economies. This, paired with the tendency of socialist industrial policy to generate large enterprises, led to a situation where new production locations were developed mostly as a site for a plant of much larger firms. In consequence newly established plants in regions experiencing "socialist industrialisation" tended to serve low skill assembly and production, only. Many of them did not have research and development, design or even "sales" functions (Smith, 1998) and were controlled entirely from centres of large firms in large cities. Unsurprisingly these plants were also the first to experience economic problems in transition. This was aggravated by the fact that often only one such enterprise served one community or even region.

Thus the transition economies entered market oriented reforms with an extremely uneven distribution of factors which determine regional growth in mature market economies. Dostal and Hampl (1994) document that 51% of all Czech firms had their central office in Prague in the 1960s, that the vast majority of export firms (i.e. firms with permission to export and import from western market economies) was located in Prague and that in the 1980s almost 60% of the R&D departments resided in the capital. Similarly, Dmitrieva (1996) in her study of the regional disparities in the Soviet Union shows that focusing on differences in living conditions (rather than economic outcomes) sizeable regional disparities existed already in the pre-transition era.

In consequence a substantial body of research has gone into the search for the causes of regional differentiation of development in transition, trying to identify a variety of factors contributing to divergence. This research has followed a variety of approaches and methods (such as descriptive analysis, case studies and regression analysis on both macro-economic as well as micro-economic data) which makes a direct comparison of results difficult. Thus to achieve a minimum degree of comparability in table 4 we first present the results of studies which use regression analysis on a regional level to explore the determinants of regional growth and labour market outcomes in transition and augment these findings with evidence from other strands of the literature in the discussion below. Following this approach a number of conclusions can be drawn.

Table 4: Regression Results Concerning Regional Growth and Labour Market Developments

Authors	Dep. variable	Countries (Regions, Period)	Method	Sectoral Specialisation &Location Variable	Coeff.	Investments Infrastructure Education Variable	Coeff.	Trade and FDI Variable	Coeff
Herz and Vogel (2003)	Δln(GVA per empl.)	CR,HU,PL (31, 1991-2001)	Cross section analysis	Agriculture[a]	-0.19	% Medium or high ed.	0.03/ 0.21		
				Industry[a]	-0.20/ -0.25	Employment rate	ins.		
	Δln(GVA p.c.)	CR,HU,PL (31, 1991-2001)	Cross section analysis	Agriculture [a]	-0,12/ -0.19	% Medium or high ed.	0.07/ 0.29		
				Industry [a]	-0.17/ -0.23				
Iara (2004)	Δln(GDP p.c.)	Hungary (20 , 1996-200)	Fixed effects panel analysis	Agriculture [a]	-0.30/ -0.18	Δln(Capital Stock p.c.)	0.09/ 0.10	ln(FDI Density)	ins.
				Industry [a]	ins.	ln(Employment rate)	ins.	ln(Export share)	0.07
				Δln(Herfindahl)	ins.				
Brülhart and Koenig (2005)	ln(relative wages)[c]	CR, HU, PL SK (31, 1996-2000)	Fixed effects panel analysis	Capital dummy	0.28				
				EU Border dummy	0.03				
				ln(Dist. to capital)	-0.04/ -0.05				
				ln(Dist. to Brussels)	-0.01/ -0.10				
Tondl and Vuksic (2003)	Δln(GVA p.c.)	CEE 5, (36, 1995-2000)	Cross section analysis (incl. spatial Error)	EU Border dummy	1.30/ 1.51	ln(investments)	0.07/ 0.09	ln (FDI share in GVA)	5.88
				Capital dummy	2.65	Δln(Employment rate)	ins.		
				Accessibility	ins.	Δ %Higher ed.	-0.26/ -0.31		
						Δ% Secondary ed.	ins.		
Ledyaeva and Linden (2006)	Δln(GRP p.c.)	Russia (74 , 1996-2003)	IV panel analysis			Investments p.c.	0.61/ 0.73	Export per Capita	0.04/ 0.09
								FDI (Var. measures)	ins.
Altomonte and Guagliano (2004)	Δln(GVA p.c.)	CR HU PL RO SI (31, 1995-2001)	Dyn. panel analysis	ln(Dist to capital)	0.07	ln(Investment p.c.)	0.16/ 0.23	FDI Con-centration	0.03/ -0.02
				ln(Dist to Frankfurt)	-0.01	ln(Employment rate)	ins.	FDI (Other measures)	ins
Solanko (2003)	Δln(GRP p.c.)	Russia (76, 1990-2001)	Cross section analysis	Extractive ind. [a]	0.001				
				Agriculture[c]	ins.	SME formation	0.0001		
Römisch (2003)	ln (GDP)[c]	10 CEEC (96, 1993-1998)	Cross section analysis	Primary[b]	ins.				
				Secondary[b]	ins				
				Tertiary[b]	0.92				
				Dist to West	-0.16				
				Dist to Cap	-0.001				
	ln (Unem-ployment-rate)[c]	10 CEEC (96, 1993-1998)	Cross section analysis	Primary[b]	-0.46				
				Secondary[b]	ins.				
				Tertiary[b]	0.23				
				Dist to West	0.001				
				Dist to Cap	-0.12				
Rutkowski and Przybyla (2002)	ln(Hiring rate)	Poland (49, 1997)	Cross section analysis	Sevices[a]	0.01	Poor education	-0,02		
				ln(Wages)	-0.92	Telephone lines	ins.		
				Wage dispersion	-1.27				
				Productivity	0.24				

[a] Log Share in Employment, b) employment in % of population, c) Relative to capital city CR-Czech Republic, HU- Hungary, PL-Poland, SI-Slovenia, RO-Rumania, CEE5=CR, HU, PL SK,SI, ins-insignificant, p.c.-per capita

3. 1 Sectoral specialisation and urbanisation: capital cities have shown better performance, evidence on sectoral specialisation is more mixed

First, one of the robust findings in this research is the privileged role of urban agglomerations (in particular capital cities). This can be illustrated for a subset of member states and candidate countries (Bulgaria, Czech Republic, Hungary, Poland and Romania) by employing a taxonomy of the candidate countries' regions developed by Scarpetta and Huber (1995) which has been widely used in regional labour market analysis in the CEE countries (see: Burda and Profit, 1996, Boeri and Scarpetta, 1996, Boeri and Terrell, 2002). This divides the regional units of the countries analysed into industrial, agricultural, urban and diverse regions[14]. Table 5 reports average participation rates and unemployment rates relative to the national average in 1992 and 1998 in the respective regions of the candidate countries. A value larger than one indicates that the average region of this type has shown a value higher than the national average, while a value smaller than one indicates a lower value than the national average. Urban regions - which account for a little over one-eighth of the regions, but a higher share of population - have shown substantially smaller unemployment rates and slightly higher participation rates, while other diverse regions have been characterised by substantially higher unemployment rates and both slightly lower participation rates as well as wages. Industrial regions by contrast had substantially higher unemployment rates in 1998, only - a fact that reflects industrial restructuring in many of the regions.

Table 5: Regional indicators relative to national Average by region types

	Participation rates (In % of total population)		Registered unemployment rates		Number of regions
	1992	1998	1992	1998	
Agricultural	0.90	0.95	0.93	1.03	71
Regions	(0.16)	(0.14)	(0.27)	(0.39)	
Industrial	0.97	0.98	0.99	1.11	61
Regions	(0.14)	(0.12)	(0.39)	(0.38)	
Urban Regions	1.10	1.04	0.67	0.73	26
	(0.30)	(0.19)	(0.31)	(0.33)	
Other Regions	0.96	0.96	1.20	1.18	56
	(0.10)	(0.09)	(0.30)	(0.29)	

Note: Table reports unweighted averages (standard deviations) of variables normalised by national averages for CEE countries' regions (i.e. Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia). Values in brackets are standard deviations. Source: Gacs and Huber (2005).

Similar evidence can be brought forth for almost all transition countries. Capital cities have shown better economic development than other regions. In particular all of the regression analyses summarized in table 4 which include capital city dummies and substantial descriptive evidence (see: e.g. Gorzelak, 1996, for Poland; Smith, 1998, for Slovakia; Totev, 2000, for Bulgaria; Scarpetta and Huber, 1995; as well as EPRC, 2001, for the CEE 10, Rutkowski, 2005 for Moldova and Brixiova and Volchok, 2003 for Belarus) suggest that capital cities have experienced substantially higher growth rates and lower unemployment than other regions.

[14] These regions - similarly to urban centres - have a diverse economic structure, but are characterised by substantially worse endowment with infrastructure and human capital.

Indeed the privileged position of capital cities in regional development seems to be one of the major differences of regional development in transition vis a vis mature market economies. Brülhart and Koenig (2006) find that, in average, wages are by 28% higher in the capital cities of CEE countries. Comparing their results for the CEE countries to the pre 2004 EU-member states they find that the wage bonus of capital cities is substantially higher in CEE and the wage gradient is steeper. This suggests that regional spill over effects in the CEE countries are still weaker than in pre-2004 EU member states.

By contrast, peripheral agricultural regions despite the evidence of convergence (presented in table 4) have gone through difficult times in early transition. In part this can be explained by falling agricultural income, which was caused by adjustment to world market prices of both inputs and outputs leading to higher input and lower output prices. All studies, but Solanko (2003), in table 4 which control for the share of agricultural employment find that this has a negative impact on growth. In addition the European Commission (2001) finds that poverty rates are particularly high in rural areas of the CEE countries and Blinova and Rusanowsky (2001) find that in Russia regions with a higher share of agricultural employment have higher unemployment rates, than other regions. There are, however, also important exceptions to this. Most importantly Newell, Pastore and Socha (2002) find that low unemployment regions in Poland comprise both agricultural as well as urban regions.

In addition, while some mono-industrial or mono-enterprise regions seem to have had particular labour market problems, a general connection between industrialisation and unemployment experiences is hard to establish. Studies which have focused on the link between mono-industrialisation and/or enterprise size and labour market performance of a region tend to be contradictory and much seems to depend on the competitiveness and growth prospects of the dominant industry or enterprise as well as institutional factors affecting restructuring in these regions.[15] Iara (2005) finds no significant impact of the herfindahl index on regional growth in Hungary; Huber and Ochotnicky (1995) find substantial heterogeneity in the development of mono-enterprise regions in the early stages of transition, while Traistaru, Nijkamp and Longhi (2002) find a negative correlation for many other countries. Diversified regions perform better according to the results in Traistaru, Nijkamp and Longhi (2002), but here too regional factors such as infrastructure, market accessibility or R&D potentials are more important than sectoral specialisation and concentration patterns. Finally, Traistaru and Wolff (2004) investigate regional differentials in employment changes in Bulgaria, Hungary and Romania.[16]. Using a shift-share method they find that the variance of regional employment change is driven almost entirely by region-specific factors while regional specialisation and regional competitiveness play only a minor role. This finding is also corroborated by a series of micro-econometric studies. Herzog (2000) finds that greater specialisation was positively correlated with firm level employment growth in Poland and the Slovak Republic. Similarly Scarpetta (1995) finds contradictory results

[15] See Bruha, Ionascu and Jeong (2005) for an interesting account on how the different stance of trade unions affected restructuring and outcomes in mono-industrial coal mining regions in Romania and the Czech Republic.

[16] Similar results are reported for unemployment rates in Poland, the Czech Republic and Slovakia in Huber and Wörgötter (1999) and for regional productivity growth in the same countries in Le Gallo et al (2003)

concerning the labour market outcome of mono-industrial or mono-enterprise regions.

3. 2 Location, market potential and infrastructure: international rather than national market potential has been important for driving growth

Second, the evidence presented suggests that aside from the role of urbanisation, geographical location plays an important role in regional development. In this respect all of the studies presented in table 4, which include dummy variables for the EU border regions or measures of the distance to EU borders, suggest that regions closer to the EU have higher wage level and growth.[17] In addition, substantial evidence (Crozet and Koenig-Soubeyran, 2004 for Romania, Bosco and Resmini, 2002 for a selection of transition economies, Spindrova, 2002 on Bulgaria) suggests that in particular in the CEE countries, regions with better market access to western economies experienced higher population growth, lower unemployment rates and lower reductions in employment as well as higher GDP growth rates. Border regions to the EU have profited from purchasing power inflows, foreign direct investments and higher trade exposure.[18]

Concerning vicinity to capital cities and accessibility within countries, however, evidence is more mixed. Brülhart and König (2005) find that regions that are 10% further away from the capital city can expect to have by 4% to 5% lower wage levels. Comparing their results to the pre 2004 EU-members they find that these spill over effects are small. Tondl and Vuksic (2003) find that measures of accessibility have an insignificant impact on regional growth and Altomonte and Guagliano (2004) find that being more distant from the capital has an unexpected positive impact on regional growth. This thus suggests that within country spillovers in general have been of lesser importance for regional growth than vicinity to foreign markets.

Again this finding is also corroborated by some recent micro-econometric studies. For Poland Aidis and Mickiewicz (2005) provide evidence that location in a capital city has positive effect on growth expectations in particular for SMEs and Telegdy (2005) finds a link between employment dynamics at the firm level and the distance from the Western border (i.e. with Hungary) for Romania, which may be seen as a measure of distance from the key foreign market.

In addition the evidence on the more classical growth factors (such as infrastructure and the share of the educated workforce) on regional growth is also mixed. While there is a robust correlation between regional growth and investments which suggests that a 1 percent increase in per capita investments increases GDP growth by between 0.1 to 0.2 percent in the CEE countries and even more in Russia, both measures of human capital and infrastructure endowments have an ambiguous

[17] An exception is Granberg Zaitseva (2002a) on Russia, who find no evidence of a better economic development of western border regions

[18] In line with these results the literature on border effects on the new member states among the transition countries (e.g. Kandogan, 2006 and Horvath, 2006) suggests that border effects with EU countries have fallen in the last decade while border effects with respect to other (accession or non-EU) countries have in some cases even increased in the 1990s due to the disintegration of the Commecon. This has led to marked differences in the development of border regions. Border regions to the EU have in general profited from improved market access, while external border regions and to a lesser extent border regions to other new EU member states have often shown a less favourable development (see also Resmini, 2002)

impact. Herz and Vogel (2003) find that regions with a higher educated population experienced more rapid growth but Tondl and Vuksic (2003) find a significant negative impact, which is difficult to explain in the light of the importance of human capital for growth in many other countries of the world.

In part these results may, however, be due to the multicolinearity of the controls included in such regression analysis since microeconometric analysis and studies using labour market indicators tend to find a clearer positive impact of infrastructure on labour market outcomes. Rutkowski and Przybyla (2002) find that regional hiring rates are strongly correlated with both measures of infrastructure (such as the number of telephone lines) as well as human capital but that due to co-linearity with sectoral shares, identification of the separate effect of particular infrastructure on regional hiring rates is difficult in regression analysis. Relatedly, Duffy and Walsh (2001) find that regions with the best inherited infrastructure had the highest wages and job reallocation rates and the lowest unemployment rates in Poland, and Mickiewicz, Gerry and Bishop (2005) using the same indicator as Duffy and Walsh (2001) show that firms located in regions with better infrastructure create more employment at least in Poland.

3. 3 Integration into the world economy: FDI and foreign trade play an important role in regional development

Third, integration into the world economy has undoubtedly been another important driving force of regional development. Egger, Huber and Pfaffermayr (2005) document a positive association between the rise of regional disparities and growth in foreign trade and Iara (2004) finds that aside from sectoral specialisation the export orientation of a region was the most important determinant of regional GDP per capita growth in Hungary in the period 1995 – 2000. Links to foreign markets (i.e. exporting) also play an important role supporting employment creation. Furthermore, the process of regional differentiation seems to have been closely associated with the impulse given from foreign direct investments. A number of studies (Tondl and Vuksic, 2003 for the CEE countries, Dostal, 1999, for the Czech Republic, Fazekas, 2000 for Hungary and Brock 2005 for Russia) document the strong correlation between regional unemployment, employment and GDP growth and foreign direct investments.

While studies which include both export measures as well as measures of regional FDI in growth regressions tend to find a much less significant impact of FDI on regional growth, (which suggests substantial co-linearity between these two indicators), a recent study based on firm level data by Altomonte and Colantone (2005) for Romania suggests that indeed regional growth disparities in transition are closely linked to foreign direct investments. In particular according to their results the more rapid restructuring in multi-national enterprises is a powerful driver of regional divergence in transition.

3. 4 Transition policies and structural change: the impact of structural privatisation is ambiguous, structural change is correlated with labour outcomes, research on other transition policies is rare

Finally, the impact of transition policies such as stabilisation, price liberalisation and banking reform have been less intensively researched, since in many of the

smaller transition economies most reforms were conducted on a national rather than a regional scale.[19] Regional research has thus primarily focused on the relationship between privatisation and regional development. In this literature Berkowitz and DeJong (2002 and 2003) find that faster regional large scale privatisation had a positive impact on new business formation and subsequently on employment growth,[20] and that the speed of price liberalisation is positively associated with relative regional performance. Results by other researchers focusing on the CEE countries, however, suggest that the link between the speed of privatisation and net job creation may be ambiguous (Faggio and Konings, 2003; and Duffy and Walsh, 2002). This is because in regions with more rapid privatisation, job destruction in formerly state-owned enterprises has sometimes been faster than was job creation in new enterprises. In line with this argument Scarpetta (1995) finds ambiguous results concerning the impact of the private sector share on unemployment levels, while Fazekas (1996) finds that an index of entrepreneurial capacity[21] reduces unemployment in Hungarian regions. Thus for most of the CEE countries correlations between the regional speed of privatisation and employment growth are ambiguous.

By contrast more disaggregated studies focusing on the regional determinants of job and worker flows in transition do find some systematic influence of structural change and labour turnover on labour market outcomes. Faggio and Konings (2003) report that in all countries analysed in their paper (Poland, Estonia, Slovenia, Bulgaria and Romania) there is a positive correlation between excess job reallocation and net employment growth at the regional level. They interpret this to imply that regions with more rapid restructuring have higher growth. Newell and Pastore (2006) find that high unemployment rate regions in Poland are characterised by high flows into unemployment and thus rapid restructuring, and argue forcefully against the use of aggregate restructuring indicators such as the turbulence indicator. Finally, Sibley and Walsh (2002) find that in Poland regions further advanced in restructuring are also regions with higher within regional wage disparities

For the larger countries such as Russia, where some autonomy in speed of reforms existed, in addition, some more direct evidence of an association between policies and regional disparities has been collected. Slinko, Yakolev and Zhuravskaya (2003) show that regions which give more preferential treatment to dominant industries are characterised by slower small business growth and that this preferential treatment has adverse effects on regional public finance. By contrast Ahrend (2005) finds that political orientations of regional leaders or political preferences of the population do not influence regional economic performance and that a regions'

[19] A noteable exception is Köllö (2001) who presents evidence that cuts in unemployment insurance benefits in Hungary are unlikely to improve labour market conditions in the least developed regions in Hungary

[20] Care, however, has to be taken in interpreting the causality in regressions of FDI and privatisation on employment growth. To the degree that political decision makers privatise enterprises with good growth prospects first, a positive correlation between regional employment growth and fast privatisation may arise because high employment growth facilitates privatisation and not because privatisation helps employment growth. Similarly, if foreign firms are more likely to invest in prosperous regions, a positive correlation between FDI and employment growth will be found even if FDI's do not help in creating new jobs

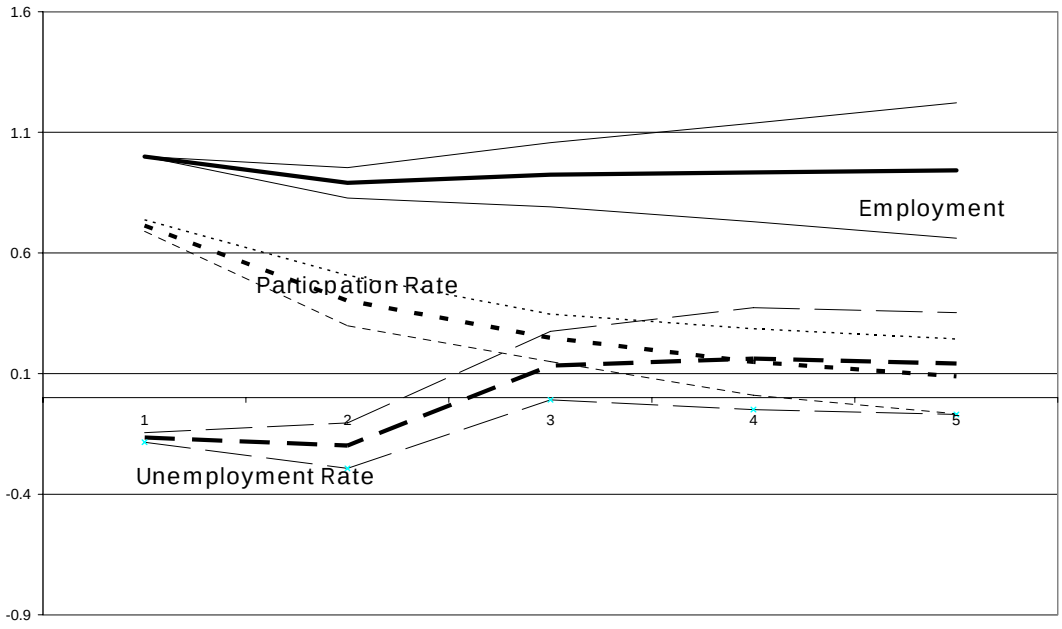
[21] This is constructed from objective indicators of entrepreneurial activity as well as from subjective indicators on attitudes of the population.

industrial structure as well as human and natural resource endowments are more important factors driving regional development in Russia.

4. The adjustment capability of regional labour markets in transition

Aside from posing questions concerning the causes for long run differences in growth paths high regional market disparities in transition also pose the question to what degree the usual mechanisms of regional equalisation on labour markets such as migration, wage flexibility, investments and changes in labour force participation can be considered viable in reducing regional disparities in transition. Recently a number of studies (Bornhorst and Commander, 2006, Huber 2004, Gacs and Huber, 2005, and Büttner, 2007) have attempted to identify the mechanisms of regional adjustment in transition. For instance Gacs and Huber (2005) identify regional labour market adjustment mechanisms to asymmetric shocks in both the CEE countries and the old EU member states by estimating a time series model widely employed in the regional evolution literature (see: Blanchard and Katz, 1992, and Decressin and Fatas, 1995). Comparing the estimated impulse response functions in this paper (see: figure 4) with those in the literature on other EU countries they conclude that the CEE countries are well within the realms of the parameters usually found for the European Union. In particular, in first round candidate countries unemployment rate reactions accommodate only a small part of the shock while employment losses are highly persistent and participation rates are an important adjustment mechanism.

Figure 4: Impulse Response of Relative Employment, Relative Unemployment Rate and Relative Participation Rate to a Unit Shock in Relative Employment



Source: Gacs and Huber (2005), Figure 2: Figure reports impulse responses to a unit shock on labour demand based on single equation robust Arellano-Bond estimations of log relative employment, log relative participation rate (participation rate defined as labour force to total regional population) and log relative employment rate for the CEE regions of Bulgaria, the Czech Republic, Hungary, Romania, Slovakia, Slovenia and Poland. Thick lines are Impulse Responses thin lines associated 95% confidence intervals. see Gacs and Huber (2005) for details.

These findings are in line with much of the remaining literature which shows that regional asymmetries of shocks were rather large during transition and that the regions hit most severely by adverse shocks show little sign of recovering from employment losses by increased job creation and that adjustment via labour market participation – as in most EU-countries - plays an important role. [22]

4. 1 Migration is low in transition countries and has fallen despite increasing regional disparities

Inter-regional migration, however, is low even relative to the EU. The World Bank (2006) in a large comparative study finds that internal migration[23] in the new member States of the EU is low and has fallen during transition. Fidrmuc (2004) comparing internal migration in the Czech Republic, Poland, Hungary, Slovakia and Slovenia with that in Italy, Spain, the Netherlands and Germany concludes that migration in general is ineffective in reducing regional disparities in the CEE countries[24]. Kwiatkowski, Kucharski and Tokarski (2004) show that the regions with the lowest migration rates in Poland are economically disadvantaged agricultural, low wage-low productivity regions. Ederveen and Bardsley (2004) in a meta study present evidence that migration in the CEE countries is less reactive to differences in unemployment rates. Andrienko and Guriev (2004) state that overall migration in Russia is low, although Russia is the only country – aside from Hungary – where migration rates approach European levels (table 6).

Table 6: Migration indicators by country and year

	Gross MigrationRates[1)]		Net Migration Rates[1)]		Share of net Migration[1)]	
	1992	**1999**	**1992**	**1999**	**1992**	**1999**
Czech Republic	0.57	0.50	0.009	0.063	1.64	12.61
Estonia	0.87	0.53	0.203	0.024	23.24	4.64
Hungary	1.49	1.32	0.094	0.054	6.30	4.11
Poland[a)]	0.37	0.29	0.053	0.033	14.48	11.20
Romania	n.a.	1.23	n.a.	0.013	n.a.	1.09
Slovenia	n.a.	0.30	n.a.	0.021	n.a.	7.15
Slovakia[b)]	n.a.	0.22	n.a.	0.023	n.a.	10.25
Russia[c)]	2.20	1.80	0.187	0.219	12.8	8.8
Kyrgyz Republic[d)]	0.73	1.77	n.a.	n.a.	n.a.	n.a.

Notes: Gross and net migration rates are measured in % of the population. Gross migration is the share of people moving across regional borders within the country in a year. Net migration is calculated as half the sum of absolute values of net migration across regions, the share of net migration is the ratio of net to gross migration a) Polish data in first column are 1990 figures b) Slovak data are from the year 2000. n.a. – data not available c) Russian Figures for 1992 and 2000. d) Figures calculated from Babetskii, Kolev and Maurel (2003) first column average 1989-1993 second column average 1994-1998 1) Figures are in %. Source: Eurostat New Cronos, Huber 2004a, Andrienko and Guriev (2003), EBRD.

[22] This accords well with the results of the literature on the differences in labour market institutions between old and new EU member states (e.g. Burda 1998, Ederveen and Thissen, 2007, Boeri and Garibaldi, 2006) which concludes that most of the CEEC have opted for a typical continental European model of labour market governance and that institutional differences between new and old member states are not dramatic and can thus not explain differences in labour market performance among these countries.

[23] We refer to internal migration as the relocation of place of residence across regions within a country in this section.

[24] Fidrmuc (2004a), however, shows that migration intentions are more reactive to regional labour market conditions in the Czech Republic, which, seems due to the higher education groups only (see also Fidrmuc and Huber, 2007)

This said there seems to be some important variation across countries. While in the countries analysed by Fidrmuc (2004) low migration rates are the rule, Hazans (2004) finds that in Baltic countries migration is relatively high by international standards, Cseres-Gergeley (2002) finds higher short distance moves in Hungary, and Kallai (2003) shows that migration in Romania is comparable to many of the more flexible EU labour markets. Finally, Andrienko and Guriev (2004) find that in Russia migration is reactive to regional living conditions, a finding that is not common for most of the other transition countries.

Results also show that during transition migration has fallen substantially relative to the socialist era although regional disparities have widened. Indeed this "stylized fact" seems to apply even more ubiquously than low migration rates themselves. The World Bank (2006) for a wider range of new member states, Fidrmuc (2004) for the big CEE countries, Hazans (2004) for the Baltic states, Kallai (2004) for Romania and Andrienko and Guriev (2003) for Russia all find this decline in migration rates only Babetskii, Kolev and Maurel (2003) find an increase in migration in the Kyrgyz Republic. A further difference seems to be that in some countries (in particular the Baltic countries) this decline ends shortly after transition, while in others (in particular the CEE countries) it continues well into the mid-1990s.

Finally, the evidence on commuting – which may serve as a substitute for migration – collected in an important recent comparative study by the World Bank (2006) indicates that commuting indeed may facilitate transition out of joblessness, but also suggests that the extent of commuting may be too low to compensate for low migration. In a similar vein the remaining literature suggests that commuting may be insufficient to reduce regional disparities in transition. An early study by Erbenova (1995) finds substantial commuting in the Czech Republic, which is corroborated by indirect evidence in Burda and Profit (1996). Boeri, Burda and Köllö (1998), however, cite evidence that in Hungary commuting in excess of 20 kilometres could cost as much as the minimum wage and travelling more than 50 kilometres would cost more than the average wage, while Hazans (2003) finds that in the Baltic countries between 19.3% (Latvia) and 23% (Lithuania and Estonia) of the full time employees commute across municipal borders. This seems small given that commuting is measured across communal borders.[25] Hazans (2003), however, also finds that commuting has contributed to reducing regional labour market disparities. Finally, Bartus (2004) analyses the commuting behaviour of Hungarian job finders. He finds that travel to work costs severely constrain the commuting distance of unemployed workers. Long-distance commuting seems conditional on employers' contribution to travel to work costs with only 15 per cent of the commuters self-financing travels. Estimating a model of commuting decisions, he finds that travel to work costs limit the distance of self-financed commuting to 20 km for women and 50 km for men.

Low and falling migration in the face of large regional disparities present somewhat of a puzzle. According to economic theory (Todaro, 1969, Harris and Todaro, 1970) migrants move from places with low expected income to regions with high expected income in order to maximise lifetime utility. Therefore, high regional

[25] In Austria for instance around 42% of the employed (i.e. double as high a share) commuted across communal borders in 1991.

disparities should, all else equal, increase the incentive to migrate rather than lower migration. Although some studies (Hazans 2004 for Latvia, Fidrmuc and Huber (2004) for the Czech Republic, Cseres-Gergely, 2004 for Hungary) find some evidence of an increasing responsiveness of migration to wages, explanations for these low and declining migration rates are needed if policy is to effectively increase migration. A number of such explanations have been put forward. These include high nation-wide unemployment rates, decreasing efficiency of spatial matching, increasing skill mismatch, policy interventions as provided through social and regional policy, other unmeasured income components such as black market income or income from subsistence farming, inefficiencies in the housing markets, changing expectations of migrants, liquidity constraints and firm employment and pay strategies to limit mobility in particular in mono-enterprise regions (see: Friebel and Guriev, 2005, Decressin, 1994, Faini et al. 1997)

The evidence presented in existing studies on which of these factors is most important in driving low migration rates – while delivering a far from complete picture - suggests that a combination of liquidity constraints and housing market imperfections may go some way to explaining the low and falling migration rates. Kallai (2004) and Andrienko and Guriev (2004) provide evidence on the importance of liquidity constraints in shaping migration in Russia and Romania and Bornhorst and Commander (2006) argue that housing market imperfections are an important aspect, while Fidrmuc and Huber (2007) find house ownership to be a major impediment for the willingness to migrate in the Czech Republic and Cseres- Gergely (2004) finds that high land prices reduce and increased construction increase migration flows to a region.[26]

4. 2 Wage flexibility is slightly higher than in old EU countries

Low migration thus is a major obstacle to equalisation of regional disparities as well as to effective absorption of asymmetric shocks in transition. Evidence on regional wage flexibility, by contrast, is more mixed and suggests that wage flexibility is slightly higher than in EU labour markets. Most studies that have attempted to empirically analyse wage determination in regional labour markets in transition economies focus on the elasticity of regional wages with respect to some measure of regional labour demand such as the unemployment rate by using the cross-sectional variance in variables. In the literature on the early transition period which is surveyed in greater detail in Svejnar (1999), Boeri and Scarpetta (1996) find correctly (negatively) signed but insignificant parameters when estimating equations that relate regional wage change to changes or levels of unemployment rates, and Commander and McHale (1996) report ambiguous results for the Visegrad countries. By contrast, Kertesi and Köllö (1995), using smaller regional units, and Kertesi and Köllö (1997), using individual data for Hungary, find a significant negative impact of unemployment levels on regional wages.

Among the more recent studies Kallai and Traistaru (2001) report a significant negative impact of unemployment rates on wages in a wide variety of specifications for Romania, while Duffy and Walsh (2001) find robust and significant negative elasticities of wage levels with respect to unemployment rates using both Polish

[26] By contrast Fidrmuc and Huber (2004) as well as Kallai (2004) find little evidence of a significant effect of housing availability on migration in the Czech Republic and Romania, respectively.

regional as well as individual data from 1991 to 1996. Furthermore, Blanchflower (2001) studies the labour markets of 23 transition countries using micro-data. He finds elasticities with respect to local unemployment of between –0.1 and –0.3 which is comparable to US levels. Pastore and Verashchagina (2006), finally, find an elasticity of wages with respect to regional unemployment rates of up to -0.36 for Belarus.

Table 7: Studies on regional response of wages to unemployment rates

	Countries	Dependent variable	Elasticity with respect to unemployment rate
Kallai and Traistaru (2001)	Romania	Wage level	0.13 to –0.25
Duffy and Walsh (2001)	Poland	Wage level	0.16 to –0.11
Huber (2002)	Czech R Slovak R. Poland Hungary	Wage change	Elasticity with respect to unemployment rates is slightly higher in candidate countries than in the EU, the elasticity with respect to national unemployment rates is lower
Kertesi and Köllö (1997)	Hungary	Wage levels	Unemployment rate has significant negative impact on wage level
Kertesi and Köllö (1995)	Hungary	Wage levels (ind. data)	Unemployment rate has significant negative impact on wage level
Boeri and Scarpetta (1996)	Czech R. Hungary Poland Slovak R.	Wage change	Coefficients of change in unemployment are insignificant
Commander and McHale (1996)	Vysegrad Countries	Wage level	Substantial heterogeneity among countries, results are ambiguous
Büttner (2004)	Czech R. Poland Hungary Estonia Romania Slovakia Slovenia	wage level	regional unemployment rate is significant and correctly signed in Bulgaria, Czech Republic; Hungary; Poland Slovakia and Slovenia In these countries generally wage flexibility is higher in CEE than in Italy or Germany
Iara and Traistaru (2004)	Bulgaria Hungary Poland Romania	wage level	Significant negative impact of regional unemployment rate in all countries but Romania
Blanchflower (2001)	23 countries	wage level	-0.3 to -0.1
Pastore and Verashchagina (2006)	Belarus	wage level	-0.2 to -0.4

Source: Burda, Boeri, Köllö (1998), own research.

A few studies have also attempted to compare wage flexibility in the transition countries directly to the EU. Kertesi and Köllö (1999), find substantial instability in the parameter estimates of the wage curve in Hungary. The elasticity of wages with respect to unemployment rates increased in the years from 1989 to 1993, reaching levels comparable to Western Europe in 1993, and then increased further until 1996. Huber (2004) finds that the elasticity with respect to regional unemployment rates is slightly higher in candidate countries than in the EU, while the elasticity with respect to national unemployment rates is lower and Büttner (2007) finds that in general countries, where wage curve regressions show a significant negative impact of unemployment rates on wage levels, the coefficient is lower than in Italy or Germany[27]. In consequence - although there is some variance across countries -

[27] Some authors also used time series methods to identify the connection between wages, unemployment and prices. Welfe and Majsterek (2002) find that in Poland the price elasticity of

wage responsiveness to regional unemployment rates is about comparable to EU countries (and in some countries higher). This, however, should not be taken as a sign of high flexibility since EU countries themselves are known to have a low responsiveness of wage levels to regional unemployment rates.

4. 3 Capital mobility is likely to contribute to regional inequality rather than equalisation

Furthermore, wage flexibility on its own is of little effect in reducing regional labour market disparities if it does not entice firms to enter, invest and create new jobs in regions with high unemployment rates and low wages. Modern economic theories of regional development (e.g. Fujita, Krugman and Venables, 1999) argue that firms' location decisions are shaped by agglomerative as well as disagglomerative forces. Agglomerative forces (such as localised supply and demand networks, internal and external economies of scale, human capital spillovers and specialised infrastructure) lead to higher productivity in centres of production which may compensate firms for higher wage (and land) costs and thus create incentives to locate in high wage centres. Disagglomerative tendencies (such as the desire of firms to reduce wage and land costs, escape from high competition in central places and to serve immobile workers demand at low transport costs) by contrast create incentives for firms to locate in the periphery. Thus even with high wage flexibility new investments may not automatically flow to depressed regions since this depends not only on wages but also on the region's business environment.

The scant evidence available on firm location decisions in transition suggests that agglomeration forces prevail. Bornhorst and Commander (2006) find that, in transition countries, regions exposed to a fall in labour demand do not tend to recover employment quickly. This suggests a limited role for capital mobility. Furthermore, recent studies suggest that FDI – while having a positive impact on a region's wage and employment growth - has remained concentrated on capital cities and other centres of economic activity as well as region's closer to western European borders. Broadman and Recanatini (2001) find that in Russia close to 60% of foreign direct investments have gone to Moscow City, Moscow oblast, St. Petersburg and Leningrad while most of the other regions received less than 2% of total FDI; Fazekas (2003) provides an account of how FDI in Hungary went primarily to Budapest and more western regions. Similar facts apply to other transition economies. Pusterla and Resmini (2005) conduct an econometric analysis of regional FDI for four transition countries (Bulgaria, Hungary, Romania, Poland). They find that the choice of location of FDI in transition is primarily driven by demand rather than cost factors and that FDI do not take advantage of economic zones and industrial parks.

In addition descriptive evidence is also suggestive of the spatially concentrated nature of FDI in transition. In the last column of table 8 we display the share of total FDI located in the region of the capital city. While this data is on the number of enterprises and may thus distort findings relative to figures based on capital invested or employment at foreign owned firms, it is highly suggestive. In all countries but

wages is unity, Golinelli and Orsi (2000) find a stable long-term relationship between prices and wages in both Hungary and Poland and Bornhorst and Commander (2006) show that in Russia as in Romania and Bulgaria more rapid wage growth has no significant impact on regional unemployment rates.

Slovenia – where the smallness and proximity to EU markets may have led to a more dispersed structure of FDI – half to almost three quarters of FDIs are concentrated in capital cities.

Domestic investments and enterprise formation do not seem to compensate for this concentration of FDI. Basareva (2002) in an analysis of new enterprise formation in Russia indicates that since 1994 Russian enterprise formation has shown divergence and that new enterprises were predominantly created in the high wage low unemployment urban areas. This also applies to other European transition economies. This is evidenced in Table 8 where for a small group of countries, for which we have data, we correlate the percentage change in the number of domestic firms between 1994 and 1999 with the wage levels and unemployment rates prevailing at the beginning of the period, and for another group we use Eurostat data at NUTS II level to correlate regional investments in the period 1995-2000 (as a percentage of 1995 GDP) with GDP per capita of the regions at the beginning of the time period. In all countries (with the exception of Estonia) the net change in enterprises over this period is positively correlated with the wage level at the beginning of the period and negatively with the unemployment rate. Although these correlation coefficients are insignificant, new enterprise formation was thus higher in high wage and low unemployment regions than in low wage and high unemployment regions. Similarly, we find a positive correlation between initial GDP per capita and investment rates for all countries but Slovakia. Thus in the majority of countries investment rates were higher in regions with higher initial GDP per capita. While clearly much more research is needed before the reasons for this concentration of investments in more advanced regions are well understood, these stylized facts thus suggest that capital mobility is likely to lead to increased rather than reduced regional disparities in transition countries.

Table 8: Correlation of changes in enterprise numbers and investments with regional wage and unemployment levels in 1994.

Dependent variable	Percentage change in number of Enterprises between 1994 and 1999 (NUTS III Level) [a]				Investments 1995 to 2000 [1] [b]	Share of FDI in capitals (%)
Correlation with	Wages (1994)		Unemployment Rates (1994)		GDP per Capita (1995)	
	Including Capitals	Excluding Capitals	Including Capitals	Excluding Capitals		
Bulgaria	0.49	0.37	-0.37	-0.27	-	52.79
Czech Republic	-	-	-	-	0.17	-
Estonia	0.78	0.49	-0.39	0.32	-	73.85
Hungary	0.31	0.05	-0.32	-0.22	0.75	52.42
Poland (1998-2000)	-	-	-	-	0.83	-
Romania	-	-	-	-	-	58.84
Slovakia	-	-	-	-	-0.51	-
Slovenia	0.18	0.35	-0.53	-0.58	-	21.77

1) in % of GDP 1995 at NUTS II Level Source: a) AcessLab/RegSpec b) Eurostat NewCronos

5. Conclusions

In this paper we summarize the empirical literature and present some data on regional labour market development in transition. We find that despite substantial differences among countries some general tendencies can be found. In particular

regional disparities increased in almost all countries in the early years of transition, the regional distribution of labour market indicators has been relatively stable and there is also some indication that regions are diverging into two groups: a small group of rather well to do regions (mainly consisting of large cities and border regions) and a larger group of poorer regions.

When focusing on the long run determinants of regional differentiation in terms of unemployment and GDP we find that in particular capital cities and regions closer to EU border have experienced higher growth and lower unemployment in transition, while there is also some evidence that increased integration into the world economy has contributed to increased regional disparities. By contrast spill-overs within the countries considered tend to be small. In particular regions located closer to capital cities do not seem to have profited from their vicinity to these regions to the same extent as in many mature market economies.

Finally, when reviewing the literature on regional labour market adjustment mechanisms in transition we find that the hopes for regional labour market disparities to diminish through the traditional channels of migration, wage flexibility and capital mobility are rather bleak. Migration is lower in most transition economies reviewed here than in EU labour markets and wage flexibility is perhaps slightly higher, while capital mobility is likely to reinforce existing regional disparities and thus unlikely to act as a substitute for low regional labour mobility. Transition economies' regional labour markets may thus be considered as inflexible as the old EU countries' regional labour markets. This suggests that enhancing regional mobility and triggering investments in lagging regions should be a primary policy objective in transition.

While thus the empirical literature on regional disparities has uncovered a number of policy relevant common stylised facts which have driven and caused divergence during transition, this survey also suggests a number of areas which, in our opinion, should be the focus of future research. First we would expect that, as more and better data will become accessible in particular for the new member states of the EU we will see empirical work which takes econometric concerns such as endogeneity problems and issues of spatial interdependence, which have been largely ignored by most of the macro oriented regression analysis to date, more serious than is currently the case and makes a closer link to theories of regional development.

In particular with respect to theory, transition economies, which experienced a massive trade reorientation in the last decade, may prove to be a fruitful testing ground for the kinds of agglomerative and disagglomerative forces that come to bear on the regional structure of economies when integration occurs according to modern economic geography models. While bringing the potentials of such an analysis to full use will probably require the collection of pre-transition data, we expect that a number of important contributions could be expected from such research in the future.

Furthermore, substantial research is also needed in the field of regional labour market adjustments (in particular with respect to capital and labour mobility). Currently our understanding of the impediments to mobility and how investments could be brought to more backward regions in the transition countries is rather limited. Research so far has mainly focused on macro data, while first results from micro-data analysis of investment and migration behaviour have only appeared very recently. Again we expect that as more data will become available and access to

existing data becomes easier, a number of further insights will be generated in the literature.

Finally, transition has also been a phase of massive policy change and institutional reform. Thus the experiences of transition could also be increasingly used to test the potential regional asymmetries of policies and institutions. Clearly such research will require carefully designed analysis. To date, however, only very few such analyses have appeared in the literature.

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