

Zentrum für Europäische Integrationsforschung  
Center for European Integration Studies  
Rheinische Friedrich-Wilhelms-Universität Bonn



Laura Resmini

**Specialization and Growth  
Patterns in Border Regions  
of Accession Countries**

**Working Paper**

**B 17  
2002**

# **SPECIALIZATION AND GROWTH PATTERNS IN BORDER REGIONS OF ACCESSION COUNTRIES**

*Laura Resmini*  
ISLA, "Luigi Bocconi" University, Milan

## **Abstract**

*This paper aims at exploring and analysing on a comparative basis the impact of the East enlargement of the EU on border regions in Bulgaria, Estonia, Hungary, Romania and Slovenia. In order to achieve the overall objective, the paper will first provide a definition and identification of border regions in the candidate countries and, then, a descriptive analysis of their relative position within each country and with respect to the EU-15 average. Thirdly, it will develop an econometric model able to analyse the determinants of regional specialization and growth in different type of regions (internal vs border; western versus eastern border regions, etc.). The results will be used to understand which are the winning and losing regions in this process, in terms of regional growth prospects. This classification will be used to evaluate the likely distributional implications of enlargement for the accession countries under considerations. The overall empirical results, though limited in some counts, may serve as a reminder of border regions' challenges. They allow to identify present patterns and trends, and represent a good baseline to make inference on what changes border regions in candidate countries might expect the integration process to bring.*

**JEL codes:** F15, R12

**Keywords:** economic integration, border regions, industry location, transition countries

## **Contact:**

L. Resmini, Università "L. Bocconi" – ISLA, Via Sarfatti, 25, I-20136 Milano (Italy); e-mail: [laura.resmini@uni-bocconi.it](mailto:laura.resmini@uni-bocconi.it)

This research was undertaken with support from the European Community's PHARE ACE Programme 1998. The content of the publication is the sole responsibility of the authors and it in no way represents the views of the Commission or its services. I would like to thank Marius Brulhart, Edgar Morgenroth, Iulia Traistaru and all participants at the workshop "International Trade, Specialisation and Location of Industrial Activity" (ZEI, 9-10 July, 2002) for helpful comments and suggestions. The usual disclaimers apply.

# **SPECIALIZATION AND GROWTH PATTERNS IN BORDER REGIONS OF ACCESSION COUNTRIES**

*Laura Resmini, ISLA, Università "L. Bocconi", Milan*

## **1. Introduction**

In Central and Eastern Europe the process of economic change and liberalisation occurred during the 90s has had important spatial consequences, often neglected by the literature on the effects of the enlargement, which has focussed mainly on the national level (Baldwin, Francois and Portes, 1997; Avery, Cameron, 1998). Within these spatial and socio-economic dynamics, borders and border regions<sup>1</sup> are likely to play a critical role for several reasons. First of all, border regions in accession countries are not the exception but the rule, accounting for almost 66 percent of the land area and 58 percent of total population (EC, 2001). Secondly, the fall of the Berlin wall and the ongoing process of economic integration with the European Union (EU) have put borders in a state of flux, with changes occurring in their physical location and economic and political significance as well. Borders are no longer considered as a fixed separating lines, but as "contact" areas, a bridge toward new markets and cultures. Old borders have been vanishing, and a new geo-political and economic map is emerging, with a different distribution of roles and possibilities at nation and regional level (Njikamp, 1994). Indeed, the re-orientation of the economic links from East to West has raised new challenges and opportunities for development for western border regions, and serious concerns for regions located along the Eastern border, potentially more sensitive to the collapse of the CMEA and the former Soviet Union.

International trade and Foreign Direct Investment (FDI) – the two driving forces behind economic integration – have undoubtedly a considerable impact on the economy, at national and regional level as well. The possibility to exchange goods and services internationally opens opportunities to specialise and to use economies of scale and therefore may result in the concentration of economic activities in few locations, close to international markets. Furthermore, trade occurs in an heterogeneous space, where distance and quality of infrastructure matter, so that integration may have different

consequences for the centre and the periphery. Even more than trade, FDI affects domestic economy through technical – transfer of technology, skills, knowledge and governance – as well as pecuniary – backward and forward linkages with domestic firms – externalities, which may generate positive spillovers to domestic economies. Since, however, FDI tends to cluster geographically in Central and Eastern Europe (Resmini, 2000), it can generate or further increase regional disparities within candidate countries.

This paper aims at exploring and analysing on a comparative basis the impact of the East enlargement of the EU on border regions in five candidate countries, i.e. Bulgaria, Estonia, Hungary, Romania and Slovenia. These countries have different development levels and geographical co-ordinates that make their comparative analysis interesting. Hungary and Slovenia are relatively more advanced than Estonia, Bulgaria and Romania. In addition, Estonia is a North European country sharing its border with Finland, while Hungary is a Central European country showing common border with Austria. Slovenia and Bulgaria are Southern European countries bordering, respectively, with Italy and Austria, and Greece. Romania does not share any border with the EU-15. As a result, Hungary and Slovenia seem to have the advantage of geographical proximity to Western European core countries, while the others do not.

In order to achieve the overall objective, the paper will first provide a brief overview of the main theoretical predictions on regional adjustments to trade liberalisation and economic integration (section 2). Then, it will provide a definition and identification of border regions in candidate countries, as well as a descriptive analysis of their relative position within each country and with respect to the EU-15 average (section 3). Thirdly, it will develop an econometric model able to analyse the determinants of regional specialisation and adjustments over time. In particular, the work will explore how the ongoing process of economic integration with the EU is affecting the location of economic activity in candidate countries and which are the winning and losing regions in this process, in terms of regional growth prospects. This classification will be used to evaluate the likely distributional implications of enlargement for the accession countries under considerations.

---

<sup>1</sup> Borders are defined as “external state boundaries” (Anderson, O’Dowd, 1999), while border regions are “sub-national areas, whose economic and social life is directly and significantly affected by proximity to an international frontier” (Hansen, 1997a, 1997b, pag. 1).

## **2. Economic integration and border regions**

Although a systematic theory of border regions have never been developed, the location theory has traditionally considered them as disadvantaged areas because of international barriers to trade and the threat of military invasion (Anderson, O'Dowd, 1999). National borders negatively affect regional economies by artificially cutting up spatially complementary regions and by increasing transaction costs. Tariffs, differences in language, culture and business practices inhibit cross-border trade, while the conflict between political and economic objectives – which is at the basis of the potential political and social instability of border areas – decreases the incentive to localise in these regions for domestic and foreign producers. Moreover, it has been demonstrated that the larger the market area the fewer will be the entrepreneurs who choose a location close to the frontier, other things being equal (Hansen, 1977a).

The reversal of this unfavourable picture is that greater international economic integration – with the consequent removal of national boundaries and trade barriers – should create new prospects for growth for border regions, as it happened in Europe with the completion of the Single Market in 1993<sup>2</sup> and in North America, after the creation of NAFTA (Hanson, 1996, 1998).

From the theory of location standpoint, thus, the East enlargement of the EU should benefit all regions directly affected by the removal of national borders, i.e. regions directly bordering with the EU, as well as with other countries interested by the enlargement process, with a negligible impact on internal regions and possible negative effects on regions still interested by a frontier, such as regions bordering with a third country not involved in the enlargement process, because of their peripheral position within a large market area.

However, the location theory is just one theoretical field able to explain how trade liberalisation affects industry location. An answer to this question may also be found in traditional international trade theories, which emphasise international (or inter-regional) differences in factor endowments (Heckscher-Ohlin) or technologies (Ricardo), as well as in the New Trade Theories (NTT) and in the New Economic Geography (NEG), which try to explain the spatial structure of economic activities using models with increasing returns to scale and imperfectly competitive markets (Venables, 1998; Krugman, 1998; Fujita, Krugman and Venables, 2000).

The NTT, developed during the 1980s, are useful to understand the importance of market access for economic activities. The more interesting prediction for the scope of this analysis, is that since firms have increasing returns to scale, they will locate in a few locations, chosen among regions which are geographically well placed, in terms of market access and transportation networks. This suggests that a reduction in trade barriers will lower transportation costs, thus increasing firms' incentives to relocate to regions with a better access to the foreign markets, such as border regions or coastal areas.

Although geographical advantage plays a role in NTT, it is however considered as exogenous, as if it was determined by physical rather than economic characteristics. However, the key determinant of geographical advantage is the interaction among different economic agents – suppliers, consumers, institutions – which of course is not fixed, but endogenous, as the raising and declining of economic centres over the years and across regions suggest. According to this idea, firms locate in an economic centre, which can be considered as it only because other firms locate there. This indicates the existence of a cumulative causation process according to which the entry of new firms in a location makes it a more attractive location to further firms. The functioning of this cumulative causation process depends on the presence of pecuniary – backward and forward linkages – as well as technological externalities – knowledge spillovers and learning by doing – between firms.<sup>3</sup> To the extent that such externalities are localised, also production is geographically concentrated, and the logic of increasing returns to scale implies that once a pattern of industrialisation has been established, it will persist over time. In case of trade liberalisation, the presence of externalities alters firms' incentives to relocate close to foreign markets since that would mean for them to lose the benefits of being near to their suppliers, customers, source of information or technology, or, more generally, firms from which they derive positive externalities.

The consideration of agglomeration forces makes the impact of the enlargement process on the location of economic activities in candidate countries more uncertain. The sharp increase and diversification of trade flows between the EU and the candidate countries indicate that domestic producers in candidate countries might have an incentive to

---

<sup>2</sup> In this case, however, it is hard to see some advantages for border regions, since regions affected by trade liberalisation can no longer be considered as border areas, as pointed out by Hansen (1977a).

<sup>3</sup> This idea is not new in economics. It can be found in the pioneering works of Myrdal (1957), Hirschman (1958) and Pred (1966). Only its formal analysis can be ascribed to NEG. See Fujita, Krugman, Venables (2000) for a survey of links between old and new agglomeration stories.

relocate close to EU border in order to exploit economies of scale and better market access. However, the presence of old industrial poles often located far from the Western border, may represent an incentive for firms not to relocate.

Overall, both traditional and more recent theories of location seem to suggest that the enlargement process is likely to have an uneven impact on border and non border regions, with the greatest impact on regions bordering with the EU, because of their geographical proximity to large potential markets. Next sections will be devoted to understand if these theoretical predictions apply to transition countries in Central and Eastern Europe.

### **3. The economic situation of Border regions**

#### *3.1 Definition of border regions*

For the purpose of the analysis, this study defines border regions as regions at NUTS III level eligible for PHARE-CBC programs. Within this broad category, three different sets of relatively homogeneous regions can be identified:

- borders with present EU members (BEU hereinafter)
- borders with other candidate countries currently negotiating accession (BAC, hereinafter)
- borders with external countries (BEX, hereinafter)

which differs from internal regions (INT hereinafter) because of their geographical position along international borders.

According to this definition, the sample includes 105 regions (table 1): 63 border regions – 14 bordering with the EU, 21 with external countries and 28 with other candidate countries – and 42 non border regions, located in Bulgaria, Hungary and Romania. Estonia and Slovenia, being small countries, have virtually only border regions.

Border regions display many dimensions of difference and asymmetry. From a geo-economic point of view, they may have different shapes and sizes; be highly or scarcely populated, stagnate in their economic and social peripherality or turn it into political and economic advantages (Anderson, O’Dowd, 1999). So, rather than concentrating only on internal characteristics, it is more fruitful to study a border region in terms of its comparison with other regions in its own state, as well as across states and in direct relations with the EU, the integrated economic space to which they already belong to.

Next section focuses on this multi-level comparative analysis. Four economic indicators have been applied to compare different sets of regions within and across countries. They refer to the spatial distribution and changes of population, GDP per capita, unemployment rate and relative employment at sector level.

**Table 1. Classification of regions by country (NUTS III )**

	<b>BEU</b>	<b>BEX</b>	<b>BAC</b>	<b>INT</b>
<b>BG</b>	Blagoevgrad; Kardjali; Smolyan	Bourgas; Kustendil; Pernik; Haskovo; Yambol	Vidin; Vratza; Dobrich; Montana; Pleven; Russe; Silistra	Varna; Veliko Tarnovo; Gabrovo; Lovech; Pazardjik; Plovdiv; Razgrad; Sliven; <b>Sofia</b> ; Sofia region; Stara Zagora; Targoviste; Shumen
<b>EE</b>	<b>Norther Estonia</b> ; N. E. Estonia; Western Estonia		Central Estonia; Southern Estonia	
<b>HU</b>	Győr-Moson-Sopron; Vas	Baranya; Somogy; Bács-Kiskun	Komárom- Esztergom; Zala; Borsod-Abaúj- Zemplén; Nógrád; Hajdú-Bihar; Szabolcs-Szatmár- Bereg; Békés; Csongrád	<b>Budapest</b> ; Pest; Fejér; Veszprém; Tolna; Heves; Jász-Nagykun-Szolnok
<b>RO</b>		Botosani; Iasi; Suceava; Vaslui; Galati; Tulcea; Caras- Severin; Maramures	Constanta; Calarasi; Giurgiu; Teleorman; Dolj; Mehedinti; Olt; Arad; Timis; Bihor; Satu Mare	Bacau; Neamt; Braila; Buzau; Vrancea; Arges; Dambovita; Ialomita; Prahova; Gorj; Valcea; Hunedoara; Bistrita- Nasaud; Cluj; Salaj; Alba; Brasov; Covasna; Harghita; Mures; Sibiu; <b>Mun. Bucuresti</b> <b>(inclusiv Ilfov)</b>
<b>SI</b>	Pomorska; podravska; koroška; gorenjska; goriška; obalno-kraška;	Savinjska; Spodnejposavska; Dolenjska; <b>Osrednjeslovenska</b> ; Notranjsko-kraška		Zasavska

BEU = region bordering with EU-15; BAC =border between candidate countries; BEX = external border region; INT= internal region; NUTS 3 regions eligible for PHARE-ACE CBC programme. Regions in bold host the capital city.



### *3.2 Comparative analysis within and across states*

Table 2 considers the first three economic indicators.<sup>4</sup> There are striking differences between border regions in terms of socio-economic development. In 1998 border regions had a population of about 22 million inhabitants, about 50 percent of total population in the countries considered. The border with the EU does not seem to have had any effect on population location, since only 5.4 per cent of total population lived there. However, the available statistics suggest that regions bordering the EU have already benefited from their location. On average, in 1995, the economic conditions in these regions were very similar to those in Eastern border regions (BEX), while BAC regions were more close to the level of development showed by internal regions. Proximity to the EU, however, seems to have contributed to stimulate growth: in the second half of the 1990s, GDP per capita has grown, on average, at about 6 per cent a year, while the unemployment rate decreased on average of about 0.5 per cent a year. All other regions show opposite patterns for both variables. Thus, in 1998, BEU regions' GDP per capita was higher and the unemployment rate was lower than the average of other groups of border regions.<sup>5</sup> Consequently, one can conclude that convergence and catching-up processes between regions bordering the EU and non border regions have been occurring in candidates countries during the second half of the 1990s.

In evaluating the economic performance of internal regions, it is worth noting the dominant role of capital cities. Their economic impact is impressive. To give just two examples, the Tallin area (Estonia) has 95 percent of FDI and 48 percent of all registered firms. Budapest accounts for about 20 percent of total population, 48 percent of total employment in the service sectors and 52 percent of total FDI, contributing to a GDP per capita level three times that of the worst-placed county in the country.<sup>6</sup> The absence of other urban centres similarly dominant means that, outside the capital cities spatial disparities in growth are more limited, as it is shown by figures reported in the bottom part of table 2. At the end of the 1990s, BEX regions were, on average, the poorest ones. Their geographical location at the extreme periphery of Europe, and the

---

<sup>4</sup> The aggregate analysis considers mainly Bulgaria, Hungary and Romania. Estonia and Slovenia have been studied separately for two reasons. First, figures cover a period of time shorter than the other three countries. Secondly, the large proportion of "border area" into the countries makes any comparison between border and non border regions worthless. For an in-depth analysis of the relative position of border regions in each country see Bosco, Resmini (2001).

<sup>5</sup> Non border regions as a whole perform better than BEU regions only when capital cities are considered.

<sup>6</sup> On the dominant role of capital city regions see also Weise, Butcher, Downs et al. (2001).

poor economic conditions of the countries they border with – Russia, Ukraine, Belarus, Serbia, Croatia – partially explain their overall economic weakness. BAC regions do not show significant changes in their economic conditions during the second half of the 90s, becoming more similar to BEX regions.

A more comprehensive analysis reveals different pictures across countries. In 1998 border regions in Bulgaria had a population of 3.5 million inhabitants, or 42 per cent of the country population. These figures are 5.5 and 54 per cent for Hungary and 9.9 and 44 per cent for Romania. As the border area is so large in Slovenia and Estonia, these figures are not significant for both countries. As far as GDP per capita and unemployment are concerned, border regions show different levels of development across countries. In Bulgaria, at the beginning of the period, regional disparities did not seem particularly large, with BEX and INT (Sofia included) regions above (below) and BEU and BAC regions below (above) the national average, in terms of GDP per capita (unemployment rate). However, BEU and BAC regions experienced GDP per capita growth rates above the national average during the second half of the 1990s, thus reducing disparities with the other groups of regions. These patterns remain unchanged when Sofia is not included in the calculation, though in this case the rate of growth of GDP per capita in non border regions is substantially higher than before, indicating that Sofia suffered more for economic restructuring and transition than other internal regions, thus reducing regional disparities within the country. Unemployment rate has increased over time in all regions but those bordering with the EU, with the highest increases in BAC and INT regions.

In the second half of the 1990s, economic development has been positive in Hungarian BEU regions and in the internal ones (Budapest included), which were more similar in 1998 than at the beginning of the transition. BEX regions show a deterioration in their relative position within the country, becoming more and more similar to BAC regions, which stagnated during the second half of the period. The dominant role of Budapest is evident from the comparison of the performance of internal regions with and without Budapest district.

In Romania, GDP per capita in internal regions (Bucharest included) was in 1998 more than double that in border regions, which show the better (BAC regions) and the worst (BEX regions) position in term of unemployment rate. Differently from the other countries of the sample, regional differences among border and non-border regions

**Table 2 - Border regions: comparative facts and figures**

a) with capital cities

		BEU			BEX			BAC			INT			COUNTRY		
		95	98	Var %	95	98	Var %	95	98	Var %	95	98	Var %	95	98	Var %
BG	GDP pc	1058.43	1270.86	6.29	1301.62	1435.34	3.31	1153.02	1343.45	5.23	1201.94	1309.96	2.91	1194.9	1331.42	3.67
	POP	721.43	710.93	-0.49	1240.97	1270.86	0.8	1619.67	1573.41	-0.96	4802.65	4735.8	-0.47	8384.72	8291	-0.37
	UNEMPL	16.83	15.18	-3.38	11.66	12.72	2.95	15.2	16.69	3.16	11.85	13.24	3.77	13.11	14.09	2.43
HU	GDP pc	4706.86	5499.42	5.32	3418.02	3385.42	-0.32	3373.11	3382.05	0.09	5308.43	5797.71	2.98	4542.09	4640.26	0.72
	POP	698.1	698.1	0	1291.87	1275.98	-0.41	3545.09	3232.26	-3.03	4710.62	4660.04	-0.36	10245.68	9866.38	-1.25
	UNEMPL	10.77	7.9	-9.81	18.46	19.71	2.21	22.24	22.7	0.68	17.76	15.89	-3.64	16.5	14.1	-5.1
RO	GDP pc				3104.52	3066.41	-0.41	3403.42	3285.51	-1.17	6244.8	6749.58	2.62	4944.34	5188.49	1.62
	POP				4268.9	4268.43	0	5662.79	5602.55	-0.36	12749.26	12631.83	-0.31	22680.95	22502.8	-0.26
	UNEMPL				12.06	12.98	2.48	7.83	7.97	0.59	10	11.73	5.46	9.51	10.4	3.03
Total	GDP pc	2852.67	3375.04	5.77	2835.13	2834.43	-0.01	3056.87	3031.11	-0.28	4958.79	5378.73	2.75			
	POP	1419.53	1409.04	-0.25	6801.74	6754.64	-0.23	10827.55	10408.21	-1.31	22262.523	22067.99	-0.29			
	UNEMPL	14.41	12.35	-5	12.94	13.94	2.53	14.46	14.58	0.26	11.87	12.89	2.79			
EE*	GDP pc*	3433.43	3733.66	4.28				1996.45	1976.57	-0.5				2981.42	3180.23	3.28
	POP*	1002.22	990.27	-0.6				459.91	455.31	-0.5				1462.13	1445.58	-0.57
	UNEMPL	5.09	4.8	-1.45				6.34	5.47	-4.79				5.04	4.75	-1.96
SLO**	GDP pc	6455.73	7519.55	7.93	5578.19	6397.68	7.09				20152.24	22975.57	6.78	6339.2	7318.09	7.44
	POP	940.32	938.27	-0.11	1000	999.96	0				47.16	46.71	-0.48	1987.5	1984.94	-0.06
	UNEMPL	13.96	13.31	-2.35	13.6	12.85	-2.8				17.74	18.48	2.08	15.1	14.88	-0.73

b) without capital cities

		BEU			BEX			BAC			INT			COUNTRY		
		95	98	Var %	95	98	Var %	95	98	Var %	95	98	Var %	95	98	Var %
BG	GDP pc	1058.43	1270.86	6.29	1301.62	1435.34	3.31	1153.02	1343.45	5.23	1167.69	1293.83	3.48	1176.54	1326.97	4.09
	POP	721.43	710.93	-0.37	1240.97	1270.86	0.8	1619.67	1573.41	-0.96	3609.91	3536.09	-0.69	7191.98	7091.29	-0.47
	UNEMPL	16.83	15.18	-3.38	11.66	12.72	2.95	15.2	16.69	3.16	12.48	14.01	3.92	13.4	14.47	2.59
HU	GDP pc	4706.86	5499.42	5.32	3418.02	3385.42	-0.32	3373.11	3382.05	0.09	3542.26	3927.2	3.5	3548.62	3747.18	1.83
	POP	698.1	698.1	0	1291.87	1275.98	-0.41	3545.09	3232.26	-3.03	2780.6	2798.66	0.22	8315.66	8005	-1.26
	UNEMPL	10.77	8.11	-9.02	18.46	19.71	2.21	22.24	21.82	-0.63	19.55	17.95	-2.81	19.74	19.18	-0.95
RO	GDP pc				3104.52	3066.41	-0.41	3403.42	3285.51	-1.17	3246.61	3144.46	-1.06	3260.44	3167.08	-0.96
	POP				4268.9	4268.43	0	5662.79	5602.55	-0.36	10416.64	10338.89	-0.25	20348.33	20209.86	-0.23
	UNEMPL				12.06	12.98	2.48	7.83	7.97	0.59	10.24	12.05	5.58	9.9	10.99	3.54
Total	GDP pc	2852.67	3375.04	5.77	2835.13	2834.43	-0.01	3056.87	3031.11	-0.28	2929.93	2883.37	-0.53			
	POP	1419.53	1409.04	-0.25	6801.74	6754.64	-0.23	10827.55	10408.21	-1.31	16807.15	16673.63	-0.27			
	UNEMPL	14.41	12.35	-5	12.94	13.94	2.53	14.46	14.58	0.26	13.01	13.56	1.39			

GDP pc = GDP per capita; POP= population; UNEMPL= unemployment rate;

\* 1996-1998

\*\* Slovenia: GDP pc ,POP 1995-1997; UNEMPL 1997-98

seem to increase over the period, due to the bad performance of border regions, taken as a whole. However, when the district of Ilfov which includes Bucharest is excluded from calculations, regional disparities become less evident.

### *3.3. Comparison at the EU level*

This section focuses on the position of border and non border regions in candidate countries relative to the present EU average. The discussion is based on the transition matrix (Puga, 2001; Overman, Puga, 1999) that tracks changes over time in the relative position of regions within a given distribution. The transition matrix in figure 1 reports changes between the 1992 and the 1999 distributions of GDP per capita relative to the EU average.<sup>7</sup> The transition matrix gives several pieces of information. The first column gives the classes that divides up the distribution of relative regional income levels. The second column gives the number of regions that begin their transition in that range of the distribution and their sub-division among types of regions. Rows refer to 1992 distribution and column to the distribution at the end of the period. The main diagonal gives the most important piece of information: it shows the fraction of regions that were in the same range of the distribution in 1992 and in 1999. The top row of the matrix indicates that in 1992 only 4 regions (one for each type, all belonging to Bulgaria) had a GDP per capita below 0.05 times the present EU average.<sup>8</sup> Half of them remained in the same range in 1999, while the other 50 per cent saw its relative income rise up between 0.05 and 0.1 times the present EU average. Both of them are border regions: Blagoevgrad, bordering with Greece, and Montana, at the Northern border with Romania. The proportion of regions that experienced little relative change is very high for all ranges of the distribution, although regions with the highest 1992 relative GDP per capita (first two rows from the bottom) showed more mobility: most of them, however, saw their relative income fall. Considering the different types of regions, only one non border region (Fejér, Hungary) improved its relative GDP per capita, while BEX and BAC regions saw their relative per capita income decrease. BEU regions (all located in Hungary) remained in the same range.

It is interesting to compare the distribution of GDP per capita with unemployment rates. Reading the corresponding transition matrix (figure 2) along the main diagonal, it shows that of the 12 regions that in 1992 had an unemployment rate below 0.75 times the European

---

<sup>7</sup> Estonia and Slovenia are excluded from this exercise since data cover a different time period.

average, none remained in that range in 1999. All of them but one (an internal Hungarian region, i.e. Budapest) saw their relative unemployment rate increase. Jumping to the bottom, we see a strong persistence amongst the regions with highest unemployment rate. However, 40 percent of BEU regions and 12 percent of BEX ones saw their relative unemployment rates fall in an inferior range, as well as 20 percent of non border regions, while BAC regions did not seem to have been able to decrease their unemployment rates over the 1990s.

Figure 1 - Transition matrix (GDP per capita)

			1998				
			[0-0.05)	[0.05-0.10)	[0.10-0.15)	[0.15-0.20)	[0.20-)
1995	<b>[0-0.05)</b>	<b>4</b>	<b>0.50</b>	<b>0.50</b>			
	BEU	1		1.00			
	BEX	1	1.00				
	BAC	1		1.00			
	INT	1	1.00				
	<b>[0.05-0.10)</b>	<b>32</b>		<b>1.00</b>			
	BEU	2		1.00			
	BEX	5		1.00			
	BAC	9		1.00			
	INT	16		1.00			
	<b>[0.10-0.15)</b>	<b>22</b>			<b>0.91</b>	<b>0.09</b>	
	BEU						
	BEX	4			1.00		
	BAC	6			1.00		
	INT	12			0.83	0.17	
	<b>[0.15-0.20)</b>	<b>24</b>			<b>0.13</b>	<b>0.83</b>	<b>0.04</b>
	BEU						
	BEX	6			0.17	0.83	
	BAC	8			0.25	0.75	
	INT	10				0.90	0.01
	<b>[0.20-)</b>	<b>7</b>				<b>0.14</b>	<b>0.86</b>
BEU	2					1.00	
BEX							
BAC	2				0.50	0.50	
INT	3					1.00	
			<b>[0-0.05)</b>	<b>[0.05-0.10)</b>	<b>[0.10-0.15)</b>	<b>[0.15-0.20)</b>	<b>[0.20-)</b>
	<b>N.</b>	<b>3</b>	<b>33</b>	<b>24</b>	<b>23</b>	<b>7</b>	
	BEU		3	1		2	
	BEX	1	5	5	5		
	BAC		10	8	7	1	
	INT	2	15	10	11	4	

Hungary, Romania and Bulgaria 1995-1998

The contrast between changes in relative GDP per capita and changes in relative unemployment rates can be seen more clearly by comparing the two matrices. It shows that while regions exhibited a strong persistence in their relative income per capita levels, they have experienced a polarisation of regional unemployment rates towards the superior extreme of the distribution. As a result, in 1999 there were more regions with very high unemployment

<sup>8</sup> Considering EU-27 instead of EU-15, would make these figures less dramatic since the EU average would be lower than the present one. See for example EC (2001).

rates and fewer regions with very low relative unemployment rates. This polarisation does not seem to have a geographical component since it involves both border and non border regions. This simple exercise allows to conclude that transition towards a market economy and economic integration with the EU do not seem to have given a positive contribution to regional convergence in Europe.

Figure 2 - Transition matrix (unemployment)

			1999				
1992	<b>[0-0.6)</b>	<b>4</b>	<b>0.00</b>	<b>0.25</b>	<b>0.25</b>	<b>0.25</b>	<b>0.25</b>
	BEU						
	BEX	1			1.00		
	BAC	3		0.33		0.33	0.33
	INT						
	<b>[0.60-0.75)</b>	<b>8</b>	<b>0.13</b>	<b>0.00</b>	<b>0.13</b>	<b>0.63</b>	<b>0.13</b>
	BEU						
	BEX	3		0.00	0.33	0.66	
	BAC	5	0.20	0.00		0.60	0.20
	INT						
	<b>[0.75-1)</b>	<b>17</b>	<b>0.06</b>	<b>0.12</b>	<b>0.18</b>	<b>0.24</b>	<b>0.41</b>
	BEU					1.00	
	BEX	1		0.33	0.17	0.33	0.17
	BAC	6			0.20	0.10	0.60
	INT	10	0.10				
	<b>[1-1.30)</b>	<b>18</b>	<b>0.00</b>	<b>0.00</b>	<b>0.06</b>	<b>0.17</b>	<b>0.78</b>
	BEU						
	BEX	7				0.29	0.71
	BAC	3			0.12	0.33	0.67
	INT	8					0.88
	<b>[1.30-)</b>	<b>42</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>	<b>0.10</b>	<b>0.86</b>
BEU	5		0.20	0.20		0.60	
BEX	8				0.12	0.88	
BAC	13					1.00	
INT	16				0.19	0.81	
	<b>N.</b>	<b>[0-0.6)</b>	<b>[0.60-0.75)</b>	<b>[0.75-1)</b>	<b>[1-1.30)</b>	<b>[1.30-)</b>	
	BEU	2	4	7	17	59	
	BEX		1	1		3	
	BAC		2	3	4	12	
	INT	2	1	3	5	16	
					8	28	

### 3.4 Regional Employment in border regions

In order to identify regional patterns of specialisation, it is useful to analyse employment structure and its changes at regional level. Table 3 shows regional shares of national employment by groups of economic activity for 1992 and 1999, while average annual relative employment growth rates are summarised in table 4.<sup>9</sup>

Although the time period is too short to highlight clear patterns of change, some interesting features emerge. The first is that employment adjustments seem to be *country* and *sector*

rather than *region* specific. Economic activities are spread between border and non-border regions relatively more evenly in Romania than in Bulgaria and Hungary. At sector level, it is worth noting the almost overall geographic concentration of natural resource based activities – such as agriculture and mining and quarrying – in border regions. In 1992, 53 per cent of employment in agriculture and 61 per cent of employment in mining and quarrying concentrated in border regions in Bulgaria. These percentages are respectively 66 and 65 percent in Hungary and 53 and 29 percent in Romania. Relative employment remained more or less unchanged over the 1990s in all countries, with the exception of Bulgaria whose mining and quarrying sector experienced a dramatic change in favour of internal regions. Most of the adjustment occurred in BEU regions. Services are mainly concentrated in internal regions, which include the capital city.<sup>10</sup>

As far as the manufacturing sector is concerned, it is worth noting that relocation activity was very intensive, and mainly in favour of border regions, though marked differences across countries do exist. In Bulgaria, border regions reinforced their specialisation only in textiles and clothing production, while other sectors relocate mainly in internal regions. Regions bordering with the EU were the only ones to benefit from the increased specialisation in textiles and clothing. Data also indicate a relocation of furniture and other manufacturing products from BAC to BEU regions. In Hungary, relocation activity within manufacturing sector was very intense. Overall, it occurred in favour of border regions, and especially regions bordering with the EU. Negative adjustments, i.e. a decrease in the relative employment, happened only for furniture and other manufacturing n.e.c. in BAC regions. In Romanian border regions, relative employment increased mainly in wood and paper products and in machinery, equipment and motor vehicles. Most of this adjustment, however, is within border regions, from BAC to BEX regions. In Estonia, it is interesting to notice that adjustments in relative employment occurred from BEU to BAC regions in all sectors, but machinery, equipment and motor vehicles whose level of agglomeration in BEU regions increased over time.

---

<sup>9</sup>Groups of economic activities include agriculture, mining and quarrying, manufacturing, energy, construction and services. Manufacturing sector has been further split up into seven sub-sectors. A more disaggregated analysis was not possible because manufacturing activity's classification varies across countries.

<sup>10</sup> This is true for all countries but Estonia and Slovenia. See table 1.

**Table 3 - Regional shares of national employment by groups of economics activities**

	Regional share of national employment, 1992					Regional share of national employment, 1999				
	border regions				internal regions	border regions				internal regions
	total	BEU	BEX	BAC		total	BEU	BEX	BAC	
<b>BULGARIA</b>										
agriculture	0.53	0.11	0.16	0.25	0.47	0.52	0.12	0.16	0.25	0.48
mining and quarrying	0.61	0.22	0.32	0.07	0.39	0.52	0.12	0.33	0.08	0.48
manufacturing	0.39	0.08	0.13	0.18	0.61	0.39	0.09	0.14	0.17	0.61
<i>food, beverages &amp; tobacco</i>	0.44	0.07	0.15	0.22	0.56	0.40	0.07	0.14	0.18	0.60
<i>textiles, clothing and leather</i>	0.50	0.15	0.13	0.22	0.50	0.54	0.20	0.13	0.21	0.46
<i>wood and paper products</i>	0.32	0.10	0.10	0.12	0.68	0.25	0.08	0.08	0.09	0.75
<i>fuel &amp; chemicals, rubber &amp; plastic</i>	0.49	0.04	0.27	0.19	0.51	0.47	0.04	0.26	0.17	0.53
<i>non metallic mineral product</i>	0.33	0.03	0.12	0.19	0.67	0.30	0.02	0.11	0.18	0.70
<i>metallurgy, machinery&amp;equip., motor vehicles</i>	0.32	0.05	0.11	0.16	0.68	0.29	0.04	0.11	0.14	0.71
<i>furniture and other manufacturing products</i>	0.40	0.09	0.10	0.20	0.60	0.37	0.11	0.09	0.16	0.65
energy	0.45	0.04	0.13	0.27	0.55	0.45	0.04	0.15	0.26	0.55
construction	0.35	0.06	0.14	0.15	0.65	0.34	0.06	0.14	0.14	0.66
services	0.39	0.07	0.13	0.17	0.61	0.35	0.07	0.13	0.15	0.65
<b>HUNGARY</b>										
agriculture	0.66	0.09	0.19	0.38	0.34	0.67	0.09	0.20	0.38	0.33
mining and quarrying	0.65	0.00	0.17	0.48	0.35	0.62	0.01	0.07	0.54	0.38
manufacturing	0.47	0.08	0.09	0.29	0.53	0.51	0.12	0.10	0.29	0.49
<i>food, beverages &amp; tobacco</i>	0.62	0.08	0.15	0.39	0.38	0.63	0.09	0.14	0.40	0.37
<i>textiles, clothing and leather</i>	0.56	0.15	0.12	0.29	0.44	0.64	0.18	0.14	0.33	0.36
<i>wood and paper products</i>	0.45	0.08	0.11	0.26	0.55	0.45	0.08	0.12	0.26	0.55
<i>fuel &amp; chemicals, rubber &amp; plastic</i>	0.32	0.04	0.03	0.25	0.68	0.38	0.08	0.04	0.25	0.62
<i>non metallic mineral product</i>	0.47	0.03	0.08	0.36	0.53	0.58	0.08	0.07	0.44	0.42
<i>metallurgy, machinery&amp;equip., motor vehicles</i>	0.38	0.08	0.06	0.24	0.62	0.43	0.12	0.09	0.22	0.57
<i>furniture and other manufacturing products</i>	0.58	0.07	0.12	0.39	0.42	0.53	0.12	0.10	0.31	0.47
energy	0.61	0.10	0.14	0.38	0.39	0.60	0.07	0.13	0.40	0.40
construction	0.46	0.08	0.10	0.28	0.54	0.46	0.07	0.11	0.27	0.54
services	0.44	0.06	0.10	0.27	0.56	0.37	0.05	0.09	0.23	0.63
<b>ESTONIA</b>										
agriculture	1.00	0.56	...	0.44	...	1.00	0.47	...	0.53	...
mining and quarrying	NA	NA	...	NA	...	NA	NA	...	NA	...
manufacturing	1.00	0.79	...	0.21	...	1.00	0.73	...	0.27	...
<i>food, beverages &amp; tobacco</i>	1.00	0.70	...	0.30	...	1.00	0.72	...	0.28	...
<i>textiles, clothing and leather</i>	1.00	0.81	...	0.19	...	1.00	0.80	...	0.20	...
<i>wood and paper products</i>	1.00	0.73	...	0.27	...	1.00	0.52	...	0.48	...
<i>fuel &amp; chemicals, rubber &amp; plastic</i>	1.00	0.95	...	0.05	...	1.00	0.78	...	0.22	...
<i>non metallic mineral product</i>	1.00	0.87	...	0.13	...	1.00	0.75	...	0.25	...
<i>metallurgy, machinery&amp;equip., motor vehicles</i>	1.00	0.77	...	0.23	...	1.00	0.85	...	0.15	...
<i>furniture and other manufacturing products</i>	1.00	0.72	...	0.28	...	1.00	0.67	...	0.33	...
energy	NA	NA	...	NA	...	NA	NA	...	NA	...
construction	NA	NA	...	NA	...	NA	NA	...	NA	...
services	1.00	0.74	...	0.26	...	1.00	0.73	...	0.27	...
<b>SLOVENIA (1997 and 1999)</b>										
agriculture	0.99	0.53	0.47	...	0.01	1.00	0.54	0.46	...	0.00
mining and quarrying	0.80	0.13	0.67	...	0.20	0.80	0.12	0.68	...	0.20
manufacturing	0.98	0.48	0.50	...	0.02	0.98	0.48	0.49	...	0.02
<i>food, beverages &amp; tobacco</i>	0.99	0.51	0.48	...	0.01	0.99	0.52	0.47	...	0.01
<i>textiles, clothing and leather</i>	0.98	0.53	0.45	...	0.02	0.98	0.53	0.45	...	0.02
<i>wood and paper products</i>	0.99	0.38	0.61	...	0.01	0.99	0.38	0.61	...	0.01
<i>fuel &amp; chemicals, rubber &amp; plastic</i>	0.99	0.42	0.56	...	0.01	0.99	0.45	0.54	...	0.01
<i>non metallic mineral product</i>	0.89	0.42	0.47	...	0.11	0.89	0.44	0.45	...	0.11
<i>metallurgy, machinery&amp;equip., motor vehicles</i>	0.97	0.51	0.46	...	0.03	0.97	0.51	0.46	...	0.03
<i>furniture and other manufacturing products</i>	0.98	0.40	0.58	...	0.02	0.98	0.39	0.59	...	0.02
energy	0.95	0.41	0.54	...	0.05	0.94	0.41	0.54	...	0.06
construction	0.98	0.45	0.53	...	0.02	0.98	0.44	0.54	...	0.02
services	0.98	0.44	0.54	...	0.02	0.98	0.44	0.54	...	0.02
<b>ROMANIA</b>										
agriculture	0.53	...	0.22	0.31	0.47	0.53	...	0.22	0.30	0.47
mining and quarrying	0.29	...	0.15	0.14	0.71	0.31	...	0.13	0.17	0.69
manufacturing										
<i>food, beverages &amp; tobacco</i>	0.44	...	0.16	0.28	0.56	0.39	...	0.15	0.25	0.61
<i>textiles, clothing and leather</i>	0.43	...	0.20	0.23	0.57	0.44	...	0.19	0.25	0.56
<i>wood and paper products</i>	0.31	...	0.16	0.15	0.69	0.36	...	0.24	0.12	0.64
<i>fuel &amp; chemicals, rubber &amp; plastic</i>	0.24	...	0.09	0.15	0.76	0.25	...	0.09	0.17	0.75
<i>non metallic mineral product</i>	0.28	...	0.12	0.16	0.72	0.25	...	0.12	0.13	0.75
<i>metallurgy, machinery&amp;equip., motor vehicles</i>	0.33	...	0.15	0.18	0.67	0.37	...	0.17	0.19	0.63
<i>furniture and other manufacturing products</i>	NA	...	NA	NA	NA	NA	...	NA	NA	NA
energy	0.38	...	0.14	0.24	0.62	0.39	...	0.15	0.24	0.61
construction	0.37	...	0.14	0.24	0.63	0.39	...	0.15	0.24	0.61
services	0.40	...	0.15	0.24	0.60	0.41	...	0.17	0.25	0.59



Table 4 shows average annual relative employment growth rates by region and economic activity for the period 1992-99. Again, the data indicate that sector specific effects are stronger than region specific effects. Rates of growth, in fact, are more homogenous across regions than across sectors and countries, with few remarkable exceptions. Border regions taken as a whole perform better than internal ones in Hungary and in Romania but not in Bulgaria. In Hungary, relative employment growth rates in BEU and to a lesser extent BEX regions have a positive sign in several manufacturing sectors, while the country trend is negative. In Romania, differences in relative employment growth rates among border and non border regions are less pronounced than in Hungary and both follow the same negative trend. In Bulgaria, relative employment growth rates in manufacturing sector are negative in all regions and larger in border than in non-border regions, with the exception of textiles and clothing sector, which show a positive relative employment growth rate in the BEU regions.

#### 4. The econometric model

In this section I start to study how relative employment at regional level in candidate countries respond to economic integration using more formal empirical techniques. Estimation has been undertaken using data for 94 regions and 7 manufacturing sectors in Bulgaria, Estonia, Hungary and Romania during the period 1992-1999.<sup>11</sup> This data set has the advantage of having a relative straightforward geography, with a clear set of border and internal regions, and of covering a period of increasing economic integration with the EU.

The easiest way to identify region specific factors able to condition adjustments to trade liberalisation and economic integration is to study the determinants of industry location in different type of border and non border regions and verify in which locations industry employment grows faster (Hanson, 1998).<sup>12</sup>

To test these simple hypotheses, it is useful to start by considering the following general expression for labour demand in industry  $j$  located in region  $i$  at time  $t$ :

$$E_{ijt} = \mathbf{a}_{ijt} + \mathbf{b}W_{ijt} + \mathbf{g}X_{ijt} + \mathbf{e}_{ijt} \quad (1)$$

---

<sup>11</sup> Slovenia is not included in the analysis because its figures cover a shorter period of time (1997-99). Concerning economic activity, I omit agriculture, mining and quarrying – whose location is mainly natural resource driven – services – given the impossibility to distinguish between tradable and non tradable services – and metallurgy, machinery and equipment and transportation vehicles, a composite sector made by industries very different from each other, created only to harmonise data across countries.

<sup>12</sup> From the theory standpoint, the location of economic activities is endogenous, since it can generate cumulative causation agglomeration (Fujita, Krugman and Venables, 2000).

**Table 4 - Annual average employment growth in region by groups of economic activities**

	BEU	BEX	BAC	BORDER	INT	country average
<b>BULGARIA</b>						
agriculture	0.026	0.013	0.018	0.018	0.022	0.02
mining and quarrying	-0.156	-0.071	-0.063	-0.095	-0.045	-0.074
manufacturing	-0.038	-0.052	-0.068	-0.056	-0.053	-0.054
food, beverages & tobacco	-0.009	-0.035	-0.051	-0.039	-0.018	-0.027
textiles, clothing and leather	0.01	-0.029	-0.033	-0.018	-0.041	-0.029
wood and paper products	-0.103	-0.115	-0.12	-0.113	-0.065	-0.079
fuel & chemicals, rubber & plastic	-0.036	-0.038	-0.053	-0.044	-0.029	-0.036
non metallic mineral product	-0.09	-0.07	-0.065	-0.069	-0.051	-0.057
metallurgy, machinery&equip., motor vehicles	-0.102	-0.061	-0.089	-0.081	-0.063	-0.068
furniture and other manufacturing products	-0.121	-0.157	-0.169	-0.154	-0.136	-0.143
energy	0.01	0.013	-0.006	0.001	-0.001	0
construction	-0.056	-0.061	-0.07	-0.064	-0.059	-0.061
services	0.006	0.004	-0.007	-0.001	0.021	0.013
<b>HUNGARY</b>						
agriculture	-0.108	-0.1	-0.103	-0.103	-0.108	-0.105
mining and quarrying	0.083	-0.305	-0.202	-0.22	-0.207	-0.215
manufacturing	0.027	-0.005	-0.023	-0.009	-0.03	-0.02
food, beverages & tobacco	-0.027	-0.059	-0.046	-0.046	-0.052	-0.049
textiles, clothing and leather	0.003	-0.002	-0.001	0	-0.048	-0.019
wood and paper products	-0.017	-0.015	-0.02	-0.018	-0.018	-0.018
fuel & chemicals, rubber & plastic	0.099	0.015	-0.02	0.002	-0.036	-0.023
non metallic mineral product	0.105	-0.065	-0.005	-0.004	-0.065	-0.034
metallurgy, machinery&equip., motor vehicles	0.058	0.066	-0.018	0.015	-0.016	-0.003
furniture and other manufacturing products	0.067	-0.039	-0.043	-0.025	0.002	-0.013
energy	-0.065	-0.026	-0.017	-0.026	-0.022	-0.024
construction	-0.044	-0.028	-0.045	-0.041	-0.039	-0.04
services	-0.027	-0.034	-0.028	-0.03	0.011	-0.006
<b>ESTONIA</b>						
agriculture	-0.154	...	-0.11	-0.133	...	-0.133
mining and quarrying	NA	...	NA	NA	...	NA
manufacturing	-0.059	...	-0.014	-0.048	...	-0.048
food, beverages & tobacco	-0.023	...	-0.038	-0.027	...	-0.027
textiles, clothing and leather	-0.065	...	-0.05	-0.062	...	-0.062
wood and paper products	0.028	...	0.169	0.078	...	0.078
fuel & chemicals, rubber & plastic	-0.139	...	0.086	-0.114	...	-0.114
non metallic mineral product	-0.139	...	-0.032	-0.12	...	-0.12
metallurgy, machinery&equip., motor vehicles	-0.068	...	-0.131	-0.08	...	-0.08
furniture and other manufacturing products	-0.042	...	-0.011	-0.033	...	-0.033
energy	NA	...	NA	NA	...	NA
construction	NA	...	NA	NA	...	NA
services	0.003	...	0.011	0.005	...	0.005
<b>SLOVENIA (1997-1999)</b>						
agriculture	-0.073	-0.089	...	-0.081	-0.159	-0.081
mining and quarrying	-0.078	-0.036	...	-0.043	-0.056	-0.046
manufacturing	-0.016	-0.022	...	-0.019	-0.025	-0.019
food, beverages & tobacco	-0.005	-0.027	...	-0.015	-0.038	-0.016
textiles, clothing and leather	-0.066	-0.059	...	-0.063	-0.134	-0.064
wood and paper products	-0.019	-0.017	...	-0.018	-0.038	-0.018
fuel & chemicals, rubber & plastic	0.03	-0.009	...	0.008	-0.104	0.006
non metallic mineral product	-0.002	-0.052	...	-0.028	-0.001	-0.025
metallurgy, machinery&equip., motor vehicles	-0.002	-0.005	...	-0.003	0.016	-0.003
furniture and other manufacturing products	-0.048	-0.029	...	-0.037	-0.006	-0.036
energy	-0.034	-0.037	...	-0.036	-0.022	-0.035
construction	0.01	0.035	...	0.024	0.031	0.024
services	0.022	0.022	...	0.022	0.04	0.022
<b>ROMANIA</b>						
agriculture	...	0.001	-0.001	0	0.002	0.001
mining and quarrying	...	-0.093	-0.052	-0.072	-0.08	-0.077
manufacturing	...	-0.06	-0.065	-0.063	-0.075	-0.071
food, beverages & tobacco	...	-0.047	-0.047	-0.047	-0.018	-0.03
textiles, clothing and leather	...	-0.059	-0.045	-0.052	-0.057	-0.055
wood and paper products	...	0.029	-0.065	-0.018	-0.039	-0.029
fuel & chemicals, rubber & plastic	...	-0.085	-0.075	-0.08	-0.087	-0.085
non metallic mineral product	...	-0.071	-0.098	-0.085	-0.064	-0.07
metallurgy, machinery&equip., motor vehicles	...	-0.075	-0.082	-0.078	-0.101	-0.093
furniture and other manufacturing products	...	NA	NA	NA	NA	NA
energy	...	0.022	0.012	0.017	0.013	0.014
construction	...	-0.062	-0.071	-0.066	-0.078	-0.074
services	...	-0.016	-0.027	-0.022	-0.032	-0.029

where  $E_{ijt}$  denotes employment,  $W_{ijt}$  the wage, and  $X_{ijt}$  a vector of variables able to affect the location of economic activities at region and sector level, while  $\hat{a}_{ijt}$  is an i.i.d labour demand shock that has mean zero e constant variance.

Following the most recent development of the literature, I assume that both comparative advantage and economic geography factors might determine the location of economic activities both at national and sub-national level (Overman, Redding, Venables, 2001). This implies that vector  $X$  in eq. (1) should include at least two types of variables:

- 1) *Geography* variables, such as distance between economic agents and agglomeration economies. Distance is directly related to transaction costs, because of the transport costs of shipping goods, the costs of contracting at distance, and of acquiring information about distant economies. Intuitively, this implies that economic activities will concentrate close to large markets to minimise transport costs. Agglomeration economies, i.e. the opportunities to create a network with other firms operating in the same sector or in a different industrial branch, explain why firms locate close to each other. They might reinforced cumulative causation processes of location or refrain firms to re-locate elsewhere;
- 2) *Comparative advantage* variables, deriving from natural, i.e. exogenous, factors such as proximity, region accessibility, and the endowment of natural resources, a well as characteristics of the local economic environment, such as the structure of the labour force, the level of education, the availability of services related to production activities, etc.

Eventually, the choice of the variables to include in the empirical analysis has to take into account two further elements: the peculiar experience of transition countries and the availability of reliable figures in a sufficient long time series.<sup>13</sup> Concerning the former, several empirical studies have shown the key role played by *foreign direct investment* (FDI) in transition countries.<sup>14</sup> FDI, even more than trade, has driven the integration process with the EU (Döhrn, 2001), has contributed to the economic restructuring process, bringing into the area financial capitals as well as new technology, skills and managerial know-how, which in turns have generated positive spillovers to domestic economy (Konings, 1999; Damijan, Majcen, 2000; Djankov, Hoeckman, 2000). Finally, FDI may also generate agglomeration processes of domestic firms through linkages with local suppliers (Altomonte, Resmini, 2001). These considerations and data constraints yield the equation that will be estimated:

---

<sup>13</sup> The latter aspect is, needless to say, more serious than the former, especially because I am working at regional level.

$$\ln\left(\frac{E_{ijt}}{E_{jt}}\right) = \mathbf{a}_{ijt} + \mathbf{b}_1 \ln(W_{it-1}) + \mathbf{b}_2 \ln\left(\frac{DIST_i}{\sum_i w_{ijt} DIST_i}\right) + \mathbf{b}_3 \ln(FDI_{it}) + \mathbf{b}_4 \ln\left(\frac{E_{ist}}{E_{st}}\right) + \mathbf{b}_5 \ln(ROAD_{it}) + \mathbf{b}_6 \ln(STUD_{it}) + \mathbf{e}_{ijt} \quad (2)$$

where  $i$  indicates regions,  $j$  industries,  $t$  time and  $s$  the service sector.

The dependent variable is regional employment in sector  $j$ , measured relative to national employment in order to control for national demand effect. The first term on the right side of eq (2) is the average region wage. In order to avoid introducing simultaneity into the regression, I use regional wage lagged one period. To the extent wages reflect market conditions, I expect relative employment to be decreasing in region wage. The second term is a proxy for geographical distance, which I measure as road distance from region  $i$  to the capital city relative to industry weighted-average distance to the capital. The distance variable should be uncorrelated with relative employment if trade liberalisation and transition have re-oriented core markets towards foreign markets; otherwise it should be negatively correlated with relative employment, since transport costs increase with distance. The third term in eq. (2) captures the role of FDI in developing regional economy. I measured FDI as the number of foreign firms in region  $i$  at time  $t$  per 100,000 inhabitants, in order to take into account region size effects. To the extent FDI plays a positive role in promoting local development through spillovers and linkages, I expect relative employment to be increasing in FDI. However, since foreign firms have been heavily involved in restructuring activities, mainly in the early transition, the impact on relative employment might be negative. The fourth term in eq. (2) measures relative employment in the service sector. Since services are supposed to give a positive contribution to the economic activity, I expect that it positively affects the location of economic activities. The fifth term in eq. (2) is a proxy for region's accessibility, which I measure as road density. I expect relative employment to be higher where the endowment of infrastructures is higher. Finally, the sixth term of eq. (2) indicates the endowment of skilled labour force, measured indirectly through the number of secondary and tertiary students per 100,000 inhabitants at region level. Again, the normalisation is needed to take into account effects related to different region size.

Concerning the error term, I control for the possibility there are idiosyncratic components to economic activity location at region level by allowing it to have the following structure:

$$\mathbf{e}_{ijt} = \mathbf{t}_i + \mathbf{k}_j + \mathbf{h}_t + \mathbf{m}_{ijt} \quad (3)$$

---

<sup>14</sup> See UN/ECE (2001) for a comprehensive survey on the role of FDI in transition countries.

where  $\hat{\delta}_i$  is a fixed region-type effect<sup>15</sup>,  $\hat{\epsilon}_j$  is a fixed industry effect,  $\zeta_t$  is a fixed year effect and  $\lambda_{ijt}$  is an i.i.d. random variable with mean zero and variance  $\sigma^2$ . I choose fixed effects rather than random effects estimation since relative employment is the consequence of both region and industry characteristics. From a technical point of view, this indicates that  $\lambda_{ijt}$  can not be considered uncorrelated across regions and industries. Thus, fixed effects estimation is more appropriate (Baltagi, 2001). Given the size of the sample, using dummy variables to control for fixed effects does not substantially reduce the degrees of freedom of the regression. The relative large number of observations also allows the estimation of a variable coefficient model, which aims at evaluating potential differences in the explanatory power of the exogenous variables in each group of regions.

In order to study in which location relative employment has grown faster, I assume that the average growth rate of the relative employment over the period can be expressed as a function of the initial conditions of the relative employment of industry  $j$  in region  $i$ , and other regions' characteristics as well. This specification allows to avoid introducing simultaneity in the regression, which have the following structure:

$$\ln\left(\frac{E_{ijt}}{E_{jt}}\right) = \mathbf{a}_{ij} + \mathbf{b}_1 \ln(W_{it}) + \mathbf{b}_2 \ln\left(\frac{DIST_i}{\sum_i w_{ijt} DIST_i}\right) + \mathbf{b}_3 \ln(FDI_{it}) + \mathbf{b}_4 \ln\left(\frac{E_{ist}}{E_{st}}\right) + \mathbf{b}_5 \ln(ROAD_{it}) + \mathbf{b}_6 \ln\left(\frac{E_{ijt}}{E_{jt}}\right) + \mathbf{b}_7 \ln(STUD_{it}) + \mathbf{e}_{ijt} \quad (4)$$

where  $T$  indicates the final period (1999) and  $t$  the initial period (1993).

Eq. (4) has been estimated twice, first without controlling for fixed effects and then including dummy variables for region types (different types of borders and non-border regions) and industries. The equation has been estimated by OLS. Since there are two potential sources of heteroscedasticity (across regions and across industries), I use White's (1980) correction in order to obtain consistent standard errors.

## 5. Estimation results

Table 5 gives estimation results on relative employment (equation 2). Column (1) presents estimation results for pooling all observations across sectors, years and regions, while in the

<sup>15</sup> Given the objective of the paper, region fixed effects have been considered as constant within the groups of homogeneous regions previously identified (see Table 1).

following columns the hypotheses of common intercepts across regions, sectors and years have been progressively relaxed.

**Tab. 5 - Regression results on regional industry relative employment, 1992-1999**

variables	Pool	FE		
	(1)	(2)	(3)	(4)
<i>wage</i>	0.066 (0.026)**	0.08 (0.026)***	0.081 (0.026)***	0.12 (0.027)***
<i>relative distance</i>	-0.08 (0.013)***	-0.06 (0.016)***	-0.05 (0.015)***	-0.05 (0.015)***
<i>FDI</i>	0.08 (0.012)***	0.082 (0.013)***	0.078 (0.012)***	0.083 (0.013)***
<i>Roads</i>	0.24 (0.027)***	0.24 (0.031)***	0.24 (0.030)***	0.26 (0.030)***
<i>services</i>	0.65 (0.035)***	0.67 (0.027)***	0.69 (0.026)***	0.68 (0.026)***
<i>students</i>	0.05 (0.011)***	0.05 (0.011)***	0.05 (0.011)***	0.05 (0.011)***
<i>constant</i>	-4.03 (0.339)***	-3.12 (0.25)***	-2.95 (0.243)***	-2.93 (0.249)***
<i>region dummy</i>		F <sub>(3,3814)</sub> =6.89***	F <sub>(3,3807)</sub> =7.92***	F <sub>(3,3800)</sub> =8.08***
<i>industry dummy</i>	-	-	F <sub>(6,3807)</sub> =37.09***	F <sub>(6,3800)</sub> =36.96***
<i>year dummy</i>	-	-	-	F <sub>(6,3800)</sub> =1.14
<i>n. of obs</i>	3824	3824	3824	3824
<i>R2</i>	0.40	0.38	0.42	0.42
<i>Root MSE</i>	0.83	0.82	0.80	0.79

Robust standard errors are in parenthesis

\*\*\* indicates statistical significance at 0.01 level.

\*\* indicates statistical significance at 0.05 level.

All control variables significantly affect the location of the manufacturing activities. The results show that the interaction between relative employment and wage at regional level is significant, though has the opposite sign to that expected from the theory. It is not clear how to interpret this result, particularly because it is not constant across regions, as it is shown in table 6. One possible explanation is that it does not reflect market conditions because of the

presence of some region-specific rigidities.<sup>16</sup> The interpretation of the results for the other explanatory variables is more straightforward. Relative distance to the capital is negatively related to relative employment in all regressions. This suggests distance to capital reduces regional labour demand. Despite trade liberalisation and economic integration with the EU, domestic market is still determines the location of economic activities within a country. The results also show that relative employment is positively correlated with the infrastructure variable, the FDI variable, the number of student and the relative employment in the service sectors. The largest quantitative effects are those related to the service sector and the road variable.

These results hold also when controlling for fixed effects. Relative employment is different across regions and sectors, while the location of economic activities does not seem to have been affected by time flying.

The results discussed above are averages for all regions included in the sample. However, the location of economic activities may respond differently to the explanatory variables according to the geographical position of each region with respect to borders. To determine the individual influence of each explanatory variable, I re-estimate equation (2) allowing for separate slope parameters in each of the four groups of regions previously identified. The resulting coefficients are shown in Table 6. The most striking changes from the previous results concern the distance variable, the infrastructure variable and the wage variable, all able to affect the location of economic activities only in border regions, though to a different extent according to the type of border. Internal regions' capacity to attract economic activities, instead, relies on the presence of foreign firms, the endowment of educated labour force and services as well.

Differences across border regions are less marked, but perhaps more interesting. Relative employment in regions bordering external (BEX) and other candidate countries (BAC) is lower where the functional distance from the capital is higher, indicating a strong dependence of these peripheral regions from domestic markets. In BEU regions, instead, the interaction between relative employment and distance is still significant, but positive. This results indicate that bordering with advanced countries – as the EU may be in comparison with transition countries – may mitigate the disadvantage of being in a peripheral position. Wages reflect market conditions only in BEX regions, while in BEU and BAC regions the interaction between relative employment and wages is significant but positive, though quantitatively not

---

<sup>16</sup> Another possible explanation is that regional wages have been measured in nominal and not in real terms, thus reflecting inflation rather than market conditions. If this were true, however, it would become more and more difficult to explain how wages behave differently across regions as a determinant of the location of economic activities.

too large. FDI contributes positively to relative employment in all regions, except those bordering with the EU, indicating that in BEU regions foreign firms have a dominant role in the economic system. Road density does not affect the location of economic activities in BEU regions, suggesting that in these regions, economic links with foreign markets are stronger than those with internal markets, thus reducing the importance of a good endowment of infrastructure connecting regions *within* a country. Skilled labour force positively affects relative employment in all regions but BAC, while manufacturing activities in BEX regions do not seem to be affected by the location of tertiary activities within the regions. Finally, it is worth noticing that from a quantitative point of view, the service variable exerts the strongest impact in BEU regions, while road variable coefficient takes its highest value in BEX regions, indicating that external regions need to have a good accessibility in order not to be penalised by its peripheral location.

Overall, these results indicate that economic integration and trade liberalisation with the EU has had a different impact on the location of economic activities in border and non border regions. Moreover, they also confirm that border regions can not be treated as a homogenous set of regions. The location of economic activities in border regions respond differently to the explanatory variables according to their geographical location.

### *5.2 Prospects for growth*

Table 7 gives the estimation results for eq. (4), i.e. relative employment growth over the period 1993-99. Among the control variables, only the initial level of relative employment, FDI and services seem to be able to generate some re-location activities. In particular, relative employment growth is higher where the initial level of relative employment is lower, a sign for converge across regions, and where the initial level of FDI and regional specialisation in services are higher. There is no evidence that relative distance is related to relative employment growth. The coefficient of the variable is negative, but statistically insignificant in all regressions. These effects are common to all sectors, and the hypothesis of heterogeneity among regions is supported by data only at 0.05 level of significance. Consequently, economic integration and trade liberalisation are likely to affect only weakly economic growth across regions depending on their location within the country or along the borders.



**Table 6 - Regression results on regional industry relative employment (1992-1999): variable coefficient model**

Variables	BEU		BEX		BAC		INT		Wald test on restrictions (1)	Wald test on restrictions (2)	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)			
Wage		0.23 (0.088)**	0.26 (0.084)***	-0.39 (0.109)***	-0.31 (0.105)***	0.11 (0.044)**	0.10 (0.043)**	-0.07 (0.046)	-0.06 (0.043)	F <sub>(3,3796)</sub> =23.26***	F <sub>(3,3768)</sub> =8.37***
Relative distance		0.24 (0.071)***	0.18 (0.070)**	-0.5 (0.112)***	-0.32 (0.116)***	-0.34 (0.047)***	-0.28 (0.046)***	-0.01 (0.022)	0.002 (0.022)	F <sub>(3,3796)</sub> =24.81***	F <sub>(3,3768)</sub> =15.45***
FDI		-0.32 (0.079)***	-0.34 (0.075)***	0.3 (0.035)***	0.27 (0.034)***	0.14 (0.028)***	0.12 (0.027)***	0.06 (0.016)***	0.05 (0.016)***	F <sub>(3,3796)</sub> =9.01***	F <sub>(3,3768)</sub> =22.29***
Road		-0.15 (0.206)	-0.13 (0.197)	1.26 (0.189)***	1.26 (0.180)***	0.18 (0.058)***	0.21 (0.055)***	-0.01 (0.85)	-0.004 (0.081)	F <sub>(3,3796)</sub> =13.48***	F <sub>(3,3768)</sub> =14.48***
Student		0.19 (0.083)**	0.19 (0.080)**	0.09 (0.035)**	0.09 (0.033)***	0.03 (0.02)	0.03 (0.020)	0.05 (0.019)**	0.05 (0.018)**	F <sub>(3,3796)</sub> =1.5	F <sub>(3,3768)</sub> =1.75
Services		1.33 (0.163)***	1.24 (0.157)***	0.055 (0.079)	0.08 (0.075)	0.73 (0.063)***	0.71 (0.060)***	0.79 (0.056)***	0.79 (0.054)***	F <sub>(3,3796)</sub> =26.91***	F <sub>(3,3768)</sub> =26.08***
Industry dummy		no	yes	no	yes	no	yes	no	yes		
n. of obs	3824	3824	330	505	1208	1781					
R2	0.42	0.48									
Root MSE	0.79	0.76									

Robust standard errors are in parenthesis. Regional fixed effects not reported.  
 \*\*\* indicates statistical significance at 0.01 level; \*\* indicates statistical significance at 0.05 level and \* indicates statistical significance at 0.1 level.  
 Last two columns give the Wald test statistics for the nul hypothesis of equal slope coefficients among groups of regions

In order to better understand how the enlargement process will affect regions' prospects for growth, I construct predicted growth rates using the estimated coefficients. The results are given in table 8, which points out several striking features. On average, border regions have better prospects for growth than internal one, which are intended for stagnation. Within border regions, BEX ones show the highest rate of growth in relative employment, followed by BEU regions. Regions bordering with other candidate countries enjoy positive rates of growth but they are much lower than those of other border regions, and more similar to those enjoyed by internal regions. With respect to countries, all Hungarian regions are above the average in their respective categories, while Bulgarian and Romanian regions show growth rates under the average, with the exception of Romanian BAC regions, indicating that regional adjustments are not independent from domestic country effects.

**Table 7 - Regression results: regional industry relative employment Growth over the period (1993-99)**

<b>variables</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
<i>relative employment</i>	-0.22 (0.043)***	-0.21 (0.043)***	-0.21 (0.042)***
<i>wage</i>	0.05 (0.036)	0.05 (0.037)	0.06 (0.037)
<i>relative distance</i>	-0.004 (0.017)	-0.005 (0.017)	-0.01 (0.018)
<i>FDI</i>	0.06 (0.026)**	0.06 (0.03)**	0.05 (0.027)*
<i>Road</i>	0.05 (0.050)	0.05 (0.05)	0.03 (0.054)
<i>Services</i>	0.08 (0.046)*	0.08 (0.05)*	0.07 (0.047)
<i>student</i>	-0.01 (0.023)	-0.01 (0.023)	-0.01 (0.025)
<i>constant</i>	-1.05 (0.41)**	-1.02 (0.415)**	-1.01 (0.429)**
<i>industry dummies</i>	-	F <sub>(6,461)</sub> =0.39	F <sub>(6,461)</sub> =0.38
<i>region dummies</i>			F <sub>(3,461)</sub> =3.53**
<i>n. of obs</i>	479	479	479
<i>R<sup>2</sup></i>	0.169	0.175	0.181
<i>Root MSE</i>	0.402	0.404	0.404

Robust standard errors are in parenthesis

\*\*\* indicates statistical significance at 0.01 level. \*\* indicates statistical significance at 0.05 level.

\* indicates statistical significance at 0.10 level.

**Table 8 - Predicted growth rates over the period by groups of regions and country (%)**

	<b>BEU</b>	<b>BEX</b>	<b>BAC</b>	<b>INT</b>	<b>INT*</b>
<b>group average</b>	<b>11.8</b>	<b>13.9</b>	<b>5.6</b>	<b>-0.2</b>	<b>0.5</b>
<i>within country:</i>					
Bulgaria	9.9	4.4	-4.0	-2.3	-2.3
Estonia	10.9	...	n.a.	...	...
Hungary	24.1	20.6	7.5	7.4	10.6
Romania	...	12.2	9.6	-2.6	-2.3

\* without capital city districts  
n.a = not estimated;

## 6. Concluding remarks

This paper provides a first rigorous framework in which regional adjustments in Central and Eastern Europe may be assessed and understood. The need for an in-depth analysis of the impact of the enlargement process on candidate countries at regional level has often been highlighted, but the lack of consistent and reliable statistics, homogenous across countries and regions made this analysis difficult and limited to qualitative insights on the spatial effects generated by a strengthening of the economic integration with the EU. This paper has aimed to fill this gap. It presents empirical evidence that the location and growth of economic activities in candidate countries may be conditioned by region specific effects. The analysis provides interesting results which, interpreted cautiously can be summarised as follows:

- Border regions do not represent a homogeneous set of regions, since economic performance of frontier areas is affected not only by the relative position within a country with respect to its economic centre – which often coincides with the capital city in transition countries – but also by the economic conditions of the neighbouring foreign countries. For these reasons, border areas are more sensitive to region accessibility and distance from the capital city than internal regions, though interesting differences can be identified within each group of homogeneous border regions.
- BEU regions seem to take advantage to their location since it has stimulated a catching up process: economic activity is attracted by high wages, skilled labour force and a well developed service sector, while FDI, increases productivity and efficiency, while reducing relative employment. The peripheral location from their respective capitals do not seem to be a problem, since economic activity is not affected by the region accessibility (measured

with respect to the national dimension). In conclusion, BEU regions seem to have many of the characteristics of what has been defined as an “active contact space” (Nijkamp, 1998; Van Geenhuizen, Ratti, 2001), and the analysis of prospects of growth further reinforces this consideration.

- BEX regions have raised concerns among economists and policy makers as well. It was thought that their very peripheral position, not only within their respective countries but also with respect to the EU, and the proximity to countries economically weak would have represented a serious obstacle to their economic development. However, the paper does not confirm this pessimistic picture. Low wages, FDI, infrastructure connections with the capital city are able to attract economic activities in this regions, and also to overcome the negative effect generated by the distance variable.
- BAC regions do not present serious concerns. Manufacturing activity is penalised by the distance from the capital city, but takes advantages from high wages, infrastructure , FDI, and the presence of service activities. Skilled labour force does not seem to exert any effects on the location of manufacturing within this group of regions, indicating a prevalence of traditional, labour intensive activities.
- Manufacturing activities in internal regions seem to be attracted only by a well developed service sector (as it usually is in the capital city, which belong to this group of regions with the exception of Tallin, Estonia) and to a lesser extent by FDI and skilled labour force.
- Concerning growth rates, two interesting results deserve particular attention. First, employment growth at regional level depends negatively by the initial level of the employment in each sector and positively by FDI and services, though econometric results are very weak for the last two variables. Also region specific effects are weakly supported by data. Overall, these results suggest that a convergence process is working within countries, but not with respect to the EU average, as it is shown by the transition matrices computed in section 3.
- Finally growth prospects seem to confirm the better position of border regions relative to internal one. The former are, on average, expected to grow, while the latter show a stagnation or a small decline, other things been equal. Within border regions, BEX and BEU show the highest predicted growth rates. It is however worth noticing that prospects for growth are country specific.

Many of these results are on the range on what one might have expected and therefore allow some confidence in the reliability of data and methodology. Altogether, they suggest a less dramatic view of the spatial effects of the enlargement process in candidate countries.

However, the time period considered is so short and eventful which makes the availability of more detailed and longer time series data desirable and necessary to completely understand the consequences of the enlargement process.

## References

- Altomonte C., e L. Resmini (2001), "Multinational Corporations as a Catalyst for Industrial Development: the case of Poland", *Licos, discussion paper* n. 97/2001; e *WDI working paper series* n. 368, February.
- Anderson, J., L. O'Dowd (1999), "Borders, Border Regions and Territoriality: Contradictory Meanings, Changing Significance", *Regional Studies*, vol. 33.7, pp. 593-604.
- Avery, G., F. Cameron (1998), *The Enlargement of the European Union*, Sheffield Academic Press, Sheffield.
- Baldwin, R., J. Francois, and R. Portes (1997), "EU Enlargement – small costs for the west, big gains for the east", *Economic Policy*, April, pp. ...
- Baltagi, B.H. (2001), *Econometrics Analysis of Panel Data*, Second Edition, Chichester, John Wiley & Sons, Ltd.
- Bosco M.G., L. Resmini (2001), "Border regions in candidate countries: comparative facts and figures", PHARE ACE Project n. P98-1117-R.
- Damijan, J., B. Majcen (2000), "Transfer of technology through FDI, spillover effects and recovery of Slovenian manufacturing firms", University of Ljubljana, mimeo.
- Djankov, S., B. Hoeckman (1998), "Avenues of technology transfer: foreign investment and productivity change in the Czech Republic", CEPR Discussion paper 1883.
- Döhrn, R. et al. (2001), "The impact of trade and FDI on cohesion", background paper for the Second Report on Cohesion, RWI, Essen, April.
- EC (2001), *Unity, solidarity, diversity for Europe, its people and its territory*, Second Report on Economic and Social Cohesion, vol. 1 and 2, EC, Brussels.
- Fujita, M., P. Krugman and A.J. Venables, (2000), *The Spatial Economy. Cities, Regions and International Trade*, MIT Press, Cambridge, Mass.
- Van Geenhuizen, M., R. Ratti (eds.) (2001), *Gaining Advantage from Open Borders. An active Space for Regional Development*, Aldershot, Ashgate.
- Hansen, N. (1977a), "Border Regions: s Critique of Spatial Theory and a European Case Studies", *Annals of Regional Science*, vol. 11, pp. 1-12
- Hansen, N. (1977b), "The Economic Development of Border Regions", *Growth and Change*, vol. 8, pp. 2-8.
- Hanson, G. (1996), "Economic Integration, intraindustry trade, and frontier regions", *European Economic Review* 40, pp. 941-949.
- Hanson, G. (1998), "Regional adjustment to trade liberalisation", *Regional Science and Urban Economics* 28, pp. 419-444.
- Hirschman, A. (1958), *The strategy of Economic development*, New Haven, CT, Yale University Press.

- Konings, J., (1999), “The effects of direct foreign investment on domestic firms: evidence from firm level panel data in emerging economies”, LICOS discussion paper n. 86, Leuven.
- Krugman, P. (1998), “What’s new about the new economic geography?”, *Oxford Review of Economic Policy*, vol. 14, n. 2, pp. 7-17.
- Myrdal, G. (1957), *Economic Theory and Under-Developed Regions*, London, Duckworth.
- Nijkamp, P. (1998), “Moving Frontiers: a Local-Global Perspective”, Vrije Universiteit of Amsterdam, Faculty of Business Administration and Econometrics, Research Memorandum n. 22.
- Nijkamp, P., (1994), *New Borders and Old Barriers in Spatial Development*, Avebury.
- Overman, H.G., D. Puga (1999), “Unemployment clusters across European regions and countries”, CEPR discussion paper 2250.
- Overman, H.G., S. Redding and A. Venables (2001), “The Economic of Geography of Trade, Production and Income: a Survey of Empirics”, CEPR discussion paper
- Pred, A.R. (1966), *The Spatial Dynamics of US Urban-industrial Growth, 1800-1914*, Cambridge, MA., MIT Press.
- Puga, D. (2001), “European Regional policies in light of recent Location Theories”, CEPR Discussion paper 2767.
- Resmini, L. (2000), “The Determinants of foreign direct investment in the CEECs: New Evidence from sectoral patterns”, *The Economics of Transition*, vol. 8, n. 3, pp. 665-689.
- UN/ECE (2001), “Economic Growth and Foreign Direct Investment in the Transition Economies”, chapter 5, *Economic Survey of Europe*, n.1, United Nation, Geneva, pp. 185-225.
- Venables, A. (1998), “The assessment: trade and location”, *Oxford Review of Economic Policy*, vol. 14, n. 2, pp. 1-6.
- Weise, C., J. Bachtler, R. Downes et al. (2001), “The Impact of EU Enlargement on Cohesion”, background paper for the Second Report on Cohesion, DIW and EPRC, Berlin and Glasgow, March.
- White, H. (1980), “A heteroskedasticity-consistent covariace matrix estimator and a direct test for heteroskedasticity”, *Econometrica*, 48, 817-838.

<b>2008</b>		
B01-08	<b>Euro-Diplomatie durch gemeinsame „Wirtschaftsregierung“</b>	<i>Martin Seidel</i>
<b>2007</b>		
B03-07	<b>Löhne und Steuern im Systemwettbewerb der Mitgliedstaaten der Europäischen Union</b>	<i>Martin Seidel</i>
B02-07	<b>Konsolidierung und Reform der Europäischen Union</b>	<i>Martin Seidel</i>
B01-07	<b>The Ratification of European Treaties - Legal and Constitutional Basis of a European Referendum.</b>	<i>Martin Seidel</i>
<b>2006</b>		
B03-06	<b>Financial Frictions, Capital Reallocation, and Aggregate Fluctuations</b>	<i>Jürgen von Hagen, Haiping Zhang</i>
B02-06	<b>Financial Openness and Macroeconomic Volatility</b>	<i>Jürgen von Hagen, Haiping Zhang</i>
B01-06	<b>A Welfare Analysis of Capital Account Liberalization</b>	<i>Jürgen von Hagen, Haiping Zhang</i>
<b>2005</b>		
B11-05	<b>Das Kompetenz- und Entscheidungssystem des Vertrages von Rom im Wandel seiner Funktion und Verfassung</b>	<i>Martin Seidel</i>
B10-05	<b>Die Schutzklauseln der Beitrittsverträge</b>	<i>Martin Seidel</i>
B09-05	<b>Measuring Tax Burdens in Europe</b>	<i>Guntram B. Wolff</i>
B08-05	<b>Remittances as Investment in the Absence of Altruism</b>	<i>Gabriel González-König</i>
B07-05	<b>Economic Integration in a Multicore World?</b>	<i>Christian Volpe Martincus, Jennifer Pédussel Wu</i>
B06-05	<b>Banking Sector (Under?)Development in Central and Eastern Europe</b>	<i>Jürgen von Hagen, Valeriya Dinger</i>
B05-05	<b>Regulatory Standards Can Lead to Predation</b>	<i>Stefan Lutz</i>
B04-05	<b>Währungspolitik als Sozialpolitik</b>	<i>Martin Seidel</i>
B03-05	<b>Public Education in an Integrated Europe: Studying to Migrate and Teaching to Stay?</b>	<i>Panu Poutvaara</i>
B02-05	<b>Voice of the Diaspora: An Analysis of Migrant Voting Behavior</b>	<i>Jan Fidrmuc, Orla Doyle</i>
B01-05	<b>Macroeconomic Adjustment in the New EU Member States</b>	<i>Jürgen von Hagen, Iulia Traistaru</i>
<b>2004</b>		
B33-04	<b>The Effects of Transition and Political Instability On Foreign Direct Investment Inflows: Central Europe and the Balkans</b>	<i>Josef C. Brada, Ali M. Kutan, Tanner M. Yigit</i>
B32-04	<b>The Choice of Exchange Rate Regimes in Developing Countries: A Multinomial Panel Analysis</b>	<i>Jürgen von Hagen, Jizhong Zhou</i>
B31-04	<b>Fear of Floating and Fear of Pegging: An Empirical Analysis of De Facto Exchange Rate Regimes in Developing Countries</b>	<i>Jürgen von Hagen, Jizhong Zhou</i>
B30-04	<b>Der Vollzug von Gemeinschaftsrecht über die Mitgliedstaaten und seine Rolle für die EU und den Beitrittsprozess</b>	<i>Martin Seidel</i>
B29-04	<b>Deutschlands Wirtschaft, seine Schulden und die Unzulänglichkeiten der einheitlichen Geldpolitik im Eurosystem</b>	<i>Dieter Spethmann, Otto Steiger</i>
B28-04	<b>Fiscal Crises in U.S. Cities: Structural and Non-structural Causes</b>	<i>Guntram B. Wolff</i>
B27-04	<b>Firm Performance and Privatization in Ukraine</b>	<i>Galyna Grygorenko, Stefan Lutz</i>
B26-04	<b>Analyzing Trade Opening in Ukraine: Effects of a Customs Union with the EU</b>	<i>Oksana Harbuzyuk, Stefan Lutz</i>
B25-04	<b>Exchange Rate Risk and Convergence to the Euro</b>	<i>Lucjan T. Orłowski</i>
B24-04	<b>The Endogeneity of Money and the Eurosystem</b>	<i>Otto Steiger</i>
B23-04	<b>Which Lender of Last Resort for the Eurosystem?</b>	<i>Otto Steiger</i>
B22-04	<b>Non-Discretionary Monetary Policy: The Answer for Transition Economies?</b>	<i>Elham-Mafi Kreft, Steven F. Kreft</i>
B21-04	<b>The Effectiveness of Subsidies Revisited: Accounting for Wage and Employment Effects in Business R+D</b>	<i>Volker Reinthaler, Guntram B. Wolff</i>
B20-04	<b>Money Market Pressure and the Determinants of Banking Crises</b>	<i>Jürgen von Hagen, Tai-kuang Ho</i>
B19-04	<b>Die Stellung der Europäischen Zentralbank nach dem Verfassungsvertrag</b>	<i>Martin Seidel</i>

B18-04	<b>Transmission Channels of Business Cycles Synchronization in an Enlarged EMU</b>	<i>Iulia Traistaru</i>
B17-04	<b>Foreign Exchange Regime, the Real Exchange Rate and Current Account Sustainability: The Case of Turkey</b>	<i>Sübüdey Togan, Hasan Ersel</i>
B16-04	<b>Does It Matter Where Immigrants Work? Traded Goods, Non-traded Goods, and Sector Specific Employment</b>	<i>Harry P. Bowen, Jennifer Pédussel Wu</i>
B15-04	<b>Do Economic Integration and Fiscal Competition Help to Explain Local Patterns?</b>	<i>Christian Volpe Martincus</i>
B14-04	<b>Euro Adoption and Maastricht Criteria: Rules or Discretion?</b>	<i>Jiri Jonas</i>
B13-04	<b>The Role of Electoral and Party Systems in the Development of Fiscal Institutions in the Central and Eastern European Countries</b>	<i>Sami Yläoutinen</i>
B12-04	<b>Measuring and Explaining Levels of Regional Economic Integration</b>	<i>Jennifer Pédussel Wu</i>
B11-04	<b>Economic Integration and Location of Manufacturing Activities: Evidence from MERCOSUR</b>	<i>Pablo Sanguinetti, Iulia Traistaru, Christian Volpe Martincus</i>
B10-04	<b>Economic Integration and Industry Location in Transition Countries</b>	<i>Laura Resmini</i>
B09-04	<b>Testing Creditor Moral Hazard in Sovereign Bond Markets: A Unified Theoretical Approach and Empirical Evidence</b>	<i>Ayse Y. Evrensel, Ali M. Kutan</i>
B08-04	<b>European Integration, Productivity Growth and Real Convergence</b>	<i>Taner M. Yigit, Ali M. Kutan</i>
B07-04	<b>The Contribution of Income, Social Capital, and Institutions to Human Well-being in Africa</b>	<i>Mina Balamoune-Lutz, Stefan H. Lutz</i>
B06-04	<b>Rural Urban Inequality in Africa: A Panel Study of the Effects of Trade Liberalization and Financial Deepening</b>	<i>Mina Balamoune-Lutz, Stefan H. Lutz</i>
B05-04	<b>Money Rules for the Eurozone Candidate Countries</b>	<i>Lucjan T. Orłowski</i>
B04-04	<b>Who is in Favor of Enlargement? Determinants of Support for EU Membership in the Candidate Countries' Referenda</b>	<i>Orla Doyle, Jan Fidrmuc</i>
B03-04	<b>Over- and Underbidding in Central Bank Open Market Operations Conducted as Fixed Rate Tender</b>	<i>Ulrich Bindseil</i>
B02-04	<b>Total Factor Productivity and Economic Freedom Implications for EU Enlargement</b>	<i>Ronald L. Moomaw, Euy Seok Yang</i>
B01-04	<b>Die neuen Schutzklauseln der Artikel 38 und 39 des Beitrittsvertrages: Schutz der alten Mitgliedstaaten vor Störungen durch die neuen Mitgliedstaaten</b>	<i>Martin Seidel</i>
<b>2003</b>		
B29-03	<b>Macroeconomic Implications of Low Inflation in the Euro Area</b>	<i>Jürgen von Hagen, Boris Hofmann</i>
B28-03	<b>The Effects of Transition and Political Instability on Foreign Direct Investment: Central Europe and the Balkans</b>	<i>Josef C. Brada, Ali M. Kutan, Taner M. Yigit</i>
B27-03	<b>The Performance of the Euribor Futures Market: Efficiency and the Impact of ECB Policy Announcements (Electronic Version of International Finance)</b>	<i>Kerstin Bernoth, Juergen von Hagen</i>
B26-03	<b>Sovereign Risk Premia in the European Government Bond Market (überarbeitete Version zum Herunterladen)</b>	<i>Kerstin Bernoth, Juergen von Hagen, Ludger Schulknecht</i>
B25-03	<b>How Flexible are Wages in EU Accession Countries?</b>	<i>Anna Iara, Iulia Traistaru</i>
B24-03	<b>Monetary Policy Reaction Functions: ECB versus Bundesbank</b>	<i>Bernd Hayo, Boris Hofmann</i>
B23-03	<b>Economic Integration and Manufacturing Concentration Patterns: Evidence from Mercosur</b>	<i>Iulia Traistaru, Christian Volpe Martincus</i>
B22-03	<b>Reformzwänge innerhalb der EU angesichts der Osterweiterung</b>	<i>Martin Seidel</i>
B21-03	<b>Reputation Flows: Contractual Disputes and the Channels for Inter-Firm Communication</b>	<i>William Pyle</i>
B20-03	<b>Urban Primacy, Gigantism, and International Trade: Evidence from Asia and the Americas</b>	<i>Ronald L. Moomaw, Mohammed A. Alwosabi</i>
B19-03	<b>An Empirical Analysis of Competing Explanations of Urban Primacy Evidence from Asia and the Americas</b>	<i>Ronald L. Moomaw, Mohammed A. Alwosabi</i>



B18-03	<b>The Effects of Regional and Industry-Wide FDI Spillovers on Export of Ukrainian Firms</b>	<i>Stefan H. Lutz, Oleksandr Talavera, Sang-Min Park</i>
B17-03	<b>Determinants of Inter-Regional Migration in the Baltic States</b>	<i>Mihails Hazans</i>
B16-03	<b>South-East Europe: Economic Performance, Perspectives, and Policy Challenges</b>	<i>Iulia Traistaru, Jürgen von Hagen</i>
B15-03	<b>Employed and Unemployed Search: The Marginal Willingness to Pay for Attributes in Lithuania, the US and the Netherlands</b>	<i>Jos van Ommeren, Mihails Hazans</i>
B14-03	<b>FCIs and Economic Activity: Some International Evidence</b>	<i>Charles Goodhart, Boris Hofmann</i>
B13-03	<b>The IS Curve and the Transmission of Monetary Policy: Is there a Puzzle?</b>	<i>Charles Goodhart, Boris Hofmann</i>
B12-03	<b>What Makes Regions in Eastern Europe Catching Up? The Role of Foreign Investment, Human Resources, and Geography</b>	<i>Gabriele Tondl, Goran Vuksic</i>
B11-03	<b>Die Weisungs- und Herrschaftsmacht der Europäischen Zentralbank im europäischen System der Zentralbanken - eine rechtliche Analyse</b>	<i>Martin Seidel</i>
B10-03	<b>Foreign Direct Investment and Perceptions of Vulnerability to Foreign Exchange Crises: Evidence from Transition Economies</b>	<i>Josef C. Brada, Vladimír Tomsík</i>
B09-03	<b>The European Central Bank and the Eurosystem: An Analysis of the Missing Central Monetary Institution in European Monetary Union</b>	<i>Gunnar Heinsohn, Otto Steiger</i>
B08-03	<b>The Determination of Capital Controls: Which Role Do Exchange Rate Regimes Play?</b>	<i>Jürgen von Hagen, Jizhong Zhou</i>
B07-03	<b>Nach Nizza und Stockholm: Stand des Binnenmarktes und Prioritäten für die Zukunft</b>	<i>Martin Seidel</i>
B06-03	<b>Fiscal Discipline and Growth in Euroland. Experiences with the Stability and Growth Pact</b>	<i>Jürgen von Hagen</i>
B05-03	<b>Reconsidering the Evidence: Are Eurozone Business Cycles Converging?</b>	<i>Michael Massmann, James Mitchell</i>
B04-03	<b>Do Ukrainian Firms Benefit from FDI?</b>	<i>Stefan H. Lutz, Oleksandr Talavera</i>
B03-03	<b>Europäische Steuerkoordination und die Schweiz</b>	<i>Stefan H. Lutz</i>
B02-03	<b>Commuting in the Baltic States: Patterns, Determinants, and Gains</b>	<i>Mihails Hazans</i>
B01-03	<b>Die Wirtschafts- und Währungsunion im rechtlichen und politischen Gefüge der Europäischen Union</b>	<i>Martin Seidel</i>
<b>2002</b>		
B30-02	<b>An Adverse Selection Model of Optimal Unemployment Assurance</b>	<i>Marcus Hagedorn, Ashok Kaul, Tim Mennel</i>
B29B-02	<b>Trade Agreements as Self-protection</b>	<i>Jennifer Pédussel Wu</i>
B29A-02	<b>Growth and Business Cycles with Imperfect Credit Markets</b>	<i>Debajyoti Chakrabarty</i>
B28-02	<b>Inequality, Politics and Economic Growth</b>	<i>Debajyoti Chakrabarty</i>
B27-02	<b>Poverty Traps and Growth in a Model of Endogenous Time Preference</b>	<i>Debajyoti Chakrabarty</i>
B26-02	<b>Monetary Convergence and Risk Premiums in the EU Candidate Countries</b>	<i>Lucjan T. Orłowski</i>
B25-02	<b>Trade Policy: <i>Institutional Vs. Economic</i> Factors</b>	<i>Stefan Lutz</i>
B24-02	<b>The Effects of Quotas on Vertical Intra-industry Trade</b>	<i>Stefan Lutz</i>
B23-02	<b>Legal Aspects of European Economic and Monetary Union</b>	<i>Martin Seidel</i>
B22-02	<b>Der Staat als <i>Lender of Last Resort</i> - oder: Die Achillesverse des Eurosystems</b>	<i>Otto Steiger</i>
B21-02	<b>Nominal and Real Stochastic Convergence Within the Transition Economies and to the European Union: Evidence from Panel Data</b>	<i>Ali M. Kutan, Taner M. Yigit</i>
B20-02	<b>The Impact of News, Oil Prices, and International Spillovers on Russian Financial Markets</b>	<i>Bernd Hayo, Ali M. Kutan</i>

B19-02	<b>East Germany: Transition with Unification, Experiments and Experiences</b>	<i>Jürgen von Hagen, Rolf R. Strauch, Guntram B. Wolff</i>
B18-02	<b>Regional Specialization and Employment Dynamics in Transition Countries</b>	<i>Iulia Traistaru, Guntram B. Wolff</i>
B17-02	<b>Specialization and Growth Patterns in Border Regions of Accession Countries</b>	<i>Laura Resmini</i>
B16-02	<b>Regional Specialization and Concentration of Industrial Activity in Accession Countries</b>	<i>Iulia Traistaru, Peter Nijkamp, Simonetta Longhi</i>
B15-02	<b>Does Broad Money Matter for Interest Rate Policy?</b>	<i>Matthias Brückner, Andreas Schaber</i>
B14-02	<b>The Long and Short of It: Global Liberalization, Poverty and Inequality</b>	<i>Christian E. Weller, Adam Hersch</i>
B13-02	<b>De Facto and Official Exchange Rate Regimes in Transition Economies</b>	<i>Jürgen von Hagen, Jizhong Zhou</i>
B12-02	<b>Argentina: The Anatomy of A Crisis</b>	<i>Jiri Jonas</i>
B11-02	<b>The Eurosystem and the Art of Central Banking</b>	<i>Gunnar Heinsohn, Otto Steiger</i>
B10-02	<b>National Origins of European Law: Towards an Autonomous System of European Law?</b>	<i>Martin Seidel</i>
B09-02	<b>Monetary Policy in the Euro Area - Lessons from the First Years</b>	<i>Volker Clausen, Bernd Hayo</i>
B08-02	<b>Has the Link Between the Spot and Forward Exchange Rates Broken Down? Evidence From Rolling Cointegration Tests</b>	<i>Ali M. Kutan, Su Zhou</i>
B07-02	<b>Perspektiven der Erweiterung der Europäischen Union</b>	<i>Martin Seidel</i>
B06-02	<b>Is There Asymmetry in Forward Exchange Rate Bias? Multi-Country Evidence</b>	<i>Su Zhou, Ali M. Kutan</i>
B05-02	<b>Real and Monetary Convergence Within the European Union and Between the European Union and Candidate Countries: A Rolling Cointegration Approach</b>	<i>Josef C. Brada, Ali M. Kutan, Su Zhou</i>
B04-02	<b>Asymmetric Monetary Policy Effects in EMU</b>	<i>Volker Clausen, Bernd Hayo</i>
B03-02	<b>The Choice of Exchange Rate Regimes: An Empirical Analysis for Transition Economies</b>	<i>Jürgen von Hagen, Jizhong Zhou</i>
B02-02	<b>The Euro System and the Federal Reserve System Compared: Facts and Challenges</b>	<i>Karlheinz Ruckriegel, Franz Seitz</i>
B01-02	<b>Does Inflation Targeting Matter?</b>	<i>Manfred J. M. Neumann, Jürgen von Hagen</i>
<b>2001</b>		
B29-01	<b>Is Kazakhstan Vulnerable to the Dutch Disease?</b>	<i>Karlygash Kuralbayeva, Ali M. Kutan, Michael L. Wyzan</i>
B28-01	<b>Political Economy of the Nice Treaty: Rebalancing the EU Council. The Future of European Agricultural Policies</b>	<i>Deutsch-Französisches Wirtschaftspolitisches Forum</i>
B27-01	<b>Investor Panic, IMF Actions, and Emerging Stock Market Returns and Volatility: A Panel Investigation</b>	<i>Bernd Hayo, Ali M. Kutan</i>
B26-01	<b>Regional Effects of Terrorism on Tourism: Evidence from Three Mediterranean Countries</b>	<i>Konstantinos Drakos, Ali M. Kutan</i>
B25-01	<b>Monetary Convergence of the EU Candidates to the Euro: A Theoretical Framework and Policy Implications</b>	<i>Lucjan T. Orłowski</i>
B24-01	<b>Disintegration and Trade</b>	<i>Jarko and Jan Fidrmuc</i>
B23-01	<b>Migration and Adjustment to Shocks in Transition Economies</b>	<i>Jan Fidrmuc</i>
B22-01	<b>Strategic Delegation and International Capital Taxation</b>	<i>Matthias Brückner</i>
B21-01	<b>Balkan and Mediterranean Candidates for European Union Membership: The Convergence of Their Monetary Policy With That of the European Central Bank</b>	<i>Josef C. Brada, Ali M. Kutan</i>
B20-01	<b>An Empirical Inquiry of the Efficiency of Intergovernmental Transfers for Water Projects Based on the WRDA Data</b>	<i>Anna Rubinchik-Pessach</i>
B19-01	<b>Detrending and the Money-Output Link: International Evidence</b>	<i>R.W. Hafer, Ali M. Kutan</i>

B18-01	<b>Monetary Policy in Unknown Territory. The European Central Bank in the Early Years</b>	<i>Jürgen von Hagen, Matthias Brückner</i>
B17-01	<b>Executive Authority, the Personal Vote, and Budget Discipline in Latin American and Caribbean Countries</b>	<i>Mark Hallerberg, Patrick Marier</i>
B16-01	<b>Sources of Inflation and Output Fluctuations in Poland and Hungary: Implications for Full Membership in the European Union</b>	<i>Selahattin Dibooglu, Ali M. Kutan</i>
B15-01	<b>Programs Without Alternative: Public Pensions in the OECD</b>	<i>Christian E. Weller</i>
B14-01	<b>Formal Fiscal Restraints and Budget Processes As Solutions to a Deficit and Spending Bias in Public Finances - U.S. Experience and Possible Lessons for EMU</b>	<i>Rolf R. Strauch, Jürgen von Hagen</i>
B13-01	<b>German Public Finances: Recent Experiences and Future Challenges</b>	<i>Jürgen von Hagen, Rolf R. Strauch</i>
B12-01	<b>The Impact of Eastern Enlargement On EU-Labour Markets. Pensions Reform Between Economic and Political Problems</b>	<i>Deutsch-Französisches Wirtschaftspolitisches Forum</i>
B11-01	<b>Inflationary Performance in a Monetary Union With Large Wage Setters</b>	<i>Lilia Cavallar</i>
B10-01	<b>Integration of the Baltic States into the EU and Institutions of Fiscal Convergence: A Critical Evaluation of Key Issues and Empirical Evidence</b>	<i>Ali M. Kutan, Niina Pautola-Mol</i>
B09-01	<b>Democracy in Transition Economies: Grease or Sand in the Wheels of Growth?</b>	<i>Jan Fidrmuc</i>
B08-01	<b>The Functioning of Economic Policy Coordination</b>	<i>Jürgen von Hagen, Susanne Mundschenk</i>
B07-01	<b>The Convergence of Monetary Policy Between Candidate Countries and the European Union</b>	<i>Josef C. Brada, Ali M. Kutan</i>
B06-01	<b>Opposites Attract: The Case of Greek and Turkish Financial Markets</b>	<i>Konstantinos Drakos, Ali M. Kutan</i>
B05-01	<b>Trade Rules and Global Governance: A Long Term Agenda. The Future of Banking.</b>	<i>Deutsch-Französisches Wirtschaftspolitisches Forum</i>
B04-01	<b>The Determination of Unemployment Benefits</b>	<i>Rafael di Tella, Robert J. McCulloch</i>
B03-01	<b>Preferences Over Inflation and Unemployment: Evidence from Surveys of Happiness</b>	<i>Rafael di Tella, Robert J. McCulloch, Andrew J. Oswald</i>
B02-01	<b>The Konstanz Seminar on Monetary Theory and Policy at Thirty</b>	<i>Michele Fratianni, Jürgen von Hagen</i>
B01-01	<b>Divided Boards: Partisanship Through Delegated Monetary Policy</b>	<i>Etienne Farvaque, Gael Lagadec</i>
<b>2000</b>		
B20-00	<b>Breakin-up a Nation, From the Inside</b>	<i>Etienne Farvaque</i>
B19-00	<b>Income Dynamics and Stability in the Transition Process, general Reflections applied to the Czech Republic</b>	<i>Jens Hölscher</i>
B18-00	<b>Budget Processes: Theory and Experimental Evidence</b>	<i>Karl-Martin Ehrhart, Roy Gardner, Jürgen von Hagen, Claudia Keser</i>
B17-00	<b>Rückführung der Landwirtschaftspolitik in die Verantwortung der Mitgliedsstaaten? - Rechts- und Verfassungsfragen des Gemeinschaftsrechts</b>	<i>Martin Seidel</i>
B16-00	<b>The European Central Bank: Independence and Accountability</b>	<i>Christa Randzio-Plath, Tomasso Padoa-Schioppa</i>
B15-00	<b>Regional Risk Sharing and Redistribution in the German Federation</b>	<i>Jürgen von Hagen, Ralf Hepp</i>
B14-00	<b>Sources of Real Exchange Rate Fluctuations in Transition Economies: The Case of Poland and Hungary</b>	<i>Selahattin Dibooglu, Ali M. Kutan</i>
B13-00	<b>Back to the Future: The Growth Prospects of Transition Economies Reconsidered</b>	<i>Nauro F. Campos</i>

B12-00	<b>Rechtsetzung und Rechtsangleichung als Folge der Einheitlichen Europäischen Wahrung</b>	<i>Martin Seidel</i>
B11-00	<b>A Dynamic Approach to Inflation Targeting in Transition Economies</b>	<i>Lucjan T. Orlowski</i>
B10-00	<b>The Importance of Domestic Political Institutions: Why and How Belgium Qualified for EMU</b>	<i>Marc Hallerberg</i>
B09-00	<b>Rational Institutions Yield Hysteresis</b>	<i>Rafael Di Tella, Robert MacCulloch</i>
B08-00	<b>The Effectiveness of Self-Protection Policies for Safeguarding Emerging Market Economies from Crises</b>	<i>Kenneth Kletzer</i>
B07-00	<b>Financial Supervision and Policy Coordination in The EMU</b>	<i>Deutsch-Franzosisches Wirtschaftspolitisches Forum</i>
B06-00	<b>The Demand for Money in Austria</b>	<i>Bernd Hayo</i>
B05-00	<b>Liberalization, Democracy and Economic Performance during Transition</b>	<i>Jan Fidrmuc</i>
B04-00	<b>A New Political Culture in The EU - Democratic Accountability of the ECB</b>	<i>Christa Randzio-Plath</i>
B03-00	<b>Integration, Disintegration and Trade in Europe: Evolution of Trade Relations during the 1990's</b>	<i>Jarko Fidrmuc, Jan Fidrmuc</i>
B02-00	<b>Inflation Bias and Productivity Shocks in Transition Economies: The Case of the Czech Republic</b>	<i>Josef C. Brada, Arthur E. King, Ali M. Kutan</i>
B01-00	<b>Monetary Union and Fiscal Federalism</b>	<i>Kenneth Kletzer, Jurgen von Hagen</i>
<b>1999</b>		
B26-99	<b>Skills, Labour Costs, and Vertically Differentiated Industries: A General Equilibrium Analysis</b>	<i>Stefan Lutz, Alessandro Turrini</i>
B25-99	<b>Micro and Macro Determinants of Public Support for Market Reforms in Eastern Europe</b>	<i>Bernd Hayo</i>
B24-99	<b>What Makes a Revolution?</b>	<i>Robert MacCulloch</i>
B23-99	<b>Informal Family Insurance and the Design of the Welfare State</b>	<i>Rafael Di Tella, Robert MacCulloch</i>
B22-99	<b>Partisan Social Happiness</b>	<i>Rafael Di Tella, Robert MacCulloch</i>
B21-99	<b>The End of Moderate Inflation in Three Transition Economies?</b>	<i>Josef C. Brada, Ali M. Kutan</i>
B20-99	<b>Subnational Government Bailouts in Germany</b>	<i>Helmut Seitz</i>
B19-99	<b>The Evolution of Monetary Policy in Transition Economies</b>	<i>Ali M. Kutan, Josef C. Brada</i>
B18-99	<b>Why are Eastern Europe's Banks not failing when everybody else's are?</b>	<i>Christian E. Weller, Bernard Morzuch</i>
B17-99	<b>Stability of Monetary Unions: Lessons from the Break-Up of Czechoslovakia</b>	<i>Jan Fidrmuc, Julius Horvath and Jarko Fidrmuc</i>
B16-99	<b>Multinational Banks and Development Finance</b>	<i>Christian E. Weller and Mark J. Scher</i>
B15-99	<b>Financial Crises after Financial Liberalization: Exceptional Circumstances or Structural Weakness?</b>	<i>Christian E. Weller</i>
B14-99	<b>Industry Effects of Monetary Policy in Germany</b>	<i>Bernd Hayo and Birgit Uhlenbrock</i>
B13-99	<b>Financial Fragility or What Went Right and What Could Go Wrong in Central European Banking?</b>	<i>Christian E. Weller and Jurgen von Hagen</i>
B12-99	<b>Size Distortions of Tests of the Null Hypothesis of Stationarity: Evidence and Implications for Applied Work</b>	<i>Mehmet Caner and Lutz Kilian</i>
B11-99	<b>Financial Supervision and Policy Coordination in the EMU</b>	<i>Deutsch-Franzosisches Wirtschaftspolitisches Forum</i>
B10-99	<b>Financial Liberalization, Multinational Banks and Credit Supply: The Case of Poland</b>	<i>Christian Weller</i>
B09-99	<b>Monetary Policy, Parameter Uncertainty and Optimal Learning</b>	<i>Volker Wieland</i>
B08-99	<b>The Connection between more Multinational Banks and less Real Credit in Transition Economies</b>	<i>Christian Weller</i>

- B07-99 **Comovement and Catch-up in Productivity across Sectors: Evidence from the OECD** *Christopher M. Cornwell and Jens-Uwe Wächter*
- B06-99 **Productivity Convergence and Economic Growth: A Frontier Production Function Approach** *Christopher M. Cornwell and Jens-Uwe Wächter*
- B05-99 **Tumbling Giant: Germany's Experience with the Maastricht Fiscal Criteria** *Jürgen von Hagen and Rolf Strauch*
- B04-99 **The Finance-Investment Link in a Transition Economy: Evidence for Poland from Panel Data** *Christian Weller*
- B03-99 **The Macroeconomics of Happiness** *Rafael Di Tella, Robert McCulloch and Andrew J. Oswald*
- B02-99 **The Consequences of Labour Market Flexibility: Panel Evidence Based on Survey Data** *Rafael Di Tella and Robert McCulloch*
- B01-99 **The Excess Volatility of Foreign Exchange Rates: Statistical Puzzle or Theoretical Artifact?** *Robert B.H. Hauswald*
- 1998**
- B16-98 **Labour Market + Tax Policy in the EMU** *Deutsch-Französisches Wirtschaftspolitisches Forum*
- B15-98 **Can Taxing Foreign Competition Harm the Domestic Industry?** *Stefan Lutz*
- B14-98 **Free Trade and Arms Races: Some Thoughts Regarding EU-Russian Trade** *Rafael Reuveny and John Maxwell*
- B13-98 **Fiscal Policy and Intranational Risk-Sharing** *Jürgen von Hagen*
- B12-98 **Price Stability and Monetary Policy Effectiveness when Nominal Interest Rates are Bounded at Zero** *Athanasios Orphanides and Volker Wieland*
- B11A-98 **Die Bewertung der "dauerhaft tragbaren öffentlichen Finanzlage" der EU Mitgliedstaaten beim Übergang zur dritten Stufe der EWWU** *Rolf Strauch*
- B11-98 **Exchange Rate Regimes in the Transition Economies: Case Study of the Czech Republic: 1990-1997** *Julius Horvath and Jiri Jonas*
- B10-98 **Der Wettbewerb der Rechts- und politischen Systeme in der Europäischen Union** *Martin Seidel*
- B09-98 **U.S. Monetary Policy and Monetary Policy and the ESCB** *Robert L. Hetzel*
- B08-98 **Money-Output Granger Causality Revisited: An Empirical Analysis of EU Countries (überarbeitete Version zum Herunterladen)** *Bernd Hayo*
- B07-98 **Designing Voluntary Environmental Agreements in Europe: Some Lessons from the U.S. EPA's 33/50 Program** *John W. Maxwell*
- B06-98 **Monetary Union, Asymmetric Productivity Shocks and Fiscal Insurance: an Analytical Discussion of Welfare Issues** *Kenneth Kletzer*
- B05-98 **Estimating a European Demand for Money (überarbeitete Version zum Herunterladen)** *Bernd Hayo*
- B04-98 **The EMU's Exchange Rate Policy** *Deutsch-Französisches Wirtschaftspolitisches Forum*
- B03-98 **Central Bank Policy in a More Perfect Financial System** *Jürgen von Hagen / Ingo Fender*
- B02-98 **Trade with Low-Wage Countries and Wage Inequality** *Jaleel Ahmad*
- B01-98 **Budgeting Institutions for Aggregate Fiscal Discipline** *Jürgen von Hagen*
- 1997**
- B04-97 **Macroeconomic Stabilization with a Common Currency: Does European Monetary Unification Create a Need for Fiscal Insurance or Federalism?** *Kenneth Kletzer*
- B-03-97 **Liberalising European Markets for Energy and Telecommunications: Some Lessons from the US Electric Utility Industry** *Tom Lyon / John Mayo*
- B02-97 **Employment and EMU** *Deutsch-Französisches Wirtschaftspolitisches Forum*
- B01-97 **A Stability Pact for Europe** *(a Forum organized by ZEI)*

---

ISSN 1436 - 6053

---

Zentrum für Europäische Integrationsforschung  
Center for European Integration Studies  
Rheinische Friedrich-Wilhelms-Universität Bonn

Walter-Flex-Strasse 3  
D-53113 Bonn  
Germany

Tel.: +49-228-73-1732  
Fax: +49-228-73-1809  
[www.zei.de](http://www.zei.de)