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## Integration in the German-Polish border region - Status Quo and Current Developments

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## **Integration in the German-Polish border region – Status Quo and Current Developments\***

**Silvia Stiller**

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### **Abstract**

The reduction of customs duties and quantitative restrictions in trade among the EU and acceding countries in the run-up to EU enlargement has increased international trade, factor mobility and the international division of labour in Europe. It is a controversially discussed question how the intensification of cross border economic relationships influences economic development of border regions among “old” and “new” member states. Also the regions along the border between Germany and Poland will become internal border regions of the EU in 2004. This paper investigates current economic development trends along the border between Germany and Poland. The objective of the analysis is to find out whether these border regions exhibit specific growth path as it might be possible from the perspective of new and traditional location models. Therefore, the economic performance of the border region is compared to the respective growth rates on higher regional levels.. Furthermore, within the analysis regions are differentiated according to their settlement structure, i.e. regional population density. This is in order to find out whether different spatial categories of the border region developed differently in the course of integration as some former empirical studies suggest.

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# 1 INTRODUCTION

The reduction of customs duties and quantitative restrictions in trade among the EU and acceding countries in the run-up to EU enlargement has increased international trade, factor mobility and the international division of labour in Europe.<sup>1</sup> It is a controversially discussed question how the intensification of cross border economic relationships influences economic development of European border regions. Currently, border regions among “old” and “new” member states – which will become internal border regions of the EU in 2004 - attract special interest by policy makers since these border regions are considered as regions facing plenty of economic problems.<sup>2</sup> This assessment finds its expression in specific regional policies directed towards border regions implemented by the European Commission and on the national level. The European Commission bases regional policy measures for border regions on the assessment that border regions may be expected to benefit from enlargement in the medium and long term. Whereas in the short term, they may need to adjust more than other regions to rapidly changing market conditions.<sup>3</sup> If so, the most rapid and direct impact of ongoing integration in Europe should be felt in regions bordering candidate countries which will become internal border regions when enlargement is a reality.

Also the regions along the border between Germany and Poland will become internal border regions of the EU in 2004. This paper investigates current economic development trends and the economic status quo of these border regions. Concerning the future development of the German-Polish border regions it seems that the expectations on both sides of the border differ. On the one hand there exist fears of the people in East German border regions seeing themselves as “losers” of Eastern enlargement. On the other hand the Polish population of the border region has a relatively positive attitude towards becoming an EU member. According to the Polish view the opening of the border dominantly entails positive effects with regard to shopping, travelling and labour market opportunities.<sup>4</sup> In this context the results of the referendum in Poland in June 2003 are quite interesting. With a voter turnout of 59 % a majority of 77 % supported EU accession. Interestingly, the population share willing to join the EU strongly differs among the Polish regions. While in regions neighbouring Germany about 84 % are in favour of becoming a EU member only between 63 % and 68 % of the population in the Eastern part of Poland voted with yes (see Map 1). One might wonder to which degree the strong spatial differences regarding the result of the referendum reflect different assessment of the economic gains of forthcoming EU membership. Does the population of Poland’s Western border regions on average feel higher economic chances related to

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<sup>1</sup> Since 1989 trade between East and West Europe has increased immensely. The transformation of the Central and Eastern European economies has eliminated the preferences for intra CMEA trades as well as many barriers to trade between Eastern and Western Europe. As a result, the CEECs have oriented their foreign trade towards Eastern and Western Europe. Simultaneously, the institutional integration between the EU and Eastern Europe may also have driven the process of orientation. Trade data reveal coincidence in the geographical composition of CEEC trade between 1929 and 1998 (see Piazzolo (2001), p. 23).

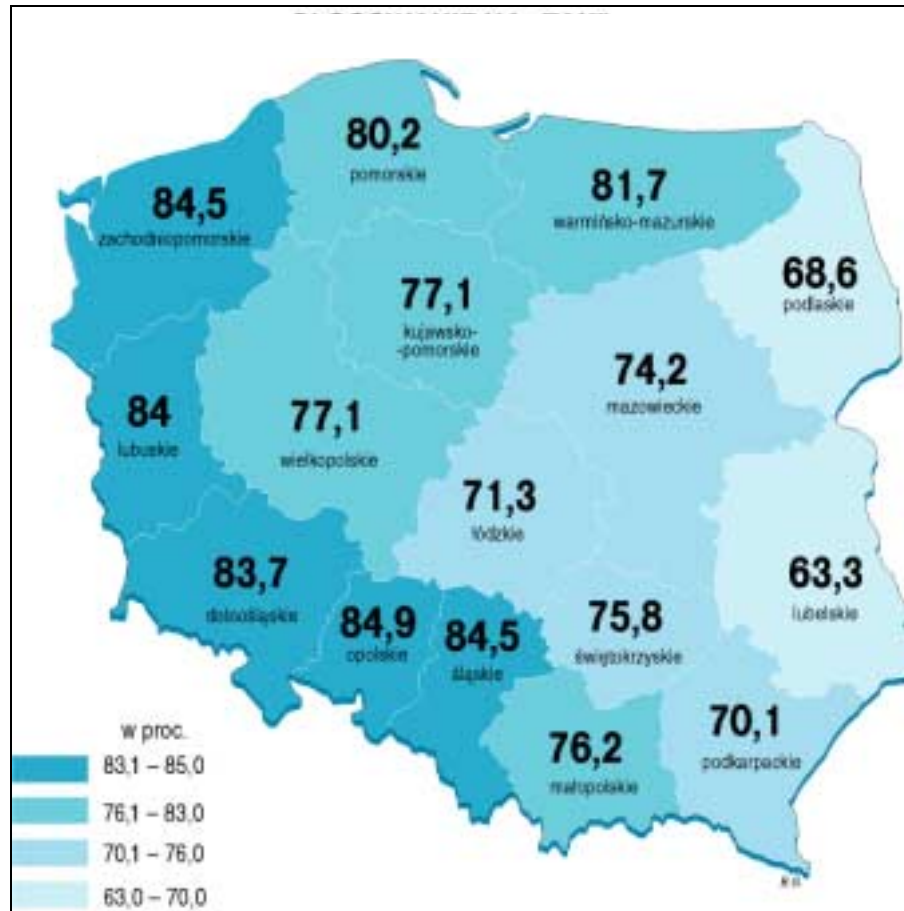
<sup>2</sup> See Barjak/Heimpold (2000), p. 115.

<sup>3</sup> Commission of the European Communities (2001), p. 11.

<sup>4</sup> See Barjak/Heimpold (2000), p. 118.

joining the EU than the rest of Poland? Did they already sense above average positive effects of pre-enlargement institutional changes? However, the Polish population in the border region on average does not seem to share the fears of its German neighbours.

**Map 1: Results of the Referendum in Poland's voivodships, "Yes" in %**



Source: <http://europa.onet.pl/>

In general, it is difficult to guess from economic theories at the development of internal border regions in the course of integration. Depending on concrete circumstances of integration and the regional endowment with location factors, border regions might benefit or lose by integration. And – like economic theories - empirical research on the development of border regions in the course of European integration undertaken so far does not allow to draw clear cut results as well.<sup>5</sup> Generally spoken, ex ante it is difficult to assess whether the German-Polish border region will economically profit or lose by integration.

The objective of the analysis is to find out whether the regions along the German-Polish border regions develop on average worse or better than other regional units within their country, i.e. do border regions exhibit a specific growth path. Therefore, the economic performance of the border

<sup>5</sup> For a survey of respective economic theories and empirical studies see Niebuhr/Stiller (2002).

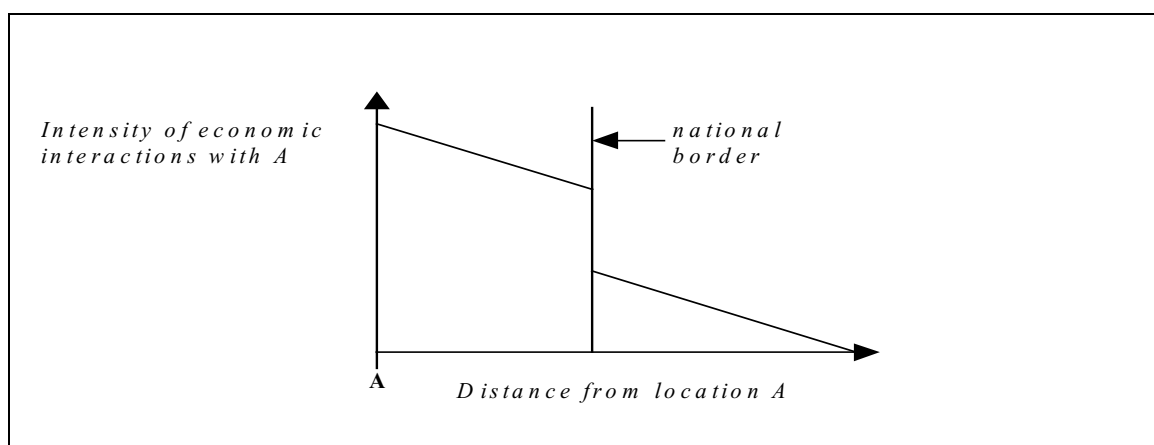
region is compared to the respective growth rates on a higher regional and on the national scale. Furthermore, within the analysis regions are differentiated according to their settlement structure. This is in order to find out whether different spatial categories of the border region developed differently in the course of integration as some former empirical studies suggest. Furthermore, the analysis can help to identify “successful” spatial categories”.<sup>6</sup>

The paper proceeds along the following lines. In chapter 2 it is summarised what economic theories and empirical studies imply for the development of border regions in the course of integration in order to assess development potential of inner border regions of an integration area. In chapter 3 empirical results are provided regarding the development of trade relations between Poland and Germany and economic development in the regions along the border among Poland and Germany. Chapter 4 concludes.

## 2 INTEGRATION EFFECTS IN BORDER REGIONS – WHAT DO ECONOMIC THEORIES AND EMPIRICAL STUDIES TELL US?

The particularities of border regions from the geographical perspective are obvious: they differentiate from other sub-national areas since they are located at a national frontier. In general, economists treat national barriers primarily as impediments to international trade and factor flows. The consequence of border impediments is that the intensity of interregional economic relationships suddenly drops at places where a completely or an incompletely impermeable border is located (see Figure 1).

**Figure 1: Discontinuity in Spatial Interaction due to National Borders**



<sup>6</sup> E.g. Barjak (2001) shows for East Germany and Poland that the most capable regions are those with or in the vicinity of the largest agglomerations. He classifies especially two regions as problematic. Rural regions peripheral to agglomerations and old industrialised regions.

Borders are distortions in the market networks and tend to divide market areas. For this reason, the proximity to a national border has a negative effect on a firm's market potential. Lösch (1940) argues that this border effect discourages profit-maximising firms from locating in border regions. Firms will be the more distant from the border and the nearer to a nation's geographical centre the bigger their required minimal market area is. According to Lösch a border region is a desert, a wasteland in which many products can only be obtained from a distance or not at all.<sup>7</sup> Also location theories developed by Giersch (1949/50)<sup>8</sup> and Guo (1996) imply that border regions are disadvantaged areas having a lower density of firms than more central regions due to bad market access. Furthermore, traditional location models imply that trade liberalisation might improve location conditions of border regions enormously. Causative for this is that the market potential of central border regions strongly improves – more than that of internal regions - due to proximity to foreign markets. Strong improvements of the market potential might foster the settlement of exporting firms in border regions in order to supply also the foreign demand – on the local as well as on the nation-wide market. Furthermore, new products, for which the national market was too small, can probably be supplied profitably in the integrated market area, in case a firm is located near the centre of the common market. Taking the market potential considerations together border regions located at the interface of the domestic and foreign market are attractive locations within an integration area. The locational advantage might attract firms towards border regions. As a consequence, trade among the border region and other regions would increase.

It is also a basic result of traditional and recent trade models that integration, via the reduction of trade impediments, raises international trade which affects the international pattern of specialisation in production. The related economic adjustments are driven by an intra-country reallocation of production factors among sectors. For considering regional adjustments to integration *Ohlin* (1967) integrates theories of location and trade.<sup>9</sup> He concludes that altogether essential results of international trade theory can be applied to interregional trade relations as well, i.e. trade increases regional specialisation. *Rauch* (1991) combines elements from urban economics and trade theory. In that model intra- and inter-country transportation costs determine the volume of trade within and between countries. It is relevant for our subject that a region's geographic position is important regarding regional adjustments to international trade, since access costs to foreign markets differ among locations.<sup>10</sup> Proximity to foreign markets is advantageous for firms which export goods to

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<sup>7</sup> Cited according to van Houtum (1999), p. 113.

<sup>8</sup> Giersch (1949/50) explicitly deals with the location consequences of the abolition of barriers to trade and factor mobility within an economic union. This model indicates a generally favourable evolution for border regions of the Common Market if they represent a central location within the European Community. Similar conclusions can be found in Giersch (1988).

<sup>9</sup> E. g. *Ohlin* (1967), Chapter 12: Interregional Trade Theory and Location Theory.

<sup>10</sup> *Barjak/Heimpold* (1999), p. 6. put forward several reasons for border regions having lower access/trade costs to foreign market. Lower trade costs include transport and information procurement, as border region business know more about business, consumers and markets in the neighbouring country, and more people speak the language spoken across the border. Moreover, proximity as well as existing trade relations can lead to additional knowledge on overcoming the border barriers and reducing risks in cross-border trade.

these markets and might encourage regional economic development in location close to the border. From this point of view border regions have a geographic advantage in attracting exporting firms.

The combination of elements from location theory and trade theory is also the basic feature of new economic geography models.<sup>11</sup> Within these models the spatial equilibrium and the corresponding spatial distribution of firms and workers depend on the relative strength of centripetal and centrifugal forces. Centripetal forces support the agglomeration of economic activities while centrifugal forces tend to disperse economic activities across space. Basic centrifugal forces are the relative scarcity of immobile production factors in the agglomeration, the demand for non-tradables or the existence of pure external diseconomies of agglomeration. The basic centripetal force which tends to attract economic actors towards a region is a relatively large home market, i.e. the region's market potential. A large home market positively affects a worker's utility and firm's profit through backward and forward linkages in consumption and production. Integration reduces trade impediments and thus international transportation costs which increases the regional market potential. The regional magnitude of this effect differs among regions depending on the region's position in the whole integration area. Changes of the market potential might affect the proportion of centrifugal and centripetal forces and thus possibly the spatial equilibrium, i. e. the spatial allocation of economic resources, within countries and between countries – possibly for the benefit of inner border regions within an integration area.

The models of Krugman/Livas (1996) and Fujita et. al. (1999)<sup>12</sup> show that trade liberalisation might alter the internal economic geography. Spatial reallocation of firms go back to the issue that outward orientation of economic activities partly replaces inward orientation since the reduction of international trade cost changes reference markets for buyers and suppliers. Such a development is the more probable the lower international trade costs are, i. e. the more advanced integration there is, the more mobile workers there are and the stronger cross-border vertical linkages among firms there are. But depending on concrete circumstances of integration as well as on historical developments it is also possible that the distribution of economic activities across space is not at all affected by integration.

In case that integration alters the internal geography it remains outstanding how economic activities are reallocated across space, e. g. which regions will gain or lose economic activities. Nevertheless, the current literature on regional adjustments to external trade sometimes refers to the Krugman/Livas model as implying positive feed-backs of integration in inner border regions of the integration area.<sup>13</sup> Central border regions have a geographic advantage for trade, i. e. low cost access to foreign markets, as long as trade costs matter. As a result we should expect intensive cross-border backward and forward linkages among the regions located along both sides of the

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<sup>11</sup> For a comprehensive overview on the new economic geography see Fujita et. al. (1999).

<sup>12</sup> Fujita et. al (1999), pp. 330-343 present a simplified version of Krugman/Livas (1996).

<sup>13</sup> Such for instance Hanson (1996).

border due to the proximity to foreign supply and sales markets. This is at least very probable at advanced stages of integration. Then, central border regions' market potential improves from relatively bad in the closed economy to relatively good if trade is liberalised.<sup>14</sup> The improved location quality probably initiates a self-reinforcing process of industrial concentration. Regions which realise a relatively high increase of their market potential offer relatively high wages and a large market attracting workers and firms. However, according to NEG models also agglomeration forces are relevant which tend to preserve the pre-integration distribution of economic activities across space. Integration will not alter the spatial allocation of resources if those agglomeration forces dominate.

Altogether, it is an important result of economic theory that integration might alter the allocation of resources within a country as well as between countries. Border regions might have an advantage in attracting resources due to their spatial proximity to the foreign market, and the relatively high potential for developing cross-border backward and forward linkages. However, developments in favour of an economic upswing of border regions might be countered by forces which tend to preserve pre-integration geography of economic activities. The relative weight of these counteracting forces is ambiguous. Hence, economic theory only allows vague conclusions about the spatial effects of integration. Depending on specific circumstances, border regions might benefit, lose or not be affected by integration.

Empirical research on border regions – undertaken so far - does not allow to draw clear-cut conclusions regarding the future of the German-Polish border region as well. At present, there is neither a direct test for integration effects in border regions, nor a comprehensive study on the development of border regions in the course of EU integration. However, a number of analyses provides evidence on specific aspects of relevant theoretical approaches. Recent empirical research on new economic geography stresses the importance of the market potential for regional development. The findings of Hanson (1998b) suggest that an increase in the market potential positively affects regional wages and employment. This implies that regions which achieve a relatively high improvement in the market potential due to integration should realise *ceteris paribus* above average increases of wages and employment. As some theoretical approaches suggest, especially the market potential of border regions should rise when national borders lose significance. Combining theoretical presumptions and empirical evidence, one could conclude that border regions realise above-average benefits from integration.

E.g. the studies of Hanson (1996, 1998a) and *Hanson/Krugman* (1993) present the U.S.-Mexico border region as a perfect example for positive integration effects in border areas, as suggested already by Lösch (1944) and Giersch (1949/50). Those studies show that tariff reductions and

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<sup>14</sup> Indeed, those conclusions are similar to those of traditional location theory whereby the NEG introduces additional aspects, e. g. vertical linkages among firms.



resulting trade intensification among the United States and Mexico attracted numerous firms from Mexico City towards regions close to the border with the United States. *Krugman/Hanson* (1993) argue that, since Mexico is a comparatively small economy, free trade with the large US market effectively turned the Mexican economy inside out in the sense that firms shifted their focus from domestic markets towards export markets in a literal geographic sense.<sup>15</sup> Altogether, the economic upswing of Mexico's border regions results from the fact that the NAFTA gave Mexico access to the large US market.<sup>16</sup>

Numerous case studies on border regions point to a rather diverse development of these areas. Case studies reveal the heterogeneity of border regions and their development. One might conclude, that removing border impediments alone is no guarantee for economic growth in border regions. *Sander and Schmidt* (1998) argue that there are a number of preconditions for a favourable economic development of border regions, such as a sufficient potential for an intensified division of labour, traffic and communication infrastructure or trust among the agents on both sides of the border. Corresponding deficits may prevent the realisation of integration benefits in border regions.

Also the regions along the former border among East and West Germany – which became internal border regions of the EU in the course of Germany's reunification - have been analysed with regard to integration effects in border regions. Focusing on labour market Barjak (2001) considers the internal German border as an example for the consequences EU enlargement might have for the development of regional labour markets along the Eastern EU border. From his analysis he concludes that it might be possible that the German border regions along the Eastern EU border might face a below average development of wages and employment while the regional labour markets on the other side of the border will rather profit from the further reduction of border impediments. According to his opinion a relatively bad development in the German border region could be driven by their still very unfavourable location conditions. Furthermore, increasing specialisation in cross-border trade with labour-intensive goods and services produced in low income sectors will influence the development of the border region.<sup>17</sup>

Altogether, up to now, neither theoretical research nor empirical studies provide comprehensive and consistent results on the impact of integration on border regions. Consequently, one should be very careful in drawing general conclusions on the economic perspective of border regions merely based on the theoretical approaches and existing empirical studies.

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<sup>15</sup> See *Krugman/Hanson* (1993), p. 171.

<sup>16</sup> However, *Dascher* (2003) is of the opinion that the German-Polish border region does not at all resemble the mexican-american border region since corresponding cross-border vertical linkages among firms are missing.

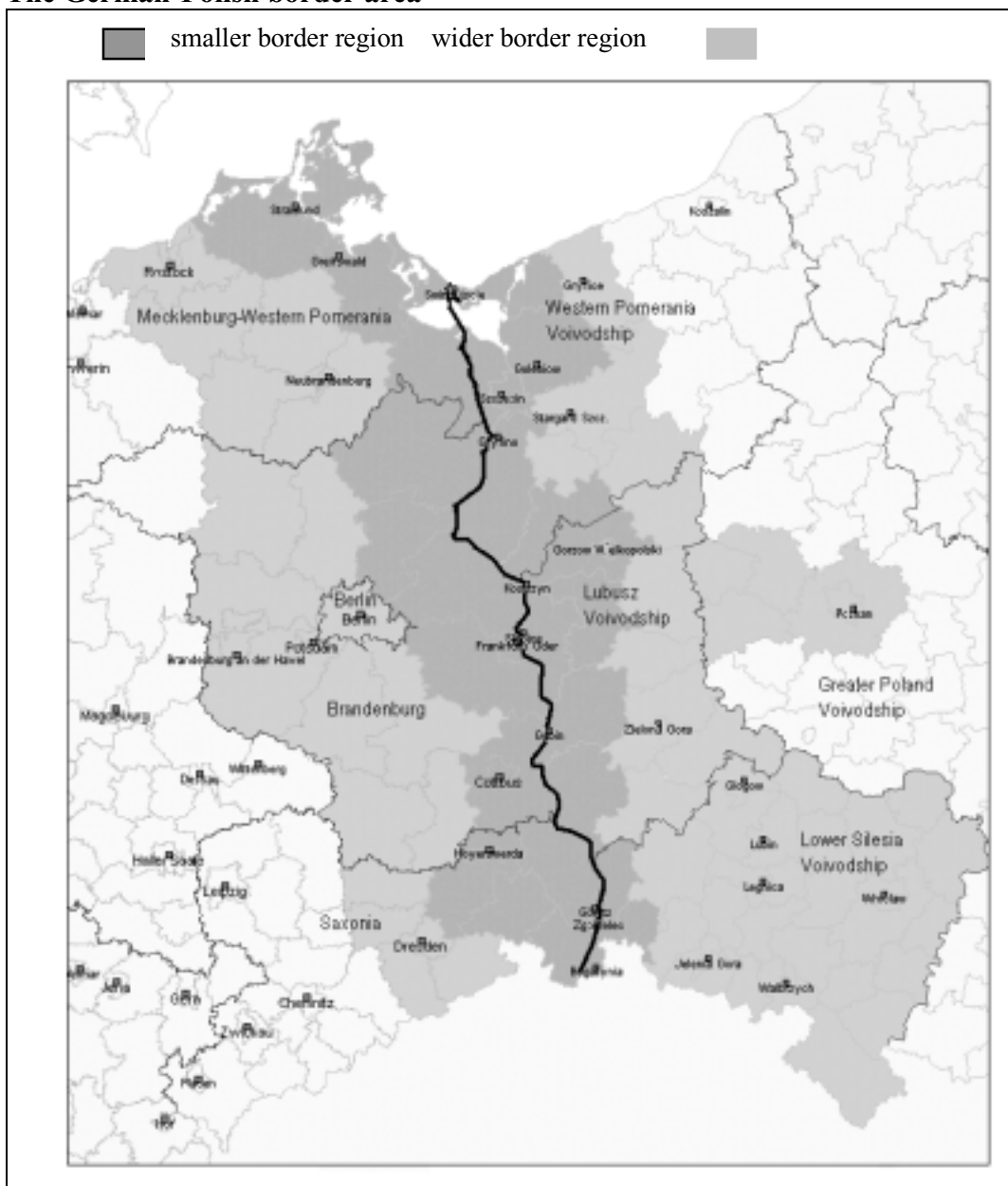
<sup>17</sup> *Barjak* 2001, p. 80.

### 3 EMPIRICAL RESULTS

#### 3.1 The German-Polish border area

The lowest regional units considered are Kreise and Kreisfreie Cities in Germany (NUTS III) and Powiaty (NUTS IV) in Poland. For the analysis two different definitions of the border area are applied – a wider and a smaller one (Map 2). The smaller border region comprises Kreise, Kreisfreie Cities and Powiaty which are not more than 30-50 km distant from the border. The wider one follows the definition of the German-Polish border region developed by the German Federal Office for Building and Regional Planning.<sup>18</sup>

**Map 2: The German-Polish border area**



<sup>18</sup> For a list of the relevant regions see annex.

The wider definition of the German-Polish border region comprises 10 % of the German population and 16 % of the German area. In the Polish part, which comprises 16 % of Poland's area, live 16 % of the Polish population. In the following, economic indicators of the border region are compared with corresponding figures on higher regional levels. The higher regional level considered for Germany are the Bundesländer belonging to the border region (Berlin, Brandenburg, Mecklenburg-Western Pomerania, Saxony, see Map 2), East Germany<sup>19</sup> and Germany. In Poland regional units on a higher regional level are Voivodships (Lower Silesia, Lubusz, Greater Poland, West Pomerania, see Map 2) in the border region. If data are not available for Powiaty we look at Subregions located at the border (Jeleniogorsko-walbrzyski, Legnicki, Wroclawski, Miasta Wroclaw, Gorzowski, Poznanski, Miasta Poznan, Szczecinski) the area of which almost coincides with the wider Polish border region.

The analysed data cover trade, employment, unemployment, GDP and population development. The considered period of time reaches for German regions from 1995 to 2000/2001. GDP data are not available for Powiaty in Poland. Therefore we analyse with regard to regional GDP data for Polish Subregions. Furthermore, due to Poland's administrative reform in 1998, GDP and employment data are not available before 1998 for Powiaty. Trade data only exist on the level of Voivodships and Bundesländer. Data are from the Statistical Offices in Germany and Poland, and the Federal Office for Labour Statistics in Germany.

### **3.2 Trade Relations between Germany and Poland**

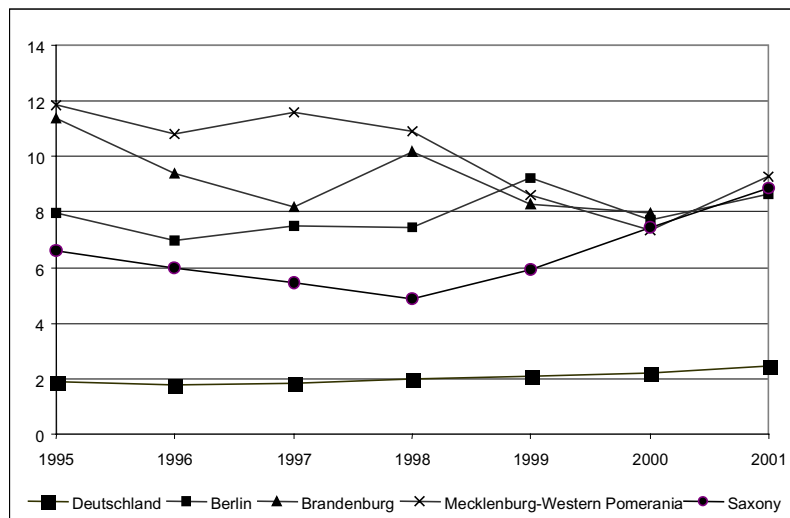
A substantial institutional change in the run-up to enlargement is trade liberalisation. Trade impediments between Germany and Poland have been reduced successively during the 1990s. The liberalisation of cross-border trade was initiated with an agreement to set up a Free Trade Zone between Poland and the EU in 1991. In 1994 the Europe Agreement entered into force providing further reductions in trade barriers, cooperation in economic, financial technical and cultural fields, and a forum for political dialogue. An interim agreement eliminating customs duties for manufactured goods imported to the EU from Poland has already been implemented in 1992.

Trade relations are analysed for Bundesländer and Voivodships since trade data are not available on lower regional levels. Figure 2 and 3 exhibit trade relations among Germany/Bundesländer in the border region and Poland. First of all we see that Poland's share in Germany's total imports and exports only increased slightly since 1995. In 2001 roughly 2,4 % of German total exports went to Poland and 2,4 % of German imports came from Poland.

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<sup>19</sup> In the analysis we have to consider the specific economic situation of East Germany which still differentiates from corresponding developments in West Germany.

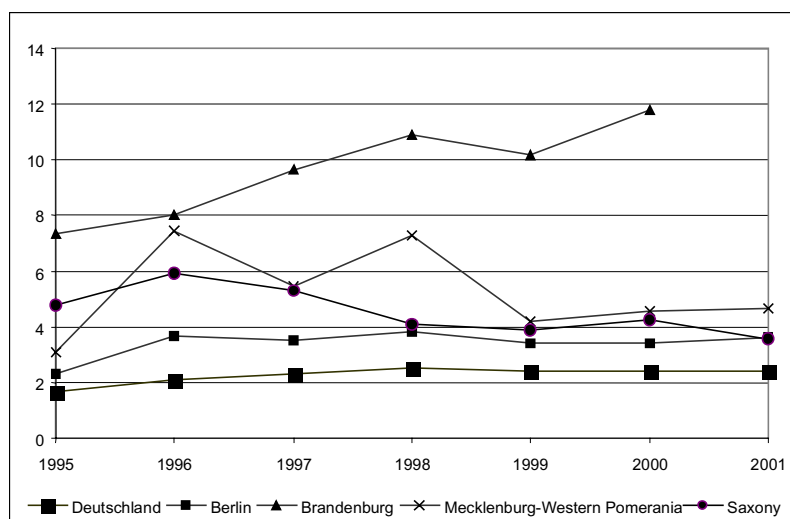
**Figure 2: Regional share of imports from Poland in total imports, 1995-2001\***



\*Trade data for Brandenburg are not yet available for 2001.

The figures illustrate quite clear that the trade relations among Poland and the German Bundesländer belonging to the border area are much more intensive than among Poland and Germany on average. Furthermore, the import and export shares of Poland reveal that for the relevant German Bundesländer Poland is on average more important for importing goods than as an export market.

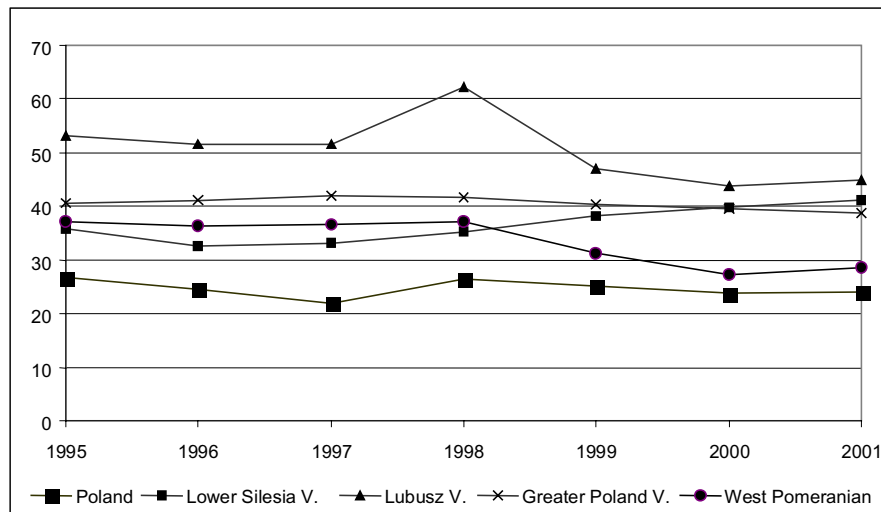
**Figure 3: Regional Share of exports to Poland in total exports, 1995-2001**



In the year 1990, 21,7 % of Poland's exports went to Germany and Poland imported 15.1 % of its imports from Germany. The importance of Germany as a trade partner for Poland is much higher today (see Figure 4 and 5). In the year 2001, 34 % of total Polish exports have been sent to the

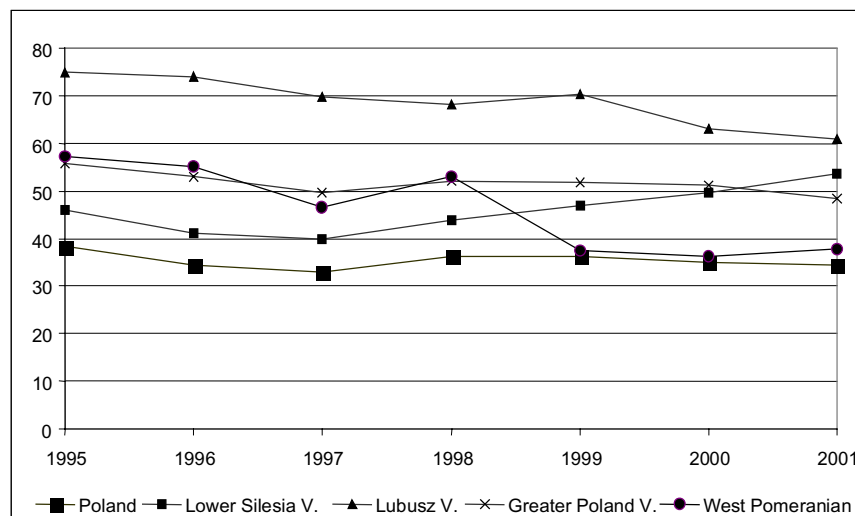
German market while 24 % of Poland's imports had their origin in Germany.<sup>20</sup> The voivodships along the border are more strongly involved in trade with Germany than Poland on average is. This holds especially for the voivodships Lubusz, Greater Poland and Lower Silensia. Trade among West Pomeranian and Germany takes place at an average level.

**Figure 4: Regional share of imports from Germany in total imports, 1995-2001**



Different than for the German Bundesländer for Poland's voivodships the importance of the neighbouring country is higher for exports than for imports. The share of exports going to Germany (34 to 61 %) is much higher than the share of imports from Germany (24 to 45 %).

**Figure 5: Regional Share of exports to Germany in total exports, 1995-2001**



<sup>20</sup> Interestingly, for trade relations among Poland and Germany we find strong similarities to the pre-World War II pattern: in 1929 31.2 % of Poland's total export went to Germany and 36.3 % in 1998. In contrast, only 8.9 % of Poland's exports have been directed towards Germany in 1984 (see Piazzolo (2001), p. 23).

Economic theory emphasises that international trade relations might release spatially differing integration effects. Altogether, effects going back to intensified trade in course of the integration among Poland and Germany should be relatively strong in regions for which the importance of Poland respectively Germany as a trading partner is above average. For Poland and Germany trade relations among these countries most probably have positive employment effects in the economic sectors related to the exports. This effects might be relatively significant in Poland's Voivodships bordering Germany which export a fairly high share of their production to Germany. However, it is also relevant to consider the export intensity of the regions (see Table 2) which is relatively low for the Bundesländer bordering Poland and above the national average for the respective voivodships

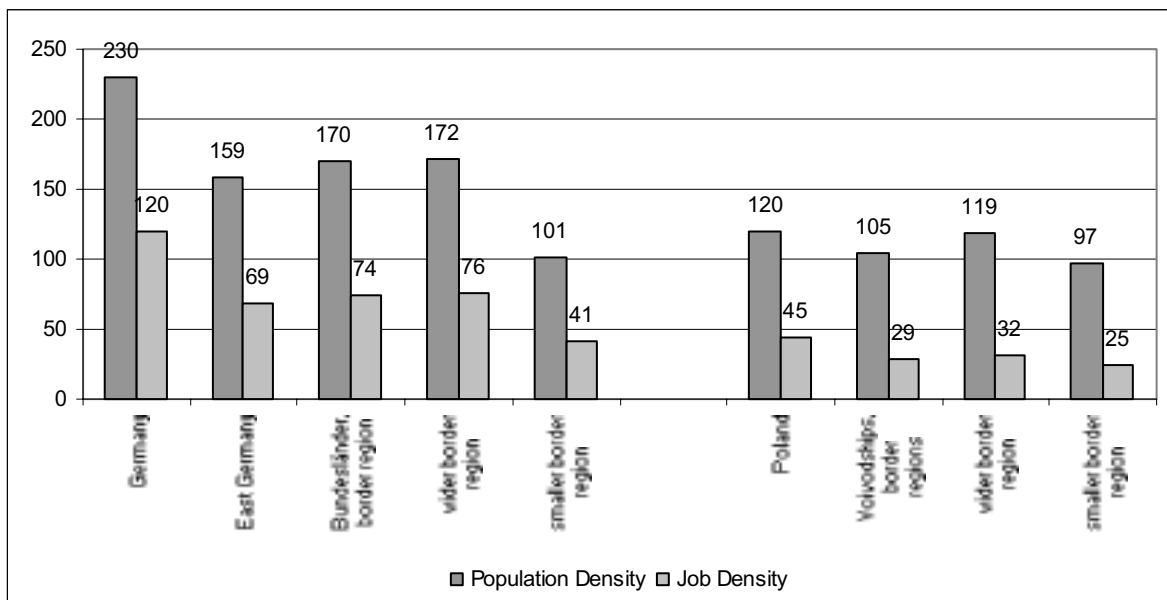
**Table 2: Export share in GDP, 2001**

	<i>Export/GDP</i>
<b><i>Germany</i></b>	<b>29,4</b>
Berlin	10,7
Brandenburg	9,2
Mecklenburg-Western Pomerania	8,3
Saxony	14,4
<b><i>Poland</i></b>	<b>4,6</b>
Lower Silesia, V	6,2
Lubusz V.	6,7
Greater Poland v.	5,3
West Pomerania	5,0

## **2.2 The Polish-German Border Area in Economic Terms: Status quo**

In both countries the border regions are the least densely populated areas among the types of regions considered (see figure 6). While the German smaller border region has a population density which is lower than half of its value for Germany on average, the Polish border region falls only slightly below the national average. Concerning the density of jobs – measured by employees per km<sup>2</sup> – we find an even more distinct difference among the German border region and the German average than for population density. Compared to the other regions the availability of jobs is very low in the German smaller border region - only a third of the value for Germany on average. Job density in Polish border regions also falls below average job density on other regional levels while regional disparities are not that distinct like in Germany.

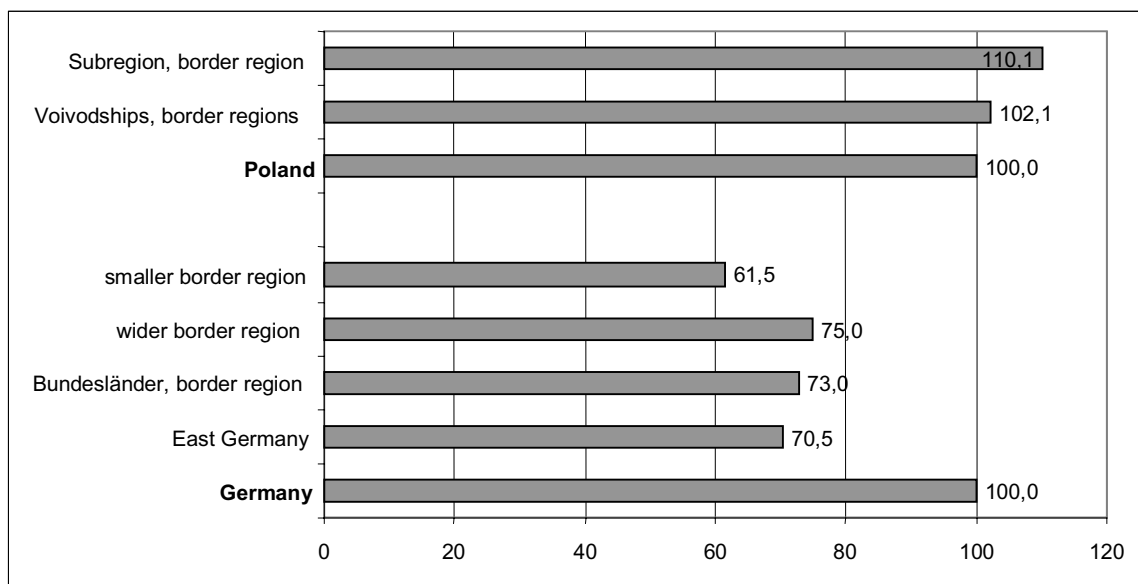
**Figure 6: Population Density and Job Density (per km<sup>2</sup>), 2000**



Note: Polish data exclude self-employment which constitute a large part of the labour force in Poland (Organisation for Economic Cooperation and Development, 2002).

Regarding regional per capita income, measured by GDP per capita, the smaller German border region strongly falls below the average value for Germany. There is also a considerable gap among the smaller border region's and East Germany's GDP per capita whereas the wider border region and the Bundesländer bordering Poland better East Germany's average. In Poland the subregions bordering Germany are clearly better off than the Polish population is on average. Since GDP data are not available for Powiaty, we have no empirical information on the income level of the smaller border region.

**Figure 7: GDP per capita, 2000 (national averages=100)\***



\*GDP data not available for powiaty.

Furthermore, we find strong cross-border disparities with regard to GDP per capita expressed in purchasing power parities (see Table 1). The German Bundesländer bordering Poland have a purchasing power of around 70 % of EU average. The value for the corresponding Voivodships is between 35,3 and 39,8 %.

**Table 1: GDP per capita, in € and PPP, 1999**

	<i>GDP per capita, 1999</i>	<i>PPP per capita in percentage of the EU average, 1999</i>
<b>Germany</b>	<b>24.024</b>	<b>106,2</b>
Berlin	22.494	n.a.
Brandenburg	15.903	70,2
Mecklenburg-Western Pomerania	15.745	69,6
Saxony	16.068	71,0
<b>Poland</b>	<b>3.764</b>	<b>38,9</b>
Lower Silesia, V	3.849	39,8
Lubusz V.	3.416	35,3
Greater Poland v.	3.961	39,8
West Pomerania	3.766	38,9

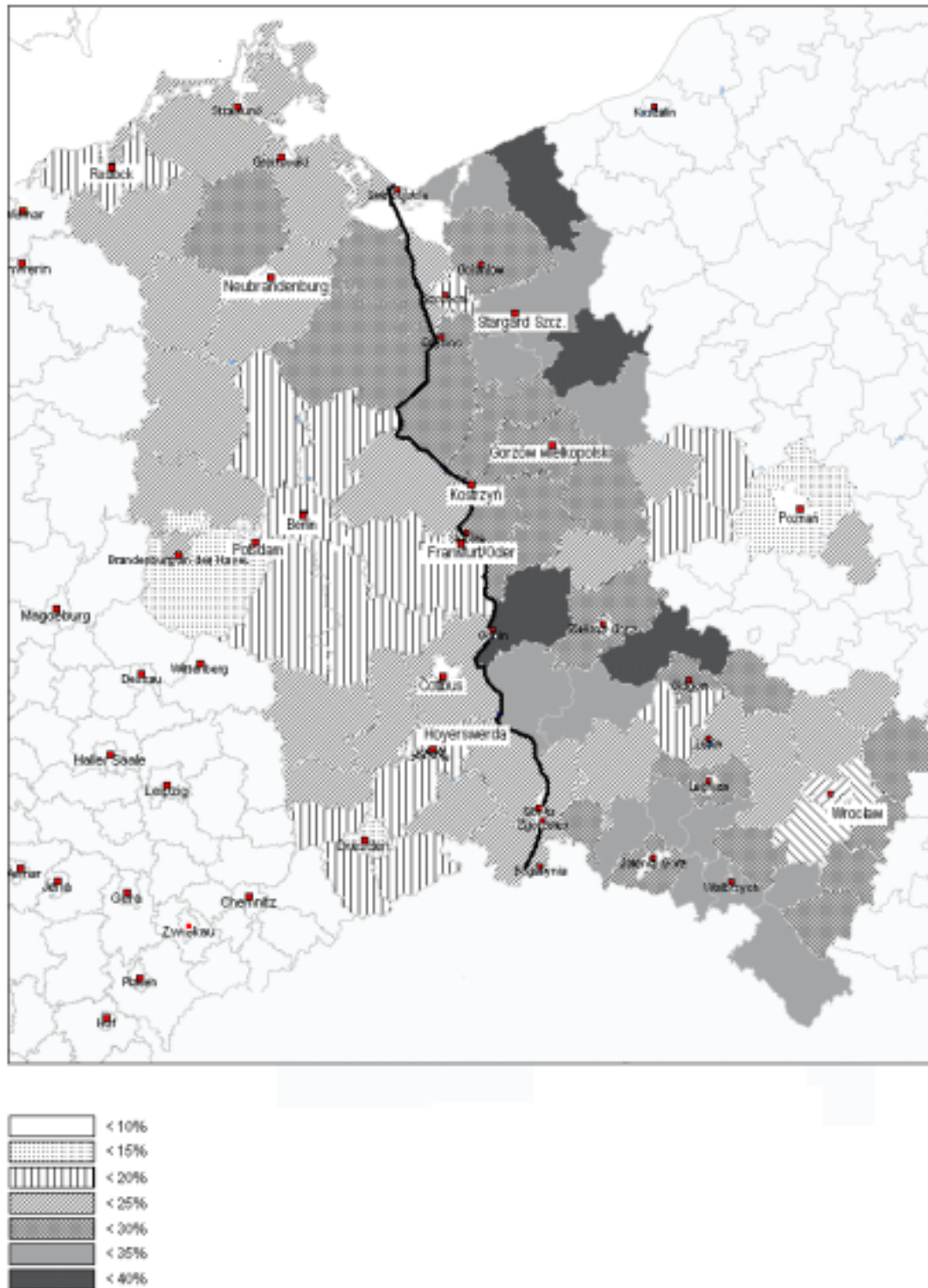
Source: Eurostat, Regio-Data Base.

Unemployment is a serious problem for the Polish as well as for the German part of the border region (see Map 3) whereby regional labour market conditions significantly vary across the border region. Altogether unemployment seems to be lower close to larger cities.

Whereas in Germany the average unemployment rate in 2002 was 9,8 plenty of Kreise in the border region have unemployment rates above 20 or even 25 %. However, average unemployment in East Germany is fairly high (17,3%) such that the high unemployment rates in the border region do not necessarily reflect a border effect. All over East Germany there are regions having quite high unemployment figures. On average 18,1 % of the Polish labour force have been unemployed in 2002. Some of the Powiaty in the border regions exceed these figures to a large extent having unemployment rates near to 40 %. But there is no special concentration of labour market problems in border regions.



**Map 3: Unemployment rates in the border region, 2002**



The sector structure still pronouncedly differs between West and East Germany. The industrial base in East Germany is still relatively weak and the other sectors are more important than in Germany on average. In Germany's smaller border region the importance of the agrarian sector is – also compared to the East German level - relatively high while the employment share of the service sector is lower than in East Germany on average. Furthermore, the industrial sector in the smaller

border region clearly has a higher share in employment than in East Germany on average. The same result holds for industrial employment in the Polish border region. Furthermore, this region exhibits a fairly high share of the service sector. Interestingly, the tertiarisation of jobs is more advanced in the border region than in Poland on average.

**Table 2: Sector shares in total employment\*, 2001**

	<i>Agrarian Sector</i>	<i>Industrial Sector</i>	<i>Service Sector</i>
<b>Germany</b>	<b>1,2</b>	<b>35,0</b>	<b>63,7</b>
East Germany	2,7	27,3	70,0
Bundesländer, border region	2,5	25,8	71,7
Wider border region	2,3	25,1	72,6
Smaller border region	3,8	29,9	66,3
<b>Poland</b>	<b>29,2</b>	<b>25,2</b>	<b>45,5</b>
Voivodships, border region	25,9	30,2	43,9
Wider border region	18,8	31,3	49,9
Smaller border region	15,9	32,6	51,5

\*Without self-employed persons.

### 3.3. Summary: The economic status quo

Altogether, the German as well as the Polish smaller border region appear relatively badly developed regarding the density of jobs. As to Germany this is reflected in the low GDP per capita. Indeed, the low job density in border regions can be explained by Lösch's location theory which implies economic backwardness and a low intensity of economic activities in border regions as long as national borders impede cross-border economic relationships. Since non-tariff border impediments still matter for trade and factor movement among the current EU member state, barriers should even be higher among "old" and "new" EU members – like Poland and Germany.<sup>21</sup>

There are striking differences across the border: job density in Germany's smaller border region is fairly higher and unemployment on average lower than in the corresponding region on the other side of the border. Additionally, cross-border labour market differences exist due to wage gaps.<sup>22</sup> Altogether, the labour market conditions in East Germany are much better than in the corresponding regions on the other side of the border. However, nevertheless East German's border regions are

<sup>21</sup> E.g. the empirical studies by Nitsch (2000) and Head/Mayer (2000) reveal that borders still matter for trade relations in the EU.

<sup>22</sup> E.g. the average monthly gross wage in manufacturing in Brandenburg (1855 €) is roughly four times as high as in Lubuskie (448 €) (see Dascher, 2003, p. 31).

regions facing serious labour market problems. Thus, one might doubt – at least currently – that the Polish population has strong incentives for offering their labour in the German part of the border region.<sup>23</sup> Therefore, we currently should not expect strong integration among the local labour markets along both sides of the border which are also limited by law regarding cross border movements of workers.<sup>24</sup> Thus, integration effects due to commuting can be expected to be rather small at present.

Border regions' economic structures deviates from national averages. The Polish part of the border region is to a large extent more specialised in services than Poland on average and a relatively low share of the regional labour force is employed in the agrarian sector. Instead, the share of the agrarian sector in Germany's border region is three times as high as it is in Germany on average. The fairly high importance of services in the Polish border region might indeed go back to being located at a national border. Since services –like hairdressing - are cheaper in the Polish part of the border region, people from Germany might go there to make use of the cheaper service supply in Poland. But we cannot find a comparatively high specialisation in services in the German part of the border region. This is in the line with economic theory. Polish regions should have a comparative advantage in supplying labour-intensive services for the regional market.<sup>25</sup>

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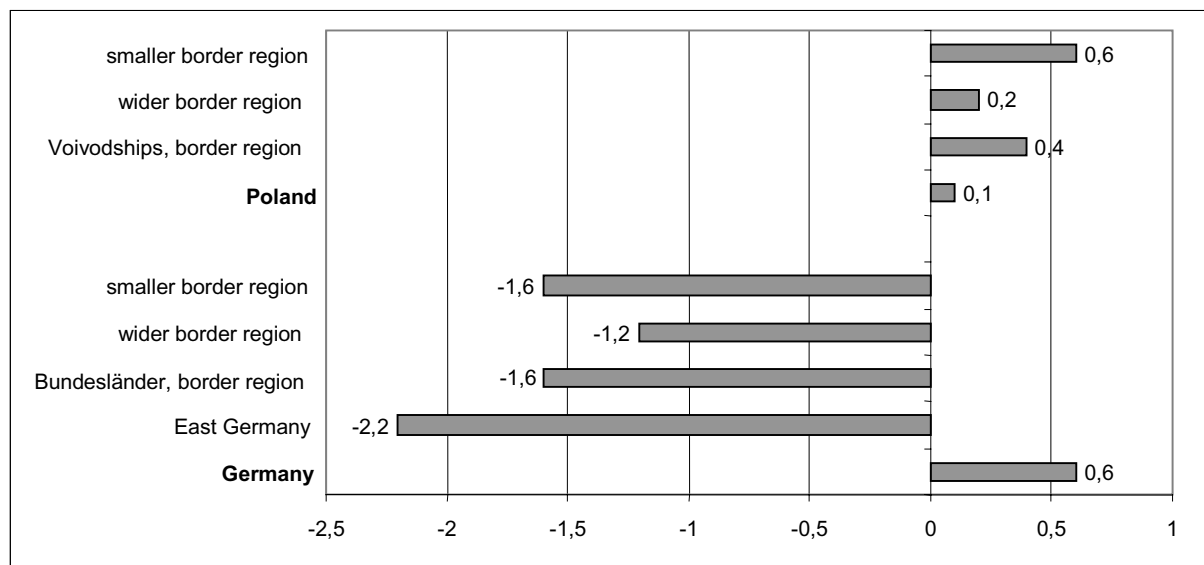
<sup>24</sup> Dascher (2003) notes that for example in Frankfurt Oder and Slubice the share of foreign workers in total employment is very low indicating low cross-border integration of labour markets.

<sup>25</sup> Barjak/Heimpold (2000) argue that if one assumes that human capital endowment is higher in regions where the industrial and the service sector have a higher share of jobs one could draw the conclusion that the human capital endowment in the Polish border area is higher than in Poland on average.

### 2.3 Population and economic development of the German-Polish border region

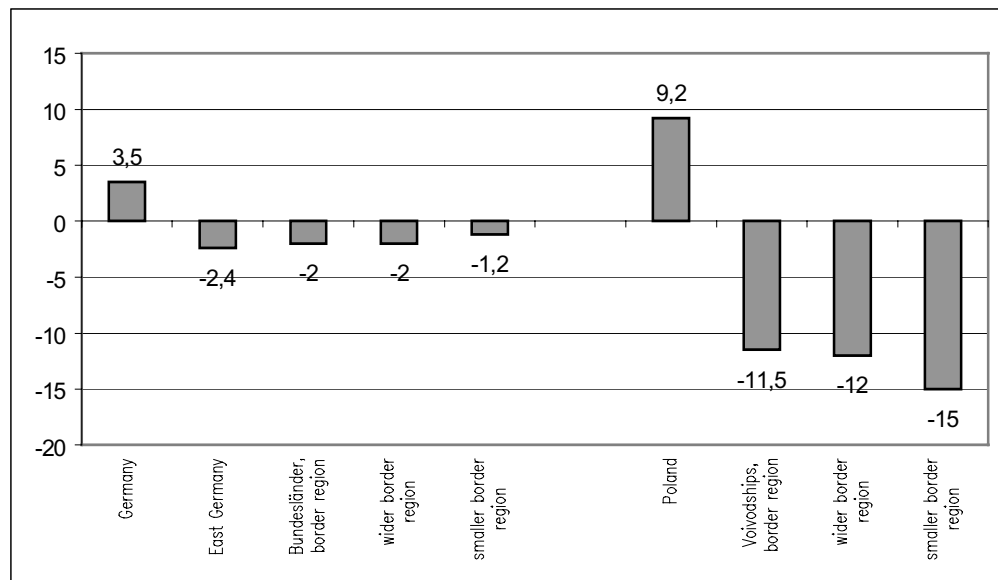
In the following, growth figures for population and employment are compared among different regional subregions in order to find out whether the border regions are marked by specific development trends. Population development in East Germany clearly falls below corresponding figures on the German level. Obviously migration from East to West Germany – although not to such an extent as in early stages of reunification - still is important for regional population development in East Germany. But population decline is not especially high in border regions of East Germany.

**Figure 8: Population Growth, 1995-2000, in %**



In fact the border regions had to cope with lower population decline than East Germany had on average. Nevertheless, population in the border region is declining while it is on average growing in Germany. But this seems to go back to the population dynamics characteristic for East Germany and not to a specific situation of the border region. Poland's population as a whole also grew during the considered period of time. There are only weak regional differences with regard to population dynamics. From this analysis it can not be concluded how far these can be explained by regional differences in mortality and fertility rates among the considered subregions. However, the figures show quite clear that the Polish regions are not faced with population losses like the regions on the other side of the border.

**Figure 9: Employment Growth\*, German regions (1995-2000), Polish regions (1998-2001), in %**



\*Note, Polish data exclude self-employment which constitute a large part of the labour force in Poland (Organisation for Economic Cooperation and Development, 2002).

Also regarding employment development, we find no specific figures for border regions. Like in East Germany as a whole employment declined in the German border region during the considered period of time. At large, compared to East Germany and the surrounding Bundesländer employment losses have been relatively modest in the border region. Differently, the border regions in Poland had to cope with the highest employment decline among the Polish regions. Employment in Powiaty and Voivodship bordering Germany enormously declined, while it strongly grew at the national level in the considered of time. Thus, current employment growth – in the course of declining border impediments – did not contribute to an improvement of regional labour market conditions in the German-Polish border region.

Altogether, population and employment growth in Poland and in Germany follow more or less the general development trends on a higher regional level, e.g. of the surrounding Bundesländer and Voivodships. However, border regions do not resemble the national trends. On both sides of the border employment is decreasing while national developments show upward trends.

## 2.4 Settlement Structure, Population Growth and Economic Development

This section deals with territorial disparities and their current developments in the German-Polish border region. It is analysed whether different types of regions – densely populated and rural ones - develop differently with regard to population and employment. Indeed, certain aspects of economic theory emphasise regional development disparities among spatial categories in the course of integration. The new economic geography highlights the relevance of agglomeration economies and diseconomies for regional development. Possibly, integration supports agglomeration forces such that cities grow while regions with relatively low population density lose population and economic activities. But depending on the concrete circumstances of integration it might also be possible that rural regions are positively affected by integration. By considering the territorial dimension with regard to economic and population development additional information is acquired regarding the development processes in border regions. Relations among agglomerations and rural regions might be relevant for assessing the border regions' development prospects and designing border region policy.<sup>26</sup>

The definition of the spatial categories corresponds to the one applied by the German Federal Office for Building and Regional Planning. Accordingly, we differentiate among four spatial categories (see table 3).

**Table 3: Classification of regions**

<i>Spatial Categories</i>	<i>Population/Population Density</i>
<b><i>Germany</i></b>	
Core Cities	Kreisfreie Cities with more than 100.000 inhabitants
Most densely populated Kreise	Population density $\geq 300$ inhabitants per km <sup>2</sup>
Densely populated Kreise	Population density $\geq 150$ inhabitants per km <sup>2</sup>
Rural Kreise	Population density $< 150$ inhabitants per km <sup>2</sup>
<b><i>Poland</i></b>	
Core Cities	Cities with more than 100.000 inhabitants
Most densely populated Powiaty	Population density $\geq 300$ inhabitants per km <sup>2</sup>
Densely populated Powiaty	Population density $\geq 150$ inhabitants per km <sup>2</sup>
Rural Powiaty	Population density $< 150$ inhabitants per km <sup>2</sup>

Kreise and Powiaty are grouped according to their population density, i.e. the most general measure for settlement structure. Kreisfreie Cities with more than 100.000 inhabitants are classified as “Core

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<sup>26</sup> Traditionally, EU policies have been focused on economic and social cohesion. Recently, the territorial dimension of regional disparities as an aspect of EU policy has gained importance. The European Spatial Development Perspective (ESDP), adopted in 1999, is meant to support a balanced development of the EU territory. Moreover, the European Commission addressed issues of territorial cohesion in its latest cohesion report. For a recent analysis of territorial disparities in the EU see Niebuhr/Stiller (2003).

cities ”. The regions considered are those belonging to the wider border region on the German and on the Polish side of the border.

Rural areas clearly dominate the territorial structure of the German-Polish border region. In Germany 86,5 % of the total border region’s territory is covered by rural areas and 36,7 % of the border region’s population live in this kind of regions. In Poland more than half of the border region’s population lives in rural areas which take over an area share of 91,5 %. Only a share of 3 % (Germany) and 2,2 % (Poland) of the areas is attained by Cities with more than 100.000 inhabitants. Most densely populated Kreise are of minor importance for the territorial structure in Germany’s border region and do not exist on the Polish side of the border at all. Thus the territorial structure of the German-Polish border region is strongly marked by rural Kreise/Powiaty. Nevertheless, the contribution of rural Kreise to employment and GDP clearly falls below the corresponding figures for Core Cities. In Germany more than half of employment and GDP is concentrated in the cities which only cover a very small part of the border region’s area. In Poland the concentration of population in core cities is not that advanced like in Germany. However, one third of the border region’s population lives in Core Cities. Altogether, economic activities are strongly concentrated in the border region - in the German part as well as in the Polish part.

**Table 4: Main Features of Spatial Categories in the Border Region, 2000\***

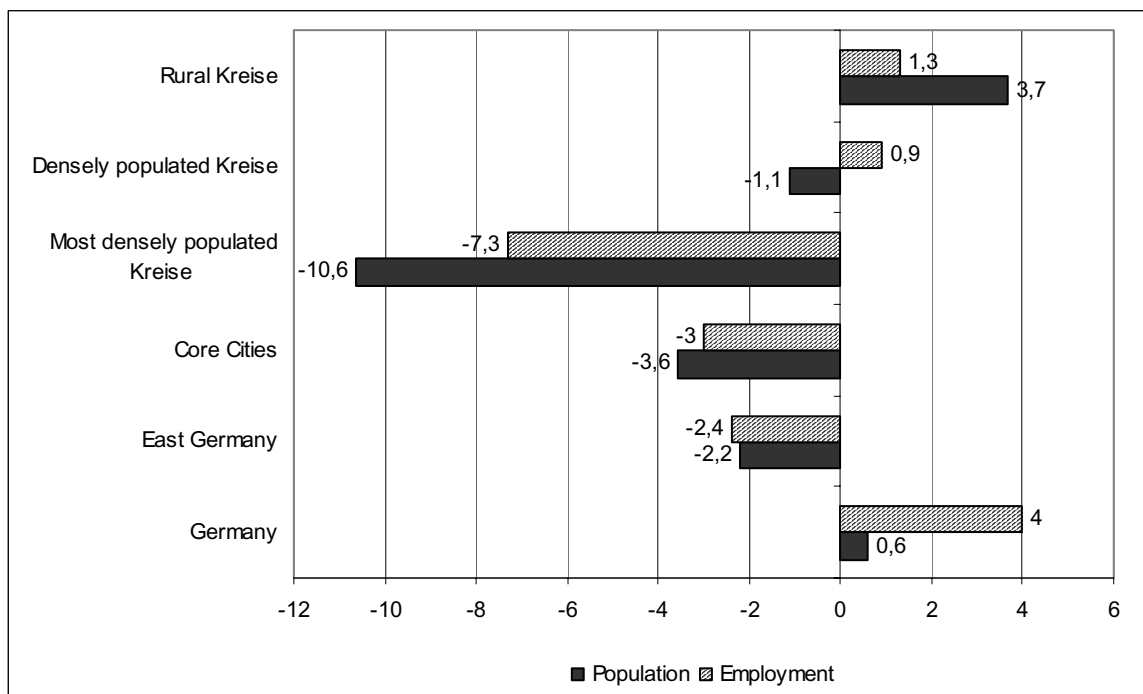
	<i>number</i>	<i>area share</i>	<i>population share</i>	<i>Population density</i>	<i>job density</i>	<i>GDP share</i>	<i>employment share</i>
<b><i>Germany</i></b>							
Core Cities	5	3,0	48,5	2745	1341	59,8	53,8
Most densely populated Kreise	7	1,3	5,1	686	359	4,2	6,1
Densely populated Kreise	6	9,2	9,7	174	72	7,4	8,9
Rural Kreise	24	86,5	36,7		27	28,7	31,1
<b><i>Polen</i></b>							
Core Cities	7	2,2	34,1	1869	593	n.a.	
Most densely populated Powiaty	-	-	-	-	-	-	
Densely populated Powiaty	7	6,3	11,1	207	48	n.a.	
Rural Powiaty	46	91,5	54,8		17	n.a.	

\*Share measures the part of the respective spatial category of the wider border regions total number.

Regarding population development we find strong territorial disparities for the period between 1995 and 2001. Profound demographic dynamics took place in the German border regions (Figure

11). The German rural border regions realised strong population gains (+3,6%) – even higher than Germany on average - while all other spatial categories faced population declines. The most densely populated regions in the border regions developed especially bad from the perspective of population figures. These Kreise lost more than 10 % of their population during the considered period of time. Employment growth in the border region exhibits similarities to population development. Rural regions realised – compared to other spatial categories in the border region – a relatively good performance with regard to employment (+1,3%). Also densely populated Kreise exhibit employment growth (+0,9). Simultaneously, employment decreased at a rate of 7,3 % in most densely populated Kreise and at 3 % in Core Cities.

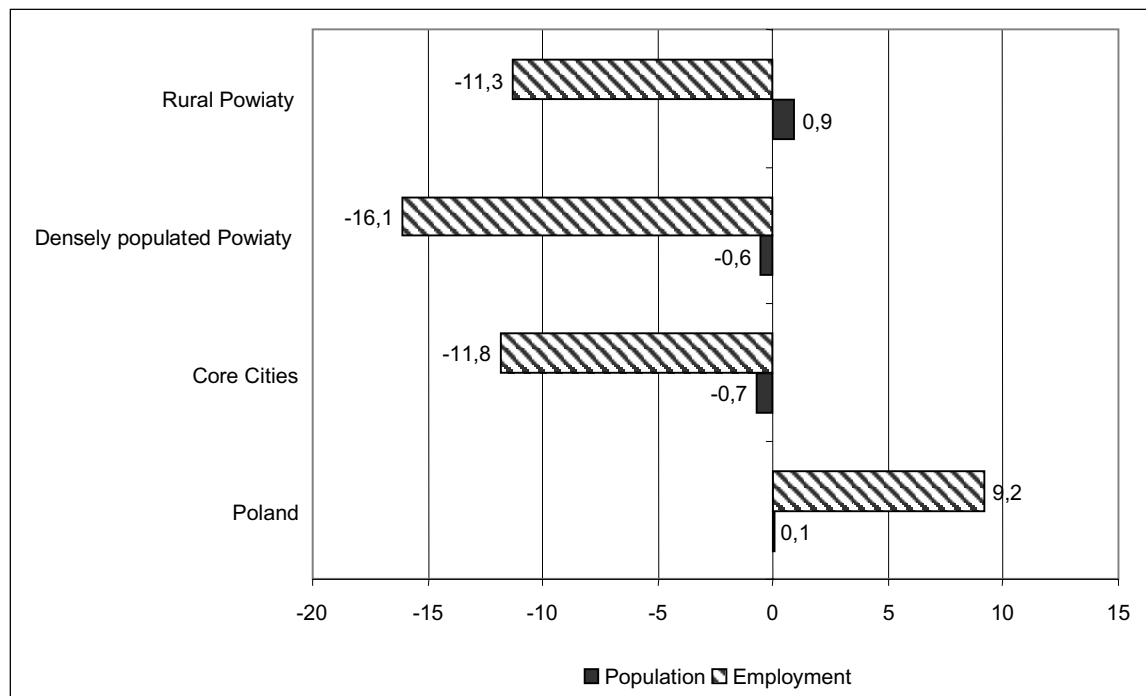
**Figure 11: Population and Employment growth, 1995-2000, Germany, in %**



Like in the German part of the border region, also in Poland only rural regions of the border region realised population gains (see Figure 12). Differently, cities and densely populated regions lost population. But altogether population dynamics in Poland have been relatively modest compared to Germany. Therefore it is difficult to draw any conclusion regarding the attractiveness of different spatial categories for inhabitants merely based on the considered data. The employment decrease of rural regions and Cities was not that strong like in the densely populated Powiaty. Altogether, compared to national growth the employment development was very bad in all spatial categories in the border region.



**Figure 12: Population and Employment growth, 1998-2000, Poland, in %**



Altogether population development in rural regions on both sides of the border differs from corresponding patterns of other spatial categories whereas different causalities are at work. Maybe differences in fertility behaviour among rural and urban population explain to a large extent different demographic development trends among regions in Poland. In the German border region the spatially differing growth rates of the population are too strong for being explained by natural population gains or losses. Instead it seems that the attractiveness of spatial categories for inhabitant are different and suburbanisation is at work. Obviously, the reduction of border impediments for trade and factor movements with Poland did not yet improve the location conditions for most densely populated regions as well as for cities in the German border region. The declining population of these regions might at least partly be explained by worsening labour market conditions, e.g. decreasing employment numbers, entailing the emigration of workers.

## 6 CONCLUSIONS

In the literature it is argued that the correlation between distance and trade volume is negative. Therefore, the reduction of border impediments between Poland and Germany might have increased international trade relations of firms in border regions stronger than of firms located in inner regions due to lower access costs to foreign markets. Consequently, border regions would be particularly affected by trade expansion in the course of integration. Indeed, Voivodships and Bundesländer

located at the border have more intensive trade relations to Poland and Germany than the countries have on average.

Summarising the empirical results, we do not find specific development trends of the smaller and wider border region which might be possible from the perspective of economic theory. Employment and population growth at each side of the border follow more or less general development trends of the surrounding Bundesländer resp. Voivodships. Despite following regional trends, the employment growth in Germany's and Poland's border region does not resemble the national trend. On both sides of the border employment is decreasing while national development shows upward trends.

However, the considered period of time for the empirical analysis was due to the data availability very short and plenty of integration effects – despite intensified trade relations among Germany and Poland - are still to come. Although tariff barriers to trade have already been abolished to a large extent, there is still a high potential for reducing border impediments, e.g. concerning infrastructure and impediments related to different laws, languages and cultures. Even among present EU member states border impediments still matter for interregional trade relations. Furthermore, experiences in the course of European integration illustrate that it takes a relatively long time until the segmentation of markets by national borders loses importance.

Further research based on an improved data basis is necessary for assessing development prospects of the German-Polish border region. E.g. Heimpold (2003) deals with the growth potential of the German part of this region. He points out that one has to consider the spatial disparities in the border area with regard to growth factors when assessing regional development prospects. Similar, the results of Dreyhaupt-von Speicher (2002) indicate distinct spatial disparities regarding location factors (e.g. capital endowment) for the Polish border regions.

With regard to job and population density the German as well as the Polish border regions are less developed compared to the regions of a higher level. Economic disparities among the German border regions and higher regional levels are more distinct than among the Polish border regions. Per capita income in German border regions falls far below the German average and also the high share of the agrarian sector differs from the rest of Germany. Instead, the share of the agrarian sector is distinctly lower in the Polish border region than in Poland on average. Furthermore, we find strong income inequality along the border which might be an impediment to economic development in itself.<sup>27</sup>

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<sup>27</sup> Dascher (2003) argues that the strong income inequality along the border creates numerous extra “inefficiencies” which result in lower households’ well-being than it could be. Essentially these inefficiencies are due to strong market segmentation, insufficient protection of property rights, unfettered quest for status, the lack of incentives to provide amenities on both sides of the border.

However, currently we cannot observe above average development trends of regions which location conditions are assessed to be rather good due to certain agglomeration economies and human capital endowment, i.e. cities and densely populated regions. Contrary, rural regions in the Polish as well as in the German part of the wider border area exhibited above average development trends during the last years. Whereas the other type of regions lost population – partly to a high degree like the most densely populated Kreise in Germany – rural areas grew at above average growth rates. This might be partly due to differences in fertility behaviour among cities and rural areas. But still migration gains for rural Kreise in the course of suburbanisation can be assessed to be relevant whereas especially other types of regions have faced high migration losses.

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