

Ulysses

Using applied research results from ESPON as a yardstick for
cross-border spatial development planning

Targeted Analysis 2013/2/10

Scientific Report for the Final Report

Multi-Thematic Territorial Analysis

of the

**Poland - Germany - Sweden Cross-Border Area (Euroregion
Pomerania)**

Version 12/12/2012



This report presents the Multi-Thematic Territorial Analysis results of a Targeted Analysis conducted within the framework of the ESPON 2013 Programme, partly financed by the European Regional Development Fund.

The partnership behind the ESPON Programme consists of the EU Commission and the Member States of the EU27, plus Iceland, Liechtenstein, Norway and Switzerland. Each partner is represented in the ESPON Monitoring Committee.

This report does not necessarily reflect the opinion of the members of the Monitoring Committee.

Information on the ESPON Programme and projects can be found on www.espon.eu

The web site provides the possibility to download and examine the most recent documents produced by finalised and ongoing ESPON projects.

This basic report exists only in an electronic version.

© ESPON & Lappeenranta University of Technology, 2012.

Printing, reproduction or quotation is authorised provided the source is acknowledged and a copy is forwarded to the ESPON Coordination Unit in Luxembourg.

List of authors

Lappeenranta University of Technology (LUT)
Virpi Kaisto
Project researcher

Project group:
Tecnalia, Spain (LP)
Karlsruher Institut für Technologie (KIT), Germany
Democritus University of Thrace, Greece
Lappeenranta University of Technology, Finland
University of Aveiro, Portugal
University of Luxemburg

Glossary

CBA: Abbreviation for Cross-Border Area.

ESPON countries: 27 EU Member States and Iceland, Lichtenstein, Norway and Switzerland

FUA: Abbreviation for Functional Urban Area.

LAU: Abbreviation for the Local Administrative Units (LAUs) compatible with NUTS classification.

LAU 1: The upper LAU level (formerly NUTS level 4) is defined for most, but not all of the countries.

LAU 2: The lower LAU level (formerly NUTS level 5) consists of municipalities or equivalent units in the 27 EU Member States.

NUTS: Abbreviation for the Nomenclature of territorial units for statistics. The NUTS classification is a hierarchical system for dividing up the economic territory of the EU for the purpose of collection, development and harmonisation of EU regional statistics.

NUTS 1: major socio-economic regions

NUTS 2: basic regions for the application of regional policies

NUTS 3: small regions for specific diagnoses

Table of contents

Chapter 1. Executive Summary	8
Chapter 2. General overview	13
2.1. Ulysses project in brief	13
2.2. General overview of the area	14
Chapter 3. Demographic analysis	15
3.1. Population	15
3.2. Population projections	18
Chapter 4. Polycentric development	18
4.1. Functional Urban Areas	18
4.2. Morphological analysis of FUAs	19
4.3. Functional analyses of FUAs	20
Chapter 5. Urban-rural relationship	21
5.1. Land use patterns	21
5.2. Gross value added and employment in agriculture and fishing	22
Chapter 6. Accessibility and connectivity	23
6.1. Accessibility by road, rail, air and sea	23
6.2. Broadband Internet access	25
Chapter 7. Lisbon / Europe 2020 and Gothenburg objectives	25
7.1. Economy and employment	25
7.1.1. GDP per capita	25
7.1.2. Economic sectors	26
7.2. Research and innovation	26
7.3. Social cohesion	26
7.4. Environmental analysis	27
7.4.1. Environmental performance	27
7.4.2. Environmental capacity	27
7.4.3. Climate change	28
Chapter 8. The city of Szczecin in the Polish-German CBA	28
9.1. Location	29
9.2. Demographic dynamism and immigration	29
9.3. Economy	30
9.4. Research and development	30
9.5. Administrative centres	31
9.6. Environment	31
Chapter 10 – Cross-border governance	31
10.1. General framework and analysis	31
10.2. Euroregion Pomerania	32
10.2.1. Structural dimension	32
10.2.2. Activity dimension	32
10.2.3. Spatial development and transport	33
Chapter 11 – Integrated territorial analysis and scenarios	34
11.1. Objectives and methodology	34
11.2. Current status of Euroregion Pomerania	34
11.3. ESPON 3.2. scenarios and Euroregion Pomerania	35
11.3.1. Integrated baseline (trend) scenario	35
11.3.2. Danubian Europe: Integrated cohesion-oriented scenario	36
11.3.3. Rhine-Rhone Europe: competitiveness-oriented scenario	36
11.4. Most relevant challenges for Euroregion Pomerania	37
Chapter 12 – Suggested strategies	37

12.1. Suggested strategies for Euroregion Pomerania	37
12.2. General strategies for Euroregion Pomerania	39
Annexes	40

To the reader

This report is the Scientific Report of the Ulysses-project. It presents research results for the Poland – Germany – Sweden cross-border area (Euroregion Pomerania). The first part of the report (chapters 2-8) summarises research results of the Multi-thematic cross-border territorial analysis (MTA). The full report (MTA) is annex 1 to this report. The second part of this report (chapter 9) summarizes research results of the Cross-border governance analysis. The full Cross-border governance analysis is annex 2 to this report. The last part of the report (chapters 10-11) presents research results of the Integrated analysis. It includes identified challenges and proposed strategies for the CBA. Description of the methodology and full tables of the SWOT analysis are annex 3 to this report. As this is a summary report, please refer to the annexes for full data and methodology explanations.

Chapter 1. Executive Summary

1.1. Ulysses project in brief

Ulysses is an experimental and innovative project supported by eighteen European border and cross-border areas (hereafter CBA) that aim at using research results from Ulysses as a yardstick for decentralised cross-border spatial development activities. Analyses in Ulysses are based on data and methods developed by previous projects of the ESPON programme. In Ulysses, a targeted analysis including high-quality, comprehensive and multi-thematic territorial analyses (hereafter MTA), was performed on six specific CBAs across Europe.

The MTA focused on the main topics of the Territorial Agenda of the European Union (EU 2006, 2011), namely (i) cross-border polycentric development, (ii) patterns of urban/rural relationship, (iii) levels of accessibility and connectivity, (iv) effects of demographic change (territorial profile), and (v-vi) level of attainment of Lisbon/Europe 2020 and Gothenburg objectives by the CBA (territorial performance). In parallel, an in-depth statistical analysis was performed. It included (i) a catching-up analysis; (ii) a principal components analysis, and (iii) a multiple regression analysis.

Additionally, a comprehensive cross-border institutional performance analysis was included for each CBA. This analysis captured the diversity of governance frameworks existing in the CBAs and it included a structural dimension, i.e. the overall framework that can hardly be influenced by the partners of cross-border cooperation, as well as an activity dimension, i.e. the intensity and continuity of institutionalised cross-border cooperation on the regional level.

Further, an integrated analysis taking into account previous inputs was performed. Methodologically the integrated analysis adopted the form of a two-phase SWOT analysis that included (i) a status-analysis phase in which the findings derived from previous research tasks were organised and prioritised, and (ii) an action-decision phase in which a response to the identified challenges was proposed as potential strategies. Both the challenges and strategies were discussed and eventually validated by stakeholders of the MTA areas. The SWOT analysis is the main contribution of the Ulysses-project to the Practical Guide that the Association of European Border Regions will develop in the near future.

1.2. Key analyses

1.2.1. Demography

Demographic performance in Euroregion Pomerania has varied widely between the regions. Population change has been positive in Barnim (Germany), Podregion Szczeciński (Poland) and Skåne län (Sweden), but negative in all the other regions (2000-2009). None of the regions of Euroregion Pomerania has a total fertility rate above the replacement level, and old age dependency ratio of the CBA is above the European average. Total population change of Euroregion Pomerania has, however, been improving; it was negative

between 2000 and 2004, but positive between 2005 and 2009. Low scale analyses show that the border attracts population in the Polish-German border area, and possibly also in Skåne län in Sweden.

1.2.2. Polycentric development

Euroregion Pomerania has a polycentric urban structure, more polycentric than the urban structure of ESPON space (EU27, Iceland, Liechtenstein, Norway and Switzerland) when considering the amount of population of Functional Urban Areas. Urban structure of the region is not dominated by one big city, but the size of the biggest FUA (Malmö in Sweden) is actually smaller than anticipated by the rank-size distribution of the FUAs. However, the CBA is more monocentric when considering GDP. Malmö is the leading city in terms of GDP and differences to small German and Polish FUAs are large. Only 51,5 % of the CBA's total population lives in FUAs and the average size of FUAs in Euroregion Pomerania is two thirds of the average size of FUAs in the ESPON countries. Dominating economic activity in the FUAs was service sector.

1.2.3. Urban-rural relationship

There are both large rural areas and densely populated urban areas in Euroregion Pomerania. ESPON 1.1.2 typology classifies eight regions of Euroregion Pomerania as regions with low urban influence and low human intervention and five regions with high urban influence and high human intervention. In general agricultural areas occupy large areas of the CBA. However, total area of agricultural land has been decreasing in all the regions of Euroregion Pomerania between 1990 and 2006. Biggest changes in urbanisation of agricultural land and amount of artificial land cover have taken place in the German city districts of the CBA. Production and employment by agriculture and fishing has decreased in all the regions of Euroregion Pomerania between 1997 and 2008.

1.2.4. Accessibility and connectivity

Accessibility varies widely in Euroregion Pomerania. German regions are potentially easier to access by road than other regions of the CBA. Potential accessibility of the Polish regions by road is below the European average. Skåne län in Sweden was the most difficult region to access by road and rail, but it has the highest accessibility by air. Skåne län has also the highest potential multimodal accessibility in Euroregion Pomerania. In general multimodal accessibility of Euroregion Pomerania is below the European average, and only two regions (Skåne län and Barnim) score higher than European regions in average. Internet accessibility has been increasing in all the regions.

1.2.5. Lisbon / Europe 2020 and Gothenburg objectives

Performance of Euroregion Pomerania concerning objectives of Lisbon / Europe 2020 and Gothenburg strategies was studied with selected indicators. Disparities in GDP per capita have been growing in Euroregion Pomerania between 1997 and 2008. Compared to the leading European region in economic development (London) most of the regions of Euroregion Pomerania are growing less and thus diverging from the leader. Polish regions have been classified as slow catching-up regions. GVA has been increasing in Euroregion Pomerania at an annual rate of 3,6 %. The leading economic sector in the CBA in 2008 was public administration and community services. Total intramural R&D expenditure in Euroregion Pomerania was lower than EU average. Unemployment was well above the European average in 2010.

Euroregion Pomerania has a large share of Natura 2000 -areas and environmental protection has been progressing in the CBA. Sensitivities to climate change were low in Euroregion Pomerania compared to the European average. Soil sealing has been particularly high in the city regions of the CBA. Wind energy potential is well above national and European averages.

1.2.6. Factor analysis

In the European context Euroregion Pomerania appears as follows. German city regions and the city of Szczecin have positive centrality values, while all the other regions had negative centrality values. Skåne län in Sweden is performing best in terms of demography, and it also received high scores for the R&D factor. The growth of GDP in Poland has been rapid and therefore the Polish regions of Euroregion Pomerania scores higher in the economic catching-up analysis than other regions of the CBA. Several regions scored high in the administrative centres -analysis that indicates poor economic performance and importance of the public sector. Regions in coastal areas of Euroregion Pomerania scored high in environment analysis, and are thus more sensitive to environmental risks related to climate change than other regions of the CBA.

1.2.7. The city of Szczecin in the Polish-German CBA

The city of Szczecin is the only major city in the cross-border territory of north-west Poland and north-east Germany and therefore it plays an important role in cross-border regional development. In order to elaborate the vision of the city as a cross-border urban territory, the city has been actively developing the concept of 'Cross Border Metropolitan Region of Szczecin'. According to the research results of Ulysses, development patterns of the city of Szczecin do not limit themselves to the territory of the city, but reach across regional borders and the German border area. Development priorities of the Cross Border Metropolitan Region of Szczecin (strengthening of international cooperation, protecting natural environment, supporting polycentric settlement network, improving transport and technical infrastructure, and boosting economic development) seem justified in the light of Ulysses results.

1.2.8. Institutional analysis

Structural dimension of cross-border governance in Euroregion Pomerania is challenging. The CBA has a particular situation with a land border and a sea border that separate three national states with very different institutional settings and traditions. Cross-border cooperation is not only characterised by the trinational platform of the Euroregion of Pomerania, but also by further bi- and multi-lateral cooperation. In particular the Polish-German cooperation has been a prominent part of the Euroregion Pomerania activities, and a series of projects has been initiated.

1.3. Identified challenges and opportunities

We have found two thematically cross-cutting challenges that in our view have a great influence on the future developments of Euroregion Pomerania. The first one is the development of economy and creation of new jobs in the CBA. Unemployment, in particular youth unemployment is high in the CBA and employment in traditional sectors of economy (agriculture and industry) has been decreasing. Decrease in the share of production and employment has been especially high in the agricultural sector, and since Euroregion Pomerania is occupied by large agricultural areas, creation of new jobs in the rural areas is extremely important. GDP has been growing in all the regions of the Euroregion, but the growth has been

low compared to the leading European regions. Polish and German parts of Euroregion Pomerania are facing a demographic challenge and it is necessary to influence demographic patterns; to attract new inhabitants and to prevent young people from leaving the area by creating new attractive work opportunities. In Skåne län, where demographic patterns have been positive, economic growth is important to ensure competitiveness of the region. Removal of EU restrictions on the movement of labour in 2011 now allows a creation of a cross-border labour market in the entire Euroregion. Cross-border cooperation offers possibilities for change of knowledge and experiences in the development of a knowledge based economy.

The second key element that will affect territorial development of Euroregion Pomerania is accessibility. The CBA is an important logistics hub with several ports by the Baltic Sea and a connection to the European inland waterways. Maritime passenger traffic has been decreasing after 2006 in all the ports of the Euroregion and cargo traffic experienced a radical decrease in 2008 because of the global economic crises. Besides maritime and inland waterway connections, the development of road and railroad connections to main European transport corridors is essential for the economic development of the CBA. Multimodal accessibility of Euroregion Pomerania is below the European average, except for two regions; Skåne län in Sweden that has good air connections and Barnim Germany is that located next to Berlin and thus close to the main European road and rail connections. The development of connecting infrastructure within the CBA is equally important, because it enables cross-border commuting and leisure travel.

1.4. Proposed strategies

1.4.1. Strategies to tackle the territorial challenges and opportunities

Euroregion of entrepreneurship -strategy

This strategy is based on the idea that entrepreneurship and education are taken as the key concepts for developing Euroregion Pomerania into an active and creative cross-border area. Entrepreneurship is seen as a lifelong learning process and training for entrepreneurship starts already in the schools. Special attention is paid at quality and contents of education and vocational training to meet the actual market needs. Entrepreneurs get high-quality training and support. Inhabitants are encouraged to start new businesses. This strategy aims at creating new jobs in the CBA. New employment opportunities attract new (and returning) inhabitants, and offer perspective for life strategies for young people and families. Entrepreneurship is a true choice for people that are no longer employed by traditional fields of economy, such as industry. Cross-border cooperation is essential for this strategy, in order to change information of experiences and best practices, and to create businesses that serve the cross-border area and its needs. Cross-border incubation centres are an essential part of this work.

Investing in tourism

This strategy is based on the idea that tourism is a 'hard, serious business' and a real choice for boosting economic development. Euroregion Pomerania is occupied by large agricultural and green areas and it has an ideal location by the Baltic Sea. In this strategy tourism is considered a true option for the creation of new jobs in the CBA. Investments are made in tourism infrastructure and traffic infrastructure. The

development of tourism is consistent and has a long-term perspective. Ecotourism is developed in the rural, agricultural areas. Health and leisure tourism flourishes among the population. Tourism development is based on local assets and joint Pomeranian heritage and a special attention is paid to environmental values and sustainability. Pomeranian tourism offers attractive niche products (e.g. historic trails, culinary trails, wreckage trails etc.). Possibilities offered by the cross-border connections are utilized and cross-border euroregional tourism brand is created.

All roads lead to Pomerania

This is a strategy to boost transport infrastructure development (incl. waterways, roads, rail) and thus accessibility of the CBA. Good level of accessibility serves economic development of the CBA and enables the tourism sector to grow. Attention is paid at cross-border connections between the national parts of the CBA. Commuting across the borders is easy and growing interaction between the inhabitants serves the creation of a cross-border social space. Public transport network is well-functioning and vehicles environmentally friendly. 'Low emissions' is the key concept.

1.4.2. General strategies for Euroregion Pomerania

Ulysses study shows that Euroregion Pomerania has great territorial assets that it should value and foster and, on the other hand, it has challenges that it should tackle across the border. All of the above-mentioned strategies necessitate cross-border collaboration; information exchange, change of experience and best practices, common plans. As this study shows, the influence of the border on territorial development in Euroregion Pomerania is increasing. It is therefore important to continue collaboration and formulate a common development strategy for the Euroregion that would create a synergy effect among the partners. Euroregion Pomerania should serve as a 'cross-border competence' institution or structure that would participate in spatial planning activities in the CBA and possess up-to-date data on the territorial development of its national parts. A creation of a common database as e.g. Ørestat (Statistical database containing information about cross-border developments in Øresund region) is a worthy possibility.

1.5. Further steps

The Ulysses study is based on statistical data and the body of the research consists of quantitative analyses. With this method it is possible to get a general picture of the dynamics and development in the CBA. In order to study reasons behind these developments a larger qualitative study should be carried out. One topic for further study is the influence of borders on local economic development. How do the border effect local economic development? How are small businesses developing in the border regions? Another topic for further study is the social space in the border areas. How are the cross-border area and the opportunities it offers utilized by local people?

Chapter 2. General overview

2.1. Ulysses project in brief

Ulysses is an experimental and innovative project supported by eighteen European border and cross-border areas (hereafter CBA) that aim at using research results from Ulysses as a yardstick for decentralised cross-border spatial development activities. Analyses in Ulysses are based on data and methods developed by previous projects of the ESPON programme. In Ulysses, a targeted analysis including high-quality, comprehensive and multi-thematic territorial analyses (hereafter MTA), was performed on six specific CBAs across Europe. These are:

- 1) Upper Rhine cross-border area along the land borders between France, Germany and Switzerland,
- 2) Cross-border area along the entire Spanish-French land border (Pyrenees),
- 3) Cross-border area along the land border between Greece and Bulgaria,
- 4) Cross-border area covering parts of Eastern and Northern Finland – Russian land border (Euroregion Karelia),
- 5) Cross-border area along the borders between Poland, Germany (land border) and Sweden (maritime border) (Euroregion Pomerania), and
- 6) Extremadura/Alentejo on the border between Spain and Portugal.

The MTA has focused on the main topics of the Territorial Agenda of the European Union (EU 2006, 2011), namely (i) cross-border polycentric development, (ii) patterns of urban/rural relationship, (iii) levels of accessibility and connectivity, (iv) effects of demographic change (territorial profile), and (v-vi) level of attainment of Lisbon/Europe 2020 and Gothenburg objectives (territorial performance). In parallel, an in-depth statistical analysis was performed. This analysis included (i) a catching-up analysis; (ii) a principal components analysis, and (iii) a multiple

regression analysis. These analyses have been performed on different scales, so that the indicators of each CBA have been compared to different spatial levels (NUTS III, cross-border, national and EU27/ESPON levels). The data used in the analyses included ESPON datasets (e.g. morphological urban areas) and EUROSTAT indicators (e.g. demography indicators), data from national databases and additional information provided by local stakeholders.

Additionally, a comprehensive cross-border institutional performance analysis was included for each CBA. This analysis captured the diversity of governance frameworks existing in the CBAs and it included a structural dimension, i.e. the overall framework that can hardly be influenced by the partners of cross-border cooperation, as well as an activity dimension, i.e. the intensity and continuity of institutionalised cross-border cooperation on the regional level.

The structural dimension included such factors as (i) the political status of the border (e.g. EU membership / historicity, Schengen status), (ii) the planning system (i.e. the planning culture family), (iii) the physical status of the border (e.g. geomorphology), and (iv) the language barrier (i.e. number of languages existing in the area). These domains have been combined in a synthesis score that indicates whether the borders function as a separation, an interface or a link. The activity dimension took into account (i) historicity of the cross-border cooperation (i.e. earliest founding date of the cross-border cooperation), (ii) maturity of cross-border cooperation (i.e. INTERREG III participation), (iii) institutional thickness in cross-border cooperation (i.e. number of permanent institutionalisations), (iv) current activity (in terms of operative EGTC), (v) cross-border spatial development on regional level (e.g. joint GIS tools), and (vi) existing cross-border transport projects (e.g. TEN-T corridors crossing the border). These domains were combined in a synthesis

score that classified the borders as borders of integration, cooperation or separation.

Further, an integrated analysis taking into account previous inputs was performed. From a methodological perspective, this integrated analysis adopted the form of a two-phase SWOT analysis that included (i) a status-analysis phase in which the findings derived from previous research tasks were organised and prioritised as main challenges, and (ii) an action-decision phase in which a response to each one of the identified challenges was proposed as a potential strategy.

The opportunities and threats identified in the SWOT analysis were contrasted with the scenarios developed by ESPON 3.2. -project. These scenarios were (i) the Baseline / trend scenario, (ii) the Danubian Europe / cohesion-oriented scenario, and (iii) the Rhine-Rhone Europe / competitiveness-oriented scenario. Implications of these scenarios were taken into account when making conclusions of the final opportunities and threats. Challenges and strategies were discussed and validated by stakeholders of the MTA areas. The SWOT analysis is the main contribution from the Ulysses project to the Practical Guide that the Association of European Border Regions will develop in the near future.

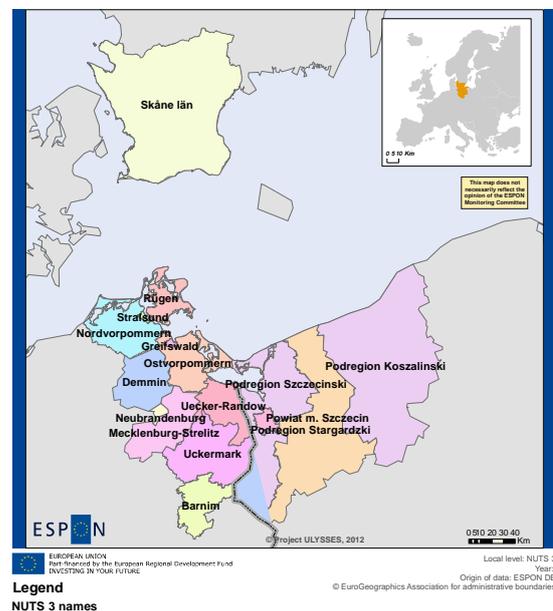
2.2. General overview of the area

Euroregion Pomerania is a cross-border region situated on the border between Poland, Germany and Sweden. Polish regions of Euroregion Pomerania are located in north-west Poland, German regions in north-east Germany and Swedish regions cover the south of Sweden. The border between Poland and Germany is a land border, while Sweden is separated from the Polish and German regions of Euroregion Pomerania by a maritime border. The distance across the Baltic Sea from the Swedish coast to the German coast is

approximately 80 km (in its narrowest part) and to the Polish coast approximately 180 km.

Euroregion Pomerania is an association, which was established on 15 December 1995 in Szczecin, Poland. Since 26 February 1998, the day of signing the agreement in Lund, Sweden, it has following parties: the Association of Polish Local Authorities of the Euroregion Pomerania (most of the Polish local authorities in the Zachodniopomorskie voivodship), the city of Szczecin, the Association of Local Authorities Euroregion POMERANIA e.V. (an association of three self-administrated towns and eight rural districts in the Land of Mecklenburg-Vorpommern and in the Land of Brandenburg in Germany) and the Scania Association of Local Authorities with 33 communes in Sweden.

Map 1. Map of NUTS 3 regions of Euroregion Pomerania.



In the beginning of the Euroregion Pomerania cooperation only Germany and Sweden were members of the European Union, and the border

to Poland was an external border of the EU. Gradually the CBA has turned into a functionally more integrated area. In 2004 Poland joined the European Union and the former external border became an internal border. In 2007 border controls were abolished in the enlarged EU and EU citizens could enter Poland by land or sea without identity checks. In 2011 labour market restrictions for the new (2004) Member States were removed and Polish citizens were allowed to take employment in Germany (Sweden did not impose restrictions for the New Member States).

From the perspective of NUTS division Euroregion Pomerania appears as follows. In Poland it includes four NUTS 3 level regions; Podregion Koszaliński, Podregion Stargardzki, Powiat m. Szczecin and Podregion Szczeciński. These regions form the NUTS 2 level region of Województwo Zachodniopomorskie, which belongs to the NUTS 1 level region of Region Północno-Zachodni. On the German side Euroregion Pomerania includes eleven NUTS 3 level regions. Two of these, Barnim and Uckermark belong to the NUTS 2 region of Brandenburg-Nordost and, thus, to the NUTS 1 region of Brandenburg. The other nine regions (Greifswald, Neubrandenburg, Stralsund, Demmin, Mecklenburg-Strelitz, Nordvorpommern, Ostvorpommern, Rügen and Uecker-Randow) are part of the NUTS 2 / 1 region of Mecklenburg-Vorpommern.¹ In Sweden only one NUTS 3 region, that of Skåne län belongs to Euroregion Pomerania. Skåne län is part of the NUTS 2 region of Sydssverige, which belongs to the NUTS 1 region of Södra Sverige (Southern Sweden).

Euroregion Pomerania has a total area of 49 663,97 km² (2010). The largest NUTS 3 unit of the CBA is Skåne län in Sweden. It has a total area of 11 368,5 km² that forms 23 % of the total area of Euroregion Pomerania. The smallest NUTS 3 unit of the CBA is Stralsund in Germany with a

¹ We have applied in this report the division prior the local government reform in the Federal State of Mecklenburg-Vorpommern in September 2011, because majority of the data was collected before it.

total area of 39,1 km² (0,08 % of the total area of the CBA). German NUTS 3 regions cover 31 % and Polish regions 46 % of the total area of Euroregion Pomerania. In their nation states the regions of Euroregion Pomerania cover relatively small shares of total country areas. Polish regions of the CBA form 7 % of the total area of Poland, German regions cover 4 % of the total area of Germany, and the share of Skåne län in the total area of Sweden is only 3 %.

Chapter 3. Demographic analysis

The aim of this chapter is to analyse the demographic dynamics and trends in the Poland - Germany - Sweden Cross-Border Area (Euroregion Pomerania). We start by describing the demographic dynamics in the area. How densely populated is the CBA? What does the age and sex structure of the CBA look like? What seem to be the temporal dynamics of the population growth? The second objective of the chapter is to understand whether the border is influencing settlement patterns.

3.1. Population

Euroregion Pomerania has a total population of 3 915 493 inhabitants (2009). The largest NUTS 3 region of the CBA is Skåne län in Sweden with 1 214 758 inhabitants and the smallest Greifswald in Germany with 54 131 inhabitants. Polish regions have the largest share of inhabitants in Euroregion Pomerania (43 %), Swedish region of Skåne län the second largest (31 %) and German regions the smallest share (26 %). Considering national populations, Skåne län has the largest share of national population (13 %), while German NUTS 3 regions of Euroregion Pomerania constitute only 1,2 % of the total population of

Germany and the Polish regions 4,4 % of the total population of Poland. When compared to the total population of the European Union, which in 2009 was 499 705 496 citizens, the population of Euroregion Pomerania makes up 0,8 % of the EU27 population.

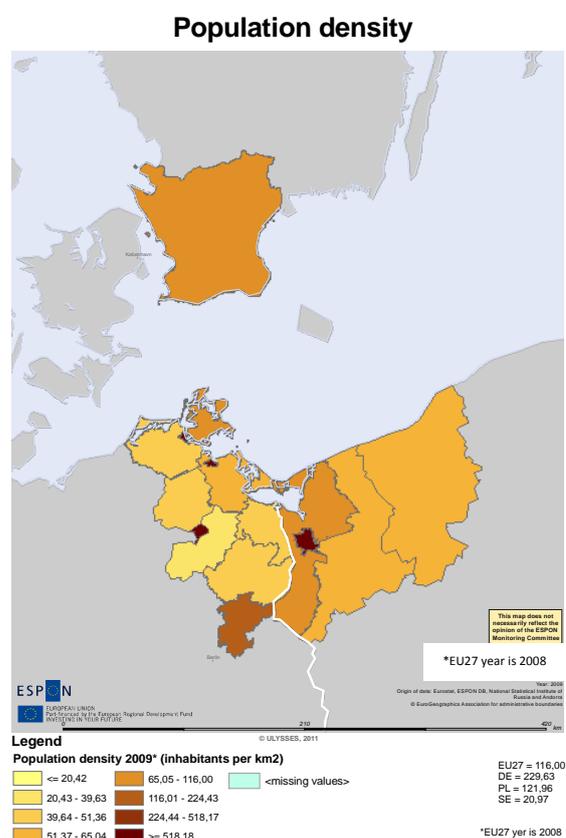
From the perspective of sex structure, Euroregion Pomerania has a slight female majority with 1 993 574 females that make up 51 % of the total population. In general sex ratio is well balanced in Euroregion Pomerania and there are no significant deviations in any of the regions. Considering age structure, German NUTS 3 regions of Euroregion Pomerania have the smallest share of population under 15 years of age (11 %) that is significantly lower than the German (14 %) or the European Union average (16 %). Polish NUTS 3 regions, on the other hand, have the largest share of working age population (73 %) and the smallest share of population over 65 years of age (12 %). The age structure of Skåne län resembles very closely the general age structure in Sweden and in the European Union.

Population density in Euroregion Pomerania was 278,7 inhabitants per km² in 2008. In general population densities in the CBA vary widely. In 2008 the most densely populated region of the CBA was Stralsund with 1486,6 inhabitants per km², while the population density in the most sparsely populated region of Mecklenburg-Strelitz was 38,4 inhabitants per km². While the population density has been declining in the German and Polish regions of Euroregion Pomerania, the population density in Skåne län has been increasing between years 2000 and 2008. Besides Skåne län there were only two regions in Euroregion Pomerania that have experienced positive growth in population density. These were Barnim in Germany and Szczeciński in Poland.

Accordingly population change has been negative between years 2000 and 2009 in all the regions of Euroregion Pomerania, except for Barnim,

Szczeciński and Skåne län. In order to have a closer look at total population change in the CBA we compared the population growth during two four-year periods, the first one including years 2000 to 2004 and the second one years 2005 to 2009. Euroregion Pomerania shows negative population change during the first period, but positive population growth during the second period.

Map 2. NUTS 3 level population density in Euroregion Pomerania in 2009.

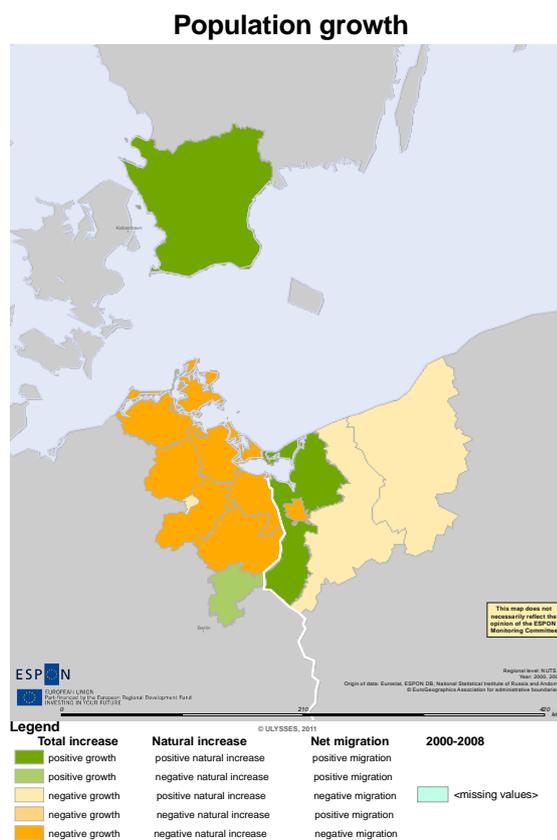


Skåne län and Podregion Szczeciński are the only regions in Euroregion Pomerania that have between years 2000 and 2008 had a positive natural and total population growth and positive net migration. Barnim has had a positive total population growth and net migration, but a

negative natural increase. Neubrandenburg, Podregion Koszaliński and Podregion Stargardzki, on the other hand, have suffered from negative population growth and negative migration, but have had a positive natural growth of population. All the other regions of Euroregion Pomerania have had a negative natural and total population growth and negative net migration.

None of the regions of Euroregion Pomerania has a total fertility rate above the replacement level. Sydsverige (NUTS 2) is the only region in the Poland – Germany – Sweden CBA with a total fertility rate above the EU average (1,6 in 2008). In general total fertility rates in the CBA have been gradually increasing since 2005.

Map 3. Category map of population change in Euroregion Pomerania between years 2000 and 2008.



Dependency ratios (2009) for Euroregion Pomerania indicate that, in comparison with the

European Union averages, there is less pressure for the working age to take care of children less than 15 years of age, but more pressure on the working age population to take care of elderly people. Considering the small share of children less than 15 years of age, there will also be less people to take care of the retiring working age population in the future. Stralsund in Germany has the highest and Podregion Szczeciński Poland the lowest old age dependency ratio. The share of elderly people is low in all the Polish regions of Euroregion Pomerania, and in Poland in general. Skåne län in Sweden has the highest young age dependency ratio due to high fertility and large share of population under 15 years of age.

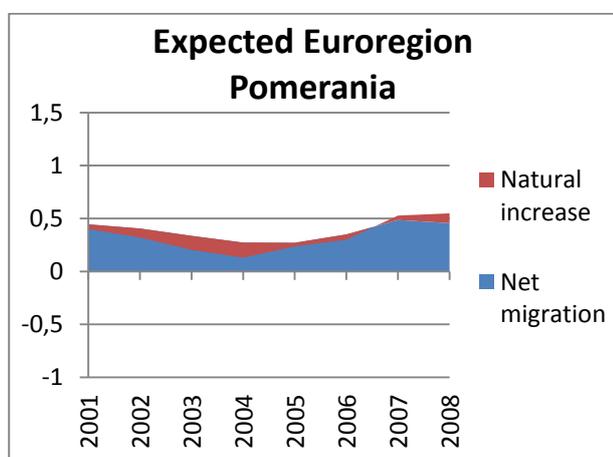
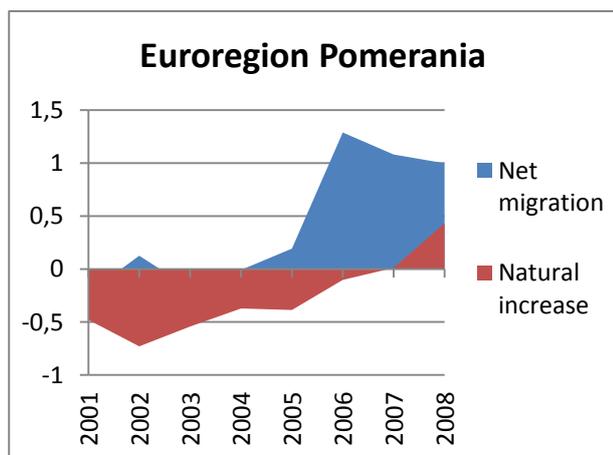
The extent of commuting varies in the Poland – Germany – Sweden CBA. Brandenburg-Nordost stands out as the region, where commuting to another region to work or study is high. This is most likely connected with the location of the region close to Berlin. Commuting to a foreign country is most typical in the NUTS 2 region of Sydsverige. This is most likely due to Øresund region, where commuting across the Swedish-Danish border increased significantly since the opening of the Øresund bridge in 2000. Commuting to a foreign country increased substantially in Województwo Zachodniopomorskie in 2007, when the European Union liberated labour markets for the new Member States.

The results of low scale (LAU 1 / LAU 2) analyses show that each national part of Euroregion Pomerania has their own population settlement trends, but that both the maritime border between Sweden, Germany and Poland and the land border between Poland and Germany seem to some extent affect the settlement patterns in the Euroregion. The border attracts population in the Polish-German border area, and possibly also in Skåne län in Sweden.

3.2. Population projections

Following two figures present the expected and actual natural population change and net migration in Euroregion Pomerania between 2001 and 2008. In the figures we can observe that would the natural population growth in Euroregion Pomerania have followed the German, Polish and Swedish national averages, it would have been positive during the whole period between 2001 and 2008. During the last studied year (2007-2008) natural population change in Euroregion Pomerania has been positive to such an extent that it has almost reached the national averages. Net migration, on the other hand, has since 2004 been well above the expected values.

Figure 1. Actual and expected behaviour of natural population change and net migration between 2001 and 2008.



Source: Eurostat (data)

Chapter 4. Polycentric development

The aim of this chapter is to study polycentric development, in other words, structure of city network in the Poland - Germany - Sweden CBA. Methodology that we applied for studying polycentricity originates from ESPON 1.1.1 - project. The given project considers two different aspects of polycentric development. The first one is morphological (the distribution of urban areas in a given territory) and the second one relational (networks of flows and cooperation between urban areas at different scales). Data applied in this study was developed by ESPON 1.4.3 -project and all the analyses are based on the concept of Functional Urban Area (FUA). Functional Urban Areas consist of a core municipality and municipalities surrounding the core. Analyses have been made on NUTS 2 level.

4.1. Functional Urban Areas

FUAs located in Euroregion Pomerania are Neubrandenburg, Greifswald, Stralsund and Eberswalde (in Barnim) in Germany, Szczecin, Koszalin and Kołobrzeg (in Podregion Koszaliński) and Stargard Szczeciński (in Podregion Stargardzki) in Poland and Malmö (in Skåne län) in Sweden. The largest FUA of the Poland – Germany – Sweden CBA was in 2006 Malmö with 636 157 inhabitants. Population growth between 2001 and 2006 has been positive in Malmö (4,4 %), Koszalin (0,3 %) and Greifswald (0,7 %), while all the other FUAs have been losing population.

Map 4. FUAs of the Poland – Germany – Sweden CBA.

Morphological and Functional Urban Areas



Legend
Morphological Urban Areas and Functional Urban Areas, according to the ESPON 1.4.3 (established from data from 2001)

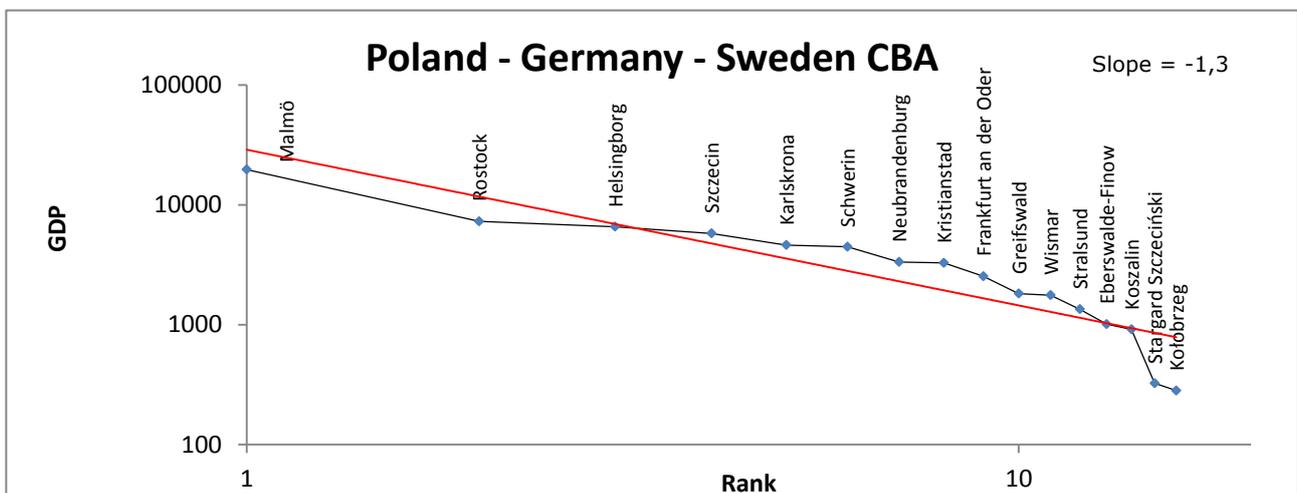
4.2. Morphological analysis of FUAs

It is characteristic for a polycentric urban system that no city dominates over other cities in demographic or economic sense. In other words, a polycentric urban system lacks hierarchy, and cities are relatively similar of size. We have analysed the hierarchy of city systems in the Poland – Germany – Sweden CBA by calculating the *slope of rank size distribution* of the FUAs. The

slope of rank size distribution of FUA population in the CBA was -0,96 in 2006. This indicates a polycentric urban structure, more polycentric than the average urban structure in Europe (ESPON space). The slope of rank size distribution of FUA GDP was -1,3 in 2006. Thus, when considering population the city structure of the CBA is polycentric, but the CBA is more monocentric when considering the GDP of the FUAs. The leading city in FUA GDP was Malmö in Sweden with GDP of 19 688 M€ in 2006.

While the slope of rank size distribution considers all FUAs in a region, *primacy rate* excludes the largest FUA from the analysis. It is an indicator that measures how much the size of the largest FUA deviates from the regression line of the rank-size distribution of the FUAs in a given region. High primacy rate indicates a monocentric urban structure with one dominating FUA, and low primacy rate a polycentric urban structure. Population primacy rate for the Poland – Germany – Sweden CBA was 0,57 in 2006. This suggests that urban structure of the region is not dominated by one big city, but that the size of the biggest FUA (Malmö) is actually smaller than anticipated by the rank-size distribution of the FUAs. GDP primacy rate of the CBA valued at 0,49.

Figure 2. Rank size distribution of GDP in Functional Urban Areas in the Poland – Germany – Sweden CBA (2006). Source: ESPON 1.4.3 -project (data)



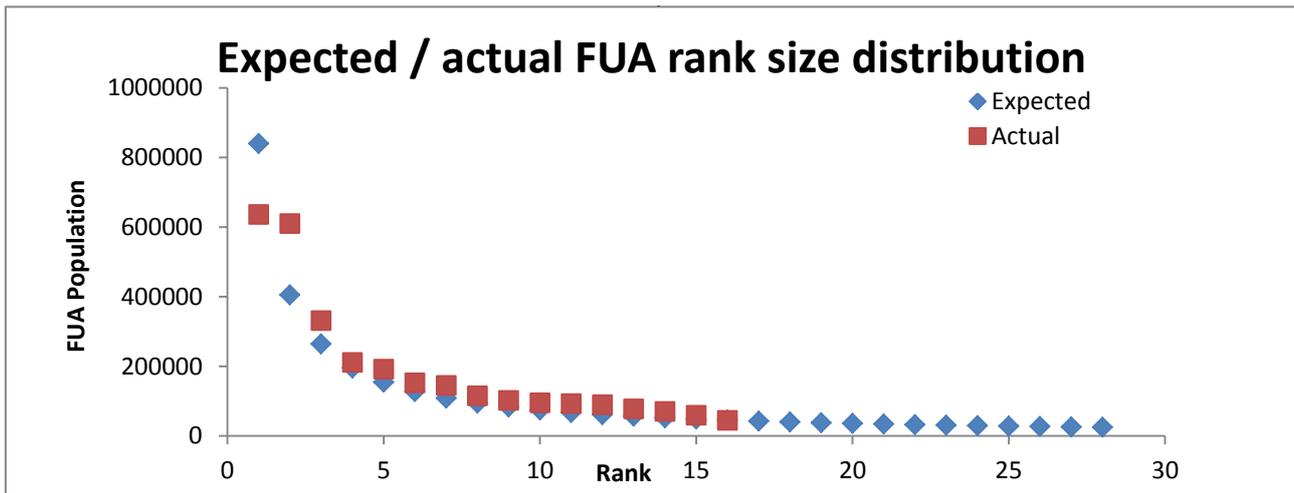


Figure 3. Rank size distribution of the Functional Urban Areas of the Poland – Germany – Sweden CBA to the overall distribution of FUAs in ESPON countries (2006).

Source: ESPON 1.4.3 –project (data)

The *gini coefficient of the FUA Thiessen polygons* is an indicator that measures how the FUAs are spaced throughout a given region. Values close to 100 % indicate great inequalities in the FUA distribution while values below 100 % imply that FUAs are more evenly spaced. The gini coefficient for thiessen polygons in Poland – Germany – Sweden CBA valued at 25,3 %, which indicates that FUAs are evenly spaced and services accessible (in theory) throughout the CBA.

Finally, we compared rank size distribution of FUAs in the Poland – Germany – Sweden CBA to the overall distribution of FUAs in ESPON countries. This analysis demonstrates the expected amount and size of a FUA in a region according to its total population. Rank-size distribution of FUAs in the Poland – Germany – Sweden CBA lacks hierarchy (leading FUA with a considerable size) and the amount of FUAs is not as big as expected. However, the slope of FUA distribution is very similar to the expected distribution.

If we compare the average size of FUAs in the CBA, it is approximately two thirds of the average size of FUAs in ESPON countries. In the context of German, Polish and Swedish FUAs, however, FUAs

of the CBA are large. Only 51,5 % of the CBA's total population lives in FUAs.

4.3. Functional analyses of FUAs

Concerning functional specialization of the FUAs in 2006, dominating economic activity in the FUAs of Poland – Germany – Sweden CBA was service sector. However, the share of trade and transport and finance and business services was almost as large. There were great differences in GDP per inhabitant in the CBA. The Swedish FUA of Karlskrona had the highest GDP per inhabitant (51 000 €), while in the Polish FUAs GDP valued between 9 000 € per inhabitant in Szczecin and 5 000 € per inhabitant in Stargard Szczeciński. Unemployment rate varied also widely between the FUAs. The Swedish FUAs had the lowest unemployment rates (around 7 %), and Szczecin and the German FUAs of Stralsund, Neubrandenburg and Greifswald the highest rates (around 21 % unemployment).

Chapter 5. Urban-rural relationship

Urban-rural relationship is another key concept of European spatial policy. Active relations between urban areas and surrounding rural regions are considered a means to achieve sustainable development and territorial cohesion. To be able to study urban and rural areas, we have made a distinction between structural and functional properties of a region. Structural properties include established land-use patterns, settlement structure and the distribution of population, while functional properties refer to the factual use of the physical environment (various forms of production, consumption and communication).

5.1. Land use patterns

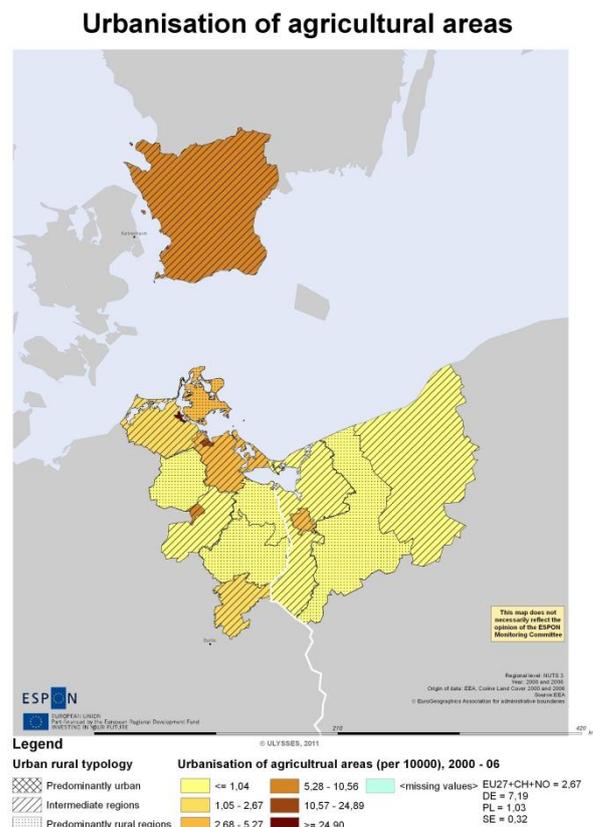
Different typologies have been established to classify regions to urban and rural territories. The typology that was developed in ESPON 1.1.2 project is based on tree indicators; land cover, population density and the presence/absence of a FUA. This typology classifies following regions of Euroregion Pomerania as regions with low urban influence and low human intervention: Uckermark, Demmin, Mecklenburg-Strelitz, Nordvorpommern, Ostvorpommern, Rügen, Uecker-Randow and Podregion Koszaliński. Regions with high urban influence and high human intervention are, according to the classification Barnim, Greifswald, Neubrandenburg, Stralsund and Skåne län. Eurostat uses an urban-rural typology that considers following regions of the CBA as predominantly rural regions: Uckermark, Demmin, Rügen, Uecker-Randow and Podregion Stargardzki. The rest of the regions are classified as intermediate regions.

Agricultural areas occupy large areas in Euroregion Pomerania. Demmin has the largest

share of agricultural areas (80 %) and Neubrandenburg the smallest (25 %). Average share of agricultural areas in the ESPON countries was 39 % in 2006. Total area of agricultural land has been decreasing in all the regions of Euroregion Pomerania between 1990 and 2006.

Urbanisation of agricultural areas in Euroregion Pomerania has been relatively close to the European average (2,7 ha per 10 000 ha), but two regions have experienced urbanisation of larger agricultural areas. In Stralsund 38,9 ha per 10 000 ha and in Greifswald 24,9 ha per 10 000 ha of agricultural land was urbanised between 2000 and 2006. During the same time period urbanisation of natural and semi-natural areas was almost non-existent.

Map 5. Urbanisation of agricultural areas in Poland – Germany – Sweden CBA between 2000 and 2006.

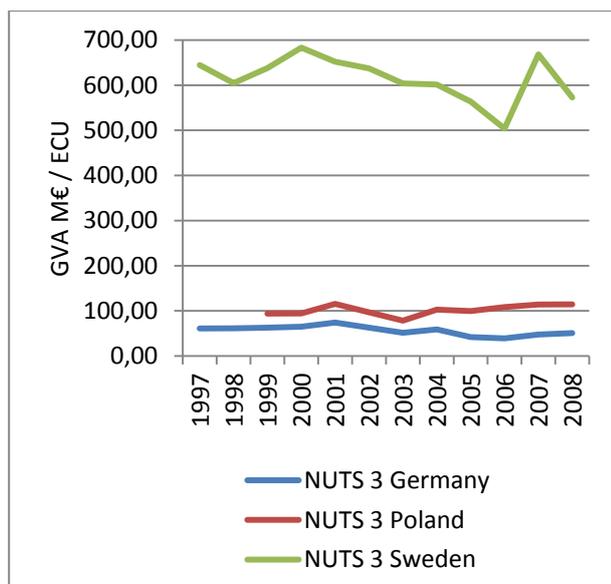


The average share of artificial areas in Euroregion Pomerania was similar to the ESPON average (11,4 ha per 10 000 ha of land) between 2000 and 2006. In Germany the share of artificial areas was slightly higher, while in Poland and Sweden the share of artificial areas was significantly lower. Biggest changes in the amount of artificial land cover took place in the city districts of Greifswald, Stralsund and Neubrandenburg.

5.2. Gross value added and employment in agriculture and fishing

Gross Value Added (GVA) is a measure in economics of the value of goods and services produced in an area. The following figure presents GVA produced by agriculture, hunting, forestry and fishing (NACE classes A-B, hereafter referred to as agriculture and fishing) in the regions of Euroregion Pomerania between 1997 and 2008.

Figure 4. Gross value added by agriculture and fishing in Euroregion Pomerania between 1997 and 2008.

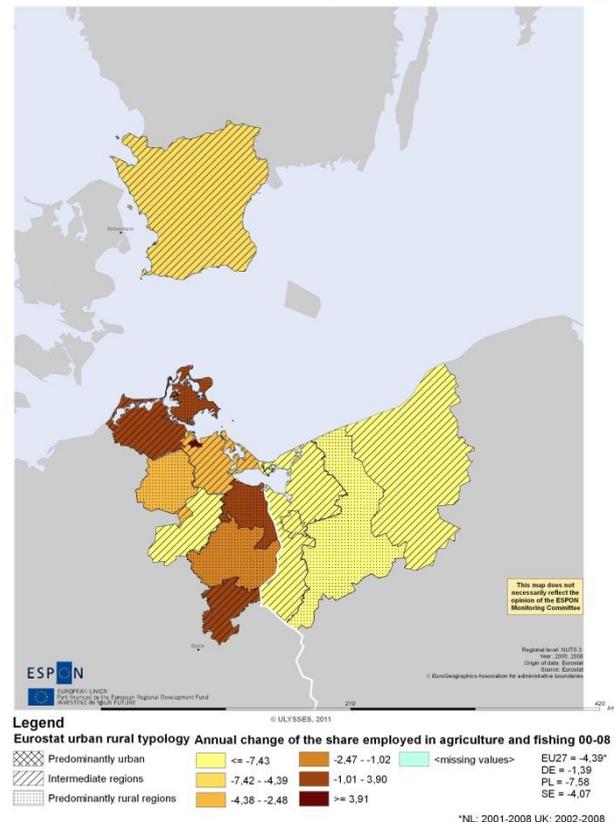


Source: Eurostat

The share of GVA by agriculture and fishing in total GVA has decreased in all the regions of Euroregion Pomerania between 1997 and 2008. Even if the regions have experienced growth in the GVA by agriculture and fishing, the share of those fields of economy in the total GVA has decreased between 1997 and 2008 in all the regions (if not considering Neubrandenburg, where GVA in agriculture and fishing has been very low both in 1997 (0,05 %) and in 2008 (0,2 %)).

Map 6. Annual growth rate of the share of employment in agriculture and fishing in the Poland – Germany – Sweden CBA between 2000 and 2008.

Change of employed in agriculture and fishing



Employment statistics for agriculture and fishing also show a gradual decrease and the changes have been especially severe in the Polish regions of the CBA. Decrease in total employment in agriculture and fishing has naturally reduced the share of the field in general employment statistics.

The greatest decrease has taken place in Podregion Szczeciński, where the share of employment in agriculture and fishing has decreased at an annual rate of -11,8 %.

Chapter 6. Accessibility and connectivity

Accessibility of a region is determined by two factors, its geographical location and infrastructure. While the geographical location cannot be changed, improving connectivity can. Accessibility is a key policy aim of the European Union, since accessibility of a region determines the extent to which it can participate in economic growth. The aim of this chapter is to evaluate accessibility and connectivity levels of the Poland - Germany - Sweden Cross-Border Area. What is the accessibility level of the CBA in comparison with European countries? What is the general accessibility of the CBA regarding different modes of transport? What is the level of internet accessibility in the CBA?

Before going into the analyses, we present a map of Euroregion Pomerania with main transport infrastructure to give an idea of what the accessibility and connectivity in the CBA looks like. Polish and German regions are connected by road and rail infrastructure. Until 2004, before Poland joined the European Union, this border was an external border of the EU. Connections to the Swedish part of Euroregion Pomerania are sea connections across the Baltic sea.

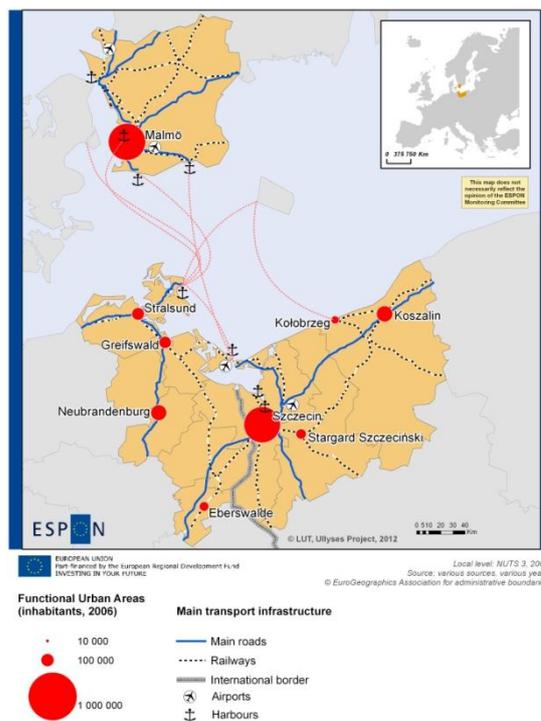
We have analysed the Poland - Germany - Sweden CBA from the perspective of rail, road, air and multimodal (synthesizing all the modes of transportation) accessibility. We used an indicator named potential accessibility, which is a similar indicator to demographic potential. This means that it relates activities to be reached with travel time it takes to reach them. As the potential accessibility was in ESPON 1.2.1 project produced

for two different years, it was possible for us to study the evolution of accessibility development between 2001 and 2006.

6.1. Accessibility by road, rail, air and sea

Compared to the European average (ESPON countries) German regions are potentially easier to access by road than other regions of Euroregion Pomerania. When the European average is 100, potential accessibility by road in Euroregion Pomerania varies from 129,3 (Barnim) to 48,7 (Skåne län). Potential accessibility of the Polish regions is below the European (ESPON) average. German regions of Euroregion Pomerania have the highest potential accessibility by road also in the context of the cross-border area. Index change in the potential accessibility by road between 2001 and 2006 has been positive in all the regions of Euroregion Pomerania, except for Skåne län, for which the index change was slightly negative (-0,2).

Map 7. Main transport infrastructure in Euroregion Pomerania.



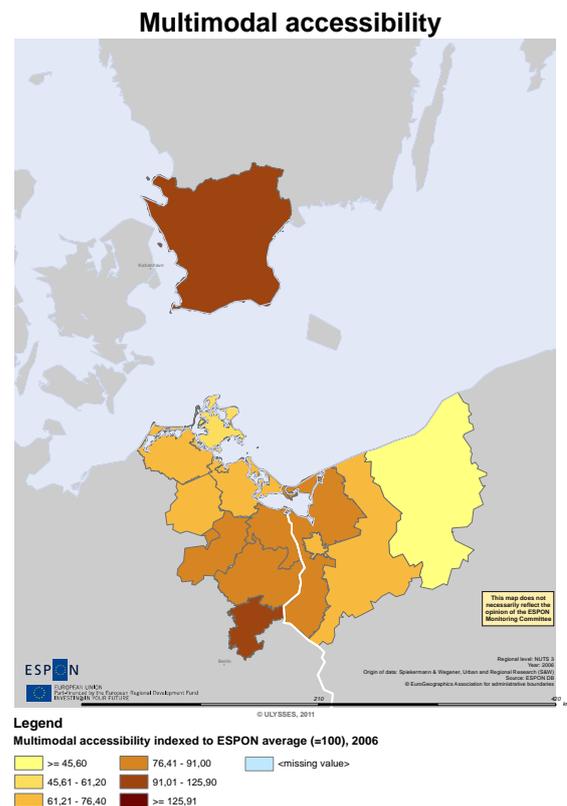
Potential accessibility by rail in Euroregion Pomerania is similar to the road accessibility values. The German region of Barnim has the highest potential accessibility both in the context of European regions (135,8) and the CBA (140,1). German regions of Euroregion Pomerania are more easily accessed by rail than the Polish regions, or Skåne län in Sweden, which scores lowest in both the ESPON and CBA ratings. Considering geographical facts (the maritime border) low accessibility of Skåne län from the European road and rail infrastructures seems very natural. Index change in the potential accessibility by rail has been positive in all the German regions of Euroregion Pomerania, but negative in all the other regions.

Accessibility of Euroregion Pomerania appears very different, when considering accessibility by air. In the context of European (ESPON) space Skåne län was the most difficult region to access by road and rail, but it is has the highest accessibility by air (136,8). It is also the most potential region to be accessed by air within the CBA (158,3). Podregion Szczeciński is also easier to access by air than by road or rail, while Podregion Koszaliński in Poland has the lowest potential accessibility by air both in the context of ESPON countries and the CBA. Index change in potential accessibility by air has undergone less change than accessibility by road and rail. Skåne län has experienced the biggest negative change, while accessibility of Nordvorpommern by air has increased slightly between 2001 and 2006.

Multimodal accessibility combines all the above analysed forms of transport and demonstrates general accessibility levels. Good air accessibility clearly affects the multimodal accessibility of Skåne län, which has according to the analysis the highest potential multimodal accessibility in Euroregion Pomerania. The German region of Barnim has the second highest multimodal potential accessibility both in the context of ESPON countries and the CBA. Multimodal accessibility of Euroregion Pomerania in general is

below the European average, since only two regions (Skåne län and Barnim) score higher than European regions in average.

Map 8. Multimodal potential accessibility in Euroregion Pomerania in the context of ESPON countries (2006).



Concerning maritime connections, the amount of maritime passengers has been decreasing in all the NUTS 2 regions of the Poland – Germany – Sweden CBA. Data on ports shows that the amount of passengers has been increasing in Ystad (Sweden), while the other major passenger ports have been losing passengers between years 2000 and 2010. Data on maritime transport of freight shows that after 2008 global economic crisis the cargo traffic in the CBA decreased radically but has between 2009 and 2010 shown new recovery.

6.2. Broadband Internet access

Södra Sverige (NUTS 2) had the largest share of households with broadband internet access in 2009 (78,6 %). Brandenburg has the smallest share of households with broadband internet access (39,7 %). In general broadband internet accessibility of Euroregion Pomerania is relatively low. In Mecklenburg-Vorpommern the share was 56 % and in Region Północno-Zachodni 55,1 %. However, the share of households with access to the internet at home has been increasing in all NUTS 1 regions of the Poland – Germany – Sweden CBA.

Chapter 7. Lisbon / Europe 2020 and Gothenburg objectives

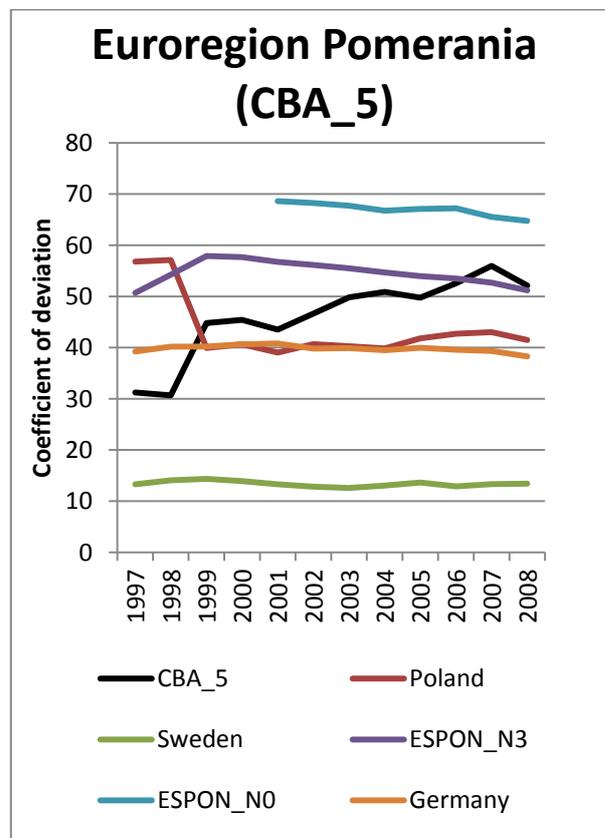
The core idea of the Lisbon strategy (2000) was for the European Union to become the most dynamic and competitive knowledge-based economy in the world by 2010. In June 2010 European Council adopted the new "Europe 2020 Strategy" that was adjusted to the current economic situation and challenges. The Europe 2020 Strategy identified three key drivers for growth that included smart, sustainable and inclusive growth. Gothenburg Strategy was launched by the European Commission in 2001 to complement the Lisbon Strategy by adding an environmental dimension to the Lisbon process for employment, economic reform and social cohesion. The goal of our study was to measure the performance of the Poland - Germany - Sweden CBA regarding the socio-economic and environmental goals set up in the Lisbon / Europe 2020 and Gothenburg strategies.

7.1. Economy and employment

7.1.1. GDP per capita

In order to define regional disparities in the GDP per capita we used *coefficient of deviation* in our analyses. The higher the coefficient of deviation, the higher the disparities within the analysed geographical unit. Coefficient of deviation has been steadily increasing in Euroregion Pomerania between 1997 and 2008. This signifies that disparities in GDP per capita have been growing in Euroregion Pomerania during the given time period. When compared to the NUTS 3 average of ESPON countries, the coefficient of deviation (and accordingly disparities in GDP per capita) has been higher in ESPON countries, but has now settled on the same level with the CBA.

Figure 5. Coefficient of deviation of GDP per capita between 1997 and 2008.



Source: Eurostat

According to *index number analysis*, in which NUTS 3 regions of Euroregion Pomerania were compared in terms of GDP per capita with the leading region (West Inner London), the best performing region in Euroregion Pomerania was Neubrandenburg (32 900 € in 2008), while the lowest GDP per capita was found in Podregion Stargardzki (6 100 € per capita). Compared to the leading European region, Greifswald, Neubrandenburg, Stralsund and Skåne län were considered middle income regions, Podregion Stargardzki a very laggard region and other regions of the CBA less developed regions or laggard regions.

The catching-up analysis evaluates the speed of catching-up with the leading region. Most of the regions in Euroregion Pomerania have been classified as diverging regions. This indicates that these regions are not catching up the leader, but growing less and thus diverging from the leading region. Polish regions of Euroregion Pomerania have been classified as slow catching-up regions (Podregion Koszaliński, Powiat m. Szczecin and Podregion Szczeciński) or slow converging regions (Podregion Stargardzki). With a similar growth rate these regions could in theory catch up the leader in 75 to 102 years.

7.1.2. Economic sectors

GVA has been increasing in Euroregion Pomerania at an annual rate of 3,6 %. The growth has been greatest in the Polish regions of the CBA, where average annual growth rate of GVA between 1999 and 2008 was 8,5 %. The leading economic sector in Euroregion Pomerania in 2008 was public administration and community services, which produced in average 30 % of the total GVA in the CBA. In some regions this sector produced almost half of the regions total GVA. The second most important economic sector was financial intermediation and real estate, which was the sector with the greatest growth between 1999 and 2008. Annual growth rate for total

employment was slightly negative (-0,5 %) in Euroregion Pomerania between 2000 and 2008. Highest share of employment was recorded in public administration and community services and the second largest share in wholesale and retail trade; hotels and restaurants.

7.2. Research and innovation

Total intramural R&D expenditure in Euroregion Pomerania was 1,7 in 2007 (NUTS 2 delimitation), which is lower than the EU average (2). In Sydsverige (4,8) R&D expenditure was well above the EU and Swedish average (3,4), and the expenditure had been directed especially to business and enterprise sector. Sydsverige also had a high amount of EPO patents and a large share of persons employed in high and medium tech manufacturing. The Polish region of Województwo Zachodniopomorskie, on the contrary, performed weakest in terms of R&D.

7.3. Social cohesion

Unemployment and long-term unemployment in the CBA was well above the European and national (Germany, Poland, Sweden) averages in 2010. Unemployment rate was 11,13 for the CBA, while the rate valued at 7,1 % for Germany, 9,6 % for Poland and 8,4 % for Sweden. EU unemployment rate was 9,6 % in 2010. Other social cohesion indicators (population at risk of poverty after social transfers, infant mortality rate and population aged 25-64 with tertiary education) show values that are close to the European averages.

7.4. Environmental analysis

We have applied two sets of indicators for environmental analysis of the Poland – Germany – Sweden CBA; indicators from the European Commission’s 5th Cohesion Report and indicators from the ESPON Climate Project regarding regions’ sensitivity for climate change. From the European Commission’s 5th Cohesion Report we selected six indicators, namely, soil sealed area, ozone exceedance, waste water treatment capacity, Natura 2000 areas, and solar and wind energy potential. While the first four indicators show concrete environmental performance of the region, the last two indicate the region’s capacity in exploiting alternative energy sources.

7.4.1. Environmental performance

The first indicator of environmental performance that we have studied is *soil sealing*. Soil sealing means covering of soil for housing, roads or other land developments. Soil sealing has been particularly high in the city regions of Euroregion Pomerania. In Stralsund soil sealed area covered as much as 37 % of the total land area in 2006. Other regions with large shares of soil sealed area were Greifswald (20 %) and Neubrandenburg (19 %) in Germany and the city of Szczecin (18 %) in Poland. These shares are well above the EU27 average.

Ozone concentration exceedances in Euroregion Pomerania were below national and EU averages in 2008. *Urban waste water treatment capacity* in Euroregion Pomerania was above national and EU averages in all regions except for Województwo Zachodniopomorskie, where the capacity was only 57 %. However, there have been improvements in the waste water treatment capacity in Województwo Zachodniopomorskie after 2007. The share of purified industrial and municipal waste water (percentage of waste water requiring

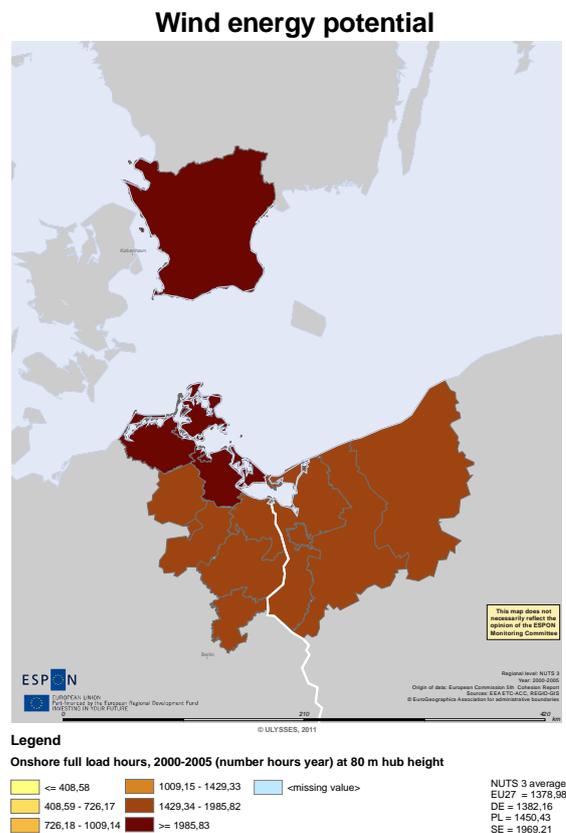
treatment) has increased from 84,9 % in 2007 to 99,5 % in 2010.

The *share of NATURA 2000 areas* in Euroregion Pomerania was 30,1 % of total land area in 2009. The share was significantly higher than German (13,2 %), Polish (16,1 %), Swedish (5,5 %) or the European Union average (14,2 %).

7.4.2. Environmental capacity

Solar energy potential in Euroregion Pomerania was below European average, but in line with national averages. *Wind energy potential*, on the other hand, is well above national and European averages. Regions located on the coast of the Baltic Sea possessed the greatest wind energy potential.

Map 9. Wind energy potential (onshore full load hours) in Euroregion Pomerania between 2000 and 2005.



Chapter 9. Factor analyses

The aim of the factor analyses was to compare the CBA's territorial profile to the performance of the CBA from the perspective of Lisbon/Europe 2020 Strategy and Gothenburg objectives. Two sets of indicators were established for the analyses: one for territorial profile variables and one for performance variables. Data and maps produced in these analyses enable contextualizing Euroregion Pomerania in a European territorial framework.

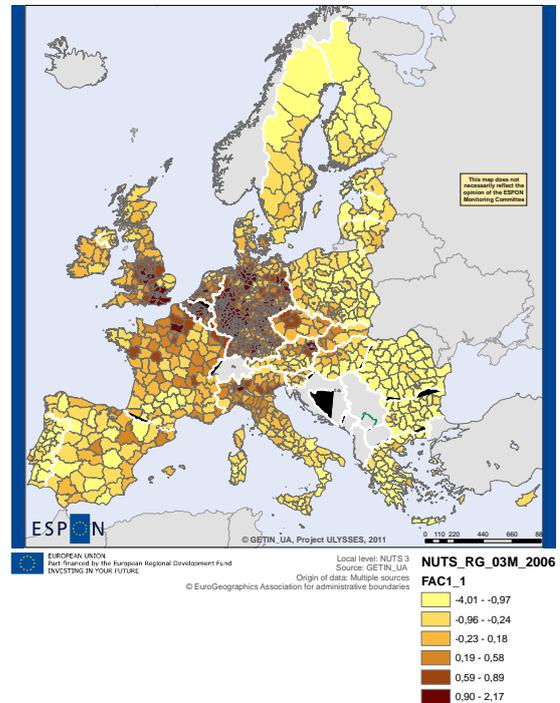
9.1. Location

The factor of centrality expresses central location and has high positive correlations with all the indicators regarding potential accessibility and, to a lesser extent with the share of employment in financial intermediation and real estate, employment in high and medium tech manufacturing activities and with commuting to other regions. It also has a strong negative correlation with the share of employment and GVA in agriculture and fishing.

In Euroregion Pomerania the German city regions and the city of Szczecin had positive scores, while all the other regions had negative centrality values. In general this factor shows highest values in central European countries. In the less central regions, the higher values tend to concentrate around capitals and other major urban agglomerations.

When we look at the location and accessibility of Euroregion Pomerania from the perspective of services and transport factor, we can see that in the European context it is mostly regions located by the Baltic Sea that score above European average in these aspects. The significant indicators

Map 11. Results of analysis on Centrality in Euroregion Pomerania (NUTS 3).



of this factor are the share of GVA and employment in wholesale and retail trade, hotels and restaurants and transport. Many of the regions with the high scores in this factor seem to be linked to tourism (Southern Spain and Portugal, the alpine regions, Paris, Greece, Rome, etc.).

9.2. Demographic dynamism and immigration

The factor of demographic dynamism correlates with young age dependency ratio, crude rate of natural population increase, total fertility rate and old age dependency rate (the last one has a negative correlation). In Euroregion Pomerania the best performance in demographic dynamism has Skåne län in Sweden, whereas Stralsund and Demmin and the German regions in general have

received negative scores. In the European context, regions with the lowest scores in demographic dynamism are in the Mediterranean countries. Concerning the factor of immigration that correlates with the indicators of population growth and net migration ratio, Greifswald, Podregion Szczeciński and Skåne län are the only regions in Euroregion Pomerania that have scored high in this analysis.

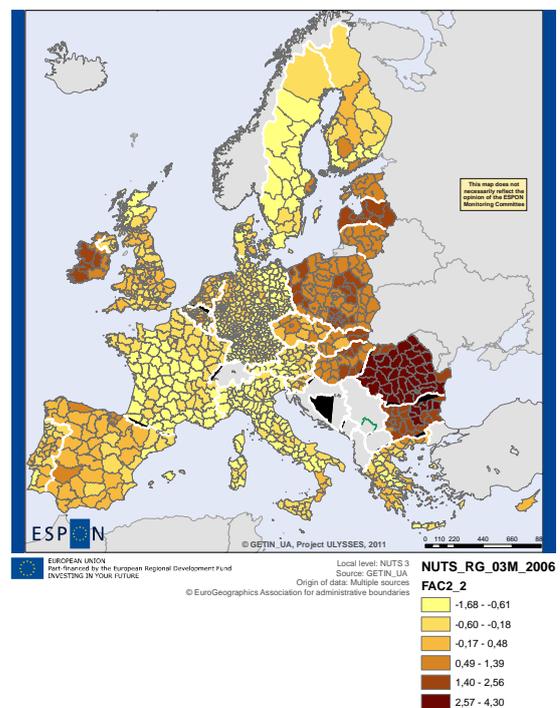
9.3. Economy

The factor of economic development has a high correlation with GDP per capita, share of Natura 2000 areas and soil sealed area. It is a factor, which expresses high degrees of development and urbanization. In Euroregion Pomerania regions having high GDP per capita and high level of urbanisation of land areas are Greifswald and Stralsund, and they thus have scored high in this analysis. In Europe regions with the highest scores for this factor are concentrated in central Europe and Scandinavia and in capital cities of more marginal countries. What comes to economic catching-up, a factor that relates GDP level and growth between 1997 and 2008 of a given region to the pattern evidenced by the leading region, the growth of GDP in Poland has been rapid and therefore the Polish regions of the Euroregion Pomerania have scored higher in this analysis than the other regions of the CBA. The overall pattern of the border regions is to follow the national tendency.

The factor of construction correlates with the indicators of GVA and employment in construction. The regions with the highest score in this factor are Ireland, Spain, the Baltic States and Eastern Germany. In Euroregion Pomerania differences between regions concerning employment in construction vary little. Concerning the factor of unemployment, it is high in Euroregion Pomerania as shown earlier in this

study, and thus regions of the Euroregion score high in this analysis. The unemployment factor correlates with variables such as unemployment, long-term unemployment and youth unemployment. The geographical distribution of this factor's scores shows a concentration of highest values in the more depressed areas of Europe and countries with a structurally high unemployment.

Map 12. Results of analysis on catching-up regions in Euroregion Pomerania (NUTS 3).



9.4. Research and development

Research and development factor mainly relates to variables of innovation and scientific development such as R&D investment of different sectors and, to a lesser extent, EPO patent

applications and tertiary educated active population. The Scandinavian countries have a very favourable position in this factor. This is valid also in the study of Euroregion Pomerania, where Skåne län in Sweden received highest scores for the Research and development -factor analysis.

9.5. Administrative centres

Most important indicators for this factor are the share of employment and GVA in public administration, community services and activities of households and the share of employment and GVA in industry. The regions with the highest scores of this factor are highly depressed regions in which, because of their poor economic performance, the public sector assumes an important position. This indicator also relates to the different levels of state interventionism, with the Scandinavian countries and France revealing overall high scores. In Euroregion Pomerania there were several regions that scored high in the Administrative centres -analysis. City regions on the German side of the CBA received the highest scores.

9.6. Environment

The factor of environmental risks relates mainly to variables linked to the regions' sensitivity to climate change. These regions are typically located in coastal areas and other flood prone areas. Regions in coastal areas of Euroregion Pomerania have scored high in this analysis, and are thus more sensitive to environmental risks related to climate change than other regions of the CBA. According to pollution factor analysis, the significant variable of which is ozone concentration exceedance, pollution is less relevant for Euroregion Pomerania than for European regions in average. Only the city of

Szczecin has a score slightly above the European average.

Chapter 10 – Cross-border governance

10.1. General framework and analysis

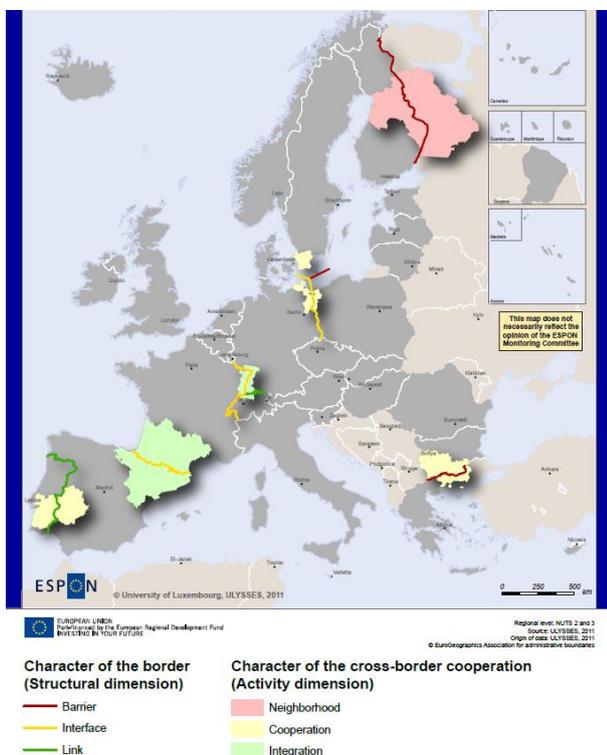
A comprehensive cross-border institutional performance analysis was done for Euroregion Pomerania in the framework of Ulysses project. This analysis captured the diversity of governance frameworks existing within the CBA by paying regard to both the structural dimension, i.e. the overall framework that can hardly be influenced by the partners of cross-border cooperation, as well as the activity dimension, i.e. the intensity and continuity of institutionalised cross-border cooperation on regional level.

For the sake of simplicity and applicability, the structural dimension included factors like (i) the political status of the border (e.g. EU membership / historicity, Schengen status), (ii) the planning system (i.e. the planning culture family), (iii) the physical status (e.g. geomorphology), and (iv) the language barrier (i.e. number of languages existing in the area). These domains have been combined in a synthesis score that allows saying if the border functions as a separation, an interface or as a link.

The activity dimension has taken account of (i) the historicity of cross-border cooperation in general (i.e. earliest founding date of cross-border cooperation), (ii) the maturity of cross-border cooperation (i.e. INTERREG III participation), (iii) the institutional thickness in cross-border cooperation (i.e. number of permanent institutionalisations), (iv) the current activity (in terms of operative EGTC), (v) the cross-border spatial development on regional level (e.g. joint GIS tools), and (vi) the existing cross-border transport projects (e.g. TEN-T corridors crossing

the border). These domains have been combined in a synthesis score that classifies whether the borders function as integration, cooperation or separation.

Map 13. Map shows the overall picture for all the Ulysses CBAs and visualises the above mentioned indicators: The border effects due to differing political structures are mapped, represented by the borders (lines) in different colours. The activity dimension in cross-border governance is represented by different colours of the regions themselves (surfaces).



10.2. Euroregion Pomerania

10.2.1. Structural dimension

Euroregion Pomerania has a particular situation with a land border and a sea border that separate three national states with very different institutional settings and traditions. The language barrier between Sweden and Germany is less high than the Polish-German one, but so called semi-communication also is not possible in this case,

either (understanding the other language without having learned it). From a political point of view, three different traditions meet here – the Scandinavian, the transformation and the Germanic tradition. Against this background one must state that the structural dimension in Euroregion Pomerania is challenging.

10.2.2. Activity dimension

Also with regard to the cross-border activity, the cross-border cooperation in Euroregion Pomerania is a particular one as the cooperation is not only characterised by the trinational platform of the Euroregion of Pomerania, but also by further bi- and multi-lateral cooperation. Firstly, and although not part of the Pomerania cooperation, the Öresund committee has to be mentioned in this context: The Öresund Bridge between Copenhagen and Malmö is one of the most famous symbols of cross-border cooperation European wide.

Secondly, the cooperation between Poland and Germany as well as between Germany and Sweden is very much organised in a bilateral way on different levels. In particular the Polish-German cooperation is a prominent part of the Euroregion Pomerania activities.

Thirdly, and on a larger scale, much activity can be seen on the intergovernmental level: in particular the Baltic Sea States Subregional Co-operation (BSSSC), the Council of the Baltic Sea States (CBSS), Union of the Baltic Cities (UBC), the Baltic Development Forum and, most recently, the Baltic Sea Macro region process have to be mentioned in this context.

This enumeration illustrates that the number of institutions on this level is far higher than the cross-border cooperation. This is mainly due to the multi-national character of the Baltic Sea. The political setting in this region makes multi-national

cooperation even more important, as EU and non EU member states and very different political traditions are meeting here.

10.2.3. Spatial development and transport

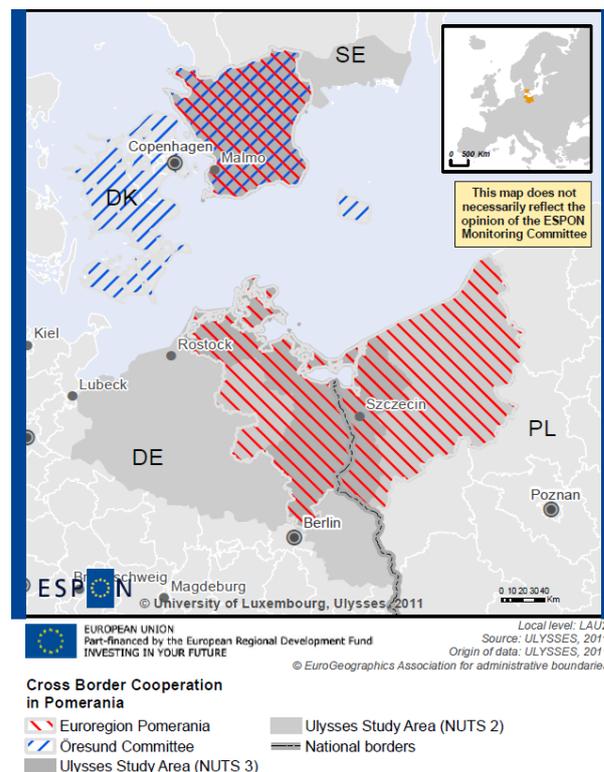
The tri-lateral aspect of the cooperation is most visible within the transport policy: The sea is linking all the three partner regions that are involved in the TEN-T priority ‘Motorways of the Sea’. Linked to this are a large variety of seaway projects (clean shipping, technical harmonization etc.). Moreover, the *Central European Transport Corridor* (“Route 65”) has mobilised considerable activity in recent years.

On the bilateral level between Germany and Poland, a series of projects has been initiated. On a local level, the agglomeration of Szczecin is currently developing its cross-border linkages in the direction of Berlin.

Moreover, Euroregion Pomerania is influenced by two major cross-border transport projects that are not in the core of the Pomerania perimeter: The *Öresund Crossing* between Sweden and Denmark – combining bridge and tunnel and opened in 2000 – is one of the symbols for European cross-border development. Moreover, the preparation for the so called *Fehmarn Belt* between Denmark and Germany is maybe the most spectacular current cross-border project that without a doubt will have direct consequences also for the territory of Euroregion Pomerania.

With regard to spatial development, in 1995 the German – Polish concept for spatial development was a starting point for spatial development. The 2006 development and activity concept of the Euroregion consequently formulates principles of cross-border German development even if it remains quite abstract with regard to spatial consequences.

Map 14. Governance framework and institutional mapping in Euroregion Pomerania.



Chapter 11 – Integrated territorial analysis and scenarios

11.1. Objectives and methodology

This chapter highlights the main conclusions of the integrated analysis, which combined elements of the previous chapters and aimed at describing the current status and identifying the most relevant challenges and opportunities of the Poland - Germany - Sweden CBA.

A traditional SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) has been the framework to analyse the territory's current status based on two axes, present/future factor (or internal/external), and positive/negative influence, to decide what action should be taken (suggested strategies are developed under Chapter 11). Strengths and weaknesses (combination of present factor and positive/negative influence) show the current status and were drawn upon the research done in the set of themes addressed in previous chapters. Opportunities and threats (combination of future factor and positive/negative influence) identified in the aforementioned research were contrasted with the ESPON 3.2. Spatial scenarios and orientations in relation to the ESDP and Cohesion Policy scenarios (namely Baseline/trend scenario, Danubian Europe or the cohesion-oriented scenario and Rhine-Rhone Europe or the competitiveness-oriented scenario) and their implications for the CBA. All this work led to the Final Opportunities and Threats, which set the basis for the identification of the most relevant challenges of Euroregion Pomerania. The results of the SWOT analysis (included in annex) have been validated by the stakeholders.

11.2. Current status of Euroregion Pomerania

Euroregion Pomerania combines three different national parts (in Poland, Germany and Sweden), which have all had their own specific patterns of development. It is thus not possible to state in one voice the common territorial status of the CBA. We have, however, found common development trends in different regions of Euroregion Pomerania that are common challenges for the different national parts.

Population in Euroregion Pomerania has been migrating from rural to urban areas, in particular to the vicinity of large cities. The regions of Skåne län in Sweden, Barnim in Germany, Podregion Szczeciński in Poland have had a positive population change, which is the consequence of suburbanisation in the cities of Malmö, Berlin and Szczecin. There has also been a strong outward migration from the German and Polish regions, while Skåne län in Sweden has been receiving migrants. Euroregion Pomerania has a polycentric urban structure when considering population. When considering GDP the urban structure is more monocentric (Malmö is the leading city) and there are large differences in GDP per inhabitant in the CBA. Despite the growth of urban areas, the share of FUA inhabitants in Euroregion Pomerania is still very low (51,5 %) compared to the European average.

There are both large rural areas and densely populated urban areas in Euroregion Pomerania. Agricultural areas occupy large areas of the CBA, but the share of agricultural areas has been decreasing in all the regions. Especially German city districts have experienced intense urbanisation of agricultural areas.

Concerning connections to European traffic infrastructure, accessibility by road, rail and air is below the European average with the exception of two regions (Barnim and Skåne län). German and Polish regions are easier to access by road and rail, while Skåne län in Sweden has highest accessibility by air. The share of households with internet connection is increasing in Euroregion Pomerania.

Economic development of the CBA has been diverse. Most Polish regions are slowly catching-up regions, while German and Swedish regions are diverging. Disparities in GDP per capita have been increasing, but have now settled on the average European level. R&D expenditure in Euroregion is low with the exception of Skåne län in Sweden. All the regions are facing a high unemployment.

Sensitivities to climate change are low in the CBA. Due to the location by the Baltic Sea, there is, however, a risk for environmental problems. The Baltic Sea also offers high wind energy potential for Euroregion Pomerania. Structural dimension for cross-border cooperation and governance is challenging in the CBA, because of the land and sea borders and three national states with very different institutional settings and traditions. Nonetheless there are location advantages and common challenges and opportunities that offer good basis for cross-border cooperation and further work of Euroregion Pomerania.

11.3. ESPON 3.2. scenarios and Euroregion Pomerania

This chapter studies the three above mentioned 2030 scenarios elaborated by ESPON 3.2. project. These spatial scenarios are closely related to ESDP and Cohesion Policy scenarios and our goal is to understand how they would influence Euroregion Pomerania.

11.3.1. Integrated baseline (trend) scenario

This scenario is based on the continuation of trends and on the principle that no major changes occur in mainstream and ongoing EU policies.

Demographic patterns in Euroregion Pomerania continue relatively unchanged. Population growth remains slightly positive. Rural areas keep losing their inhabitants. Urban areas are not the only gainers, but rural areas close to major cities benefit from suburbanisation (Barnim of Berlin, Podregion Szczeciński of Szczecin and Skåne län of Malmö). There is a growing demand of skilled labour to take care of the aging population and create recreational services for the retiring population. Polycentricity of the CBA in terms of DGP is declining as globalisation is affecting smaller FUAs and population is concentrating in major cities. Regional disparities between urban and rural regions are increasing. Even if regional disparities in accessibility remain significant, less developed regions are able to develop transport infrastructure due to support from ERDF and the Cohesion fund. R&D expenditure in the German and Polish regions of Euroregion Pomerania remains below European average, and they lose their attractiveness and competitiveness. Environmental issues continue to play an important role in the CBA because of its location by the Baltic Sea. Environmental legislation fosters technological developments and the CBA is participating in the development and implementation of new technologies in the field of renewable energy production and environmental protection.

11.3.2. Danubian Europe: Integrated cohesion-oriented scenario

This is a prospective, policy-oriented scenario. In this scenario, the main priorities of public policies at EU level, in a context of growing globalisation, are focused on economic, social and territorial cohesion and not on global competitiveness.

In the cohesion scenario population and wealth is distributed more evenly in the CBA than in the baseline scenario. Proactive social policy is put into place at EU level in order to stimulate domestic fertility rates. Special attention is paid at childcare support and tax incentives. In Euroregion Pomerania total fertility rate continues to increase and rural regions are better able to keep their inhabitants. External migration has, however, become more restrictive and many regions lose their positive population growth and are not able to answer for the demand of labour force in the market. The accessibility of smaller urban areas and sparsely populated areas is significantly higher than in the baseline scenario, because of investments in local transport infrastructure. The process of economic diversification has positive effects on rural areas that benefit from strong promotion of renewable energy and organic farming. Economy of the CBA has been developed with support from the EU by strengthening networks of business and research cooperation. Investments have been made in environmental-friendly transport modes. Collaboration in spatial planning and knowledge change has been continued.

11.3.3. Rhine-Rhone Europe: competitiveness-oriented scenario

This is a prospective, policy-oriented scenario. It is based on the assumption of a significant reshaping of EU policies originating in the disappointing results of the implementation of the Lisbon Strategy during the period 2002-2005.

The opening of EU external borders to (selected) immigration has improved demographic performance and labour replacement in the CBA. Also the regions that have been losing population have become recipients of labour migrants from the east. Population ageing is very strong in peripheral rural regions as young people continue to migrate to urban areas with better economic opportunities. Investments in R&D, education and training and ICT infrastructure have positive impacts on FUAs with universities and high tech industry. They attract young people and skilled workers. Weaker FUAs, on the contrary are losing basic services. Large multinational energy companies have invested in the CBA in order to produce of bio- and wind energy. This has positive effects on employment in the CBA, but negative impacts for the environment, since environmental and landscape values have not been respected. Euroregion Pomerania has remained a transport corridor as EU has been improving its external accessibility. The CBA now has to find local solutions of how to benefit from the traffic and how to tackle the environmental problems and risks the traffic poses. Economic development in the CBA is very diverse. University cities in Euroregion Pomerania benefit from the resources that EU diverts into R&D, technological development, ICT, education and training. Rural areas are performing worse as population is declining and ageing and many basic services are no longer available in rural regions. The CBA is also no longer able to rely on European assistance schemes, but has to tackle alone problems related to spatial, social and environmental issues.

11.4. Most relevant challenges for Euroregion Pomerania

We have found two thematically cross-cutting challenges that in our view have a great influence on the future developments of Euroregion Pomerania. The first one is the development of economy and creation of new jobs in the CBA. Unemployment, in particular youth unemployment is high in the CBA and employment in traditional sectors of economy (agriculture and industry) has been decreasing. Decrease in the share of production and employment has been especially high in the agricultural sector, and since Euroregion Pomerania is occupied by large agricultural areas, creation of new jobs in the rural areas is extremely important. GDP has been growing in all the regions of the Euroregion, but the growth has been low compared to the leading European regions. Polish and German parts of Euroregion Pomerania are facing a demographic challenge and it is necessary to influence demographic patterns; to attract new inhabitants and to prevent young people from leaving the area by creating new attractive work opportunities. In Skåne län, where demographic patterns have been positive, economic growth is important to ensure competitiveness of the region. Removal of EU restrictions on the movement of labour in 2011 now allows a creation of a cross-border labour market in the entire Euroregion. Cross-border cooperation offers possibilities for change of knowledge and experiences in the development of a knowledge based economy.

The second key element that will affect territorial development of Euroregion Pomerania is accessibility. The CBA is an important logistics hub with several ports by the Baltic Sea and a connection to the European inland waterways. Maritime passenger traffic has been decreasing after 2006 in all the ports of the Euroregion and cargo traffic experienced a radical decrease in 2008 because of the global economic crises. Besides maritime and inland waterway connections, the development of road and railroad connections to main European transport corridors is essential for the economic development of the CBA. Multimodal accessibility of Euroregion Pomerania is below the European average, except for two regions; Skåne län in Sweden that has good air connections and Barnim Germany is that located next to Berlin and thus close to the main European road and rail connections. The development of connecting infrastructure within the CBA is equally important, because it enables cross-border commuting and leisure travel.

Chapter 12 – Suggested strategies

12.1. Suggested strategies for Euroregion Pomerania

Euroregion of entrepreneurship -strategy

This strategy is based on the idea that entrepreneurship and education are taken as the key concepts for developing Euroregion Pomerania into an active and creative cross-border area. Entrepreneurship is seen as a lifelong learning process and training for entrepreneurship starts already in the schools. Special attention is paid at quality and contents of education and vocational training to meet the actual market needs. Entrepreneurs get high-quality training and support. Inhabitants are encouraged to start new businesses. This strategy aims at creating new jobs in the CBA. New employment opportunities attract new (and returning) inhabitants, and offer perspective for life strategies for young people and families.

Entrepreneurship is a true choice for people that are no longer employed by traditional fields of economy, such as industry. Cross-border cooperation is essential for this strategy, in order to change information of experiences and best practices, and to create businesses that serve the cross-border area and its needs. Cross-border incubation centres are an essential part of this work.

- > Enhance the widening of economic activities and foundation of new firms in all the regions of the CBA to create new jobs and to keep a balanced population structure.
- > Support the foundation of new businesses and creation of jobs in rural areas, and mobility of labour between urban and rural regions.
- > Support widening of economic activities and entrepreneurship in FUAs.
- > Enhance the development of certain technology clusters in FUAs.
- > Enhance the foundation of new firms and start-ups by creating a culture of entrepreneurship and by fostering a business-friendly environment in the CBA.
- > Enhance cross-border cooperation in the field of new technologies and innovations
- > Create new tools for enhancing clusters and SME cooperation across the border.
- > Promote entrepreneurship as a lifelong learning process and support entrepreneurship training in schools and other educational institutions.

Investing in tourism

This strategy is based on the idea that tourism is a 'hard, serious business' and a real choice for boosting economic development. Euroregion Pomerania is occupied by large agricultural and green areas and it has an ideal location by the Baltic Sea. In this strategy tourism is considered a true option for the creation of new jobs in the CBA. Investments are made in tourism infrastructure and traffic infrastructure. The development of tourism is consistent and has a long-term perspective. Ecotourism is developed in the rural, agricultural areas. Health and leisure tourism flourishes among the population. Tourism development is based on local assets and joint Pomeranian heritage and a special attention is paid to environmental values and sustainability. Pomeranian tourism offers attractive niche products (e.g. historic trails, culinary trails, wreckage trails etc.). Possibilities offered by the cross-border connections are utilized and cross-border euroregional tourism brand is created.

- > Support investments in tourism development.
- > Support the advancement of tourism and ecotourism in rural areas.
- > Develop innovative tailored solutions for rural regions to diversify economic activities and to take advantage of existing potentials.
- > Coordinate the development of transport infrastructure and services in regions with a considerable population decline.
- > Enhance sustainable development of natural and agricultural areas.
- > Enhance cross-border collaboration of rural areas and their small cities.

- > Enhance environmental, cultural and social quality of tourism to support rural development and protect social and cultural identities and physical environment.
- > Further network and interlink natural sites and protected areas of regional, national and transnational importance.

All roads lead to Pomerania

This is a strategy to boost transport infrastructure development (incl. waterways, roads, rail) and thus accessibility of the CBA. Good level of accessibility serves economic development of the CBA and enables the tourism sector to grow. Attention is paid at cross-border connections between the national parts of the CBA. Commuting across the borders is easy and growing interaction between the inhabitants serves the creation of a cross-border social space. Public transport network is well-functioning and vehicles environmentally friendly. 'Low emissions' is the key concept.

- > Develop external and internal accessibility of the CBA.
- > Develop accessibility of the CBA by investing in transport infrastructure and communication networks.
- > Develop public transport connections across the borders.
- > Encourage "intelligent" solutions for providing transport services in disperse settlements areas.
- > Support a number of strategic regional transport axes and the interlinking of these with the primary, long-distance network (in national and cross-border context).
- > Enhance the development and implementation of environmentally friendly transport modes and vehicles.

12.2. General strategies for Euroregion Pomerania

Ulysses study shows that Euroregion Pomerania has great territorial assets that it should value and foster and, on the other hand, it has challenges that it should tackle across the border. All of the above-mentioned strategies necessitate cross-border collaboration; information exchange, change of experience and best practices, common plans. As this study shows, the influence of the border on territorial development in Euroregion Pomerania is increasing. It is therefore important to continue collaboration and formulate a common development strategy for the Euroregion that would create a synergy effect among the partners. Euroregion Pomerania should serve as a 'cross-border competence' institution or structure that would participate in spatial planning activities in the CBA and possess up-to-date data on the territorial development of its national parts. A creation of a common database as e.g. Ørestat (Statistical database containing information about cross-border developments in Øresund region) is a worthy possibility.

Annexes

**Annex 1 – Multi-thematic Cross-Border Territorial Analysis (MTA) for Poland – Germany
– Sweden CBA**

Annex 2 – Cross-Border Governance Analysis (Institutional performance)

Annex 3 – SWOT analysis

Annex 1 –Multi-thematic Cross-Border Territorial Analysis (MTA) for Poland – Germany – Sweden CBA

Ulysses

Using applied research results from ESPON as a yardstick for
cross-border spatial development planning

Targeted Analysis 2013/2/10

Multi-thematic Cross-Border Territorial Analysis

of the

Poland -Germany - Sweden Cross-Border Area (Euroregion Pomerania)

Version 12/12/2012



This report presents Multi-thematic Cross-Border Territorial Analysis results of a Targeted Analysis conducted within the framework of the ESPON 2013 Programme, partly financed by the European Regional Development Fund.

The partnership behind the ESPON Programme consists of the EU Commission and the Member States of the EU27, plus Iceland, Liechtenstein, Norway and Switzerland. Each partner is represented in the ESPON Monitoring Committee.

This report does not necessarily reflect the opinion of the members of the Monitoring Committee.

Information on the ESPON Programme and projects can be found on www.espon.eu

The web site provides the possibility to download and examine the most recent documents produced by finalised and ongoing ESPON projects.

This basic report exists only in an electronic version.

© ESPON & Lappeenranta University of Technology, 2012.

Printing, reproduction or quotation is authorised provided the source is acknowledged and a copy is forwarded to the ESPON Coordination Unit in Luxembourg.

List of authors

Lappeenranta University of Technology (LUT)

Virpi Kaisto
Project researcher

Project group:
Tecnalia, Spain (LP)
Karlsruher Institut für Technologie (KIT), Germany
Democritus University of Thrace, Greece
Lappeenranta University of Technology, Finland
University of Aveiro, Portugal
University of Luxemburg

Nomenclature

CBA: Abbreviation for Cross-Border Area.

ESPN countries: 27 EU Member States and Iceland, Liechtenstein, Norway and Switzerland

FUA: Abbreviation for Functional Urban Area.

LAU: Abbreviation for the Local Administrative Units (LAUs) compatible with NUTS classification.

LAU 1: The upper LAU level (formerly NUTS level 4) is defined for most, but not all of the countries.

LAU 2: The lower LAU level (formerly NUTS level 5) consists of municipalities or equivalent units in the 27 EU Member States.

NUTS: Abbreviation for the Nomenclature of territorial units for statistics. The NUTS classification is a hierarchical system for dividing up the economic territory of the EU for the purpose of collection, development and harmonisation of EU regional statistics.

NUTS 1: major socio-economic regions

NUTS 2: basic regions for the application of regional policies

NUTS 3: small regions for specific diagnoses

Executive summary

Euroregion Pomerania is a cross-border area situated on the border between Poland, Germany and Sweden. The border between Poland and Germany is a land border, while Sweden is separated from the Polish and German regions of Euroregion Pomerania by a maritime border. Euroregion Pomerania has a total area of 49 663,97 km² (2010) and a total population of 3 915 493 inhabitants (2009). Polish regions have the largest share of inhabitants in Euroregion Pomerania (43 %), Swedish region of Skåne län the second largest (31 %) and German regions the smallest share (26 %).

Demography

Population density of Euroregion Pomerania was 278,6 inhabitants per km² in 2009. While the population density has been declining in the German and Polish parts, population density in Skåne län has been increasing between (2000-2009). Besides Skåne län only Barnim in Germany and Podregion Szczeciński in Poland have experienced a positive population change and growth in population density. Population change has been negative in all the other regions.

Dependency ratios for Euroregion Pomerania indicate that, in comparison with the European Union averages, there is more pressure on the working age population to take care of elderly people. Considering the small share of children under 15 years of age, there will also be less people to take care of the working age population in the future. Natural increase has been a more significant factor for population change in Euroregion Pomerania than net migration. None of the regions has a total fertility rate above the replacement level. Sydsverige is the only region in the Poland – Germany – Sweden CBA with a total fertility rate above the EU average (1,6 in 2008).

The extent of commuting varies in the Poland – Germany – Sweden CBA. Brandenburg-Nordost stands out as the region, where commuting to another region to work or study is high. This is most likely connected with the location of the region close to Berlin. Commuting to a foreign country is most typical in the NUTS 2 region of Sydsverige. This is most likely due to Øresund region, where commuting across the Swedish-Danish border increased significantly since the opening of the Øresund bridge in 2000. Commuting to a foreign country increased substantially in Województwo Zachodniopomorskie in 2007, when the European Union liberated labour markets for the new Member States.

The results of low scale (LAU 1 / LAU 2) analyses show that each national part of Euroregion Pomerania has their own population settlement trends, but that both the maritime border between Sweden, Germany and Poland and the land border between Poland and Germany seem to some extent affect the settlement patterns in the Euroregion. The border attracts population in the Polish-German border area, and possibly also in Skåne län in Sweden.

Polycentricity

There are nine FUAs in Euroregion Pomerania. These are Neubrandenburg, Greifswald, Stralsund and Eberswalde (in Barnim) in Germany, Szczecin, Koszalin and Kołobrzeg (in Podregion Koszaliński) and Stargard Szczeciński (in Podregion Stargardzki) in Poland and Malmö (in Skåne län) in Sweden. The largest FUA of the CBA is Malmö with 636 157 inhabitants (2006). Population growth between 2001 and 2006 was positive in Malmö (4,4 %), Koszalin (0,3 %) and Greifswald (0,7 %), while all the other FUAs lost population.

Euroregion Pomerania has a polycentric urban structure. In terms of population, urban structure of the CBA is more polycentric than urban structure of ESPON space (EU27, Iceland, Liechtenstein, Norway and Switzerland). In terms of GDP the CBA is more monocentric. GDP in the leading city Malmö was 19 688 M€ in 2006 and the difference in GDP was significant compared to other FUAs in the CBA. Primacy rate for the CBA suggests that urban structure of the region is not dominated by one big city, but that the size of the biggest FUA (Malmö) is smaller than anticipated by the rank-size distribution of the FUAs. Average FUA size in the CBA was 189 229 inhabitants in 2006. Only 51,5 % of the CBA's total population lives in FUAs that is low in European comparison. The dominating economic activity of the FUAs was service sector.

Urban-rural relationship

Land use patterns vary in Euroregion Pomerania, but the share of natural and agricultural areas is high in a European comparison. ESPON 1.1.2 typology classifies most German regions and Podregion Koszaliński in Poland as regions with low urban influence and low human intervention. Regions with high urban influence and high human intervention are German city regions of Barnim, Greifswald, Neubrandenburg and Stralsund and Skåne län in Sweden. Eurostat typology considers following regions of the CBA as predominantly rural regions: Uckermark, Demmin, Rügen, Uecker-Randow and Podregion Stargardzki. The rest of the regions of Euroregion Pomerania are classified as intermediate regions.

Demmin has the largest share of agricultural areas in Euroregion Pomerania (80 %) and Neubrandenburg the smallest (25 %). Total area of agricultural land has been decreasing in all the regions of Euroregion Pomerania between 1990 and 2006. Urbanisation of agricultural areas has been similar to the European average, only Stralsund and Greifswald in Germany have experienced stronger urbanisation. The share of artificial areas in *Euroregion Pomerania* is also close to European average. Biggest changes in the amount of artificial land cover between 2000 and 2006 took place in the German city districts of Greifswald, Stralsund and Neubrandenburg.

Production in agriculture and fishing has decreased in all the regions of Euroregion Pomerania between 1997 and 2008. Employment *statistics* for agriculture and fishing also show a gradual decrease and the changes have been especially severe in the Polish regions of the CBA.

Accessibility and connectivity

Accessibility of Euroregion Pomerania varies between the regions and means of transport. German regions of Euroregion Pomerania are easier to access by road than other regions of the CBA. Accessibility of the Polish regions is below the European *and* CBA average. Potential accessibility by rail is similar to the road accessibility values. Index change in the potential accessibility by rail has been positive in all the German regions of Euroregion Pomerania, but negative in all the other regions.

Skåne län was the most difficult region to access by road and rail, but it has the highest accessibility by air among the regions of Euroregion *Pomerania*. Good accessibility by air affects the high multimodal accessibility of Skåne län. "Virtual accessibility" of Skåne län is also high considering that Södra Sverige has the largest share of households with broadband internet access (79 %) and the largest share of households with internet at home (90 %). The share of households with access to the internet at home has been increasing in all NUTS 1 regions of the Poland – Germany – Sweden CBA.

Concerning maritime connections, the amount of maritime *passengers* has been decreasing in all the NUTS 2 regions of the Poland – Germany – Sweden CBA. Data on ports shows that the amount of passengers has

been increasing in Ystad (Sweden), while the other major passenger ports have been losing passengers between years 2000 and 2010. Data on maritime transport of freight shows that after 2008 global economic crisis the cargo traffic in the CBA decreased radically but has between 2009 and 2010 shown new recovery.

Lisbon / Europe 2020 and Gothenburg objectives

Analyses on Lisbon / Europe 2020 and Gothenburg objectives included four subcategories: economy and employment, research and innovation, social cohesion and environment. Regional disparities in GDP per capita have been increasing between 1997 and 2008 in Euroregion Pomerania. When compared to the average of ESPON countries, disparities in GDP per capita have been higher in ESPON countries, but have now settled on the same level with the CBA. When compared with the leading European NUTS 3 region (West Inner London) in terms of GDP per capita, the best performing region in Euroregion Pomerania is Neubrandenburg (32 900 € in 2008), while the lowest GDP per capita was found in Podregion Stargardzki (6 100 € per capita). Compared to the leading European region in GDP per capita (West Inner London), Greifswald, Neubrandenburg, Stralsund and Skåne län are considered middle income regions. Podregion Stargardzki is classified as a very laggard region, while other regions of the CBA area have according to the index number analysis been classified as less developed regions or laggard regions.

In the catching up analysis we compared the speed of economic catching-up of the regions of Euroregion Pomerania with the leading European NUTS 3 region (West Inner London). Most of the regions have been classified as diverging regions. This indicates that these regions are not catching up the leader, but growing less and thus diverging from the leading region. Polish regions of Euroregion Pomerania have been classified as slow catching-up regions (Podregion Koszaliński, Powiat m. Szczecin and Podregion Szczeciński) or slow converging regions (Podregion Stargardzki). With a similar growth rate these regions could in theory catch up the leader in 75 to 102 years.

The leading economic sector in Euroregion Pomerania was public administration and community services (30 % of the total GVA in 2008). The highest share of employment in Euroregion Pomerania was also recorded in public administration. R&D expenditure in Euroregion Pomerania was 1,7 % in 2007, which is below EU average (2 %). In Sydsverige (4,8 %) R&D expenditure was well above the EU and Swedish average (3,4 %). The Polish region of Województwo Zachodniopomorskie had the lowest R&D expenditure (0,2 %). Unemployment in Euroregion Pomerania was above the European and national (Germany, Poland, Sweden) averages in 2010.

We studied environmental performance of the Poland – Germany - Sweden CBA based on indicators from the European Commission's 5th Cohesion Report and ESPON Climate Project. From the 5th Cohesion Report we selected six indicators; soil sealed area, ozone exceedance, waste water treatment, Natura 2000 areas, and solar energy and wind power potential.

Soil sealing was high in the city regions of Euroregion Pomerania. In Stralsund soil sealed area covered 37 % of the total land area. Ozone concentration exceedances were below national and EU averages in Euroregion Pomerania. Urban waste water treatment capacity was above national and EU averages in all other regions but Województwo Zachodniopomorskie, where the capacity was only 57 %. However, there have been improvements in the waste water treatment capacity in Województwo Zachodniopomorskie after 2007. The share of purified industrial and municipal waste water (percentage of waste water requiring treatment) has increased from 84,9 % in 2007 to 99,5 % in 2010. The share of Natura 2000 areas values

higher than national or European averages. Solar energy potential in the CBA is below European averages, but in line with national averages. Wind energy potential, on the other hand, is well above European average. Sensitivities to climate change were relatively low in all the regions of Euroregion Pomerania.

Factor analysis

Factor analysis shows Euroregion Pomerania in the European context. German city regions and the city of Szczecin have positive centrality values, while all the other regions have negative centrality values. The best performance in demographic dynamism has Skåne län in Sweden, which also received highest scores for R&D factor. The growth of GDP in Poland has been rapid and therefore the Polish regions of Euroregion Pomerania scored higher in the economic catching-up analysis than other regions of the CBA. Several regions scored high in the administrative centres -analysis that indicates poor economic performance and importance of public sector. Regions in coastal areas of Euroregion Pomerania scored high in environment analysis, and are thus more sensitive to environmental risks related to climate change than other regions of the CBA.

The city of Szczecin in the Polish-German CBA

The city of Szczecin is the only major city in the cross-border territory of north-west Poland and north-east Germany and therefore it plays an important role in cross-border regional development. In order to elaborate the vision of the city as a cross-border urban territory, the city has been actively developing the concept of 'Cross Border Metropolitan Region of Szczecin'. According to the research results of Ulysses, development patterns of the city of Szczecin do not limit themselves to the territory of the city, but reach across regional borders and the German border area. Development priorities of the Cross Border Metropolitan Region of Szczecin (strengthening of international cooperation, protecting natural environment, supporting polycentric settlement network, improving transport and technical infrastructure, and boosting economic development) seem justified in the light of Ulysses results. The biggest challenge for the region and for the city of Szczecin is to boost economic development, in particular knowledge-based economic development and thereby to tackle the demographic challenge.

Table of contents

Chapter 1. Introduction	57
1.1. Research objectives.....	57
1.2. General overview of the Poland – Germany – Sweden CBA (Euroregion Pomerania)	58
Chapter 2. Demographic analysis of the Poland – Germany – Sweden CBA.....	64
2.1. Demographic dynamics.....	65
2.1.1. Total population.....	65
2.1.2. Population density	68
2.1.3. Population change	70
2.1.4. Natural population change and net migration	74
2.1.5. Population projections.....	79
2.1.6. Total fertility rates	81
2.1.7. Dependency ratios	84
2.1.8. Commuting	86
2.2. Effects of the border on settlement patterns	90
2.3. Chapter conclusions	92
Chapter 3. Polycentric development in the Poland – Germany – Sweden CBA.....	93
3.1. Functional Urban Areas.....	94
3.2. Morphological analysis of FUAs	97
3.3. Functional analyses of FUAs.....	105
3.4. Chapter conclusions	109
Chapter 4. Urban-rural relationship in the Poland – Germany – Sweden CBA	110
4.1. Land use patterns.....	111
4.2. Gross value added and employment in agriculture and fishing	120
4.3. Chapter conclusions	130
Chapter 5. Accessibility and connectivity in the Poland – Germany – Sweden CBA (Euroregion Pomerania)	131
5.1. Accessibility by road.....	136
5.2. Accessibility by rail	140
5.3. Accessibility by air	144
5.4. Multimodal accessibility.....	148
5.5. Broadband internet access.....	152
5.6. Maritime connections	154
5.7. Chapter conclusions	159
Chapter 6. Performance of Poland – Germany – Sweden CBA (Euroregion Pomerania) from the perspective of Lisbon / Europe 2020 and Gothenburg objectives.....	160
6.1. Economy and employment	161
6.1.1. GDP per capita	161
6.1.2. Economic sectors	169
6.2. Research and innovation.....	172
6.3. Social cohesion	173
6.4. Environmental analysis	174
6.4.1. Environmental performance.....	175
6.4.2. Environmental capacity	183
6.4.3. Climate change	187
6.5. Chapter conclusions	192
Chapter 7. Factor analyses	194
7.1. Centrality (FAC1_1)	197
7.2. Research and development (FAC2_1).....	199
7.3. Administrative centres (FAC3_1)	201

7.4. Demographic dynamism (FAC4_1).....	203
7.5. Environmental risks (FAC5_1)	205
7.6. Services and transport (FAC6_1).....	207
7.7. Immigration (FAC7_1)	209
7.8. Construction (FAC8_1)	211
7.9. Unemployment (FAC1_2).....	213
7.10. Catching-up regions (FAC2_2).....	216
7.11. Economic development (FAC3_2).....	219
7.12. Pollution (FAC4_2).....	222
7.13. Chapter conclusions	225
Chapter 8. The role of the city of Szczecin in the Polish-German CBA.....	226
Territorial synthesis map	232
References	233

List of maps

Map 15. Map of NUTS 2 regions of the Poland – Germany – Sweden CBA.	60
Map 16. Map of NUTS 3 regions of Euroregion Pomerania	61
Map 17. Population density in Euroregion Pomerania in 2009.	69
Map 18. Annual population growth rate in Euroregion Pomerania between 2000 and 2009.	73
Map 19. Category map of population change in Euroregion Pomerania between years 2000 and 2008	78
Map 20. Map of total fertility rates in the Poland – Germany – Sweden CBA in 2008 (NUTS 2 delimitation).	83
Map 21. Commuting to another region in the Poland – Germany – Sweden CBA 2009 (NUTS 2 delimitation).	87
Map 22. Commuting to foreign country in the Poland – Germany – Sweden CBA 2009 (NUTS 2 delimitation).	89
Map 23. FUAs and MUAs of the Poland – Germany – Sweden CBA (NUTS 2 delimitation).....	96
Map 24. FUA Thiessen polygons for the Poland – Germany – Sweden CBA in 2006 (NUTS 2 delimitation). 102	
Map 25. Thiessen polygons for Sweden, Germany and Poland in 2006.	103
Map 26. Share of different NACE sectors in the value added of FUAs in the Poland – Germany – Sweden CBA in 2006 (NUTS 2 delimitation).	107
Map 27. GDP per inhabitant in the FUAs of Poland – Germany – Sweden CBA in 2006 (NUTS 2 delimitation).	108
Map 28. Euroregion Pomerania according to ESPON 1.1.2. and Eurostat urban rural typologies.	112
Map 29. Share of agricultural areas in Euroregion Pomerania in 2006.	114
Map 30. Urbanisation of agricultural areas in Euroregion Pomerania between 2000 and 2006.	116
Map 31. Urbanisation of natural and semi-natural areas in Euroregion Pomerania between 2000 and 2006.	117
Map 32. Land use change from agricultural to artificial areas in Euroregion Pomerania between 2000 and 2006.	119
Map 33. Share of GVA by agriculture and fishing in total GVA in Euroregion Pomerania (2008).....	123
Map 34. Annual growth rate of the share of GVA by agriculture and fishing in total GVA in Euroregion Pomerania between 1997 and 2008.	124
Map 35. Share of employment in agriculture and fishing in total employment in Euroregion Pomerania (2008).	128
Map 36. Annual growth rate of the share of employment in agriculture and fishing in Euroregion Pomerania between 2000 and 2008.....	129
Map 37. Main transport infrastructure in Euroregion Pomerania.	132
Map 38. Potential accessibility of Euroregion Pomerania by road in the context of ESPON countries (2006).	137
Map 39. Potential accessibility of Euroregion Pomerania by road in the context of the CBA (2006).	138
Map 40. Index change of standardised potential accessibility by road of Euroregion Pomerania between 2001 and 2006.	139
Map 41. Potential accessibility of Euroregion Pomerania by rail in the context of ESPON countries (2006).	141
Map 42. Potential accessibility of Euroregion Pomerania by rail in the context of the CBA (2006).....	142
Map 43. Index change of standardised potential accessibility by rail in Euroregion Pomerania between 2001 and 2006.	143

Map 44. Potential accessibility of Euroregion Pomerania by air in the context of ESPON countries (2006).	145
Map 45. Potential accessibility of Euroregion Pomerania by air in the context of the CBA (2006).	146
Map 46. Index change of standardised potential accessibility by air in Euroregion Pomerania between 2001 and 2006.	147
Map 47. Multimodal potential accessibility of Euroregion Pomerania in the context of ESPON countries (2006).	149
Map 48. Multimodal potential accessibility of Euroregion Pomerania in the context of the CBA (2006).	150
Map 49. Index change of standardised multimodal potential accessibility in Euroregion Pomerania between 2001 and 2006.	151
Map 50. Households with broadband internet connection in the Poland – Germany – Sweden CBA in 2009 (NUTS 2 delimitation).	153
Map 51. Ship traffic in the Baltic Sea during one week in 2008. Data is calculated on a grid, showing the areas of heavy traffic.	154
Map 52. GDP per capita of the regions of Euroregion Pomerania indexed to the leading NUTS 1 region of London (2008).	165
Map 53. Performance of the regions of Euroregion Pomerania in GDP per capita between 1997 and 2008 compared to the leading NUTS 1 region of London.	168
Map 54. Soil sealed area in Euroregion Pomerania in 2006.	176
Map 55. Ozone concentration exceedances (days) in Euroregion Pomerania in 2008.	178
Map 56. Urban waste water treatment capacity in the Poland – Germany – Sweden CBA in 2007 (NUTS 2 delimitation).	180
Map 57. Share of Natura 2000 areas of total area (%) in Euroregion Pomerania in 2009.	182
Map 58. Solar energy resources (kWh per year) in Euroregion Pomerania between 1981 and 1990 (average per year).	184
Map 59. Wind energy potential (onshore full load hours) in Euroregion Pomerania between 2000 and 2005 (average per year).	186
Map 60. Physical sensitivity to climate change in Euroregion Pomerania.	189
Map 61. Social sensitivity to climate change in Euroregion Pomerania.	190
Map 62. Economic sensitivity to climate change in Euroregion Pomerania.	191
Map 63. Results of analysis on Centrality (FAC1_1) in Euroregion Pomerania.	198
Map 64. Results of analysis on Research and development (FAC2_1) in Euroregion Pomerania.	200
Map 65. Results of analysis on Administrative centres (FAC3_1) in Euroregion Pomerania.	202
Map 66. Results of analysis on Demographic dynamism (FAC4_1) in Euroregion Pomerania.	204
Map 67. Results of analysis on Environmental risks (FAC5_1) in Euroregion Pomerania.	206
Map 68. Results of analysis on Services and transport (FAC6_1) in Euroregion Pomerania.	208
Map 69. Results of analysis on Immigration (FAC7_1) in Euroregion Pomerania.	210
Map 70. Results of analysis on Construction (FAC8_1) in Euroregion Pomerania.	212
Map 71. Results of analysis on Unemployment (FAC1_2) in Euroregion Pomerania.	215
Map 72. Results of analysis on catching-up regions (FAC2_2) in Euroregion Pomerania.	218
Map 73. Results of analysis on Economic development (FAC3_2) in Euroregion Pomerania.	221
Map 74. Results of analysis on Pollution (FAC4_2) in Euroregion Pomerania (tendencies).	224
Map 75. Catchment area of the Cross Border Metropolitan Region of Szczecin.	227
Map 76. West Pomeranian Regional Spatial Development Plan – Szczecin Cross-border Metropolitan Area.	228
Map 77. Territorial synthesis map for Euroregion Pomerania.	232

List of tables

Table 1. NUTS division (version 2006) of Poland – Germany – Sweden CBA (Euroregion Pomerania).	59
Table 2. Administrative centres of the NUTS 3 level regions of Euroregion Pomerania.....	62
Table 3. Total area of NUTS 0-3 level units of the Poland – Germany- Sweden CBA.....	63
Table 4. Demographic parameters studied for the Poland – Germany – Sweden CBA (Euroregion Pomerania).	64
Table 5. Total population in the Poland – Germany – Sweden CBA (Euroregion Pomerania) in 2009.	65
Table 6. Amount of male and female population in the Poland – Germany – Sweden CBA (Euroregion Pomerania) in 2009.	66
Table 7. Population change in the Poland – Germany – Sweden CBA 2000-2009.....	70
Table 8. Population growth rates in the Poland – Germany – Sweden CBA.....	72
Table 9. Natural population increase and net migration in the Poland – Germany – Sweden CBA between 2000 and 2008.	75
Table 10. Crude rate of natural increase in Euroregion Pomerania between 2000 and 2008.....	76
Table 11. Crude rate of net migration in Euroregion Pomerania between 2000 and 2008.....	77
Table 12. Dependency ratios in Euroregion Pomerania in 2009.....	85
Table 13. Commuting to another region in the Poland – Germany – Sweden CBA between 2000 and 2009 (NUTS 2 delimitation).	86
Table 14. Commuting to a foreign country in the Poland – Germany – Sweden CBA between 2000 and 2009 (NUTS 2 delimitation).	88
Table 15. Indicators for study of polycentric development in the Poland – Germany – Sweden CBA.	93
Table 16. FUAs of the Poland – Germany – Sweden CBA (NUTS 2 delimitation).	95
Table 17. Morphological indicators for the Poland – Germany – Sweden CBA (2006).....	105
Table 18. Functional indicators for the Poland – Germany – Sweden CBA in 2006 (NUTS 2 delimitation). .	106
Table 19. Urban-rural relationship parameters studied for the Poland – Germany – Sweden CBA.....	111
Table 20. Agricultural areas (category 2 of the Corine Land Cover) in Euroregion Pomerania.	113
Table 21. Urban fabric (categories 111 and 112 of the Corine Land Cover) in Euroregion Pomerania.	115
Table 22. Artificial surfaces (category 1 of the Corine Land Cover) in Euroregion Pomerania.	118
Table 23. Gross value added by agriculture and fishing in Euroregion Pomerania between 1997 and 2008.	120
Table 24. GVA by agriculture and fishing, and share of GVA by agriculture and fishing in total GVA in Euroregion Pomerania.....	122
Table 25. Employment in agriculture and fishing in Euroregion Pomerania between 2000 and 2008.	125
Table 26. Employment in agriculture and fishing, and share of employment in agriculture and fishing in total employment in Euroregion Pomerania between 2000 and 2008.	127
Table 27. Parameters studied for the accessibility and connectivity in the Poland – Germany – Sweden CBA (Euroregion Pomerania).	133
Table 28. Potential accessibility of Euroregion Pomerania in the context of ESPON space and the CBA (2006).	134
Table 29. Standardised potential accessibility of Euroregion Pomerania in the context of ESPON countries and the CBA (2006).....	135
Table 30. Index change of potential accessibility in Euroregion Pomerania between 2001 and 2006.....	135
Table 31. Indicators applied for the study of Lisbon / Europe 2020 and Gothenburg Strategies.....	161

Table 32. GDP per capita (euro) in the leading NUTS 1 region (London) and the regions of Euroregion Pomerania between 1997 and 2008.	163
Table 33. GDP per capita of the regions of Euroregion Pomerania indexed to the leading NUTS 1 region of London (2008).	164
Table 34. Catching-up analysis of the regions of Euroregion Pomerania (performance in GDP per capita between 1997 and 2008 compared to the leading NUTS 1 of London).....	167
Table 35. Share of GVA by NACE (Rev. 1.1) in the regions of Euroregion Pomerania in 2008.....	169
Table 36. Annual growth rate of GVA by NACE in Euroregion Pomerania between 1997 and 2008 (% share of total GVA).	170
Table 37. Share of employment in total employment by NACE sectors (Rev. 1.1) in Euroregion Pomerania (2008).	171
Table 38. Annual growth rate of the share of employment by NACE sectors in total employment in Euroregion Pomerania between 2000 and 2008.	172
Table 39. Indicators for research and innovation in the Poland – Germany – Sweden CBA (NUTS 2 delimitation).	173
Table 40. Social cohesion indicators for the Poland – Germany – Sweden CBA (NUTS 2 delimitation).	174
Table 41. Soil sealing in Euroregion Pomerania in 2006.	175
Table 42. Ozone concentration exceedances in the regions of Euroregion Pomerania in 2008.	177
Table 43. Urban waste water treatment capacity in the Poland – Germany – Sweden CBA in 2007 (NUTS 2 delimitation).	179
Table 44. The share of purified industrial and municipal waste water in Województwo Zachodniopomorskie between 2002 and 2011 (NUTS 2 delimitation).	179
Table 45. Share of Natura 2000 areas of total area (%) in Euroregion Pomerania in 2009.	181
Table 46. Solar energy resources in Euroregion Pomerania between 1981 and 1990 (average per year)...	183
Table 47. Wind energy potential (onshore full load hours) in Euroregion Pomerania between 2000 and 2005 (average per year).	185
Table 48. Climate sensitivity values for Euroregion Pomerania.....	188
Table 49. Indicators for the study of territorial profile of the Poland – Germany – Sweden CBA.....	195
Table 50. Indicators for the study of territorial performance of the Poland – Germany – Sweden CBA.	196
Table 51. Results of analysis on Centrality FAC1_1 in Euroregion Pomerania.....	197
Table 52. Results of analysis on Research and development (FAC2_1) in Euroregion Pomerania.....	199
Table 53. Results of analysis on Administrative centres (FAC3_1) in Euroregion Pomerania.	201
Table 54. Results of analysis on Demographic dynamism (FAC4_1) in Euroregion Pomerania.	203
Table 55. Results of analysis on Environmental risks (FAC5_1) in Euroregion Pomerania.	205
Table 56. Results of analysis on Services and transport (FAC6_1) in Euroregion Pomerania.	207
Table 57. Results of analysis on Immigration (FAC7_1) in Euroregion Pomerania.	209
Table 58. Results of analysis on Construction (FAC8_1) in Euroregion Pomerania.	211
Table 59. Results of analysis on Unemployment (FAC1_2) in Euroregion Pomerania.....	213
Table 60. Results of analysis on catching-up regions (FAC2_2) in Euroregion Pomerania.	216
Table 61 Results of analysis on Economic development (FAC3_2) in Euroregion Pomerania.	219
Table 62. Results of analysis on Pollution (FAC4_2) in Euroregion Pomerania.....	222

List of figures

Figure 6. Age structure in Euroregion Pomerania in 2009.	67
Figure 7. Population density in Euroregion Pomerania between years 2000 and 2009.	68
Figure 8. Expected and actual behaviour of Euroregion Pomerania’s natural population change and net migration between years 2001 and 2008.	80
Figure 9. Total population change in Euroregion Pomerania between 1995 and 2010 and trendlines for population projection.	81
Figure 10. Evolution of total fertility rates in the Poland – Germany – Sweden CBA between 2000 and 2008 (NUTS 2 delimitation).	82
Figure 11. Scatter chart of young and old age dependency ratios in Euroregion Pomerania in 2009.	85
Figure 12. Rank size distribution of the population in Functional Urban Areas of ESPON countries (2006). .	98
Figure 13. Rank size distribution of GDP in Functional Urban Areas in ESPON countries (2006).	99
Figure 14. Rank size distribution of the population of Functional Urban Areas in the Poland – Germany – Sweden CBA in 2006 (NUTS 2 delimitation).	100
Figure 15. Rank size distribution of GDP in Functional Urban Areas in the Poland – Germany – Sweden CBA in 2006 (NUTS 2 delimitation).	101
Figure 16. Rank size distribution of the Functional Urban Areas of the Poland – Germany – Sweden CBA to the overall distribution of FUAs in ESPON countries in 2006 (NUTS 2 delimitation).	104
Figure 17. Gross value added by agriculture and fishing in Euroregion Pomerania between 1997 and 2008.	121
Figure 18. Employment in agriculture and fishing in Euroregion Pomerania between 2000 and 2008.	126
Figure 19. Total amount of passengers in Euroregion Pomerania by NUTS 2 regions between 2000 and 2010.	155
Figure 20. Total amount of passengers in major passenger ports of Euroregion Pomerania between 2000 and 2010.	156
Figure 21. Maritime transport of freight in NUTS 2 regions of Poland – Germany – Sweden CBA between 2000 and 2010 (total amount of goods loaded and unloaded).	157
Figure 22. Maritime transport of goods (gross weight) in major ports of Euroregion Pomerania between 2000 and 2010.	158
Figure 23. Coefficient of deviation of GDP per capita between 1997 and 2008.	162
Figure 24. Total population by age in the Polish-German cross-border area in 2009.	229

Chapter 1. Introduction

1.1. Research objectives

Ulysses is an experimental and innovative project that studies development of European cross-border areas (hereafter CBA). The project is a 'targeted analyses' type of ESPON project that is realized in partnership with stakeholders from eighteen different European border and cross-border areas, who will utilize research results from Ulysses in cross-border spatial development activities.

Specific objectives of Ulysses project are following:

- a) To perform multi-thematic cross-border territorial analysis. To study territorial socioeconomic dynamics and performance of CBAs with regard to six targeted themes at different territorial scales. The objective is to identify territorial drivers and dynamics of each region.
- b) To perform institutional performance analysis. To identify key institutional drivers that could allow building better baseline strategies in order to answer main challenges identified.
- c) To conduct integrated analysis of the multi-thematic cross-border territorial analysis and institutional performance analysis.
- d) To produce policy recommendations. To formulate (1) strategic guidelines to cope with identified challenges in each cross-border area and (2) methodological guidelines for future cross-border analyses.

Multi-thematic cross-border territorial analysis is performed for six European CBAs:

- 1) Upper Rhine cross-border area along the land borders between France, Germany and Switzerland,
- 2) Cross-border area along the entire Spanish-French land border (Pyrenees),
- 3) Cross-border area along the land border between Greece and Bulgaria,
- 4) Cross-border area covering parts of Eastern and Northern Finland – Russian land border (Euroregion Karelia),
- 5) Cross-border area along the borders between Poland, Germany (land border) and Sweden (maritime border) (Euroregion Pomerania), and
- 6) Extremadura/Alentejo on the border between Spain and Portugal.

This analysis is based on data and methods developed by previous ESPON projects. Complementary data is collected from Eurostat and national statistical databases. Analyses are done on different territorial scales, comparing each region to the cross border area as a whole, each region to the entire cross border area within the same country, each region to the whole cross border area in the neighbouring country and each region to confining non-border regions within the same country.

Analyses of *territorial dynamics* include following four themes: demography, polycentric development, urban-rural relationship and accessibility and connectivity. *Territorial performance* of the CBAs is studied from the perspective of Gothenburg and Lisbon/Europe 2020 strategies, and analyses include following four themes: economy and employment, research and innovation, social cohesion and environment. Finally, factor analyses are performed in order to study the relationship between territorial dynamics and territorial performance.

This report presents research results of the *multi-thematic cross-border territorial analysis concerning Poland – Germany – Sweden CBA*. First we give a general overview of the CBA, and then deliver results of the analyses theme by theme. In the end of each chapter we draw conclusions on the theme in question, and in the end of this report we summarize the most relevant findings of the study as a whole.

1.2. General overview of the Poland – Germany – Sweden CBA (Euroregion Pomerania)

Euroregion Pomerania is a cross-border area situated on the border between Poland, Germany and Sweden. Polish regions of Euroregion Pomerania are located in north-west Poland, German regions in north-east Germany and Swedish regions in the south of Sweden. The border between Poland and Germany is a land border, while Sweden is separated from the Polish and German regions of Euroregion Pomerania by a maritime border. The distance across the Baltic Sea from the Swedish coast to the German coast is approximately 80 km (in its narrowest part) and to the Polish coast approximately 180 km.

Euroregion Pomerania was established on 15 December 1995 in Szczecin, Poland. Since 26 February 1998, the day of signing the agreement in Lund, Sweden, it has following parties: the Association of Polish Local Authorities of the Euroregion Pomerania (most of the Polish local authorities in the Zachodniopomorskie voivodship), the city of Szczecin, the Association of Local Authorities Euroregion POMERANIA e.V. (an association of three self-administrated towns and eight rural districts in the Land of Mecklenburg-Vorpommern and in the Land of Brandenburg in Germany) and the Scania Association of Local Authorities with 33 communes in Sweden. The goal of Euroregion Pomerania is to promote equal and balanced development in its regions.²

In the beginning of the Euroregion Pomerania cooperation only Germany and Sweden were members of the European Union, and the border to Poland was an external border of the EU. Gradually the CBA has turned into a functionally more integrated area. In 2004 Poland joined the European Union and the former external border became an internal border. In 2007 border controls were abolished in the enlarged EU and EU citizens could enter Poland by land or sea without identity checks. In 2011 labour market restrictions for the new (2004) Member States were removed and Polish citizens were allowed to take employment in Germany (Sweden did not impose restrictions for the New Member States).

In the Ulysses project quantitative statistical analysis were made on Euroregion Pomerania utilizing the NUTS classification (Nomenclature of territorial units for statistics) established by Eurostat. From the perspective of NUTS division Euroregion Pomerania appears as follows. In Poland it includes four NUTS 3 level regions; Podregion Koszaliński, Podregion Stargardzki, Powiat m. Szczecin and Podregion Szczeciński. These regions form the NUTS 2 level region of Województwo Zachodniopomorskie, which belongs to the NUTS 1 level region of Region Północno-Zachodni. On the German side Euroregion Pomerania includes eleven NUTS 3 level regions. Two of these, Barnim and Uckermark belong to the NUTS 2 region of Brandenburg-Nordost and, thus, to the NUTS 1 region of Brandenburg. The other nine regions (Greifswald, Neubrandenburg, Stralsund, Demmin, Mecklenburg-Strelitz, Nordvorpommern, Ostvorpommern, Rügen and Uecker-Randow) are part of the NUTS 2 / 1 region of Mecklenburg-Vorpommern. There was a local government reform in the Federal State of Mecklenburg-Vorpommern in September 2011 that caused

² www.pomerania.net

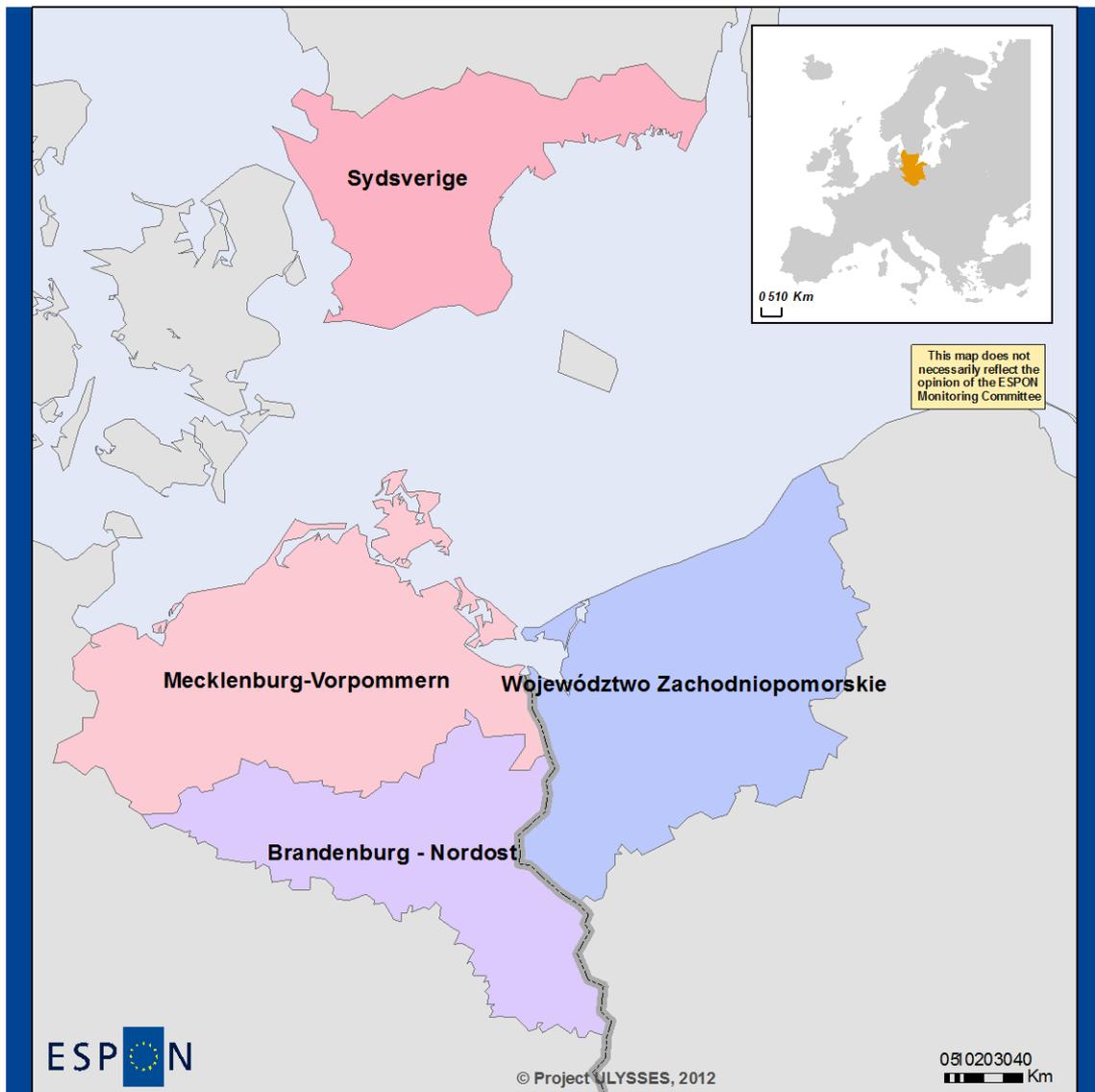
changes in the NUTS division of the State.³ In this report we have applied the division prior to the reform, because majority of the data was collected before it. In Sweden only one NUTS 3 region, that of Skåne län belongs to Euroregion Pomerania. Skåne län is part of the NUTS 2 region of Sydsverige, which belongs to the NUTS 1 region of Södra Sverige (Southern Sweden). *Since part of the analyses were made on NUTS 2 level, it is necessary to notice that the German NUTS 2 regions of Mecklenburg-Vorpommern and Brandenburg-Nordost, and the Swedish NUTS 2 region of Sydsverige include NUTS 3 regions that are not in the territory of Euroregion Pomerania.*

Table 1. NUTS division (version 2006) of Poland – Germany – Sweden CBA (Euroregion Pomerania).

NUTS ID	NUTS 0	NUTS 1	NUTS 2	NUTS 3
DE	Germany (Deutschland)			
DE4		Brandenburg		
DE41			Brandenburg-Nordost	
DE412				Barnim
DE418				Uckermark
DE8		Mecklenburg-Vorpommern		
DE80			Mecklenburg-Vorpommern	
DE801				Greifswald
DE802				Neubrandenburg
DE805				Stralsund
DE808				Demmin
DE80B				Mecklenburg-Strelitz
DE80D				Nordvorpommern
DE80F				Ostvorpommern
DE80H				Rügen
DE80I				Uecker-Randow
PL	Poland (Polska)			
PL4		Region Północno-Zachodni		
PL42			Województwo Zachodniopomorskie	
PL422				Podregion Koszaliński
PL423				Podregion Stargardzki
PL424				Powiat m. Szczecin
PL425				Podregion Szczeciński
SE	Sweden (Sverige)			
SE2		Södra Sverige		
SE22			Sydsverige	
SE224				Skåne län

³ In this reform Federal State of Mecklenburg-Vorpommern was divided into six rural districts (Kreise). The German NUTS 3 regions of Euroregion Pomerania were accordingly reorganized and merged into three new rural districts; Vorpommern-Greifswald, Vorpommern-Rügen and Mecklenburgische Seenplatte. Vorpommern-Greifswald now includes the former districts of Ostvorpommern, Uecker-Randow, the Ämter Jarmen-Tutow and Peenetal/Loitz from the former Demmin district and the former district-free town Greifswald. The former districts of Nordvorpommern and Rügen and the former district-free town Stralsund were merged into Vorpommern-Rügen. Mecklenburgische Seenplatte was established by merging the former districts of Müritz, Mecklenburg-Strelitz and Demmin (except the Ämter Jarmen-Tutow and Peenetal/Loitz) and the former district-free town Neubrandenburg.

Map 15. Map of NUTS 2 regions of the Poland – Germany – Sweden CBA (NUTS version 2006).

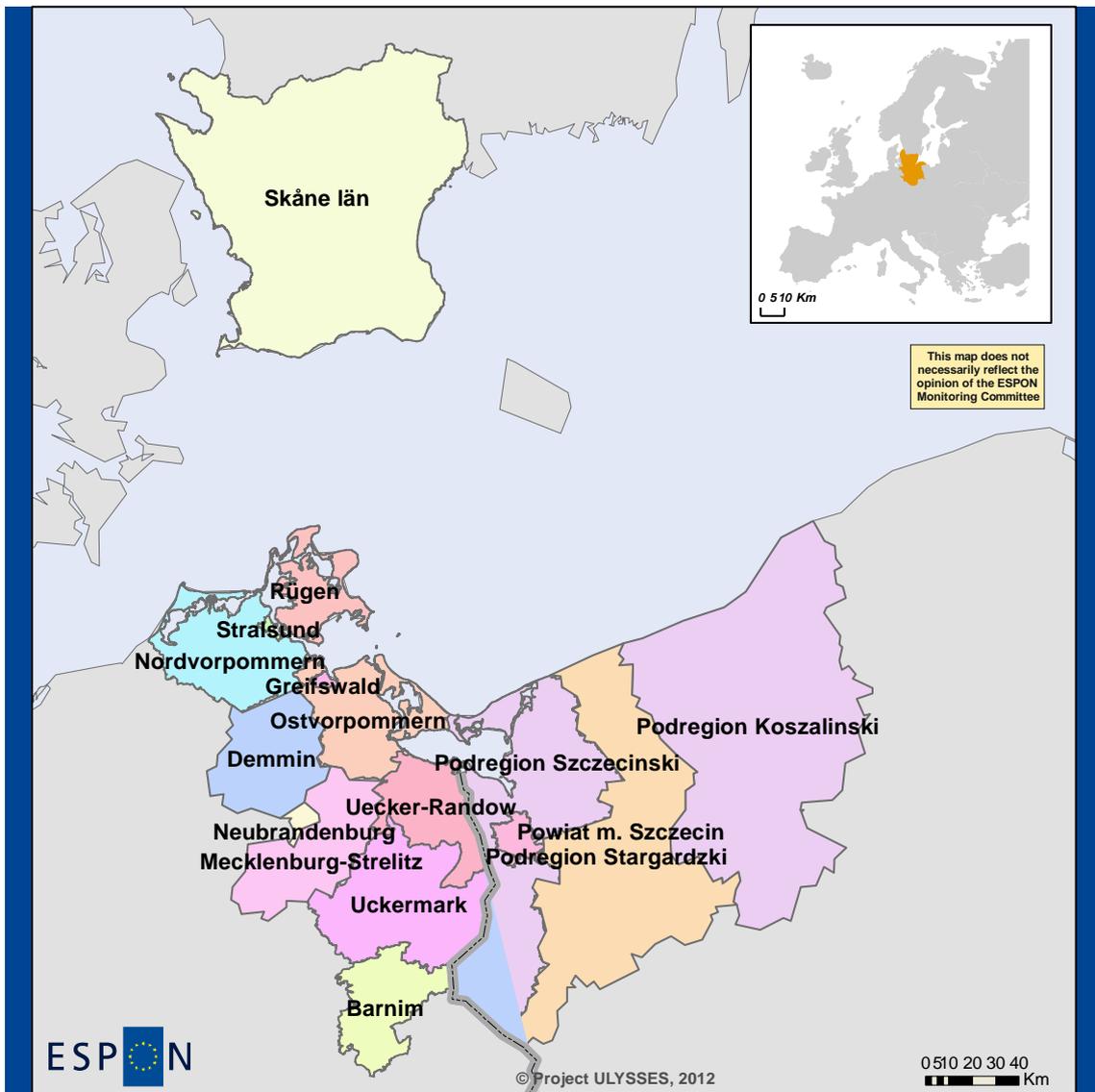



 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Legend
NUTS 2 names

Local level: NUTS 3
 Year:
 Origin of data: ESPON DB
 © EuroGeographics Association for administrative boundaries

Map 16. Map of NUTS 3 regions of Euroregion Pomerania (NUTS version 2006).




 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Legend
NUTS 3 names

Local level: NUTS 3
 Year:
 Origin of data: ESPON DB
 © EuroGeographics Association for administrative boundaries

The following table presents administrative centres of the NUTS 3 level regions of Euroregion Pomerania. In Poland NUTS 3 level corresponds to subregions (podregion), which exist only for statistical purposes and have no self-government bodies. For Polish NUTS 3 regions the list therefore includes name of the main city of the subregion. Subregions are groups of counties (poviats, powiaty in Polish) and cities with poviat status (LAU 1 level). Counties are governed by Seats of County Authorities that are located in central cities of the counties. Cities with poviat status also have their own administration. Counties and cities are grouped into voivodships (województwo), administrative regions that represent level 2 in the NUTS division. The six existing NUTS 1 level regions, the so called macroregions serve only for statistical purposes. In Germany NUTS division follows the administrative division of the country, and the states (Länder or Bundesländer) form the first, government regions (Regierungsbezirke) the second and districts (Kreise) the third NUTS level. NUTS 3 level rural and urban districts are headed by District Councils that are located in the administrative cities of the districts. Swedish NUTS division corresponds to the administrative regions on NUTS 3 level (NUTS 1 and 2 levels have been created for statistical purposes), following the division into counties, 'län'. Counties are headed by 'länstyrelse', County Administrative Boards, and the board for Skåne län is located in the city of Malmö.

Table 2. Administrative centres of the NUTS 3 level regions of Euroregion Pomerania.

NUTS ID	NUTS	NUTS level	Administrative Centre
DE412	Barnim	NUTS 3	Eberswalde
DE418	Uckermark	NUTS 3	Prenzlau
DE801	Greifswald	NUTS 3	Greifswald
DE802	Neubrandenburg	NUTS 3	Neubrandenburg
DE805	Stralsund	NUTS 3	Stralsund
DE808	Demmin	NUTS 3	Demmin
DE80B	Mecklenburg-Strelitz	NUTS 3	Neustrelitz
DE80D	Nordvorpommern	NUTS 3	Grimmen
DE80F	Ostvorpommern	NUTS 3	Anklam
DE80H	Rügen	NUTS 3	Bergen
DE80I	Uecker-Randow	NUTS 3	Pasewalk
PL422	Podregion Koszaliński	NUTS 3	Koszalin
PL423	Podregion Stargardzki	NUTS 3	Stargard Szczeciński
PL424	Powiat m. Szczecin	NUTS 3	Szczecin
PL425	Podregion Szczeciński	NUTS 3	Szczecin
SE224	Skåne län	NUTS 3	Malmö

Euroregion Pomerania has a total area of 49 663,97 km² (2010). The largest NUTS 3 unit of the CBA is Skåne län in Sweden. It has a total area of 11 368,5 km² that forms 22,89 % of the total area of Euroregion Pomerania. The smallest NUTS 3 unit of the CBA is Stralsund in Germany with a total area of 39,1 km² (0,08 % of the total area of the CBA). German NUTS 3 regions cover 31,02 % and Polish regions 46,09 % of the total area of Euroregion Pomerania. In their nation states the regions of Euroregion Pomerania cover relatively small shares of total country areas. Polish regions of the CBA form 7,32 % of the total area of Poland, German regions cover 4,31 % of the total area of Germany, and the share of Skåne län in the total area of Sweden is 2,6 %.

Table 3. Total area of NUTS 0-3 level units of the Poland – Germany- Sweden CBA.

NUTS ID	NUTS	NUTS level	Total Area (km ²) 2010	% of CBA
DE	Germany (Deutschland)	NUTS 0	357 123,50	
DE4	Brandenburg	NUTS 1	29 481,95	
DE41	Brandenburg-Nordost	NUTS 2	15 500,7	
DE412	Barnim	NUTS 3	1471,64	2,96 %
DE418	Uckermark	NUTS 3	3058,28	6,16 %
DE8	Mecklenburg-Vorpommern	NUTS 1	23 188,98	
DE80	Mecklenburg-Vorpommern	NUTS 2	23 188,98	
DE801	Greifswald	NUTS 3	50,5	0,10 %
DE802	Neubrandenburg	NUTS 3	85,7	0,17 %
DE805	Stralsund	NUTS 3	39,1	0,08 %
DE808	Demmin	NUTS 3	1 922,0	3,87 %
DE80B	Mecklenburg-Strelitz	NUTS 3	2 089,9	4,21 %
DE80D	Nordvorpommern	NUTS 3	2 172,9	4,38 %
DE80F	Ostvorpommern	NUTS 3	1 911,2	3,85 %
DE80H	Rügen	NUTS 3	977,7	1,97 %
DE80I	Uecker-Randow	NUTS 3	1 624,6	3,27 %
PL	Poland (Polska)	NUTS 0	312 679,0	
PL4	Region Północno-Zachodni	NUTS 1	66 706,0	
PL42	Województwo Zachodniopomorskie	NUTS 2	22 892,0	
PL422	Podregion Koszaliński	NUTS 3	10 402,0	20,94 %
PL423	Podregion Stargardzki	NUTS 3	6 838,0	13,77 %
PL424	Powiat m. Szczecin	NUTS 3	301,0	0,61 %
PL425	Podregion Szczeciński	NUTS 3	5 351,0	10,77 %
SE	Sweden (Sverige)	NUTS 0	441 369,5	
SE2	Södra Sverige	NUTS 1	81 092,5	
SE22	Sydsverige	NUTS 2	14 423,9	
SE224	Skåne län	NUTS 3	11 368,5	22,89 %
	Euroregion Pomerania		49 663,97	100 %

Source: Eurostat and Federal Statistical Office Germany

Chapter 2. Demographic analysis of the Poland – Germany – Sweden CBA

Demographic decline and the ageing of population is one of the main challenges in the European Union. Even if the population in EU (27) has been growing without a break since 1960, climbing up to 502.5 million in January 2011, net migration instead of natural change has been the main determinant of population growth since the beginning of 1990s. Europeans have generally been having fewer children, and the total fertility rate that describes the average number of children that would be born by a woman over her lifetime has declined from well above the replacement ratio (2.1 live births per woman) to 1.56 in 2008.⁴ Population decline is especially problematic for peripheral regions, including border regions that are often situated on the fringe of nation states, since young people tend to migrate to large urban areas, and the peripheral regions are left with a skewed age structure and the responsibility to provide services for the ageing population.⁵

The aim of this chapter is to analyse demographic dynamics and trends in the Poland – Germany – Sweden CBA (Euroregion Pomerania). We start by describing the demographic dynamics in the area. How densely populated is the CBA? What does the age and sex structure of the CBA look like? What seems to be the temporal dynamics of the population growth? The second objective of the chapter is to understand whether the border is influencing settlement patterns. In order to study the demographic situation and future trends in the CBA, we have identified a set of indicators. These are listed in the following table. Methods of analysing the chosen parameters are explained in each subchapter separately.

Table 4. Demographic parameters studied for the Poland – Germany – Sweden CBA (Euroregion Pomerania).

Parameter – Indicator	Period covered	Data source	NUTS level
Total population	2009	Eurostat	NUTS 0 – NUTS 3
Total population by sex	2009	Eurostat	NUTS 0 – NUTS 3
Total population by age	2009	Eurostat	NUTS 0 – NUTS 3
Population density	2000-2009	Eurostat, Central Statistical Office of Poland	NUTS 0 – NUTS 3
Total population change	2000-2009	Eurostat	NUTS 0 – NUTS 3
Population growth rate	2000-2009	Eurostat	NUTS 0 – NUTS 3
Annual population growth rate	2000-2004 / 2005-2009	Eurostat	NUTS 0 – NUTS 3
Natural population change	2000-2008	Eurostat	NUTS 0 – NUTS 3
Net migration	2000-2008	Eurostat	NUTS 0 – NUTS 3
Crude rate of natural increase	2000-2008	Eurostat	NUTS 0 – NUTS 3
Crude rate of net migration	2000-2008	Eurostat	NUTS 0 – NUTS 3
Total fertility rate	1997-2008	Eurostat	NUTS 0 – NUTS 2
Total, old and young dependency ratios	2009	Eurostat	NUTS 0 – NUTS 3
Commuters to other countries among/by active population	2000-2009	Eurostat	NUTS 0 – NUTS 2
Commuters to other regions among/by active population	2000-2009	Eurostat	NUTS 0 – NUTS 2

⁴ There has been a slight recovery in the TFR rates since 2003, when the ratio was as low as 1.47.

⁵ Population and population change statistics 2011; Fertility statistics 2011.

2.1. Demographic dynamics

2.1.1. Total population

Euroregion Pomerania has a total population of 3 915 493 inhabitants (2009). The largest NUTS 3 region of the CBA is Skåne län in Sweden with 1 214 758 inhabitants and the smallest Greifswald in Germany with 54 131 inhabitants. Polish regions have the largest share of inhabitants in Euroregion Pomerania (43,24 %), Swedish region of Skåne län the second largest (31,02 %) and German regions the smallest share (25,74 %). Considering national populations, Skåne län has the largest share of national population (13,12 %), while German NUTS 3 regions of Euroregion Pomerania constitute (with the total of 1 007 778 inhabitants) only 1,23 % of the total population of Germany. The Polish regions of Euroregion Pomerania have the total of 1 692 957 inhabitants that makes 4,44 % of the total population of Poland. When compared to the total population of the European Union, which in 2009 was 499 705 496 citizens, the population of Euroregion Pomerania makes up 0,78 % of the EU27 population.

Table 5. Total population in the Poland – Germany – Sweden CBA (Euroregion Pomerania) in 2009.

NUTS ID	NUTS	NUTS level	Population 2009	% of CBA population
DE	Germany (Deutschland)	NUTS 0	82002356	
DE4	Brandenburg	NUTS 1	2522493	
DE41	Brandenburg-Nordost	NUTS 2	1140851	
DE412	Barnim	NUTS 3	177644	4,54 %
DE418	Uckermark	NUTS 3	132837	3,39 %
DE8	Mecklenburg-Vorpommern	NUTS 1	1664356	
DE80	Mecklenburg-Vorpommern	NUTS 2	1664356	
DE801	Greifswald	NUTS 3	54131	1,38 %
DE802	Neubrandenburg	NUTS 3	65879	1,68 %
DE805	Stralsund	NUTS 3	57866	1,48 %
DE808	Demmin	NUTS 3	81788	2,09 %
DE80B	Mecklenburg-Strelitz	NUTS 3	79729	2,04 %
DE80D	Nordvorpommern	NUTS 3	107963	2,76 %
DE80F	Ostvorpommern	NUTS 3	106875	2,73 %
DE80H	Rügen	NUTS 3	68872	1,76 %
DE80I	Uecker-Randow	NUTS 3	74194	1,89 %
PL	Poland (Polska)	NUTS 0	38135876	
PL4	Region Północno-Zachodni	NUTS 1	6099536	
PL42	Województwo Zachodniopomorskie	NUTS 2	1692957	
PL422	Podregion Koszaliński	NUTS 3	591693	15,11 %
PL423	Podregion Stargardzki	NUTS 3	375056	9,58 %
PL424	Powiat m. Szczecin	NUTS 3	406941	10,39 %
PL425	Podregion Szczeciński	NUTS 3	319267	8,15 %
SE	Sweden (Sverige)	NUTS 0	9256347	
SE2	Södra Sverige	NUTS 1	4026590	
SE22	Sydsverige	NUTS 2	1367017	
SE224	Skåne län	NUTS 3	1214758	31,02 %
	Euroregion Pomerania		3915493	100 %

Source: Eurostat

From the perspective of sex structure, Euroregion Pomerania has a female majority with 1 993 574 females that make up 50,92 % of the total population of the CBA. In general the sex ratio in the regions of Euroregion Pomerania is well balanced and there are no significant deviations in any of the regions. The city of Szczecin (Powiat m. Szczecin) in Poland has the largest share of female population (52,56 %), while Uecker-Randow in Germany has the largest share of male population (50,14 %). The sex structure of Euroregion Pomerania resembles the distribution between male and female citizens in Poland, Germany and Sweden. All these countries have a slight female majority. In Poland the share of female inhabitants is 51,71 %, in Germany 51 % and in Sweden 50,26 %. In the European Union (EU27) 48,82 % of the citizens are male and 51,18 % female.

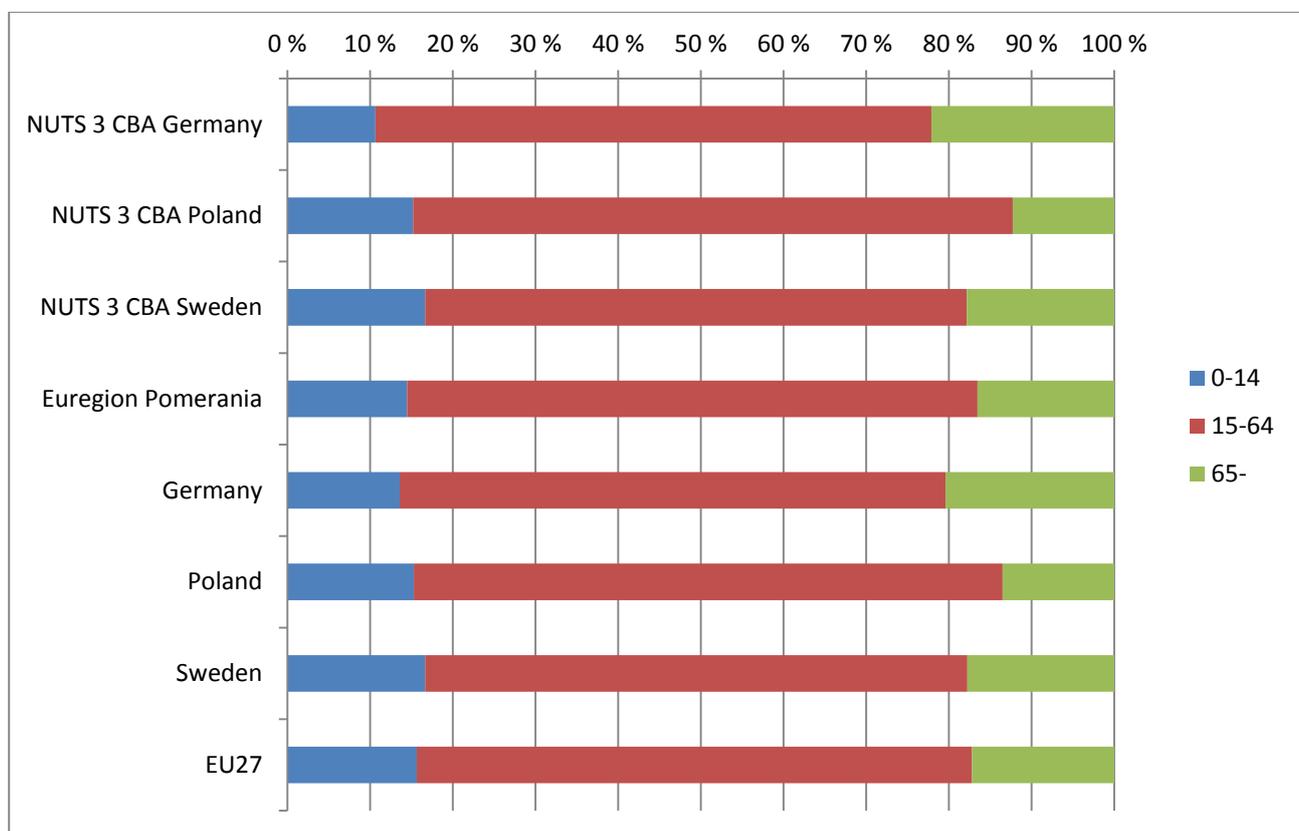
Table 6. Amount of male and female population in the Poland – Germany – Sweden CBA (Euroregion Pomerania) in 2009.

NUTS ID	NUTS	Male population 2009	Male population % of total population	Female population 2009	Female population % of total population
DE	Germany (Deutschland)	40 184 283	49,00	41 818 073	51,00
DE4	Brandenburg	1 249 312	49,53	1 273 181	50,47
DE41	Brandenburg-Nordost	566 396	49,65	574 455	50,35
DE412	Barnim	88 371	49,75	89 273	50,25
DE418	Uckermark	66 186	49,82	66 651	50,18
DE8	Mecklenburg-Vorpommern	825 124	49,58	839 232	50,42
DE80	Mecklenburg-Vorpommern	825 124	49,58	839 232	50,42
DE801	Greifswald	25 895	47,84	28 236	52,16
DE802	Neubrandenburg	32 118	48,75	33 761	51,25
DE805	Stralsund	28 071	48,51	29 795	51,49
DE808	Demmin	40 764	49,84	41 024	50,16
DE80B	Mecklenburg-Strelitz	39 877	50,02	39 852	49,98
DE80D	Nordvorpommern	53 772	49,81	54 191	50,19
DE80F	Ostvorpommern	53 186	49,76	53 689	50,24
DE80H	Rügen	34 007	49,38	34 865	50,62
DE80I	Uecker-Randow	37 201	50,14	36 993	49,86
PL	Poland (Polska)	18 414 926	48,29	19 720 950	51,71
PL4	Region Północno-Zachodni	2 958 148	48,50	3 141 388	51,50
PL42	Województwo Zachodniopomorskie	821 437	48,52	871 520	51,48
PL422	Podregion Koszaliński	287 160	48,53	304 533	51,47
PL423	Podregion Stargardzki	184 461	49,18	190 595	50,82
PL424	Powiat m. Szczecin	193 055	47,44	213 886	52,56
PL425	Podregion Szczeciński	156 761	49,10	162 506	50,90
SE	Sweden (Sverige)	4 603 710	49,74	4 652 637	50,26
SE2	Södra Sverige	2 004 064	49,77	2 022 526	50,23
SE22	Sydsverige	678 063	49,60	688 954	50,40
SE224	Skåne län	601 034	49,48	613 724	50,52
	Euroregion Pomerania	1 921 919	49,08	1 993 574	50,92

Source: Eurostat

In terms of age structure, the share of 0-14 year old population in Euroregion Pomerania was 14 % in 2009, the share of 15-64 year old population 69 % and the share of population over 65 years of age 17 %. German NUTS 3 regions of Euroregion Pomerania have the smallest share of population under 15 years of age (11 %) and the largest share of elderly population (22 %). The share of population under working age is significantly lower than the German (14 %) or the European Union average (16 %), and the share of population over 65 years of age higher than the German (20 %) or the European Union average (17 %). Polish NUTS 3 regions of Euroregion Pomerania, on the other hand, have the largest share of working age population (73 %) and the smallest share of population over 65 years of age (12 %). Age structure of the Polish regions resembles the general age structure in Poland, where the share of 15-64 year old population is larger (71 % / 67 %) and the share of elderly population significantly lower than the EU average (13 % / 17 %). The age structure of Skåne län resembles very closely the general age structure in Sweden and in the European Union.

Figure 6. Age structure in Euroregion Pomerania in 2009.

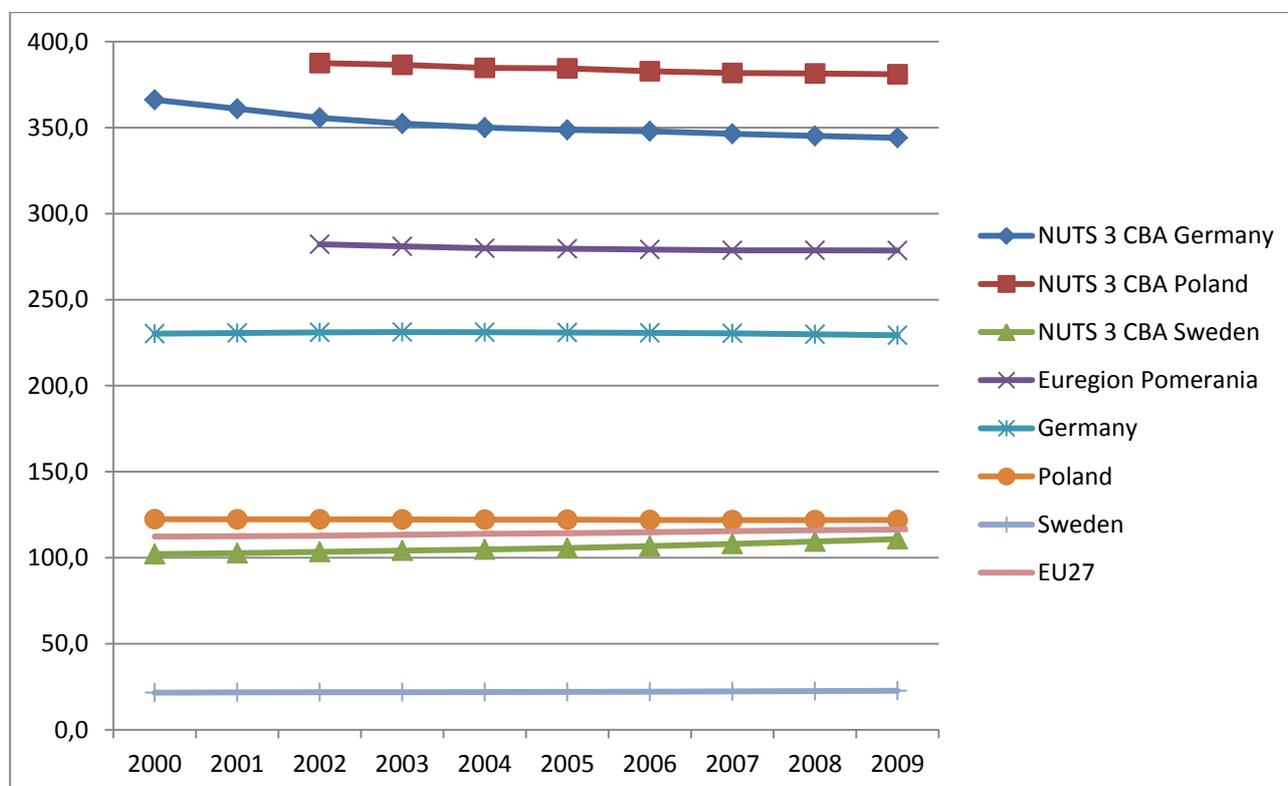


Source: Eurostat

2.1.2. Population density

Population density was 278,6 inhabitants per km² in Euroregion Pomerania in 2009. In general population densities in the CBA vary widely. The most densely populated region of Euroregion Pomerania in 2009 was Stralsund with 1483,4 inhabitants per km², while the population density in the most sparsely populated region of Mecklenburg-Strelitz was 37,9 inhabitants per km². The most densely populated region of the Polish regions of Euroregion Pomerania was the city of Szczecin with 1352 inhabitants per km², while the region of Podregion Stargardzki had the lowest population density of 55 inhabitants per km². When compared to national averages, Euroregion Pomerania has a higher population density than Germany (229,3), Poland (122) or Sweden (22,7 inhabitants per km²). Sweden has the biggest difference in population densities between Skåne län and the national average. Population density in Skåne län was 110,8 inhabitants per km² in 2009, while the national average was only 22,7 inhabitants per km². European Union average population density valued at 116,4 inhabitants per km². While the population density has been declining in the German and Polish regions of Euroregion Pomerania, the population density in Skåne län has been increasing between years 2000 and 2009. If the population density in Skåne län was 102,1 inhabitants per km² in 2000, there were 110,8 inhabitants per km² in Skåne in 2009. Besides Skåne län there were only two other regions in Euroregion Pomerania that have experienced positive growth in population density between the given time period. These were Barnim in Germany, where density has increased from 112,9 to 118,6 inhabitants per km² and Podregion Szczeciński in Poland, where density has increased from 58 (in 2002) to 60 inhabitants per km² (in 2009).

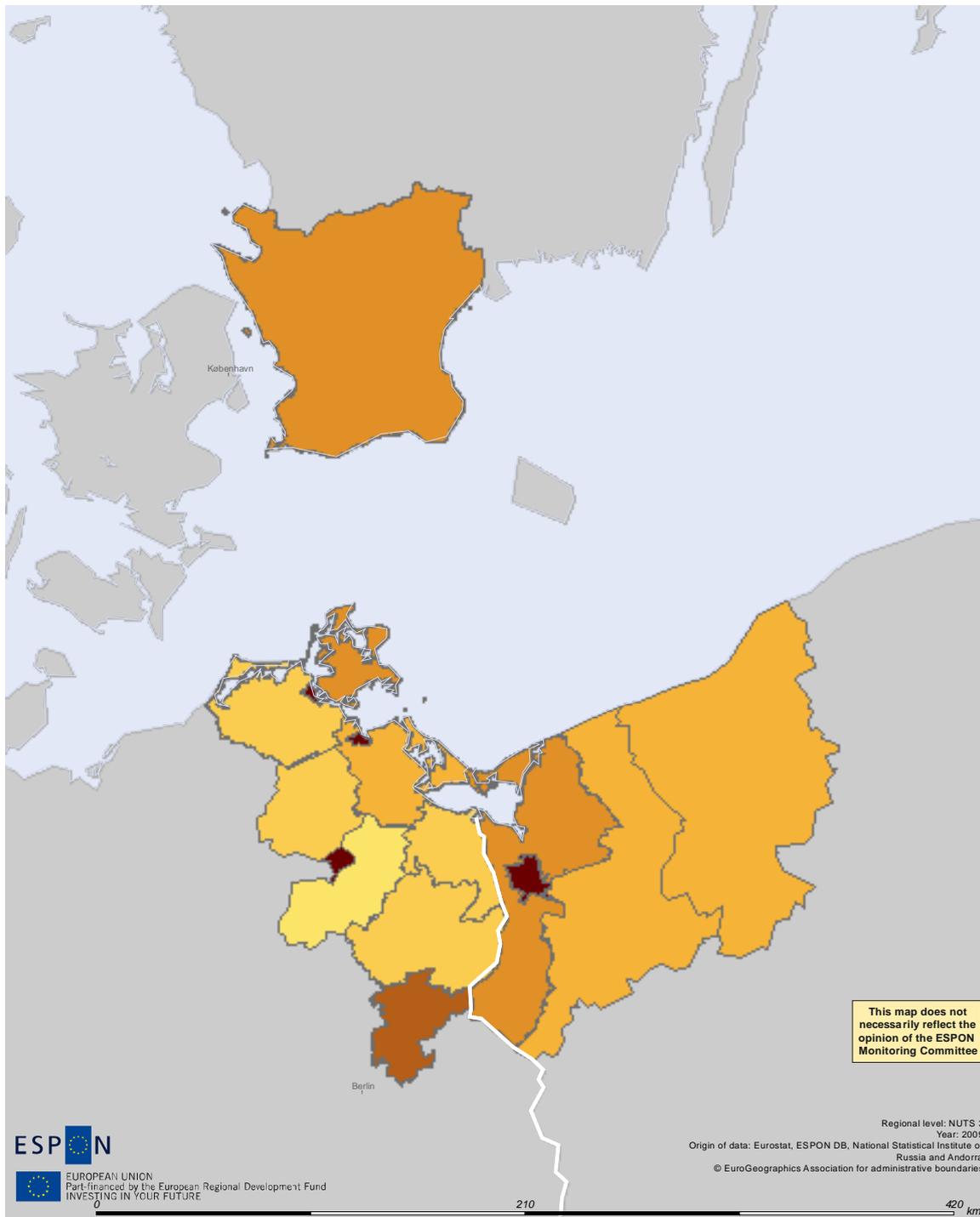
Figure 7. Population density in Euroregion Pomerania between years 2000 and 2009.



Source: Eurostat and Central Statistical Office of Poland

Map 17. Population density in Euroregion Pomerania in 2009.

Population density



Legend

Population density 2009* (inhabitants per km²)

 <= 20,42	 65,05 - 116,00	 <missing values>
 20,43 - 39,63	 116,01 - 224,43	
 39,64 - 51,36	 224,44 - 518,17	
 51,37 - 65,04	 >= 518,18	

EU27 = 116,00
 DE = 229,63
 PL = 121,96
 SE = 20,97

*EU27 year is 2008

2.1.3. Population change

Population change⁶ has been negative in Euroregion Pomerania between years 2000 and 2009. The CBA has lost a total of 10 874 inhabitants and the only regions with a positive population change during the studied time period were Barnim in Germany, Podregion Szczeciński in Poland and Skåne län in Sweden. Growth was strongest in Skåne län, where total population growth was 90 972 inhabitants between years 2000 and 2009. Demmin in Germany, on the contrary, suffered from the largest population decrease and lost 14 012 inhabitants during the given time period.

Table 7. Population change in the Poland – Germany – Sweden CBA 2000-2009.

NUTS ID	NUTS	Population 2000	% of CBA population	Population 2009	% of CBA population	Total population change 2000–2009
DE	Germany (Deutschland)	82 163 475		82 002 356		-161 119
DE4	Brandenburg	2 601 200		2 522 493		-78 707
DE41	Brandenburg-Nordost	1 177 600		1 140 851		-36 749
DE412	Barnim	167 300	4,26 %	177 644	4,54 %	10 344
DE418	Uckermark	1 54 000	3,92 %	132 837	3,39 %	-21 163
DE8	Mecklenburg-Vorpommern	1 789 300		1 664 356		-124 944
DE80	Mecklenburg-Vorpommern	1 789 300		1 664 356		-124 944
DE801	Greifswald	55 300	1,41 %	54 131	1,38 %	-1 169
DE802	Neubrandenburg	74 600	1,90 %	65 879	1,68 %	-8 721
DE805	Stralsund	61 300	1,56 %	57 866	1,48 %	-3 434
DE808	Demmin	95 800	2,44 %	81 788	2,09 %	-14 012
DE80B	Mecklenburg-Strelitz	88 400	2,25 %	79 729	2,04 %	-8 671
DE80D	Nordvorpommern	119 400	3,04 %	107 963	2,76 %	-11 437
DE80F	Ostvorpommern	115 100	2,93 %	106 875	2,73 %	-8 225
DE80H	Rügen	76 200	1,94 %	68 872	1,76 %	-7 328
DE80I	Uecker-Randow	86 400	2,20 %	74 194	1,89 %	-12 206
PL	Poland (Polska)	38 653 559		38 135 876		-517 683
PL4	Region Północno-Zachodni	6 111 700		6 099 536		-12 164
PL42	Województwo Zachodniopomorskie	1 732 800		1 692 957		-39 843
PL422	Podregion Koszaliński	605 100	15,41 %	591 693	15,11 %	-13 407
PL423	Podregion Stargardzki	378 330*	9,64 %*	375 056	9,58 %	-3 274**
PL424	Powiat m. Szczecin	416 657*	10,61 %*	406 941	10,39 %	-9 716**
PL425	Podregion Szczeciński	308 694*	7,86 %*	319 267	8,15 %	10 573**
SE	Sweden (Sverige)	8 861 426		9 256 347		394 921
SE2	Södra Sverige	3 835 001		4 026 590		191 589
SE22	Sydsverige	1 274 411		1 367 017		92 606
SE224	Skåne län	1 123 786	28,62 %	1 214 758	31,02 %	90 972
	Euroregion Pomerania	3 926 367	100 %	3 915 493	100 %	-10 874

* Data for 2001

** Total population change 2001-2009

Source: Eurostat

⁶ Population growth illustrates the change in the area's population over time and it is determined by four factors; births, deaths, immigrants and emigrants. Natural population change is the difference between the number of live births and deaths during a given time period. Total population change, unlike natural population change, takes into account migration.

When we compare total population change in Euroregion Pomerania between two four-year periods, 2000 to 2004 and 2005 to 2009, the CBA shows negative population change during the first period, but positive population growth during the second period; a -0,59 % decrease between 2000 and 2004, but a 0,35 % increase between 2005 and 2009. During the first period Euroregion Pomerania lost a total of 22 997 inhabitants, but during the second period total population increased by 13 730 persons. Again, the only regions with positive population growth during both periods were Barnim, Podregion Szczeciński and Skåne län. In Barnim growth rate⁷ has been slowing down during the second period (from 4,06 % in 2000-2004 to 1,01 % in 2005-2009), but growth rate of Podregion Szczeciński and Skåne län has been growing more rapidly during the second period. Skåne has had the strongest population growth rate, valued at 4,64 % between 2005 and 2009. Uckermark and Demmin, on the other hand, have suffered from around 6 % population lost during both the first and the second period.

A general tendency in population change is that regions where population has been increasing between 2000 and 2004 have continued to grow between 2005 and 2009, and regions with negative population change during the first period have continued to lose population during the second time period. Greifswald in Germany makes the only exception, since it has shifted from being a region with negative population growth (-4,34 %) to a region with positive population growth (2,78 %). Greifswald has also had the greatest difference in population growth between the first and the second period. The population of European Union (EU27) has been increasing both between 2000 and 2004 (1,25 %) and between 2005 and 2009 (1,75 %).

When we look at the whole period between 2000 to 2009, Euroregion Pomerania has had a -0,03 % annual population growth rate.⁸ Demmin in Germany has had the greatest annual change of -1,74 % and smallest annual changes have taken place in Podregion Stargardzki, where the amount of population has been declining at an -0,11 % annual rate. In general annual population growth has been negative in Germany (-0,02 %) and Poland (-0,15 %), while the Swedish population has been increasing between 2000 and 2009 at an 0,49 % annual rate. Population growth in Sweden has been greater than annual population growth in the European Union (0,38 %).

⁷ A positive growth rate indicates that the population has been increasing and a negative rate that the population has been decreasing.

$$\text{Growth rate} = \frac{\text{population at the end of period} - \text{population at the beginning of period}}{\text{population at the beginning of period}}$$

⁸ Annual population growth rate is an indicator that illustrates an average annual percent change in the total population during a given time period and it is calculated according to the following formula:

$$\text{Annual growth rate} = \left(\frac{\text{population at the end of period}}{\text{population at the beginning of period}} \right)^{\frac{1}{\text{years in-between}}} - 1$$

Table 8. Population growth rates in the Poland – Germany – Sweden CBA.

NUTS ID	NUTS	Growth rate 2000–2004 %	Growth rate 2005–2009 %	Annual population growth rate 2000–2009 %
DE	Germany (Deutschland)	0,45	-0,60	-0,02
DE4	Brandenburg	-1,03	-1,76	-0,34
DE41	Brandenburg-Nordost	-0,86	-1,98	-0,35
DE412	Barnim	4,06	1,01	0,67
DE418	Uckermark	-6,82	-6,09	-1,63
DE8	Mecklenburg-Vorpommern	-3,19	-3,22	-0,80
DE80	Mecklenburg-Vorpommern	-3,19	-3,22	-0,80
DE801	Greifswald	-4,34	2,78	-0,24
DE802	Neubrandenburg	-7,10	-3,76	-1,37
DE805	Stralsund	-3,59	-1,67	-0,64
DE808	Demmin	-6,16	-7,35	-1,74
DE80B	Mecklenburg-Strelitz	-3,28	-5,71	-1,14
DE80D	Nordvorpommern	-3,52	-5,16	-1,11
DE80F	Ostvorpommern	-2,78	-3,76	-0,82
DE80H	Rügen	-4,33	-4,57	-1,12
DE80I	Uecker-Randow	-7,06	-5,84	-1,68
PL	Poland (Polska)	-1,20	-0,10	-0,15
PL4	Region Północno-Zachodni	-0,77	0,50	-0,02
PL42	Województwo Zachodniopomorskie	-2,12	-0,11	-0,26
PL422	Podregion Koszaliński	-1,91	-0,31	-0,25
PL423	Podregion Stargardzki	-0,22*	-0,50	-0,11**
PL424	Powiat m. Szczecin	-0,63*	-1,20	-0,29**
PL425	Podregion Szczeciński	0,74*	2,17	0,42**
SE	Sweden (Sverige)	1,29	2,72	0,49
SE2	Södra Sverige	1,63	2,81	0,54
SE22	Sydsverige	2,21	4,25	0,78
SE224	Skåne län	2,57	4,64	0,87
	Euroregion Pomerania	-0,59	0,35	-0,03

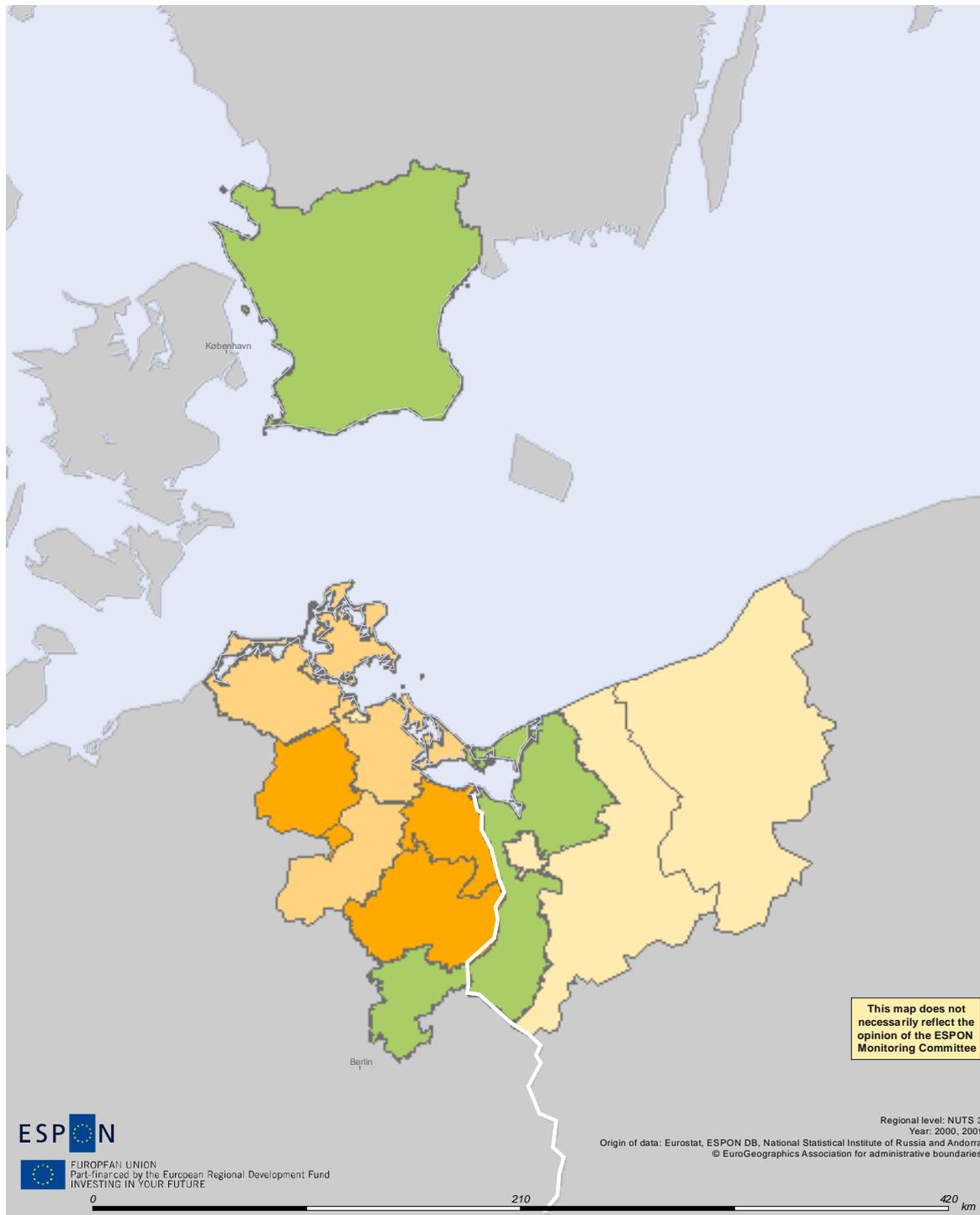
* Growth rate 2001-2004

** Annual growth rate 2001-2009

Source: Eurostat

Map 18. Annual population growth rate in Euroregion Pomerania between 2000 and 2009.

Annual population growth rate



Legend

Annual growth rate 2000-2009 (%)

	$\leq -1,25$		$0,01 - 0,38$		$<\text{missing values}>$
	$-1,24 - -0,35$		$0,39 - 1,25$		
	$-0,34 - 0,00$		$\geq 1,26$		

EU27 = 0,38
DE = -0,02
PL = -0,15
SE = 0,49
Total CBR = -0,04

2.1.4. Natural population change and net migration

In order to better understand mechanisms of population change in Euroregion Pomerania we have analysed natural increase (births – deaths) and net migration (immigrants – emigrants)⁹ in the CBA between years 2000 and 2008. Dominating factor for population change in Euroregion Pomerania has been natural increase. Between 2000 and 2008 there were 10 163 deaths over births in Pomerania and 8 890 emigrants over immigrants.

German regions of the Euroregion have been suffering from strong outward migration and the only region with positive net migration between 2000 and 2008 was Barnim (14 397 immigrants over emigrants). General tendency in Germany has been the opposite; net migration has been positive, but natural increase negative. Between 2000 and 2008 there were 984 698 immigrants over emigrants in Germany, and 1 145 727 deaths over births.

Polish regions have also had a strong outward migration during the given time period. Podregion Szczeciński has been the only region with positive net migration (6 798). Outward migration has been especially strong in the regions of Podregion Koszaliński (-19 206) and Podregion Stargardzki (-17 480). In Podregion Szczeciński both natural increase and net migration have been positive; natural increase valued at 5 163 and net migration at 6 798 inhabitants. In the city of Szczecin, on the contrary, there were 5 612 deaths over births and 4 790 emigrants over emigrants between 2000 and 2008.

Population in Skåne län has been growing both due to positive natural increase and net migration. Natural increase valued at 9 333 and net migration at 81 639 inhabitants in Skåne during the studied time period. Skåne has followed the general positive population trend in Sweden both from the perspective of natural growth, but also due to significant migration into the country and its regions.

⁹ For a national population, net migration refers to external migration (movements between countries), and is the difference between external arrivals and external departures. For a subnational population, net migration includes both external migration and internal migration (movement within a country), and is the difference between external arrivals and external departures, plus the difference between internal arrivals and internal departures.

Table 9. Natural population increase and net migration in the Poland – Germany – Sweden CBA between 2000 and 2008.

NUTS ID	NUTS	Natural increase 2000–2008	Net migration 2000–2008
DE	Germany (Deutschland)	-1 145 727	984 608
DE4	Brandenburg	-73 986	
DE41	Brandenburg-Nordost	-35 033	
DE412	Barnim	-4 214	14 397
DE418	Uckermark	-5 153	-16 064
DE8	Mecklenburg-Vorpommern	-41 377	
DE80	Mecklenburg-Vorpommern	-41 377	
DE801	Greifswald	-295	-643
DE802	Neubrandenburg	39	-8 611
DE805	Stralsund	-2 066	-1 315
DE808	Demmin	-3 475	-10 614
DE80B	Mecklenburg-Strelitz	-2 545	-6 185
DE80D	Nordvorpommern	-3 721	-7 858
DE80F	Ostvorpommern	-3 477	-4 704
DE80H	Rügen	-2 271	-5 226
DE80I	Uecker-Randow	-3 172	-9 028
PL	Poland (Polska)	34 439	-552 122
PL4	Region Północno-Zachodni	63 028	
PL42	Województwo Zachodniopomorskie	10 854	
PL422	Podregion Koszaliński	6 437	-19 206
PL423	Podregion Stargardzki	4 866	-17 480
PL424	Powiat m. Szczecin	-5 612	-4 790
PL425	Podregion Szczeciński	5 163	6 798
SE	Sweden (Sverige)	70 008	324 913
SE2	Södra Sverige	16 364	175 225
SE22	Sydsverige	7 576	85 030
SE224	Skåne län	9 333	81 639
	Euroregion Pomerania	-10 163	-8 890

Source: Eurostat

Crude rate for natural population increase¹⁰ has changed from negative (-0,4) to positive (0,4) in Euroregion Pomerania during 2000 and 2008. There is a similar trend in Sweden and Poland, and in EU27 countries. German regions of Euroregion Pomerania have not followed the German trend of steadily decreasing natural increase of population, but natural increase has been varying from year to year without a clear pattern.

Table 10. Crude rate of natural increase in Euroregion Pomerania between 2000 and 2008.

NUTS ID	NUTS	Crude rate of natural increase								
		2000	2001	2002	2003	2004	2005	2006	2007	2008
EU27	EU27*	0,6	0,5	0,3	0,2	0,8	0,6	1,0	1,0	1,3
Total CBA	Euroregion Pomerania	-0,4	-0,5	-0,7	-0,5	-0,4	-0,4	-0,1	0,0	0,4
DE	Germany	-0,9	-1,1	-1,5	-1,8	-1,4	-1,8	-1,8	-1,7	-2,0
PL	Poland	0,3	0,1	-0,1	-0,4	-0,2	-0,1	0,1	0,3	0,9
SE	Sweden	-0,3	-0,3	0,1	0,7	1,2	1,1	1,6	1,7	1,9
DE412	Barnim	-2,6	-3,1	-2,3	-3,5	-2,9	-2,8	-2,4	-2,8	-1,9
DE418	Uckermark	-3,1	-3,3	-4,2	-4,8	-3,5	-4,1	-4,4	-4,8	-4,1
DE801	Greifswald	-0,3	0,1	-0,3	0,0	-1,9	-0,9	-0,8	0,0	-1,4
DE802	Neubrandenburg	1,1	0,3	0,5	0,0	0,0	-0,4	-0,8	0,1	-0,4
DE805	Stralsund	-3,0	-2,9	-5,0	-5,1	-1,7	-4,1	-5,2	-4,5	-3,6
DE808	Demmin	-3,7	-3,1	-4,7	-5,5	-4,5	-3,9	-3,9	-5,3	-4,5
DE80B	Mecklenburg-Strelitz	-2,6	-2,9	-3,0	-3,5	-3,5	-4,5	-3,4	-3,6	-3,1
DE80D	Nordvorpommern	-3,4	-3,6	-4,4	-2,6	-3,5	-4,3	-3,6	-3,7	-3,5
DE80F	Ostvorpommern	-3,1	-3,8	-4,0	-2,7	-2,7	-3,0	-4,5	-3,9	-3,5
DE80H	Rügen	-3,0	-2,9	-3,9	-4,1	-2,8	-3,9	-3,0	-3,6	-4,3
DE80I	Uecker-Randow	-3,9	-3,3	-4,8	-3,7	-5,0	-5,0	-4,1	-4,9	-5,1
PL422	Podregion Koszaliński	1,8	2,0	1,4	1,1	0,9	0,6	0,8	1,1	1,0
PL423	Podregion Stargardzki	2,1	1,8	1,1	1,3	1,1	1,5	1,2	1,1	1,7
PL424	Powiat m. Szczecin	-1,6	-1,7	-2,2	-1,6	-1,7	-1,3	-1,7	-1,4	-0,5
PL425	Podregion Szczeciński	2,1	2,3	1,7	1,1	1,4	1,4	1,7	2,4	2,6
SE224	Skåne län	-0,6	-0,6	-0,1	0,6	0,9	1,1	2,0	2,0	2,5

Source: Eurostat

¹⁰ Crude rate of natural increase illustrates the difference between births and deaths during a year to the average population and it is expressed per 1 000 inhabitants.

$$\text{Crude rate of natural increase} = \frac{\text{natural increase in a given year}}{\text{average population in that year}} 1000$$

Crude rate of net migration¹¹ in Euroregion Pomerania has been increasing between 2000 and 2008, and it has improved from -4,9 in 2000 to 1,0 in 2008, mainly due to positive net migration trend in Skåne län. In Skåne län there were 5,6 immigrants over emigrants (per 1000 inhabitants) in 2000, and already 10,2 immigrants over emigrants (per 1000 inhabitants) in 2008.

Table 11. Crude rate of net migration in Euroregion Pomerania between 2000 and 2008.

NUTS ID	NUTS	Crude rate of net migration								
		2000	2001	2002	2003	2004	2005	2006	2007	2008
EU27	EU27*	1,5	1,3	3,8	4,2	4,0	3,6	3,2	3,9	3,3
Total CBR	Euroregion Pomerania	-4,9	-0,6	-0,2	-0,2	0,0	0,2	1,3	1,1	1,0
DE	Germany	2,0	3,3	2,7	1,7	1,0	1,0	0,3	0,5	-0,7
PL	Poland	-10,7	-0,4	-0,5	-0,4	-0,2	-0,3	-0,9	-0,5	-0,4
SE	Sweden	2,7	3,2	3,5	3,2	2,8	3,0	5,6	5,9	6,0
DE412	Barnim	18,0	11,3	8,7	13,3	12,0	7,5	6,4	3,9	2,2
DE418	Uckermark	-10,7	-16,7	-16,2	-11,7	-11,3	-11,1	-10,9	-11,8	-11,8
DE801	Greifswald	-16,1	-14,9	-9,1	-3,8	1,9	12,5	3,7	7,6	6,7
DE802	Neubrandenburg	-18,6	-20,8	-20,2	-15,7	-10,1	-3,4	-9,1	-11,8	-12,6
DE805	Stralsund	-5,2	-12,1	-5,1	1,7	-1,7	1,7	-2,1	0,0	0,9
DE808	Demmin	-11,0	-12,9	-12,7	-11,0	-13,5	-13,4	-13,7	-15,4	-16,1
DE80B	Mecklenburg-Strelitz	-3,1	-6,2	-6,2	-5,8	-8,2	-8,1	-10,3	-14,0	-11,9
DE80D	Nordvorpommern	-2,5	-5,7	-5,8	-8,6	-8,7	-10,4	-7,8	-9,6	-10,2
DE80F	Ostvorpommern	-2,1	-4,9	-4,0	-3,6	-4,5	-3,9	-5,2	-6,0	-8,1
DE80H	Rügen	-7,6	-9,1	-8,3	-6,8	-8,3	-8,3	-8,7	-7,0	-8,0
DE80I	Uecker-Randow	-11,2	-16,9	-14,5	-14,8	-13,8	-16,1	-7,4	-6,5	-10,9
PL422	Podregion Koszaliński	-19,0	-1,7	-2,0	-2,0	-1,0	-1,1	-1,5	-2,6	-1,5
PL423	Podregion Stargardzki	-26,8	-1,4	-1,7	-3,3	-2,5	-3,2	-2,6	-2,9	-1,9
PL424	Powiat m. Szczecin	-0,1	-0,5	0,6	-1,0	-3,5	-0,6	-3,3	-1,7	-1,6
PL425	Podregion Szczeciński	2,4	1,1	0,0	1,3	3,4	1,8	3,7	4,6	3,4
SE224	Skåne län	5,6	6,9	7,6	6,0	6,2	6,3	10,8	10,5	10,2

Source: Eurostat

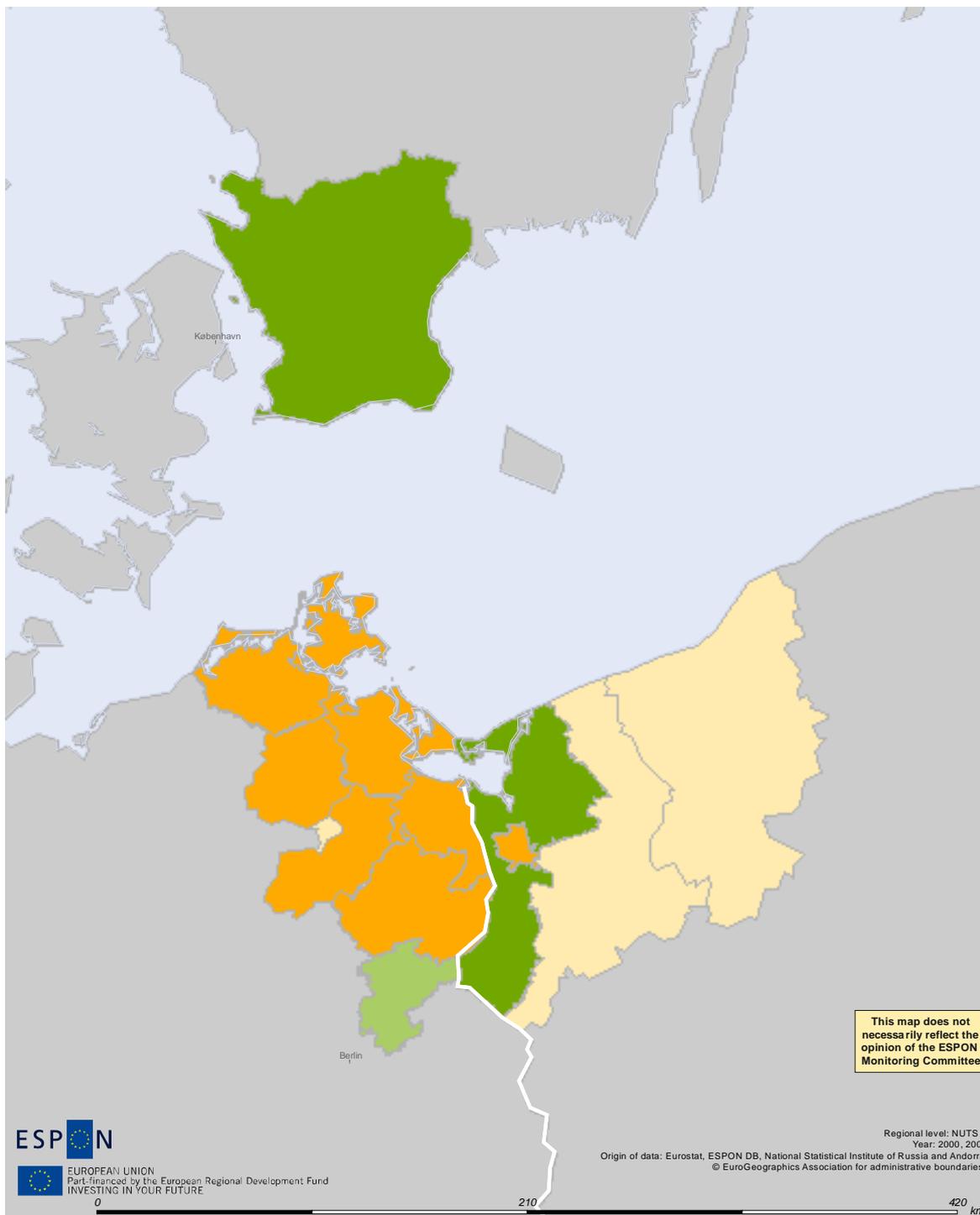
The following map summarises demographic performance of the regions of Euroregion Pomerania between years 2000 and 2008. As illustrated, Skåne län and Podregion Szczeciński are the only regions in Euroregion Pomerania that have during the given time period had positive natural and total population growth and positive net migration. Barnim has had a positive total population growth and net migration, but a negative natural increase. Neubrandenburg, Podregion Koszaliński and Podregion Stargardzki, on the other hand, have suffered from negative population growth and negative migration, but have had a positive natural growth of population. All the other regions of Euroregion Pomerania have had negative natural and total population growth and negative net migration.

¹¹ Crude rate of net migration is the difference between immigrants and emigrants during a year (including statistical adjustments) to the average population and it is expressed per 1 000 inhabitants.

$$\text{Crude rate of net migration} = \frac{\text{net migration in a given year}}{\text{average population in that year}} 1000$$

Map 19. Category map of population change in Euroregion Pomerania between years 2000 and 2008

Population growth



Legend

Total increase	
■	positive growth
■	positive growth
■	negative growth
■	negative growth
■	negative growth

Natural increase	
■	positive natural increase
■	negative natural increase
■	positive natural increase
■	negative natural increase
■	negative natural increase

Net migration	
■	positive migration
■	positive migration
■	negative migration
■	positive migration
■	negative migration

2000-2008	
■	<missing values>

© ULYSSES, 2011

2.1.5. Population projections

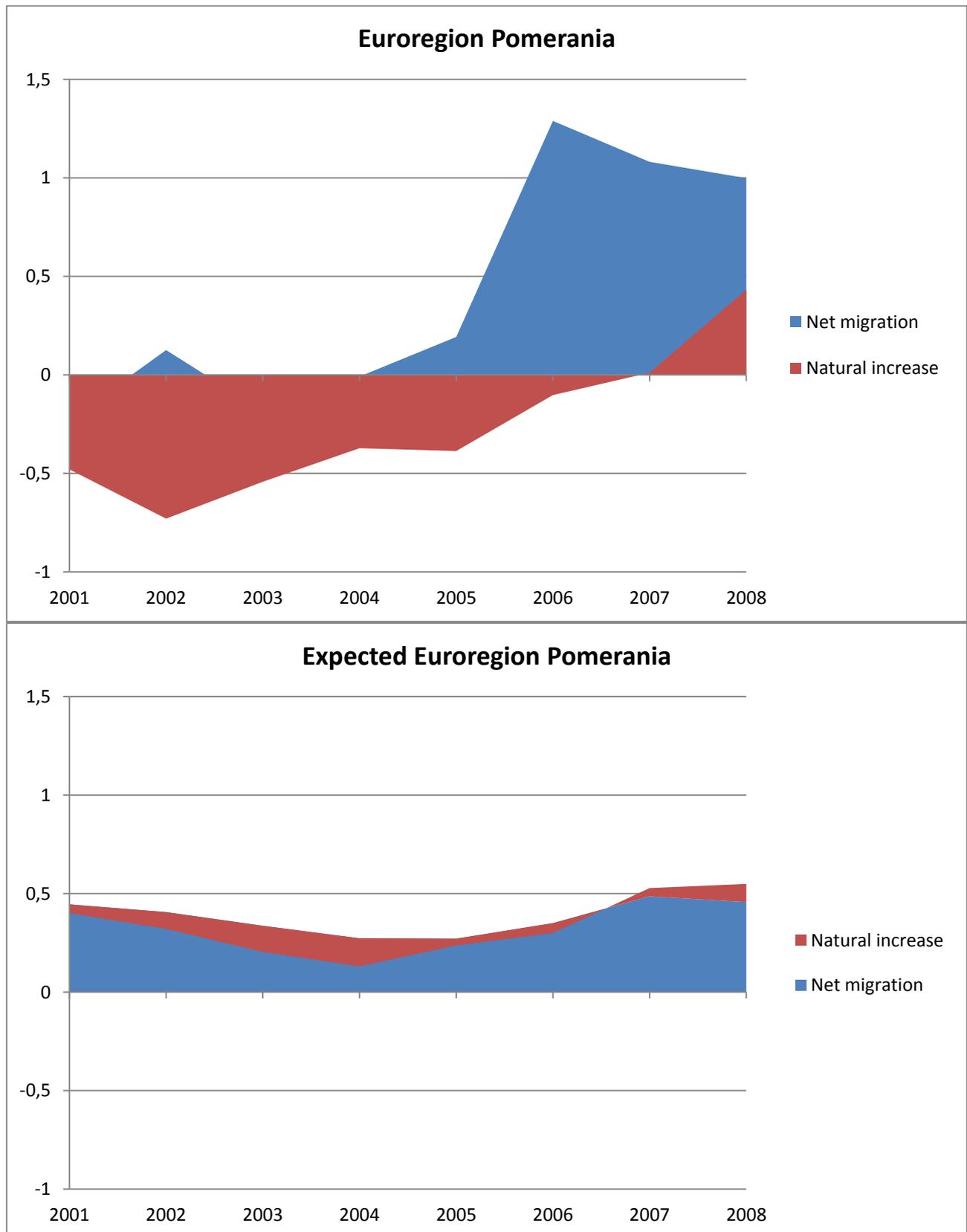
The following two figures represent expected and actual natural population change and net migration in Euroregion Pomerania between 2001 and 2008.¹² The figures show that would the natural population growth in Euroregion Pomerania have followed the German, Polish and Swedish national averages, it would have been positive during the whole period between 2001 and 2008. During the last studied year (2007-2008) natural population change in Euroregion Pomerania has been positive to such an extent that it has almost reached the national averages. Net migration, on the other hand, has since 2004 been well above the expected values.

We have also calculated simple population projections for Euroregion Pomerania based on population data between 1995 and 2010. The amount of population in the Euroregion was 3 938 671 in 1995 and it was gradually increasing until 1998, after which it experienced a radical decline. Population was decreasing until 2005; between 1998 and 2005 the CBA lost around 49 500 inhabitants. In 2006 the amount of population began to grow again and in 2010 it was as much as 3 927 770 inhabitants¹³, around 11 000 inhabitants less than in 1995. According to a polynomial trendline that follows the recent positive population trend, population in Euroregion Pomerania would rise above 4 050 000 people in 2020. This is a very positive forecast that assumes a total increase of approximately 132 000 inhabitants in ten years. The logarithmic trendline shows negative population change and according to it the amount of population in Euroregion Pomerania would decrease below 3 900 000 inhabitants by 2020. These projections are purely mathematical and they do not take into account any real-world processes.

¹² Expected natural population change and net migration are synthetic figures that illustrate regions' behaviour assuming that regions would follow the patterns of their respective countries. Accordingly we have calculated Euroregion Pomerania's expected natural population change and net migration assuming that, first, the German regions of Euroregion Pomerania would have followed the German national natural population change and net migration figures, and that, second, the Polish regions would have followed the Polish national averages, and finally that Skåne län would have behaved according to the Swedish national averages. In order to calculate the rates, national natural population change and net migration averages were weighted according to the regions' population.

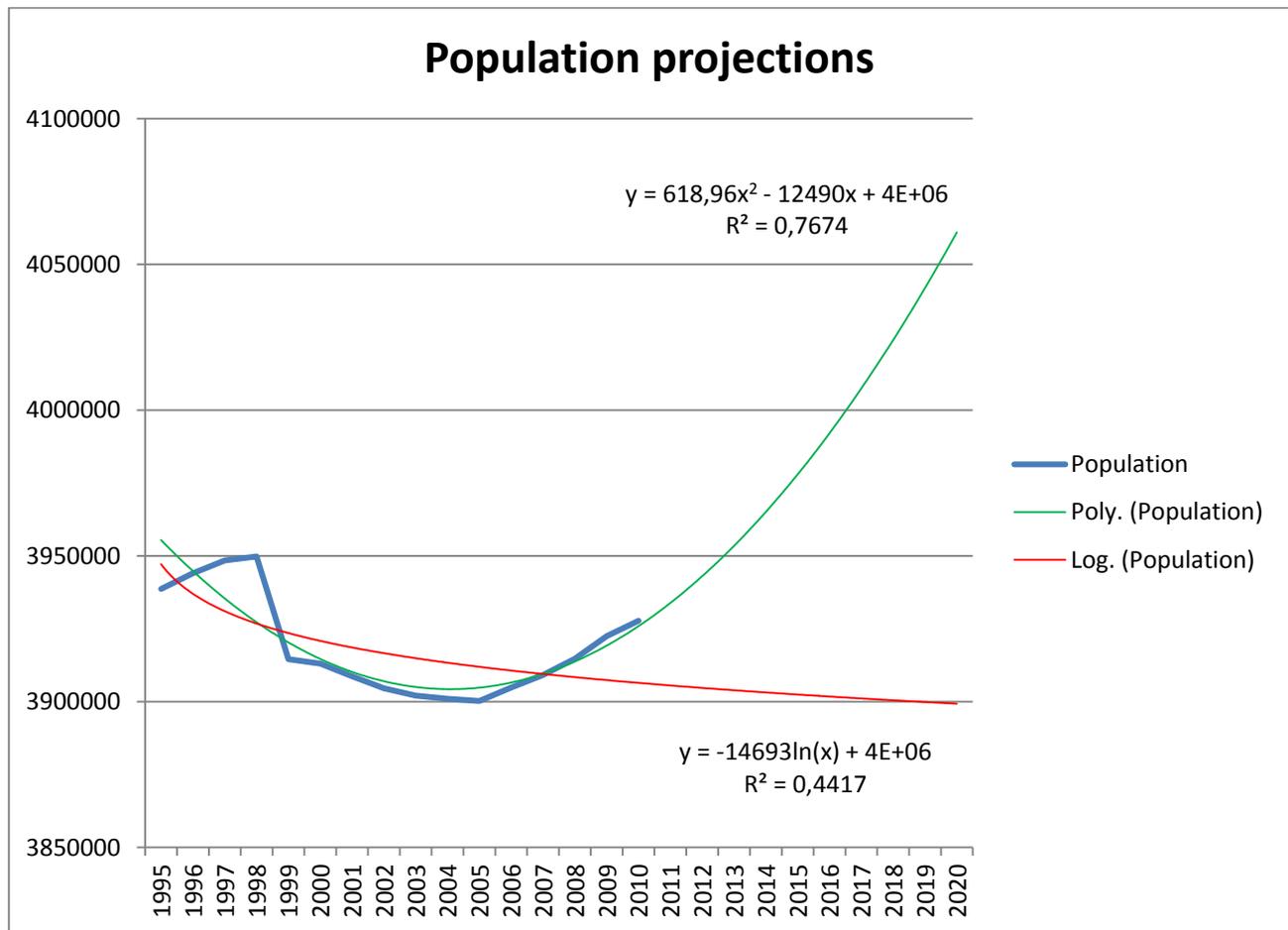
¹³ According to data from Central Statistical Office of Poland, Federal Statistical Office Germany and Statistics Sweden. In Eurostat database this stands for the 2011 population. Data between 1995-2000 lacks from Eurostat database and therefore national statistical data has been used in this analysis.

Figure 8. Expected and actual behaviour of Euroregion Pomerania's natural population change and net migration between years 2001 and 2008.



Source: Eurostat (data for actual natural population change and net migration)

Figure 9. Total population change in Euroregion Pomerania between 1995 and 2010 and trendlines for population projection.



Source: Central Statistical Office of Poland, Federal Statistical Office Germany and Statistics Sweden (population data)

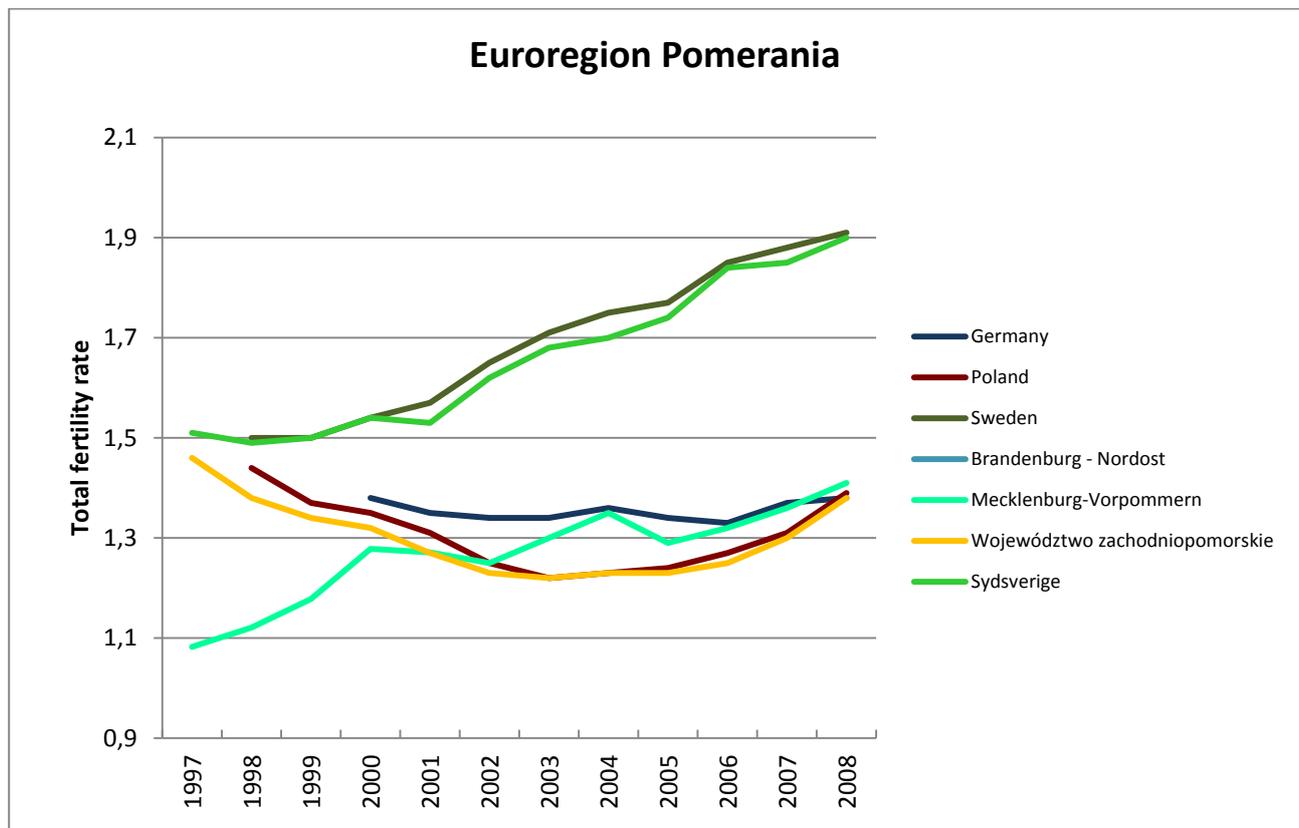
2.1.6. Total fertility rates

None of the regions of Euroregion Pomerania has a total fertility rate (TFR)¹⁴ above the replacement level. Sydsverige has the highest TFR, and the rate has experienced a considerable growth between 1997 (1,51) and 2008 (1,9), as has the TFR for Sweden. Sydsverige is the only region in the Poland – Germany – Sweden CBA with a total fertility rate above EU average (1,6 in 2008).

¹⁴ Total fertility rate (TFR) is an indicator that describes the average number of children that would be born by a woman over her lifetime if she were to live to the end of her child-bearing years (15-49 years) and bear children in accordance with current age-specific fertility rates. The TFR is a synthetic rate and it is not based on the fertility of any real group of women. A total fertility rate of around 2.1 live births per woman represents the so-called replacement level, which is the average number of live births per woman required to keep the population size constant if there were no inward or outward migration. Total fertility rate has been studied here on NUTS 2 level. No data was available on Brandenburg – Nordost and therefore no average total fertility rate could be calculated for Euroregion Pomerania.

Total fertility rate in Mecklenburg-Vorpommern has also been increasing significantly between 1997 and 2008. In the beginning of the period TFR of the region was as low as 1,08, but in 2008 TFR of Mecklenburg-Vorpommern was 1,41, which was already above the German average rate (1,38). Fertility in Województwo Zachodniopomorskie was, as fertility in Poland in general, experiencing a decrease in the end of the 1990s and the first half of the 2010s, but has since that shown a new recovery. TFR for Województwo Zachodniopomorskie valued at 1,46 in 1997 and was as low as 1,22 in 2003. In 2008, however, the rate was already 1,38.

Figure 10. Evolution of total fertility rates in the Poland – Germany – Sweden CBA between 2000 and 2008 (NUTS 2 delimitation).

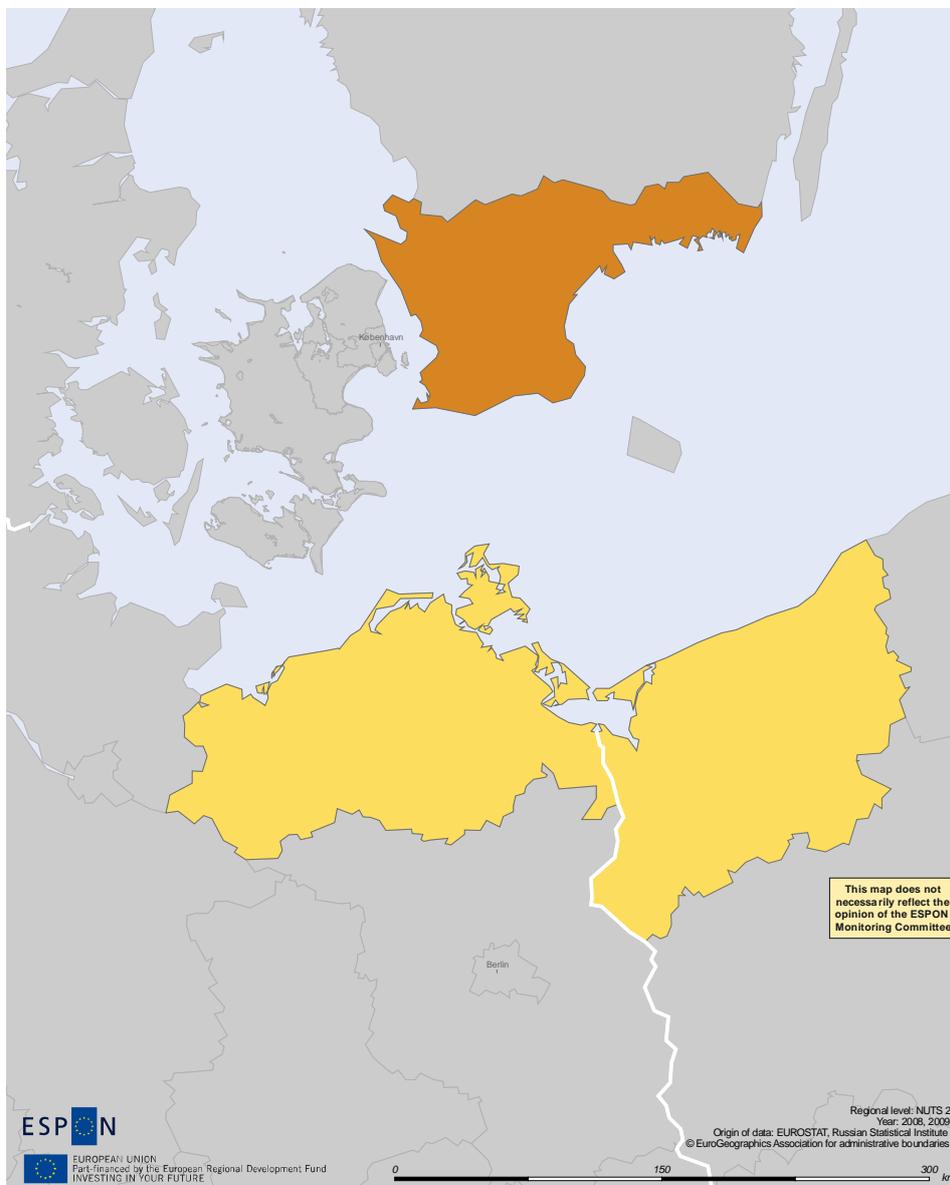


* No data for Brandenburg – Nordost

Source: Eurostat

Map 20. Map of total fertility rates in the Poland – Germany – Sweden CBA in 2008 (NUTS 2 delimitation).

Total fertility rate



Legend

Total fertility rate NUTS 2, 2008

	< 1,34		1,85 - 2,09
	1,35 - 1,59		2,1 - 2,34
	1,60 - 1,84		> 2,5

2.1.7. Dependency ratios

In 2009 total dependency ratio for Euroregion Pomerania¹⁵ was 46,2. It signifies that there were 46,2 persons aged 0-14 and over 64 years of age for every 100 person in the working age population. This ratio is slightly lower than EU average (48,9) and significantly lower than the German (51,5) and Swedish (52,5) averages, but greater than total dependency ratio for Poland (40,4). When examining the young age dependency ratio it becomes obvious that there are far less “dependents” under 15 years of age for the working population in Euroregion Pomerania (17,6 in 2009) than in the European Union or the respective nation states. The old age dependency ratio in Euroregion Pomerania, on the other hand, values higher than EU average. In 2009 old age dependency ratio in Euroregion Pomerania was 28,6 and in EU27 it was 25,6. Compared to the national averages, old dependency ratio of Euroregion Pomerania was lower than German (30,9) average, but higher than Swedish (27,1) or Polish (18,9) averages.

Dependency ratios for Euroregion Pomerania thus indicate that, in comparison with the European Union averages, there is less pressure for the working age to take care of children less than 15 years of age, but more pressure on the working age population to take care of elderly people. Considering the small share of children under 15 years of age, there will also be less people to take care of the working age population in the future.

When looking at NUTS 3 regions of Euroregion Pomerania, Stralsund in Germany has the highest total dependency ratio (53,7) and old age dependency ratio (38,4). Young age dependency in the region is very low (15,3). These values indicate that Stralsund has a large amount of elderly people and a small share of children under 15 years of age. Accordingly there is a pressure on the working age population in Stralsund to take care of people over 65 years of age, while there is a small amount of children who will be the caretakers of the working age population in the future. Podregion Szczeciński in Poland has the lowest total dependency ratio (36,2) and old age dependency ratio (14,3) in Euroregion Pomerania. The share of elderly people is small in all the Polish regions of Euroregion Pomerania, and in Poland in general. Skåne län in Sweden has the highest young age dependency ratio (25,4) in the CBA due to high fertility and large share of population under 15 years of age.

¹⁵ Dependency ratios are indicators that are used to study the level of pressure on productive population supporting the young and/or old population. These ratios are expressed as the number of dependents to the working age population. Accordingly, young age dependency ratio is the amount of 0-14 olds for every 100 person in the working age population, and old age dependency ratio is the number of people over 64 years of age for every 100 person in the working age population. Total dependency ratio is the combination of young and old age dependency ratios.

$$\text{Young age dependency ratio} = \frac{\text{Number of people aged 0 – 14}}{\text{Number of people aged 15 – 64}} 100$$

$$\text{Old age dependency ratio} = \frac{\text{Number of people over 64 years of age}}{\text{Number of people aged 15 – 64}} 100$$

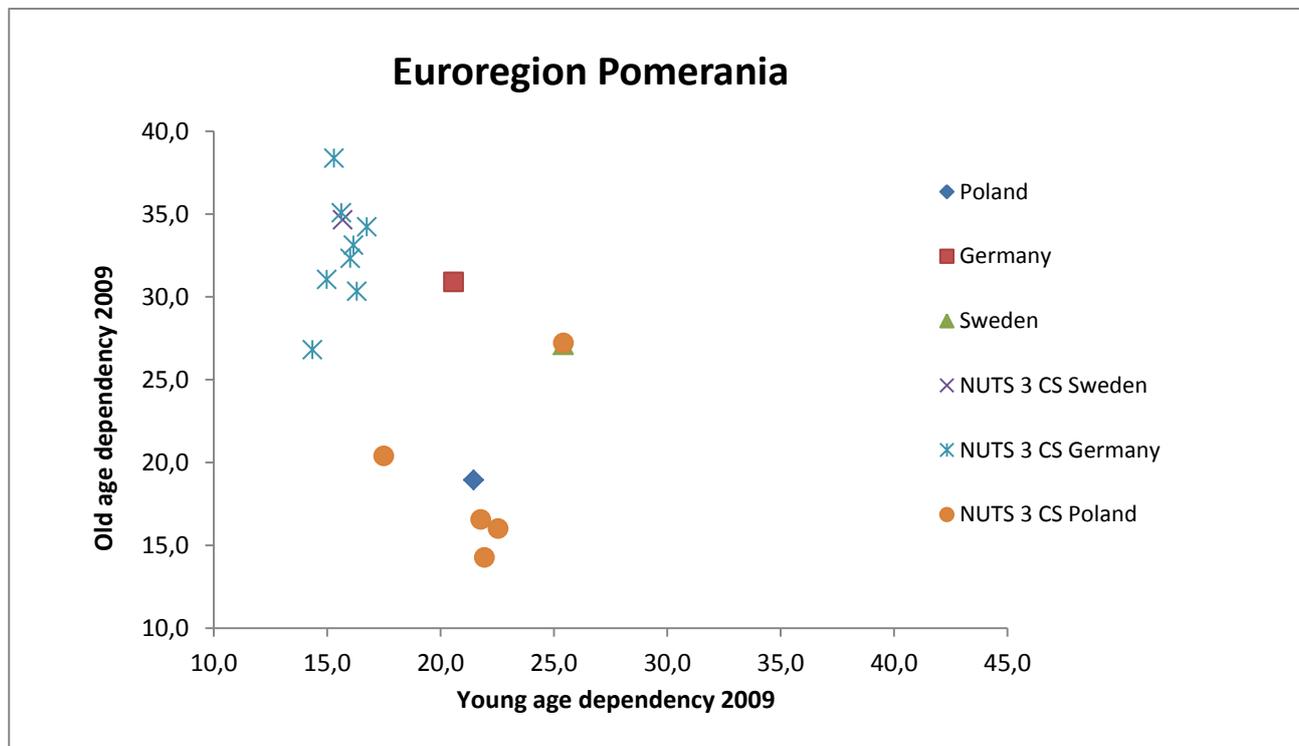
$$\text{Total dependency ratio} = \frac{\text{Number of people aged 0 – 14} + \text{Number of people over 64 years}}{\text{Number of people aged 15 – 64}} 100$$

Table 12. Dependency ratios in Euroregion Pomerania in 2009.

NUTS ID	NUTS	Old age dependency 2009	Young age dependency 2009	Total dependency 2009	Ageing index 2009
EU27	EU27	25,6	23,3	48,9	1,1
DE	Germany	30,9	20,6	51,5	1,5
PL	Poland	18,9	21,5	40,4	0,9
SE	Sweden	27,1	25,4	52,5	1,1
DE412	Barnim	30,3	16,3	46,6	1,9
DE418	Uckermark	35,1	15,6	50,7	2,2
DE801	Greifswald	26,8	14,4	41,2	1,9
DE802	Neubrandenburg	31,0	15,0	46,0	2,1
DE805	Stralsund	38,4	15,3	53,7	2,5
DE808	Demmin	34,2	16,7	51,0	2,0
DE80B	Mecklenburg-Strelitz	32,3	16,0	48,3	2,0
DE80D	Nordvorpommern	33,1	16,2	49,3	2,0
DE80F	Ostvorpommern	33,8	16,2	50,0	2,1
DE80H	Rügen	33,5	15,1	48,7	2,2
DE80I	Uecker-Randow	34,7	15,7	50,3	2,2
PL422	Podregion Koszaliński	16,6	21,8	38,3	0,8
PL423	Podregion Stargardzki	16,0	22,5	38,6	0,7
PL424	Powiat m. Szczecin	20,4	17,5	37,9	1,2
PL425	Podregion Szczeciński	14,3	21,9	36,2	0,7
SE224	Skåne län	27,2	25,4	52,6	1,1
	Euroregion Pomerania	28,6	17,6	46,2	1,73

Source: Eurostat

Figure 11. Scatter chart of young and old age dependency ratios in Euroregion Pomerania in 2009.



Source: Eurostat

2.1.8. Commuting

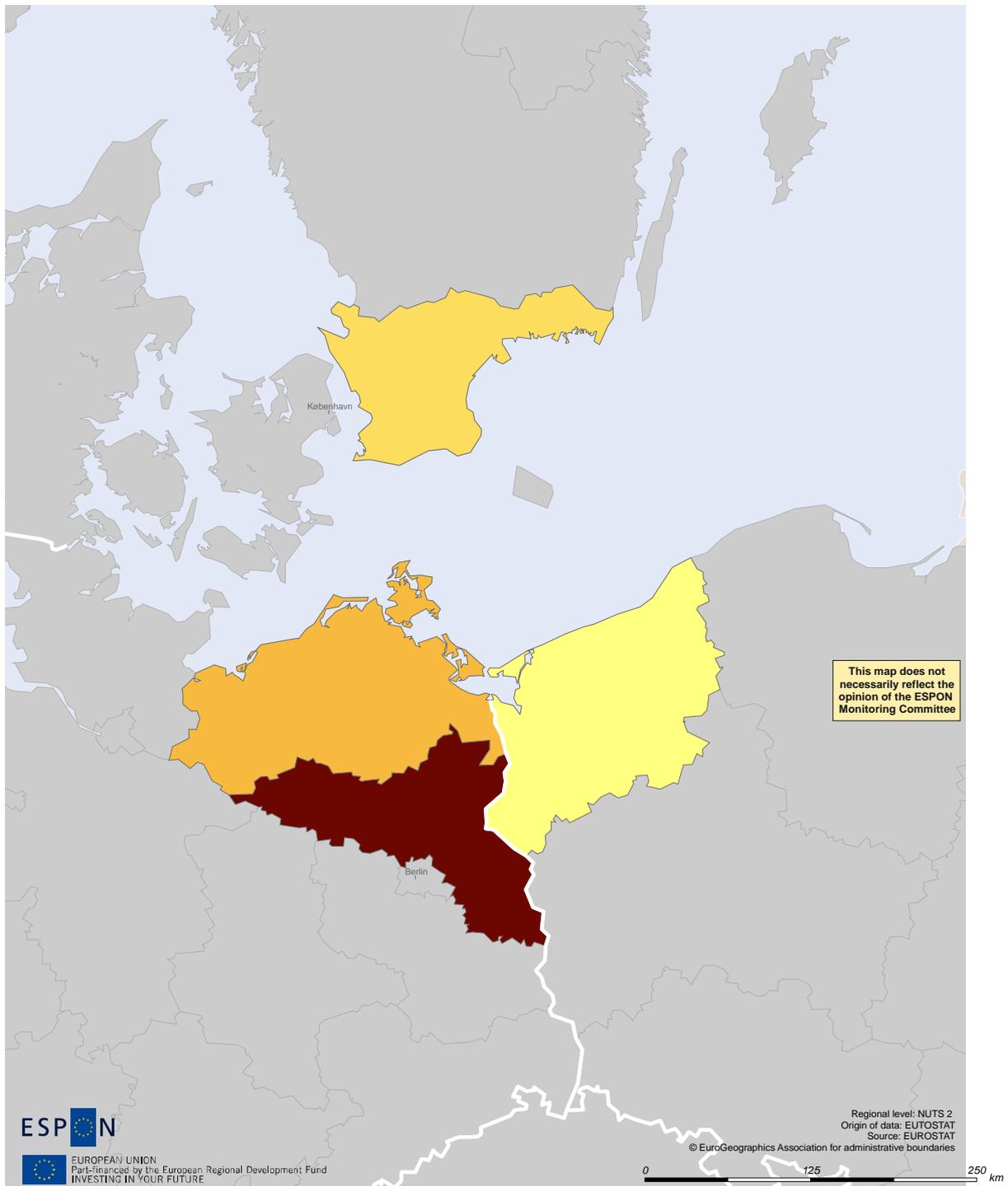
Following tables and maps give an idea of the extent of commuting among population in the Poland – Germany – Sweden CBA. NUTS 2 region of Brandenburg-Nordost stands out as the region, where commuting to another region to work or study is very typical. Most probably this is connected with the location of the region close to Berlin. The share of commuters among active population is over 20 % and it has been increasing between 2005 and 2009. Commuting to another region is above the European average in Germany in general, while in Sweden its is close to the average and in Poland well below it. In the NUTS2 region of Województwo Zachodniopomorskie commuting has been increasing between 2004 and 2009, and in 2009 1,86 % of active population commuted to another region in order to work or study.

Table 13. Commuting to another region in the Poland – Germany – Sweden CBA between 2000 and 2009 (NUTS 2 delimitation).

NUTS ID	NUTS	Commuting to another region (% of active population)									
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
EU27	EU27	4,44	4,86	5,57	5,10	5,07	5,58	5,88	5,86	5,84	5,85
DE	Germany	6,77	7,32	11,06	7,69	6,65	9,11	9,05	9,27	8,61	9,14
PL	Poland	no data	no data	no data	no data	0,89	1,13	1,26	1,38	1,77	1,90
SE	Sweden	no data	no data	no data	no data	no data	2,65	4,14	4,47	4,29	4,22
DE41	Brandenburg-Nordost	no data	no data	no data	no data	no data	20,49	21,38	22,23	22,43	23,70
DE80	Mecklenburg-Vorpommern	5,48	5,27	4,32	3,34	6,52	6,41	5,87	6,16	6,41	5,97
PL42	Województwo Zachodniopomorskie	no data	no data	no data	no data	0,71	0,67	0,87	0,94	1,73	1,86
SE22	Sydsverige	no data	no data	no data	no data	no data	3,14	5,39	3,79	3,67	3,12

Source: Eurostat

CS5: Commuters to other regions



Legend

% commuters other regions/active population 2009 (CH: 2007)



Commuting to a foreign country in the Poland – Germany – Sweden CBA is most typical in the NUTS 2 region of Sydsverige. This is most likely due to Øresund region, where commuting across the Swedish-Danish border increased significantly since the opening of the Øresund bridge in 2000. In 2009 3,46 % of the active population in Sydsverige commuted to another country to work or study. Commuting to another country in the German regions is below European average, while in Województwo Zachodniopomorskie commuting has increased from 0,34 % of active population in 2004 to 1,38 % of active population in 2009. Commuting to a foreign country increased substantially in Poland in 2007, when the European Union liberated labour markets for the new Member States (see also next chapter), and this is visible also in Województwo Zachodniopomorskie, where commuting increased from 0,62 % to 1,11 % between 2006 and 2007. Commuting to a foreign country in the German parts of Euroregion Pomerania has also been increasing and has surpassed the European average.

Table 14. *Commuting to a foreign country in the Poland – Germany – Sweden CBA between 2000 and 2009 (NUTS 2 delimitation).*

NUTS ID	NUTS	Commuting to a foreign country (% of active population)									
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
EU27	EU27	0,35	0,38	0,41	0,40	0,43	0,48	0,53	0,60	0,61	0,61
DE	Germany	0,16	0,16	0,22	0,21	0,25	0,38	0,43	0,65	0,69	0,66
PL	Poland	no data	no data	no data	no data	0,17	0,31	0,22	0,46	0,42	0,46
SE	Sweden	no data	no data	no data	no data	no data	0,56	0,82	1,01	1,19	1,14
DE41	Brandenburg-Nordost	no data	no data	no data	no data	no data	0,26	0,55	0,86	0,95	0,62
DE80	Mecklenburg-Vorpommern	0,10	no data	0,03	0,18	0,10	0,29	0,52	0,97	0,82	0,82
PL42	Województwo Zachodniopomorskie	no data	no data	no data	no data	0,34	0,45	0,62	1,11	1,16	1,38
SE22	Sydsverige	no data	no data	no data	no data	no data	no data	no data	2,86	3,66	3,46

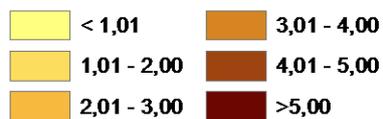
Source: Eurostat

CS5: Commuters to other countries



Legend

% commuters to other countries/Active population 2009



2.2. Effects of the border on settlement patterns

The previous analyses give a general picture of the demographic trends in the Poland -Germany - Sweden Cross-Border Area. The geographic scale of the analyses, however, does not allow making conclusions about the effects of the border on settlement patterns. We have therefore performed municipality level analyses in order to study trends of settlement patterns in Euroregion Pomerania, and to discover whether the border is attracting or “rejecting” population. The analyses were done by studying population growth between years 1995 and 2010 (2008-2010 for German municipalities) in LAU 1 (and LAU 2) level regions of the CBA.¹⁶

The results of the analyses show that each national part of Euroregion Pomerania has their own population settlement trends, but that both the maritime border between Sweden, Germany and Poland and the land border between Poland and Germany seem to some extent affect settlement patterns in the Euroregion. Polish LAU 1 regions have had a stable amount of population between years 1995 and 2010, except for an abrupt population decline between years 1998 and 1999. LAU 2 level analyses show that there is a strong ongoing suburbanisation process around the city of Szczecin. Especially rural areas around the city are receiving population, while the city itself (Powiat m. Szczecin) is suffering from population decline and has lost altogether 12 550 inhabitants between years 1995 and 2010. LAU 2 level regions (gminas) of Gmina Dobra (Szczecińska) and Gmina Kołbaskowo that are located west of the city of Szczecin in Powiat Policki on the German border (with road accesses to the German side) have had the strongest annual population growth of all the LAU 2 level regions of Podregion Szczeciński. This indicates the suburbanisation process, but it could also indicate a border effect, since these regions are conveniently located between the city of Szczecin and the German border. People settling in these regions are mostly Polish, since the share of foreign inhabitants in Powiat Policki is low (0,37 % in 2002 population census).

The German side of the Euroregion is characterized by a suburbanisation process around the city of Berlin. The only NUTS 3 region that has had a positive population growth between years 1995 and 2010 is Barnim that neighbours Berlin. Berliner Ring (motorway E55) runs through southern parts of Barnim and motorway E28 from Berliner Ring to the Polish border close to Szczecin intersects Barnim. Accordingly, LAU 1 regions of Bernau bei Berlin, Biesenthal-Barnim and Wandlitz that are located in the south-west parts of Barnim and intersected by E28 have had the strongest population increase between 2008 and 2010. Settlement trends on the German side of the Euroregion, however, also indicate a border effect. Most LAU 2 regions that are located on the Polish border with a road access to the Polish side have had a positive population growth, in contrary to most of the regions located in other parts of the CBA. Hohenfinow, Niederfinow, Parsteinsee, Berkholz-Meyenburg, Tantow and Mescherin are among these regions, and even if the growth in absolute values is not big (from 5 to 22 inhabitants), it is considerable for regions that have around 500 to 1200 inhabitants.

On the basis of population data it is not possible to conclude who is moving to these regions, but ethnicity statistics show that the share of Polish people in Germany has steadily increased between 1995 and 2009. According to studies there has been a new wave of Polish migration to Germany and German borderlands after the secession from the Soviet bloc in 1989, Poland’s accession to the European Union in 2004 and the abolition of border controls in 2007. German borderlands attract migrants from Poland with low real estate

¹⁶ Data sources: Central Statistical Office of Poland, Federal Statistical Office Germany and Statistics Sweden

prices and with the opportunity to take advantage of two social and economic systems. Most of the migrants continue working in Poland and travel between Germany and Poland on daily basis. Until May 2011 this practice was a necessity, because it was not possible for the citizens of the new (2004) EU Member States to take up employment freely in Germany. Life strategies of migrants have, however, not changed significantly after the liberalisation of the labour market, and the cross-border commuting continues.¹⁷

The Swedish part of Euroregion Pomerania differs from the German and Polish parts with its strong population growth. Between years 1995 and 2010 population in Skåne län has increased by 119 331 inhabitants, and as stated earlier, besides Skåne län only Barnim in Germany and Podregion Szczeciński in Poland have had a positive population trend. Population in Skåne län has been concentrating mainly in the western coast between the cities of Trelleborg in the south and Helsingborg in the north. The largest population concentration is in the cities of Malmö and Lund and in regions surrounding these cities. Malmö is located by the strait of Øresund (across the maritime border from the Danish capital Copenhagen) and the city of Lund 20 kilometres north-east of Malmö. Population has grown over 120 % in the city of Malmö and in the municipalities of Lomma and Kävlinge between 1995 and 2010. Skåne is the second most popular region among migrants after Stockholm region. In 2009 there were around 214 500 migrants in Skåne län, which makes 17,43 % of the total population. Migration statistics by country of origin exist only on country level and therefore it is not possible to conclude what is the share of German or Polish people in Skåne län or its municipalities. On country level both the amount of Germans and Polish people has increased in Sweden between 1995 and 2010.¹⁸ The amount of Polish citizens in Sweden experienced a rapid growth after Poland's accession to the European Union in 2004. If the amount of German citizens in Sweden has been increasing steadily at an annual growth rate of 4,94 % between 1995 and 2010, the amount of Polish citizens in Sweden decreased between 1995 and 2003, but has been increasing at an annual growth rate of 15,77 % between 2004 and 2010. According to studies, immigrants from the new Member States to Sweden have been mainly from Poland, who account for more than half of the immigrants. Most of the Polish immigrants settle in large cities, and work-related immigration surpassed family-related immigration in 2005.¹⁹ Based on available data it is not possible to argue that settlement of German and Polish people in Skåne län would be a border effect, but regular ferry connections over the Baltic sea would enable taking advantage of the border and the two different social and economic systems.

Deeper understanding of impact of the border on settlement patterns in Euroregion Pomerania would require further qualitative studying, but based on population data it is possible to argue that on low scale (municipality and lower level) the Polish-German and the Polish-German-Swedish borders are not "rejecting" population. On the contrary, the border attracts population especially in the Polish-German border area, and possibly also in Skåne län in Sweden.

¹⁷ Łada & Segeš Frelak, 2012; Andor, 2011.

¹⁸ Statistics on foreign citizens by country of citizenship.

¹⁹ Wadensjö, 2007, 5; Migrationsinfo.se, 2010; Bengtsson, 2008, 57-58.

2.3. Chapter conclusions

Euroregion Pomerania has a total population of 3 915 493 inhabitants (2009). Polish regions have the largest share of inhabitants in Euroregion Pomerania (43,24 %), Swedish region of Skåne län the second largest (31,02 %) and German regions the smallest share (25,74 %). From the perspective of sex structure, Euroregion Pomerania has a female majority with 1 993 574 females that make up 50,92 % of the total population of the CBA. Age structure of the CBA is following: the share of 0-14 year old population in Euroregion Pomerania in 2009 was 14 %, the share of 15-64 year old population 69 % and the share of population over 65 years of age 17 %. Dependency ratios for Euroregion Pomerania indicate that, in comparison with the European Union averages, there is less pressure for the working age to take care of children less than 15 years of age, but more pressure on the working age population to take care of elderly people. Considering the small share of children under 15 years of age, there will also be less people to take care of the working age population in the future.

Population density was 278,6 inhabitants per km² in Euroregion Pomerania in 2009. While the population density has been declining in the German and Polish regions of Euroregion Pomerania, the population density in Skåne län has been increasing between years 2000 and 2009. Besides Skåne län there were only two other regions in Euroregion Pomerania that have experienced positive growth in population density between the given period. These were Barnim in Germany and Podregion Szczeciński in Poland. Population change has accordingly been negative in all the regions of Euroregion Pomerania, except for Barnim, Podregion Szczeciński and Skåne län in Sweden.

Natural increase has been a more significant factor for population change than net migration in the regions of Euroregion Pomerania. Between 2000 and 2008 there were 10 163 deaths over births in Pomerania and 8 890 emigrants over immigrants. None of the regions of Euroregion Pomerania has a total fertility rate above the replacement level. Sydsverige has the highest TFR, and the rate has experienced a considerable growth between 1997 (1,51) and 2008 (1,9), as has the TFR for Sweden. Sydsverige is the only region in the Poland – Germany – Sweden CBA with a total fertility rate above the EU average (1,6 in 2008).

The extent of commuting varies in the Poland – Germany – Sweden CBA. Commuting to another region is above the European average in Germany in general, while in Sweden its is close to the average and in Poland well below it. NUTS 2 region of Brandenburg-Nordost stands out as the region, where commuting to another region to work or study is very typical. Most probably this is connected with the location of the region close to Berlin. Commuting to a foreign country is most typical in the NUTS 2 region of Sydsverige. This is most likely due to Øresund region, where commuting across the Swedish-Danish border increased significantly since the opening of the Øresund bridge in 2000. Commuting to a foreign country increased substantially in Województwo Zachodniopomorskie in 2007, when the European Union liberated labour markets for the new Member States (see also next chapter).

The results of low scale (LAU 1 / LAU 2) analyses show that each national part of Euroregion Pomerania has their own population settlement trends, but that both the maritime border between Sweden, Germany and Poland and the land border between Poland and Germany seem to some extent affect settlement patterns in the Euroregion. The border attracts population in the Polish-German border area, and possibly also in Skåne län in Sweden.

Chapter 3. Polycentric development in the Poland – Germany – Sweden CBA

The concept of polycentric development has gained widespread currency in planning and territorial development strategies. It is an important prerequisite for studying urban trends, because it reflects the actual role played by cities in regional development. It also has the ability to exceed administrative boundaries, since smaller administrative regions are combined according to their functional orientation and not following the traditional hierarchical classification of regions.²⁰ Polycentricity plays a fundamental role in European regional policy and European Spatial Development Perspective (ESDP). According to ESDP pursuit of polycentricity helps to avoid further economic and demographic concentration in the core area of the EU. Balanced and sustainable development of local entities and regions creates real locational advantage of the EU vis-à-vis other large economic regions in the world.²¹ Territorial Agenda of the European Union 2020 promotes polycentric development at regional, macro-regional and cross-border levels. The report states that small and medium-sized towns can play a crucial role at regional development.²²

The aim of this chapter is to study polycentric development, in other words, structure of city network in the Poland – Germany – Sweden CBA. First, we present functional urban areas (FUAs) of the CBA and provide information of their area (km²), population, population change and compactness. Second, we perform several analyses in order to detect whether the urban structure of the Poland – Germany – Sweden CBA is polycentric. We also examine whether the amount and size of urban centres in the region deviates from the rank-size distribution of urban centres in the European Union (EU27). Finally we have a look at functional specialization of the urban areas. Indicators selected for the analysis are in the following table.

Table 15. Indicators for study of polycentric development in the Poland – Germany – Sweden CBA.

Variable name	Geographical scale	Source	Time frame	Observations
Morphological and Functional Urban Areas		ESPON 1.4.3.	2001; 2006	Some data has been gathered for the FUA mostly based on the values of the NUTS 3 which they overlap (GDP, unemployment, etc.)
Population	FUA	ESPON 1.4.3.	2000; 2006	
% effective FUA pop change 01-06	FUA	ESPON 1.4.3.	2001-2006	
Compactness 2001 (MUA pop/FUA pop)	FUA	ESPON 1.4.3.	2001	
Slope rank size distribution (population)	FUA	ESPON 1.4.3.	2000; 2006	
Slope rank size distribution (GDP)	FUA	ESPON 1.4.3.	2000; 2006	
Primacy rate (population)	FUA	ESPON 1.4.3.	2006	
Primacy rate (GDP)	FUA	ESPON 1.4.3.	2006	
Gini coefficient thiesen polygons (%)	FUA	ESPON 1.4.3.	2006	
% population in FUA	FUA	ESPON 1.4.3., Eurostat	2006	

²⁰ Antikainen 2005.

²¹ ESDP 1999.

²² Territorial Agenda 2020.

Methodology that we applied for studying polycentricity originates from ESPON 1.1.1 -project.²³ The given project considers two different aspects of polycentric development. The first one is morphological (the distribution of urban areas in a given territory) and the second one relational (networks of flows and cooperation between urban areas at different scales). Both of these aspects are closely linked, since relations between cities are crucial for polycentricity; nodes without connections between each other would not form a polycentric system. We have, however, limited our study to the morphological aspect of polycentricity. Analysis on how different urban agglomerations interact with their surroundings and each other could not, due to the lack of data, have been performed soundly on a broad scale.

Data applied in this study is developed by ESPON 1.4.3 -project and all the analyses are based on the concept of Functional Urban Area (FUA), generated in ESPON 1.1.1 -project. Functional Urban Areas consist of a core municipality and municipalities surrounding the core. In ESPON 1.4.3 FUAs were defined by aggregating LAU 2 level regions from different NUTS 3 or 2 level regions.

In our study we have included FUAs that have at least 60 % of their area overlapping with the area of the cross-border region, and FUAs, whose Morphological Urban Area (MUA), that is the core municipality, is located within the limits of the cross-border area. The analyses on polycentricity have been made on NUTS 2 scale, because the study of urban structure is not meaningful on low geographical scales based on the possible small amount of FUAs. In the selection of FUAs we have followed requirements set up by ESPON 1.4.3. According to the project MUAs should have a core with more than 650 inhabitants per km² (NUTS 5 level unit) or with more than 20 000 inhabitants if they have a clear concentrated morphological core. In total FUAs should have a minimum population of 50 000 inhabitants.²⁴

3.1. Functional Urban Areas

Functional Urban Areas of the Poland – Germany – Sweden CBA are presented in the following table and map. The table provides information on the area (km²), population, population change and compactness of the FUAs. The map pictures the location of FUAs and their MUAs (core regions presented in violet colour). *The Poland – Germany – Sweden CBA has been studied here on NUTS 2 level, and therefore cities outside the actual territory of Euroregion Pomerania have been included in the study.* FUAs located in Euroregion Pomerania are Neubrandenburg, Greifswald, Stralsund and Eberswalde (in Barnim) in Germany, Szczecin, Koszalin and Kołobrzeg (in Podregion Koszaliński) and Stargard Szczeciński (in Podregion Stargardzki) in Poland and Malmö (in Skåne län) in Sweden.

The largest FUA of the Poland – Germany – Sweden CBA was in 2006 Malmö with 636 157 inhabitants. The largest FUA on the Polish side of the CBA was Szczecin with 610 403 inhabitants and the smallest Kołobrzeg with 44 737 inhabitants. On the German side of the CBA the largest FUA in 2006 was Neubrandenburg with 145 322 inhabitants (Rostock with 331 588 inhabitants if we consider the whole NUTS 2 territory) and the smallest FUA Eberswalde with 59 631 inhabitants.

When we take a look at population change in the FUAs of Euroregion Pomerania, it is possible to observe that population growth between 2001 and 2006 has been positive in Malmö (4,4 %), Koszalin (0,3 %) and Greifswald (0,7 %), while all the other FUAs have been losing population. Neubrandenburg has suffered

²³ ESPON 1.1.1.

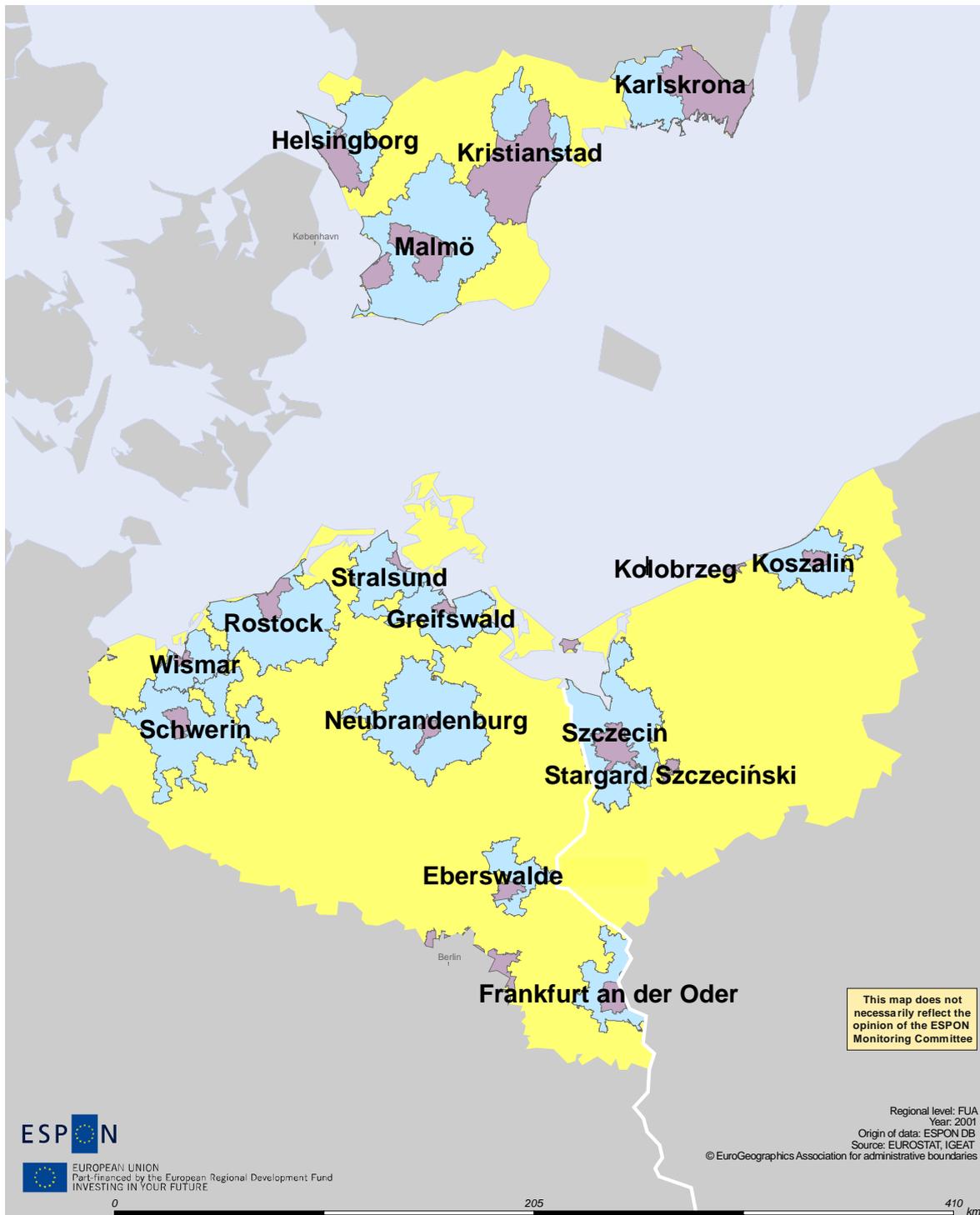
²⁴ ESPON 1.4.3.

from the greatest population decrease (-5 %), and Stralsund (-4,9 %) and Eberswalde (-4,2 %) have also been losing a significant share of population.

Table 16. FUAs of the Poland – Germany – Sweden CBA (NUTS 2 delimitation).

FUA ID	FUA	Fua area (km ²)	FUA Population 2001	FUA Population 2006	Population increase 2001–2006	Compactness 2001 (MUA population / FUA population)
SE11111	Malmö	3542,62	609424	636157	4,4	45
PL11016	Szczecin	2140,49	610878	610403	-0,1	68
DE10261	Rostock	2020,58	325702	331588	1,8	62
SE11599	Helsingborg	1133,06	204266	211439	3,5	58
DE10267	Schwerin	2197,05	198435	191785	-3,4	51
PL10972	Koszalin	990,79	152315	152717	0,3	71
DE10238	Neubrandenburg	2355,15	152992	145322	-5	48
DE10176	Frankfurt an der Oder	961,27	122755	115576	-5,8	59
SE11107	Kristianstad	1985,63	100461	102004	1,5	74
DE10273	Stralsund	872,98	100274	95357	-4,9	60
DE10185	Greifswald	957,82	92131	92762	0,7	59
SE11105	Karlskrona	1858,25	89198	89741	0,6	68
DE10287	Wismar	634,79	77915	77990	0,1	60
PL11012	Stargard Szczeciński	48,08	71367	70453	-1,3	100
DE10169	Eberswalde	608,22	62222	59631	-4,2	72
PL10970	Kołobrzeg	25,67	44947	44737	-0,5	100

Morphological and Functional Urban Areas



Legend

Morphological Urban Areas and Functional Urban Areas, according to the ESPON 1.4.3 (established from data from 2001)

3.2. Morphological analysis of FUAs

It is characteristic for a polycentric urban system that no city dominates over other cities in demographic or economic sense. In other words, a polycentric urban system lacks hierarchy, and cities are relatively similar of size. We have analysed the hierarchy of city systems, first, in the countries participating in ESPON programme (27 EU Member States and Iceland, Liechtenstein, Norway and Switzerland) and, second, in the Poland – Germany – Sweden CBA by calculating *slope of rank size distribution* of the FUAs.²⁵

Following figure presents rank size distribution of population in the Functional Urban Areas of ESPON countries. All the FUAs of ESPON countries have been ranked from largest to smallest, and related to each other according to their size (blue marks). The black line in the chart is the statistical log-linear line that presents a hypothetical homogeneous distribution of FUAs. A relatively flat line (low absolute value of β) implicates of a polycentric urban system, whereas a steep line stands for a more monocentric system, where a one city dominates over others.²⁶

The slope of equation for ESPON countries (β) for year 2006 was -1,0521, which signifies that urban system in the ESPON countries is polycentric. (ESPON β -value is very close to -1, which corresponds to regularity known as Zipf's law.) When we have a look at the hypothetical log-linear line, it is possible to observe that urban system of ESPON countries lacks hierarchy at the upper end of the rank size distribution. The largest city should, according to the log-linear line, have a population much higher than the approximate 13 million that the largest FUA in the ESPON space, London, actually has.

²⁵ In order to calculate slope of rank size distribution, FUAs of a given territory are ranked from largest to smallest according to the amount of population. After that following equation is computed:

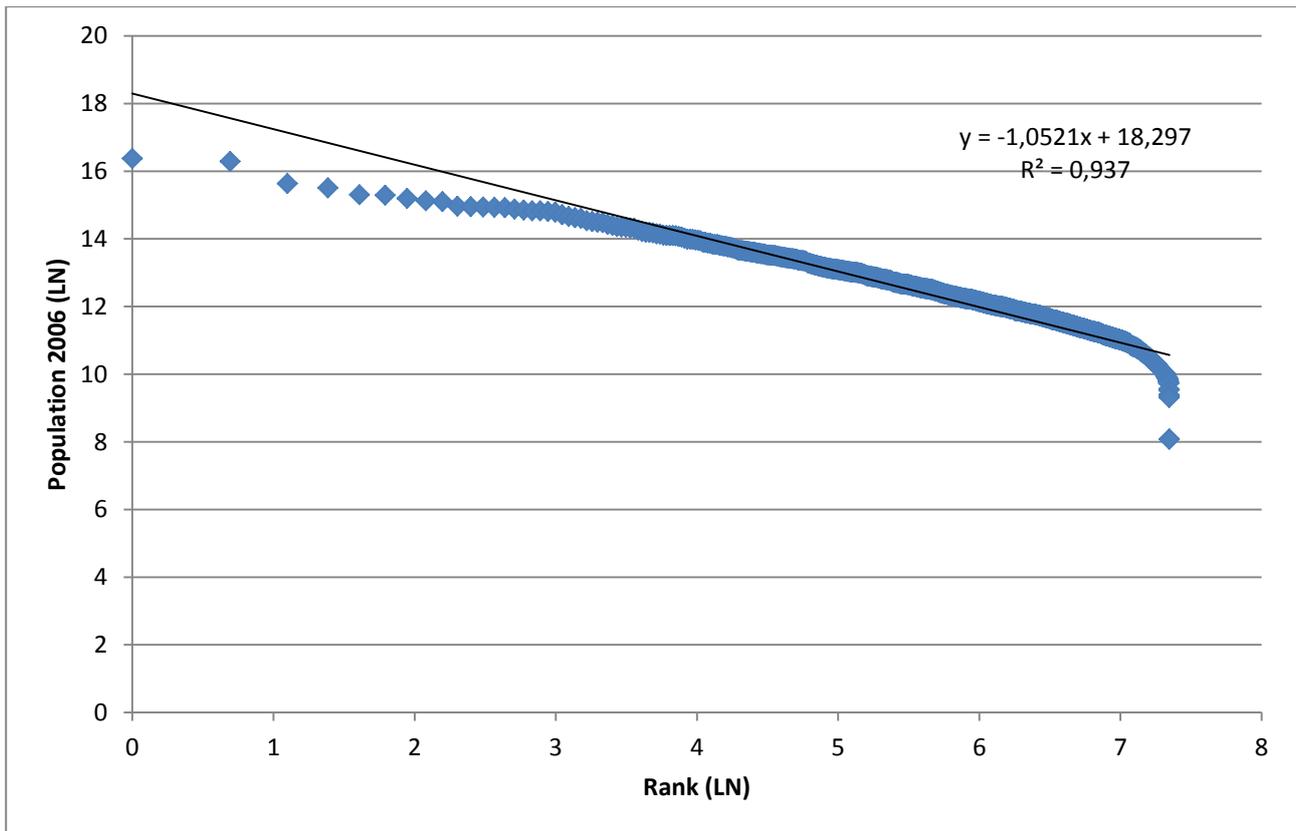
$$LN(\text{population}) = a + b LN(\text{rank})$$

*LN is a function that returns the natural logarithm of a value.

This function is a so called rank-size equation in the Lotka form. If estimated relation holds, the size distribution of FUAs follows a statistical log-linear distribution. The slope of equation (β) indicates the level of hierarchy and thus the level of polycentricity in a region; the lower the absolute value of β , the higher the level of polycentricity.

²⁶ ESPON 1.1.1.

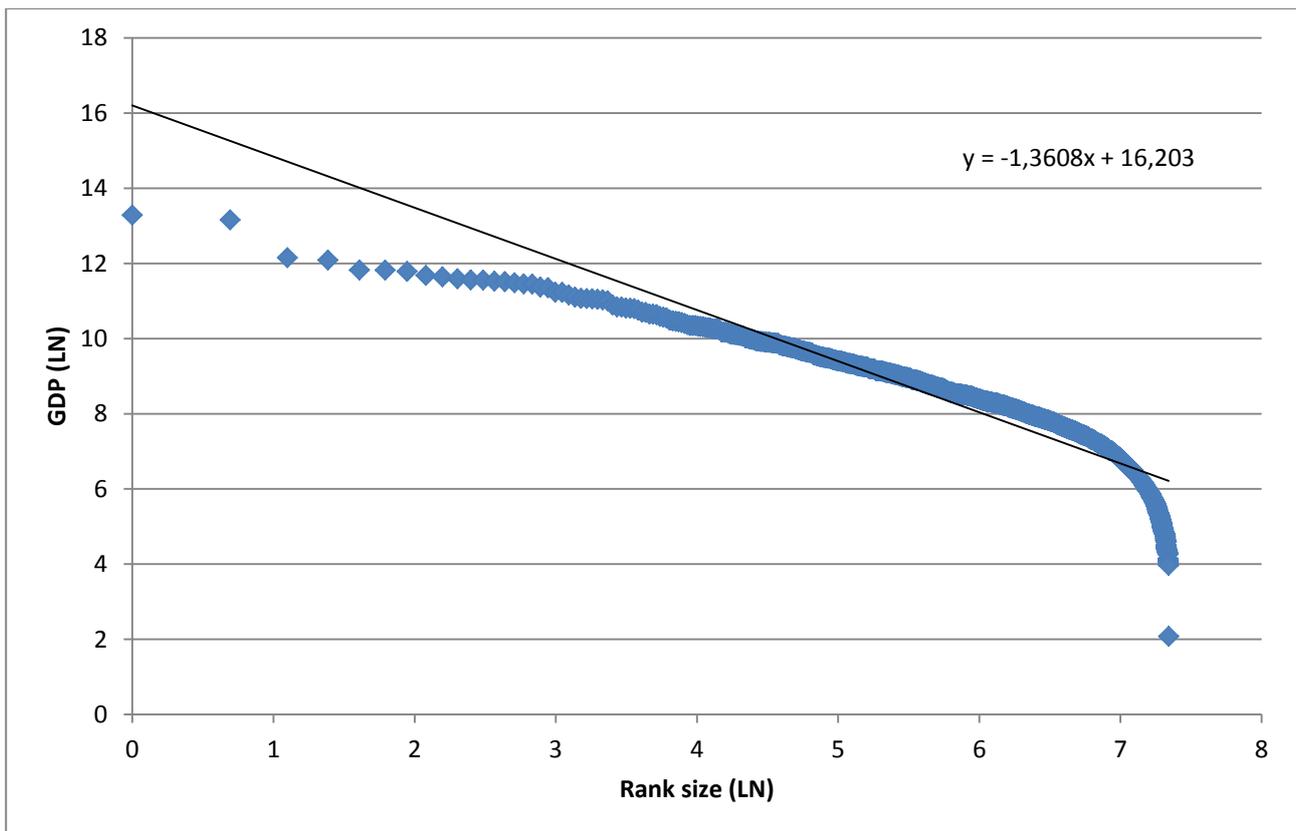
Figure 12. Rank size distribution of the population in Functional Urban Areas of ESPON countries (2006).



Source: ESPON 1.4.3 –project (population data)

Rank size distribution can be calculated also for gross domestic product in the FUAs. Following figure presents how the ESPON FUAs have ranked according to GDP. Here the slope of the log-linear line is steeper (-1,3608) than in the population chart because of greater differences in GDP between the leading FUAs (London and Paris) and the FUAs with the lowest GDP. The steep drop in the lower end of the distribution line is caused by a group of approximately two hundred FUAs with GDP less than 400 M€. GDP for London FUA was 589 028 M€ in 2006 and for Paris 520 533 M€.

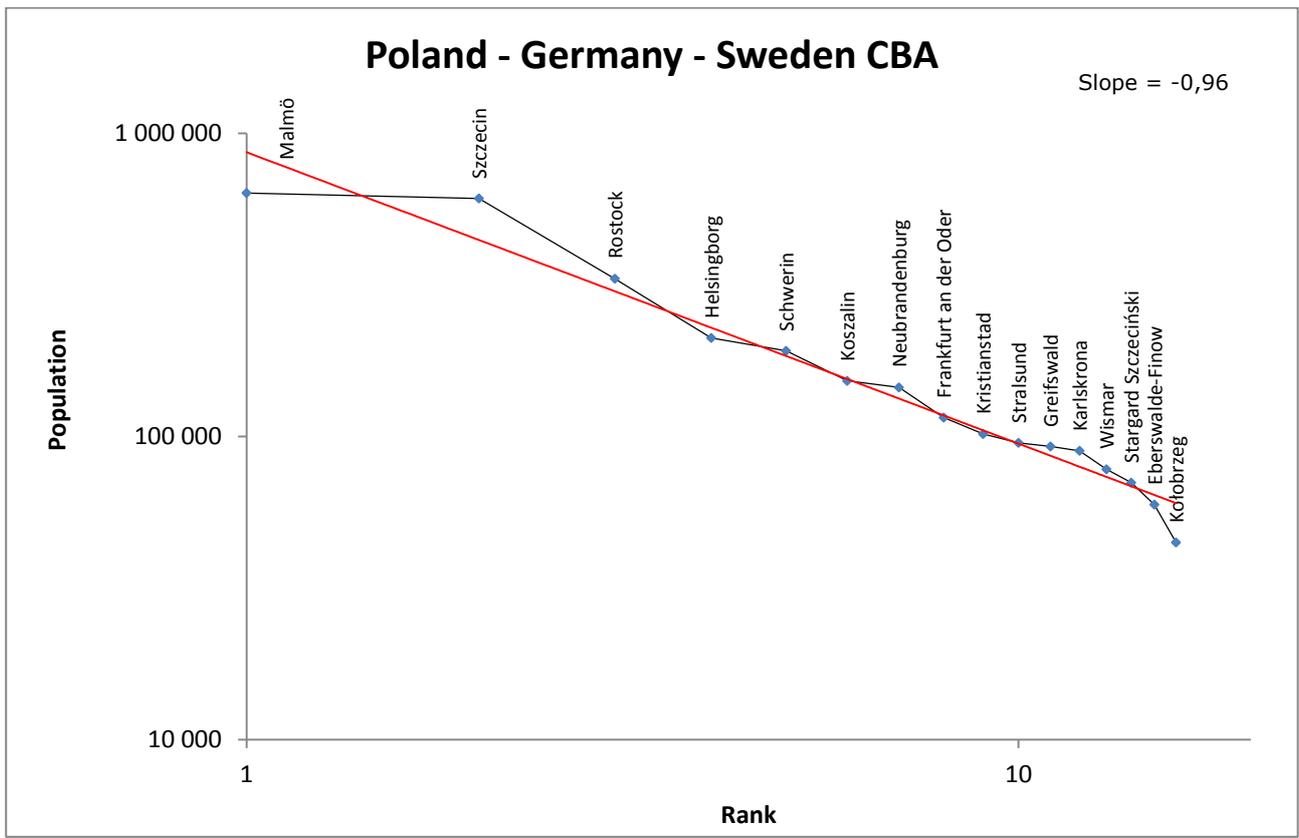
Figure 13. Rank size distribution of GDP in Functional Urban Areas in ESPON countries (2006).



Source: ESPON 1.4.3 –project (GDP data)

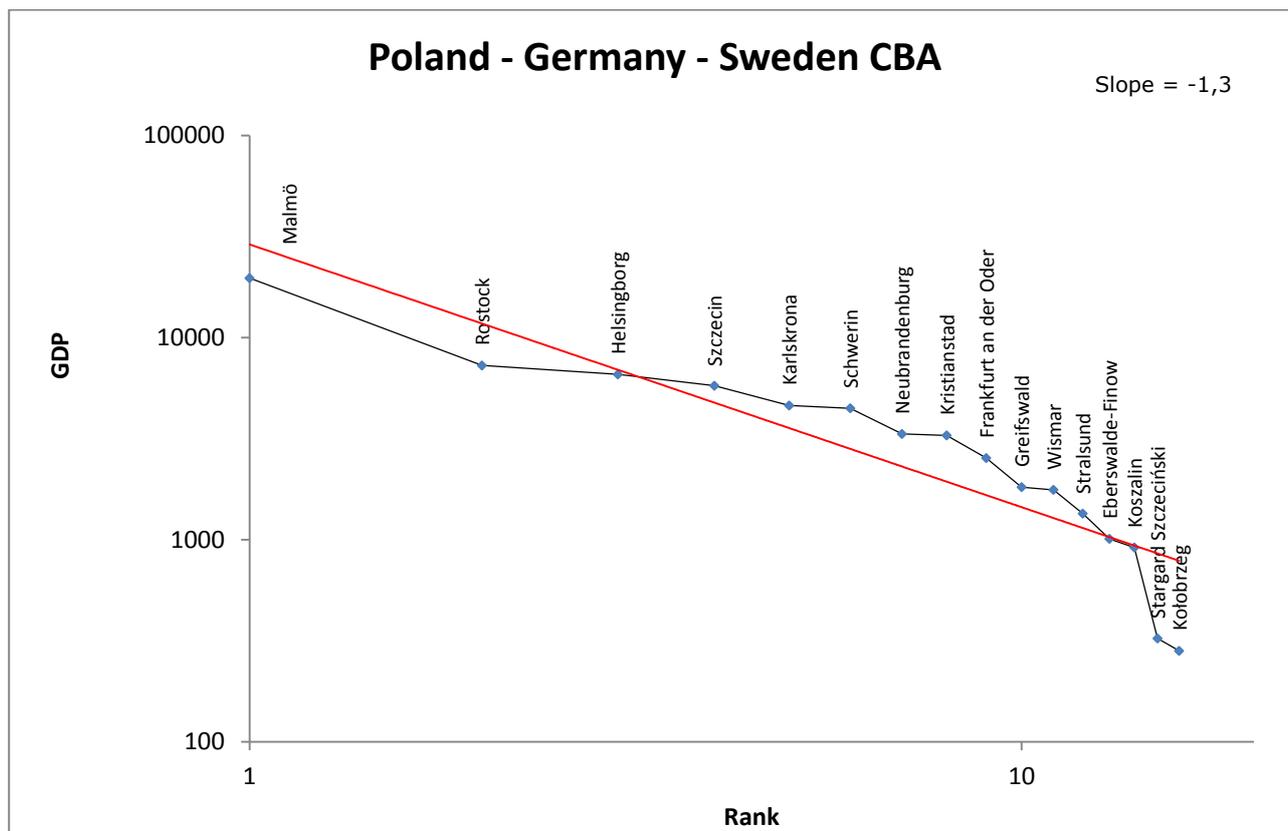
The slope of rank size distribution of FUA population in the Poland – Germany – Sweden CBA was -0,96 in 2006. This indicates a polycentric urban structure in the CBA, more polycentric than the urban structure in ESPON space. The slope of rank size distribution of FUA GDP was -1,3 in 2006. Thus, the city structure of the CBA is polycentric, but the CBA is more monocentric when considering the GDP of the FUAs. GDP in the leading city Malmö was 19 688 M€ in 2006, which was well above the GDP of Rostock, the second city in the ranking (NUTS 2 delimitation), (7 284 M€) or Kołobrzeg (282 M€) that came in the last place in the FUA GDP ranking. The slope of rank size distribution of FUA GDP in the Poland – Germany – Sweden CBA is very close to the distribution of FUA GDP in ESPON space (-1,36).

Figure 14. Rank size distribution of the population of Functional Urban Areas in the Poland – Germany – Sweden CBA in 2006 (NUTS 2 delimitation).



Source: ESPON 1.4.3 -project (population data)

Figure 15. Rank size distribution of GDP in Functional Urban Areas in the Poland – Germany – Sweden CBA in 2006 (NUTS 2 delimitation).



Source: ESPON 1.4.3 -project (GDP data)

While the slope of rank size distribution considers all FUAs in a region, *primacy rate* excludes the largest FUA from the analysis. It is an indicator that measures how much the size of the largest FUA deviates from the regression line of the rank-size distribution of the FUAs in a given region. If the primacy rate values above 1, the population of the main FUA is above the expected value, and, on the contrary, if the primacy rate is below 1, the largest FUA is smaller than what would be expected by the regression line of the rank-size distribution of FUAs. High primacy rate thus indicates of a monocentric urban structure with one dominating FUA, and low primacy rate of a polycentric urban structure.

Primacy rate for the Poland – Germany – Sweden CBA was 0,57 in 2006. This suggests that urban structure of the region is not dominated by one big city, but that the size of the biggest FUA (Malmö) is actually smaller than anticipated by the rank-size distribution of the FUAs. Primacy rate for Germany was 0,29, for Poland 0,44 and for Sweden 2,03 in 2006. The ESPON average was 0,14 in 2006. The value for Sweden is caused by the large size of Stockholm FUA compared to the size of other FUAs in the country. The Swedish GDP primacy rate was also high and valued at 2,61 in 2006, indicating of accumulation of production in the capital region of the country. The distribution of GDP among the FUAs in the Poland – Germany – Sweden CBA was more balanced and valued at 0,49.

The *gini coefficient of the FUA Thiessen polygons* is an indicator that measures how FUAs are spaced throughout a given region. Values close to 100 % indicate great inequalities in the FUA distribution while values below 100 % imply that FUAs are more evenly spaced.²⁷ The gini coefficient for thiessen polygons in Poland – Germany – Sweden CBA valued at 25,3 %, which indicates that FUAs are evenly spaced and services accessible (in theory) throughout the CBA.

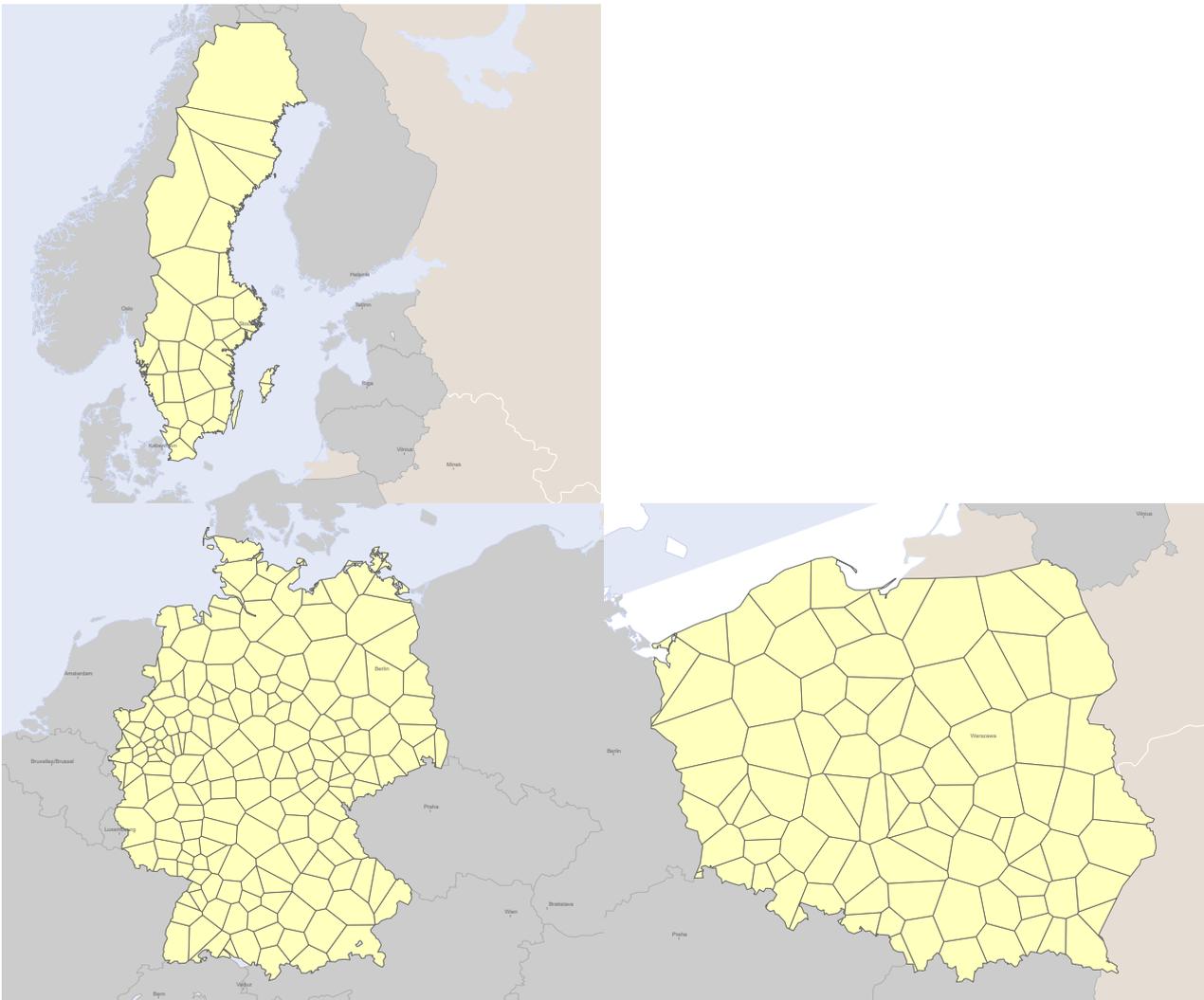
Map 24. FUA Thiessen polygons for the Poland – Germany – Sweden CBA in 2006 (NUTS 2 delimitation).



Source: ESPON 1.4.3 -project (population data)

²⁷ For this indicator, polygons were produced based on ESPON 1.4.3 FUA layer (made available by the ESPON DB 2013) so that the limits of the polygons were established exactly midway between two FUAs. On national level, gini coefficients were produced considering the border as a limit. This measure implicitly evaluates overall distribution of the population. However, it has a problem of attributing same weight to all different FUAs and it does not reflect the actual influence of a city. It should, therefore, be essentially understood as a way to evaluate whether the minimum amount of services that an urban agglomeration can provide is accessible throughout the region.

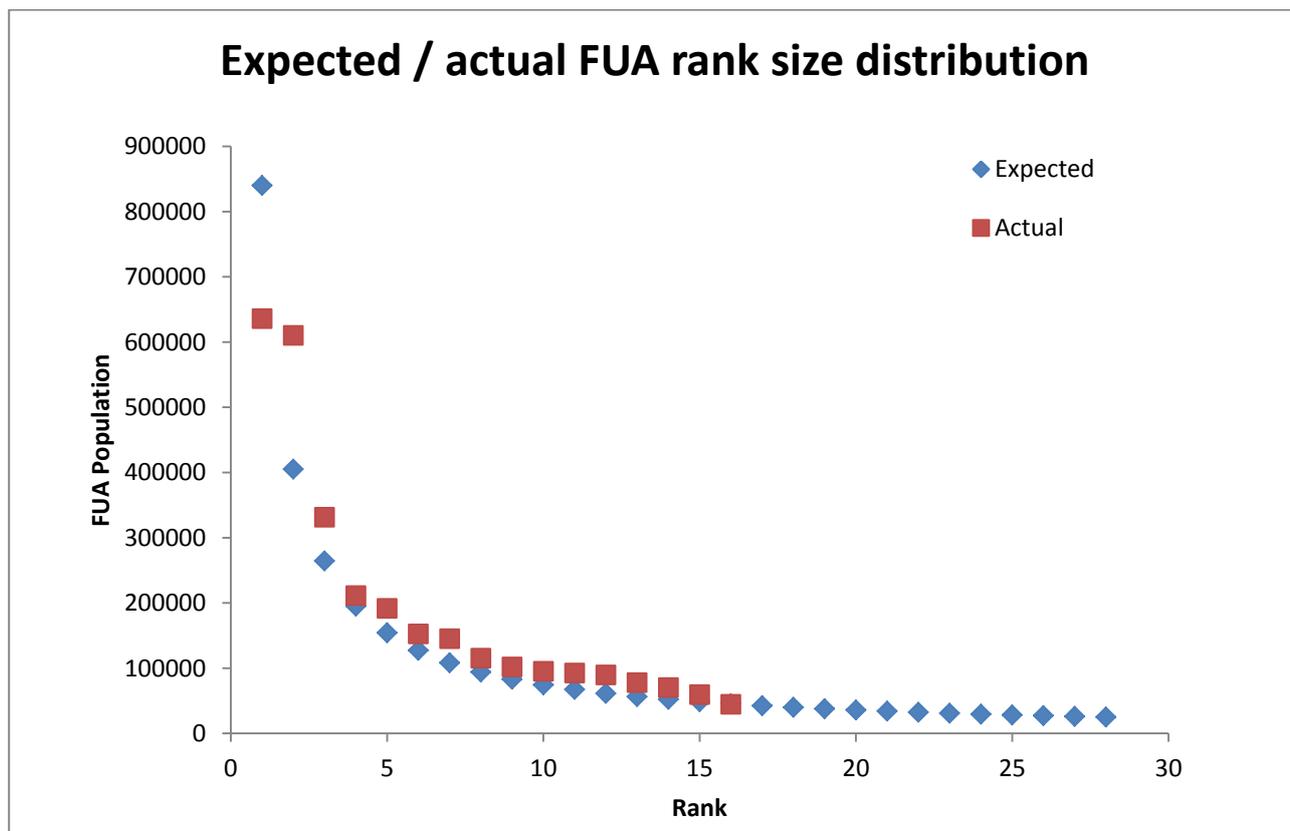
Map 25. Thiessen polygons for Sweden, Germany and Poland in 2006.



Source: ESPON 1.4.3 -project (population data)

Finally, we have compared rank size distribution of FUAs in the Poland – Germany – Sweden CBA to the overall distribution of FUAs in ESPON countries (27 EU Member States and Iceland, Liechtenstein, Norway and Switzerland). For this exercise, rank-size coefficients were estimated considering all FUAs in ESPON countries. The actual rank-size distribution of the FUAs was thereafter compared with what would be expected if the regions would follow the European distribution. This analysis demonstrates the expected amount and size of a FUA in a region according to its total population. As the following figure illustrates, rank-size distribution of FUAs in the Poland – Germany – Sweden CBA lacks hierarchy (leading FUA with a considerable size) and the amount of FUAs is not as big as expected. However, the slope of FUA distribution is very similar to the expected distribution.

Figure 16. Rank size distribution of the Functional Urban Areas of the Poland – Germany – Sweden CBA to the overall distribution of FUAs in ESPON countries in 2006 (NUTS 2 delimitation).



Source: ESPON 1.4.3 -project (population data)

Following table summarizes morphological analyses of FUAs and presents the Poland – Germany – Sweden CBA in the context of German, Polish and Swedish FUAs and FUAs of the ESPON countries. If we compare the average size of FUAs in the CBA, it is approximately two thirds of the average size of FUAs in ESPON countries. In the context of German, Polish and Swedish FUAs, however, FUAs of the CBA are large. Average FUA size in the Poland – Germany – Sweden CBA was 189 228,9 inhabitants in 2006, while the average size of FUAs in Germany was 11 463,6, in Poland 2 088 and in Sweden 8 718,6 inhabitants. What is also worth mentioning, is the fact that only 51,5 % of the CBA’s total population lives in FUAs, while 80,6 % of the German and 77,5 % of the Swedish population inhabits FUAs. The share of population living in FUAs in Poland is very similar to that of the Poland – Germany – Sweden CBA (56,7 %). In ESPON countries the average share of FUA population is 74,8 %.

Table 17. Morphological indicators for the Poland – Germany – Sweden CBA (2006).

CS5	CBA (NUTS 2)	DE	PL	SE	ESPON
Slope of rank size distribution (population)	-0,96	-0,98	-1,12	-0,93	-1,06
Slope of rank size distribution (GDP)	-1,30	-1,10	-1,30	-0,98	-1,36
Primacy rate (population)	0,57	0,29	0,44	2,03	0,14
Primacy rate (GDP)	0,49	0,20	0,60	2,61	0,05
Number of FUAs	16	172	88	30	1 552
Average FUA population	189 228,9	11 463,6	2 088,0	8 718,6	245 298,6
Minimum FUA population	44 737	394	136	1 742	3 216
Maximum FUA population	636 157	136 559	44 482	101 783	12 972 492
% of population in FUAs	51,5	80,6	56,7	77,5	74,8
% effective FUA population change 2001-2006	0,4	1,0	0,1	2,8	3,0
Compactness 2001 (MUA population /FUA population)	60,4	57,4	73,0	66,9	64,9
Gini coefficient thieszen polygons (%)	25,3	33,26	30,27	51,92	-

Source: ESPON 1.4.3. -project, Eurostat

3.3. Functional analyses of FUAs

We have selected a group of socio-economic indicators in order to study functional specialization of FUAs in the Poland – Germany – Sweden CBA. Since data is not available for these indicators on FUA level, we have made estimations according to the values of NUTS 3 regions that given FUAs are part of.²⁸ Selected indicators include unemployment rates, GDP per inhabitant and gross value added (GVA) by NACE.²⁹

The dominating field of economic activity in the FUAs of Poland – Germany – Sweden CBA was Service sector (L-P). However, the share of Trade and transport (GHI) and Finance and business services (J-K) was almost as large. Following maps present the share of different NACE sectors in the cross value added of the FUAs and GDP per inhabitant in the FUAs of the CBA. The map on GDP well illustrates the higher GDP per inhabitant in FUAs located in Sydsverige compared to FUAs located in the NUTS 2 regions of Mecklenburg-Vorpommern, Brandenburg-Nordost and Województwo Zachodniopomorskie. In general there are great differences in GDP per inhabitant in the CBA. The Swedish FUA of Karlskrona had the highest GDP per inhabitant (51 000 €), while in the Polish FUAs GDP valued between 9 000 € per inhabitant in Szczecin and

²⁸ As the values are estimates they have to be interpreted with some care.

²⁹ GDP is the abbreviation for gross domestic product. GVA is the abbreviation for gross value added.

NACE (Statistical classification of economic activities) version applied here is 1.1.

A = Agriculture, hunting and forestry, B = Fishing

C = Mining and quarrying, D = Manufacturing, E = Electricity, gas and water supply

F = Construction

G = Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods, H = Hotels and restaurants, I = Transport, storage and communications

J = Financial intermediation, K = Real estate, renting and business activities

L = Public administration and defence; compulsory social security, M = Education, N = Health and social work, O = Other community, social and personal services activities, P = Activities of private households as employers and undifferentiated production activities of private households

Q = Extraterritorial organisations and bodies

5 000 € per inhabitant in Stargard Szczeciński. Also unemployment rate varied widely between the FUAs. The Swedish FUAs had the lowest unemployment rates (around 7 %), and Szczecin and the German FUAs of Stralsund, Neubrandenburg and Greifswald had the highest rates (around 21 % unemployment).

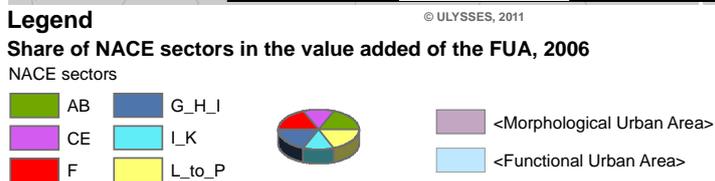
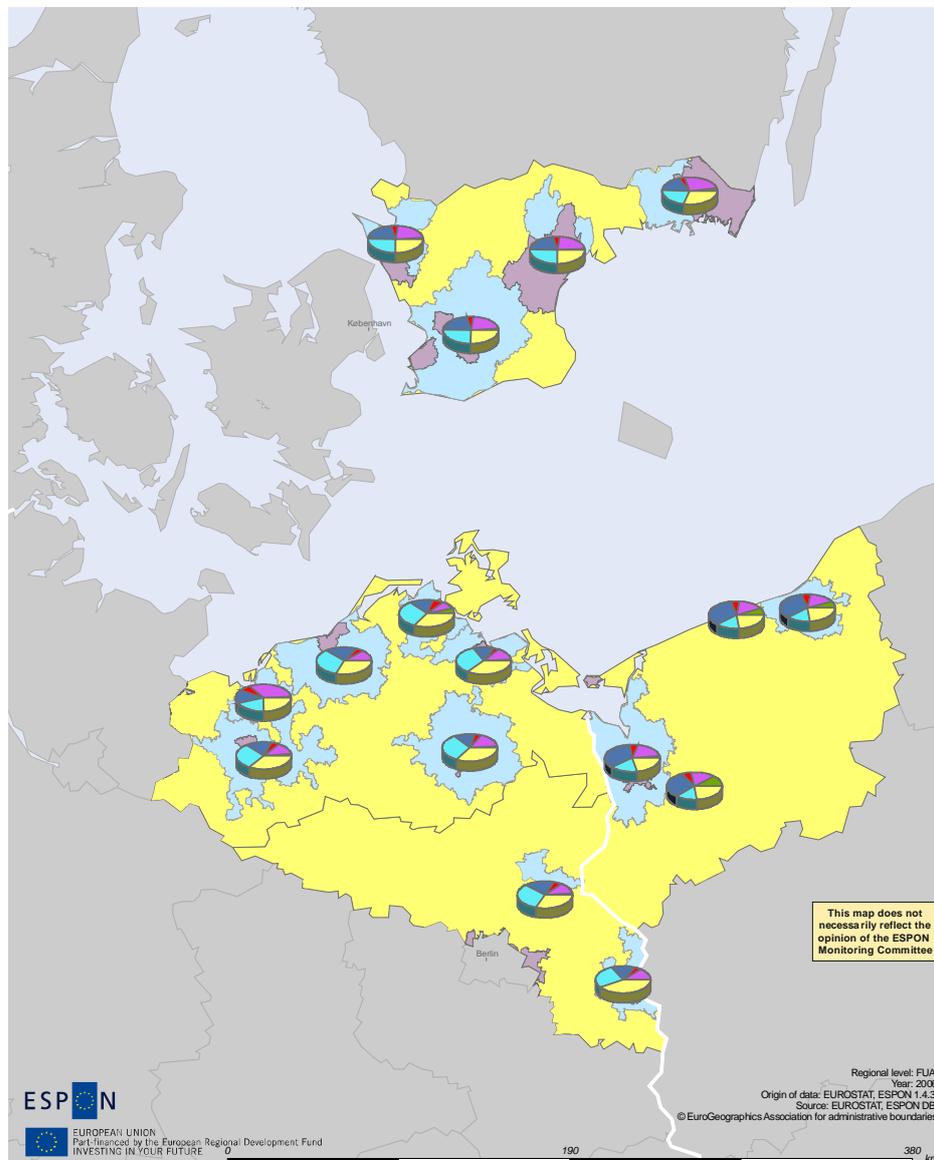
Table 18. Functional indicators for the Poland – Germany – Sweden CBA in 2006 (NUTS 2 delimitation).

FUA ID	FUA	Gross Value Added						GDP by inhabitant (1000 €)	Unemployment rate 2006
		Agriculture, forestry and fishing (AB)	Mining, manufacturing and energy (CDE)	Construction (F)	Trade and transport (GHI)	Finance and business services (J-K)	Other services (L-P)		
SE11111	Malmö	1,5	21,6	5,4	21,1	25,3	25,1	31	7
PL11016	Szczecin	1,9	18,5	6,6	32	20,2	20,8	9	21
DE10261	Rostock	0,9	10,3	4,6	23,8	29,2	31,2	22	16,9
SE11599	Helsingborg	1,5	21,6	5,4	21,1	25,3	25,1	31	7
DE10267	Schwerin	1,5	12	5,2	19,8	25	36,6	23	16,5
PL10972	Koszalin	6	16,8	6,7	30,4	17,1	23	6	14,7
DE10238	Neubrandenburg	1,6	14,5	4,5	16,4	27,3	35,7	23	21,5
DE10176	Frankfurt an der Oder	0,9	11,1	4,1	18,8	22,7	42,5	22	17
SE11107	Kristianstad	1,5	21,6	5,4	21,1	25,3	25,1	32	7
DE10273	Stralsund	4,5	7,6	7,6	18,3	26,9	35,1	14	22,1
DE10185	Greifswald	1,2	12,1	3,4	16,8	28,8	37,7	20	20,1
SE11105	Karlskrona	2,6	26,6	4,5	15,7	20,5	30,1	51	7,5
DE10287	Wismar	1,3	34,6	6,9	12	20,6	24,6	23	17,5
PL11012	Stargard Szczeciński	10,1	17,9	6,8	26,1	16	23,1	5	14
DE10169	Eberswalde	1,2	11,1	5,3	22,6	27,6	32,2	17	15,4
PL10970	Kołobrzeg	6	16,8	6,7	30,4	17,1	23	6	14,7

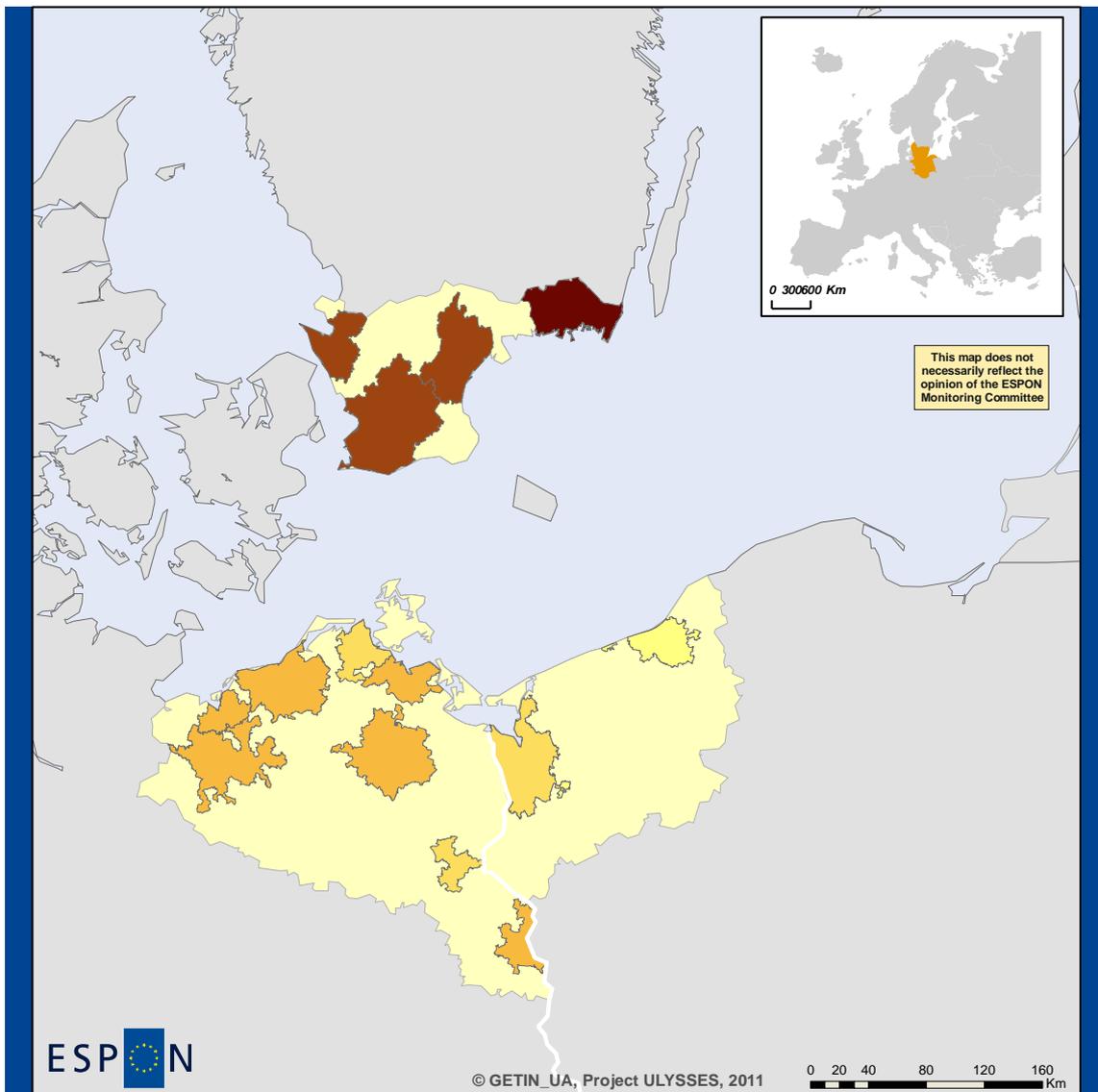
Source: Eurostat

Map 26. Share of different NACE sectors in the value added of FUAs in the Poland – Germany – Sweden CBA in 2006 (NUTS 2 delimitation).

Share of NACE in the value added of FUA



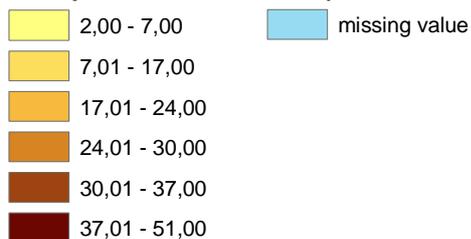
Map 27. GDP per inhabitant in the FUAs of Poland – Germany – Sweden CBA in 2006 (NUTS 2 delimitation).




 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Legend

GDP per inhabitant, 2006 (thousands of Euros)



Local level: NUTS 3
 Year: 2006
 Source: ESPON Database
 Origin of data: Eurostat, ESPON 1.4.3
 © EuroGeographics Association for administrative boundaries

FUA average GDP per inhab
 ESPON = 21,23
 PL = 6,36
 SE = 34,30
 PT = 13,14

3.4. Chapter conclusions

FUAs located in Euroregion Pomerania are Neubrandenburg, Greifswald, Stralsund and Eberswalde (in Barnim) in Germany, Szczecin, Koszalin and Kołobrzeg (in Podregion Koszaliński) and Stargard Szczeciński (in Podregion Stargardzki) in Poland and Malmö (in Skåne län) in Sweden. The largest FUA of the Poland – Germany – Sweden CBA in 2006 was Malmö with 636 157 inhabitants. When we take a look at population change in the FUAs of Euroregion Pomerania, it is possible to observe that population growth between 2001 and 2006 has been positive in Malmö (4,4 %), Koszalin (0,3 %) and Greifswald (0,7 %), while all the other FUAs have been losing population.

The slope of rank size distribution of FUA population in the Poland – Germany – Sweden CBA was -0,96 in 2006. This indicates a polycentric urban structure, more polycentric than the urban structure in ESPON space. When considering the GDP of the FUAs the CBA is more monocentric. GDP in the leading city Malmö was 19 688 M€ in 2006 and the difference in GDP was significant compared to other FUAs in the CBA. Primacy rate for the Poland – Germany – Sweden CBA was 0,57 in 2006. This again suggests that urban structure of the region is not dominated by one big city, but that the size of the biggest FUA (Malmö) is smaller than anticipated by the rank-size distribution of the FUAs.

Average FUA size in the Poland – Germany – Sweden CBA was 189 228,9 inhabitants in 2006. Only 51,5 % of the Poland – Germany – Sweden CBA's total population lives in FUAs. The dominating economic activity in the FUAs of the CBA was Service sector (L-P). However, the share of Trade and transport (GHI) and Finance and business services (J-K) was almost as large in the GVA added of the FUAs.

Chapter 4. Urban-rural relationship in the Poland – Germany – Sweden CBA

Urban-rural relationship is another key concept of European spatial policy. Active relations between urban areas and surrounding rural regions are considered a means to achieve sustainable development and territorial cohesion. Recent studies (including ESPON 1.1.2 “Urban-rural relations in Europe”) have shown that urban-rural linkages are now moving beyond single one-way exchanges towards a dynamic web of interdependencies, which shape the development of both cities and countryside. New technologies are a good example of new elements that influence the pattern and character of flows between rural and urban areas.³⁰ It is the recognition of the complexity of urban-rural relationships that has gained political attention both at national and European levels. European Spatial Development Perspective (ESDP) speaks about going beyond traditional co-operation and building successful long-term partnerships between urban and rural areas.³¹ According to the Territorial Agenda 2020 urban-rural partnerships should include integrated governance and planning aspects.³²

To be able to study urban and rural areas, ESPON 1.1.2 project makes a distinction between structural and functional properties of a region. Structural properties include established land-use patterns, settlement structure and the distribution of population, while functional properties refer to the factual use of the physical environment (various forms of production, consumption and communication). Following this distinction the project defines urban-rural relations as follows: structural relations of urban and rural areas are determined by the way the physical environment is constituted and shaped, while functional relations between urban and rural areas are determined by the way the physical environment is utilised.³³

In our analyses we have examined both dimensions of urban-rural relations, however, with a limited selection of parameters. First we take a look at land use patterns in the Poland – Germany – Sweden CBA, and then analyse how the traditional rural fields of economic activity; agriculture, forestry and fishing have developed in the CBA.³⁴

³⁰ Kūle 2010.

³¹ ESDP 1999.

³² Territorial Agenda 2020.

³³ ESPON 1.1.2.

³⁴ We have faced some limitations regarding data. Although it is possible to get land cover data on a very low geographical scale from the Corine Land Cover, indicators such as employment and economic patterns are only available at NUTS 3 level. Typologies established by ESPON and Eurostat are also available only at broad scale, and it is not possible to link the indicators with rural or urban areas at any significant scale. We have therefore focused on these typologies on NUTS 3 level and highlighted differences between them regarding land use patterns as well as socioeconomic indicators. Besides the ESPON typology on urban and rural regions, data for land types has been included in the analysis. What comes to evaluating interaction (flows of people and goods or computer mediated communication) between urban and rural areas, there is no data available on EUROSTAT or ESPON.

Table 19. Urban-rural relationship parameters studied for the Poland – Germany – Sweden CBA.

Variable name	Geographical scale	Source	Time frame
Urban-rural typology	NUTS 3	ESPON DB / Eurostat	
Agricultural areas	NUTS 3	ESPON DB	1990; 2000; 2006
Urban fabric	NUTS 3	Corine Land Cover	2000–2006
Artificial surfaces	NUTS 3	Corine Land Cover	2000–2006
Gross value added in agriculture, forestry and fishing	NUTS 3	Eurostat	1997–2008
Employment in agriculture, forestry and fishing	NUTS 3	Eurostat	1997–2008

4.1. Land use patterns

Different typologies have been established to classify regions to urban and rural territories. One of these typologies was developed in *ESPON 1.1.2 project* and it is based on tree indicators; land cover, population density and the presence/absence of a FUA. Based on different combinations of these indicators, NUTS 3 regions are classified in the project as having high or low human influence (population densities) and urban intervention (land cover).

Eurostat uses an urban-rural typology that is a revision of OECD typology and classifies regions according to three steps. First, clusters of urban grid cells are created with a minimum population density of 300 inhabitants per km² and a minimum population of 5 000 inhabitants. All cells outside the urban clusters are considered rural. Second, NUTS 3 regions of less than 500 km² are grouped with one or more neighbours solely for classification purposes. All NUTS 3 regions in a grouping are classified in the same way. Third, NUTS 3 regions are classified based on the share of population in rural grid cells. Regions with more than 50 % of total population in rural grid cells are categorized as predominantly rural, regions with 20 % to 50 % of total population in rural grid cells as intermediate and regions with less than 20 % of total population in rural grid cells as predominantly urban regions. Further, some regions that are predominantly rural are considered intermediate in the presence of a city with more than 200 000 inhabitants, and intermediate regions located next to cities of over 500 000 inhabitants are considered urban.³⁵

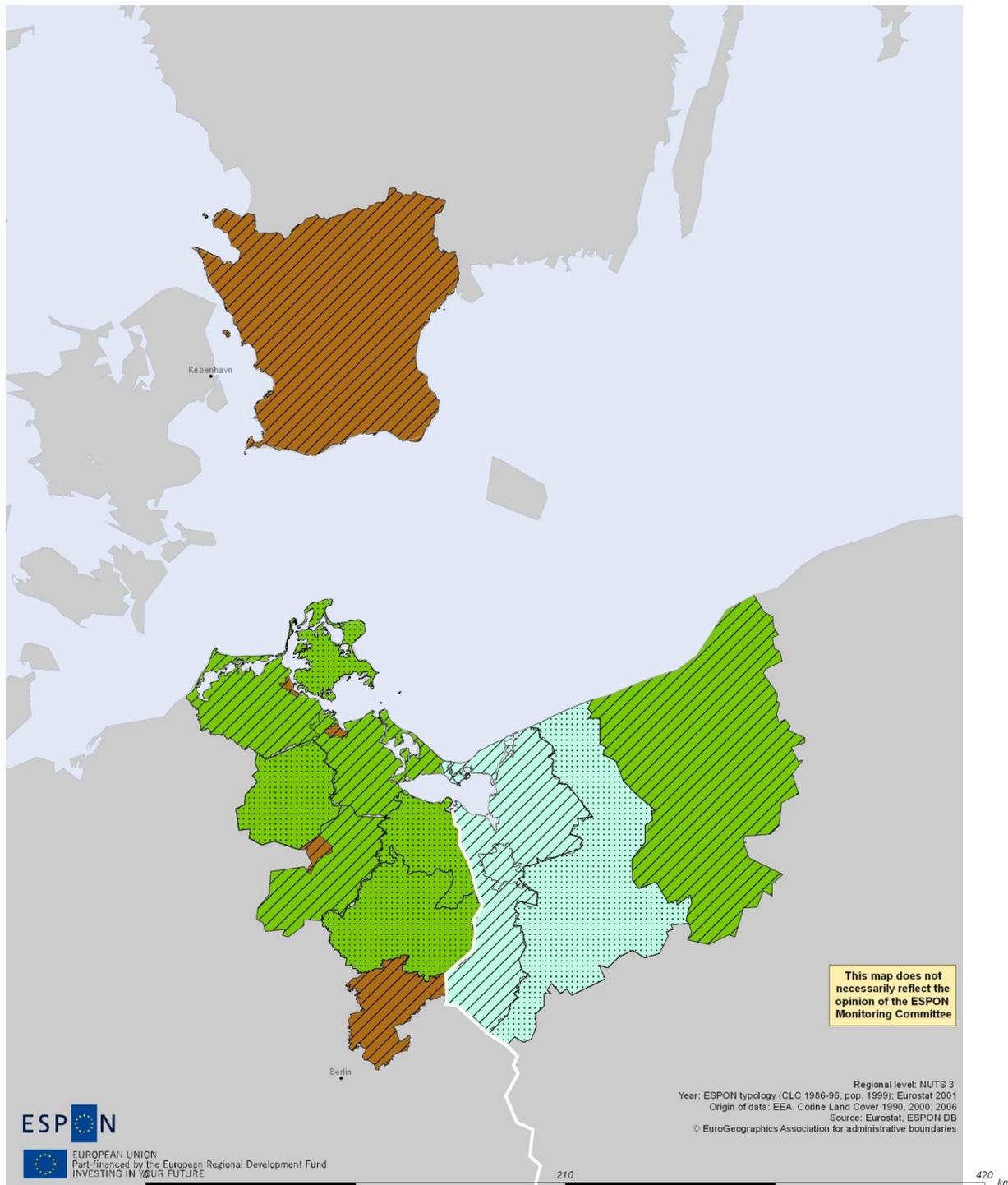
Following map presents the regions of Euroregion Pomerania based on these two typologies. ESPON 1.1.2 typology classifies following regions as regions with low urban influence and low human intervention: Uckermark, Demmin, Mecklenburg-Strelitz, Nordvorpommern, Ostvorpommern, Rügen, Uecker-Randow and Koszaliński. Regions with high urban influence and high human intervention are, according to the classification, Barnim, Greifswald, Neubrandenburg, Stralsund and Skåne län.

The Eurostat typology considers following regions of the CBA as predominantly rural regions: Uckermark, Demmin, Rügen, Uecker-Randow and Podregion Stargardzki. The rest of the regions are classified as intermediate regions. According to the classification there are no predominantly urban regions in Euroregion Pomerania.

³⁵ A revised urban-rural typology 2010.

Map 28. Euroregion Pomerania according to ESPON 1.1.2. and Eurostat urban rural typologies.

ESPON 1.1.2 & Eurostat urban rural typologies



In terms of land use, agricultural areas occupy relatively large areas in all the regions of Euroregion Pomerania. Demmin has the largest share of agricultural areas (79,73 %) and even in Neubrandenburg, where the share of agricultural areas is the smallest in the CBA, 25,08 % of the total area is occupied by agricultural land. Share of agricultural areas in the ESPON countries was 38,65 % in 2006. In general, total area of agricultural land has been decreasing in all the regions of Euroregion Pomerania between 1990 and 2006.

The following table presents agricultural areas in the regions of Euroregion Pomerania, Germany, Poland, Sweden and ESPON countries. Land cover data that is used here and in the following analyses has been categorized according to the Corine Land Cover (CLC). CLC has five main categories of land use; (1) artificial, (2) agricultural, (3) forests and semi-natural areas, (4) wetlands and (5) water bodies. Agricultural areas include arable land, permanent crops, pastures and heterogeneous agricultural land.

Table 20. Agricultural areas (category 2 of the Corine Land Cover) in Euroregion Pomerania.

NUTS ID	NUTS	Agricultural areas (ha)						
		Total 1990	Total 2000	Total 2006	Share of total area 2006 (%)	Net formation of land cover 1990-2006	Net formation of land cover by total area 1990-2006 (per 10000)	Annual growth rate 1990-2006 (per 1000)
ESPON space		182685050,0	205227723,0	184577384,0	38,65	1892334,0	39,621	6,44
DE	Germany	21604012,0	21397990,0	21263899,0	59,47	-340113,0	-95,12	-9,91
PL	Poland	20114390,0	20082359,0	19612645,0	62,87	-501745,0	-160,84	-15,78
SE	Sweden	0,0	3943824,0	3946861,0	8,79	3037,0*	0,68*	1,28*
DE412	Barnim	58912,0	57560,0	57846,0	38,48	-1066,0	-70,92	-11,41
DE418	Uckermark	211061,0	210031,0	209601,0	68,16	-1460,0	-47,48	-4,34
DE801	Greifswald	2880,0	2718,0	2741,0	56,45	-139,0	-286,27	-30,87
DE802	Neubrandenburg	2906,0	2377,0	2145,0	25,08	-761,0	-889,65	-187,98
DE805	Stralsund	1549,0	1477,0	1431,0	36,82	-118,0	-303,63	-49,40
DE808	Demmin	155691,0	155131,0	154308,0	79,73	-1383,0	-71,46	-5,58
DE80B	Mecklenburg-Strelitz	125491,0	124450,0	123742,0	58,87	-1749,0	-83,21	-8,77
DE80D	Nordvorpommern	160943,0	160149,0	157298,0	73,66	-3645,0	-170,70	-14,31
DE80F	Ostvorpommern	142876,0	141326,0	139322,0	73,36	-3554,0	-187,13	-15,73
DE80H	Rügen	73795,0	73321,0	72384,0	74,56	-1411,0	-145,35	-12,06
DE80I	Uecker-Randow	90409,0	89068,0	88852,0	59,40	-1557,0	-104,09	-10,85
PL422	Podregion Koszaliński	534326,0	532360,0	518911,0	49,86	-15415,0	-148,13	-18,28
PL423	Podregion Stargardzki	443055,0	442252,0	439044,0	64,21	-4011,0	-58,66	-5,68
PL424	Powiat m. Szczecin	6900,0	6760,0	6641,0	22,12	-259,0	-86,25	-23,88
PL425	Podregion Szczeciński	271854,0	270965,0	269432,0	55,01	-2422,0	-49,45	-5,59
SE224	Skåne län	0,0	605497,0	604231,0	53,19	-1266,0*	-11,14*	-3,49*

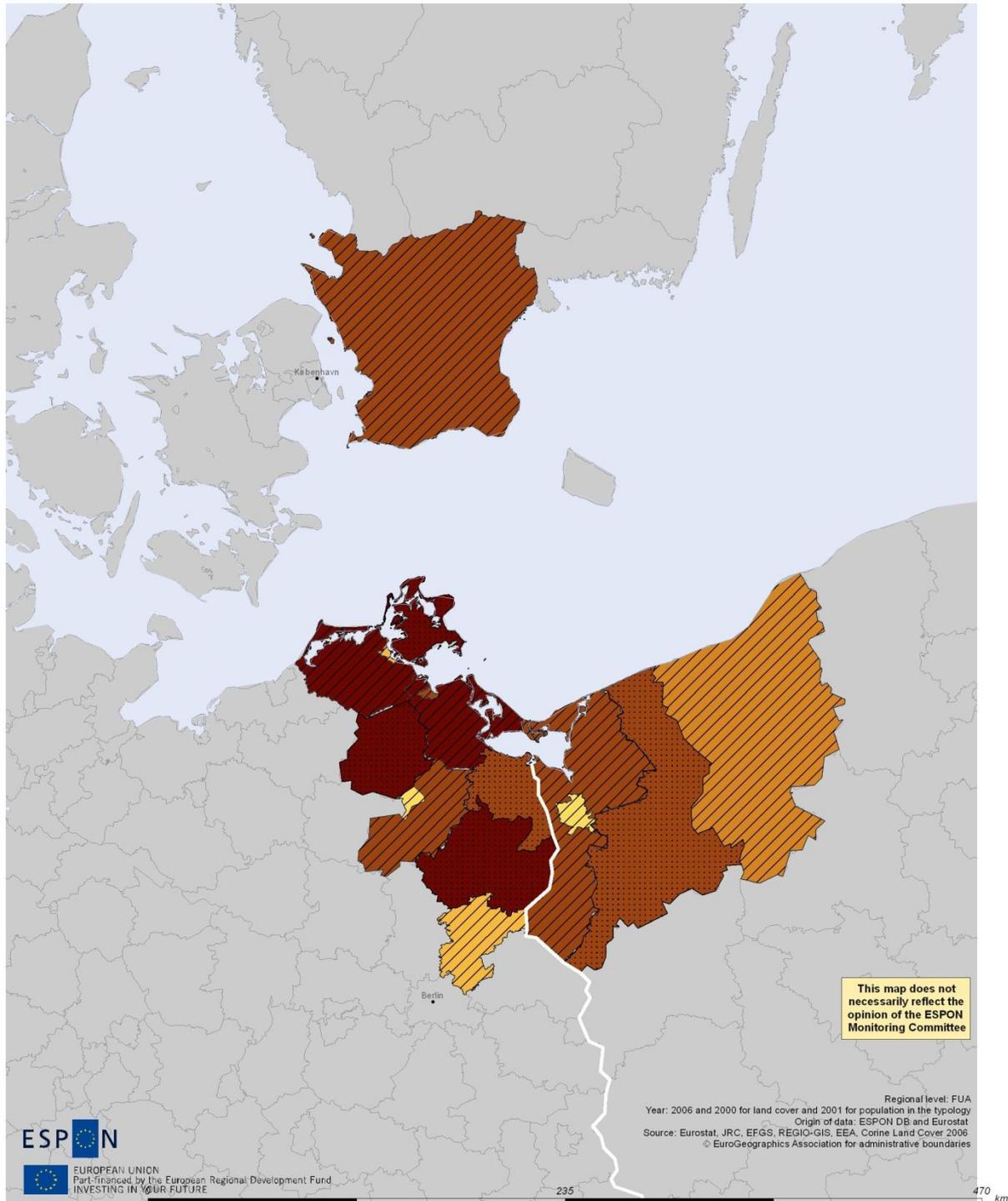
*Data for 2000–2006

Source: ESPON Database

Methodology: Tabulate area between CLC2000 level 3 and NUTS 2006 (levels 1, 2, 3) and aggregation at CLC2000 level 1.

Map 29. Share of agricultural areas in Euroregion Pomerania in 2006.

Share of agricultural areas



Legend

Urban rural typology

-  Predominantly urban
-  Intermediate regions
-  Predominantly rural regions

Percent of agricultural areas by NUTS 3, 2006

- | | | |
|---|---|--|
|  <= 13,5 |  38,8 - 51,0 |  <all other values> |
|  13,6 - 33,1 |  51,1 - 64,2 | |
|  33,2 - 38,7 |  >= 64,3 | |
- EU27 + NO = 38,65
 DE = 59,47
 PL = 62,87
 SE = 8,79

Urbanisation of agricultural areas in Euroregion Pomerania has been relatively similar to the ESPON average (2,67 ha per 10 000 ha), but two regions have experienced urbanisation of far larger agricultural areas. In Stralsund 38,93 ha per 10000 ha and in Greifswald 24,89 ha per 10000 ha of agricultural land was urbanised between 2000 and 2006. During the same time period urbanisation of natural and semi-natural areas has been almost non-existent in Euroregion Pomerania. The following table presents changes in the urban fabric in Euroregion Pomerania, Germany, Poland, Sweden and ESPON countries between 2000 and 2006.³⁶ Following two maps illustrate urbanisation of agricultural, and natural and semi-natural areas in Euroregion Pomerania between 2000 and 2006.

Table 21. Urban fabric (categories 111 and 112 of the Corine Land Cover) in Euroregion Pomerania.

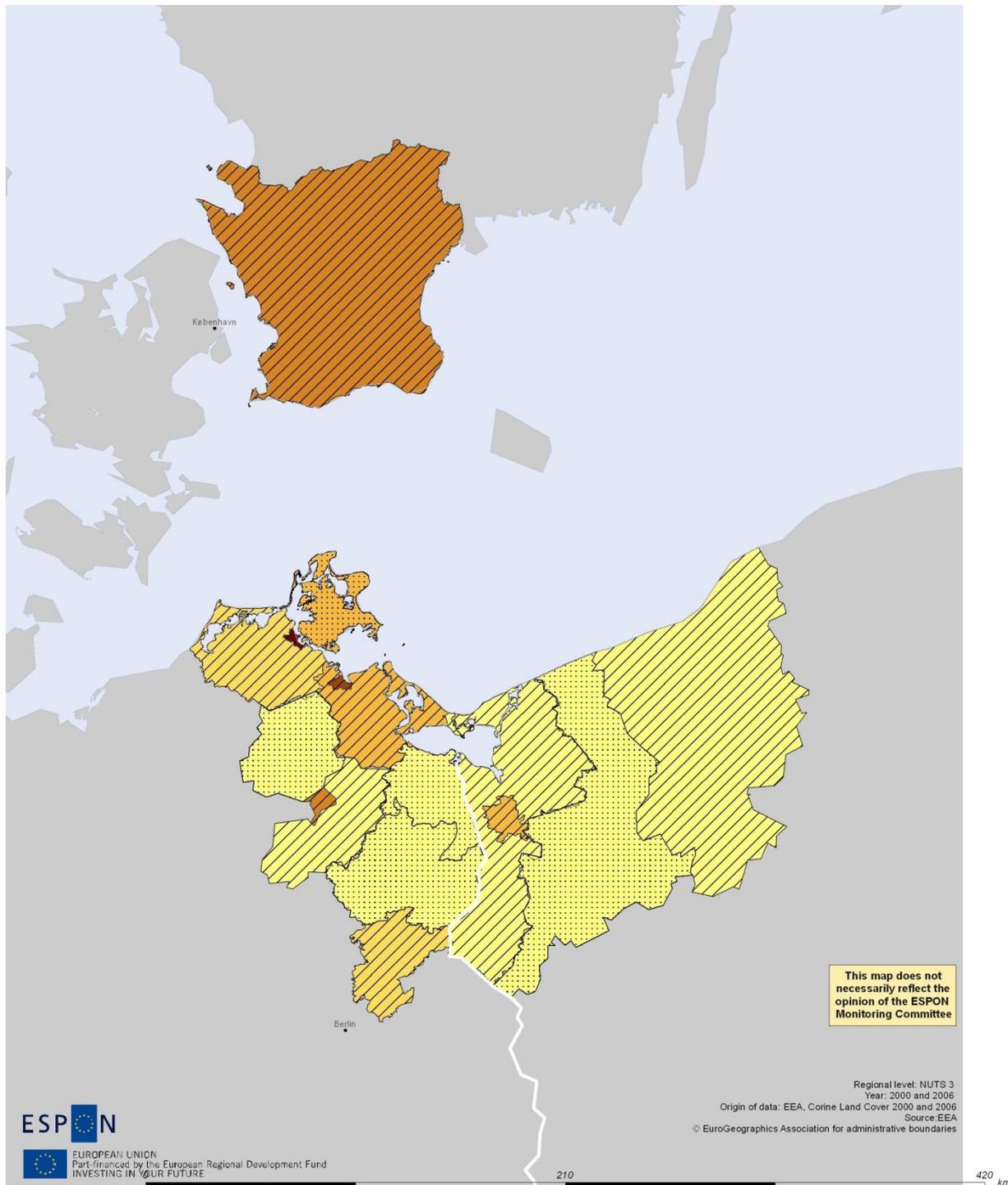
NUTS ID	NUTS	Urban fabric (ha) (2000–2006)							
		Formation of new land cover	Consumption of land cover	Net formation of land cover	Net formation of land cover by total area (per 10000)	Urbanisation of agricultural areas (2000-2006)	Urbanisation of agricultural areas by total area (per 10 000)	Urbanisation of natural and semi-natural areas	Urbanisation of natural and semi-natural areas by total area (per 10 000)
ESPON space		191290,05	1447,96	189842,09	3,97	127745,51	2,67	16003,73	0,34
DE	Germany	34168,79	387,39	33781,40	9,45	25695,18	7,19	519,18	0,15
PL	Poland	5732,91	84,06	5648,85	1,81	3212,30	1,03	34,15	0,01
SE	Sweden	3062,35	32,29	3030,06	0,67	1445,97	0,32	1082,84	0,24
DE412	Barnim	52,51	0,00	52,51	3,49	17,19	1,14	0,00	0,00
DE418	Uckermark	21,57	14,35	7,23	0,24	21,57	0,70	0,00	0,00
DE801	Greifswald	12,08	0,00	12,08	24,89	12,08	24,89	0,00	0,00
DE802	Neubrandenburg	13,77	0,00	13,77	16,10	5,31	6,21	0,00	0,00
DE805	Stralsund	20,38	0,00	20,38	52,45	15,13	38,93	0,00	0,00
DE808	Demmin	7,08	0,00	7,08	0,37	7,08	0,37	0,00	0,00
DE80B	Mecklenburg-Strelitz	25,26	0,00	25,26	1,20	9,88	0,47	5,23	0,25
DE80D	Nordvorpommern	53,34	0,00	53,34	2,50	53,34	2,50	0,00	0,00
DE80F	Ostvorpommern	72,61	0,00	72,61	3,82	67,34	3,55	5,27	0,28
DE80H	Rügen	29,36	0,00	29,36	3,02	29,36	3,02	0,00	0,00
DE80I	Uecker-Randow	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
PL422	Podregion Koszaliński	96,94	5,13	91,81	0,88	96,94	0,93	0,00	0,00
PL423	Podregion Stargardzki	35,36	0,00	35,36	0,52	35,36	0,52	0,00	0,00
PL424	Powiat m. Szczecin	38,75	0,00	38,75	12,91	14,50	4,83	0,00	0,00
PL425	Podregion Szczeciński	27,74	0,00	27,74	0,57	27,74	0,57	0,00	0,00
SE224	Skåne län	838,64	10,82	827,82	7,29	685,18	6,03	33,55	0,30

Source: EEA Corine Land Cover

Methodology: Intersection of CLC land cover changes with level 3 and NUTS 2006 (levels 1, 2, 3) and aggregation at CLC2000-2006 level 2.

³⁶ Urban fabric belongs to the 1st CLC category of artificial surfaces. Two subcategories of urban fabric have been included in the table. These are 1.1.1 that corresponds to continuous urban fabric and 1.1.2 that corresponds to discontinuous urban fabric.

Urbanisation of agricultural areas



Legend

Urban rural typology

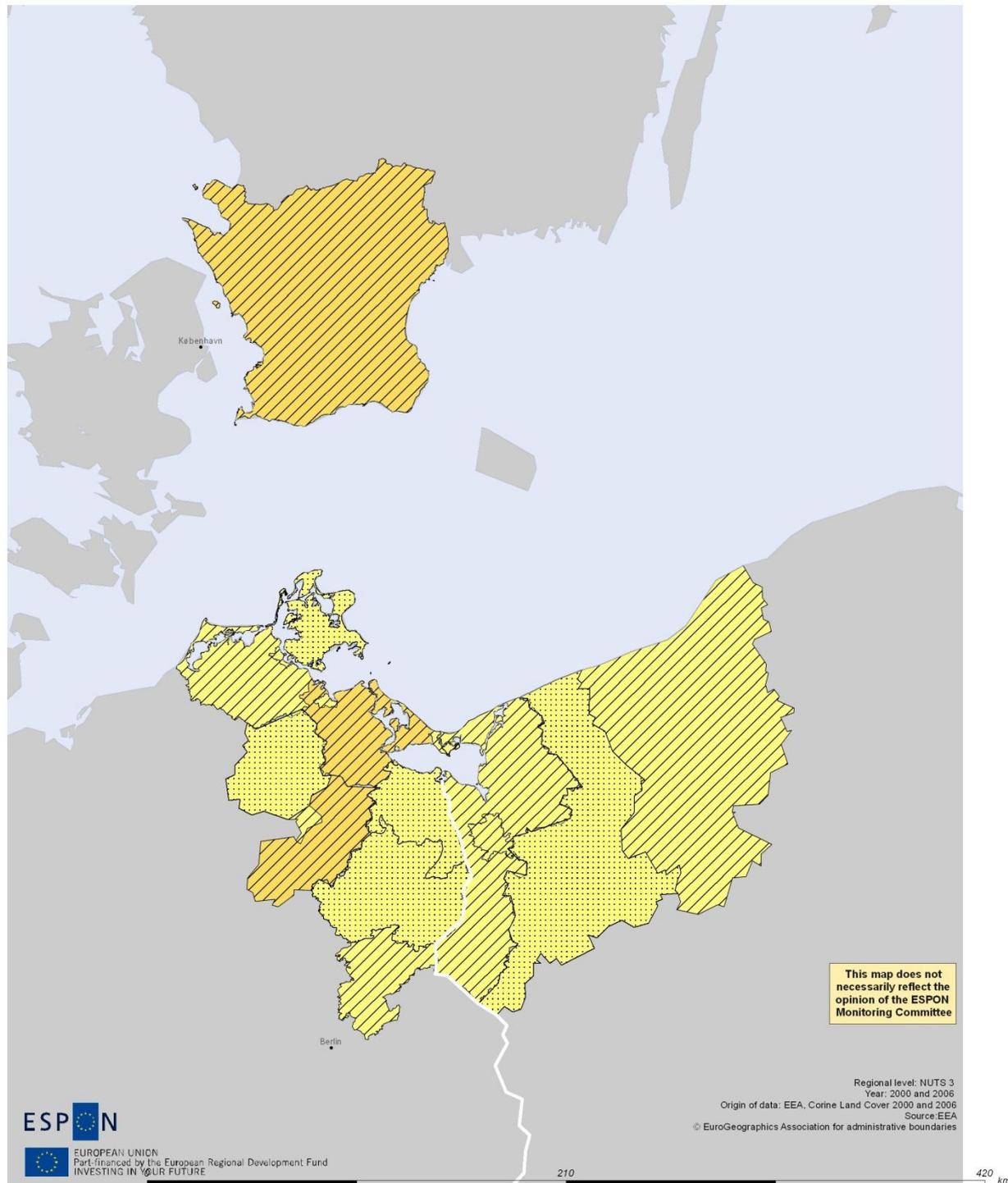
-  Predominantly urban
-  Intermediate regions
-  Predominantly rural regions

Urbanisation of agricultural areas (per 10000), 2000 - 06

- | | | | |
|---|---|--|--|
|  ≤ 1,04 |  5,28 - 10,56 |  <missing values> | EU27+CH+NO = 2,67
DE = 7,19
PL = 1,03
SE = 0,32 |
|  1,05 - 2,67 |  10,57 - 24,89 | | |
|  2,68 - 5,27 |  ≥ 24,90 | | |
| | | | |

Map 31. Urbanisation of natural and semi-natural areas in Euroregion Pomerania between 2000 and 2006.

Urbanisation of natural & semi-natural areas



Legend

Urban rural typology

-  Predominantly urban
-  Intermediate regions
-  Predominantly rural regions

Urbanisation of natural and semi natural areas (per 10000), 2000 - 06

- | | | | |
|---|---|--|-------------------|
|  <= 0,09 |  0,58 - 1,10 |  <missing values> | EU27+CH+NO = 0,34 |
|  0,10 - 0,34 |  1,11 - 2,40 | | DE = 0,15 |
|  0,35 - 0,57 |  >= 2,41 | | PL = 0,01 |
| | | | SE = 0,24 |

Between 2000 and 2006 the share of artificial areas³⁷ in the ESPON countries was 10,63 ha per 10 000 ha of land. The average share of artificial areas in Euroregion Pomerania was very similar to the ESPON average (11,35 ha per 10 000 ha of land). In Germany the share of artificial areas was slightly higher (13,24), while in Poland and Sweden the share of artificial areas was significantly lower (3,59 and 3,89). Neubrandenburg had the largest share of artificial areas (46,91) and Uckermark the smallest (0,28). Biggest changes in the amount of artificial land cover between 2000 and 2006 took place in the city districts of Greifswald, Stralsund and Neubrandenburg.

Table 22. Artificial surfaces (category 1 of the Corine Land Cover) in Euroregion Pomerania.

NUTS ID	NUTS	Artificial Surfaces (ha) (2000–2006)							
		Formation of new land cover	Consumption of land cover	Net formation of land cover	Share of net formation of land cover (per 10 000)	Agricultural to artificial areas (2000–2006)	Agricultural to artificial areas by total area (per 10 000)	Natural and semi-natural to artificial areas	Natural and semi-natural to artificial areas by total area (per 10 000)
ESPON space		667087,81	159607,44	507480,37	10,63	441994,68	9,25	118710,43	2,49
DE	Germany	83478,18	36120,25	47357,93	13,24	57901,44	16,19	9292,95	2,60
PL	Poland	25499,77	14292,90	11206,88	3,59	17289,70	5,54	2901,45	0,93
SE	Sweden	20063,68	2584,07	17479,61	3,89	6781,50	1,51	10826,20	2,41
DE412	Barnim	179,40	103,50	75,90	5,05	62,92	4,19	33,18	2,21
DE418	Uckermark	113,61	105,12	8,49	0,28	43,52	1,42	18,85	0,61
DE801	Greifswald	19,46	33,61	-14,15	-29,14	19,46	40,08	0,00	0,00
DE802	Neubrandenburg	48,59	8,46	40,13	46,91	12,69	14,84	27,44	32,07
DE805	Stralsund	33,55	5,25	28,30	72,82	28,30	72,82	0,00	0,00
DE808	Demmin	96,87	0,00	96,87	5,01	96,87	5,01	0,00	0,00
DE80B	Mecklenburg-Strelitz	152,18	52,69	99,49	4,73	88,28	4,20	11,21	0,53
DE80D	Nordvorpommern	304,81	14,19	290,62	13,61	302,03	14,14	2,78	0,13
DE80F	Ostvorpommern	143,06	0,71	142,34	7,49	137,78	7,25	5,27	0,28
DE80H	Rügen	95,13	0,00	95,13	9,80	93,29	9,61	1,84	0,19
DE80I	Uecker-Randow	37,56	20,65	16,90	1,13	16,90	1,13	0,00	0,00
PL422	Podregion Koszaliński	266,63	116,78	149,85	1,44	183,80	1,77	77,70	0,75
PL423	Podregion Stargardzki	230,57	17,76	212,82	3,11	215,39	3,15	15,18	0,22
PL424	Powiat m. Szczecin	98,42	64,24	34,19	11,38	63,67	21,20	0,00	0,00
PL425	Podregion Szczeciński	119,52	0,00	119,52	2,44	102,98	2,10	16,54	0,34
SE224	Skåne län	3452,57	555,10	2897,47	25,50	2253,17	19,83	744,07	6,55

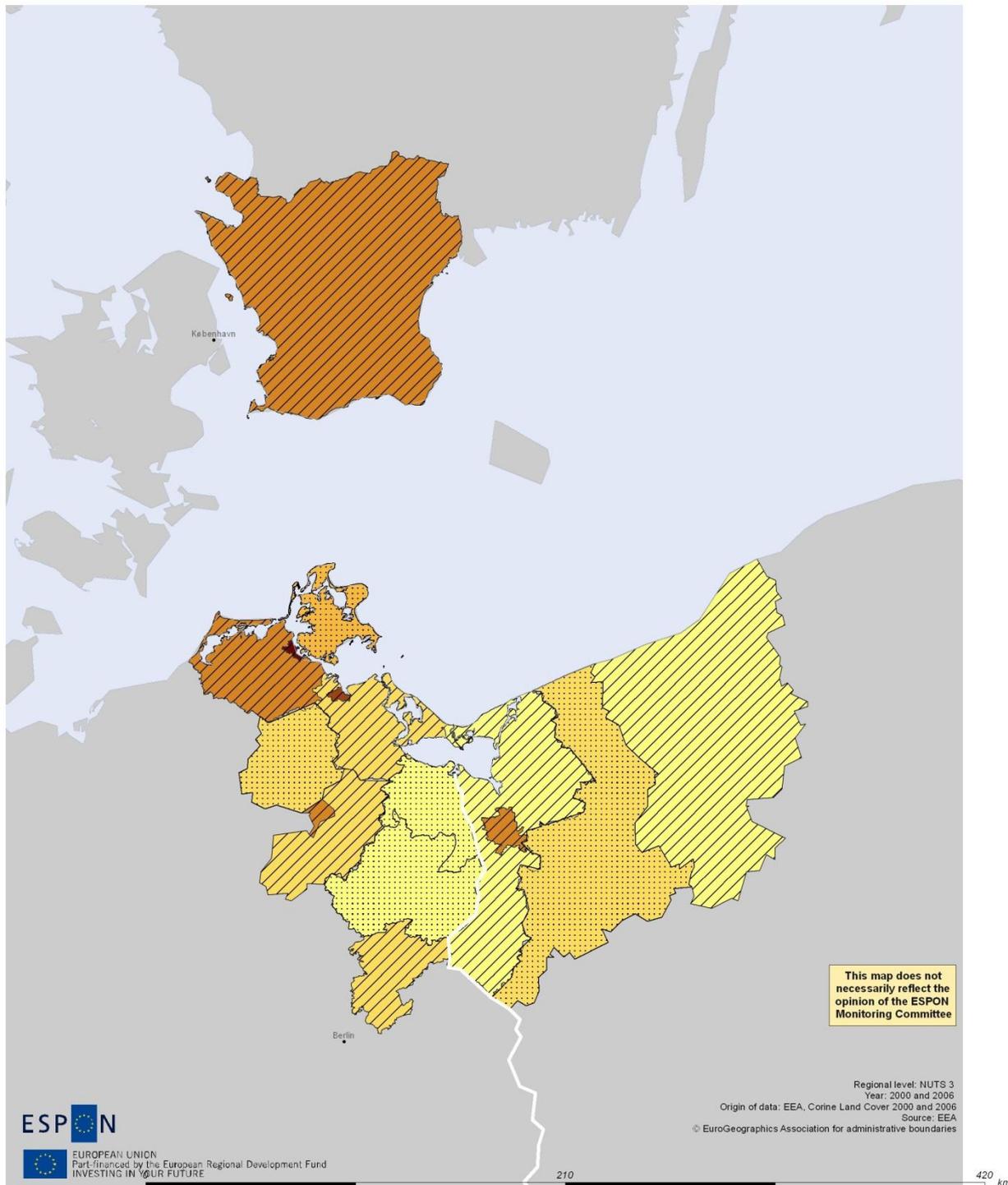
Source: EEA Corine Land Cover

Methodology: Intersection of CLC land cover changes with level 3 and NUTS 2006 (levels 1, 2, 3) and aggregation at CLC2000-2006 level 2.

³⁷ Artificial areas include in the CLC classification (1.1) urban fabric, (1.2) industrial, commercial and transport units, (1.3) mine, dump and constructions sites and (1.4) artificial non-agricultural vegetated areas (green urban areas and sports and leisure facilities).

Map 32. Land use change from agricultural to artificial areas in Euroregion Pomerania between 2000 and 2006.

Land use change from agricultural to artificial



Legend

Eurostat urban rural typology Area changed from agricultural to artificial (per 10000), 2000 - 06

	Predominantly urban		<= 2,84		13,12 - 22,55		<missing values>
	Intermediate regions		2,85 - 9,25		22,56 - 40,08		
	Predominantly rural regions		9,26 - 13,11		>= 40,09		
							EU27+CH+NO = 9,25
							DE = 16,19
							PL = 5,54
							SE = 1,51

4.2. Gross value added and employment in agriculture and fishing

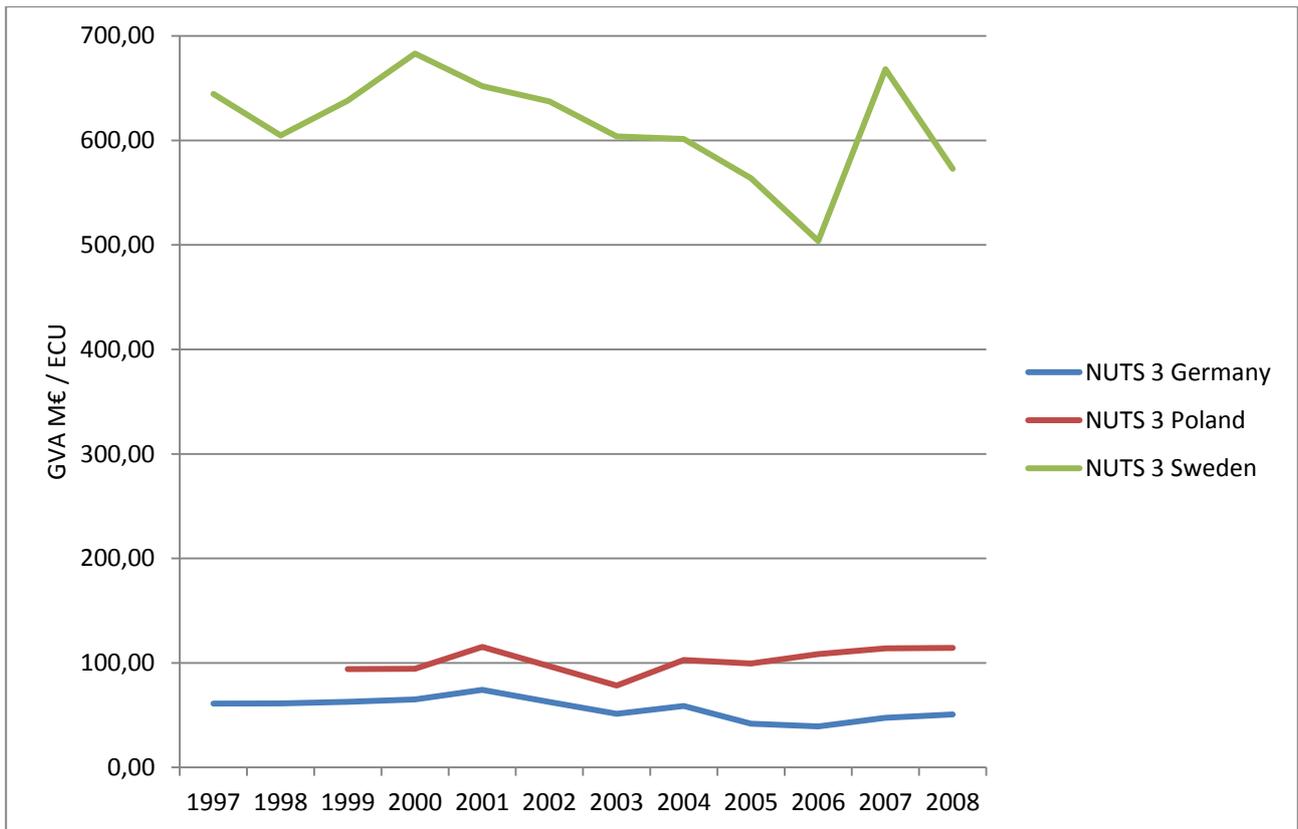
The following table presents gross value added produced by agriculture, hunting, forestry and fishing (NACE classes A-B, hereafter referred to as agriculture and fishing) in Euroregion Pomerania, Germany, Poland, Sweden and the European Union (EU27) between 1997 and 2008. The following figure illustrates the temporal change in GVA by agriculture and fishing in the German, Polish and Swedish NUTS 3 regions of the CBA. Skåne län stands out as the region with the highest GVA by agriculture and fishing, and after a gradual decrease between 1997 and 2006 there has been a recovery in agriculture and fishing during 2007 and 2008.

Table 23. Gross value added by agriculture and fishing in Euroregion Pomerania between 1997 and 2008.

NUTS ID	NUTS	GVA by agriculture and fishing (millions of euro/ECU)											
		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
EU27	EU27	196578,60	194025,70	190538,70	195587,10	205609,80	198864,60	194881,10	204970,50	185614,10	185243,60	200954,70	171307,50
DE	Germany	22571,40	21891,20	22230,00	23460,00	25940,00	22160,00	19080,00	21900,00	17520,00	17900,00	20670,00	20250,00
PL	Poland	8399,20	8412,40	7514,10	8205,70	9681,40	8368,10	7338,20	9151,30	9606,50	10162,00	11645,70	11735,10
SE	Sweden	5106,90	4862,90	4835,90	4862,80	4608,80	4668,50	4820,70	4978,80	3226,40	4066,70	5078,50	5182,50
DE412	Barnim	43,80	43,70	44,00	39,00	49,00	44,00	34,50	45,40	37,20	30,00	45,60	50,70
DE418	Uckermark	111,50	120,20	121,00	115,00	142,00	121,00	93,30	121,50	92,30	81,30	92,10	89,60
DE801	Greifswald	1,00	1,00	1,00	1,00	5,00	6,00	4,60	3,70	4,30	4,40	4,70	3,80
DE802	Neubrandenburg	1,00	1,00	1,00	1,00	3,00	3,00	3,40	2,30	2,50	2,80	3,60	3,70
DE805	Stralsund	4,00	4,00	4,00	4,00	5,00	4,00	4,70	3,60	3,30	3,40	3,50	3,40
DE808	Demmin	115,50	112,20	106,00	114,00	133,00	110,00	99,00	106,60	68,30	67,90	74,00	84,90
DE80B	Mecklenburg-Strelitz	72,70	71,50	81,00	88,00	98,00	83,00	65,80	71,30	42,50	40,40	48,40	53,10
DE80D	Nordvorpommern	113,50	114,20	112,00	120,00	130,00	110,00	93,10	106,70	68,10	65,30	79,10	87,40
DE80F	Ostvorpommern	92,60	90,40	95,00	102,00	111,00	93,00	71,40	80,40	51,80	49,40	60,10	65,40
DE80H	Rügen	57,70	58,60	59,00	63,00	66,00	54,00	47,20	50,40	56,00	53,90	71,20	72,20
DE80I	Uecker-Randow	58,70	57,60	66,00	69,00	74,00	61,00	47,90	55,10	34,80	33,30	40,80	44,40
PL422	Podregion Koszaliński	187,90	183,30	155,70	154,90	192,30	162,80	133,60	175,60	170,30	186,10	194,80	196,20
PL423	Podregion Stargardzki	N/A	N/A	128,90	127,70	156,30	136,10	108,20	144,90	139,90	152,20	160,70	161,40
PL424	Powiat m. Szczecin	N/A	N/A	1,90	1,70	2,20	2,10	1,80	2,20	2,00	2,30	2,40	2,30
PL425	Podregion Szczeciński	N/A	N/A	89,70	93,30	110,60	86,30	69,80	88,80	85,80	93,40	97,80	97,90
SE224	Skåne län	644,50	604,80	638,00	683,10	651,90	637,30	603,80	601,40	563,80	503,80	668,20	572,80

Source: Eurostat

Figure 17. Gross value added by agriculture and fishing in Euroregion Pomerania between 1997 and 2008.



Source: Eurostat

The share of GVA by agriculture and fishing in total GVA has decreased in all the regions of Euroregion Pomerania between 1997 and 2008. Even if the regions would have experienced growth in the GVA by agriculture and fishing, the share of those fields in the total GVA has decreased in all the regions (if not considering Neubrandenburg, where GVA in agriculture and fishing has increased, but has been very low both in 1997 (0,05 %) and in 2008 (0,19 %)).

Table 24. GVA by agriculture and fishing, and share of GVA by agriculture and fishing in total GVA in Euroregion Pomerania.

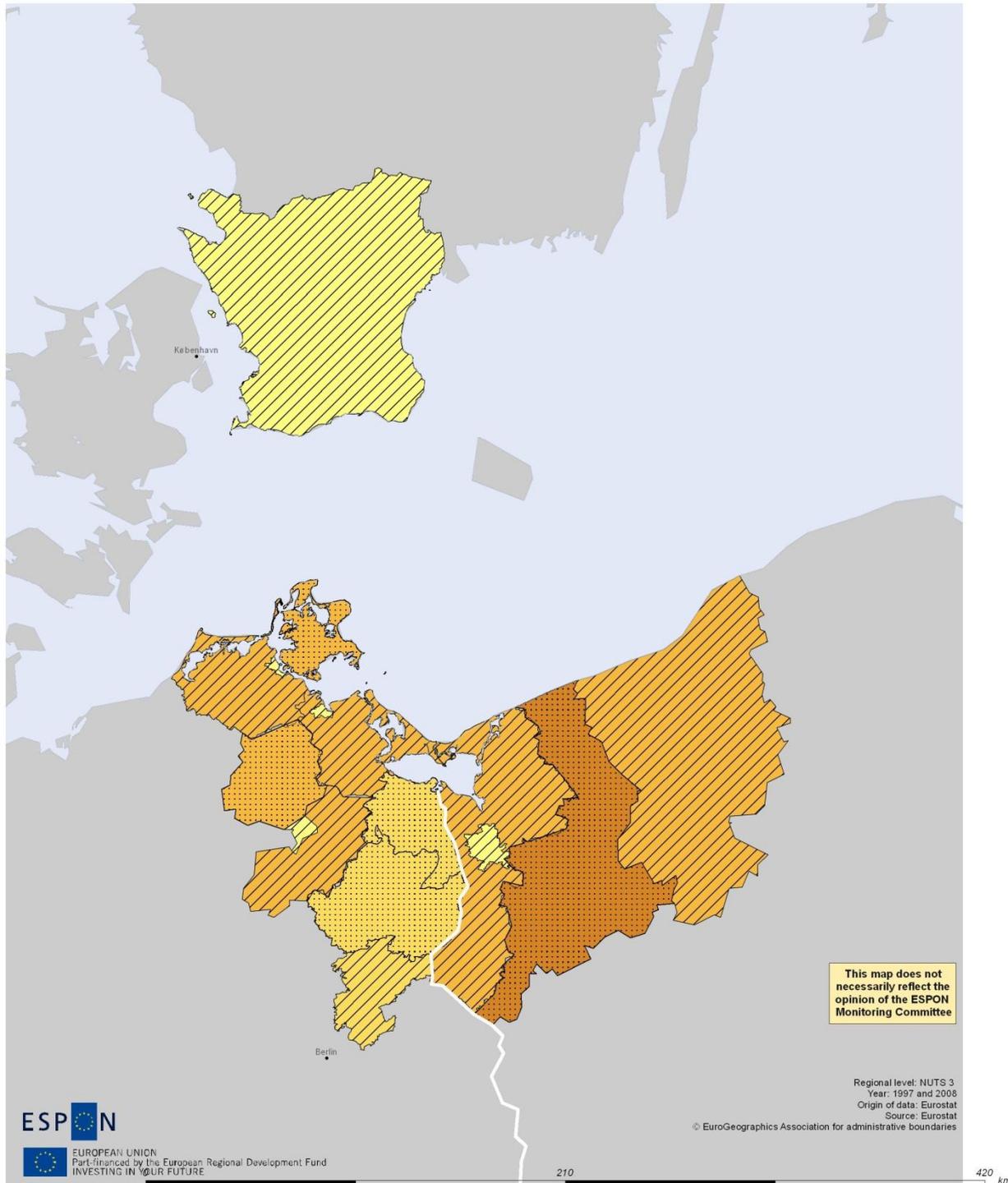
NUTS ID	NUTS	GVA by agriculture and fishing (millions of euro/ECU)		GVA by agriculture and fishing by total GVA (%)		Annual growth rate GVA by agriculture and fishing 1997-2008	Annual growth rate of share of GVA by agriculture and fishing 1997-2008
		1997	2008	1997	2008		
EU27	EU27	196578,6	171307,5	2,82	1,75	1,26	-4,23
DE	Germany	22571,4	20250	1,31	0,90	-0,98	-3,29
PL	Poland	8399,2	11735,1	6,86	3,69	3,09	-5,48
SE	Sweden	5106,9	5182,5	2,61	1,77	0,13	-3,45
DE412	Barnim	43,8	50,7	2,19	1,87	1,34	-1,41
DE418	Uckermark	111,5	89,6	5,33	3,57	-1,97	-3,58
DE801	Greifswald	1	3,8	0,11	0,30	12,90	9,92
DE802	Neubrandenburg	1	3,7	0,05	0,19	12,63	12,03
DE805	Stralsund	4	3,4	0,35	0,22	-1,47	-3,99
DE808	Demmin	115,5	84,9	10,21	6,25	-2,76	-4,37
DE80B	Mecklenburg-Strelitz	72,7	53,1	7,06	5,04	-2,82	-3,03
DE80D	Nordvorpommern	113,5	87,4	8,97	5,57	-2,35	-4,25
DE80F	Ostvorpommern	92,6	65,4	7,54	4,13	-3,11	-5,32
DE80H	Rügen	57,7	72,2	6,23	5,87	2,06	-0,54
DE80I	Uecker-Randow	58,7	44,4	5,22	3,81	-2,51	-2,83
PL422	Podregion Koszaliński	155,7	196,2	11,65	4,88	2,60	-6,14
PL423	Podregion Stargardzki	128,9	161,4	13,40*	8,06	2,53*	-5,49*
PL424	Powiat m. Szczecin	1,9	2,3	0,08*	0,05	2,15*	-4,71*
PL425	Podregion Szczeciński	89,7	97,9	8,10*	4,06	0,98*	-7,38*
SE224	Skåne län	644,5	572,8	2,81	1,71	-1,07	-4,40

*Data for 1999-2008

Source: Eurostat

Map 33. Share of GVA by agriculture and fishing in total GVA in Euroregion Pomerania (2008).

Gross value added by agriculture and fishing



Legend

Eurostat urban rural typology

- Predominantly urban
- Intermediate regions
- Predominantly rural regions

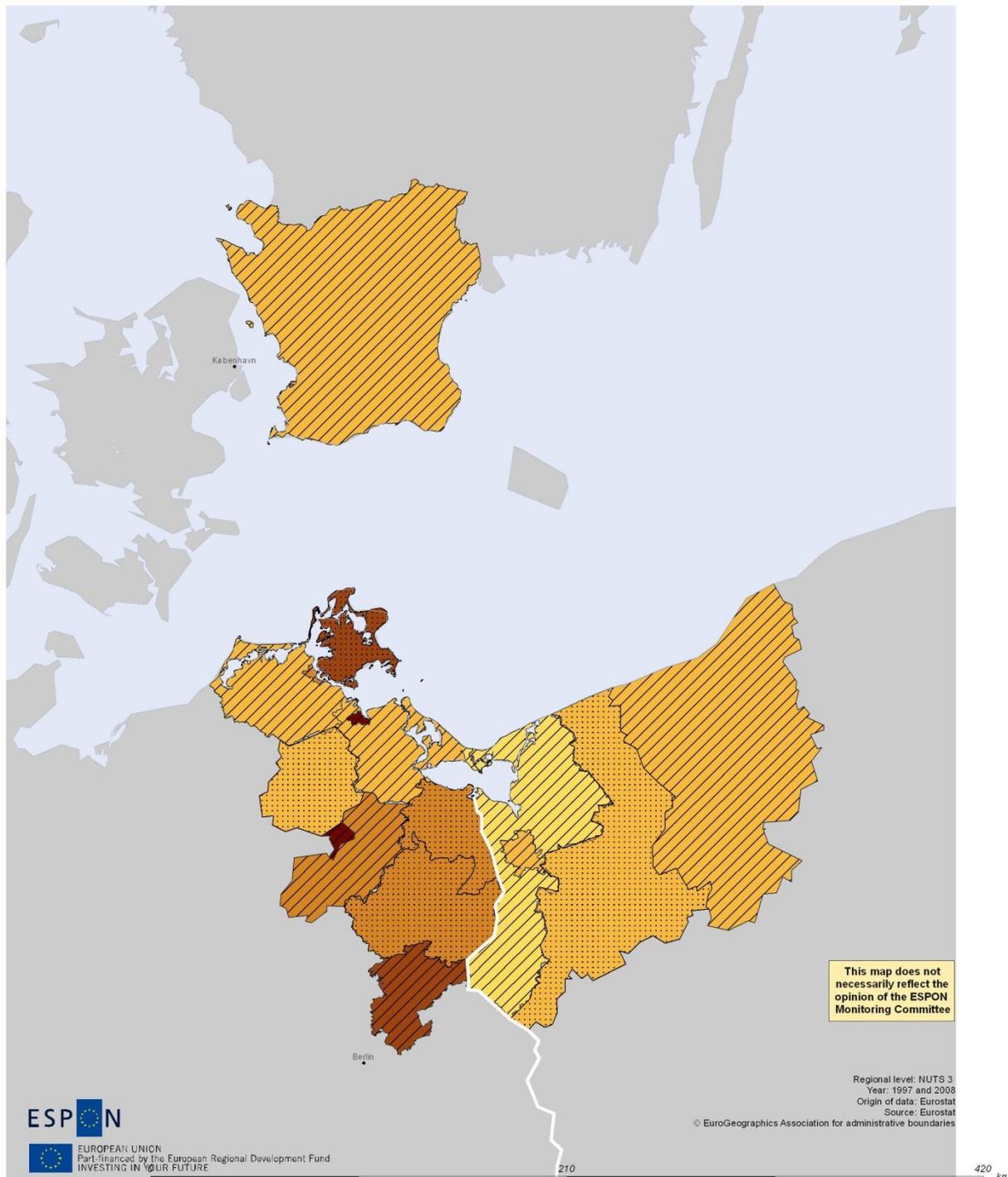
Percent of GVA by agriculture and fishing by total GVA 2008

- | | | | | | |
|--|-------------|--|---------------|--|------------------|
| | <= 1,75 | | 6,30 - 10,10 | | <missing values> |
| | 1,76 - 3,81 | | 10,11 - 15,49 | | |
| | 3,82 - 6,29 | | >= 15,50 | | |

EU27 = 1,75
DE = 0,90
PL = 3,69
SE = 1,77

Map 34. Annual growth rate of the share of GVA by agriculture and fishing in total GVA in Euroregion Pomerania between 1997 and 2008.

Annual change GVA by agriculture and fishing



Legend

Eurostat urban rural typology

- Predominantly urban
- Intermediate regions
- Predominantly rural regions

Annual change of the share of GVA by agriculture and fishing 97-08*

- | | | | | | |
|--|------------------|--|-----------------|--|------------------|
| | $\leq -10,18$ | | $-4,22 - -2,27$ | | <missing values> |
| | $-10,17 - -7,31$ | | $-2,26 - 2,85$ | | |
| | $-7,30 - -4,23$ | | $\geq 2,86$ | | |

EU27 = -4,23
DE = -3,29
PL = -5,48
SE = -3,45

*PL 1999-2008

Employment statistics for agriculture and fishing show a gradual decrease in the European Union, Germany, Poland and Sweden between 2000 and 2008. The trend has prevailed also in Euroregion Pomerania and the changes have been especially severe in the Polish regions of the CBA. Following table presents employment statistics for the given period, and the following figure temporal evolution of employment in agriculture and fishing in Euroregion Pomerania between 2000 and 2008.

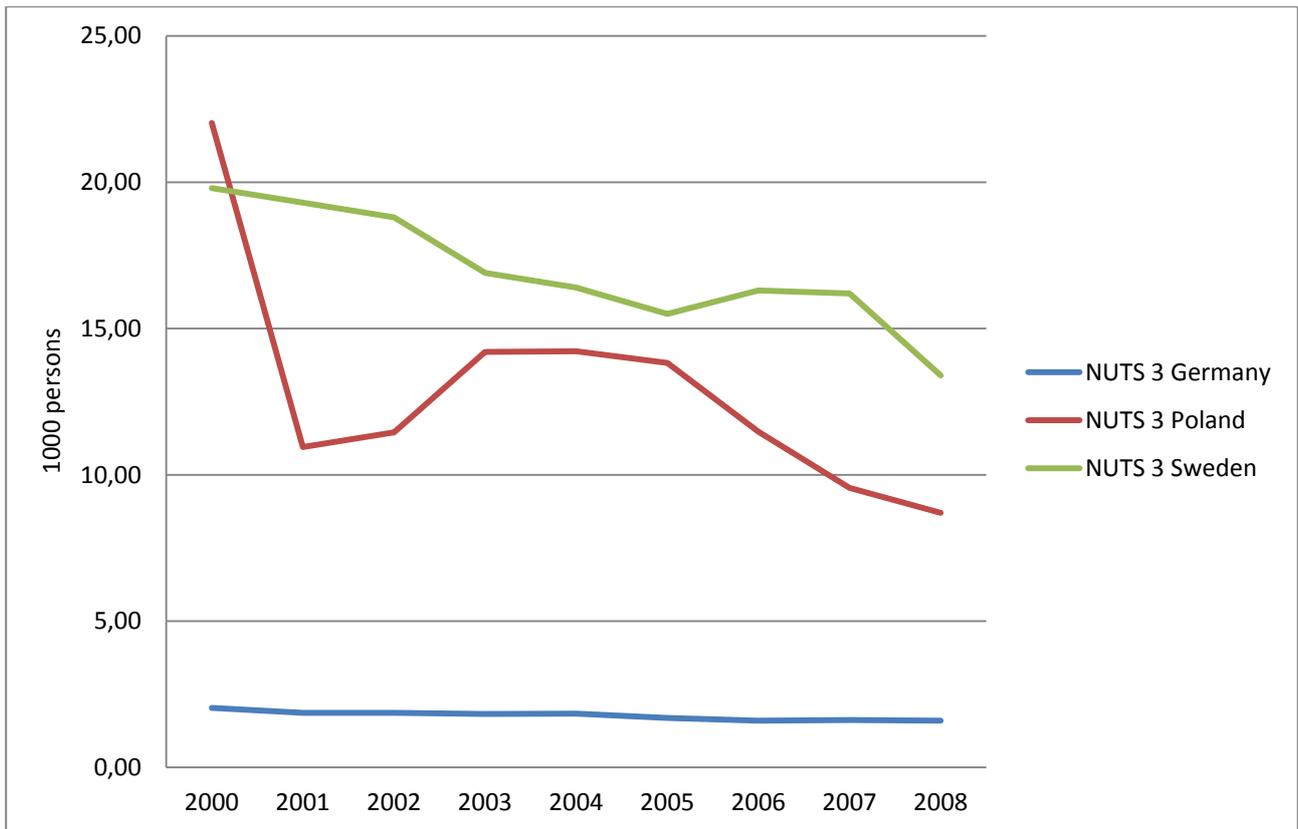
Table 25. Employment in agriculture and fishing in Euroregion Pomerania between 2000 and 2008.

NUTS ID	NUTS	Employment in agriculture and fishing (thousands of persons)								
		2000	2001	2002	2003	2004	2005	2006	2007	2008
EU27	EU27*	17112,90	15846,30	14540,40	14368,70	13880,20	13686,60	13111,90	12875,70	11706,90
DE	Germany	934,60	925,00	904,20	880,00	873,00	853,00	837,00	850,00	860,00
PL	Poland	3955,90	2717,60	2661,10	2505,60	2480,40	2445,40	2290,20	2236,30	2208,10
SE	Sweden	127,40	118,80	115,20	107,80	103,80	99,00	96,80	95,30	97,00
DE412	Barnim	1,80	1,70	1,90	2,00	2,00	1,80	1,70	1,90	1,80
DE418	Uckermark	3,90	3,70	3,90	4,20	4,20	3,70	3,40	3,30	3,20
DE801	Greifswald	0,10	0,40	0,50	0,30	0,50	0,50	0,40	0,40	0,40
DE802	Neubrandenburg	0,30	0,30	0,20	0,20	0,20	0,20	0,20	0,20	0,20
DE805	Stralsund	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20
DE808	Demmin	3,90	3,40	3,20	3,10	3,00	2,80	2,70	2,70	2,60
DE80B	Mecklenburg-Strelitz	4,00	3,40	3,00	2,80	2,70	2,10	1,90	1,80	1,90
DE80D	Nordvorpommern	2,80	2,70	2,80	2,70	2,70	2,60	2,50	2,60	2,60
DE80F	Ostvorpommern	2,50	2,00	2,00	1,90	1,90	1,90	1,80	1,90	1,90
DE80H	Rügen	1,30	1,20	1,20	1,20	1,30	1,30	1,30	1,30	1,30
DE80I	Uecker-Randow	1,60	1,50	1,60	1,50	1,50	1,50	1,50	1,50	1,50
PL422	Podregion Koszaliński	36,80	18,30	19,70	24,40	25,10	24,60	20,00	17,00	15,30
PL423	Podregion Stargardzki	28,90	14,00	14,90	18,80	18,00	17,60	15,20	12,10	11,50
PL424	Powiat m. Szczecin	2,10	0,90	1,10	1,50	1,70	1,30	1,00	1,00	0,90
PL425	Podregion Szczeciński	20,30	10,60	10,10	12,10	12,10	11,80	9,70	8,10	7,10
SE224	Skåne län	19,80	19,30	18,80	16,90	16,40	15,50	16,30	16,20	13,40

*NL not included in 2000; UK not included in 2000 and 2001.

Source: Eurostat

Figure 18. Employment in agriculture and fishing in Euroregion Pomerania between 2000 and 2008.



Source: Eurostat

Decrease in employment in agriculture and fishing has naturally reduced the share of employment in general employment statistics. In Euroregion Pomerania the greatest decrease has taken place in Podregion Szczeciński, where the share of employment in agriculture and fishing has decreased at an annual rate of -11,77 %. Stralsund on the other hand has shown smallest changes in the employment in agriculture and fishing (0,11 % annual growth rate) between 2000 and 2008.

Table 26. Employment in agriculture and fishing, and share of employment in agriculture and fishing in total employment in Euroregion Pomerania between 2000 and 2008.

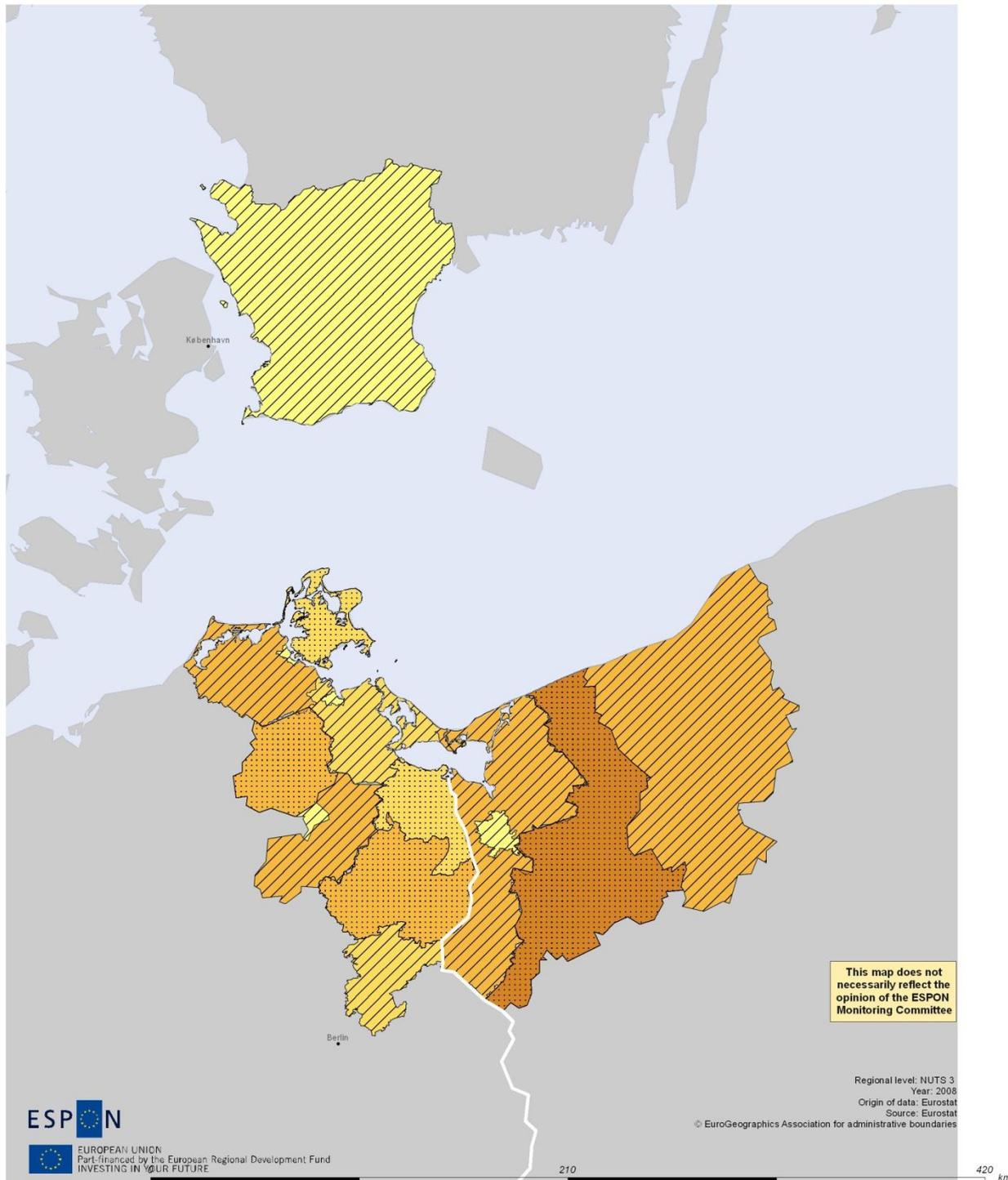
NUTS ID	NUTS	Employment in agriculture and fishing (thousands of persons)		Share of employment in agriculture and fishing by total employed (%)		Annual growth rate of employment in agriculture and fishing 2000-2008	Annual growth rate of employment in agriculture and fishing 2000-2008
		2000	2008	2000	2008		
EU27	EU27*	17701,10	11706,90	8,41	5,87	-5,04	-4,39
DE	Germany	934,6	860	2,39	2,14	-1,03	-1,39
PL	Poland	3955,9	2208,1	26,34	14,02	-7,03	-7,58
SE	Sweden	127,4	97	2,96	2,12	-3,35	-4,07
DE412	Barnim	1,8	1,8	2,86	2,89	0,00	0,12
DE418	Uckermark	3,9	3,2	6,90	6,30	-2,44	-1,14
DE801	Greifswald	0,1	0,4	0,35	1,32	18,92	18,17
DE802	Neubrandenburg	0,3	0,2	0,61	0,44	-4,94	-4,11
DE805	Stralsund	0,2	0,2	0,60	0,60	0,00	0,11
DE808	Demmin	3,9	2,6	12,11	9,15	-4,94	-3,44
DE80B	Mecklenburg-Strelitz	4	1,9	12,90	6,96	-8,89	-7,43
DE80D	Nordvorpommern	2,8	2,6	7,18	6,84	-0,92	-0,60
DE80F	Ostvorpommern	2,5	1,9	6,10	4,57	-3,37	-3,55
DE80H	Rügen	1,3	1,3	4,29	4,22	0,00	-0,20
DE80I	Uecker-Randow	1,6	1,5	4,72	4,98	-0,80	0,68
PL422	Podregion Koszaliński	36,8	15,3	19,03	8,04	-10,39	-10,21
PL423	Podregion Stargardzki	28,9	11,5	26,59	11,64	-10,88	-9,81
PL424	Powiat m. Szczecin	2,1	0,9	1,14	0,51	-10,05	-9,46
PL425	Podregion Szczeciński	20,3	7,1	20,55	7,55	-12,31	-11,77
SE224	Skåne län	19,8	13,4	3,84	2,40	-4,76	-5,70

*For NL and UK no data was available for 2000 and therefore data from 2001 (NL) and 2002 (UK) was used.

Source: Eurostat

Map 35. Share of employment in agriculture and fishing in total employment in Euroregion Pomerania (2008).

Share of employment in agriculture and fishing

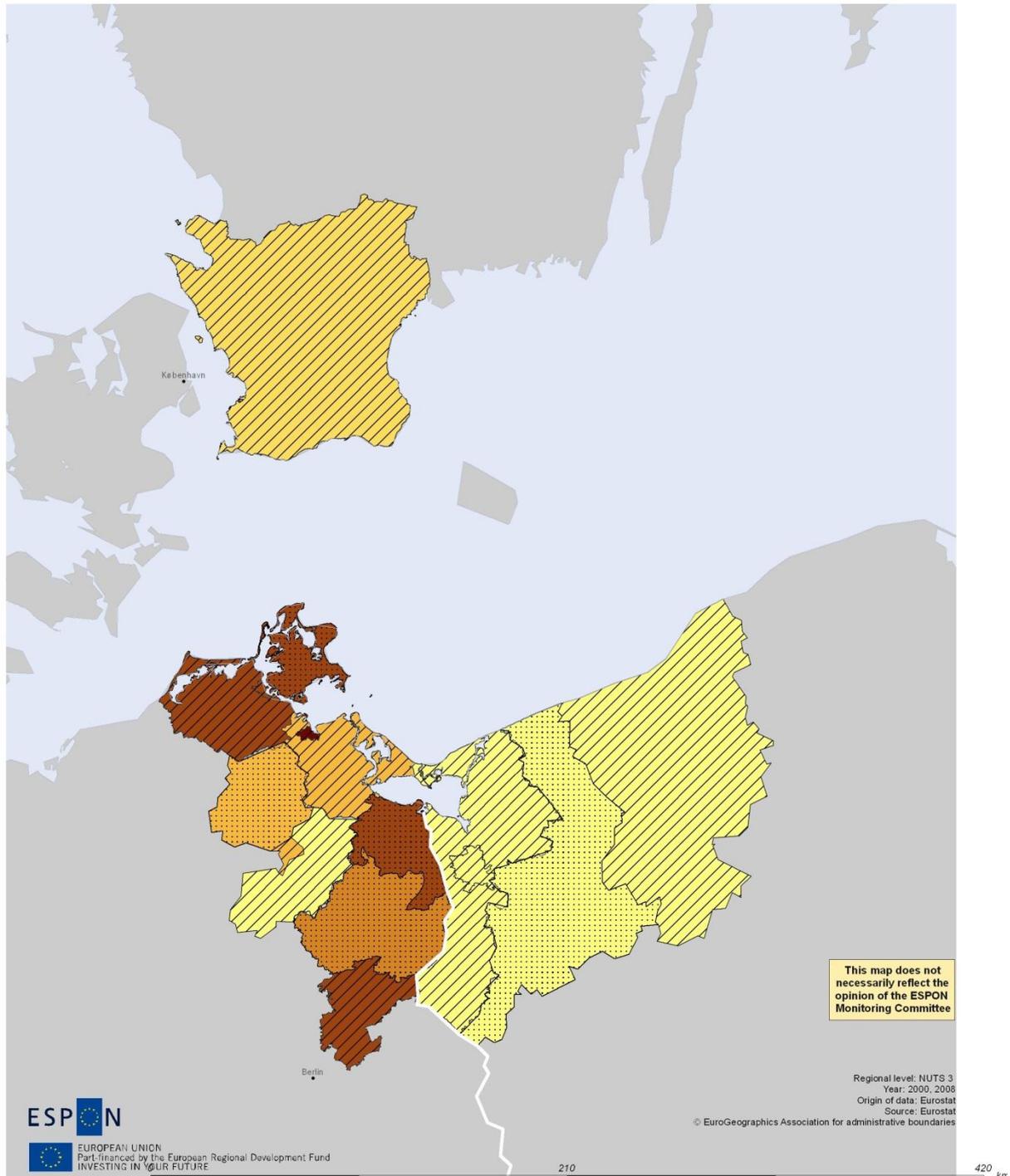


Legend

Eurostat urban rural typology		% employed in agriculture and fishing by total employed 2008						
	Predominantly urban		<= 2,66		10,58 - 16,53		<missing values>	EU27 = 5,87
	Intermediate regions		2,67 - 5,87		16,54 - 28,73			DE = 2,14
	Predominantly rural regions		5,88 - 10,57		>= 28,74			PL = 14,02
								SE = 2,12

Map 36. Annual growth rate of the share of employment in agriculture and fishing in Euroregion Pomerania between 2000 and 2008.

Change of employed in agriculture and fishing



Legend

Eurostat urban rural typology Annual change of the share employed in agriculture and fishing 00-08

	Predominantly urban		$\leq -7,43$		$-2,47 - -1,02$		<missing values>	EU27 = -4,39*
	Intermediate regions		$-7,42 - -4,39$		$-1,01 - 3,90$			DE = -1,39
	Predominantly rural regions		$-4,38 - -2,48$		$\geq 3,91$			PL = -7,58
								SE = -4,07

*NL: 2001-2008 UK: 2002-2008

4.3. Chapter conclusions

ESPON 1.1.2 typology classifies following regions of Euroregion Pomerania as regions with low urban influence and low human intervention: Uckermark, Demmin, Mecklenburg-Strelitz, Nordvorpommern, Ostvorpommern, Rügen, Uecker-Randow and Podregion Koszaliński. Regions with high urban influence and high human intervention are, according to the classification, Barnim, Greifswald, Neubrandenburg, Stralsund and Skåne län. The Eurostat typology considers following regions of the CBA as predominantly rural regions: Uckermark, Demmin, Rügen, Uecker-Randow and Podregion Stargardzki. The rest of the regions of Euroregion Pomerania are classified as intermediate regions.

Agricultural areas occupy relatively large areas in Euroregion Pomerania. Demmin has the largest share of agricultural areas (79,73 %) and even in Neubrandenburg (where the share of agricultural areas is the smallest in the CBA) 25,08 % of the total area is occupied by agricultural land. In general, total area of agricultural land has been decreasing in all the regions of Euroregion Pomerania between 1990 and 2006.

Urbanisation of agricultural areas in Euroregion Pomerania has been similar to the average of ESPON countries (2,67 ha per 10 000 ha), but two regions have experienced urbanisation of larger agricultural areas. In Stralsund 38,93 ha per 10 000 ha and in Greifswald 24,89 ha per 10 000 ha of agricultural land was urbanised between 2000 and 2006. The average share of artificial areas in Euroregion Pomerania was also very similar to the ESPON average (11,35 ha per 10 000 ha of land). Biggest changes in the amount of artificial land cover between 2000 and 2006 have taken place in the city districts of Greifswald, Stralsund and Neubrandenburg.

The share of GVA by agriculture and fishing in total GVA has decreased in all the regions of Euroregion Pomerania between 1997 and 2008. Employment statistics for agriculture and fishing show a gradual decrease in Euroregion Pomerania and the changes have been especially severe in the Polish regions of the CBA. Decrease in employment in agriculture and fishing has naturally reduced the share of employment in general employment statistics.

Chapter 5. Accessibility and connectivity in the Poland – Germany – Sweden CBA (Euroregion Pomerania)

Accessibility of a region is determined by two factors, its geographical location and infrastructure. While the geographical location cannot be changed, improving connectivity can. European Spatial Development Perspective (ESDP) states that good accessibility of European regions improves not only their competitive position but also the competitiveness of Europe as a whole. Accessibility is accordingly a key policy aim of the European Union, since accessibility of a region determines the extent to which it can participate in economic growth. According to ESDP accessibility in certain parts of Europe is poor, which can make these areas less attractive for many types of investment. Islands and border regions often belong to this type of territories and they have to find specific solutions in order to succeed.³⁸ Territorial Agenda 2020, on the other hand, states that fair and affordable accessibility to services of general interest, information, knowledge and mobility are essential for territorial cohesion. Providing services and minimising infrastructure barriers can improve sustainable and harmonious territorial development of the European Union. According to the agenda it is of major importance to secure access to road, rail, water-based and air transport, and to other infrastructure facilities such as broadband and Trans-European energy networks.³⁹

The aim of this chapter is to evaluate accessibility and connectivity levels of Euroregion Pomerania. What is the accessibility level of the CBA in comparison with European countries? What is the general accessibility of the CBA regarding different modes of transport? What is the level of broadband internet access in the CBA? Data for the analyses comes from ESPON database.⁴⁰ As for connectivity data, the ESPON database has only very few indicators, which are on NUTS 2 level and only for year 2003. Given the advancements in this area, data from the 5th Cohesion Report and from the European Innovation Scoreboard and Eurostat has been used regarding households' internet access.

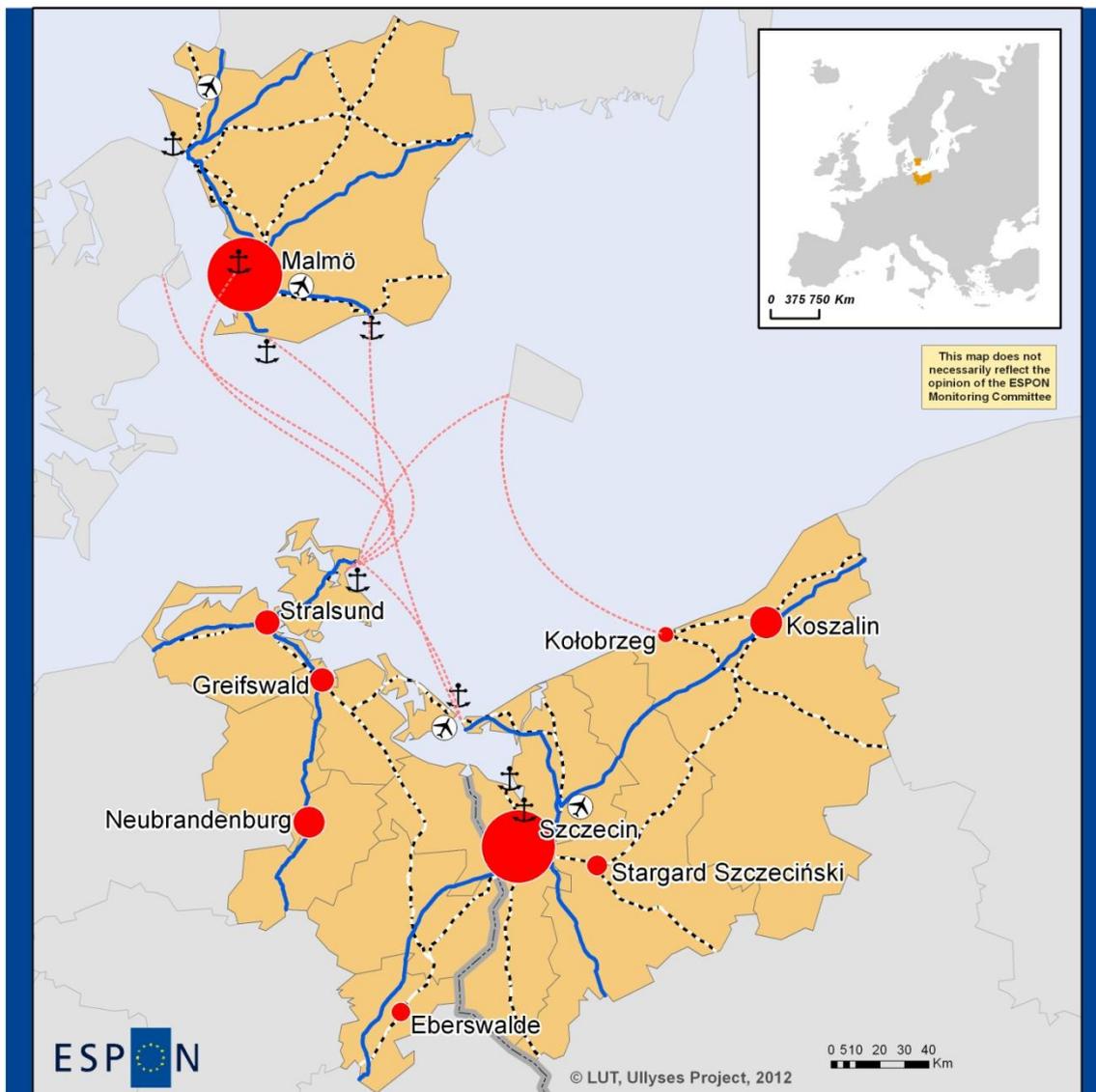
Before going into the analyses, we present a map of Euroregion Pomerania with main transport infrastructure to give an idea of the accessibility and connectivity of the CBA. In the map main road connections are marked with blue colour (roads with E-status), main railways with black and white lines, and main sea routes with red lines. Main airports are located in Szczecin (Goleniów), Heringsdorf, Helsingborg (Angelholm) and Malmö (Sturup). Main ports for passenger and cargo traffic are located in Szczecin, Police and Świnoujście in Poland; Sassnitz in Germany; and Helsingborg, Malmö, Trelleborg and Ystad in Sweden.

³⁸ ESDP 1999; SURE 2009.

³⁹ Territorial Agenda 2020.

⁴⁰ Most of the data for accessibility available at the ESPON database is outdated and available mostly for the 1999 NUTS version. The use of NUTS 1999 delimitations is specially limiting since changes in the coding systems and actual boundaries of the regions have occurred in almost all of the countries in Europe. Nonetheless, the potential accessibility by different modes of transportation has been updated in 2006 and re-calculated to fit the then ruling NUTS 3 delimitation retroactively for 2001, and it is therefore available for two different comparable years. For us this was particularly useful as this indicator does not limit itself to measuring the transport network, but synthesizes overall accessibility of the regions by relating the travel time (impedance function) with the population that can be reached (activity function).

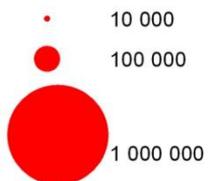
Map 37. Main transport infrastructure in Euroregion Pomerania.



EUROPEAN UNION
Part-financed by the European Regional Development Fund
INVESTING IN YOUR FUTURE

Local level: NUTS 3, 2006
Source: various sources, various years
© EuroGeographics Association for administrative boundaries

**Functional Urban Areas
(inhabitants, 2006)**



Main transport infrastructure



Table 27. Parameters studied for the accessibility and connectivity in the Poland – Germany – Sweden CBA (Euroregion Pomerania).

Variable name	Geographical scale	Source	Time frame
Potential accessibility road, rail, air and multimodal indexed to ESPON average	NUTS 3	ESPON DB	2001;2006
Potential accessibility road, rail, air and multimodal indexed to CBA average	NUTS 3	ESPON DB	2001;2006
Potential accessibility road, rail, air and multimodal index change 2001-2006	NUTS 3	ESPON DB	2001;2006
Households with broadband internet connection	NUTS 1	European Commission 5th Cohesion Report, Regional Innovation Scoreboard	2009 (2004 NO, PL)
Households with access to the Internet at home	NUTS 1	Eurostat	2008-2011

We have studied Euroregion Pomerania from the perspective of rail, road, air and multimodal (synthesizing all the modes of transportation) accessibility. We used an indicator named potential accessibility, which is a similar indicator to demographic potential. This means that it relates activities to be reached with travel time it takes to reach them.⁴¹ The method applied here originates from ESPON 1.2.1 project. The concept of potential accessibility is based on the assumption that the attraction of a destination increases with size, and declines with distance, travel time or cost. Destination size is usually represented by population or economic indicators such as GDP or income.⁴²

We have summarized results of the potential accessibility analyses in the following table. It represents how accessible regions of Euroregion Pomerania are, first, in the context of ESPON countries and, second, in the context of the cross-border area. We have interpreted the results separately for each transport mode in the following subchapters.

⁴¹ Potential accessibility is calculated according to the following formula:

$$A_i = \sum_j W_j^a \exp(-\beta C_{ij})$$

where A_i is the accessibility of area i , W_j is the activity W to be reached in area j , and C_{ij} is the generalised cost of reaching area j from area i . A_i is the total of the activities reachable at j weighted by the ease of getting from i to j . The interpretation is that the greater the number of attractive destinations in areas j is and the more accessible areas j are from area i , the greater is the accessibility of area i .

⁴² The potential accessibility model uses centroids of NUTS 3 regions as origins and destinations. The accessibility model calculates minimum travel times between the centroids of the NUTS 3 regions. For each NUTS 3 region the value of the potential accessibility indicator is calculated by summing up the population in all other regions including those outside ESPON space weighted by the travel time to get there.

Table 28. Potential accessibility of Euroregion Pomerania in the context of ESPON space and the CBA (2006).

NUTS ID	NUTS	Multimodal_ESPON	Rail_ESPON	Road_ESPON	Air_ESPON	Multimodal_CBA	Rail_CBA	Road_CBA	Air_CBA
DE412	Barnim	116,2	135,8	129,3	113,2	148,65	140,06	132,90	158,32
DE418	Uckermark	83,6	111	111,6	74,8	106,95	114,48	114,70	104,62
DE801	Greifswald	70,6	100,6	109,3	58,1	90,32	103,76	112,34	81,26
DE802	Neubrandenburg	80,8	110,9	110,2	71,7	103,37	114,38	113,27	100,28
DE805	Stralsund	71,2	101	103,9	60	91,08	104,17	106,79	83,92
DE808	Demmin	71,7	89,2	103,6	64,5	91,72	92,00	106,48	90,21
DE80B	Mecklenburg-Strelitz	84,4	113,5	109,3	76,1	107,97	117,06	112,34	106,43
DE80D	Nordvorpommern	69,3	85,2	107,7	60,6	88,65	87,87	110,70	84,76
DE80F	Ostvorpommern	65,9	97,3	98,6	53,6	84,30	100,35	101,34	74,97
DE80H	Rügen	60,3	86,4	86,5	50,4	77,14	89,11	88,91	70,49
DE80I	Uecker-Randow	80,1	111,6	115,8	68,3	102,47	115,10	119,02	95,52
PL422	Podregion Koszaliński	42,1	61,8	49,4	36,2	53,86	63,74	50,77	50,63
PL423	Podregion Stargardzki	74,4	96,7	87,8	68,4	95,18	99,74	90,24	95,66
PL424	Powiat m. Szczecin	76	97,4	95,3	70	97,23	100,46	97,95	97,90
PL425	Podregion Szczeciński	83,2	92,7	89,7	81,3	106,44	95,61	92,20	113,71
SE224	Skåne län	120,9	60,2	48,7	136,8	154,67	62,09	50,05	191,33

Source: ESPON DB

As the potential accessibility was produced for two different years in ESPON 1.2.1 -project, it was possible for us to study the evolution of infrastructure development between 2001 and 2006. Here, the index change of accessibility was used. For this indicator the accessibility values of 2001 were standardised to the ESPON average of that year and those of 2006 to the average of that year. Each ESPON average was set to 100 and the regional values were transformed accordingly. Positive values express an improvement in relative locational quality, while negative values express a loss in relative locational quality.⁴³

⁴³ Potential Accessibility Indicators 2007.

Table 29. Standardised potential accessibility of Euroregion Pomerania in the context of ESPON countries and the CBA (2006).

NUTS ID	NUTS	Standardised potential accessibility (ESPON=100)				Standardised potential accessibility (CBA=100)			
		Multimodal	Rail	Road	Air	Multimodal	Rail	Road	Air
DE412	Barnim	116,2	135,8	129,3	113,2	148,7	140,1	132,9	158,3
DE418	Uckermark	83,6	111	111,6	74,8	106,9	114,5	114,7	104,6
DE801	Greifswald	70,6	100,6	109,3	58,1	90,3	103,8	112,3	81,3
DE802	Neubrandenburg	80,8	110,9	110,2	71,7	103,4	114,4	113,3	100,3
DE805	Stralsund	71,2	101	103,9	60	91,1	104,2	106,8	83,9
DE808	Demmin	71,7	89,2	103,6	64,5	91,7	92,0	106,5	90,2
DE80B	Mecklenburg-Strelitz	84,4	113,5	109,3	76,1	108,0	117,1	112,3	106,4
DE80D	Nordvorpommern	69,3	85,2	107,7	60,6	88,7	87,9	110,7	84,8
DE80F	Ostvorpommern	65,9	97,3	98,6	53,6	84,3	100,4	101,3	75,0
DE80H	Rügen	60,3	86,4	86,5	50,4	77,1	89,1	88,9	70,5
DE80I	Uecker-Randow	80,1	111,6	115,8	68,3	102,5	115,1	119,0	95,5
PL422	Podregion Koszaliński	42,1	61,8	49,4	36,2	53,9	63,7	50,8	50,6
PL423	Podregion Stargardzki	74,4	96,7	87,8	68,4	95,2	99,7	90,2	95,7
PL424	Powiat m. Szczecin	76	97,4	95,3	70	97,2	100,5	98,0	97,9
PL425	Podregion Szczeciński	83,2	92,7	89,7	81,3	106,4	95,6	92,2	113,7
SE224	Skåne län	120,9	60,2	48,7	136,8	154,7	62,1	50,1	191,3

Source: ESPON DB

Table 30. Index change of potential accessibility in Euroregion Pomerania between 2001 and 2006.

NUTS ID	NUTS	Index change of potential accessibility (ESPON=100)			
		Multimodal	Rail	Road	Air
DE412	Barnim	-0,6	2,6	5,2	-2,2
DE418	Uckermark	32	4,8	5,8	-1,2
DE801	Greifswald	6,2	3,9	35,7	3,5
DE802	Neubrandenburg	-0,1	0,7	5,5	-1,6
DE805	Stralsund	5,3	2,3	30,3	3,9
DE808	Demmin	4,8	34	15,2	4,3
DE80B	Mecklenburg-Strelitz	-0,6	0,9	2,7	-1,6
DE80D	Nordvorpommern	6,9	0,7	33,9	4,5
DE80F	Ostvorpommern	3,1	3,6	18,5	0,1
DE80H	Rügen	3,2	2,2	25,7	0,8
DE80I	Uecker-Randow	3,1	4,8	17,7	-0,8
PL422	Podregion Koszaliński	32	-2,1	4,4	0,9
PL423	Podregion Stargardzki	1,4	-3,5	12	0,6
PL424	Powiat m. Szczecin	1,2	-4,6	13,6	0,3
PL425	Podregion Szczeciński	1,6	-3,8	12,5	1,1
SE224	Skåne län	-5,8	-0,7	-0,2	-5,8

Source: ESPON DB

5.1. Accessibility by road

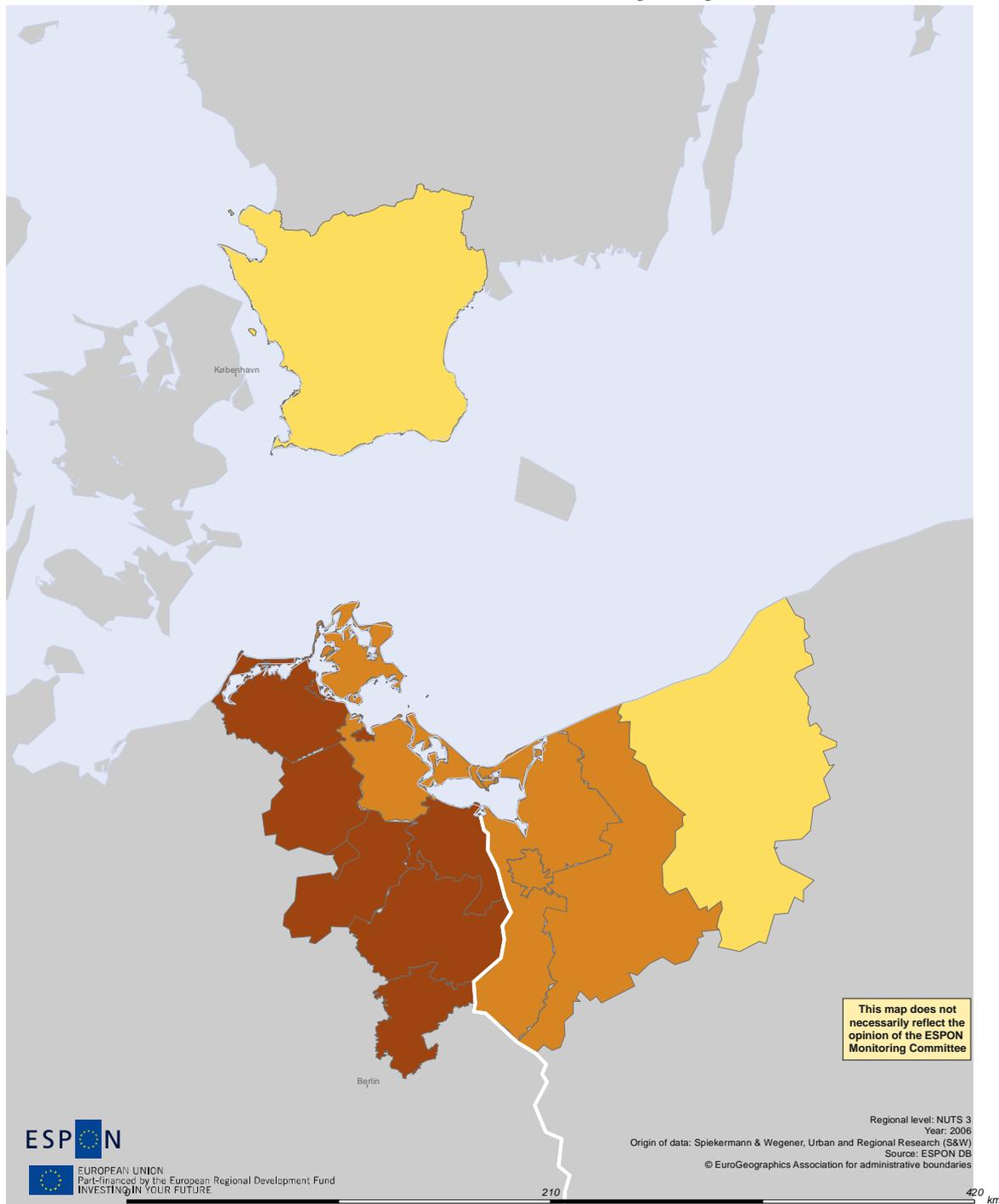
In the context of ESPON space potential accessibility of Euroregion Pomerania by road varies from 129,3 (Barnim) to 48,7 (Skåne län). German regions of Euroregion Pomerania are potentially easier to access by road than ESPON regions in general. Accordingly, the German region of Barnim is more easily accessed by road than NUTS 3 regions of ESPON countries in average, while the Swedish region of Skåne is more difficult to reach by road than NUTS 3 regions in ESPON countries in average. Potential accessibility of the Polish regions is below the ESPON average.

German regions of Euroregion Pomerania have the highest potential accessibility by road also in the context of the CBA. Barnim is again the most easily accessed region (132,9), while Skåne län (50,1) and Podregion Koszaliński (50,8) are most difficult to access.

Index change in the potential accessibility by road between 2001 and 2006 has been positive in all the regions of Euroregion Pomerania, except for Skåne län, for which the index change was slightly negative (-0,2). Most positive change in potential accessibility experienced the German regions of Greifswald (35,7), Nordvorpommern (33,9) and Stralsund (30,3).

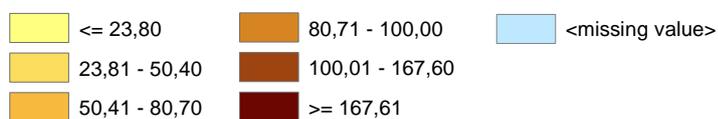
Map 38. Potential accessibility of Euroregion Pomerania by road in the context of ESPON countries (2006).

Potential accessibility by road



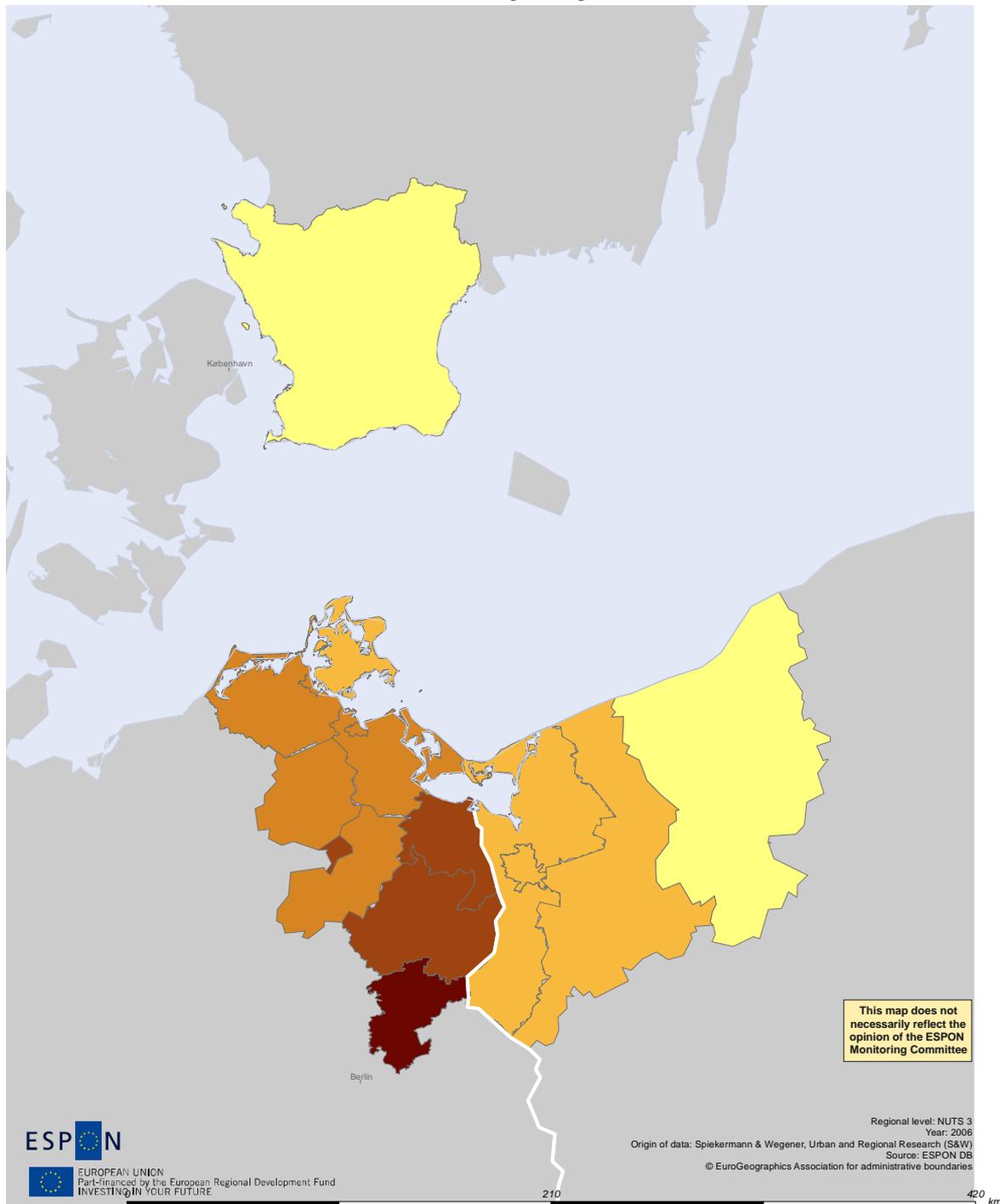
Legend

Potential accessibility by road indexed to ESPON average (=100), 2006



Map 39. Potential accessibility of Euroregion Pomerania by road in the context of the CBA (2006).

Potential accessibility by road in the CBR



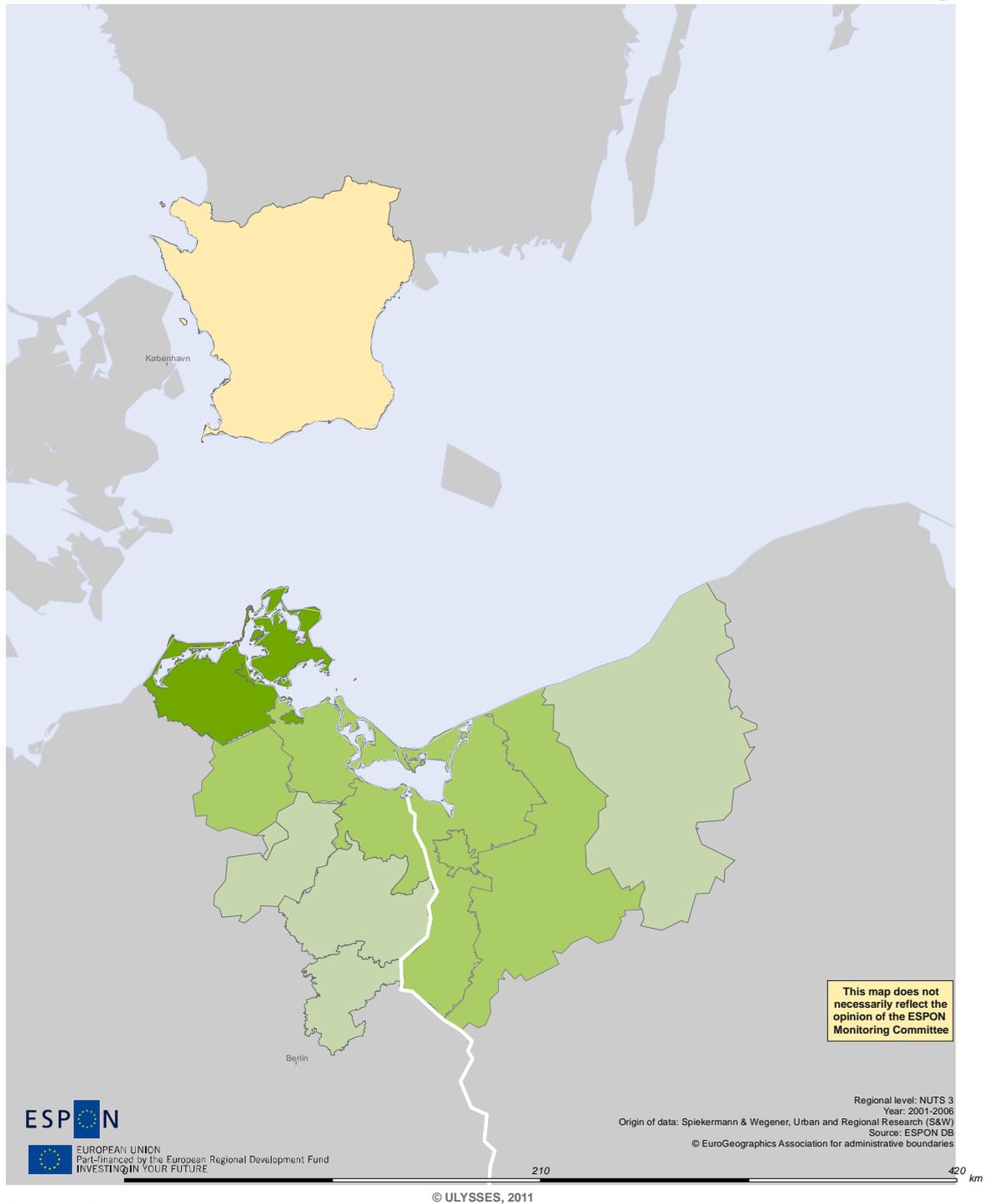
Legend

Potential accessibility by road indexed to Cross Border Region average (=100), 2006



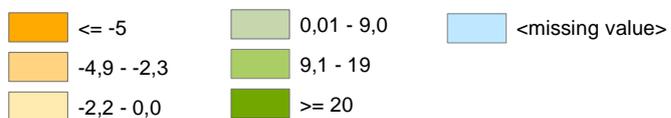
Map 40. Index change of standardised potential accessibility by road of Euroregion Pomerania between 2001 and 2006.

Potential accessibility by road index change



Legend

Potential accessibility by road standardised index change, 2001-2006



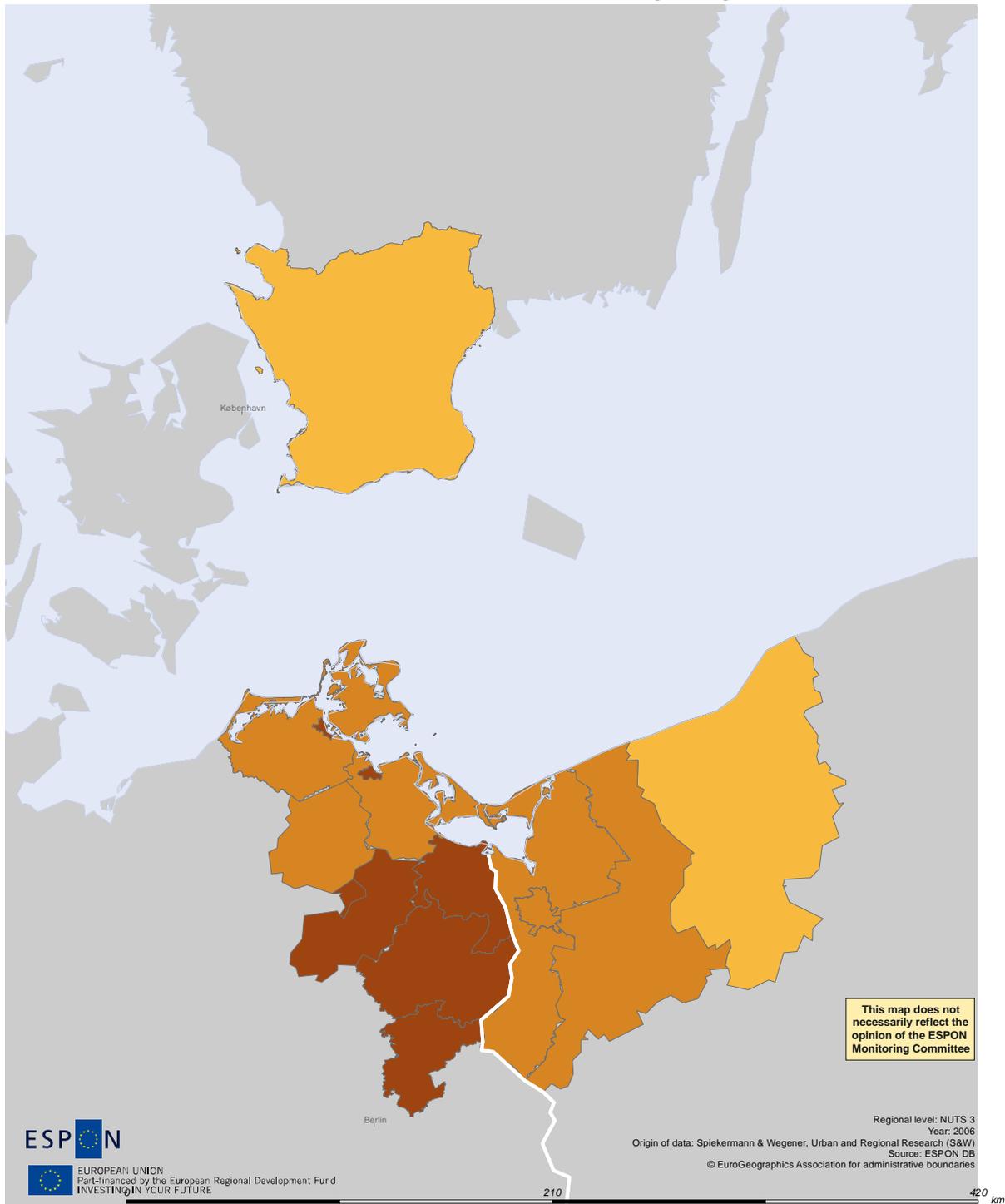
5.2. Accessibility by rail

Potential accessibility by rail in Euroregion Pomerania is relatively similar to the road accessibility. The German region of Barnim has the highest potential accessibility both in the context of ESPON space (135,8) and the CBA (140,1). German regions of Euroregion Pomerania are more easily accessed by rail than the Polish regions, or Skåne län in Sweden, which scores lowest in both the ESPON and CBA ratings. Considering geographical facts (the maritime border) low accessibility of Skåne län from the European road and rail infrastructures seems very natural.

Index change in the potential accessibility by rail has been positive in all the German regions of Euroregion Pomerania, but negative in all the other regions. Demmin has experienced the most positive change (34), while the city of Szczecin (Powiat m. Szczecin) has had the most negative change in potential accessibility by rail (-4,6).

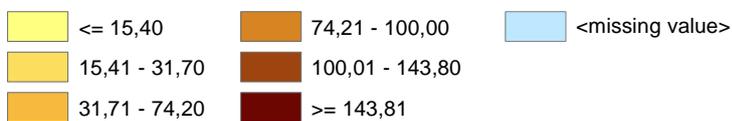
Map 41. Potential accessibility of Euroregion Pomerania by rail in the context of ESPON countries (2006).

Potential accessibility by rail



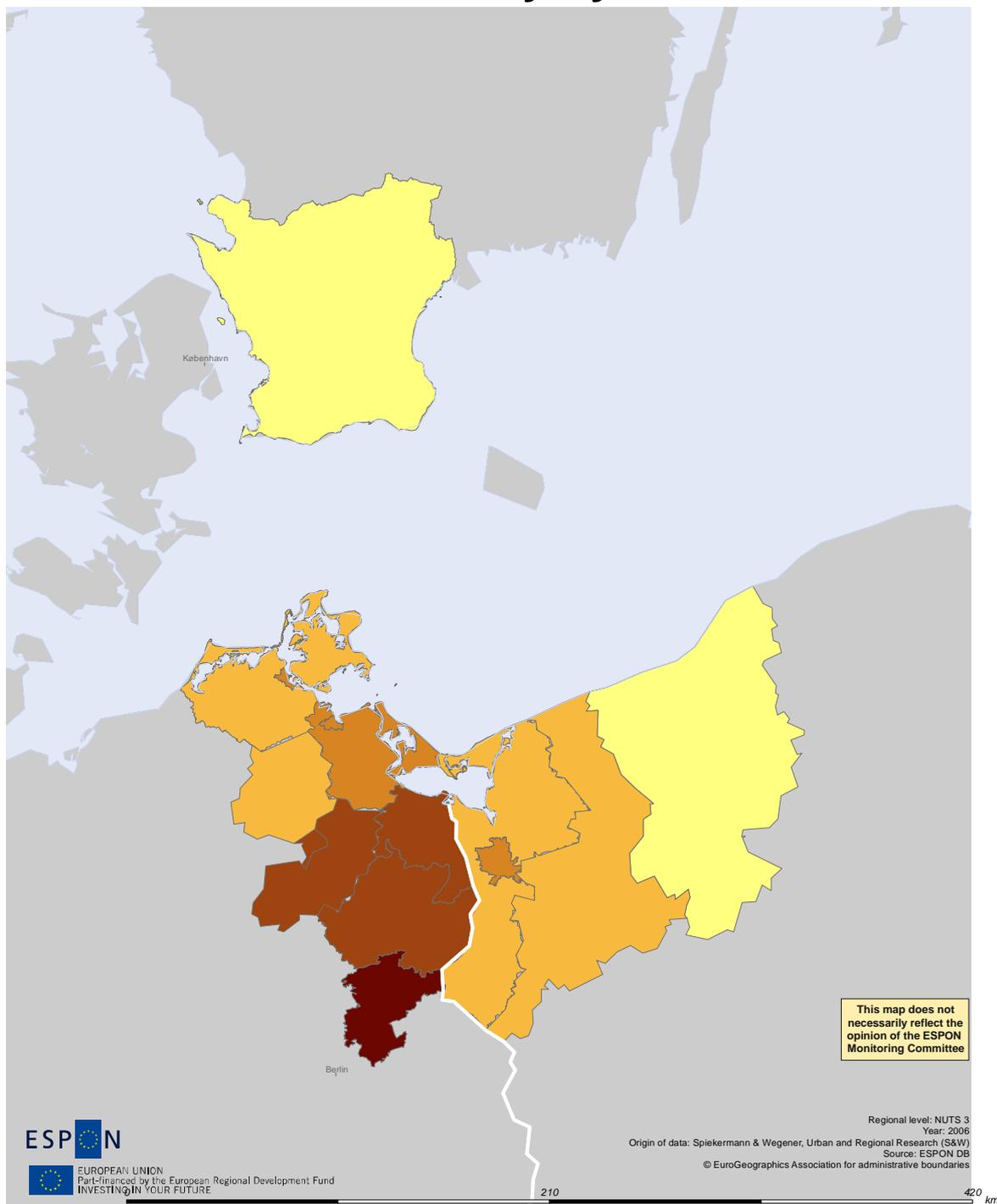
Legend

Potential accessibility by rail indexed to ESPON average (=100), 2006



Map 42. Potential accessibility of Euroregion Pomerania by rail in the context of the CBA (2006).

Potential accessibility by rail in the CBR



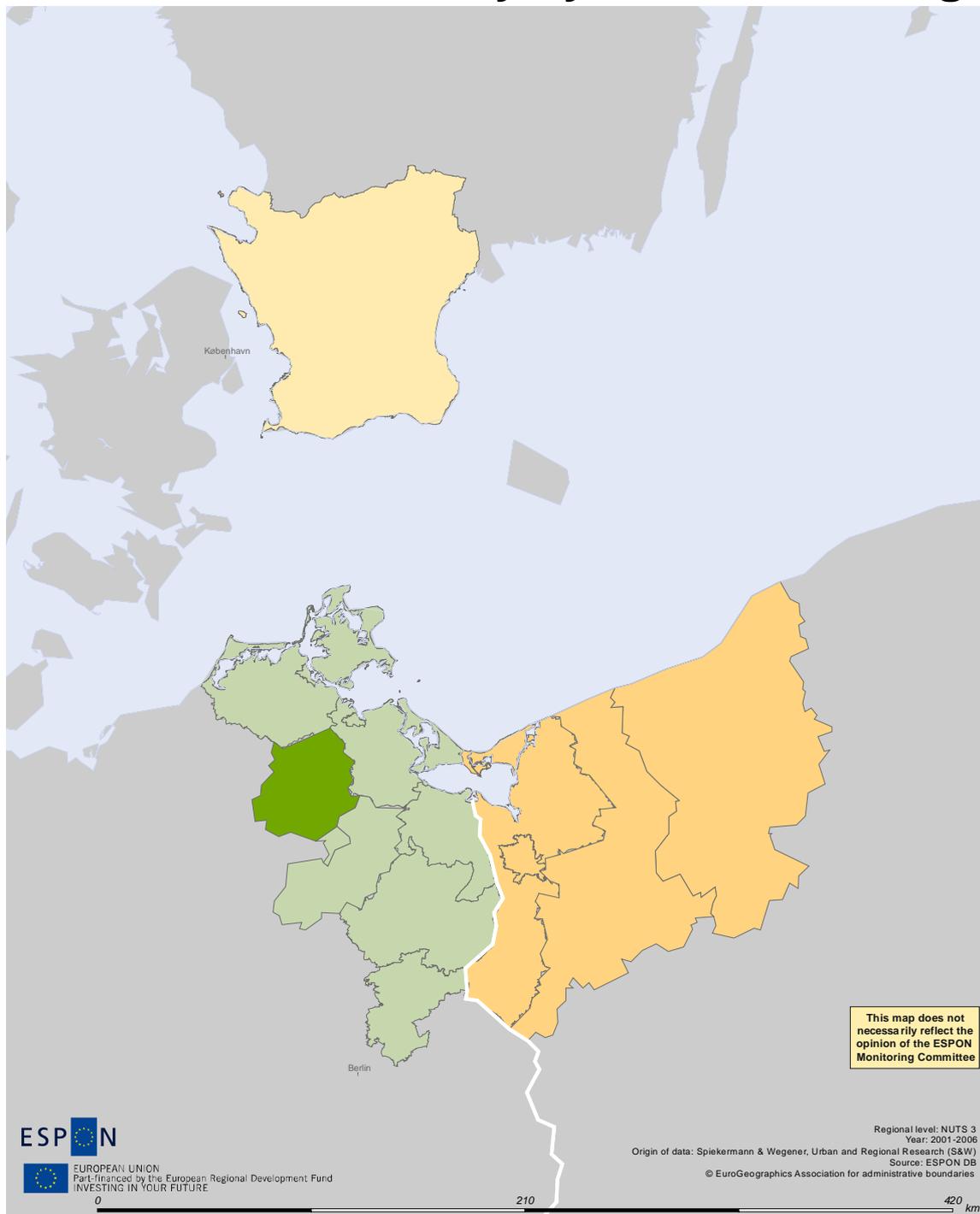
Legend

Potential accessibility by rail indexed to Cross Border Region average (=100), 2006

	$\leq 70,14$		100,01 - 109,13		<missing value>
	70,15 - 84,92		109,14 - 126,80		
	84,93 - 100,00		>= 126,81		

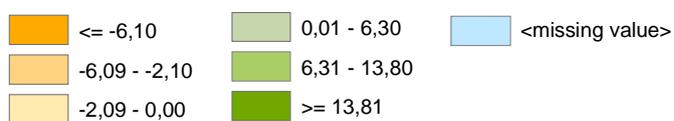
Map 43. Index change of standardised potential accessibility by rail in Euroregion Pomerania between 2001 and 2006.

Potential accessibility by rail index change



Legend

Potential accessibility by rail standardised index change, 2001-2006



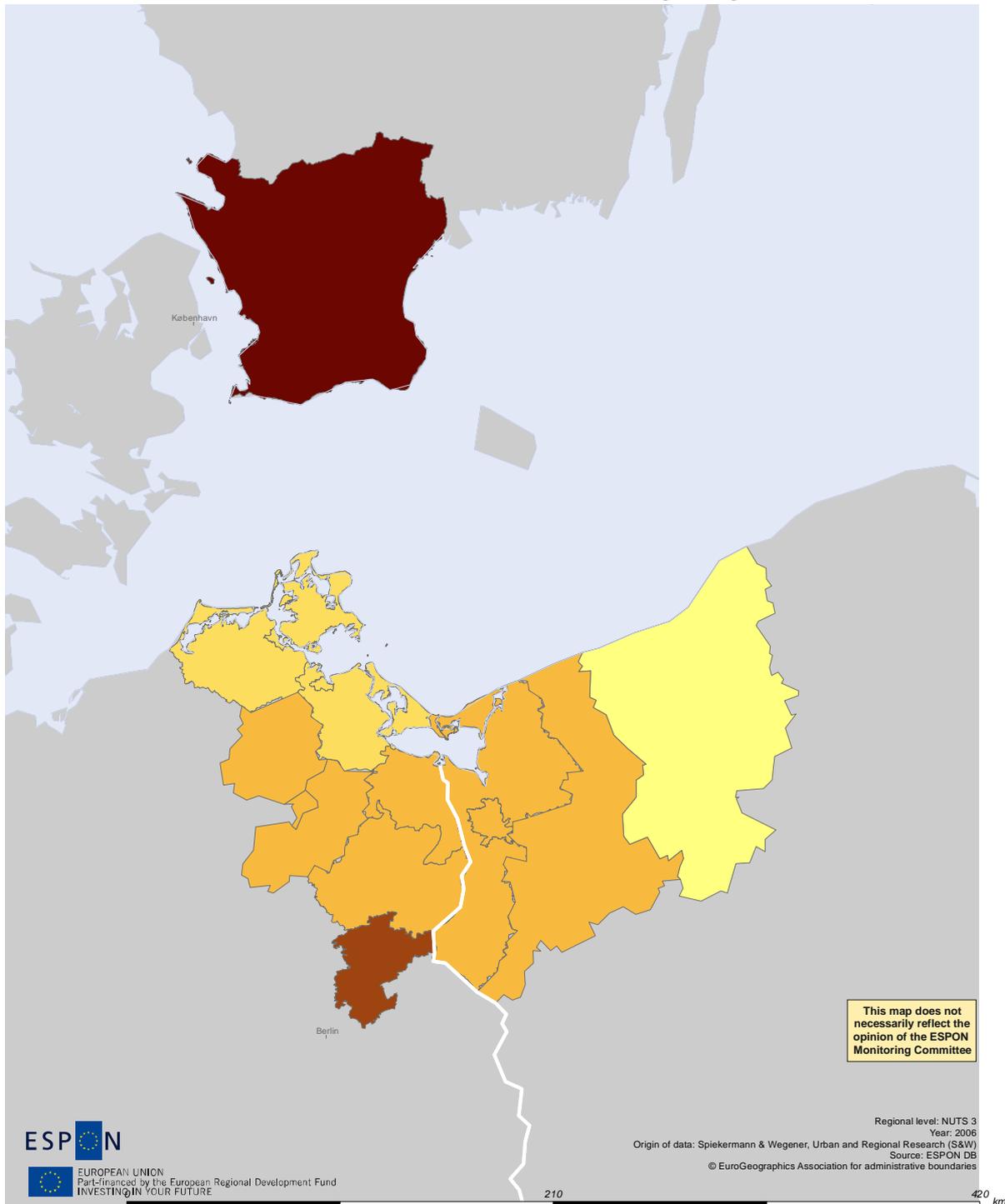
5.3. Accessibility by air

Accessibility of Euroregion Pomerania appears very different, when considering accessibility by air. In the context of ESPON space Skåne län was the most difficult region to access by road and rail, but it has the highest accessibility by air among the NUTS 3 regions of Euroregion Pomerania (136,8). It is also the most potential region to be accessed by air within the CBA (158,3). Podregion Szczeciński has also a better accessibility by air than by road or rail; 81,3 in the context of ESPON countries and 113,7 in the context of the CBA. Podregion Koszaliński in Poland has the lowest potential accessibility by air both in the context of ESPON countries (36,2) and the CBA (50,6).

Index change in potential accessibility by air has undergone less changes than accessibility by road and rail. Skåne län has experienced the biggest negative change (-5,8), while accessibility of Nordvorpommern by air has increased slightly (4,5) between 2001 and 2006.

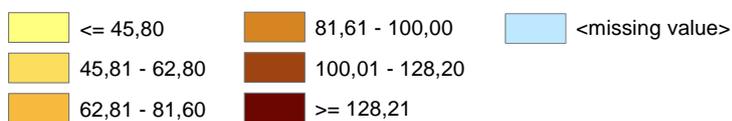
Map 44. Potential accessibility of Euroregion Pomerania by air in the context of ESPON countries (2006).

Potential accessibility by air



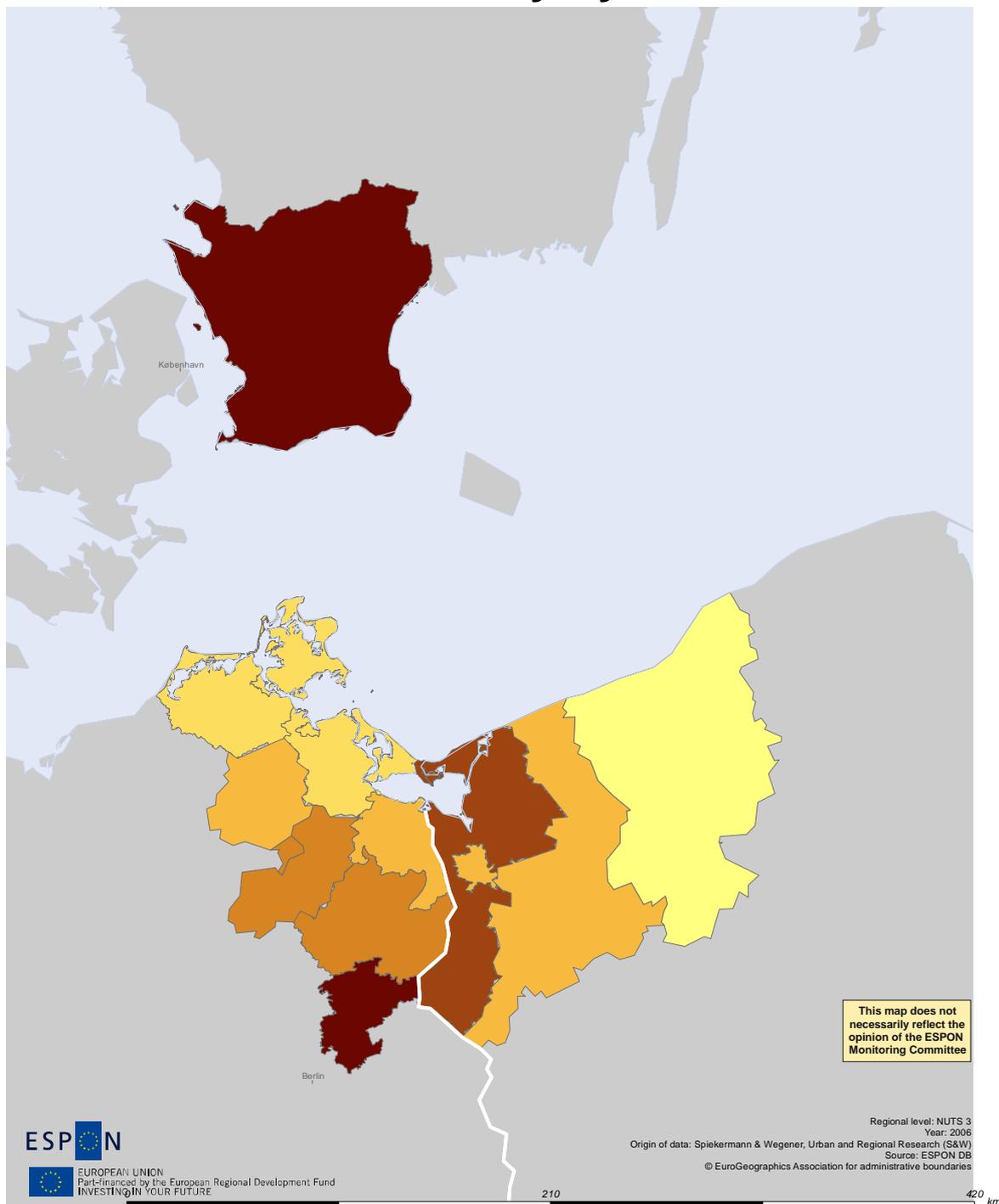
Legend

Potential accessibility by air indexed to ESPON average (=100), 2006



Map 45. Potential accessibility of Euroregion Pomerania by air in the context of the CBA (2006).

Potential accessibility by air in the CBR



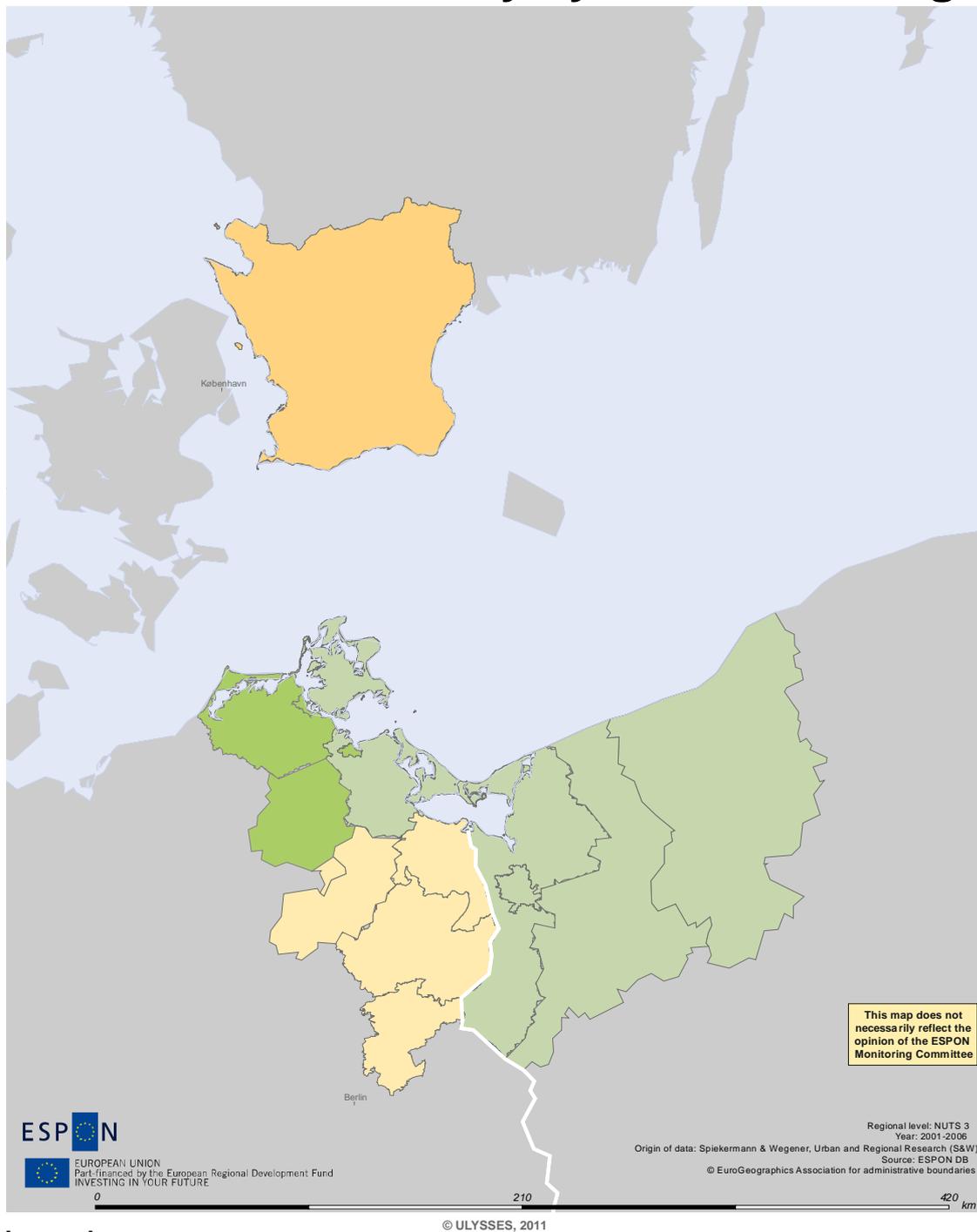
Legend

Potential accessibility by air indexed to Cross Border Region average (=100), 2006



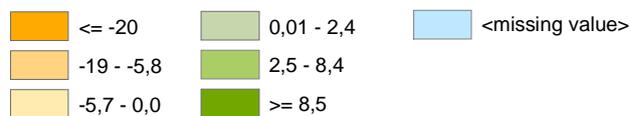
Map 46. Index change of standardised potential accessibility by air in Euroregion Pomerania between 2001 and 2006.

Potential accessibility by air index change



Legend

Potential accessibility by air standardised index change, 2001-2006



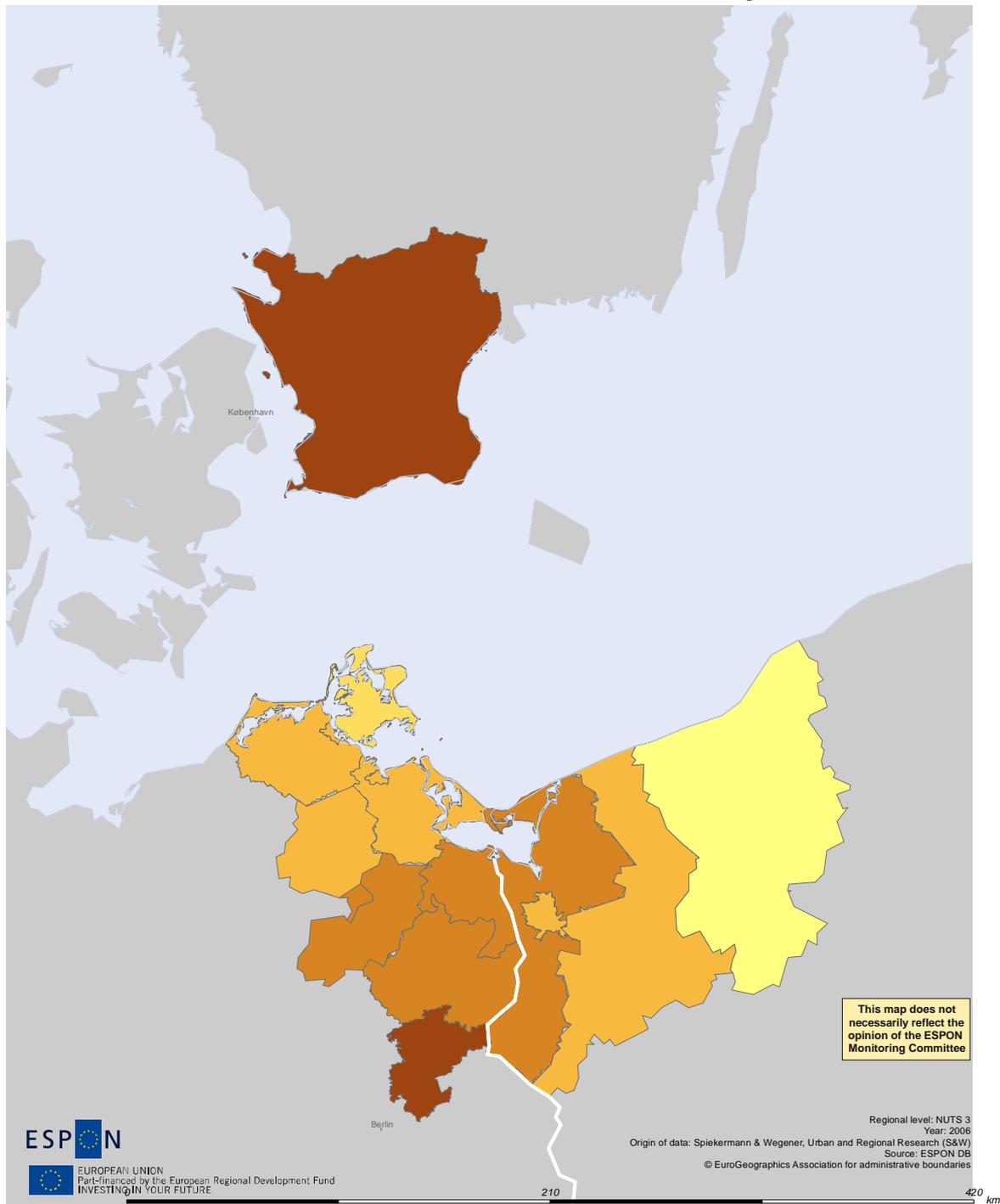
5.4. Multimodal accessibility

Multimodal accessibility combines all the above analysed forms of transport and demonstrates general accessibility levels. Good air accessibility clearly affects the multimodal accessibility of Skåne län, which has according to the analysis the highest potential multimodal accessibility in Euroregion Pomerania (120,6). The German region of Barnim has the second highest multimodal potential accessibility both in the context of ESPON countries (116,2) and the CBA (148,7). In general multimodal potential accessibility of the regions of Euroregion Pomerania is relatively similar. Only Podregion Koszaliński has an accessibility value well below the average; in the context of ESPON countries it scored at 42,1 and in the context of the CBA at 53,9. However, all the regions with the exception of Barnim and Skåne län have multimodal accessibility below the European average.

Podregion Koszaliński and Uckermark have been the regions to experience the strongest index change in multimodal accessibility between 2001 and 2006 (32). Greatest decrease in multimodal accessibility has according to this analysis encountered Skåne län (-5,8).

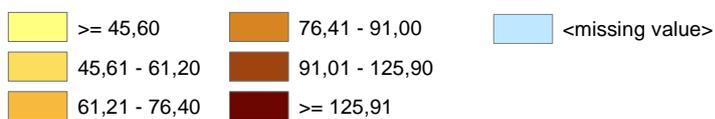
Map 47. Multimodal potential accessibility of Euroregion Pomerania in the context of ESPON countries (2006).

Multimodal accessibility



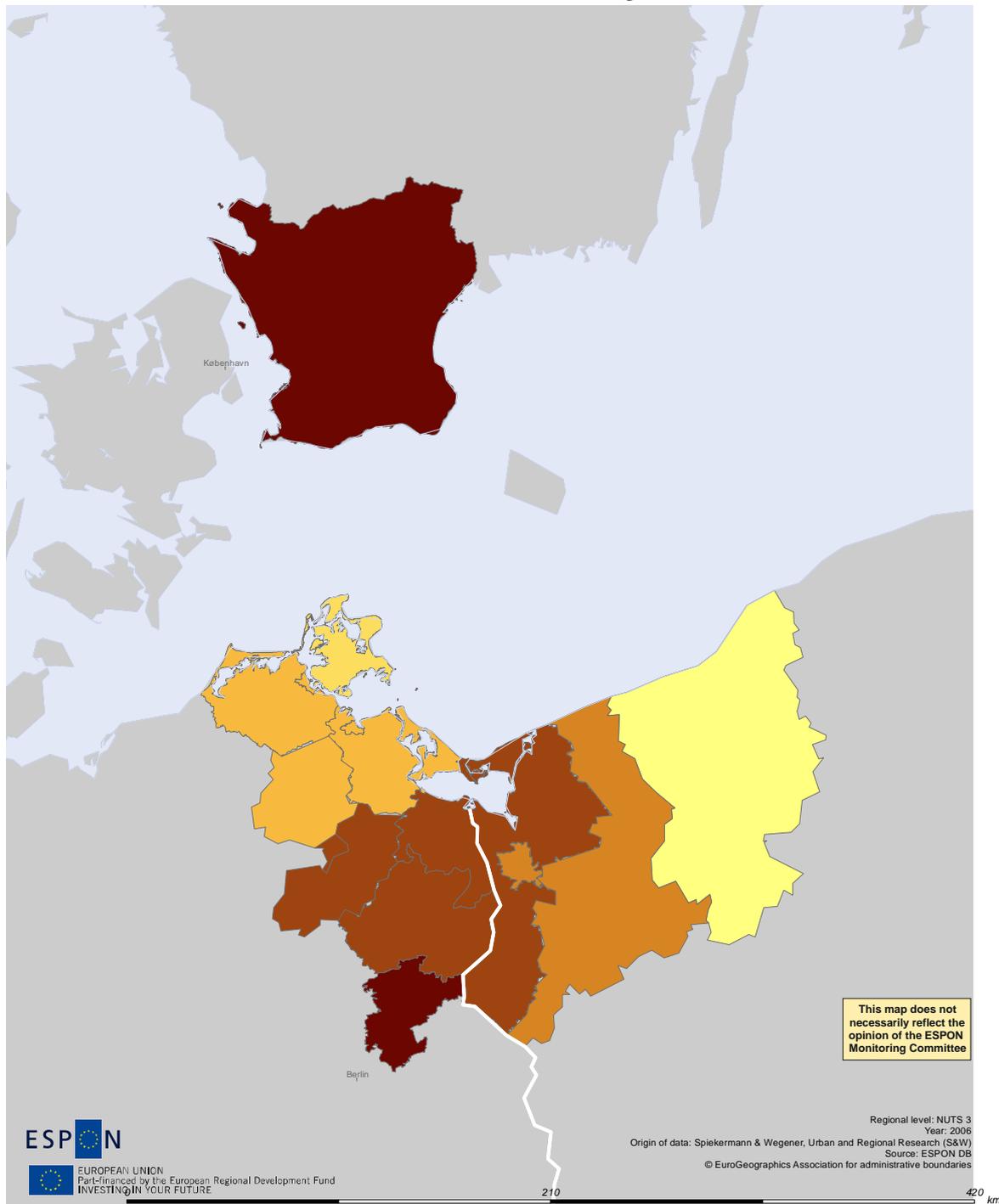
Legend

Multimodal accessibility indexed to ESPON average (=100), 2006



Map 48. Multimodal potential accessibility of Euroregion Pomerania in the context of the CBA (2006).

Multimodal accessibility in the CBR



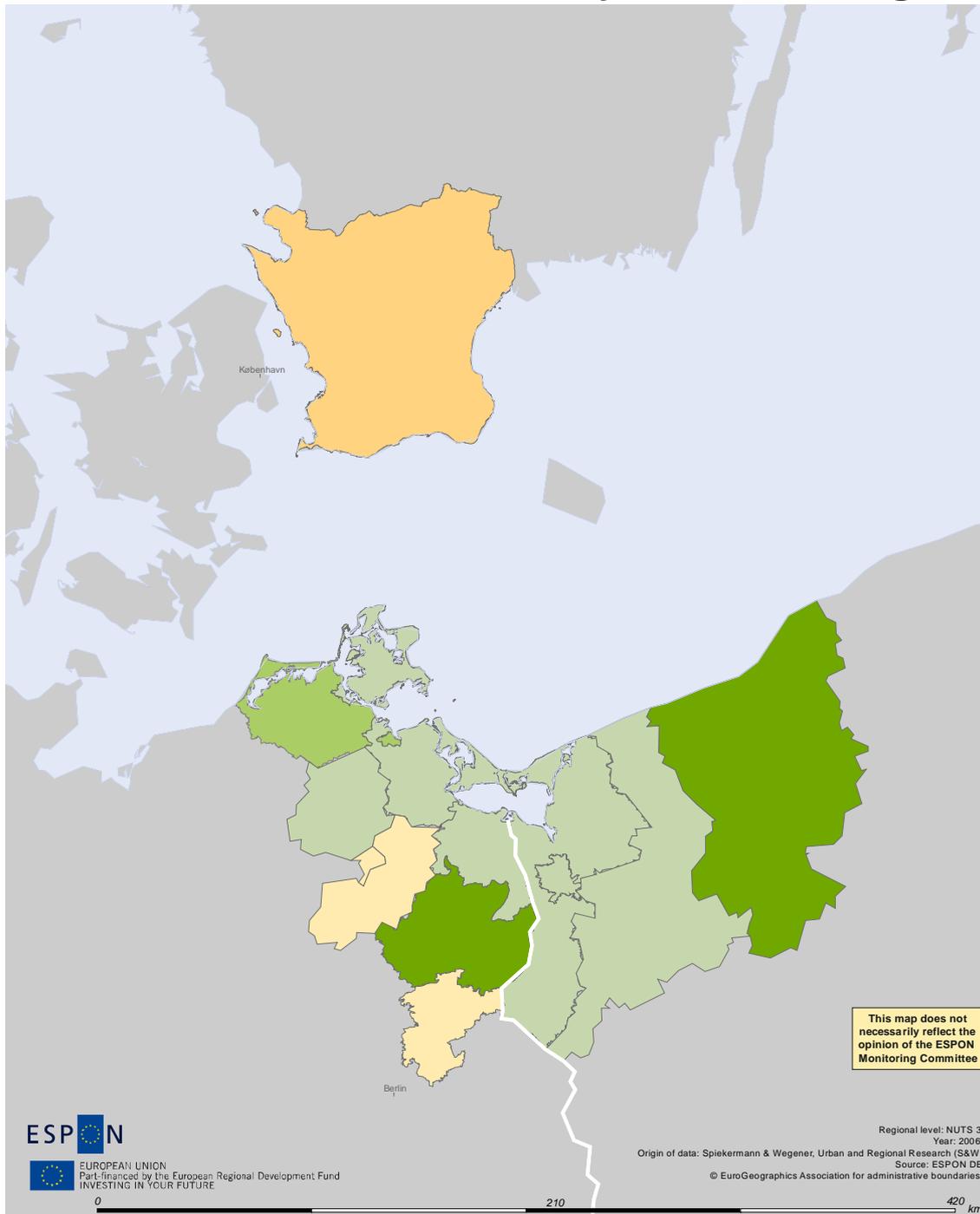
Legend

Multimodal accessibility indexed to Cross Border Region average (=100), 2006



Map 49. Index change of standardised multimodal potential accessibility in Euroregion Pomerania between 2001 and 2006.

Multimodal accessibility index change



Legend

Multimodal accessibility standardised index change, 2001-2006

	$\leq -7,9$		0,01 - 5,5		<missing value>
	-7,8 - -3		5,6 - 14		
	-2,9 - 0,00		≥ 15		

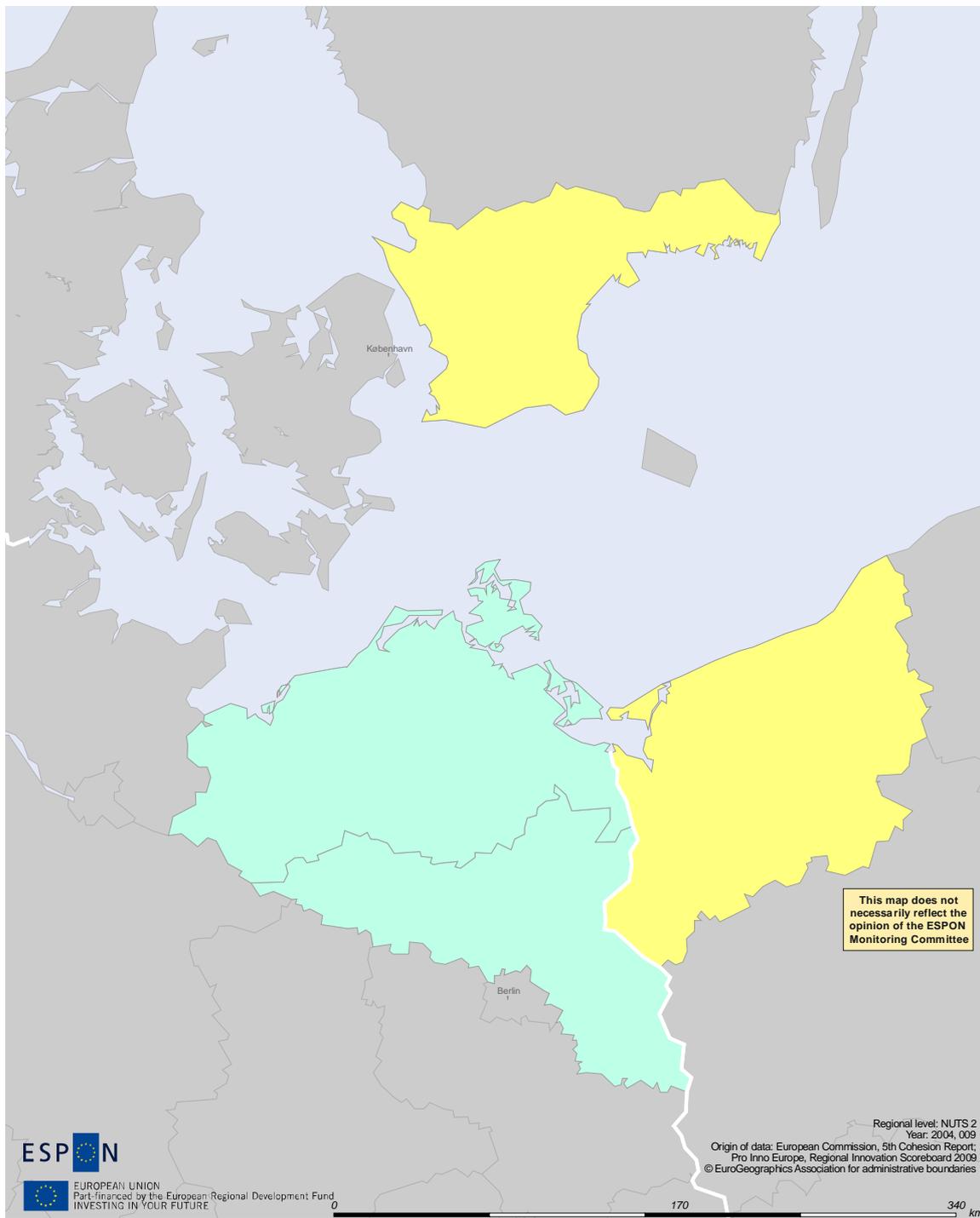
5.5. Broadband internet access

Access of population to information and services was examined on NUTS 1 level with one indicator; percent of households with broadband internet access in 2009 (year 2004 for Poland). Södra Sverige in Sweden has the largest share (78,6 %) of households with broadband internet access. Brandenburg, on the contrary, has the smallest share of households with broadband internet access (39,7 %). In general broadband internet accessibility in Euroregion Pomerania was low. In Mecklenburg-Vorpommern the share of households with broadband internet access was 56 % and in Region Północno-Zachodni 55,1 %.

Eurostat database includes more recent information on access to the internet. This information does not concern broadband internet connectivity, but it does reflect the connectivity of households to the internet. According to Eurostat, the share of households with access to the internet at home has been increasing in all NUTS 1 regions of the Poland – Germany – Sweden CBA between 2008 and 2011. In 2011 the largest share of households with internet at home was in Södra Sverige (90 %) and the smallest share in Region Północno-Zachodni (69 %). The share of households with internet in Brandenburg was 71 % and in Mecklenburg-Vorpommern 73 %.

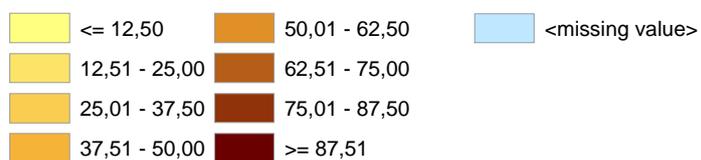
Map 50. Households with broadband internet connection in the Poland – Germany – Sweden CBA in 2009 (NUTS 2 delimitation).

Households with broadband internet access



Legend

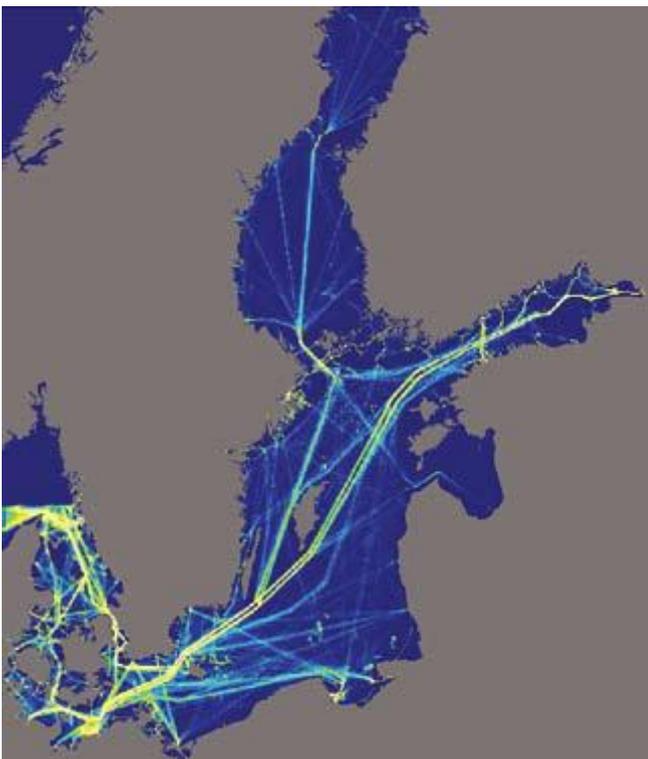
Percent of households with broadband internet access NUTS 2, 2009 (Sweden, Poland 2004)



5.6. Maritime connections

The Baltic Sea connects the Polish and German parts of Euroregion Pomerania to the Swedish parts. In general maritime transportation has intensified in the Baltic Sea during recent years and there are more than 2 000 sizable ships at the sea at any time. The amount has been predicted to increase even further.⁴⁴ The following map illustrates routes and frequency of maritime traffic in the Baltic Sea during one week in 2008.⁴⁵

Map 51. Ship traffic in the Baltic Sea during one week in 2008. Data is calculated on a grid, showing the areas of heavy traffic.



Source: Stankiewicz, Backer & Vlasov 2010.

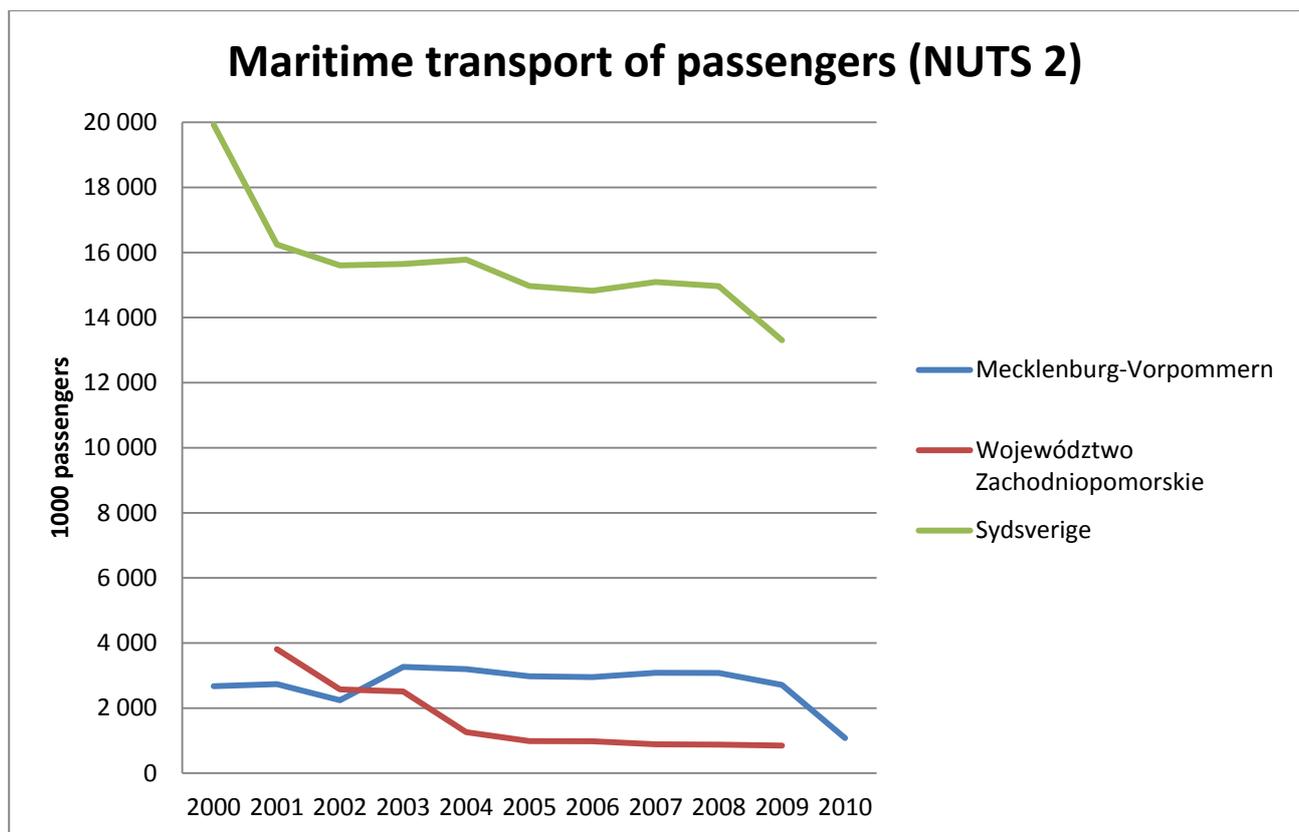
No data was available on cargo or passenger traffic between particular ports or regions. We studied therefore amounts of freight and passenger traffic in Euroregion Pomerania by NUTS 2 regions and major ports based on data from Eurostat database. In terms of passenger traffic there are regular ferry connections both between Poland and Sweden and Germany and Sweden. There is a ferry connection between Szczecin-Świnoujście Bi-Port in Poland and Ystad and Trelleborg in Sweden, and between Sassnitz (Rügen) in Germany and Trelleborg in Sweden. Travel time from Szczecin-Świnoujście Bi-Port to Sweden is approximately seven hours, and travel time from Sassnitz to Trelleborg is approximately four hours. The ferries operate all year around several times a day.

⁴⁴ Stankiewicz, Backer & Vlasov 2010.

⁴⁵ The picture has been produced with the help of Automatic Identification System (AIS) stations. These stations are land-based and form an interlinked surveillance network that has since 1 July 2005 covered the whole Baltic Sea area.

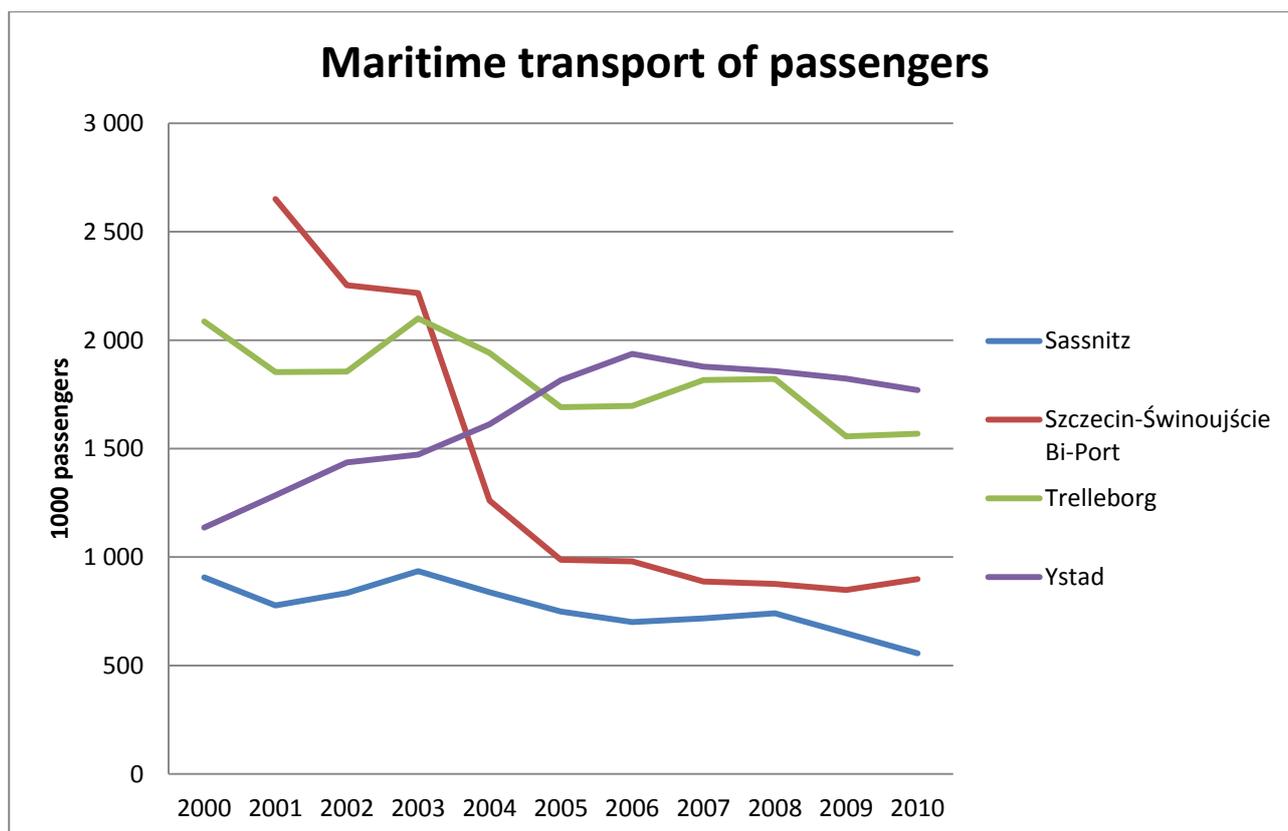
Eurostat data shows that the amount of passengers has been decreasing in all the NUTS 2 regions of the Poland – Germany – Sweden CBA. When we look at the amount of passengers by ports, it shows that the amount of passengers has been increasing in Ystad, while Szczecin-Świnoujście Bi-Port, Sassnitz and Trelleborg have been losing passengers between years 2000 and 2010. The decrease in passenger traffic has been greatest in Szczecin-Świnoujście Bi-Port, which in 2001 had the largest amount of passengers, but in 2010 had already less passengers than Ystad and Trelleborg. In general passenger traffic has been decreasing in the EU, Poland, Germany and Sweden.

Figure 19. Total amount of passengers in Euroregion Pomerania by NUTS 2 regions between 2000 and 2010.



Source: Eurostat

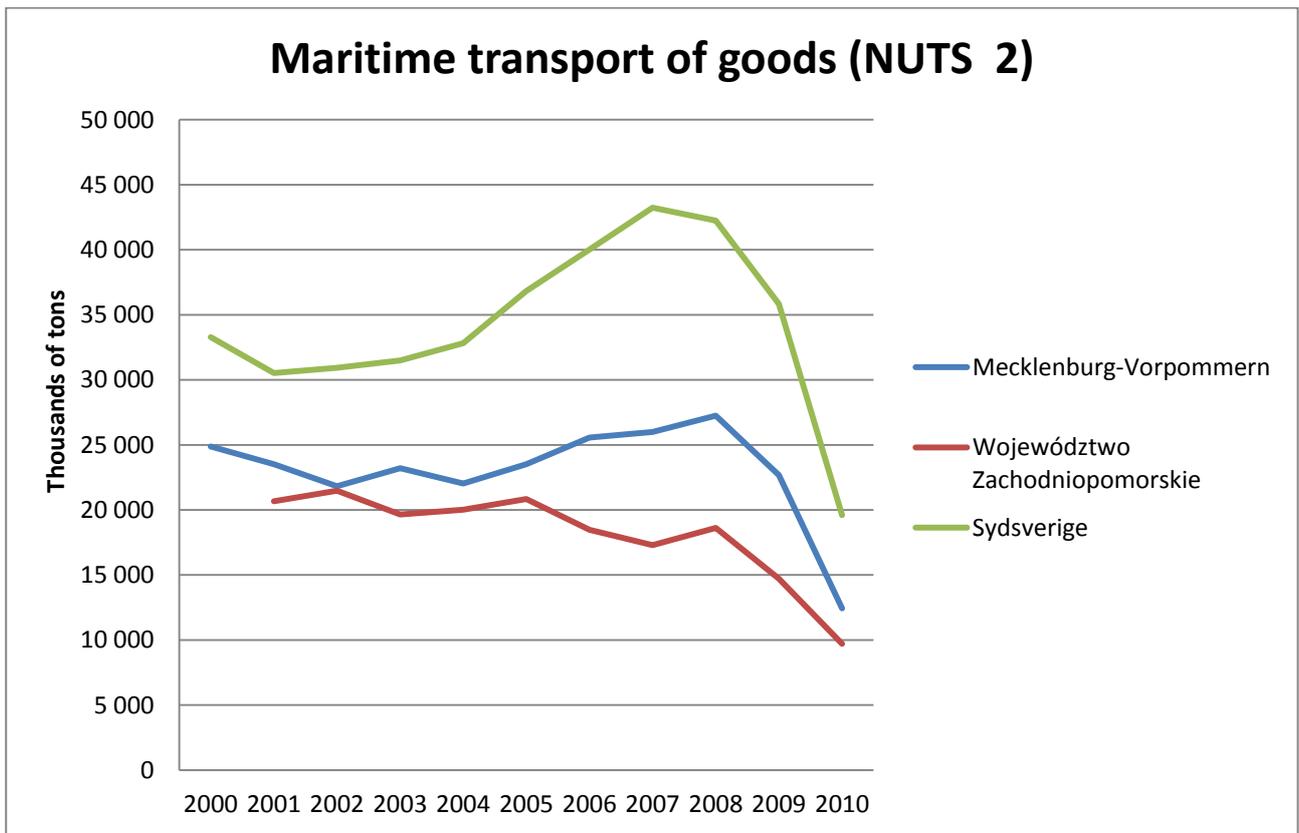
Figure 20. Total amount of passengers in major passenger ports of Euroregion Pomerania between 2000 and 2010.



Source: Eurostat

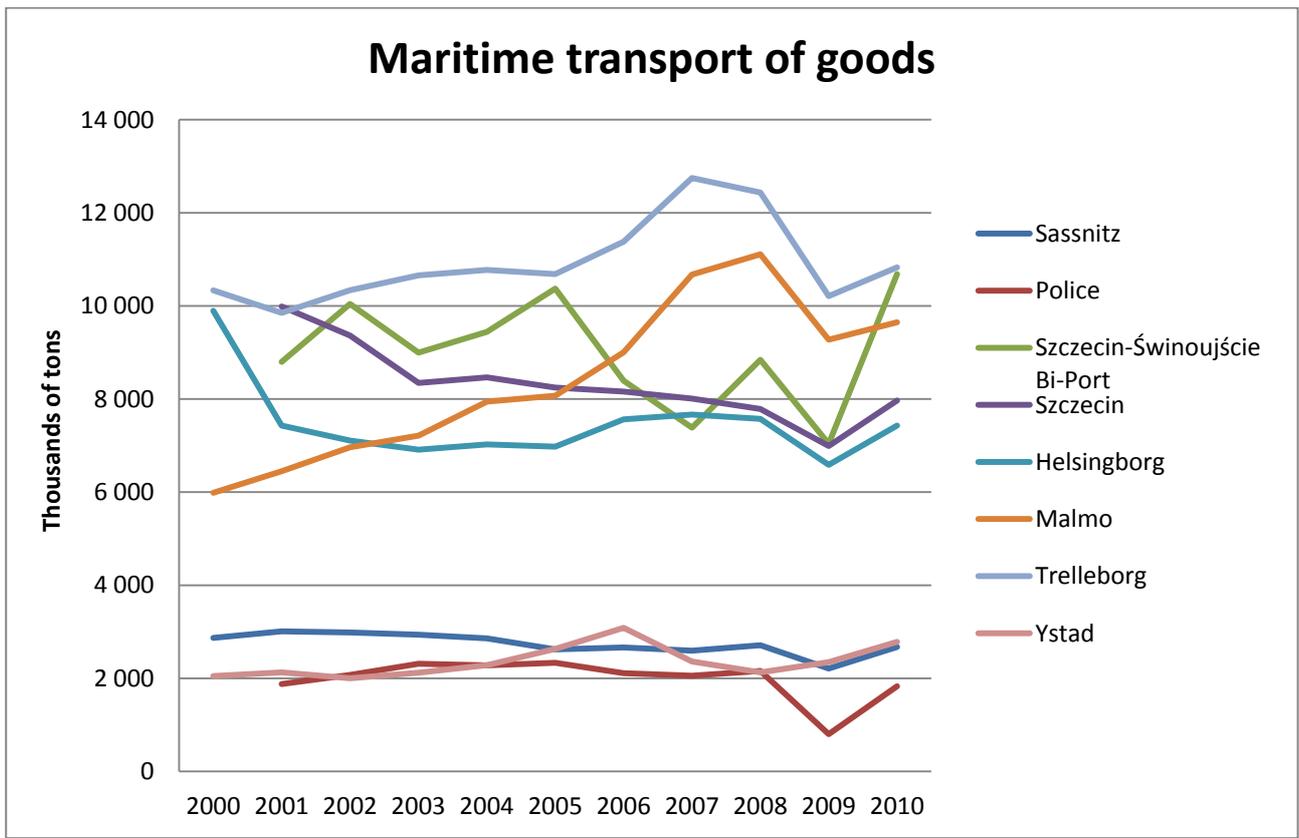
Data on maritime transport of freight illustrates well the effect of global economic crisis on the cargo traffic in the Poland – Germany – Sweden CBA. After 2008 the amount of freight traffic radically decreased in all the NUTS 2 regions. Sydsverige suffered from the greatest decrease. Data on ports shows a similar pattern and the period between 2009 and 2010 has shown a growth in freight in all the major ports of Euroregion Pomerania. The largest amounts of freight traffic are handled in the Swedish ports of Trelleborg and Malmö and in the Polish port of Szczecin-Świnoujście Bi-Port.

Figure 21. Maritime transport of freight in NUTS 2 regions of Poland – Germany – Sweden CBA between 2000 and 2010 (total amount of goods loaded and unloaded).



Source: Eurostat

Figure 22. Maritime transport of goods (gross weight) in major ports of Euroregion Pomerania between 2000 and 2010.



Source: Eurostat

5.7. Chapter conclusions

In the context of ESPON space potential accessibility of the regions of Euroregion Pomerania by road vary from 129,3 (Barnim) to 48,7 (Skåne län). German regions of Euroregion Pomerania are potentially easier to access by road than ESPON regions in general. Potential accessibility of the Polish regions is below the ESPON average. German regions of Euroregion Pomerania have the highest potential accessibility by road also in the context of the CBA.

Potential accessibility by rail in the regions of Euroregion Pomerania is relatively similar to the road accessibility values. The German region of Barnim has the highest potential accessibility both in the context of ESPON regions (135,8) and the CBA (140,1). Index change in the potential accessibility by rail has been positive in all the German regions of Euroregion Pomerania, but negative in all the other regions.

Accessibility of Euroregion Pomerania appears very different, when considering accessibility by air. In the context of ESPON space Skåne län was the most difficult region to access by road and rail, but it is has the highest accessibility by air among the NUTS 3 regions of Euroregion Pomerania (136,8). It is also the most potential region to be accessed by air within the CBA (158,3). Good air accessibility clearly affects the multimodal accessibility of Skåne län, which has according to the analysis the highest potential multimodal accessibility in Euroregion Pomerania (120,6). "Virtual accessibility" of Skåne län is also good considering that Södra Sverige had the largest share of households with broadband internet access in 2009 (78,6 %) and the largest share of households with internet at home in 2011 (90 %). The share of households with access to the internet at home has been increasing in all NUTS 1 regions of the Poland – Germany – Sweden CBA.

The amount of maritime passengers has been decreasing in all the NUTS 2 regions of the Poland – Germany – Sweden CBA. Data on ports shows that the amount of passengers has been increasing in Ystad, while Szczecin-Świnoujście Bi-Port, Sassnitz and Trelleborg have been losing passengers between years 2000 and 2010. Data on maritime transport of freight shows that after 2008 global economic crisis the cargo traffic in the CBA decreased radically but has between 2009 and 2010 shown new recovery.

Chapter 6. Performance of Poland – Germany – Sweden CBA (Euroregion Pomerania) from the perspective of Lisbon / Europe 2020 and Gothenburg objectives

Lisbon Strategy was launched in 2000 by the European Council as a response to the challenges of globalisation and ageing. The core idea of the strategy was for the European Union to become the most dynamic and competitive knowledge-based economy in the world by 2010. The Strategy underlined sustainable economic growth and promoted social cohesion and respect for the environment. Lisbon Strategy was re-launched in 2005 with more focused goals and clearer division of responsibilities between EU and national levels. The new revised Lisbon Strategy concentrated on two particular themes; growth and jobs.⁴⁶ Objectives of the Lisbon Strategy were achieved only partly in the Member States. Economic crisis was one the biggest obstacles that hindered the realization of National Reform Programmes.

In June 2010 European Council adopted a new "Europe 2020 Strategy" that was adjusted to the current economic situation and challenges. The Europe 2020 Strategy identified three key drivers for growth that included smart growth (fostering knowledge, innovation, education and digital society), sustainable growth (making our production more resource efficient while boosting competitiveness of the EU) and inclusive growth (raising participation in the labour market, the acquisition of skills and the fight against poverty).

Gothenburg Strategy ('A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development') was launched by the European Commission in 2001 to complement the Lisbon Strategy by adding an environmental dimension to the Lisbon process for employment, economic reform and social cohesion.⁴⁷

The goal of our study was to measure the performance of the Poland – Germany – Sweden CBA regarding the socio-economic and environmental goals set up in the Lisbon / Europe 2020 and Gothenburg strategies. Analyses were divided into four subcategories: economy and employment, research and innovation, social cohesion and environment.

⁴⁶ Lisbon Strategy evaluation 2010.

⁴⁷ Strategy for sustainable development 2009.

Table 31. Indicators applied for the study of Lisbon / Europe 2020 and Gothenburg Strategies.

Variable name	Geographical scale	Source	Time frame
GDP per capita	NUTS 3	Eurostat	1997–2009
Gross value added by NACE	NUTS 3	Eurostat	1997–2008
Employment by NACE	NUTS 3	Eurostat	2000–2008
Total intramural R&D expenditure	NUTS 2	Eurostat	2007
EPO patents by million of inhabitants	NUTS 2	Eurostat	2007
Employment in medium and high tech manufacturing	NUTS 2	ESPON DB (Regional Innovation Scoreboard)	2004
Unemployment rate	NUTS 2	Eurostat	2010
Long term unemployment	NUTS 2	Eurostat	2009
Youth unemployment rate	NUTS 2	Eurostat	2010
Population at risk of poverty after social transfers	NUTS 2	Eurostat	2008
Infant mortality rate	NUTS 2	Eurostat	2008
Population aged 25-64 with tertiary education	NUTS 2	Eurostat	2010
Soil sealed area	NUTS 3	European Commission's 5 th Cohesion Report	2006
Ozone concentration exceedances	NUTS 3	European Commission's 5 th Cohesion Report	2008
Urban waste water treatment	NUTS 2	European Commission's 5 th Cohesion Report	2007
Share of Natura 2000 areas	NUTS 3	European Commission's 5 th Cohesion Report	2009
Solar energy resources	NUTS 3	European Commission's 5 th Cohesion Report	1981–1990
Wind energy potential	NUTS 3	European Commission's 5 th Cohesion Report	2000–2005
Physical sensitivity to climate change	NUTS 3	ESPON Climate project	
Social sensitivity to climate change	NUTS 3	ESPON Climate project	
Economic sensitivity to climate change	NUTS 3	ESPON Climate project	

6.1. Economy and employment

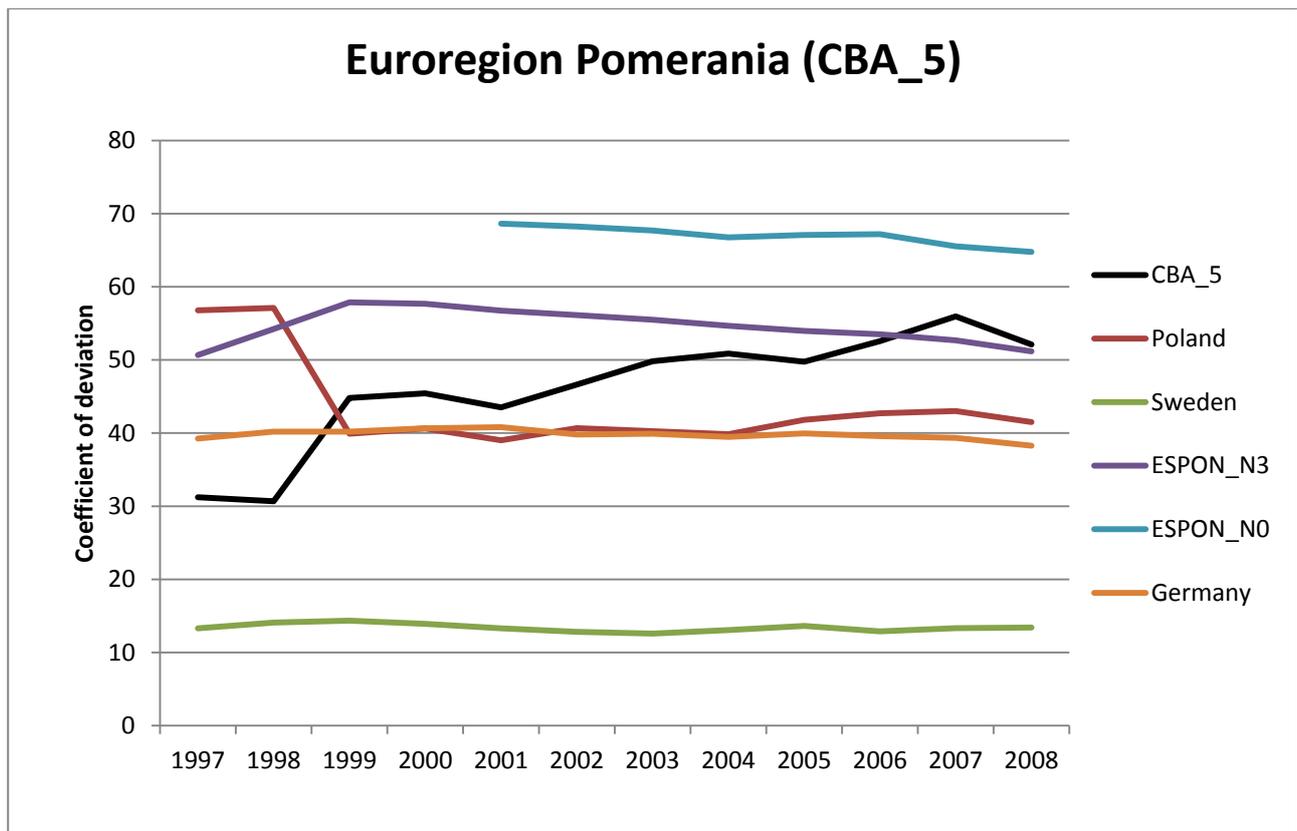
6.1.1. GDP per capita

In order to study regional disparities in GDP per capita we used *coefficient of deviation* in our analyses.⁴⁸ The higher the coefficient of deviation is, the higher the disparities are within the analysed geographical unit. Coefficient of deviation of GDP per capita has been steadily increasing in Euroregion Pomerania between 1997 and 2008. This signifies that disparities in GDP per capita have been growing during the given time period. The coefficient of deviation (and accordingly disparities in GDP per capita) has been higher in ESPON countries, but it has now settled on the same level with the CBA.

⁴⁸ This indicator is obtained by calculating the ratio of the standard deviation to the mean, and it is a good way to compare geographical units which differ greatly in their average values. The coefficient of deviation was calculated, besides the cross-border areas, for the countries of which the CBA is part of as well as for all the NUTS 3 and NUTS 0 level regions and countries of the ESPON space (on NUTS 0 level separately for EU27+CH+NO and EU27). The coefficient was calculated excluding the Swiss and Russian regional data because it was not available. Formula for producing coefficients of deviation is following:

$$\text{Coefficient of deviation} = \frac{\text{Standard deviation}}{\text{Average}}$$

Figure 23. Coefficient of deviation of GDP per capita between 1997 and 2008.



Source: Eurostat

Next, we performed two different analyses on the data on GDP per capita at NUTS 3 level. In the first one we compared each NUTS 3 region with the leading region in terms of GDP per capita (West Inner London, UKI11), through *index number analysis*. In the second one we applied a logistic function to establish the relative performance of each NUTS 3 to the leading region, exploring the notion of *territorial catching-up*.⁴⁹

⁴⁹ In theory, for both analyses the value of reference for GDP per capita would be the highest value among all NUTS 3, that of the West Inner London -region. However, at this territorial level, GDP per capita can be affected by several factors, such as high population fluctuations and significant mismatches between jobs (and wealth production) and the place of residence. In fact, in economically central places (of which London is a good example), there normally is a steady flow of migrant workers, as well as commuters from other NUTS 3 regions, and the GDP per capita of the economic centre is seriously overestimated. For that reason, instead of simply considering the GDP per capita of the West Inner London (UKI11) NUTS 3, the whole Greater London (UKI) NUTS 1 was used as a reference for this analysis.

Table 32. GDP per capita (euro) in the leading NUTS 1 region (London) and the regions of Euroregion Pomerania between 1997 and 2008.

NUTS ID	NUTS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
UKI	London	32200	35200	38600	43600	44300	46400	44800	48300	50000	53400	56700	50600
DE412	Barnim	14100	14300	14800	14900	15200	15100	15100	14800	15200	15500	16100	16900
DE418	Uckermark	14600	15100	15300	16900	18200	17400	17100	17900	18400	20600	20400	20800
DE801	Greifswald	17600	17700	18600	18600	19300	20200	21300	21500	22900	23900	25800	25800
DE802	Neubrandenburg	26100	26700	26200	26200	26400	27900	29300	29400	29400	31200	33500	32900
DE805	Stralsund	19900	19400	20000	20700	20800	21800	22200	23300	23500	24500	26800	29200
DE808	Demmin	12700	12800	12900	13500	14400	14100	15700	17500	16700	18600	18800	18100
DE80B	Mecklenburg-Strelitz	12900	12800	13200	13500	13500	13400	13600	14100	13700	13900	13600	14600
DE80D	Nordvorpommern	11600	12000	12000	12200	12300	12600	13000	13500	13600	14300	15600	16000
DE80F	Ostvorpommern	11700	12300	12600	12800	13500	13700	13700	13900	13700	14200	15300	16200
DE80H	Rügen	13100	13400	14100	14400	15700	16200	16600	17000	17600	17400	18900	19800
DE80I	Uecker-Randow	14100	14100	14800	14400	14400	14200	14100	14300	14600	15000	16600	17200
PL422	Podregion Koszaliński	10200	11100	3400	4100	4700	4500	4200	4500	5300	5900	6600	7800
PL423	Podregion Stargardzki	N/A	N/A	2900	3400	3800	3700	3400	3600	4300	4500	5200	6100
PL424	Powiat m. Szczecin	N/A	N/A	6400	7700	8300	8200	7000	6900	8600	9400	10500	12300
PL425	Podregion Szczeciński	N/A	N/A	4000	4700	5400	5200	4700	4900	5800	6100	7100	8700
SE224	Skåne län	23500	23500	25000	27500	25800	27300	27900	28800	29300	31000	33600	31500

Source: Eurostat

The first analysis, GDP indexed to the leading region, involved indexation of GDP per capita in each NUTS 3 region of Euroregion Pomerania to the value of London (UKI) region in 2008.⁵⁰ The results of the analysis are presented in the following table. The best performing region in Euroregion Pomerania in terms of GDP per capita was Neubrandenburg (32 900 € in 2008), while the lowest GDP per capita was found in Podregion Stargardzki (6 100 € per capita). Compared to the leading European region, Greifswald, Neubrandenburg, Stralsund and Skåne län were considered middle income regions. Podregion Stargardzki was classified as a very laggard region, while other regions of the CBA were classified as less developed regions or laggard regions.

Table 33. GDP per capita of the regions of Euroregion Pomerania indexed to the leading NUTS 1 region of London (2008).

NUTS ID	NUTS	2008	INDEX NUMBER	CLASS	CODE
UKI	London	50600	100	very rich region	1
DE412	Barnim	16900	33,40	less developed region	4
DE418	Uckermark	20800	41,11	less developed region	4
DE801	Greifswald, Kreisfreie Stadt	25800	50,99	middle income region	3
DE802	Neubrandenburg, Kreisfreie Stadt	32900	65,02	middle income region	3
DE805	Stralsund, Kreisfreie Stadt	29200	57,71	middle income region	3
DE808	Demmin	18100	35,77	less developed region	4
DE80B	Mecklenburg-Strelitz	14600	28,85	laggard region	5
DE80D	Nordvorpommern	16000	31,62	less developed region	4
DE80F	Ostvorpommern	16200	32,02	less developed region	4
DE80H	Rügen	19800	39,13	less developed region	4
DE80I	Uecker-Randow	17200	33,99	less developed region	4
PL422	Podregion Koszaliński	7800	15,42	laggard region	5
PL423	Podregion Stargardzki	6100	12,06	very laggard region	6
PL424	Powiat m. Szczecin	12300	24,31	laggard region	5
PL425	Podregion Szczeciński	8700	17,19	laggard region	5
SE224	Skåne län	31500	62,25	middle income region	3

Source: Eurostat (GDP per capita -data)

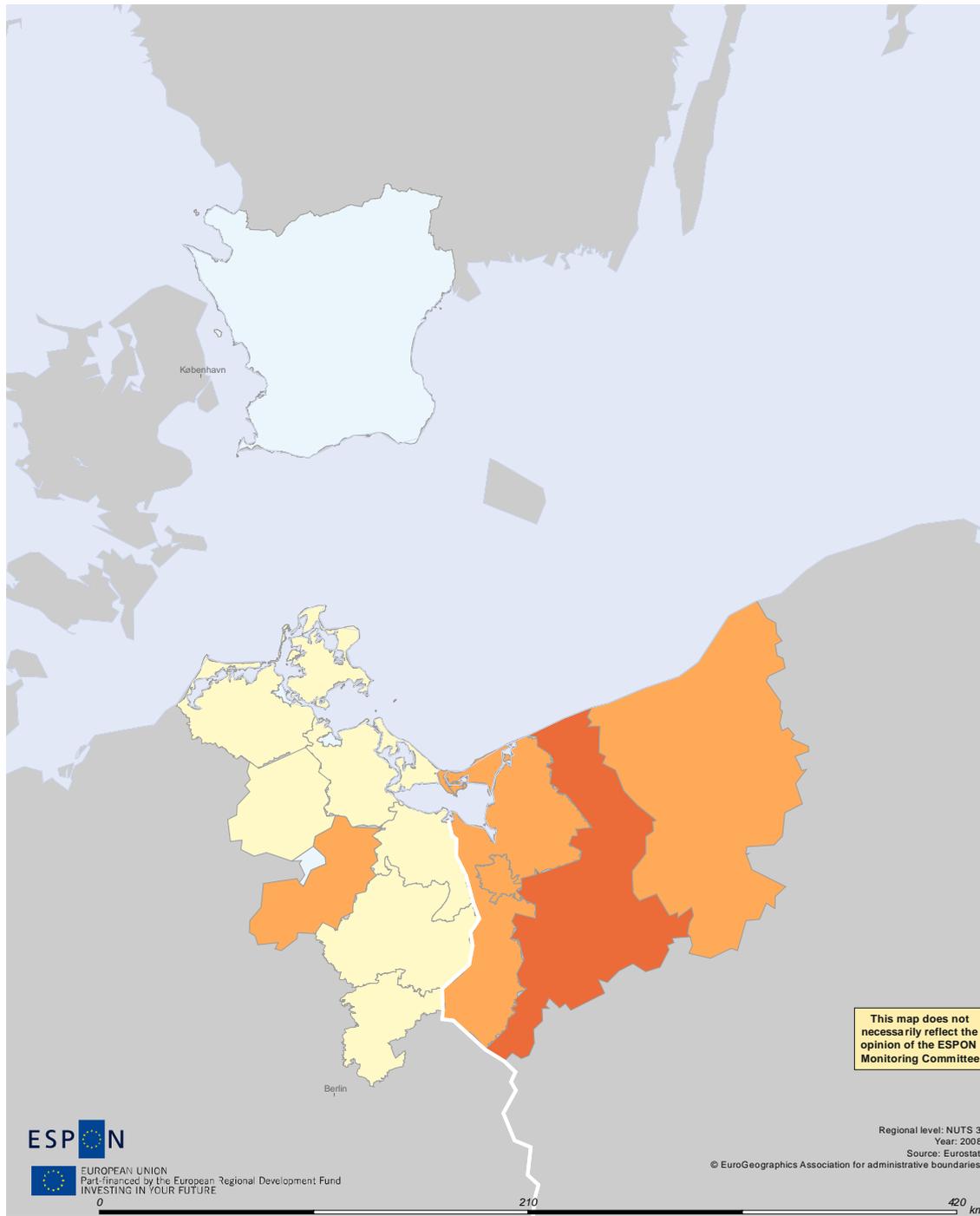
⁵⁰ The value of the leading region is by definition 100,0. Following formula is applied in the analysis:

$$Index\ GDP_a = \left(\frac{GDP_a}{GDP_L} \right) \times 100$$

where GDP_a is the GDP per capita of a given NUTS 3 region and GDP_L is the GDP per capita of the NUTS 2 region of London.

Map 52. GDP per capita of the regions of Euroregion Pomerania indexed to the leading NUTS 1 region of London (2008).

GDP per capita indexed to leading region



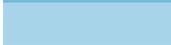
Legend

GDP per capita indexed to the leading region, London UKI = 100

	very rich region	>=95		less developed region	[30-50[	<missing values>
	rich region	[75-95[	laggard region	[15-30[
	middle income region	[0-74[	very laggard region	<15		

The catching up analysis evaluates the speed of catching-up with the leading region, through a standard logistic process. The catching-up process analysis sets the relative position of each NUTS 3 region and its relative trajectory up to the level of 95% of the GDP of the leading region in 50 years. The difference of performance of each region in comparison to the leading region is measured in years needed to reach the level assumed above.⁵¹

All regions with a performance of 95% or higher compared to the leading region were considered leading regions. The analysis distinguishes converging regions from diverging regions, and the different levels of catching-up performance. Leading regions are the ones who already have a GDP close to that of the London NUTS 1 region. Fast converging regions have a growth rate which allows them to reach the leader in no more than 20 years, steady catching-up regions between 21 to 50 years, slow catching-up regions between 51 to 100 and slow converging regions between 101 to 250 years. Non converging regions have great distances in terms of GDP and are growing at a rate equal or slightly superior to the leader and diverging regions are growing less than the leader.

leading region		>=95% (GPD already close to the leader)
fast converging region		[0-20]
steady catching-up region		[20-50]
slow catching-up region		[50-100]
slow converging region		[100-250]
non converging region		>250
diverging region		growth (g) < growth London (g*)

The following table and map illustrate the results of the catching-up analysis for Euroregion Pomerania. Most of the regions in Euroregion Pomerania have been classified as diverging regions. This indicates that these regions are not catching up the leader, but growing less and thus diverging from the leading region. Polish regions of Euroregion Pomerania have been classified as slow catching-up regions (Podregion Koszaliński, Powiat m. Szczecin and Podregion Szczeciński) or slow converging regions (Podregion Stargardzki). With a similar growth rate these regions could in theory catch up the leader in 75 to 102 years.

⁵¹ According to these assumptions, the logistic function which describes the problem is represented as follows:

$$X = 0,95 \bar{X} = \frac{\bar{X}}{1 + ke^{-at}} \quad (1)$$

The data used for the catching up analysis was GDP per capita for the years 1997 and 2008.

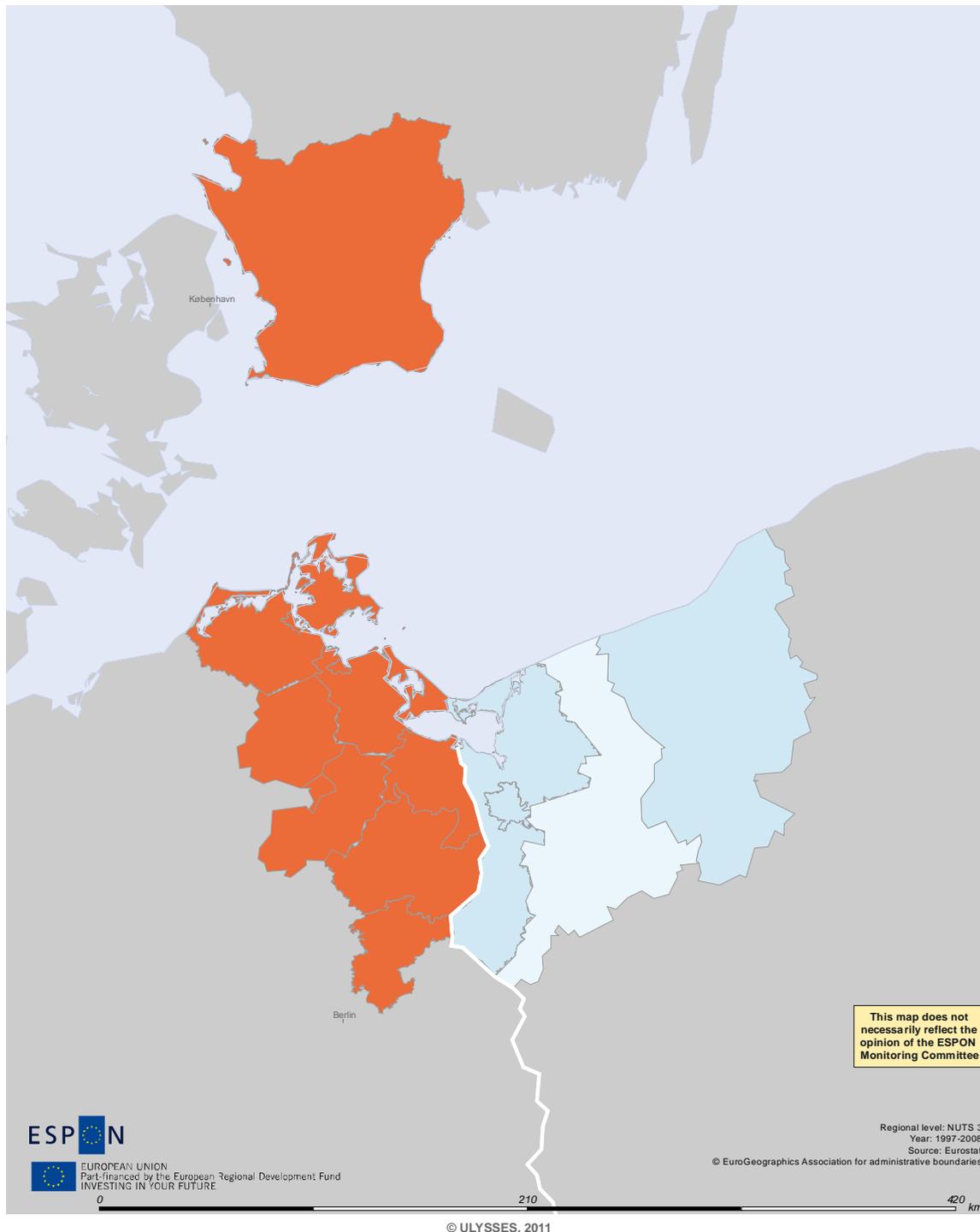
Table 34. Catching-up analysis of the regions of Euroregion Pomerania (performance in GDP per capita between 1997 and 2008 compared to the leading NUTS 1 of London).

NUTS ID	NUTS	Annual growth rate	G = relative growth	K = relative position (GDP)	A = constante for G e K	Years to the leader	CLASS	CODE
UKI	London	0,0419						
DE412	Barnim	0,0166	-0,0243	1,99	-0,037	-99,52776937	diverging region	7
DE418	Uckermark	0,0327	-0,0089	1,43	-0,015	-219,2643898	diverging region	7
DE801	Greifswald, Kreisfreie Stadt	0,0354	-0,0063	0,96	-0,013	-226,0233555	diverging region	7
DE802	Neubrandenburg, Kreisfreie Stadt	0,0213	-0,0198	0,54	-0,057	-40,98166096	diverging region	7
DE805	Stralsund, Kreisfreie Stadt	0,0355	-0,0062	0,73	-0,015	-179,3281267	diverging region	7
DE808	Demmin	0,0327	-0,0088	1,80	-0,014	-256,456738	diverging region	7
DE80B	Mecklenburg-Strelitz	0,0113	-0,0294	2,47	-0,041	-93,10987155	diverging region	7
DE80D	Nordvorpommern	0,0297	-0,0118	2,16	-0,017	-215,5998491	diverging region	7
DE80F	Ostvorpommern	0,0300	-0,0114	2,12	-0,017	-219,7339559	diverging region	7
DE80H	Rügen	0,0383	-0,0035	1,56	-0,006	-583,6614359	diverging region	7
DE80I	Uecker-Randow	0,0182	-0,0228	1,94	-0,034	-104,6417081	diverging region	7
PL422	Podregion Koszaliński	0,0967	0,0525	5,49	0,062	74,86280701	slow catching-up region	4
PL423	Podregion Stargardzki	0,0861	0,0424	7,30	0,048	102,2791573	slow converging region	5
PL424	Powiat m. Szczecin	0,0753	0,0320	3,11	0,042	96,5112573	slow catching-up region	4
PL425	Podregion Szczeciński	0,0902	0,0463	4,82	0,056	80,7986968	slow catching-up region	4
SE224	Skåne län	0,0270	-0,0144	0,61	-0,038	-64,29021211	diverging region	7

Source: Eurostat (GDP per capita -data)

Map 53. Performance of the regions of Euroregion Pomerania in GDP per capita between 1997 and 2008 compared to the leading NUTS 1 region of London.

Catching up analysis: GDP per capita



Legend

Catching-up with the leading region according to logistic function on GDP per capita 1997-2008*

- | | | |
|---|--|--|
|  leading region |  slow converging region |  <missing values> |
|  fast converging region |  non converging region | |
|  steady catching-up region |  diverging region | |
|  slow catching-up region | | |

*Exceptions:
PL 1999-2008

6.1.2. Economic sectors

Following tables differentiate the economic structure and evolution between 1997-2008 in the regions of Euroregion Pomerania, and enable comparing economic and employment structure of the region to EU27 and national averages. The economic performance is expressed in Gross Value Added, which presents overall contribution of different economic sectors to the total output of a region. The employment by sectors, on the other hand, illustrates the importance of different economic sectors in the composition of a regions' workforce. The leading economic sector in Euroregion Pomerania in 2008 was Public administration and community services (L-P), which produced in average 30 % of the total GVA. In some regions this sector produced almost half of the regions total GVA (including 46,56 % of the total GVA of Uecker-Randow). The second most important economic sector in Euroregion Pomerania was Financial intermediation and real estate (J-K).

Table 35. Share of GVA by NACE (Rev. 1.1) in the regions of Euroregion Pomerania in 2008.

NUTS ID	NUTS	Share of GVA by NACE 2008 (%)					
		Agriculture and fishing (A-B)	Industry (except construction) (C-E)	Construction (F)	Wholesale and retail trade; hotels and restaurants; transport (G-I)	Financial intermediation; real estate (J-K)	Public administration and community services; activities of households (L-P)
EU27	EU27	1,75	19,61	6,48	21,08	28,27	22,80
DE	Germany	0,90	25,58	4,25	17,75	29,44	22,08
PL	Poland	3,69	23,93	7,04	26,91	19,59	18,84
SE	Sweden	1,77	21,59	5,21	20,33	25,78	25,32
DE412	Barnim	1,87	11,73	5,40	21,64	28,19	31,16
DE418	Uckermark	3,57	33,29	4,63	15,86	18,11	24,54
DE801	Greifswald	0,30	15,93	2,49	15,41	28,25	37,63
DE802	Neubrandenburg	0,19	15,24	3,50	16,64	27,73	36,70
DE805	Stralsund	0,22	12,84	2,90	18,23	25,22	40,58
DE808	Demmin	6,25	21,18	6,38	15,29	26,23	24,68
DE80B	Mecklenburg-Strelitz	5,04	5,12	6,72	19,39	25,83	37,91
DE80D	Nordvorpommern	5,57	6,83	7,06	19,69	28,19	32,66
DE80F	Ostvorpommern	4,13	11,11	5,87	22,82	25,38	30,69
DE80H	Rügen	5,87	6,05	3,97	34,55	23,78	25,78
DE80I	Uecker-Randow	3,81	8,92	4,78	12,00	23,92	46,56
PL422	Podregion Koszaliński	4,88	17,98	8,50	28,89	16,55	23,19
PL423	Podregion Stargardzki	8,06	17,57	8,39	27,14	16,03	22,80
PL424	Powiat m. Szczecin	0,05	12,98	7,91	31,86	25,90	21,29
PL425	Podregion Szczeciński	4,06	29,35	6,85	28,11	13,28	18,33
SE224	Skåne län	1,71	20,69	5,80	21,96	24,52	25,32
	Euroregion Pomerania	3,47	15,43	5,70	21,84	23,57	29,99

Source: Eurostat

GVA has been increasing in Euroregion Pomerania at an annual rate of 3,56 %. The growth has been greatest in the Polish regions of the CBA, where average annual growth rate of GVA between 1999 and 2008 was 8,51 %. Growth rate for the German regions of Euroregion Pomerania valued at 1,77 % and for Skåne län at 3,49 % (between 1997 and 2008). Growth has been greatest in the sector for Financial intermediation and real estate (J-K). Average annual growth rate of the GVA for this sector was 6,67 %.

Table 36. Annual growth rate of GVA by NACE in Euroregion Pomerania between 1997 and 2008 (% share of total GVA).

NUTS ID	NUTS	Annual growth rate of the GVA by NACE 1997-2008 (%)						
		All NACE	Agriculture and fishing (A-B)	Industry (except construction) (C-E)	Construction (F)	Wholesale and retail; hotels & restaurants; transport (G-I)	Financial intermediation; real estate (J-K)	Public administration and community services; activities of households (L-P)
EU27	EU27	3,12	1,26	-1,48	-4,33	-2,96	4,36	3,37
DE	Germany	2,39	-0,98	2,58	-0,69	2,37	3,08	2,19
PL	Poland	9,06	3,09	7,84	9,94	8,98	12,57	9,14
SE	Sweden	3,71	0,13	2,36	5,69	4,00	4,22	4,18
DE412	Barnim	2,79	1,34	3,79	-6,17	3,58	6,22	2,28
DE418	Uckermark	1,68	-1,97	3,54	-7,36	3,23	2,70	1,55
DE801	Greifswald	2,72	12,90	8,40	-10,98	1,19	5,96	1,95
DE802	Neubrandenburg	0,54	12,63	1,44	-8,82	-0,24	1,64	1,46
DE805	Stralsund	2,63	-1,47	4,24	-8,40	1,34	6,01	2,73
DE808	Demmin	1,69	-2,76	5,12	-6,89	1,77	6,19	0,91
DE80B	Mecklenburg-Strelitz	0,22	-2,82	-3,02	-6,93	1,58	3,37	0,92
DE80D	Nordvorpommern	1,98	-2,35	4,28	-7,55	3,81	6,30	2,51
DE80F	Ostvorpommern	2,33	-3,11	3,89	-4,84	3,75	5,24	2,01
DE80H	Rügen	2,61	2,06	1,58	-7,89	5,79	4,05	1,55
DE80I	Uecker-Randow	0,33	-2,51	4,56	-8,83	-1,77	3,59	0,98
PL422	Podregion Koszaliński	9,32*	2,60*	8,86*	13,14*	8,33*	13,04*	9,49*
PL423	Podregion Stargardzki	8,48*	2,53*	5,44*	9,80*	8,03*	13,36*	11,80*
PL424	Powiat m. Szczecin	7,19*	2,15*	2,06*	7,89*	5,86*	11,71*	8,73*
PL425	Podregion Szczeciński	9,03*	0,98*	8,84*	10,72*	7,75*	12,52*	11,61*
SE224	Skåne län	3,49	-1,07	1,07	5,92	4,36	4,77	3,81
	Euroregion Pomerania	1,92	1,20	4,01	-2,32	3,65	6,67	4,02

*Data for 1999-2008

Source: Eurostat

Highest share of employment in Euroregion Pomerania was in 2008 recorded in Public administration and community services (L-P). Share of employment in this sector was 36,20 % of the total employment in Euroregion Pomerania. The second largest share of employment (26,38 %) was in the sector for Wholesale and retail trade; hotels and restaurants (G-I). The share of employment in industry was high (21,89 %) in the Polish regions of the CBA.

Table 37. Share of employment in total employment by NACE sectors (Rev. 1.1) in Euroregion Pomerania (2008).

NUTS ID	NUTS	Share of employment by NACE 2008 (%)					
		Agriculture and fishing (A-B)	Industry (except construction) (C-E)	Construction (F)	Wholesale and retail trade; hotels and restaurants; transport (G-I)	Financial intermediation; real estate (J-K)	Public administration and community services; activities of households (L-P)
EU27	EU27*	5,67	18,08	7,72	25,10	14,31	29,13
DE	Germany	2,14	19,94	5,44	24,94	17,40	30,14
PL	Poland	14,02	23,84	7,59	23,32	8,56	22,68
SE	Sweden	2,12	16,84	6,47	21,38	15,94	37,24
DE412	Barnim	2,89	11,24	10,27	26,48	12,68	36,28
DE418	Uckermark	6,30	16,73	8,46	24,02	10,43	34,06
DE801	Greifswald	1,32	8,94	3,64	19,87	23,84	42,38
DE802	Neubrandenburg	0,44	11,11	4,58	22,66	19,39	41,83
DE805	Stralsund	0,60	8,16	4,83	22,66	16,92	46,83
DE808	Demmin	9,15	13,03	9,86	25,00	8,45	34,51
DE80B	Mecklenburg-Strelitz	6,96	8,79	8,79	26,01	7,69	41,39
DE80D	Nordvorpommern	6,84	7,37	9,74	29,74	7,11	39,21
DE80F	Ostvorpommern	4,57	8,41	6,97	32,69	10,58	36,78
DE80H	Rügen	4,22	6,17	5,52	44,16	11,04	28,90
DE80I	Uecker-Randow	4,98	10,30	6,31	18,27	11,96	47,84
PL422	Podregion Koszaliński	8,04	21,22	9,35	26,84	6,25	28,31
PL423	Podregion Stargardzki	11,64	22,87	9,41	23,28	5,47	27,33
PL424	Powiat m. Szczecin	0,51	16,57	9,09	31,49	11,77	30,57
PL425	Podregion Szczeciński	7,55	26,89	8,50	26,04	5,10	25,93
SE224	Skåne län	2,40	15,19	6,91	22,82	15,60	37,08
	Euroregion Pomerania	4,90	13,31	7,64	26,38	11,52	36,20

*EU27 data for 2008 includes data for 2007 for IT.

Source: Eurostat

Annual growth rate for employment was slightly negative (-0,5 %) in Euroregion Pomerania between 2000 and 2008. The field of Construction (F) experienced the greatest decrease in the annual growth rate for employment (-3,55 %), despite for the fact that the share of construction in total employment increased at an 4,28 % annual rate in Skåne län. Besides construction, employment in agriculture and fishing decreased significantly (-3,49 %). In Poland the share of employment in agriculture and fishing came down at an annual rate of -10,91 %.

Table 38. Annual growth rate of the share of employment by NACE sectors in total employment in Euroregion Pomerania between 2000 and 2008.

NUTS ID	NUTS	Annual growth rate of employment by NACE 2000-2008 (%)						
		All NACE	Agriculture and fishing (A-B)	Industry (except construction) (C-E)	Construction (F)	Wholesale and retail; hotels & restaurants; transport (G-I)	Financial intermediation; real estate (J-K)	Public administration and community services; activities of households (L-P)
EU27	EU27*	0,82	-4,05	-0,48	2,00	1,18	2,59	1,47
DE	Germany	0,36	-1,03	-0,76	-2,87	0,28	2,39	0,92
PL	Poland	0,59	-7,03	2,14	4,23	2,35	1,89	2,97
SE	Sweden	0,75	-3,35	-0,90	3,81	0,48	2,68	0,77
DE412	Barnim	-0,12	0,00	-0,52	-3,34	-0,22	2,87	0,11
DE418	Uckermark	-1,32	-2,44	0,30	-7,17	-0,60	0,00	-0,77
DE801	Greifswald	0,64	18,92	0,00	-9,29	-0,21	6,05	0,00
DE802	Neubrandenburg	-0,86	-4,94	0,50	-8,30	-1,67	0,88	-0,26
DE805	Stralsund	-0,11	0,00	-2,84	-7,16	0,17	1,95	0,66
DE808	Demmin	-1,56	-4,94	-1,27	-5,76	-0,35	0,00	-0,25
DE80B	Mecklenburg-Strelitz	-1,58	-8,89	-2,34	-7,03	-0,35	-1,13	1,29
DE80D	Nordvorpommern	-0,32	-0,92	-2,03	-6,44	0,68	0,00	1,53
DE80F	Ostvorpommern	0,18	-3,37	-2,25	-5,60	1,47	3,28	1,03
DE80H	Rügen	0,20	0,00	-2,36	-7,60	1,79	2,46	0,00
DE80I	Uecker-Randow	-1,48	-0,80	0,84	-8,30	-2,44	4,15	-1,54
PL422	Podregion Koszaliński	-0,20	-10,39	0,22	5,27	0,60	-0,91	2,69
PL423	Podregion Stargardzki	-1,19	-10,88	-1,20	3,62	0,22	-1,31	4,29
PL424	Powiat m. Szczecin	-0,65	-10,05	-1,86	1,42	-1,56	-1,79	1,34
PL425	Podregion Szczeciński	-0,61	-12,31	-0,34	4,56	-0,05	-0,75	4,47
SE224	Skåne län	1,00	-4,76	-1,70	4,28	1,07	4,23	0,98
	Euroregion Pomerania	-0,50	-3,49	-1,05	-3,55	-0,09	1,25	0,97

*EU27 data for 2000 includes data for 2001 for NL and 2002 for UK. EU27 data for 2008 includes data for 2007 for IT.

Source: Eurostat

6.2. Research and innovation

Tree types of indicators are used for studying research and innovation of regions. These include enablers, firm activities and outputs. Since a wide-ranging analysis on all of these topics was not possible in the context of this project and due to the lack of data (NUTS 2 coverage is very poor for most of the indicators) we have selected in our analysis following indicators: intramural R&D expenditures as a percentage of GDP (R&D expenditures in the government sector (GOVERD), the higher education sector (HERD) and business R&D expenditures (BERD)), amount of EPO patents and employed persons in high and medium tech manufacturing activities.

Total intramural R&D expenditure in Euroregion Pomerania was 1,66 % in 2007, which is lower than the EU average (2,01 %). In Sydsverige (4,75 %) R&D expenditure was well above the EU and Swedish average (3,4 %), and the expenditure had been directed especially to business and enterprise sector. Sydsverige also had a high amount of EPO patents (190,95 patents per million inhabitants) and a large share of persons employed in high and medium tech manufacturing (140,03 % of total workforce indexed to EU25). The Polish region of Województwo Zachodniopomorskie, on the contrary, had a low total R&D expenditure (0,24 %), a small amount of EPO patents (2,72 per million of inhabitants) and a relatively small share of persons employed in high and medium tech manufacturing (61,40 % of total workforce indexed to EU25).

Table 39. Indicators for research and innovation in the Poland – Germany – Sweden CBA (NUTS 2 delimitation).

NUTS ID	NUTS	Total intramural R&D expenditure 2007 (% of GDP)				EPO patents per million of inhabitants 2007	Employed persons in high and medium tech manufacturing activities (% of total workforce EU25 = 100) 2004 *
		Total	Business enterprise sector	Government sector	Higher education sector		
EU27	EU27	2,01	1,18	0,24	0,42	N/A	N/A
PL	Poland	0,57	0,17	0,2	0,19	3,54	71,49
SE	Sweden	3,4	2,47	0,17	0,75	145,77	106,19
DE41	Brandenburg - Nordost	0,34	0,21	0,28	0,06	56,81	84,44
DE80	Mecklenburg-Vorpommern	1,3	0,38**	0,54	0,38	34,88	56,50
PL42	Województwo Zachodniopomorskie	0,24	0,01	N/A	0,22	2,72	61,40
SE22	Sydsverige	4,75	3,79	0,08	0,89	190,95	140,03
	Euroregion Pomerania	1,66	1,34	0,30	0,39	71,34	85,59

*Source: ESPON DB (Regional Innovation Scoreboard).

**Data for 2005.

Source: Eurostat

6.3. Social cohesion

We have studied social cohesion of the Poland – Germany – Sweden CBA by analysing unemployment rates, infant mortality rate, scope of tertiary education and the share of population at risk of poverty after social transfers⁵². Unemployment and long-term unemployment in Poland – Germany – Sweden CBA was well above the European and national (Germany, Poland, Sweden) averages in 2010. Unemployment rate was 11,13 % for the CBA, while the rate valued at 7,1 % for Germany, 9,6 % for Poland and 8,4 % for Sweden. EU unemployment rate was 9,6 % in 2010. Mecklenburg-Vorpommern and Województwo Zachodniopomorskie had the highest unemployment rates in the CBA, while long-term unemployment was highest in Mecklenburg-Vorpommern (7,3 %) and Brandenburg-Nordost (7,2 %). Youth unemployment was also high in Poland – Germany – Sweden CBA, and Województwo Zachodniopomorskie was the region with the highest youth unemployment rate; 31 % of labour force aged 15-24.

⁵² Population at risk of poverty is defined as “persons having equalised disposable income (i.e. adjusted for household size and composition) of less than 60% of national median”.

Other social cohesion indicators (population at risk of poverty after social transfers, infant mortality and population aged 25-64 with tertiary education) show values that are close to European averages. Mecklenburg-Vorpommern had the largest share of population at risk of poverty after social transfers (24 % of total population), while the CBA average was 18,15 % in 2008. This was very close to the European Union average of 17 %. Infant mortality rated highest in Województwo Zachodniopomorskie in 2008 (5,1 %), while Skåne län had the lowest infant mortality rate (2,2 %). Population aged 25-64 with tertiary education was slightly above the European average in Poland – Germany – Sweden CBA (28,38 %).

Table 40. Social cohesion indicators for the Poland – Germany – Sweden CBA (NUTS 2 delimitation).

NUTS ID	NUTS	Unemployment rate 2010	Long-term unemployment rate 2009 (>=12 months)	Youth unemployment rate 2010 (% of labour force aged 15-24)	Population at risk of poverty after social transfers, 2008 (% of total population)	Infant mortality rate 2008	Population aged 25–64 with tertiary education 2010
EU27	EU27	9,6	3,0	20,9	17,0*	4,3	25,9
DE	Germany	7,1	3,5	9,9	15,2	3,5	26,6
PL	Poland	9,6	2,5	23,7	16,9	5,6	22,9
SE	Sweden	8,4	1,1	25,2	12,2	2,5	34,2
DE41	Brandenburg - Nordost	11,2	7,2	16,8	18,7*	:	29,2
DE80	Mecklenburg-Vorpommern	12,4	7,3	13,4	24,0*	3,7	27,0
PL42	Województwo Zachodniopomorskie	12,3	3,5	31	16,3*	5,1	21,1
SE22	Sydsverige	8,6	0,9	27	13,6*	2,2	36,2
	Euroregion Pomerania	11,13	4,73	22,05	18,15	3,67	28,38

* Source: European Commission's 5th Cohesion Report

Source: Eurostat

6.4. Environmental analysis

We have applied two sets of indicators for environmental analysis of the Poland – Germany – Sweden CBA; indicators from the European Commission's 5th Cohesion Report and indicators from the ESPON Climate Project regarding the region's sensitivity for climate change. From the European Commission's 5th Cohesion Report we selected six indicators; soil sealed area, ozone exceedance, waste water treatment, Natura 2000 areas, solar energy and wind potential. While the first four indicators show concrete environmental performance of the region, the last two indicate what could be the region's capacity in exploiting alternative energy sources in an energy source transition scenario.

6.4.1. Environmental performance

The first indicator of environmental performance that we have studied is soil sealing.⁵³ According to the 5th Cohesion Report Soil sealing is particularly high in highly urbanised areas such as parts of the Netherlands, North Belgium, West and South Germany and central and southeastern parts of the UK. In Mediterranean regions, soil sealing is relatively high along the coasts where rapid urbanisation is associated with the expansion of tourism.⁵⁴

Soil sealing has been particularly high in the city regions of Euroregion Pomerania. In Stralsund soil sealed area covered as much as 37 % of the total land area in 2006. Other regions with large shares of soil sealed area were Greifswald (20 %) and Neubrandenburg (19 %) in Germany and the city of Szczecin (18 %) in Poland. These shares are well above the EU27 average share that valued at 6,72 % in 2006.

Table 41. Soil sealing in Euroregion Pomerania in 2006.

NUTS ID	NUTS	Soil sealed area 2006 (% of total area)	Soil sealing per inhabitant (m ² per inhabitant) 2006
EU27	(NUTS 2 average)	6,72	214
DE	Germany	9,11	231,64
PL	Poland	5,47	182,39
SE	Sweden	0,62	205,00
DE412	Barnim	4	299
DE418	Uckermark	2	377
DE801	Greifswald, Kreisfreie Stadt	20	213
DE802	Neubrandenburg, Kreisfreie Stadt	19	249
DE805	Stralsund, Kreisfreie Stadt	37	241
DE808	Demmin	2	345
DE80B	Mecklenburg-Strelitz	1	347
DE80D	Nordvorpommern	2	329
DE80F	Ostvorpommern	2	375
DE80H	Rügen	3	368
DE80I	Uecker-Randow	2	365
PL422	Podregion Koszaliński	1	208
PL423	Podregion Stargardzki	1	192
PL424	Powiat m. Szczecin	18	140
PL425	Podregion Szczeciński	2	229
SE224	Skåne län	2	152
	Euroregion Pomerania	7,38	276,81

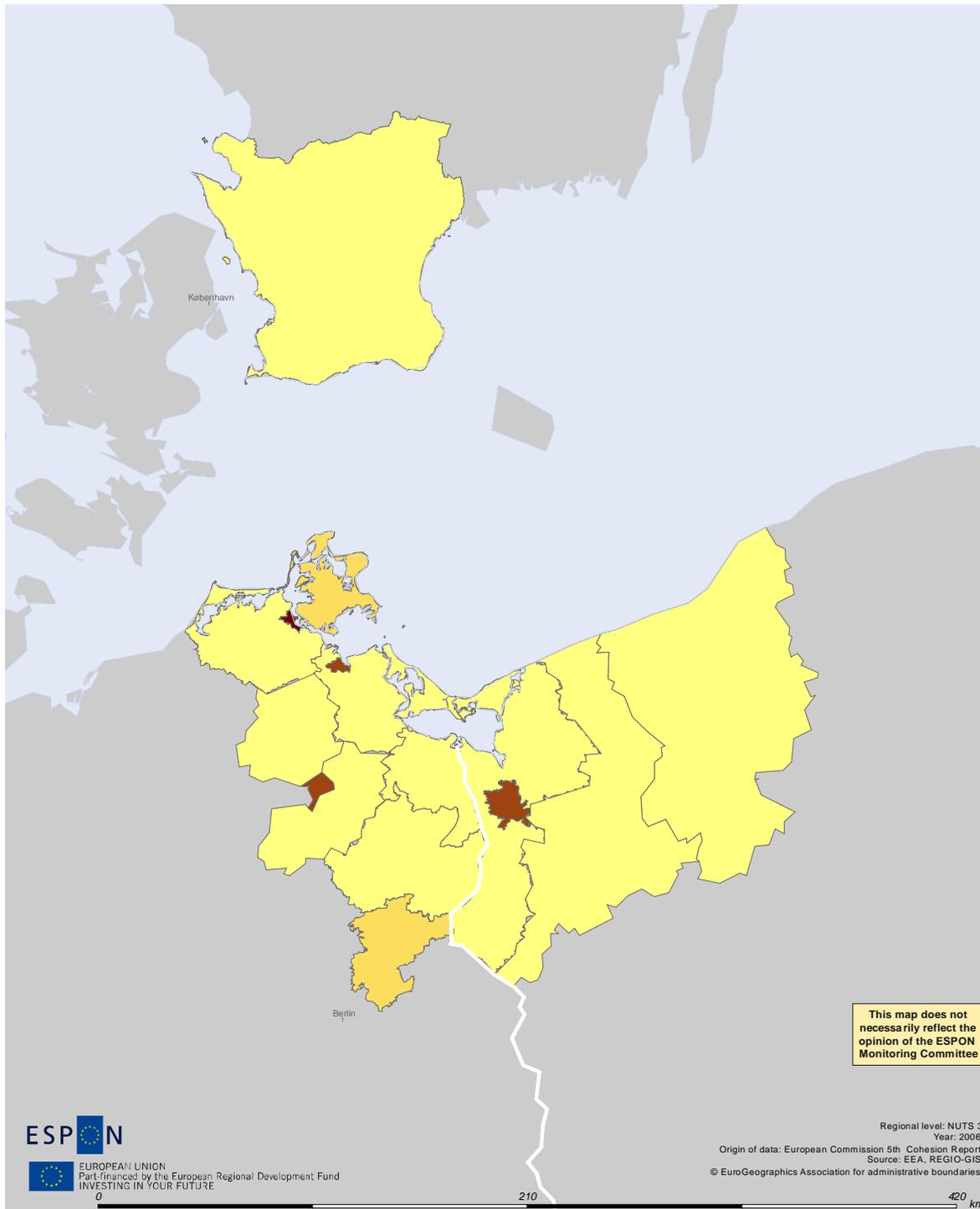
Source: European Commission's 5th Cohesion Report

⁵³ Soil sealing means covering of soil for housing, roads or other land developments. When land is sealed, the area for soil to carry out its natural functions including the absorption of rainwater for infiltration and filtering is reduced. Sealed areas may have a great impact on surrounding soils by changing water flow patterns and by increasing the fragmentation of biodiversity.

⁵⁴ Fifth Report on Economic, Social and Territorial Cohesion 2010.

Map 54. Soil sealed area in Euroregion Pomerania in 2006.

Soil sealed area



Legend

Soil sealed area, 2006 (% total area)



NUTS 2 average
 EU27 = 6,72
 DE = 9,11
 PL = 5,47
 SE = 0,62

The second indicator for environmental performance we have studied is ozone concentration exceedances. The European Union aims at reducing ozone levels and particulate matter in the air. The 5th Cohesion Report states that there is much evidence on high ground-level ozone concentrations harming lungs and irritating the respiratory system. Ozone concentrations often exceed EU thresholds in cities, especially in southern Europe.⁵⁵

Ozone concentration exceedances in Euroregion Pomerania were below national and EU averages in 2008. Greifswald, Stralsund, Nordvorpommern and Rügen had no days with exceedances, and regions with the most exceedances were Barnim and Mecklenburg-Strelitz (four days with ground level ozone concentration above 120 µg/m³ in 2008).

Table 42. Ozone concentration exceedances in the regions of Euroregion Pomerania in 2008.

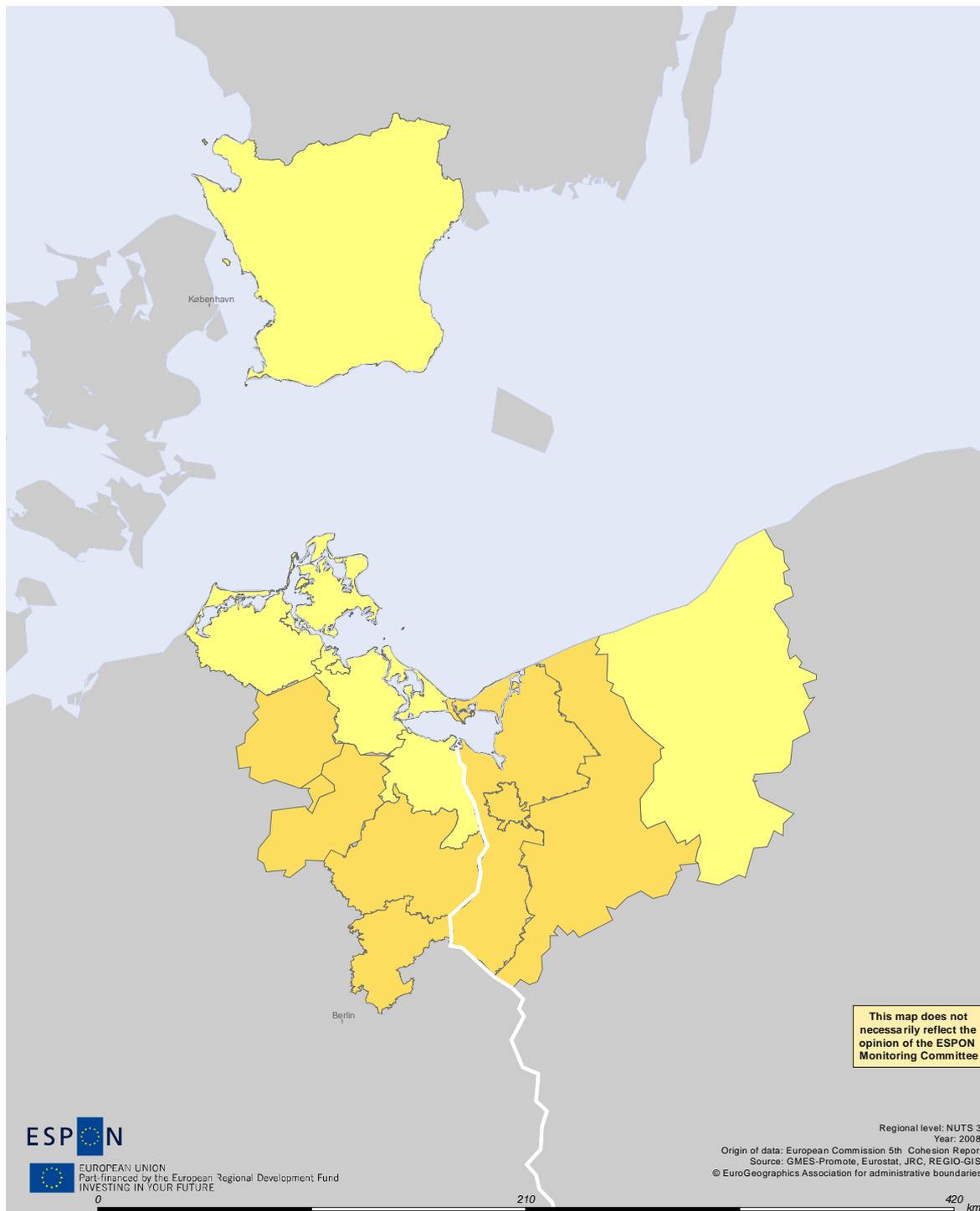
NUTS ID	NUTS	Ozone concentration exceedances in NUTS 3 regions (days), 2008
EU27	(NUTS 2 average)	9,99
DE	Germany	7,77
PL	Poland	4,29
SE	Sweden	2,15
DE412	Barnim	4
DE418	Uckermark	3
DE801	Greifswald, Kreisfreie Stadt	0
DE802	Neubrandenburg, Kreisfreie Stadt	3
DE805	Stralsund, Kreisfreie Stadt	0
DE808	Demmin	3
DE80B	Mecklenburg-Strelitz	4
DE80D	Nordvorpommern	0
DE80F	Ostvorpommern	1
DE80H	Rügen	0
DE80I	Uecker-Randow	2
PL422	Podregion Koszaliński	2
PL423	Podregion Stargardzki	3
PL424	Powiat m. Szczecin	3
PL425	Podregion Szczeciński	2
SE224	Skåne län	1
	Euroregion Pomerania	1,94

Source: European Commission's 5th Cohesion Report

⁵⁵ Fifth Report on Economic, Social and Territorial Cohesion 2010.

Map 55. Ozone concentration exceedances (days) in Euroregion Pomerania in 2008.

Ozone concentration exceedances



Legend

Ozone concentration exceedances in NUTS 3 regions (days), 2008

Days with ground-level ozone concentration above 120 µg/m³

	<= 2,20		10,00 - 16,23		<missing value>
	2,21 - 5,02		16,24 - 26,07		
	5,03 - 9,99		>= 26,08		

NUTS 3 average
 EU27 = 10
 DE = 7,77
 PL = 4,29
 SE = 2,15

The third indicator for environmental performance that we used was urban waste water treatment capacity. According to the 5th Cohesion Report, urban waste water is not yet treated adequately in all the Member States, especially in regions of EU12 countries, but also in several of the EU15 countries. Treatment of waste water is necessary to preserve the quality of water reserves, for drinking, use by industry, tourism and agriculture and for environmental reasons. For urban areas, treatment, which removes most contaminants from sewage, is mandatory.

Urban waste water treatment capacity in Euroregion Pomerania was above national and EU averages in all the regions except for Województwo Zachodniopomorskie, where the capacity was only 57 %. Brandenburg-Nordost, Mecklenburg-Vorpommern and Sydsverige were able to treat all their urban waste waters in 2007, while the EU27 average for the given year was 92,53 %.

Table 43. Urban waste water treatment capacity in the Poland – Germany – Sweden CBA in 2007 (NUTS 2 delimitation).

NUTS ID	NUTS	Urban waste water treatment capacity, 2007
EU27	(NUTS 2 average)	92,53
DE	Germany	98,48
PL	Poland	84,83
SE	Sweden	99,98
DE41	Brandenburg – Nordost	100
DE80	Mecklenburg-Vorpommern	100
PL42	Zachodniopomorskie	57
SE22	Sydsverige	100
	Euroregion Pomerania	89,25

Source: European Commission's 5th Cohesion Report

According to data from Central Statistical Office Poland, there have been improvements in the waste water treatment capacity in Województwo Zachodniopomorskie after 2007. The share of purified industrial and municipal waste water (percentage of waste water requiring treatment) has increased from 84,88 % in 2007 to 99,52 % in 2010. Biggest improvements have taken place in the city of Szczecin, where the share of purified waste water increased from 57,98 % to 99,43 % between 2009 and 2010. This change is connected with the opening of Pomorzany wastewater treatment plant in Szczecin in October 2009.

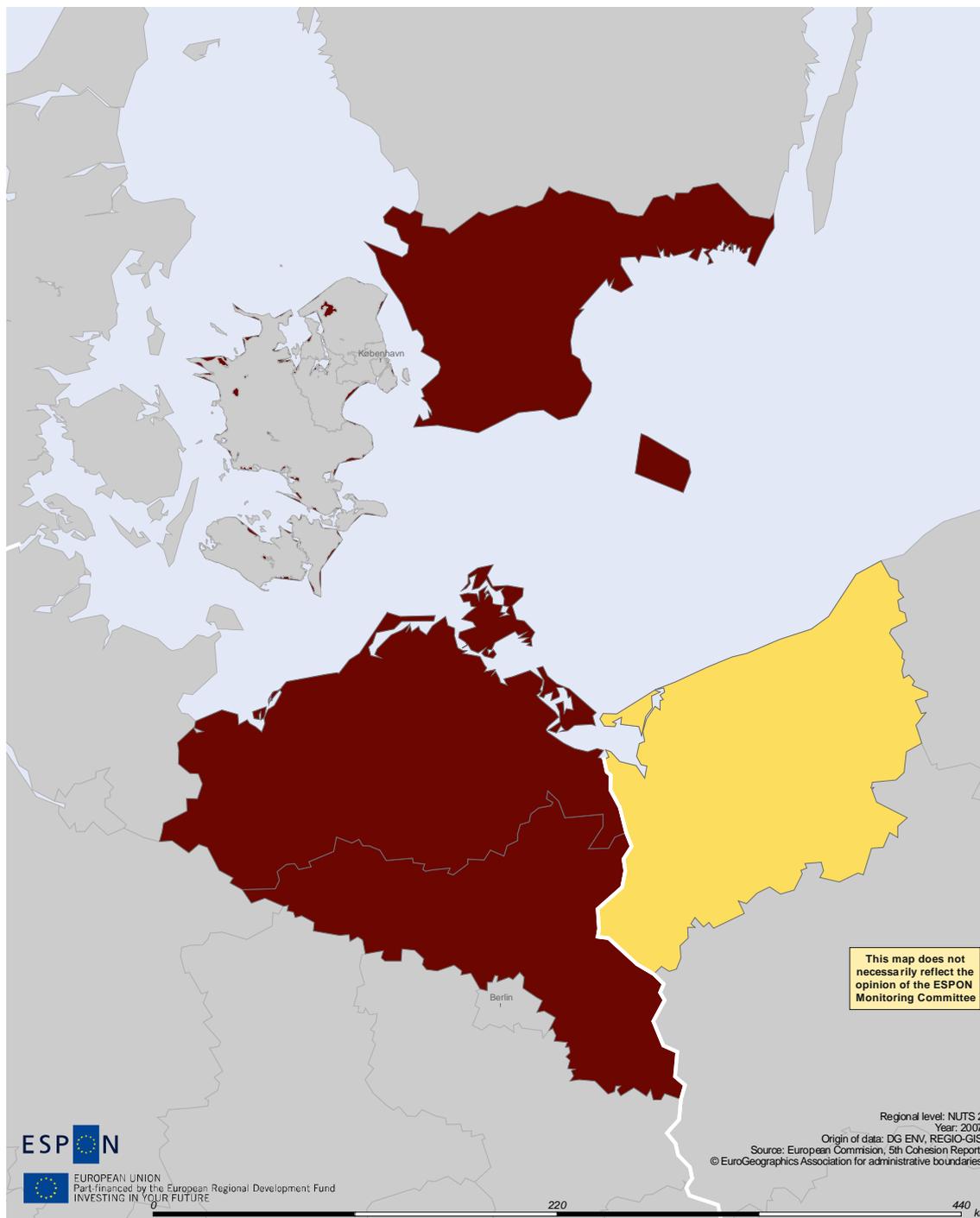
Table 44. The share of purified industrial and municipal waste water in Województwo Zachodniopomorskie between 2002 and 2011 (NUTS 2 delimitation).

NUTS ID	NUTS	Industrial and municipal waste water purified (% of waste water requiring treatment)								
		2002	2003	2004	2005	2006	2007	2008	2009	2010
PL42	Województwo Zachodniopomorskie	82,77	82,28	82,08	83,07	84,67	84,88	93,63	94,31	99,52
PL422	Podregion Koszaliński	97,35	96,88	93,49	94,19	98,51	97,24	99,50	98,15	99,98
PL423	Podregion Stargardzki	91,64	92,92	94,75	90,22	98,12	96,95	96,37	94,09	97,12
PL424	Powiat m. Szczecin	36,46	35,82	37,70	39,57	38,57	40,52	36,73	57,98	99,43
PL425	Podregion Szczeciński	99,80	99,60	98,92	99,68	99,16	97,76	99,84	99,84	99,92

Source: Central Statistical Office Poland

Map 56. Urban waste water treatment capacity in the Poland – Germany – Sweden CBA in 2007 (NUTS 2 delimitation).

Urban waste water treatment capacity



Legend

© ULYSSES, 2011

Urban waste water treatment capacity NUTS 2, 2007

	<= 23,65		79,66 - 92,53		<missing value>
	23,66 - 69,21		92,54 - 99,00		
	69,22 - 79,65		>= 99,01		

NUTS 2 average	
EU 27 =	92,53
DE =	98,48
PL =	84,83
SE =	99,98

The last environmental performance indicator that we studied was the share of Natura 2000 areas. Natura 2000 is an EU wide network of nature preservation areas. The aim of Natura is to ensure long-term survival of threatened species and habitats. According to the EU Nature Directives, conservation should be achieved while taking account of economic, social, cultural, regional and recreational needs. Regions should consider the sites as important assets in development strategies: Natura 2000 areas could be used to attract more visitors and to develop economic activities related to ecotourism, as well as enhancing the quality of life of the people living in the nearby regions.⁵⁶

The share of Natura 2000 areas in Euroregion Pomerania in 2009 was 30,06 % of total land area. The share was significantly higher than German (13,16 %), Polish (16,09 %), Swedish (5,48 %) or the European Union average (14,24 %). Podregion Szczeciński had the largest share (45 %), while Stralsund had the smallest share (3 %) of Natura 2000 areas.

Table 45. Share of Natura 2000 areas of total area (%) in Euroregion Pomerania in 2009.

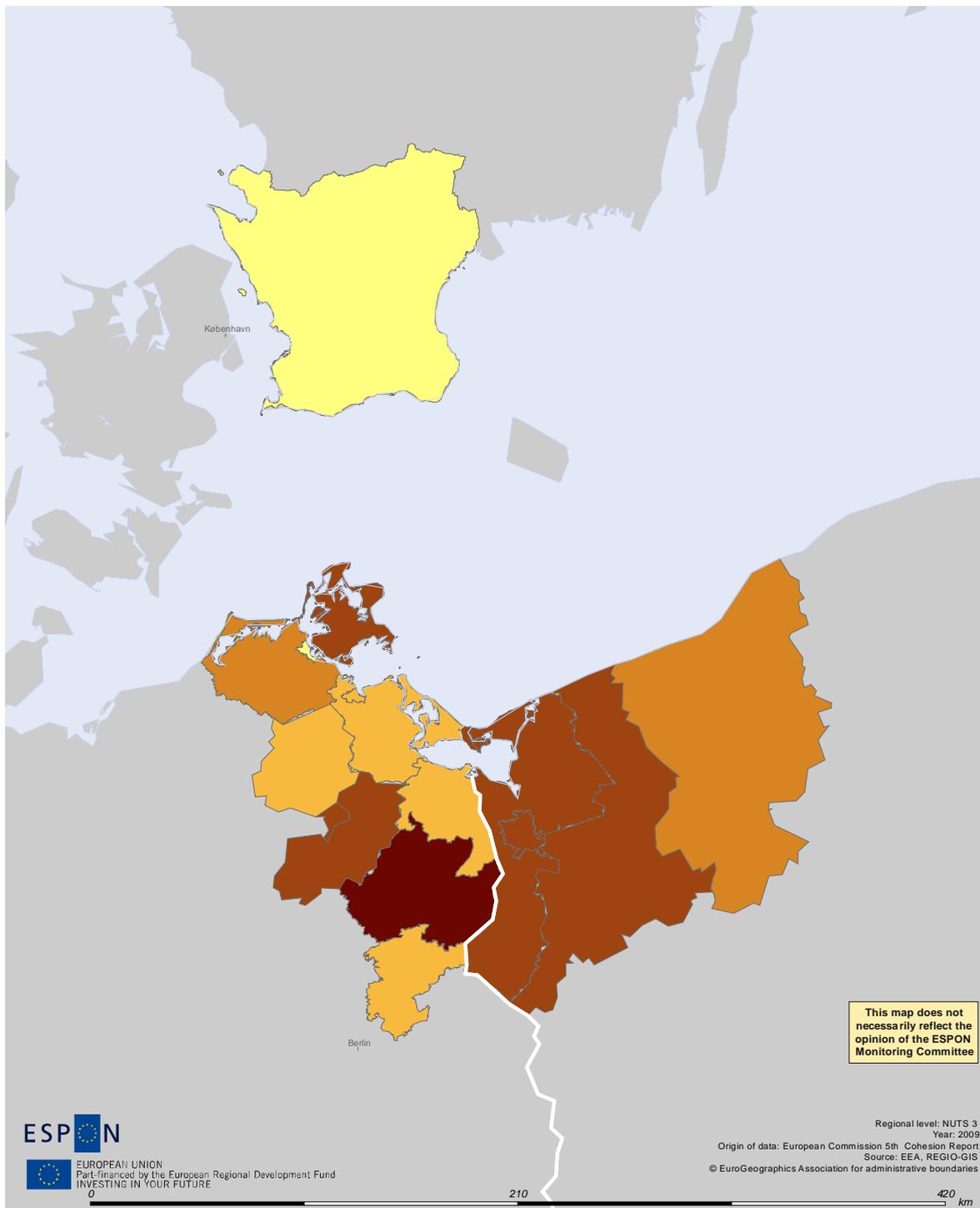
NUTS ID	NUTS	Natura 2000 areas, 2009 (% of total area)
EU27	(NUTS 2 average)	14,24
DE	Germany	13,16
PL	Poland	16,09
SE	Sweden	5,48
DE412	Barnim	22
DE418	Uckermark	54
DE801	Greifswald, Kreisfreie Stadt	18
DE802	Neubrandenburg, Kreisfreie Stadt	43
DE805	Stralsund, Kreisfreie Stadt	3
DE808	Demmin	26
DE80B	Mecklenburg-Strelitz	38
DE80D	Nordvorpommern	32
DE80F	Ostvorpommern	23
DE80H	Rügen	40
DE80I	Uecker-Randow	27
PL422	Podregion Koszaliński	33
PL423	Podregion Stargardzki	36
PL424	Powiat m. Szczecin	37
PL425	Podregion Szczeciński	45
SE224	Skåne län	4
	Euroregion Pomerania	30,06

Source: European Commission's 5th Cohesion Report

⁵⁶ Fifth Report on Economic, Social and Territorial Cohesion 2010.

Map 57. Share of Natura 2000 areas of total area (%) in Euroregion Pomerania in 2009.

Share of Natura 2000 area



Legend

Natura 2000 areas, 2009 (% of total area)

	<= 8,00		27,01 - 35,00		<missing value>
	8,01 - 14,24		35,01 - 45,00		
	14,25 - 27,00		>= 45,01		

NUTS 3 average

EU27	= 14,24
DE	= 13,16
PL	= 16,09
SE	= 5,48

6.4.2. Environmental capacity

Production of renewable energy has a strong geographical dimension. Solar energy potential is far greater in the southern regions, while the potential of wind power is greatest in areas along the Atlantic and North Sea coasts. Regions can play an important role in facilitating and encouraging renewable energy production.⁵⁷

Most solar energy resources in the EU possessed Ragusa region in Italy with 2 027 kWh and the least Shetland islands in the United Kingdom with 922 kWh per year. Solar energy potential in Euroregion Pomerania is below European average (1 304,46 kWh per year), but in line with national averages. Solar energy resources were 1 172 kWh per year for Euroregion Pomerania, which is slightly above the Swedish (1 119,03 kWh), German (1 159,22 kWh) and Polish (1 168, 80 kWh) averages.

Table 46. Solar energy resources in Euroregion Pomerania between 1981 and 1990 (average per year).

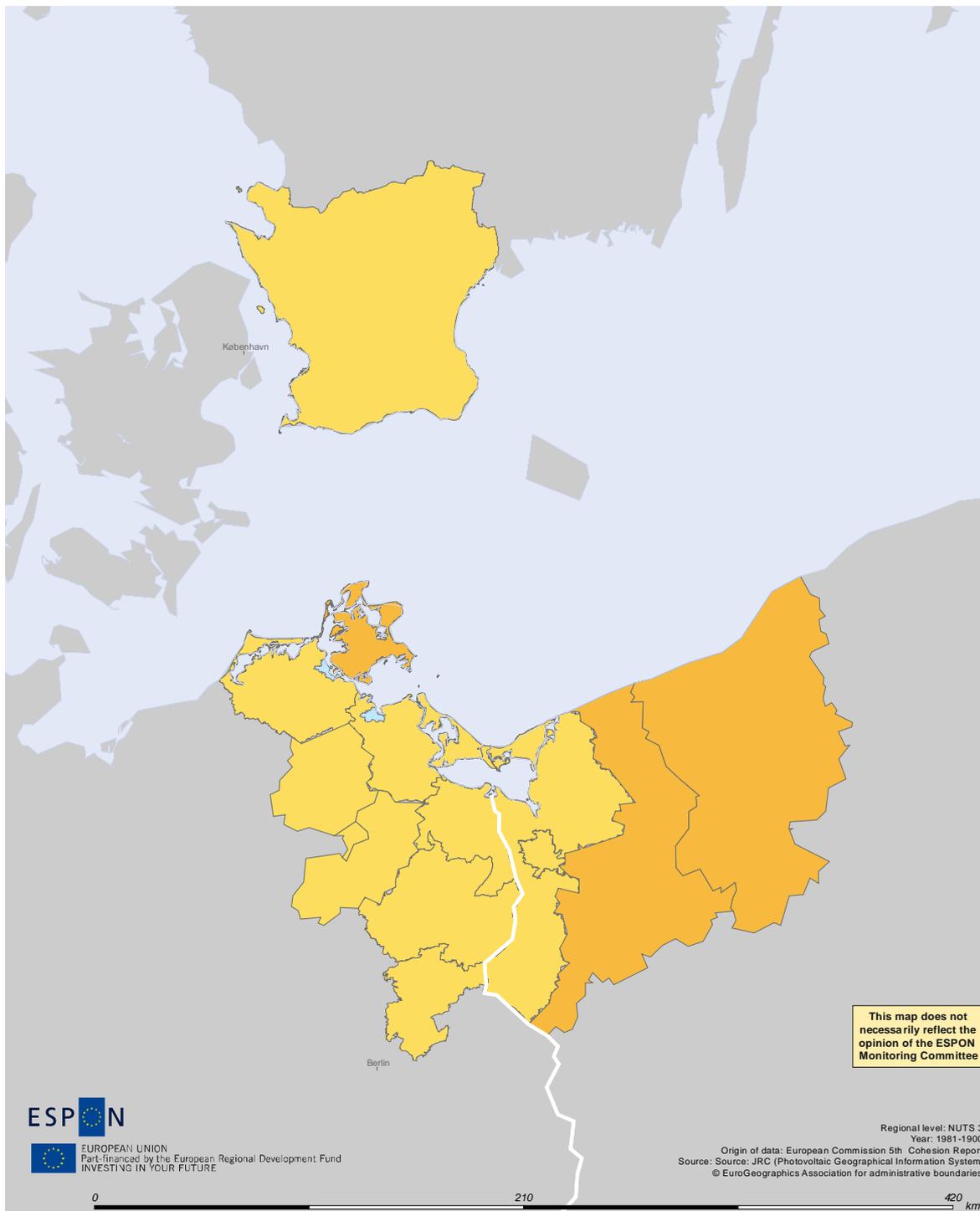
NUTS ID	NUTS	Solar energy resources per NUTS 3 regions (kWh per year, 1981-1990)
EU27	(NUTS 2 average)	1304,46
DE	Germany	1159,22
PL	Poland	1168,80
SE	Sweden	1119,03
DE412	Barnim	1 155
DE418	Uckermark	1 167
DE802	Neubrandenburg, Kreisfreie Stadt	1 169
DE808	Demmin	1 173
DE80B	Mecklenburg-Strelitz	1 167
DE80D	Nordvorpommern	1 182
DE80F	Ostvorpommern	1 183
DE80H	Rügen	1 191
DE80I	Uecker-Randow	1 177
PL422	Podregion Koszaliński	1 188
PL423	Podregion Stargardzki	1 183
PL424	Powiat m. Szczecin	1 179
PL425	Podregion Szczeciński	1 181
SE224	Skåne län	1 112
	Euroregion Pomerania	1 172

Source: European Commission's 5th Cohesion Report

⁵⁷ Fifth Report on Economic, Social and Territorial Cohesion 2010.

Map 58. Solar energy resources (kWh per year) in Euroregion Pomerania between 1981 and 1990 (average per year).

Solar energy resources



Legend

Solar energy resources per NUTS 3 regions (kWh per year, 1981-1990)

Average is calculated on the yearly sum of global irradiation on optimally-inclined surface (kWh/m2)

	<= 1100,53		1304,00 - 1595,14		<missing value>
	1100,54 - 1182,65		1595,15 - 1777,86		
	1182,66 - 1303,99		>= 1777,87		

NUTS 3 average
EU27 = 1304,46
DE = 1159,16
PL = 1169,95
SE = 1095,42

Wind energy potential, on the other hand, is well above national and European averages in Euroregion Pomerania. This is very natural considering the geographical location of the Euroregion. Wind energy potential in Euroregion Pomerania was 2 086,06 hours per year, while the EU average potential valued at 1 378,98 hours. Regions located on the coast of the Baltic Sea possessed the greatest wind energy potential. Wind energy potential of the island of Rügen was 3 326 hours per year, and even the lowest wind energy potential in the CBA, 1 545 hours per year in Uckermark, is above the EU average and German and Polish national averages.

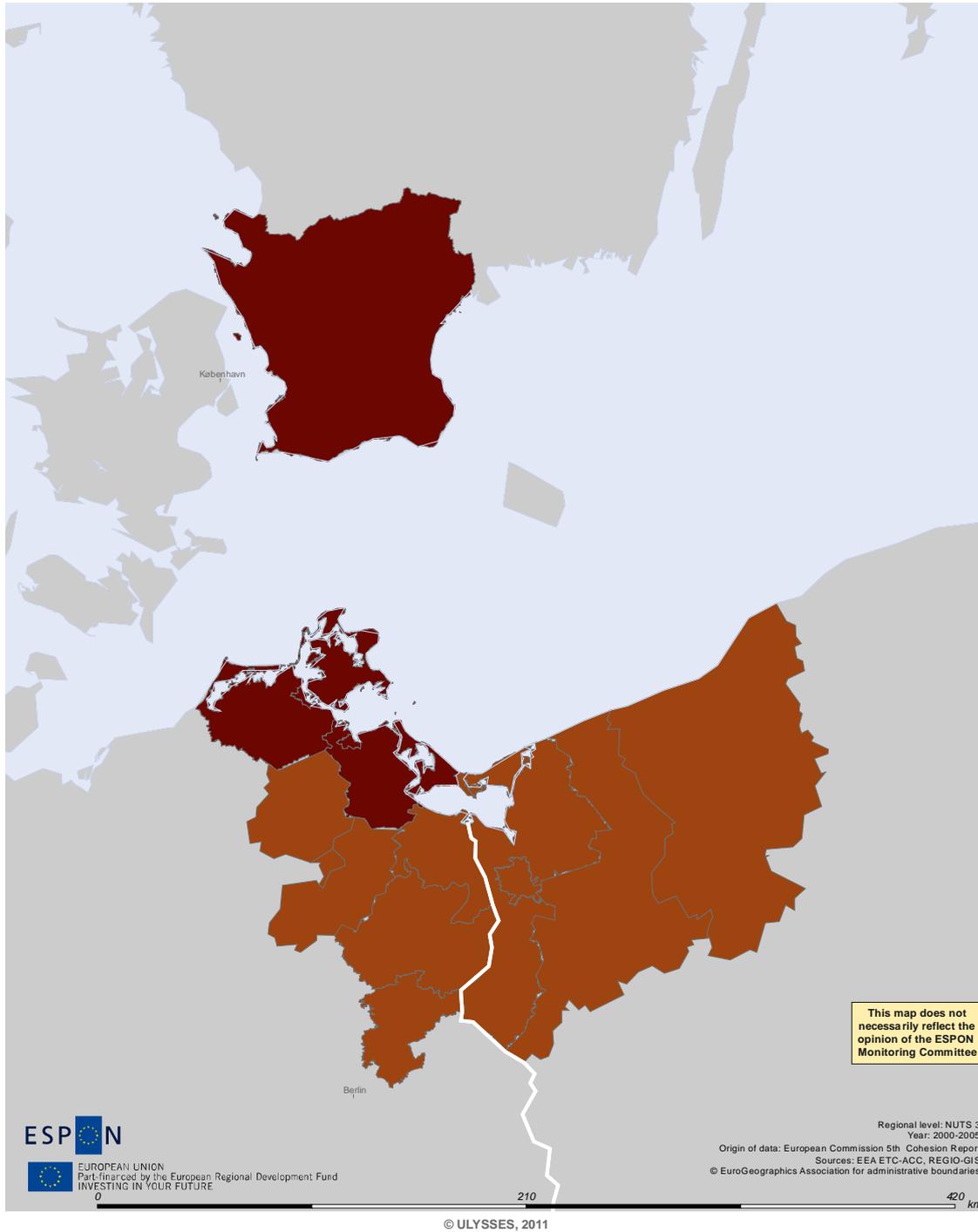
Table 47. Wind energy potential (onshore full load hours) in Euroregion Pomerania between 2000 and 2005 (average per year).

NUTS ID	NUTS	Wind energy potential: onshore full load hours, 2000-2005 (number of hours per year) At 80 m hub height
EU27	(NUTS 2 average)	1378,98
DE	Germany	1382,16
PL	Poland	1450,43
SE	Sweden	1969,21
DE412	Barnim	1 720
DE418	Uckermark	1 545
DE801	Greifswald, Kreisfreie Stadt	2 576
DE802	Neubrandenburg, Kreisfreie Stadt	1 719
DE805	Stralsund, Kreisfreie Stadt	2 699
DE808	Demmin	1 664
DE80B	Mecklenburg-Strelitz	1 715
DE80D	Nordvorpommern	2 258
DE80F	Ostvorpommern	2 511
DE80H	Rügen	3 326
DE80I	Uecker-Randow	1 959
PL422	Podregion Koszaliński	1 986
PL423	Podregion Stargardzki	1 658
PL424	Powiat m. Szczecin	1 735
PL425	Podregion Szczeciński	1 933
SE224	Skåne län	2 373
	Euroregion Pomerania	2086,06

Source: European Commission's 5th Cohesion Report

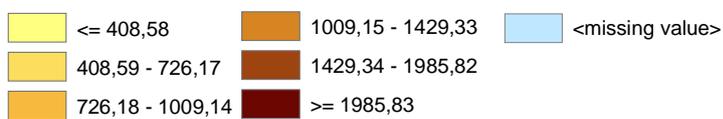
Map 59. Wind energy potential (onshore full load hours) in Euroregion Pomerania between 2000 and 2005 (average per year).

Wind energy potential



Legend

Onshore full load hours, 2000-2005 (number hours year) at 80 m hub height



NUTS 3 average
EU27 = 1378,98
DE = 1382,16
PL = 1450,43
SE = 1969,21

6.4.3. Climate change

We studied the sensitivity of the Poland – Germany – Sweden CBA to climate change based on methods applied in ESPON Climate project (Climate Change and Territorial Effects on Regions and Local Economies in Europe).⁵⁸ We selected three following themes for analysis:

- *Combined physical sensitivity*, which relates to all human artefacts that are important for territorial development and potentially affected by climate change. This includes settlements, roads, railways, airports and harbours. These physical assets of a region are typically adapted to normal regional weather conditions and can withstand smaller climatic changes. However, buildings and infrastructure are sensitive to extreme weather events like flash floods, large scale river floods and coastal storm surges which's frequency and magnitude may change due to climate change.
- *Combined social sensitivity*, which relates to human populations that may be adversely or positively affected by climate change. In particular, this encompasses climate-related sensitivities in regard to public health and personal mobility. In particular this dimension includes populations sensitive to river flooding, coastal flooding, flash floods and heat (i.e. senior citizen in urban heat islands). These populations are mainly concentrated in south-european agglomerations and along the coastline, and the most sensitive regions are coastal agglomerations in the Mediterranean.
- *Combined economic sensitivity*, which relates to economic activities or sectors that are especially sensitive to climatic changes. This includes agriculture and forestry whose economic goods are highly dependent on suitable climate. Tourism, both summer and winter tourism, capitalises on specific climatic conditions. The energy sector is also very sensitive: Power plants need water for cooling and are sensitive to flooding. Private households and the service sector require heating and/or cooling and thus demand more or less energy.

⁵⁸ The ESPON Climate –project's methodology was following: The exposure analysis focused on the climatic changes as such. It made use of existing projections on climate change and climate variability from the CCLM climate model, whose results have been used, among others, by the 4th IPCC assessment report on climate change. Using the IPCC climate scenario A1B (Nakicenovic et al. 2000) the ESPON Climate project aggregated data for two time periods (1961-1990 and 2071-2100) for eight climate stimuli. River flooding and sea level rise were added as two immediate 'triggered effects' of these climate stimuli. Each region was then assessed in regard to its climate change sensitivity. For each sensitivity dimension (physical, environmental, social, economic and cultural) several sensitivity indicators were developed. Each indicator was calculated in absolute and relative terms and then combined.

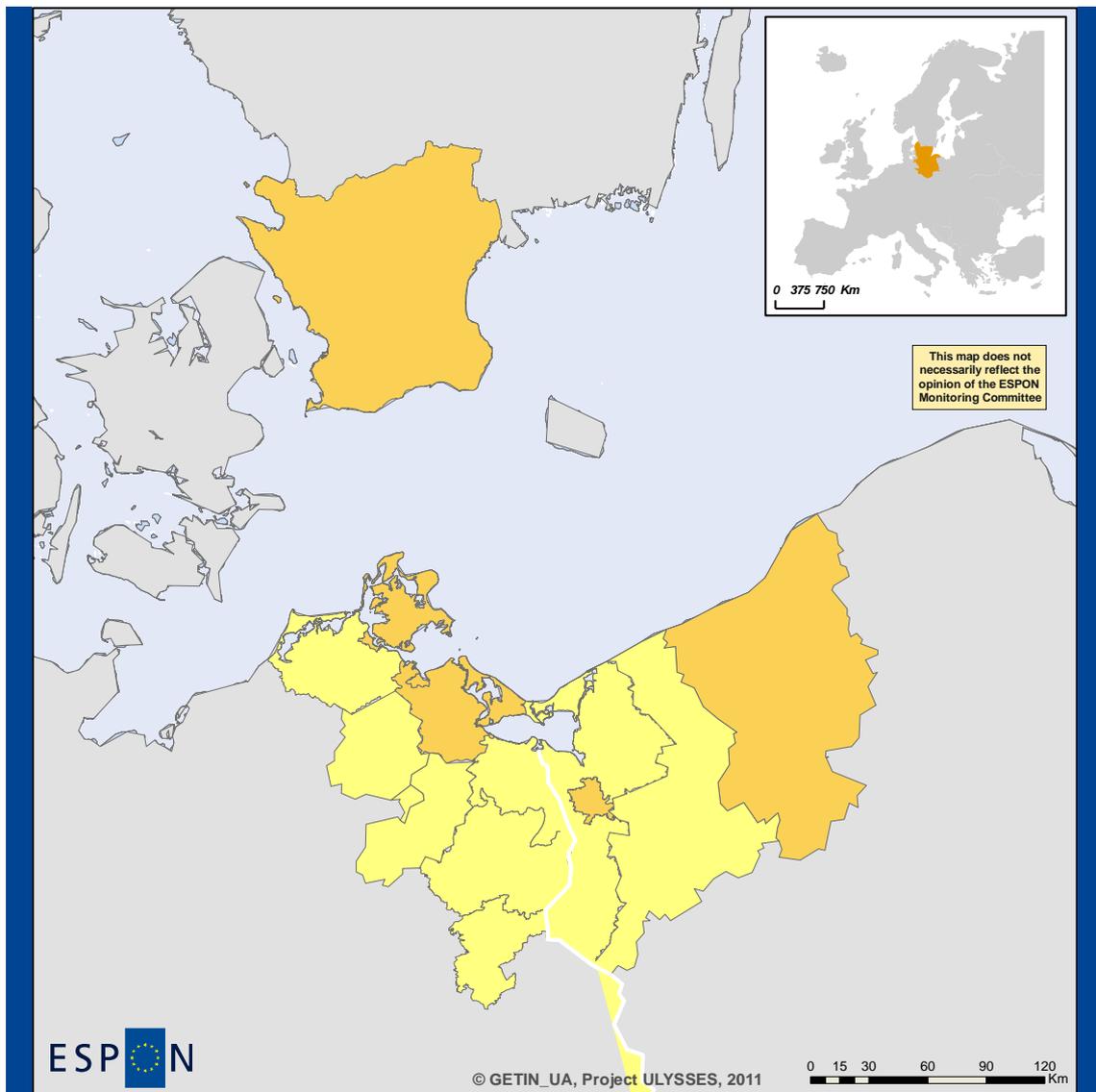
Sensitivities to climate change were relatively low in all the regions of Euroregion Pomerania. Small differences were detected in the physical and social sensitivity of the regions, and these are illustrated in the following maps.

Table 48. Climate sensitivity values for Euroregion Pomerania.

NUTS ID	NUTS	Physical sensitivity	Social sensitivity	Environmental sensitivity	Cultural sensitivity	Economic sensitivity
DE412	Barnim	0,101036	0,088902	0,39524	0,087494	0,705539
DE418	Uckermark	0,126187	0,139271	0,58843	0,027753	0,383888
DE801	Greifswald, Kreisfreie Stadt	0,307678	0,32207	0,456068	0,227422	0,313013
DE802	Neubrandenburg, Kreisfreie Stadt	0,171821	0,152989	0,547802	0,112777	0,594004
DE805	Stralsund, Kreisfreie Stadt	0,399027	0,336064	0,63869	0,456478	0,322916
DE808	Demmin	0,126172	0,141854	0,499403	0,077641	0,32246
DE80B	Mecklenburg-Strelitz	0,087643	0,089361	0,46139	0	0,392756
DE80D	Nordvorpommern	0,154873	0,174186	0,724656	0,137122	0,321733
DE80F	Ostvorpommern	0,24739	0,215084	0,583606	0,152411	0,438341
DE80H	Rügen	0,223704	0,205314	0,69493	0,146959	0,369334
DE80I	Uecker-Randow	0,115348	0,154816	0,585763	0,020386	0,411043
PL422	Podregion Koszaliński	0,257533	0,191485	0,508974	0,052017	0,700545
PL423	Podregion Stargardzki	0,132045	0,16773	0,541369	0,124422	0,391803
PL424	Powiat m. Szczecin	0,343078	0,245985	0,639277	0,216552	0,736895
PL425	Podregion Szczeciński	0,183165	0,20007	0,574069	0,046822	0,658354
SE224	Skåne län	0,256696	0,158649	0,366486	0,006139	0,576347

Source: ESPON Climate project

Physical sensitivity to climate change




 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

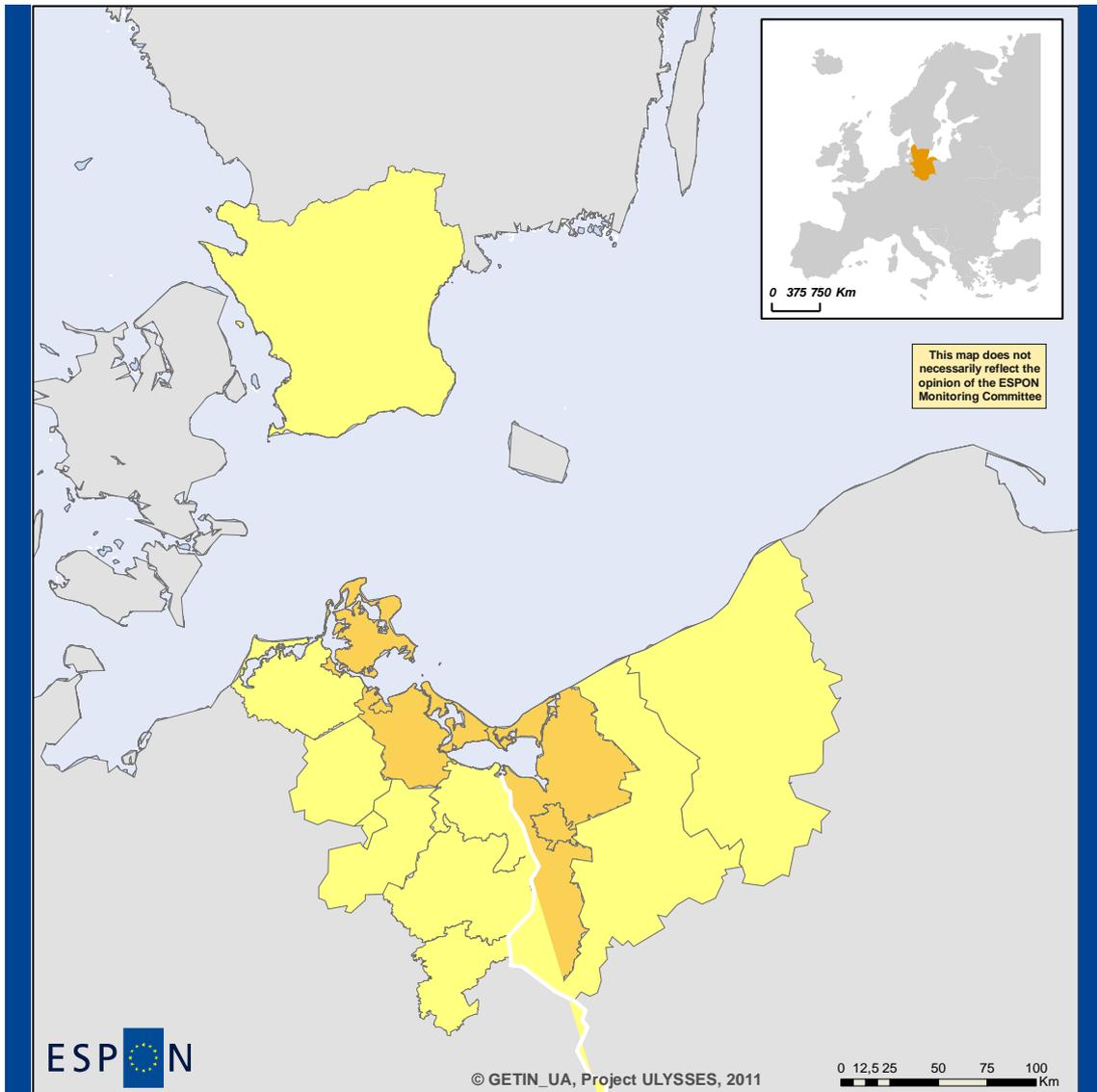
Physical sensitivity to climate change

-  > 0,80
-  > 0,60 - 0,80
-  > 0,40 - 0,60
-  > 0,20 - 0,40
-  ≤ 0,20
-  missing value

Local level: NUTS 3
 Source: ESPON Climate Project, 2011
 Origin of data: ESPON Climate Project based on
 Corine land Cover 200/2006,
 IRPUD Transport Network Database, GISCO 2009,
 LISFLOOD A1B CCLM 2010, DIVA 2004, Hydro 1K
 © EuroGeographics Association for administrative boundaries

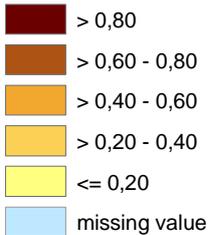
Map 61. Social sensitivity to climate change in Euroregion Pomerania.

Social sensitivity to climate change



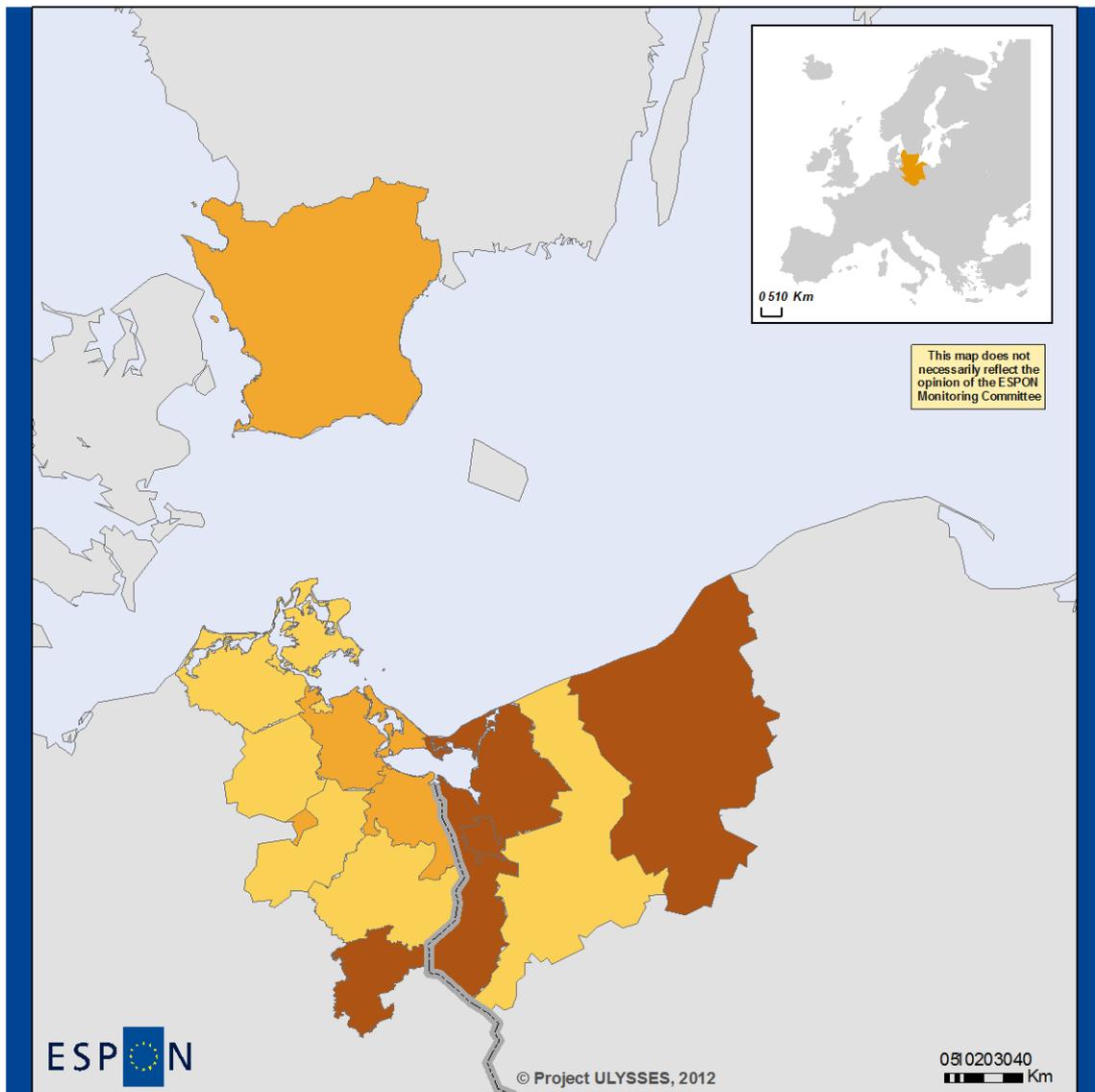

 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Social sensitivity to climate change



Local level: NUTS 3
 Source: ESPON Climate Project, 2011
 Origin of data: ESPON Climate Project based on Gallego et al. 2009, Corine land Cover 200/2006, IRPUD Transport Network Database, LISFLOOD A1B CCLM 2010, DIVA 2004, Hydro 1K
 © EuroGeographics Association for administrative boundaries

Map 62. Economic sensitivity to climate change in Euroregion Pomerania.




 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Legend

Economic sensitivity to climate change

 > 0,80	 > 0,20 - 0,40
 > 0,60 - 0,80	 <= 0,20
 > 0,40 - 0,60	 missing value

Local level: NUTS 3
 Source: ESPON Climate Project, 2011
 Origin of data: ESPON Climate Project based on
 E-PRTR 2010, Leutenschlager et al. 2009, Corine land Cover 200/2006,
 Gallego et al. 2009, Eurostat 2009
 LISFLOOD A1B CCLM 2010, DIVA 2004, Hydro 1K
 © EuroGeographics Association for administrative boundaries

6.5. Chapter conclusions

Analyses on Lisbon / Europe 2020 and Gothenburg objectives included four subcategories: economy and employment, research and innovation, social cohesion and environment. The coefficient of deviation, which measures regional disparities in the GDP per capita has been increasing between 1997 and 2008 in Euroregion Pomerania. This signifies that disparities in GDP per capita have been growing in the CBA during the given time period. When compared to the NUTS 3 average of ESPON countries, the coefficient of deviation (and accordingly disparities in GDP per capita) has been higher in ESPON countries, but has now settled on the same level with the CBA.

We compared NUTS 3 regions of the CBA with the leading region (West Inner London) in terms of GDP per capita, through index number analysis. The best performing region among the regions of Euroregion Pomerania in terms of GDP per capita is Neubrandenburg (32 900 € in 2008), while the lowest GDP per capita is to be found in Podregion Stargardzki (6 100 € per capita). Compared to the leading European region in GDP per capita (West Inner London), Greifswald, Neubrandenburg, Stralsund and Skåne län are considered middle income regions. Podregion Stargardzki is classified as a very laggard region, while other regions of the CBA area have according to the index number analysis been classified as less developed regions or laggard regions.

In the catching up analysis we evaluated the speed of catching-up with the leading region (West Inner London). Most of the regions in Euroregion Pomerania have been classified as diverging regions. This indicates that these regions are not catching up the leader, but growing less and thus diverging from the leading region. Polish regions of Euroregion Pomerania have been classified as slow catching-up regions (Podregion Koszaliński, Powiat m. Szczecin and Podregion Szczeciński) or slow converging regions (Podregion Stargardzki). With a similar growth rate these regions could in theory catch up the leader in 75 to 102 years.

The leading economic sector in Euroregion Pomerania in 2008 was Public administration and community services (L-P), which produced 30 % of the total GVA in the CBA. Highest share of employment in Euroregion Pomerania was in 2008 recorded in Public administration and community services (L-P). Share of employment in this sector was in average 36,20 % of total employment in Euroregion Pomerania.

Total intramural R&D expenditure in Euroregion Pomerania was 1,66 % in 2007, which is lower than the EU average (2,01 %). In Sydsverige (4,75 %) R&D expenditure was well above the EU and Swedish average (3,4 %). Województwo Zachodniopomorskie had the lowest R&D expenditure (0,24 %). Unemployment in Euroregion Pomerania (11,13 %) was well above the European and national (Germany, Poland, Sweden) averages in 2010.

We studied environmental performance of the Poland – Germany - Sweden CBA based on indicators from the European Commission's 5th Cohesion Report and ESPON Climate Project. From the 5th Cohesion Report we selected six indicators; soil sealed area, ozone exceedance, waste water treatment, Natura 2000 areas, and solar energy and wind power potential.

Soil sealing was particularly high in the city regions of Euroregion Pomerania. In Stralsund soil sealed area covered as much as 37 % of the total land area. Ozone concentration exceedances were below national and EU averages in Euroregion Pomerania. Urban waste water treatment capacity in Euroregion Pomerania was above national and EU averages in all other regions but Województwo Zachodniopomorskie, where the

capacity was only 57 %. However, there have been improvements in the waste water treatment capacity in Województwo Zachodniopomorskie after 2007. The share of purified industrial and municipal waste water (percentage of waste water requiring treatment) has increased from 84,88 % in 2007 to 99,52 % in 2010. The share of Natura 2000 areas values higher than national or European averages. Solar energy potential in the CBA is below European averages, but in line with national averages. Wind energy potential, on the other hand, is well above European average in Euroregion Pomerania. Sensitivities to climate change were relatively low in all the regions of Euroregion Pomerania.

Chapter 7. Factor analyses

The aim of the factor analyses was to compare the CBA's territorial profile to the performance of the CBA from the perspective of Lisbon / Europe 2020 Strategy and Gothenburg objectives. Two sets of indicators were established for the analyses: one for territorial profile variables and one for performance variables.

The first set considered variables linked to overall characteristics of the different regions on the themes that were considered in previous chapters (accessibility, rural-urban relationship and demography). Polycentricity was excluded at this point, because instead of using NUTS 3 level as a unit of analysis, it is based on the definition of FUAs and thus is not comparable. On the other hand, indicators that are normally associated with the Lisbon/Europe 2020 and Gothenburg objectives at the input level (such as R&D investment, active population with tertiary education and so forth) have also been included, since the differentiation was made between dependent and independent variables and not merely based on thematic categories. Unlike most studies on innovation, the EPO patent applications have also been included at this level. This is because, although they can be understood as an output of innovation, innovation in itself is an input of economic performance.

Table 49. Indicators for the study of territorial profile of the Poland – Germany – Sweden CBA.

Indicator	UNITS	Year	Geographical unit
Population density	inhabitant/km2	2009	NUTS 3
Crude rate of population increase	per 1000	2008	NUTS 3
Crude rate of net migration	per 1000	2008	NUTS 3
Crude rate of natural increase	per 1000	2008	NUTS 3
Young age dependency rate	%	2008	NUTS 3
Old age dependency rate	%	2008	NUTS 3
Total fertility rate		2008	NUTS 2
Commuters to other region	per 1000	2009	NUTS 2
Rural typology	nominal	2008	NUTS 3
Agricultural areas by total area	%	2006	NUTS 3
Annual growth rate 1990-2006 of agricultural areas	per 10000	1990-2006	NUTS 3
Net formation of urban fabric by total area 2000-2006	per 10000	1990-2006	NUTS 3
Potential accessibility by air index	%	2006	NUTS 3
Potential accessibility by rail index	%	2006	NUTS 3
Potential accessibility by road index	%	2006	NUTS 3
Change of the standardized rail index	%	2001-2006	NUTS 3
Change of the standardized road index	%	2001-2006	NUTS 3
Change of the standardized air index	%	2001-2006	NUTS 3
Share of employment in agriculture and fishing (A-B)	%	2008	NUTS 3
Share of employment in industry (except construction) (C-E)	%	2008	NUTS 3
Share of employment in construction (F)	%	2008	NUTS 3
Share of employment in wholesale and retail trade; hotels and restaurants; transport (G-I)	%	2008	NUTS 3
Share of employment in financial intermediation; real estate (J-K)	%	2008	NUTS 3
Share of employment in public administration and community services; activities of households (L-P)	%	2008	NUTS 3
Share of GVA in agriculture; fishing (A-B)	%	2008	NUTS 3
Share of GVA in industry (except construction) (C-E)	%	2008	NUTS 3
Share of GVA in construction (F)	%	2008	NUTS 3
Share of GVA in wholesale and retail trade; hotels and restaurants; transport (G-I)	%	2008	NUTS 3
Share of GVA in financial intermediation; real estate (J-K)	%	2008	NUTS 3
Share of GVA in public administration and community services; activities of households (L-P)	%	2008	NUTS 2
Total intramural R&D expenditure by GDP	%	2007	NUTS 2
Intramural R&D expenditure of business enterprise sector by GDP	%	2007	NUTS 2
Intramural R&D expenditure of government sector by GDP	%	2007	NUTS 2
Intramural R&D expenditure of higher education sector by GDP	%	2007	NUTS 2
EPO patents per million of inhabitants by GDP	%	2007	NUTS 2
Employed persons in high and medium tech manufacturing activities by total workforce (EU 25 = 100)	%	2004	NUTS 2
Population aged 25-64 with tertiary education	%	2010	NUTS 2
Physical sensitivity to climate change	rate	n/a	NUTS 3
Social sensitivity to climate change	rate	n/a	NUTS 3
Environmental sensitivity to climate change	rate	n/a	NUTS 3
Cultural sensitivity to climate change	rate	n/a	NUTS 3
Economic sensitivity to climate change	rate	n/a	NUTS 3

The second set considered variables linked to the performance of the regions concerning indicators related to the Lisbon/Europe 2020 and Gothenburg indicators at the output level.

Table 50. Indicators for the study of territorial performance of the Poland – Germany – Sweden CBA.

Indicator	UNITS	Year	Geographical unit
Unemployment rate	%	2008	NUTS 3
Long-term unemployment rate (>=12 months)	%	2009	NUTS 2
Youth unemployment rate, per labor force aged 15-24	%	2008	NUTS 3
Infant mortality rate	%	2008	NUTS 2
GDP per capita indexed to the EU average	%	2008	NUTS 3
Catching-up	nominal	1997-2008	NUTS 3
Natura 2000 area	%	2006	NUTS 3
Ozone concentration exceedance, per year	%	2008	NUTS 3
Waste water treatment capacity	%	2007	NUTS 2
Soil sealed area	%	2006	NUTS 3

In order to analyse the relations between the territorial profile and the regions performance, two different analysis were performed. First, a factor analysis for each set of indicators. Second, several multiple linear regressions having as independent variables each factor of the performance indicators and as dependent variables all the factors of the territorial profile.

7.1. Centrality (FAC1_1)

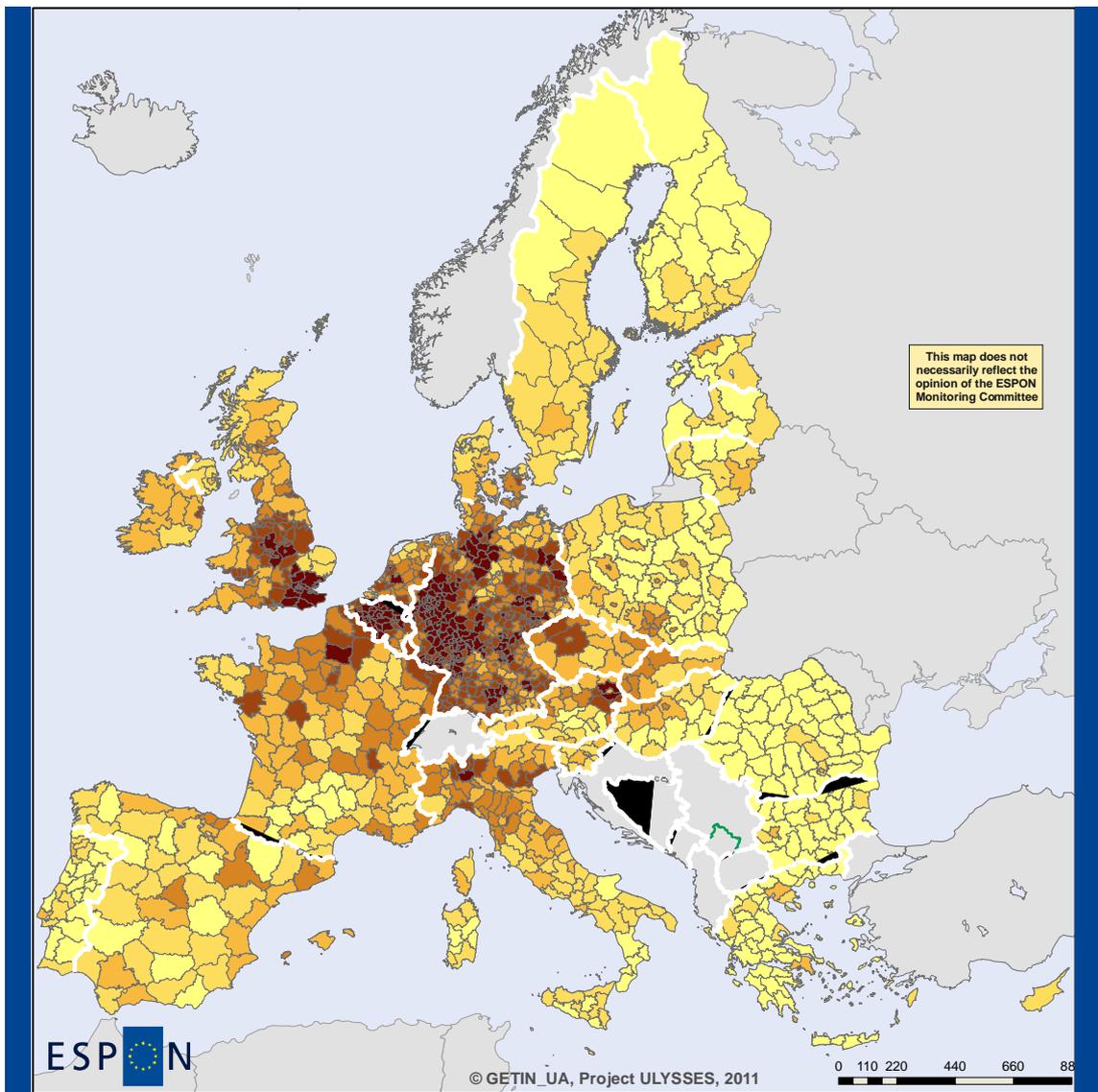
The first factor expresses central location and has an explained variance of % 14,83. It has high positive correlations with all the indicators regarding potential accessibility and, to a lesser extent, with the share of employment in financial intermediation and real estate, employment in high and medium tech manufacturing activities and with commuting to other regions. It also has a strong negative correlation with the share of employment and GVA in agriculture and fishing.

This factor has its highest values in central European countries, especially in the Ruhr, Belgium and Southern England, in a pattern that clearly lines out the blue banana. In the less central region, the higher values tend to be concentrated around capitals and other major urban agglomerations. In Euroregion Pomerania the region of Barnim received the highest centrality score. In general the German city regions and the city of Szczecin had positive scores, while all the other regions had negative centrality values.

Table 51. Results of analysis on Centrality (FAC1_1) in Euroregion Pomerania.

NUTS ID	NUTS	FAC1						Percentile all NUTS 3
		Scores	Country comparison (weighted NUTS 3 average)				Country / CBA country level (+ -)	
			DE	PL	SE	All CBA countries		
CS5								
All	All Countries	0,26	-0,54					80
DE	Germany	0,80	0,00			0,54		80
PL	Poland	-0,72	-1,52			-0,97		50
SE	Sweden	-0,56	-1,36			-0,82		50
DE412	Barnim	1,30	0,50			1,04	++	> 95
DE418	Uckermark	0,80	0,00			0,55	++	80
DE801	Greifswald	0,14	-0,66			-0,11	--	50
DE802	Neubrandenburg	0,15	-0,65			-0,11	--	50
DE805	Stralsund	0,08	-0,73			-0,18	--	50
DE808	Demmin	-0,23	-1,03			-0,48	--	50
DE80B	Mecklenburg-Strelitz	-0,15	-0,95			-0,41	--	50
DE80D	Nordvorpommern	-0,10	-0,90			-0,36	--	50
DE80F	Ostvorpommern	-0,01	-0,81			-0,26	--	50
DE80H	Rügen	-0,25	-1,05			-0,50	--	50
DE80I	Uecker-Randow	-0,26		0,46		-0,52	-+	50
PL422	Podregion Koszaliński	-0,53		0,19		-0,79	-+	50
PL423	Podregion Stargardzki	-0,67		0,05		-0,92	-+	50
PL424	Powiat m. Szczecin	0,34		1,05		0,08	++	80
PL425	Podregion Szczeciński	-0,12		0,60		-0,37	-+	50
SE224	Skåne län	-0,45			0,12	-0,70	-+	50

Map 63. Results of analysis on Centrality (FAC1_1) in Euroregion Pomerania (NUTS 3).

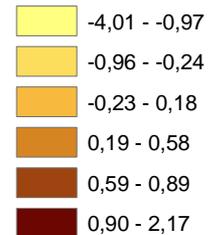



 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Local level: NUTS 3
 Source: GETIN_UA
 Origin of data: Multiple sources
 © EuroGeographics Association for administrative boundaries

NUTS_RG_03M_2006

FAC1_1



7.2. Research and development (FAC2_1)

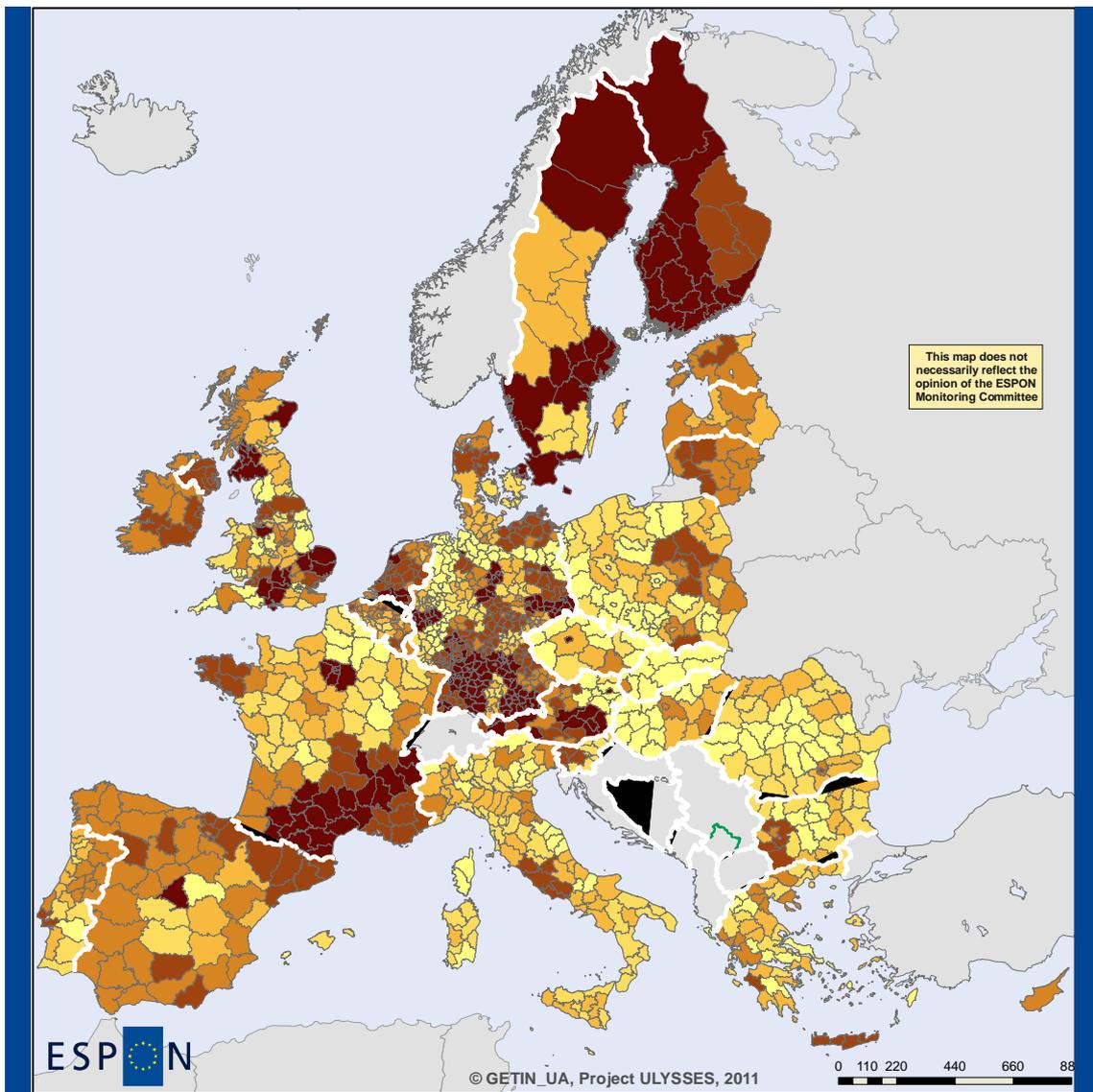
The explained variance of the research and development factor is % 8,04 and it mainly relates variables that are linked to innovation and scientific development such as R&D investment of different sectors and, to a lesser extent, EPO patent applications and tertiary educated active population. As said in the introduction, the indicators in this factor are mostly available on a NUTS 2 level, meaning that a very high score in a specific NUTS 3 can lead to a whole cluster with high values.

Besides the capital cities, it is possible to identify specific innovation strongholds such as important university towns or high tech industries (Airbus in the Toulouse area, Volkswagen around Wolfsburg, Cambridge or the Silicon Glen). The Scandinavian countries also have a very favourable position in this factor. This is valid also in the study of Euroregion Pomerania, where Skåne län in Sweden received highest scores for the Research and development -factor analysis.

Table 52. Results of analysis on Research and development (FAC2_1) in Euroregion Pomerania.

NUTS ID	NUTS	FAC2					
		Scores	Country comparison (weighted NUTS 3 average)				Country / CBA country level
DE	PL		SE	All CBA countries			
CS5							
All	All Countries	0,20	-0,26				80
DE	Germany	0,45	0,00		0,26		80
PL	Poland	-0,65	-1,10		-0,85		50
SE	Sweden	1,42	0,96		1,22		95
DE412	Barnim	-1,15	-1,61		-1,35	--	20
DE418	Uckermark	-0,99	-1,44		-1,19	--	20
DE801	Greifswald	-0,04	-0,49		-0,24	--	80
DE802	Neubrandenburg	0,02	-0,44		-0,18	--	80
DE805	Stralsund	0,03	-0,42		-0,17	--	80
DE808	Demmin	0,61	0,16		0,41	++	80
DE80B	Mecklenburg-Strelitz	0,20	-0,25		0,00	+-	80
DE80D	Nordvorpommern	0,52	0,06		0,32	++	80
DE80F	Ostvorpommern	0,32	-0,14		0,12	+-	80
DE80H	Rügen	0,55	0,10		0,35	++	80
DE80I	Uecker-Randow	0,13		0,77	-0,07	-+	80
PL422	Podregion Koszaliński	-0,81		-0,16	-1,01	--	20
PL423	Podregion Stargardzki	-0,69		-0,05	-0,89	--	50
PL424	Powiat m. Szczecin	-0,92		-0,27	-1,12	--	20
PL425	Podregion Szczeciński	-0,96		-0,31	-1,15	--	20
SE224	Skåne län	2,19		0,77	1,99	++	95

Map 64. Results of analysis on Research and development (FAC2_1) in Euroregion Pomerania (NUTS 3).

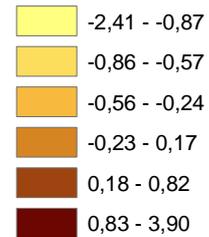



 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Local level: NUTS 3
 Source: GETIN_UA
 Origin of data: Multiple sources
 © EuroGeographics Association for administrative boundaries

NUTS_RG_03M_2006

FAC2_1



7.3. Administrative centres (FAC3_1)

The indicators with the highest coefficients of correlation of this factor are the share of employment and GVA in public administration, community services and activities of household and the share of employment and GVA in industry. Its explained variance is % 8,36.

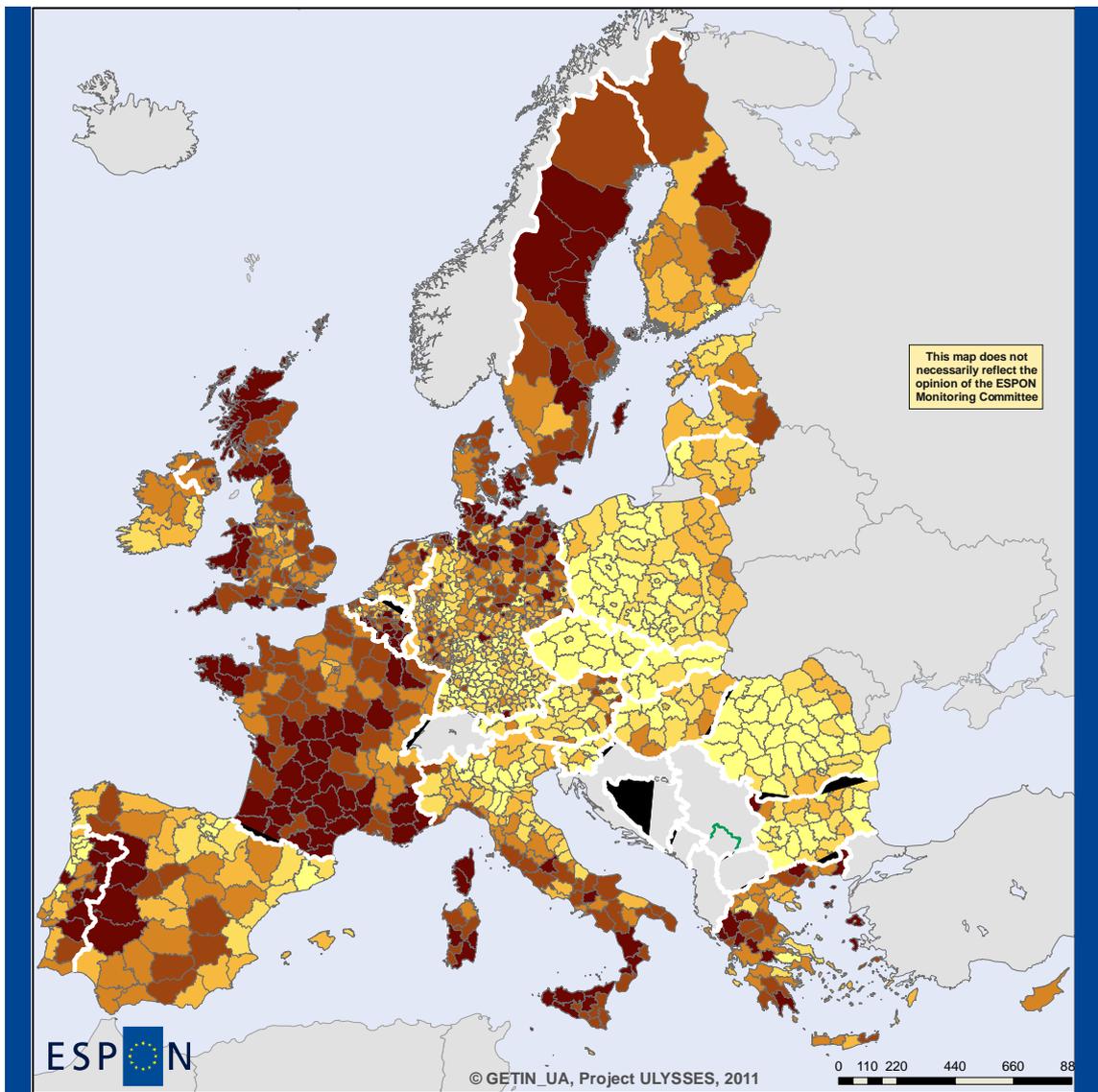
The regions with the highest scores in this factor are highly depressed regions in which, because of their poor economic performance, the public sector assumes an important position. Most of the border NUTS 3 regions in Spain and Portugal have very high scores in this factor, as well as Karelia. The other cross-border regions seem to be closer to the national patterns.

On a different note, this indicator also relates to the different levels of state interventionism, with the Scandinavian countries and France revealing overall high scores. In Euroregion Pomerania there were several regions that scored high in the Administrative centres -analysis. These are city regions on the German side of the CBA.

Table 53. Results of analysis on Administrative centres (FAC3_1) in Euroregion Pomerania.

NUTS ID	NUTS	FAC3						
		Scores	Country comparison (weighted NUTS 3 average)				Country / CBA country level	Percentile all NUTS 3
			DE	PL	SE	All CBA countries		
CS5								
All	All Countries	-0,38	-0,21				50	
DE	Germany	-0,17	0,00			0,21	50	
PL	Poland	-1,07	-0,90			-0,69	20	
SE	Sweden	0,66	0,83			1,04	80	
DE412	Barnim	1,13	1,30			1,51	++	
DE418	Uckermark	0,39	0,56			0,77	++	
DE801	Greifswald	1,77	1,94			2,15	++	
DE802	Neubrandenburg	1,53	1,70			1,91	++	
DE805	Stralsund	2,30	2,47			2,68	++	
DE808	Demmin	0,59	0,76			0,97	++	
DE80B	Mecklenburg-Strelitz	1,79	1,96			2,17	++	
DE80D	Nordvorpommern	1,48	1,65			1,85	++	
DE80F	Ostvorpommern	1,23	1,40			1,60	++	
DE80H	Rügen	0,90	1,08			1,28	++	
DE80I	Uecker-Randow	2,60		3,67		2,98	++	
PL422	Podregion Koszaliński	-0,47		0,61		-0,09	- +	
PL423	Podregion Stargardzki	-0,41		0,66		-0,03	- +	
PL424	Powiat m. Szczecin	-0,11		0,96		0,27	++	
PL425	Podregion Szczeciński	-1,26		-0,19		-0,88	--	
SE224	Skåne län	0,53			-0,13	0,91	+ -	

Map 65. Results of analysis on Administrative centres (FAC3_1) in Euroregion Pomerania (NUTS 3).

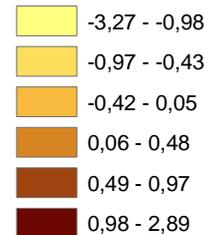



 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Local level: NUTS 3
 Source: GETIN_UA
 Origin of data: Multiple sources
 © EuroGeographics Association for administrative boundaries

NUTS_RG_03M_2006

FAC3_1



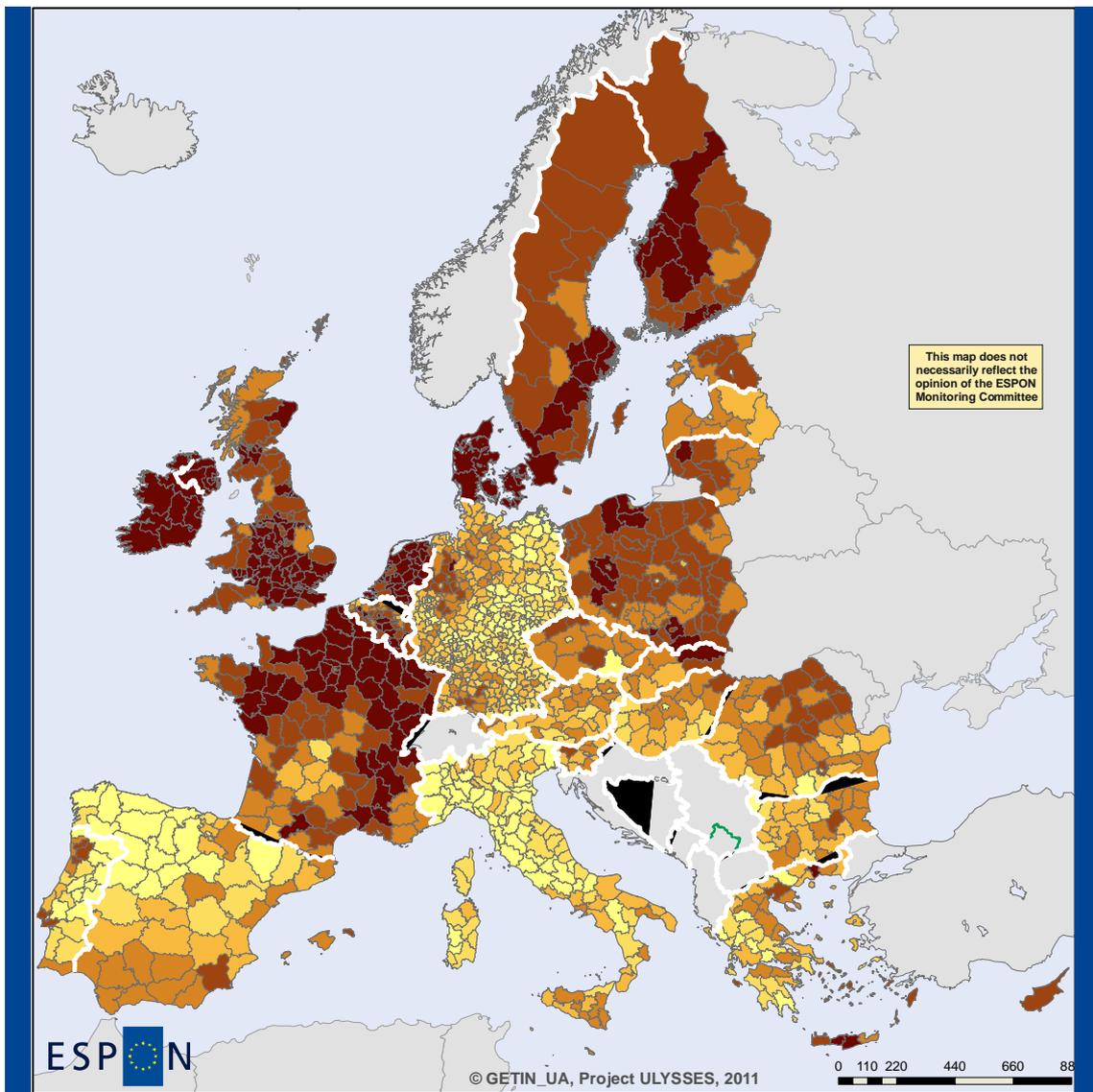
7.4. Demographic dynamism (FAC4_1)

This factor has an explained variance of % 7,22. The variables with the highest coefficient of correlation are young age dependency rate, crude rate of natural population increase, total fertility rate and old age dependency rate (the last one has a negative correlation). The regions with the lowest scores in this factor are in the Mediterranean countries, such as Portugal, Spain and Greece as well as Germany. In Euroregion Pomerania the best performance in demographic dynamism has Skåne län in Sweden, whereas Stralsund and Demmin and the German regions in general have received negative scores on demographic dynamism.

Table 54. Results of analysis on Demographic dynamism (FAC4_1) in Euroregion Pomerania.

NUTS ID	NUTS	FAC4						
		Scores	Country comparison (weighted NUTS 3 average)				Country / CBA country level	Percentile all NUTS 3
			DE	PL	SE	All CBA countries		
CS5								
All	All Countries	-0,18	0,47				5	
DE	Germany	-0,65	0,00			-0,47	5	
PL	Poland	0,54	1,19			0,72	5	
SE	Sweden	1,00	1,65			1,18	5	
DE412	Barnim	-0,85	-0,20			-0,66	--	
DE418	Uckermark	-0,77	-0,12			-0,59	--	
DE801	Greifswald	-1,28	-0,63			-1,10	--	
DE802	Neubrandenburg	-0,81	-0,16			-0,63	--	
DE805	Stralsund	-1,76	-1,11			-1,58	--	
DE808	Demmin	-2,05	-1,40			-1,87	--	
DE80B	Mecklenburg-Strelitz	-0,84	-0,19			-0,66	--	
DE80D	Nordvorpommern	-1,20	-0,54			-1,01	--	
DE80F	Ostvorpommern	-1,20	-0,55			-1,02	--	
DE80H	Rügen	-1,34	-0,68			-1,15	--	
DE80I	Uecker-Randow	-1,42		-1,96		-1,24	--	
PL422	Podregion Koszaliński	0,48		-0,05		0,67	+-	
PL423	Podregion Stargardzki	0,61		0,07		0,79	++	
PL424	Powiat m. Szczecin	-0,52		-1,05		-0,33	--	
PL425	Podregion Szczeciński	0,86		0,33		1,05	++	
SE224	Skåne län	1,10			0,10	1,28	++	

Map 66. Results of analysis on Demographic dynamism (FAC4_1) in Euroregion Pomerania (NUTS 3).



ESPON
 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

© GETIN_UA, Project ULYSSES, 2011

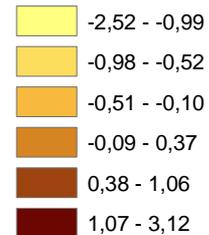
0 110 220 440 660 880

Local level: NUTS 3
 Source: GETIN_UA

Origin of data: Multiple sources
 © EuroGeographics Association for administrative boundaries

NUTS_RG_03M_2006

FAC4_1



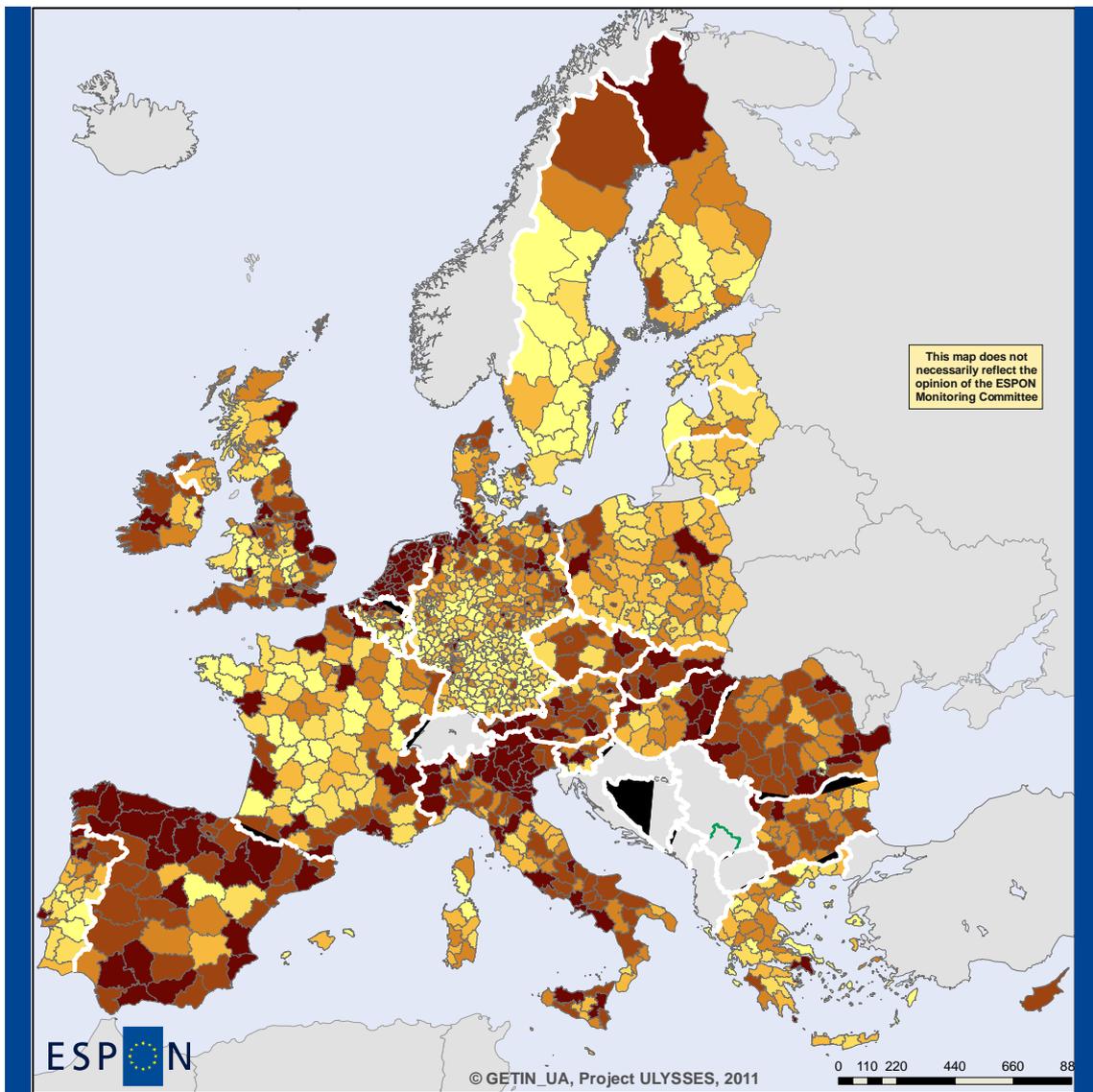
7.5. Environmental risks (FAC5_1)

This factor relates mainly to variables linked to the regions' sensitivity to climate change. As can be seen in the map, these regions are essentially located in coastal areas and other flood prone areas, such as areas close to the Danube or the Po. Regions in coastal areas of Euroregion Pomerania have scored high in this analysis, and are thus more sensitive to environmental risks related to climate change than other regions of the CBA.

Table 55. Results of analysis on Environmental risks (FAC5_1) in Euroregion Pomerania.

NUTS ID	NUTS	FAC5					
		Scores	Country comparison (weighted NUTS 3 average)				Country / CBA country level
DE	PL		SE	All CBA countries			
CS5							
All	All Countries	-0,13	-0,14				80
DE	Germany	0,01	0,00		0,14		80
PL	Poland	-0,31	-0,32		-0,18		50
SE	Sweden	-0,64	-0,65		-0,51		50
DE412	Barnim	-0,53	-0,55		-0,40	--	50
DE418	Uckermark	-0,11	-0,12		0,02	+-	80
DE801	Greifswald	1,24	1,23		1,37	++	95
DE802	Neubrandenburg	0,36	0,35		0,49	++	80
DE805	Stralsund	2,56	2,55		2,69	++	> 95
DE808	Demmin	0,00	-0,01		0,13	+-	80
DE80B	Mecklenburg-Strelitz	-0,61	-0,63		-0,49	--	50
DE80D	Nordvorpommern	0,50	0,49		0,63	++	95
DE80F	Ostvorpommern	0,79	0,77		0,92	++	95
DE80H	Rügen	0,53	0,52		0,66	++	95
DE80I	Uecker-Randow	-0,06		0,25	0,06	++	80
PL422	Podregion Koszaliński	0,18		0,49	0,31	++	80
PL423	Podregion Stargardzki	-0,03		0,28	0,10	++	80
PL424	Powiat m. Szczecin	1,34		1,65	1,47	++	95
PL425	Podregion Szczeciński	-0,04		0,27	0,09	++	80
SE224	Skåne län	-0,54		0,10	-0,41	- +	50

Map 67. Results of analysis on Environmental risks (FAC5_1) in Euroregion Pomerania (NUTS 3).

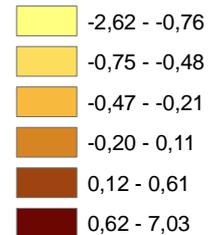



 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Local level: NUTS 3
 Source: GETIN_UA
 Origin of data: Multiple sources
 © EuroGeographics Association for administrative boundaries

NUTS_RG_03M_2006

FAC5_1



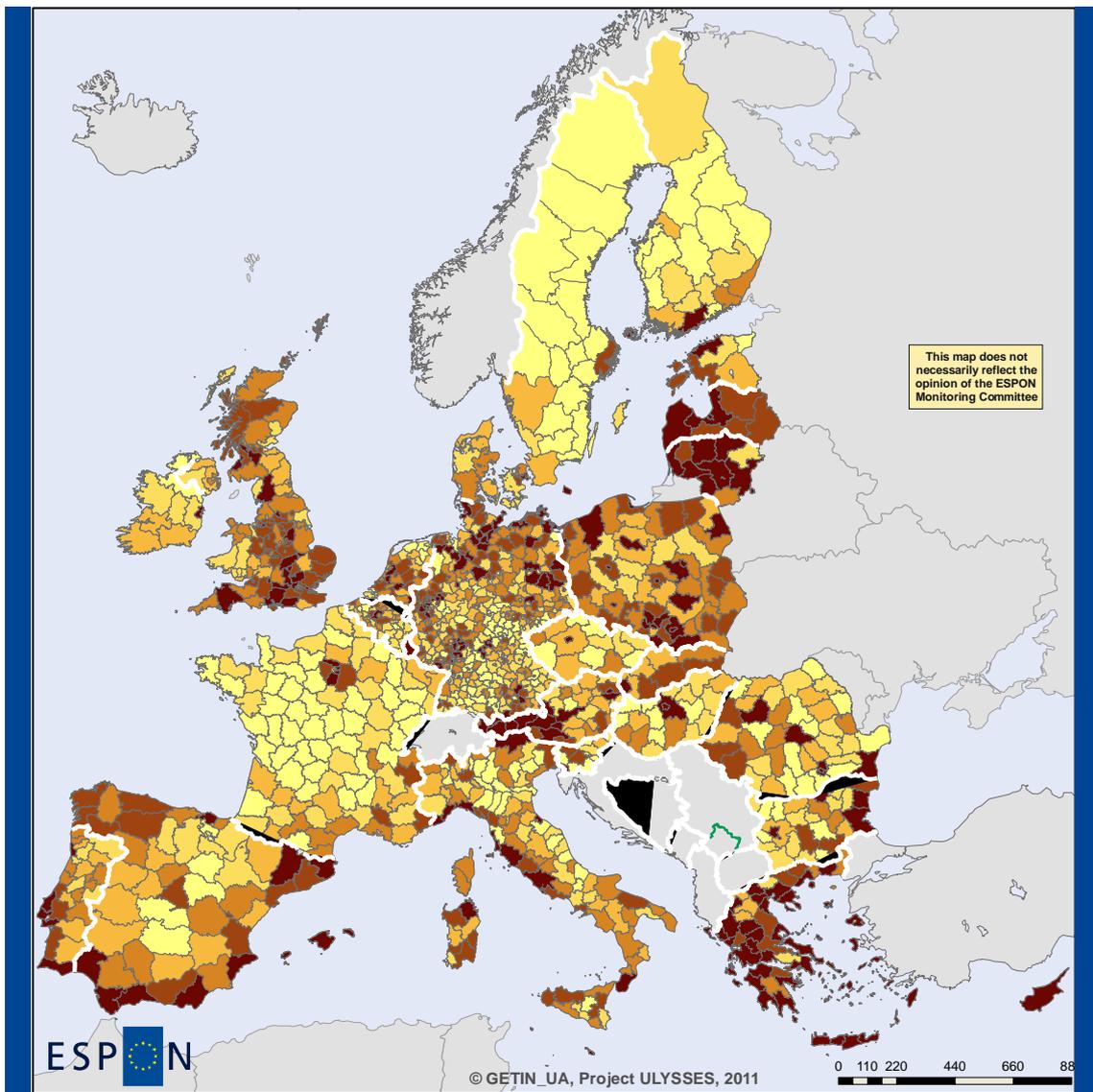
7.6. Services and transport (FAC6_1)

The significant indicators of this factor is the share of GVA and employment in wholesale and retail trade, hotels and restaurants and transport (NACE G-I). Many of the regions with the high scores in this factor seem to be linked to tourism (Southern Spain and Portugal, the alpine regions, Paris, Greece, Rome, etc.). In Euroregion Pomerania it is mostly regions located by the Baltic Sea that score above the European average in this factor.

Table 56. Results of analysis on Services and transport (FAC6_1) in Euroregion Pomerania.

NUTS ID	NUTS	FAC6					
		Scores	Country comparison (weighted NUTS 3 average)				Country / CBA country level
DE	PL		SE	All CBA countries			
CS5							
All	All Countries	0,12	0,12				80
DE	Germany	0,00	0,00			-0,12	80
PL	Poland	0,56	0,55			0,43	80
SE	Sweden	-0,63	-0,63			-0,75	50
DE412	Barnim	0,54	0,54			0,42	++
DE418	Uckermark	-0,28	-0,29			-0,41	--
DE801	Greifswald	-1,54	-1,54			-1,66	--
DE802	Neubrandenburg	-0,02	-0,03			-0,15	--
DE805	Stralsund	-1,21	-1,21			-1,33	--
DE808	Demmin	-0,25	-0,25			-0,37	--
DE80B	Mecklenburg-Strelitz	0,66	0,66			0,54	++
DE80D	Nordvorpommern	0,56	0,56			0,44	++
DE80F	Ostvorpommern	1,01	1,01			0,89	++
DE80H	Rügen	2,96	2,96			2,84	++
DE80I	Uecker-Randow	-1,23		-1,79		-1,35	--
PL422	Podregion Koszaliński	0,90		0,35		0,78	++
PL423	Podregion Stargardzki	0,19		-0,37		0,07	+-
PL424	Powiat m. Szczecin	1,49		0,93		1,36	++
PL425	Podregion Szczeciński	0,57		0,01		0,45	++
SE224	Skåne län	-0,25			0,37	-0,38	-+

Map 68. Results of analysis on Services and transport (FAC6_1) in Euroregion Pomerania (NUTS 3).

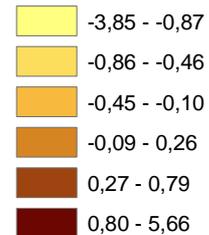



 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Local level: NUTS 3
 Source: GETIN_UA
 Origin of data: Multiple sources
 © EuroGeographics Association for administrative boundaries

NUTS_RG_03M_2006

FAC6_1



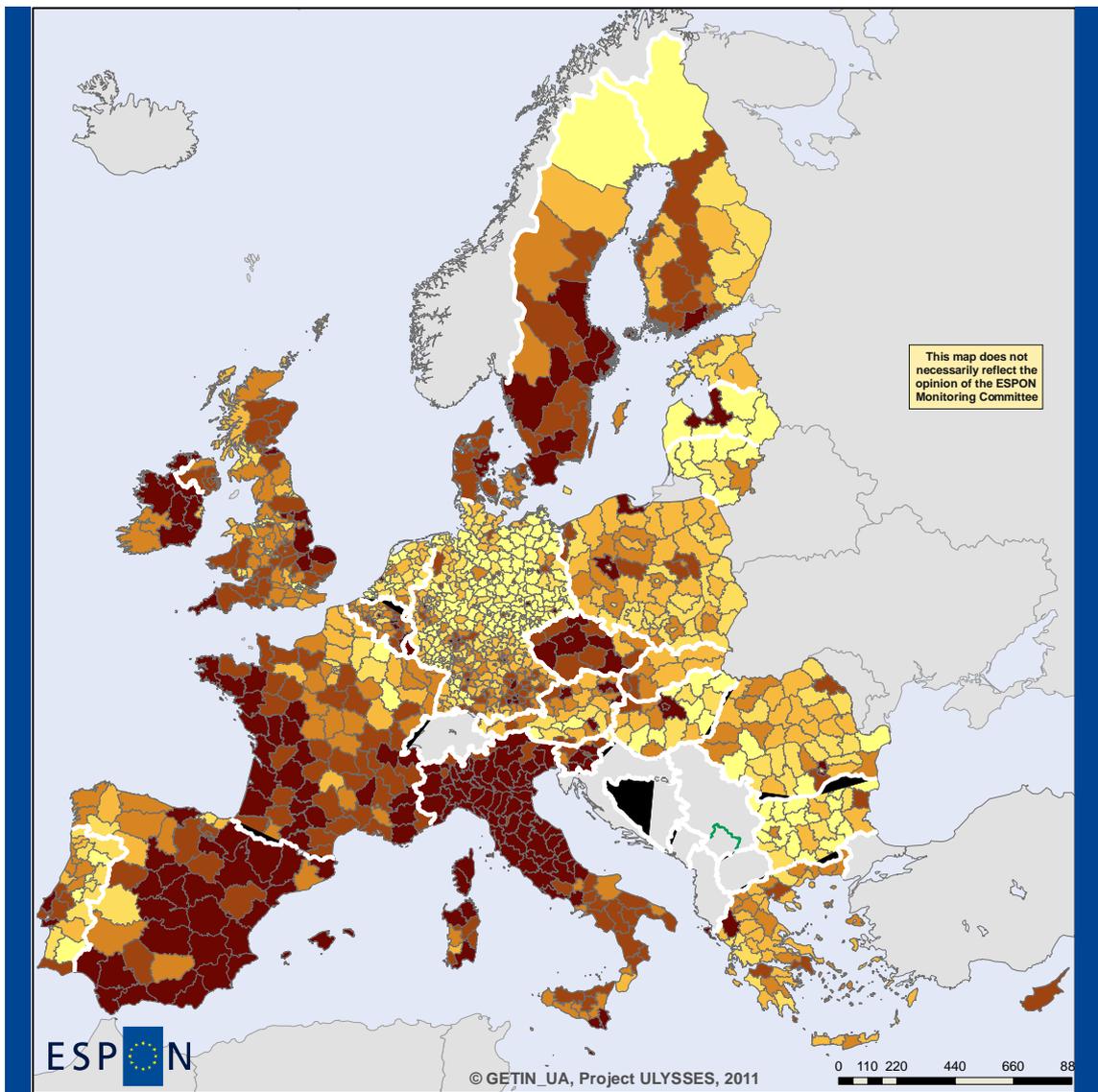
7.7. Immigration (FAC7_1)

The highly correlated variables of this factor are population growth and net migration rate. While many regions in central and western Europe show high scores in this factor, in the eastern countries the high scores are generally restricted to the capital cities. In Portugal border regions in general (and Alentejo in particular) have much lower values than the coastal regions, suggesting an internal migrations process towards the coast. Greifswald, Podregion Szczeciński and Skåne län in Euroregion Pomerania have had a positive net migration and thus have scored high in this analysis.

Table 57. Results of analysis on Immigration (FAC7_1) in Euroregion Pomerania.

NUTS ID	NUTS	FAC7						
		Scores	Country comparison (weighted NUTS 3 average)				Country / CBA country level	Percentile all NUTS 3
			DE	PL	SE	All CBA countries		
CS5								
All	All Countries	-0,15	0,12					50
DE	Germany	-0,27	0,00			-0,12		50
PL	Poland	-0,20	0,07			-0,05		50
SE	Sweden	1,11	1,38			1,26		95
DE412	Barnim	-0,03	0,24			0,12	++	80
DE418	Uckermark	-2,29	-2,02			-2,14	--	5
DE801	Greifswald	1,33	1,60			1,48	++	95
DE802	Neubrandenburg	-1,46	-1,19			-1,31	--	20
DE805	Stralsund	-0,07	0,20			0,08	++	80
DE808	Demmin	-1,84	-1,57			-1,69	--	5
DE80B	Mecklenburg-Strelitz	-1,88	-1,61			-1,73	--	5
DE80D	Nordvorpommern	-1,76	-1,48			-1,60	--	5
DE80F	Ostvorpommern	-1,45	-1,18			-1,29	--	20
DE80H	Rügen	-1,80	-1,53			-1,64	--	5
DE80I	Uecker-Randow	-1,38		-1,18		-1,23	--	20
PL422	Podregion Koszaliński	-0,27		-0,07		-0,12	--	50
PL423	Podregion Stargardzki	-0,47		-0,27		-0,32	--	50
PL424	Powiat m. Szczecin	-0,42		-0,22		-0,27	--	50
PL425	Podregion Szczeciński	0,31		0,51		0,46	++	80
SE224	Skåne län	1,77			0,67	1,93	++	95

Map 69. Results of analysis on Immigration (FAC7_1) in Euroregion Pomerania (NUTS 3).

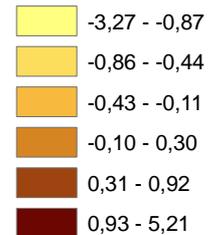



 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Local level: NUTS 3
 Source: GETIN_UA
 Origin of data: Multiple sources
 © EuroGeographics Association for administrative boundaries

NUTS_RG_03M_2006

FAC7_1



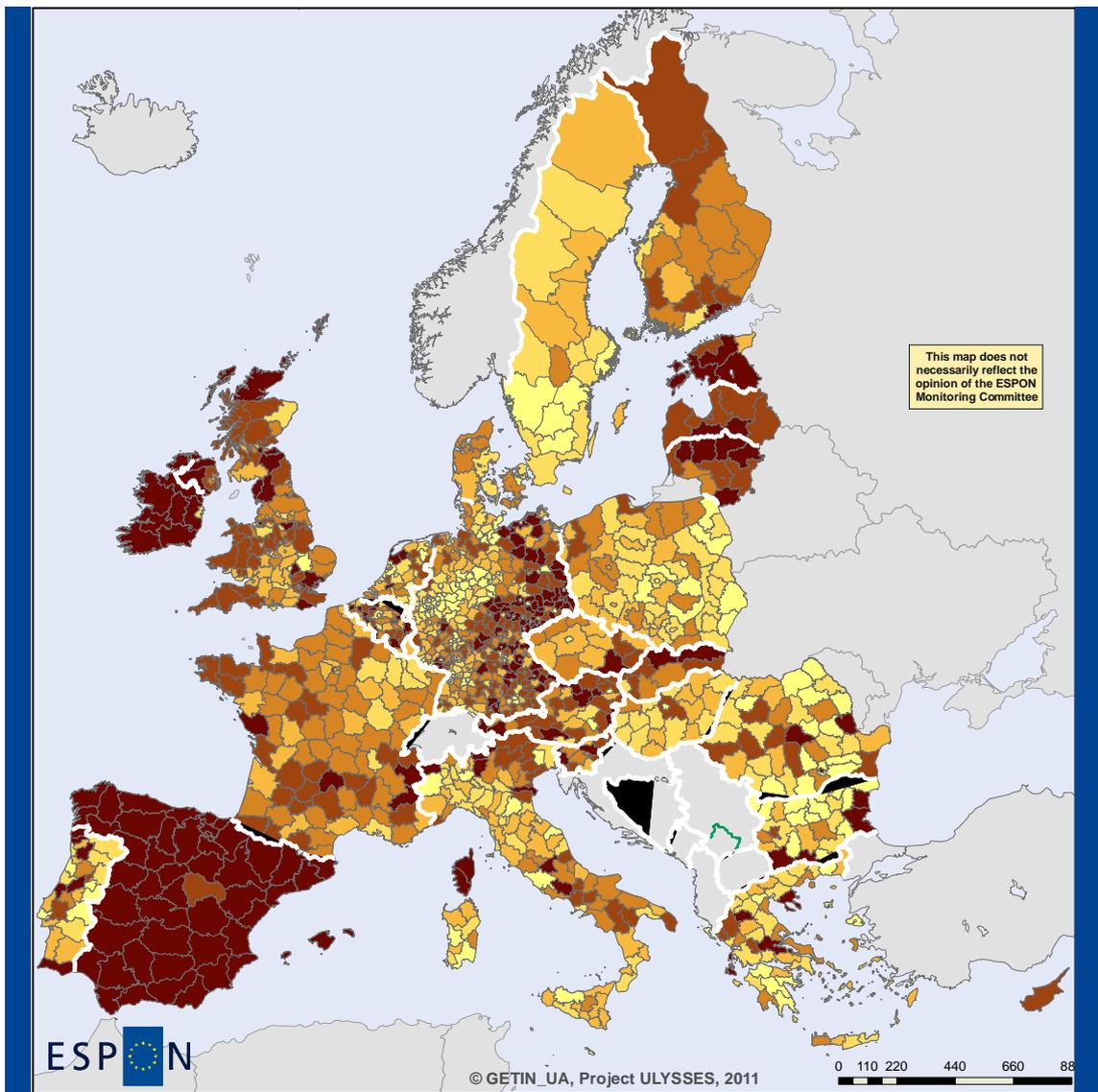
7.8. Construction (FAC8_1)

The highly correlated variables of this factor are GVA and employment in construction. The regions with the highest score in this factor belong to Ireland, Spain, the Baltic States and Eastern Germany. In Euroregion Pomerania the share of employment in construction has been decreasing, and differences between regions concerning employment in construction vary little between the regions.

Table 58. Results of analysis on Construction (FAC8_1) in Euroregion Pomerania.

NUTS ID	NUTS	FAC8						
		Scores	Country comparison (weighted NUTS 3 average)				Country / CBA country level	Percentile all NUTS 3
			DE	PL	SE	All CBA countries		
CS5								
All	All Countries	-0,52	0,00					50
DE	Germany	-0,52	0,00			0,00		50
PL	Poland	-0,46	0,06			0,06		50
SE	Sweden	-0,76	-0,23			-0,24		20
DE412	Barnim	0,50	1,02			1,02	++	80
DE418	Uckermark	0,77	1,30			1,30	++	95
DE801	Greifswald	-1,43	-0,91			-0,91	--	20
DE802	Neubrandenburg	-1,05	-0,52			-0,53	--	20
DE805	Stralsund	-0,97	-0,45			-0,45	--	20
DE808	Demmin	1,68	2,20			2,20	++	95
DE80B	Mecklenburg-Strelitz	0,26	0,78			0,78	++	80
DE80D	Nordvorpommern	1,03	1,55			1,55	++	95
DE80F	Ostvorpommern	0,16	0,68			0,68	++	80
DE80H	Rügen	-0,31	0,22			0,22	++	50
DE80I	Uecker-Randow	-0,16		0,31		0,37	++	50
PL422	Podregion Koszaliński	0,14		0,61		0,67	++	80
PL423	Podregion Stargardzki	0,37		0,83		0,89	++	80
PL424	Powiat m. Szczecin	0,18		0,64		0,70	++	80
PL425	Podregion Szczeciński	-0,19		0,28		0,34	++	50
SE224	Skåne län	-0,82			-0,06	-0,30	--	20

Map 70. Results of analysis on Construction (FAC8_1) in Euroregion Pomerania (NUTS 3).

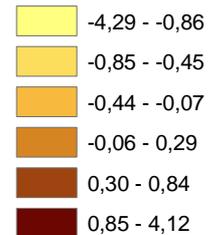



 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Local level: NUTS 3
 Source: GETIN_UA
 Origin of data: Multiple sources
 © EuroGeographics Association for administrative boundaries

NUTS_RG_03M_2006

FAC8_1



7.9. Unemployment (FAC1_2)

The first component explains % 24,19 of the variance and its highly correlated variables are unemployment, long-term unemployment and youth unemployment. The geographical distribution of this factor's scores shows a concentration of the highest values in the more depressed areas of Europe and countries with a structurally high unemployment (e.g. Southern Italy and Spain, Eastern Germany, Slovakia and Greece). Regions which used to have a strong industrial base also evidence relatively high scores in this factor, namely some regions in northern France and Portugal, Wallonia, the Setúbal Peninsula, Liverpool and Manchester.

In some border-areas, regions seem to have higher scores in this indicator than the more centrally located regions. This is the case in Portugal, on the northern border of France and Bulgaria, Finnish Karelia or the Czech Republic where it borders eastern Germany. Unemployment is high in Euroregion Pomerania as shown earlier in this study, and thus regions of the Euroregion score high in this analysis.

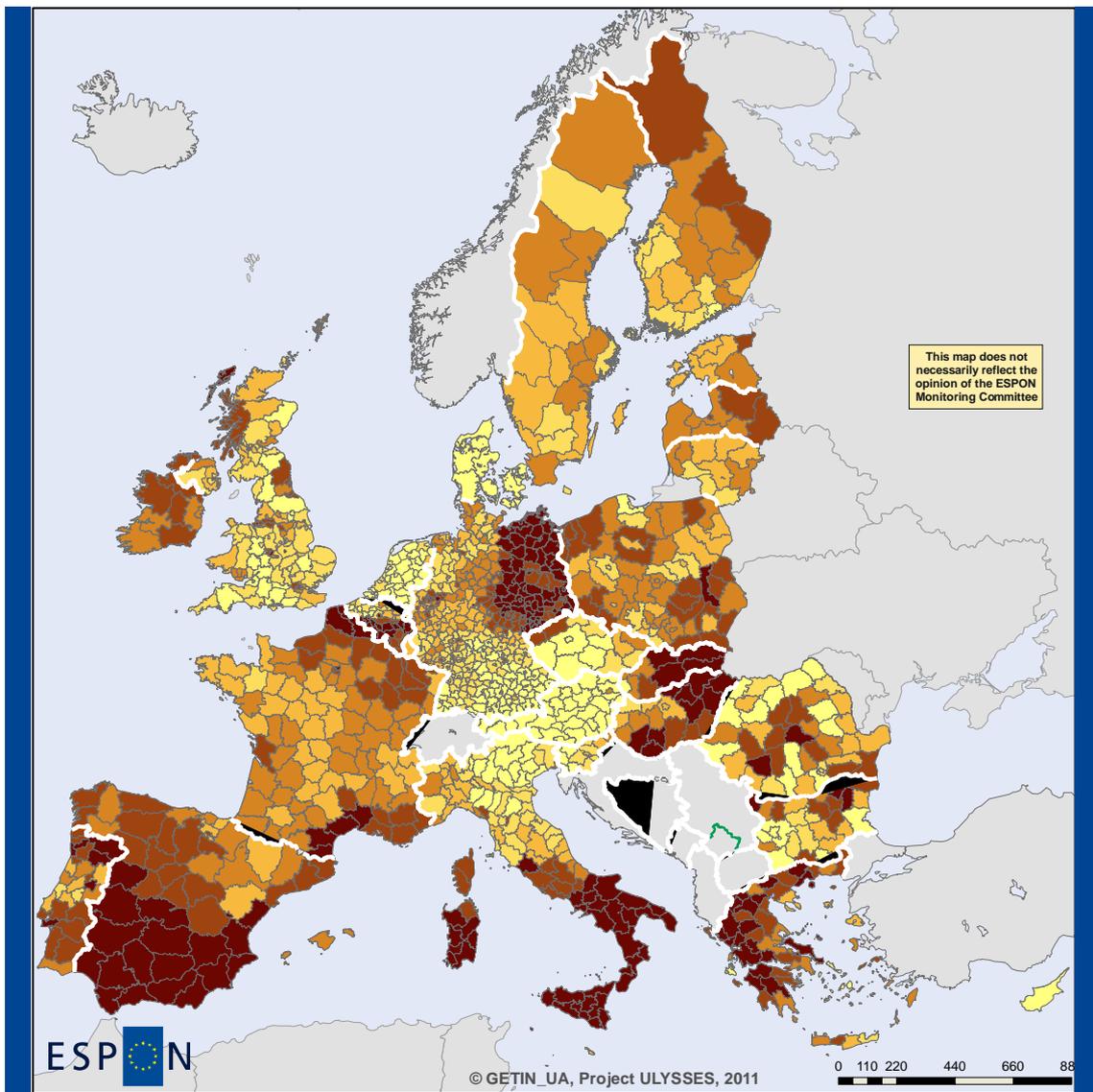
Table 59. Results of analysis on Unemployment (FAC1_2) in Euroregion Pomerania.

NUTS ID	NUTS	FAC1_2						
		Scores	Country comparison (weighted NUTS 3 average)				Country /CBA country level	Percentile all NUTS 3
			DE	PL	SE	All CBA countries		
CS5								
All	All Countries	0,00	-0,06				80	
DE	Germany	0,06	0,00			0,06	80	
PL	Poland	-0,04	-0,10			-0,04	80	
SE	Sweden	-0,33	-0,39			-0,33	50	
DE412	Barnim	1,44	1,38			1,44	++	
DE418	Uckermark	2,41	2,35			2,41	++	
DE801	Greifswald	2,00	1,94			2,00	++	
DE802	Neubrandenburg	2,31	2,25			2,31	++	
DE805	Stralsund	2,57	2,51			2,56	++	
DE808	Demmin	2,51	2,45			2,51	++	
DE80B	Mecklenburg-Strelitz	1,95	1,89			1,95	++	
DE80D	Nordvorpommern	2,02	1,96			2,01	++	
DE80F	Ostvorpommern	2,08	2,02			2,07	++	
DE80H	Rügen	1,71	1,65			1,70	++	
DE80I	Uecker-Randow	2,39		2,43		2,39	++	
PL422	Podregion Koszaliński	0,89		0,93		0,88	++	
PL423	Podregion Stargardzki	0,89		0,94		0,89	++	
PL424	Powiat m. Szczecin	0,30		0,34		0,30	++	
PL425	Podregion Szczeciński	0,54		0,58		0,54	++	
SE224	Skåne län	-0,10			0,23	-0,10	- +	

From the regression it is possible to see that, although the overall variation of the factor that is explained by the context factors is small, its relation to most of them is statistically significant. The coefficients indicate that high levels of unemployment have a strong negative relation to a high investment in R&D, demographic dynamism, central locations and high levels of immigration. As expected, the factor referring to administrative centres has a significant and positive impact and unemployment.

<i>Regression Statistics</i>								
Multiple R	0,59374							
R Square	0,35252							
Adjusted R Square	0,34699							
Standard Error	0,80809							
Observations	1298							
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-3,4E-09	0,022430	-1,5E-07	1	-0,0440	0,0440	-0,0440	0,0440
FAC1_1	-0,13913	0,022438	-6,20045	7,57172E-10	-0,1831	-0,0951	-0,1831	-0,0951
FAC2_1	-0,17056	0,022438	-7,60142	5,62205E-14	-0,2146	-0,1265	-0,2146	-0,1265
FAC3_1	0,35445	0,022438	15,79682	1,64522E-51	0,3104	0,3985	0,3104	0,3985
FAC4_1	-0,17954	0,022438	-8,00162	2,72054E-15	-0,2236	-0,1355	-0,2236	-0,1355
FAC5_1	-0,01938	0,022438	-0,86369	0,387920516	-0,0634	0,0246	-0,0634	0,0246
FAC6_1	0,04804	0,022438	2,140949	0,032465709	0,0040	0,0921	0,0040	0,0921
FAC7_1	-0,12934	0,022438	-5,76408	1,02676E-08	-0,1734	-0,0853	-0,1734	-0,0853
FAC8_1	0,07384	0,022438	3,29098	0,001025468	0,0298	0,1179	0,0298	0,1179
FAC9_1	-0,16827	0,022438	-7,49914	1,19255E-13	-0,2123	-0,1242	-0,2123	-0,1242
FAC10_1	-0,29276	0,022438	-13,0475	1,24326E-36	-0,3368	-0,2487	-0,3368	-0,2487
FAC11_1	-0,08551	0,022438	-3,81081	0,000145058	-0,1295	-0,0415	-0,1295	-0,0415

Map 71. Results of analysis on Unemployment (FAC1_2) in Euroregion Pomerania (NUTS 3).

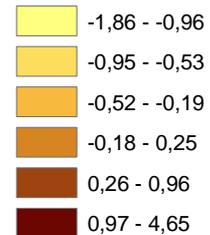



 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Local level: NUTS 3
 Source: GETIN_UA
 Origin of data: Multiple sources
 © EuroGeographics Association for administrative boundaries

NUTS_RG_03M_2006

FAC1_2



7.10. Catching-up regions (FAC2_2)

The total explained variance of this factor is % 18,71 and its most significant variable is catching-up. This indicator relates GDP level and growth between 1997 and 2008 of a given region to the pattern evidenced by the leading region. Its correlated variables also include urban waste water treatment capacity and infant mortality.

As can be seen on the map, the correlation between high GDP growth and poor social conditions is essentially a consequence of a very high growth rate witnessed by the eastern European countries throughout the late 1990s and early 2000s (some countries even had occasional double digit growth rates), while the central European countries, starting from a high initial position, witnessed relatively small growth rates. The overall pattern of border regions seems to essentially follow the national tendency. Likewise in Euroregion Pomerania, the growth of GDP in Poland has been rapid and therefore the Polish regions of the Euroregion (following the national trend) score high in this analysis.

Table 60. Results of analysis on catching-up regions (FAC2_2) in Euroregion Pomerania.

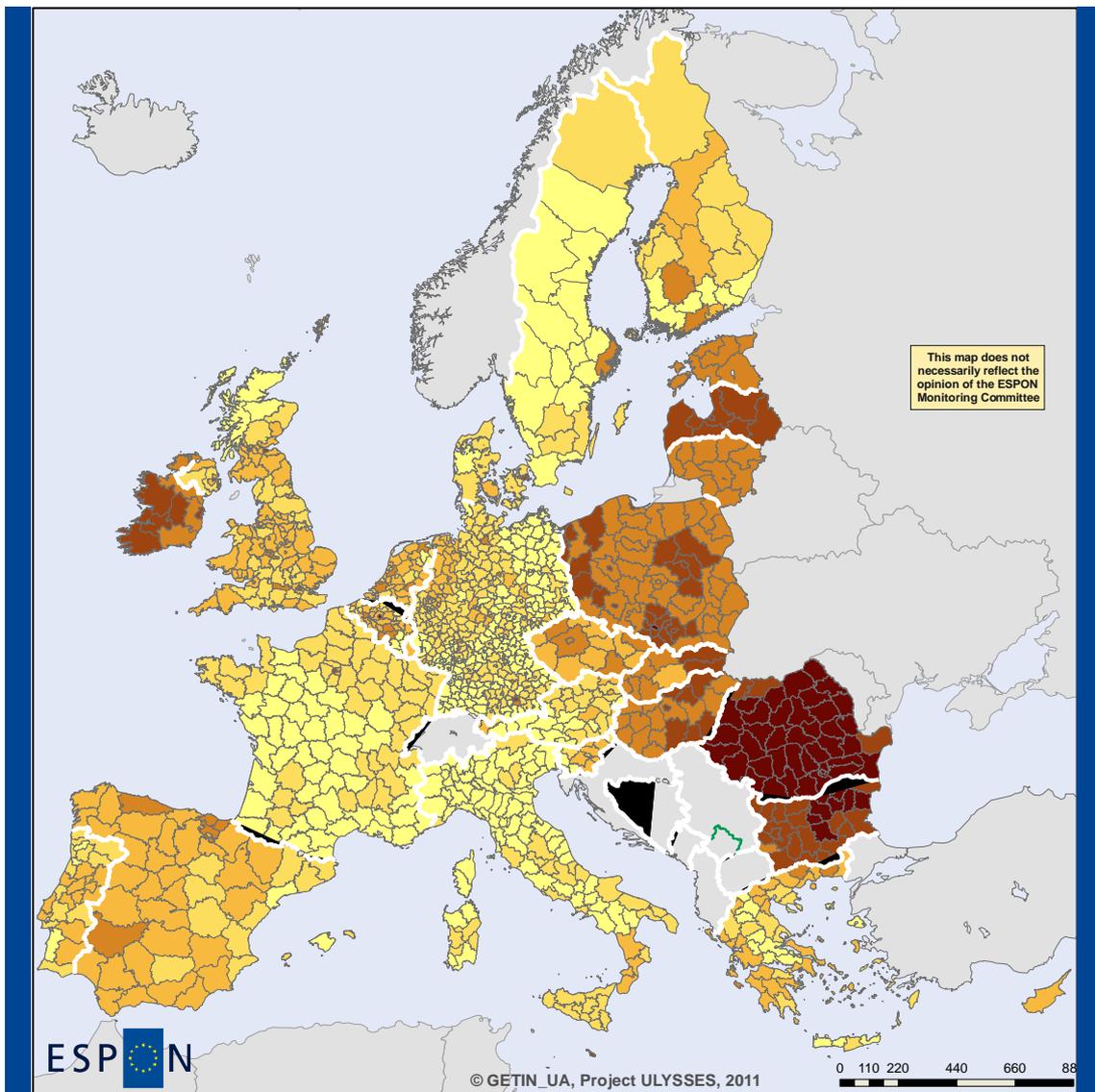
NUTS ID	NUTS	FAC2_2						
		Scores	Country comparison (weighted NUTS 3 average)				Country / CBA country level	Percentile all NUTS 3
			DE	PL	SE	All CBA countries		
CS5								
All	All Countries	0,17	0,51				80	
DE	Germany	-0,34	0,00			-0,51	80	
PL	Poland	1,42	1,76			1,25	95	
SE	Sweden	-0,43	-0,08			-0,59	50	
DE412	Barnim	-0,96	-0,62			-1,13	--	
DE418	Uckermark	-1,23	-0,89			-1,40	--	
DE801	Greifswald	-0,49	-0,15			-0,66	--	
DE802	Neubrandenburg	-0,78	-0,43			-0,94	--	
DE805	Stralsund	-0,19	0,16			-0,36	--+	
DE808	Demmin	-0,79	-0,45			-0,96	--	
DE80B	Mecklenburg-Strelitz	-0,84	-0,50			-1,01	--	
DE80D	Nordvorpommern	-0,76	-0,42			-0,93	--	
DE80F	Ostvorpommern	-0,71	-0,37			-0,88	--	
DE80H	Rügen	-0,82	-0,48			-0,99	--	
DE80I	Uecker-Randow	-0,77		-2,19		-0,94	--	
PL422	Podregion Koszaliński	1,52		0,11		1,35	++	
PL423	Podregion Stargardzki	1,23		-0,18		1,06	+-	
PL424	Powiat m. Szczecin	1,72		0,30		1,55	++	
PL425	Podregion Szczeciński	1,47		0,05		1,30	++	
SE224	Skåne län	-0,80			-0,37	-0,97	--	

As stated above, negative correlation of the catching-up indicator with other performance indicators in this factor is essentially linked to high growth rates of the eastern countries in the initial decades of their transition to a market economy. As this is an historic contingency and does not follow a deeper causal nexus, the regression analysis was made only for the catching-up indicators.

The regression of this indicator, which has a slightly higher R square than the previous one, shows that it is statistically related to many components of the territorial profile. Confirming what has previously been said about this indicator, the catching up process is especially strong in eastern countries and therefore the highest negative coefficients occur in factor 1 (central location) and factor 3 (administrative centres). On the other hand, in central Europe the regions which perform best in this indicator are the ones located in the blue banana and, even in Eastern Europe, the top performing regions tend to be the more central ones. This might explain why the catching-up process is also negatively related to rurality (factor 9 - low density and growth of agricultural areas).

<i>Regression Statistics</i>								
Multiple R	0,6261119							
R Square	0,3920161							
Adjusted R Square	0,3868156							
Standard Error	0,7830609							
Observations	1298							
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-6,26829E-08	0,0217	-2,884E-06	0,9999977	-0,043	0,043	-0,043	0,043
FAC1_1	-0,352	0,0217	-16,197241	7,7102E-54	-0,395	-0,310	-0,395	-0,310
FAC2_1	-0,102	0,0217	-4,7047433	2,8164E-06	-0,145	-0,060	-0,145	-0,060
FAC3_1	-0,326	0,0217	-14,995851	5,713E-47	-0,369	-0,283	-0,369	-0,283
FAC4_1	0,053	0,0217	2,4167366	0,01579882	0,010	0,095	0,010	0,095
FAC5_1	0,140	0,0217	6,44670648	1,6131E-10	0,098	0,183	0,098	0,183
FAC6_1	0,091	0,0217	4,18168723	3,0895E-05	0,048	0,134	0,048	0,134
FAC7_1	0,042	0,0217	1,9210766	0,05494291	-0,001	0,084	-0,001	0,084
FAC8_1	-0,049	0,0217	-2,2370838	0,02545166	-0,091	-0,006	-0,091	-0,006
FAC9_1	-0,297	0,0217	-13,645679	1,0773E-39	-0,339	-0,254	-0,339	-0,254
FAC10_1	-0,168	0,0217	-7,7085769	2,5325E-14	-0,210	-0,125	-0,210	-0,125
FAC11_1	0,017	0,0217	0,78598351	0,43202194	-0,026	0,060	-0,026	0,060

Map 72. Results of analysis on catching-up regions (FAC2_2) in Euroregion Pomerania (NUTS 3).

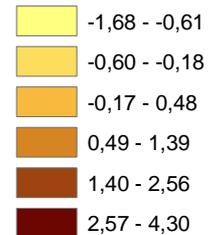



 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Local level: NUTS 3
 Source: GETIN_UA
 Origin of data: Multiple sources
 © EuroGeographics Association for administrative boundaries

NUTS_RG_03M_2006

FAC2_2



7.11. Economic development (FAC3_2)

The variables with the highest coefficient of correlation in this factor are GDP per capita, % of Natura 2000 and soil sealed area and its explained variance is % 17,57. It can therefore be understood as a factor which expresses high degrees of development and urbanization. As expected, the regions with the highest scores for this factor are concentrated in central Europe and Scandinavia and also include the capital cities of more marginal countries. In Euroregion Pomerania regions having high GDP per capita and high level of urbanisation of land areas are Greifswald and Stralsund, and they thus have scored high in this analysis.

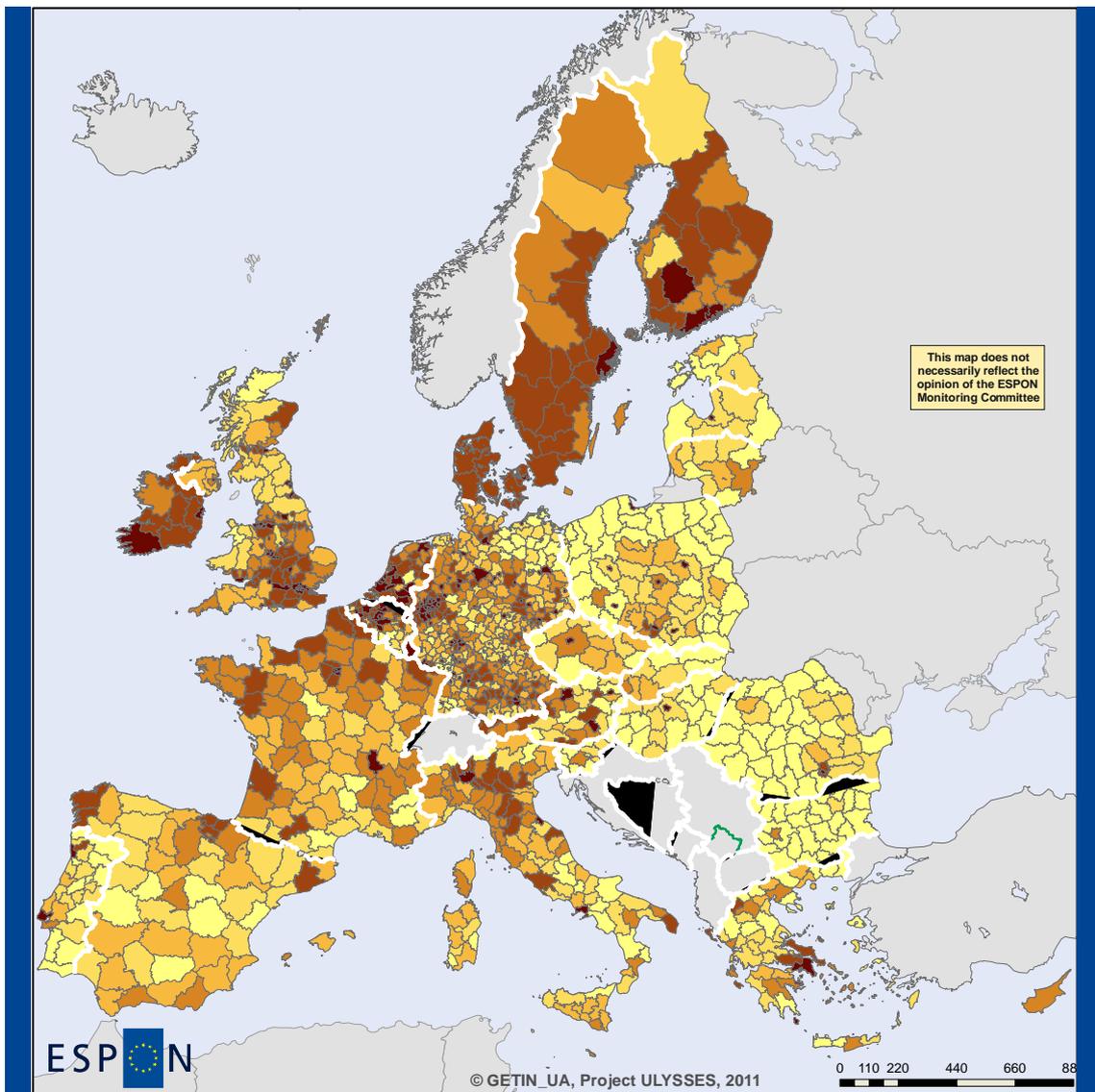
Table 61 Results of analysis on Economic development (FAC3_2) in Euroregion Pomerania.

NUTS ID	NUTS	FAC3_2					
		Scores	Country comparison (weighted NUTS 3 average)				Country / CBA country level
DE	PL		SE	All CBA countries			
CS5							
All	All Countries	0,32	-0,29				80
DE	Germany	0,61	0,00		0,29		95
PL	Poland	-0,32	-0,92		-0,64		50
SE	Sweden	0,41	-0,20		0,09		95
DE412	Barnim	-0,58	-1,19		-0,90	--	50
DE418	Uckermark	-1,20	-1,81		-1,52	--	5
DE801	Greifswald	0,79	0,19		0,47	++	95
DE802	Neubrandenburg	0,40	-0,20		0,08	+-	80
DE805	Stralsund	2,33	1,72		2,01	++	> 95
DE808	Demmin	-0,54	-1,15		-0,86	--	50
DE80B	Mecklenburg-Strelitz	-1,13	-1,74		-1,45	--	5
DE80D	Nordvorpommern	-0,89	-1,49		-1,21	--	20
DE80F	Ostvorpommern	-0,64	-1,24		-0,96	--	50
DE80H	Rügen	-0,97	-1,57		-1,29	--	20
DE80I	Uecker-Randow	-0,63		-0,32	-0,95	--	50
PL422	Podregion Koszaliński	-1,13		-0,82	-1,45	--	5
PL423	Podregion Stargardzki	-1,38		-1,07	-1,70	--	5
PL424	Powiat m. Szczecin	-0,26		0,06	-0,58	+-	50
PL425	Podregion Szczeciński	-1,44		-1,12	-1,76	--	5
SE224	Skåne län	0,19		-0,22	-0,13	--	80

The explanatory capacity of this regression is significantly higher than that of the previous factors. The coefficients, once again, show a significant relation with most of the factors of the territorial profile. The overall picture from the coefficients is a positive effect from factors related to location and R&D (factor 1 and 2). Central location explains much more of different economic development levels than the investment in R&D. Similar conclusions can be drawn from the highly negative coefficient of the indicator related to rurality (factor 9) meaning that, on themselves, density and central location seem to be more important than research and innovation. The weight of the construction sector is also considerably negative, probably meaning that, at a certain stage, high economic development is more linked to a strong service sector than infrastructural development.

<i>Regression Statistics</i>								
Multiple R	0,824258							
R Square	0,679401							
Adjusted R Square	0,676659							
Standard Error	0,568631							
Observations	1298							
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	-1E-07	0,01578	-7,1E-06	0,999994301	-0,0310	0,0310	-0,0310	0,0310
FAC1_1	0,4545	0,01579	28,78786	4,4844E-141	0,4236	0,4855	0,4236	0,4855
FAC2_1	0,1623	0,01579	10,27749	7,24251E-24	0,1313	0,1932	0,1313	0,1932
FAC3_1	0,0837	0,01579	5,303401	1,33687E-07	0,0528	0,1147	0,0528	0,1147
FAC4_1	0,0844	0,01579	5,348225	1,05025E-07	0,0535	0,1154	0,0535	0,1154
FAC5_1	0,1545	0,01579	9,785094	7,39012E-22	0,1235	0,1855	0,1235	0,1855
FAC6_1	0,0372	0,01579	2,356502	0,018597296	0,0062	0,0682	0,0062	0,0682
FAC7_1	0,1029	0,01579	6,518061	1,02027E-10	0,0719	0,1339	0,0719	0,1339
FAC8_1	-0,3541	0,01579	-22,4252	2,83549E-94	-0,3851	-0,3231	-0,3851	-0,3231
FAC9_1	-0,5195	0,01579	-32,9051	8,784E-173	-0,5505	-0,4886	-0,5505	-0,4886
FAC10_1	-0,0122	0,01579	-0,7752	0,438363708	-0,0432	0,0187	-0,0432	0,0187
FAC11_1	-0,0321	0,01579	-2,03075	0,042485717	-0,0630	-0,0011	-0,0630	-0,0011

Map 73. Results of analysis on Economic development (FAC3_2) in Euroregion Pomerania (NUTS 3).

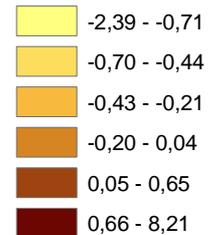



 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Local level: NUTS 3
 Source: GETIN_UA
 Origin of data: Multiple sources
 © EuroGeographics Association for administrative boundaries

NUTS_RG_03M_2006

FAC3_2



7.12. Pollution (FAC4_2)

The significant variable of this factor is ozone concentration exceedance. The ozone concentration is related to a photo chemical reaction of pollutants and depends on the presence/absence of heavy industries, traffic levels, sun exposure but also on wind conditions. This means that emissions in one place can affect neighbouring regions, that high emission in southern countries will lead to higher ozone levels than in northern countries and that favourable wind conditions can lead to low levels in regions with high emissions and vice-versa. Therefore, a regression analysis of this indicator with the context factors has necessarily a very limited explanatory capacity and can lead to relations that lack any evident logic if the atmospheric conditions are not taken into account. Although the map shows some overall tendencies, the regression analysis shouldn't be taken into account. There also seem to be some discrepancies on the way it is measured in different countries, as it is not plausible that there are so clear cuts on some borders, such as can be seen in Ireland.

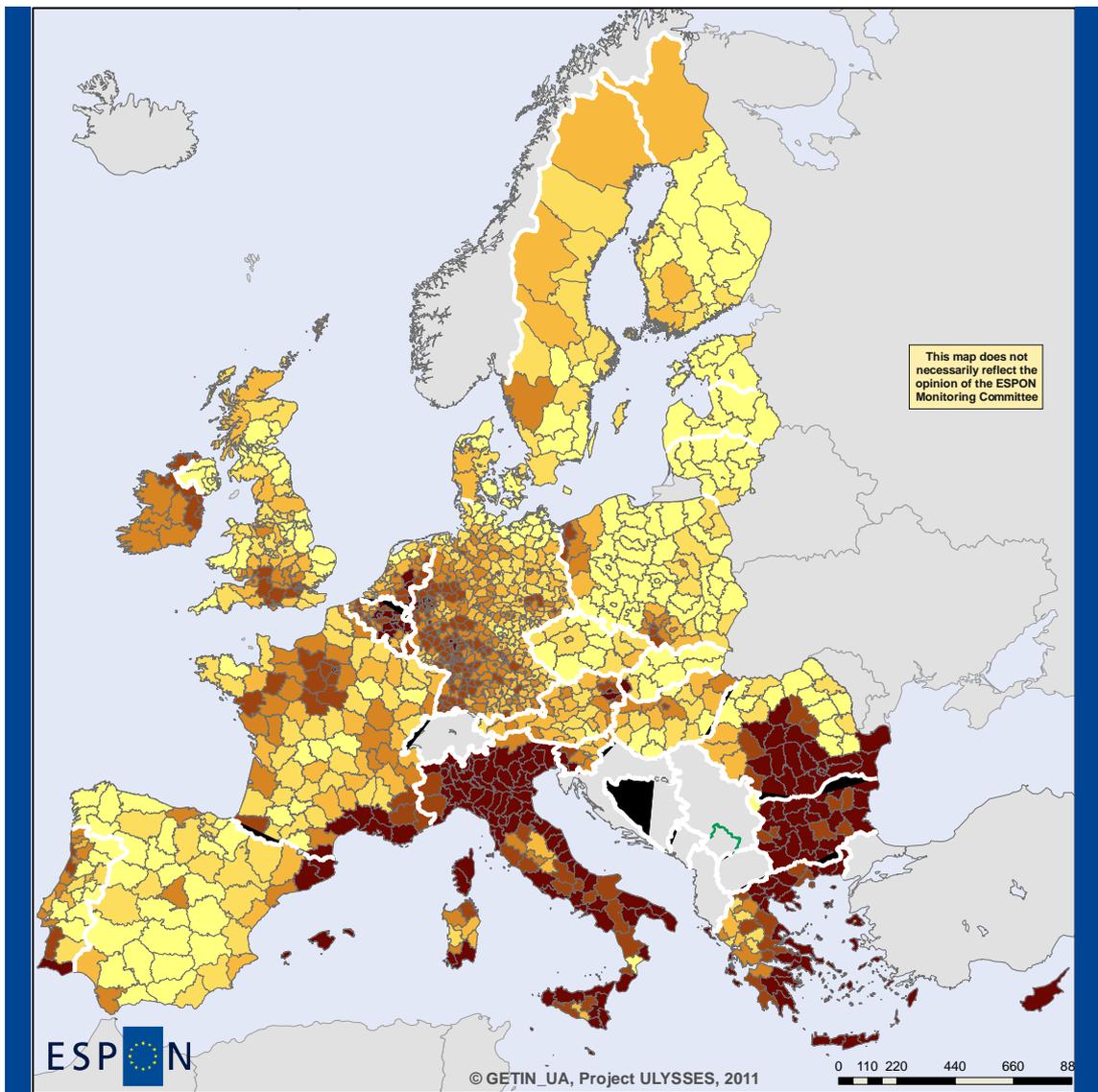
According to this analysis, pollution factor is less relevant for Euroregion Pomerania than for European regions in average. Only the city of Szczecin has a score slightly above the European average.

Table 62. Results of analysis on Pollution (FAC4_2) in Euroregion Pomerania.

NUTS ID	NUTS	FAC4_2						
		Scores	Country comparison (weighted NUTS 3 average)				Country / CBA country level	Percentile all NUTS 3
			DE	PL	SE	All CBA countries		
CS5								
All	All Countries	-0,31	-0,19				50	
DE	Germany	-0,12	0,00			0,19	80	
PL	Poland	-0,68	-0,56			-0,37	20	
SE	Sweden	-0,49	-0,37			-0,18	50	
DE412	Barnim	-0,55	-0,44			-0,25	--	
DE418	Uckermark	-0,29	-0,17			0,02	+-	
DE801	Greifswald	-0,91	-0,80			-0,61	--	
DE802	Neubrandenburg	-0,28	-0,16			0,03	+-	
DE805	Stralsund	-0,98	-0,87			-0,68	--	
DE808	Demmin	-0,94	-0,82			-0,63	--	
DE80B	Mecklenburg-Strelitz	-0,62	-0,50			-0,31	--	
DE80D	Nordvorpommern	-0,99	-0,88			-0,68	--	
DE80F	Ostvorpommern	-1,02	-0,91			-0,72	--	
DE80H	Rügen	-0,79	-0,67			-0,48	--	
DE80I	Uecker-Randow	-0,99		-0,31		-0,68	--	
PL422	Podregion Koszaliński	-0,27		0,40		0,03	++	
PL423	Podregion Stargardzki	-0,13		0,54		0,17	++	
PL424	Powiat m. Szczecin	0,12		0,79		0,43	++	
PL425	Podregion Szczeciński	0,00		0,68		0,31	++	
SE224	Skåne län	-0,60			-0,11	-0,29	--	

<i>Regression Statistics</i>								
Multiple R	0,453723							
R Square	0,205864							
Adjusted R Square	0,199071							
Standard Error	0,894946							
Observations	1298							
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	1,07E-07	0,0248	4,3E-06	0,999996569	-0,04873	0,04873	-0,04873	0,04873
FAC1_1	-0,0666	0,0249	-2,67974	0,007461916	-0,11534	-0,01784	-0,11534	-0,01784
FAC2_1	-0,1221	0,0249	-4,91213	1,01672E-06	-0,17082	-0,07332	-0,17082	-0,07332
FAC3_1	-0,0901	0,0249	-3,62692	0,000298046	-0,13888	-0,04138	-0,13888	-0,04138
FAC4_1	-0,1422	0,0249	-5,72284	1,30207E-08	-0,19096	-0,09346	-0,19096	-0,09346
FAC5_1	0,0631	0,0249	2,537822	0,011271718	0,01431	0,11182	0,01431	0,11182
FAC6_1	0,2723	0,0249	10,95641	9,05477E-27	0,22352	0,32102	0,22352	0,32102
FAC7_1	0,2268	0,0249	9,12637	2,66302E-19	0,17804	0,27554	0,17804	0,27554
FAC8_1	-0,1153	0,0249	-4,63984	3,8429E-06	-0,16405	-0,06655	-0,16405	-0,06655
FAC9_1	-0,0461	0,0249	-1,85425	0,06393185	-0,09483	0,00267	-0,09483	0,00267
FAC10_1	0,1137	0,0249	4,573888	5,24943E-06	0,06491	0,16241	0,06491	0,16241
FAC11_1	-0,0175	0,0249	-0,70285	0,482273479	-0,06622	0,03129	-0,06622	0,03129

Map 74. Results of analysis on Pollution (FAC4_2) in Euroregion Pomerania (tendencies, NUTS 3).

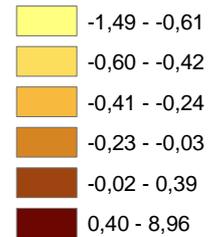



 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Local level: NUTS 3
 Source: GETIN_UA
 Origin of data: Multiple sources
 © EuroGeographics Association for administrative boundaries

NUTS_RG_03M_2006

FAC4_2



7.13. Chapter conclusions

German city regions and the city of Szczecin have positive centrality scores, while all the other regions have negative centrality values. The best performance in demographic dynamism has Skåne län in Sweden, which also received highest scores for the R&D factor. The growth of GDP in Poland has been rapid and therefore the Polish regions of Euroregion Pomerania score higher than other regions of the CBA in the economic catching-up analysis. Several regions scored high in the administrative centres -analysis that indicates poor economic performance and importance of public sector. Regions in coastal areas of Euroregion Pomerania scored high in environment analysis, and are more sensitive to environmental risks related to climate change than other regions of the CBA.

Chapter 8. The role of the city of Szczecin in the Polish-German CBA

In this chapter we discuss shortly the role of the city of Szczecin in the future developments of the Polish-German cross-border area. The city of Szczecin is situated in north-west Poland next to the Polish-German border. In terms of population it is the second largest city of Euroregion Pomerania after Malmö in Sweden and it functions as the capital of the Euroregion. Szczecin received its town rights already in 1243 and today it is Poland's seventh largest city with 405 606 inhabitants (2010) and a total area of 301 km² (2011). Szczecin is the capital of Województwo Zachodniopomorskie and the largest city in north-western Poland. The city is located by the Oder River, which runs through Lake Dąbie and Szczecin Bay to the Baltic Sea. The Baltic Sea is approximately 65 kilometres from the city⁵⁹. The city is thus an important node and water gateway from Central Europe to the Baltic Sea, and it serves as a maritime access also for the city of Berlin. Besides waterways, the road transport axis from Russia and Finland to Northern Germany and Western Europe passes through the city.

The city of Szczecin has in December 2011 updated its strategy and the new strategy that, instead of covering all areas of activities, focuses on four strategic objectives that are essential for the city's social, economic and spatial development. These are (1) high quality of life, (2) modern, competitive and innovative economy, (3) high intellectual capital and (4) attractive metropolitan city. Each strategic objective is accompanied by three operational objectives. High quality of life is to be achieved by protecting and using natural resources, revitalising and developing urban space and supporting the development of effective social services. Development of modern economy requires, according to the strategy, supporting local businesses and inflow of external investments, improving innovation capabilities in enterprises and boosting the development of tourism based on natural resources and local heritage. The strategy aims at developing intellectual capital by building social capital of the residents, by supporting science and ties between representatives of science and other fields of life (economy, culture, sports and local elites) and by broadening the scope, accessibility and quality of education. Finally, Szczecin strives at being an attractive metropolitan city by intensifying international cooperation, improving internal and external accessibility of the city and supporting the development of metropolitan functions of the city.⁶⁰

In its vision for year 2025, Szczecin maintains close relations with foreign countries (mainly Germany and Scandinavia), offers attractive jobs (in both traditional and modern services), invests in knowledge and IT development and serves as a transport and logistics hub. As for urban space, Szczecin visions itself as a safe, friendly and attractive city with large green areas and water resources.

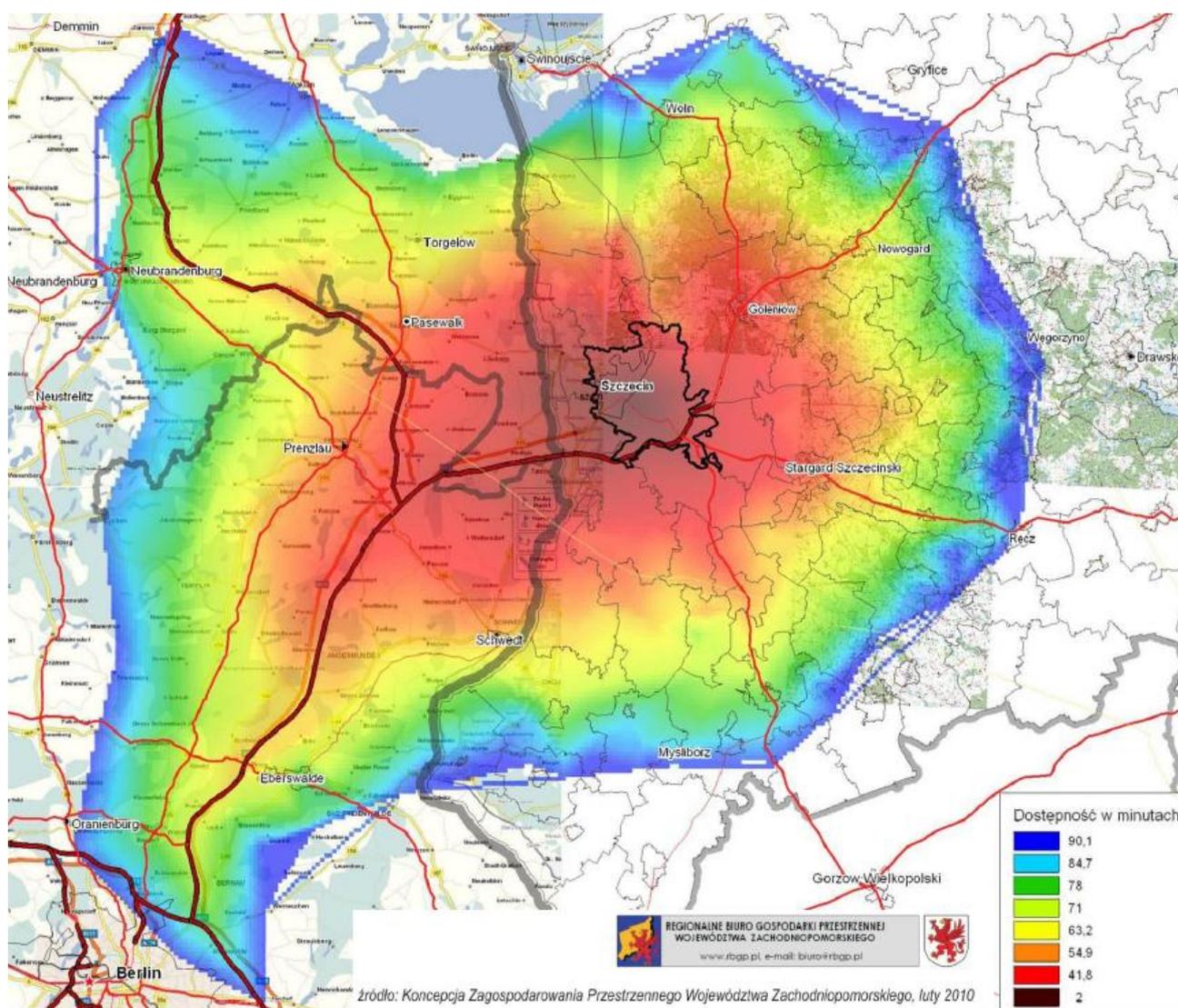
The city has expressed its willingness to function as a sub-regional centre and a centre for international, in particular cross-border cooperation. Cross-border cooperation is carried out in the framework of Euroregion Pomerania, but also by participating in the work of international organisations and town twinning schemes. The city of Szczecin does not delimit cross-border relations to cooperation. Since the city of Szczecin is the only major city in the cross-border territory of north-west Poland and north-east Germany, it plays an important role in cross-border regional development. In order to elaborate the vision of the city as a cross-border urban territory, the city has been actively developing the concept of 'Cross Border Metropolitan Region of Szczecin'. This concept is based on the identification of existing functional cross-regional and cross-border relations around the city and it covers a total area of 12 968 km² (7 835 km²

⁵⁹ The length of the fairway.

⁶⁰ Szczecin Development Strategy 2025, 19 Dec. 2011.

on the Polish side) and a population of 2 638 500 inhabitants.⁶¹ In 2011 the Regional Planning Office of Województwo Zachodniopomorskie published development priorities for the Polish part of the Cross Border Metropolitan Region of Szczecin. These priorities include the strengthening of international cooperation (The Szczecin Cross Border Metropolitan Region in the European Space), protecting natural environment, supporting polycentric settlement network, improving transport and technical infrastructure, and boosting economic development.⁶²

Map 75. Catchment area of the Cross Border Metropolitan Region of Szczecin

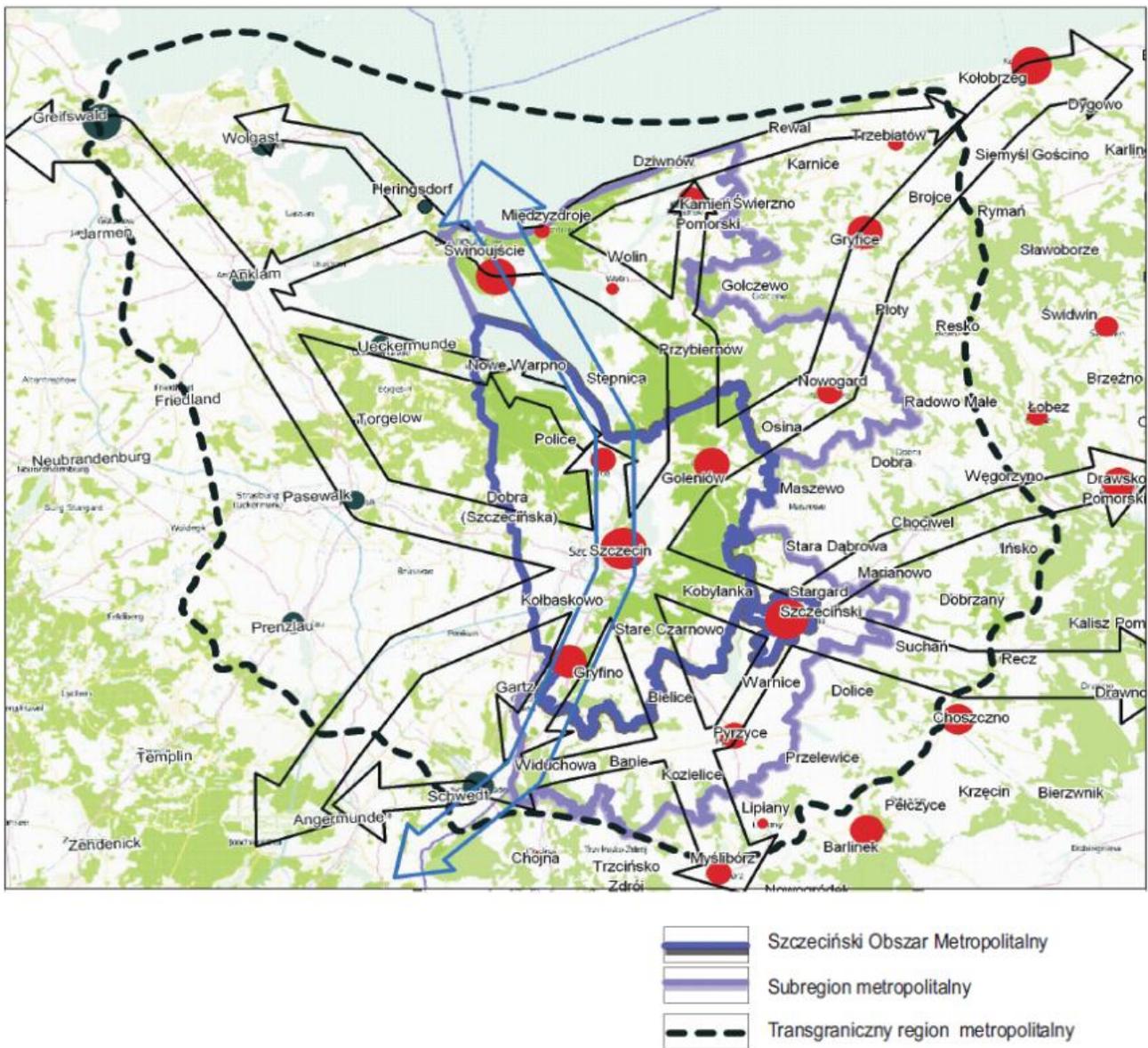


Source: Development priorities 2011

⁶¹ There are several different classifications and methods to analyse a city's sphere of influence. In this report we have analysed so called Functional Urban Areas in the Poland – Germany – Sweden CBA with data and methodology from ESPON 1.1.1. and 1.4.3. projects. According to data from ESPON 1.4.3. the area of Szczecin FUA is 2 140,49 km² and there were 610 403 people living in Szczecin FUA in 2006. Eurostat has its own classification for urban areas called Larger Urban Zones (in Urban Audit). In that classification Szczecin LUZ has a total area of 6 259,05 km² and a population of 779 372 inhabitants (Audit for years 2007-2009). Local and regional planning authorities have defined the Szczecin Metropolitan Area as an agglomeration covering an area of 1 985 km² and a population of 618 inhabitants. All of these concepts are limited to cover regions in the same nation state.

⁶² Development priorities 2011.

Map 76. West Pomeranian Regional Spatial Development Plan – Szczecin Cross-border Metropolitan Area.



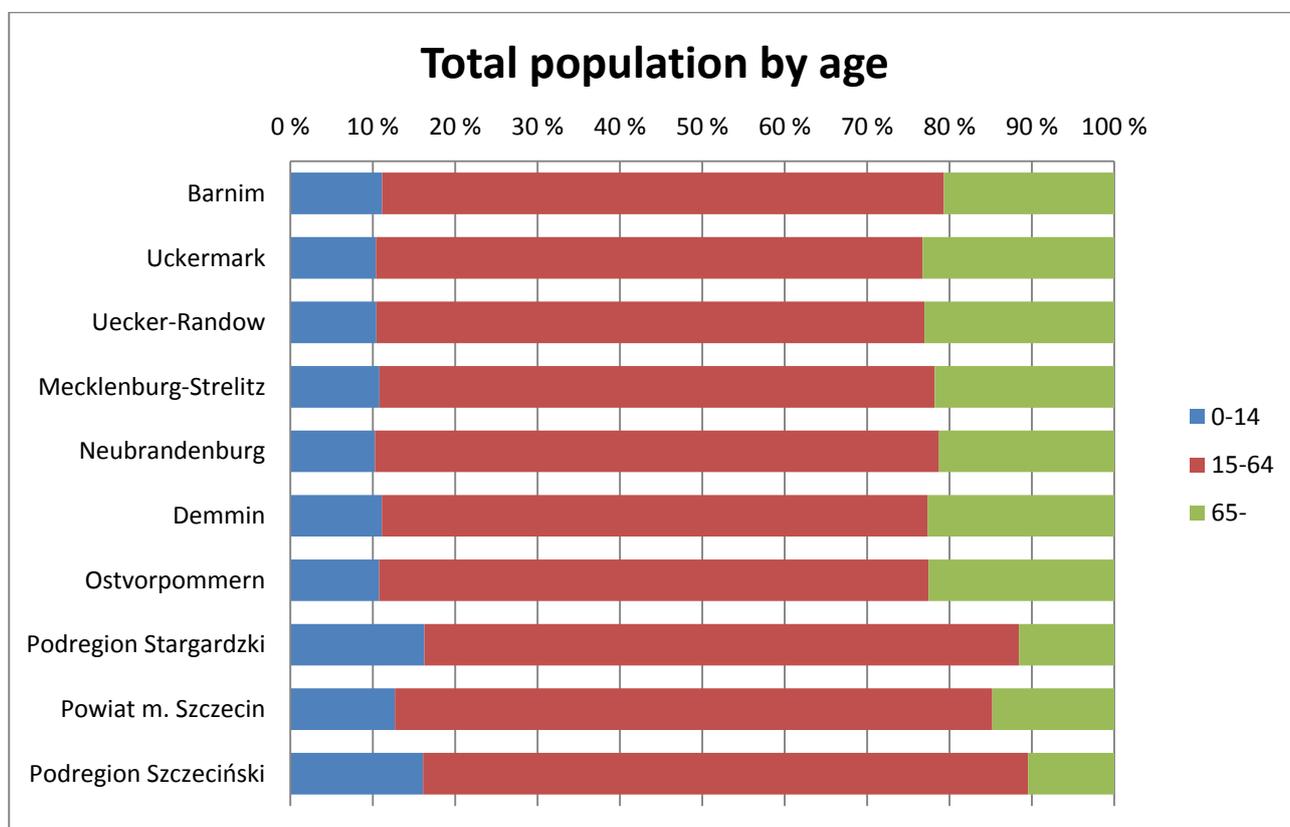
Source: Regional Planning Office of Województwo Zachodniopomorskie

How are these plans mirrored in the results of the Ulysses analyses? What are the biggest challenges for the Cross Border Metropolitan Region of Szczecin from the point of view of Ulysses results? According to the research results, the development patterns of the city of Szczecin do not limit themselves to the territory of the city, but reach across regional borders and the German border area. Demographic analysis show that the city of Szczecin has been losing over 12 500 inhabitants between 1995 and 2010. This is due to outward migration and suburbanisation; population moving to neighbouring regions, other cities and abroad. Especially the region of Powiat Policki, situated by the German border and neighbouring the city of Szczecin in north and west, has been receiving population. Migration has been directed also to the nearby German border regions. Commuting data (on NUTS 2 level) indicates that commuting from the Polish border regions to Germany is increasing, while on the German side commuting is directed mainly to Berlin,

and only a very small increase in commuting to a foreign country is taking place. This is most likely commuting to Poland by Polish migrants.

Age structure of the population is a present and future challenge for the Cross Border Metropolitan Region of Szczecin. There is a small share of population under 15 years of age especially in the city of Szczecin and the German border regions. At the moment the only regions with a positive natural increase are Podregion Szczeciński, Podregion Stargardzki and Neubrandenburg, while the city of Szczecin and the other German border regions have a negative natural increase of approximately 3000-5500 deaths over births yearly (data for 2000-2008). German border regions have a large share of elderly population, and already have a high old age dependency ratio. This demographic challenge will face the Polish regions when a large amount of working age population retires in the near future.

Figure 24. Total population by age in the Polish-German cross-border area in 2009.



Source: Central Statistical Office Poland

The polycentricity analysis reveals that Szczecin FUA along with the German FUAs of Neubrandenburg, Eberswalde and Stralsund have been losing population between 2001 and 2006). Unemployment in 2006 was high in all the FUA of the CBA. Szczecin is the largest FUA in the Polish-German CBA when measured both by population and GDP. In terms of GDP it is, however, much closer to the next largest FUA in the CBA, that of Neubrandenburg, and in terms of GDP per capita Szczecin comes after all the German FUAs. There is thus a need to boost economy in Szczecin, in order for it to serve the Polish-German CBA.

Cross-border cooperation could serve as a means for developing economy. According to a study on economic development and relations in the Polish-German border area, Poland's EU membership in 2004 significantly intensified Polish-German economic relations. What has to be acknowledged is that Germany is Poland's biggest trading partner (2009), while Poland occupies only the tenth position in German export statistics. Polish regions that are located by the German border are more involved in the Polish-German trade than other Polish regions. German regions bordering Poland (the former East German federal states) are, on the contrary, less involved in the Polish-German trade in comparison with the more prosperous western German regions.⁶³ There thus exists an asymmetry both on the national level and regional level in the Polish-German trade, and it takes extra effort to boost economic cooperation and trade relations in the Polish- German border area.

The Cross Border Metropolitan Region of Szczecin is dominated by agricultural areas. In the territory of the city of Szczecin the share of agricultural areas is approximately 20 %, but in the regions surrounding it the share is around 55 %. There have not been great changes in the share of agricultural areas between 2000 and 2006 and agricultural production (GVA) has not experienced big changes between 1997 and 2008, but the share of agriculture and fishing in total production (GVA) and total employment has decreased in the entire CBA. This implies of a need to create new employment opportunities in the agricultural areas either by reforming and strengthening the agriculture sector or by introducing new fields of business, e.g. tourism and ecotourism to agricultural areas.

In terms of accessibility by road and rail German regions of the Cross Border Metropolitan Region of Szczecin are easier to access than the Polish regions. This is connected with the location of the regions close to Berlin and European main transport corridors. Accessibility of the city of Szczecin is central for the development of the Metropolitan Area, not only in a European perspective, but also within the CBA. Accessibility of the city by road has been improving between 2001 and 2006, but it is low compared to the average accessibility of the ESPON countries and the CBA average. There is also a need to improve internet accessibility in the CBA. In 2011 in Region Północno-Zachodni 69 % of households had internet at home and the share was slightly higher on the German side (71 %/ 73 %). According to the development strategy of the city of Szczecin broadband internet access is provided throughout the city by national and local operators, but that businesses could take more advantage of the internet and the possibilities it offers for business and customer service.⁶⁴

Performance analyses show that GDP is growing in the Polish-German border area, but that the German regions are growing less than the leading European region (London). The Polish side (the city of Szczecin and Podregions Szczeciński and Stargardzki) are catching up the leading region, but the economic growth is slow. Leading economic sectors in the CBA are public administration (L-P), industry (C-E) and services (G-I). The leading sectors of the city of Szczecin were in 2008 service sector (G-I) and financial intermediation and real estate (J-K). Between 1997 and 2008 all economic sectors experienced growth on the Polish side and growth was strongest in financial intermediation and real estate, construction and public administration. The German regions suffered from a decrease in the field of construction. Employment statics show that major employer in the German regions is public administration. On the Polish side public administration is an important employer, but service sector in the city of Szczecin and industry and service sector in Podregion Szczeciński are as important. Large share of public sector in the economy and employment can indicate the level of state interventionism but also of poor economic performance. Based on the research

⁶³ Bradley, Best & McLaughlin 2011.

⁶⁴ Szczecin Development Strategy 2025, 19 Dec. 2011.

results it seems as the German side of the CBA is lacking investments in infrastructure, while the Polish side is gradually developing.

Performance in research and innovation is poor in the Polish-German border area and a major target for improvement for the Cross Border Metropolitan Region of Szczecin. Expenditure in research and development, the amount of patent applications to the European Patent Office (EPO) and the share of people employed in high and medium tech manufacturing activities is low compared to the European union average in the both in the German and Polish border regions. In Województwo Zachodniopomorskie also the share of population aged 25-64 with tertiary education is lower than the European average. The Polish-German border region have high unemployment rates, and also the unemployment rate of the city of Szczecin has been increasing between 2008 and 2010. A major setback for the city was the bankruptcy of the largest employer in the city the Szczecin Shipyard in 2011.

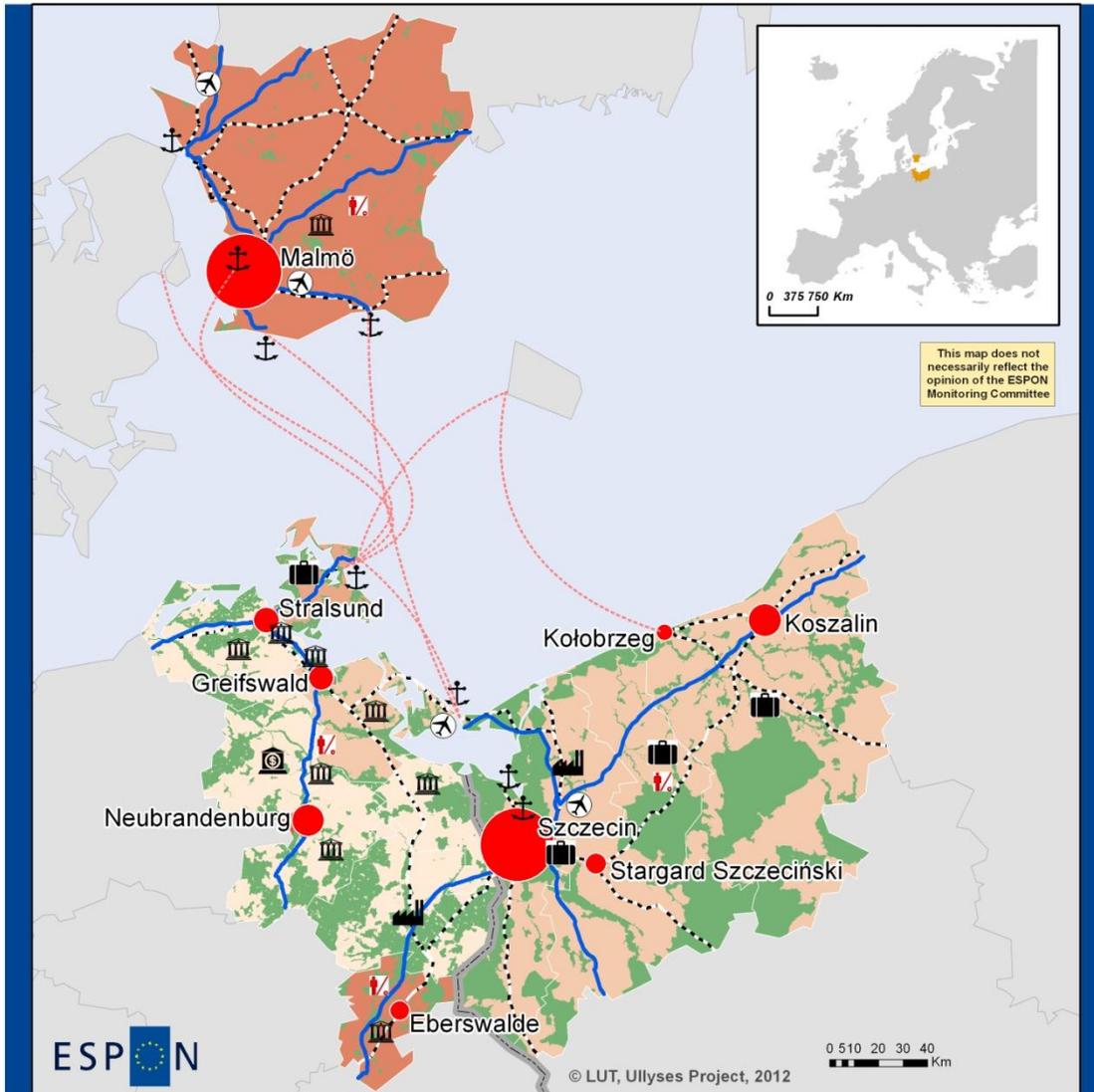
Concerning nature and environment, environmental protection is progressing in the CBA; for example, waste water treatment capacity is growing, and measurements for the city of Szczecin show lowering emissions of air pollutants.⁶⁵ In a European comparison, the Polish-German cross-border area is occupied by large protected natural areas and water resources. On the other hand this offers possibilities for the development of different fields of economy and on the other hand it necessitates paying special attention to sustainability. In both cases cross-border cooperation is essential.

To conclude, in the light of the Ulysses research results the development priorities of the Cross Border Metropolitan Region of Szczecin (strengthening of international cooperation, protecting natural environment, supporting polycentric settlement network, improving transport and technical infrastructure, and boosting economic development) seem justified. The biggest challenge for the region, and for the city of Szczecin would be to boost economic development, in particular knowledge-based economic development and thereby to tackle the demographic challenge. The city of Szczecin as the major city in the cross-border region would play a major role in these endeavours.

⁶⁵ Szczecin in figures 2011.

Territorial synthesis map

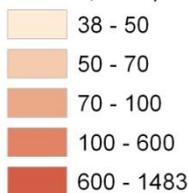
Map 77. Territorial synthesis map for Euroregion Pomerania.



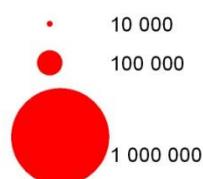
EUROPEAN UNION
Part-financed by the European Regional Development Fund
INVESTING IN YOUR FUTURE

Local level: NUTS 3, 2006
Source: various sources, various years
© EuroGeographics Association for administrative boundaries

Population density (inhabitants/km², NUTS 3, 2009)



Functional Urban Areas (inhabitants, 2006)



Main economic sector (% of GVA, NUTS 3, 2008)

- Industry
- Trade, tourism and transport
- Finance, real estate
- Public administration and community services

Unemployment rate (NUTS 2, 2010)



- Main roads
- Railways
- International border
- Airports
- Harbours
- Natura 2000 areas

References

- Andor, László. Commissioner László Andor. Employment, Social Affairs and Inclusion. Free movement: workers from eight Member States that joined EU in 2004 finally enjoy full rights. Available at: http://ec.europa.eu/commission_2010-2014/andor/headlines/news/2011/04/20110428_en.htm
- Antikainen, Janne. The concept of Functional Urban Area. Findings of the ESPON 1.1.1 project. In Metropolregionen 7/2005. Available at: http://www.bbsr.bund.de/cIn_032/nn_340582/BBSR/DE/Veroeffentlichungen/lzR/2005/Heft07Metropolregionen.html?__nnn=true
- Bengtsson, Tor. Förändrat flyttmönster från Polen. Fokus på näringsliv och arbetsmarknad våren. 2008. Available at: http://www.scb.se/Statistik/AM/AM9903/_dokument/46.pdf
- Bradley, John; Best, Michael & McLaughlin, Joanne. Reviving the border region economy in a new era of devolved government. Section 6: The Polish/German border regions compared. 2011. Available at: <http://www.crossborder.ie/wp-content/uploads/bre-topic-1.pdf>
- Development Priorities. The Polish Part of Cross Border Metropolitan Region of Szczecin. Regional Planning Office of Województwo Zachodniopomorskie 2011.
- ESDP. European Spatial Development Perspective. Towards Balanced and Sustainable Development of the Territory of the European Union. European Commission 1999. Available at: http://ec.europa.eu/regional_policy/sources/docoffic/official/reports/pdf/sum_en.pdf
- ESPON Climate. Climate Change and Territorial Effects on Regions and Local Economies. Draft Final Report 2011. Available at: http://www.espon.eu/export/sites/default/Documents/Projects/AppliedResearch/CLIMATE/ESPON_Climate_SummaryReport_final.pdf
- ESPON 1.1.1. Potentials for Polycentric Development in Europe. Project report. Nordregio 2005. Available at: http://www.espon.eu/export/sites/default/Documents/Projects/ESPON2006Projects/ThematicProjects/Polycentricity/fr-1.1.1_revised-full.pdf
- ESPON 1.1.2. Urban-rural relations in Europe. 2005. Available at: http://www.espon.eu/export/sites/default/Documents/Projects/ESPON2006Projects/ThematicProjects/UrbanRural/fr-1.1.2_revised-full_31-03-05.pdf
- ESPON 1.2.1. Transport services and networks: territorial trends and basic supply of infrastructure for territorial cohesion. Project report 2004. Available at: <http://www.espon.eu/export/sites/default/Documents/Projects/ESPON2006Projects/ThematicProjects/TransportTrends/fr-1.2.1-full.pdf>
- ESPON 1.4.3. Study on Urban Functions. Project report. 2007. Available at: http://www.espon.eu/export/sites/default/Documents/Projects/ESPON2006Projects/StudiesScientificSupportProjects/UrbanFunctions/fr-1.4.3_April2007-final.pdf
- Europe 2020. A strategy for smart, sustainable and inclusive growth. European Commission 2010. Available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF>
- Fertility statistics - Statistics Explained (2011/10/4), Eurostat. Available at: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Fertility_statistics
- Fifth Report on Economic, Social and Territorial Cohesion. Investing in Europe's future. European Commission 2010. Available at: http://ec.europa.eu/regional_policy/sources/docoffic/official/reports/cohesion5/index_en.cfm
- Küle, Laila. Urban-Rural Partnership in Latvian Regional Policy and Practice Context. Regional Studies Association Annual International Conference 2010. Available at: <http://regional-studies-assoc.ac.uk/events/2010/may-pecs/papers/Kule.pdf>
- Łada, Agnieszka & Segeš Frelak, Justyna. Vanishing Frontier. New Polish migration to Germany - local perspective. Main conclusions. Warsaw: Institute of Public Affairs 2012. Available at: <http://isp.org.pl/uploads/filemanager/Rozne/VANISHINGFRONTIERMAINCONCLUSIONS1.pdf>

Lisbon Strategy evaluation document. European Commission 2010. Available at:
http://ec.europa.eu/archives/growthandjobs_2009/pdf/lisbon_strategy_evaluation_en.pdf

Migrationsinfo.se. Skåne län. Fakta om invandring 2010. Available at:
<http://www.migrationsinfo.se/regional-statistik/skne-ln/>

Population and population change statistics - Statistics Explained (2011/10/4), Eurostat. Available at:
http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Population_and_population_change_statistics

A revised urban-rural typology. Eurostat regional yearbook 2010. Available at:
http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-HA-10-001-15/EN/KS-HA-10-001-15-EN.PDF

Stankiewicz, Monika; Backer, Hermann & Vlasov, Nikolay. Maritime Activities in the Baltic Sea. An integrated thematic assessment on maritime activities and response to pollution at sea in the Baltic Sea region. Baltic Sea Environment Proceedings No.123. 2010. Available at:
<http://www.helcom.fi/stc/files/Publications/Proceedings/bsep123.pdf>

Strategy for sustainable development 2009. Available at:
http://europa.eu/legislation_summaries/environment/sustainable_development/l28117_en.htm

SUccess for convergence Regions' Economies (SURE). Structured empirical analysis for convergence regions: identifying success factors for consolidated growth / SEARCH. Interim report 2009. Available at:
http://www.espon.eu/export/sites/default/Documents/Projects/TargetedAnalyses/SURE/SURE_Interim_Report.pdf

Szczecin development strategy 2025. Szczecin_dla Ciebie. 19 December 2011. Available at:
<http://www.strategia-szczecin.pl/>

Szczecin in figures 2011. Statistical Office Szczecin.

Territorial Agenda of the European Union 2020. Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions. 2011. Available at: <http://www.eu2011.hu/files/bveu/documents/TA2020.pdf>

Update of Selected Potential Accessibility Indicators. Final Report 2007. Available at:
http://www.mdrl.ro/espon_cd2/Project_Reports/Scientific_briefing_and_networking/MapUpdate_final_report.pdf

Wadensjö, E. Migration to Sweden from the New EU Member States. Bonn: The Institute for the Study of Labor (IZA) 2007. Available at: <http://ftp.iza.org/dp3190.pdf>

www.espon.eu

The ESPON 2013 Programme is part-financed by the European Regional Development Fund, the EU Member States and the Partner States Iceland, Liechtenstein, Norway and Switzerland. It shall support policy development in relation to the aim of territorial cohesion and a harmonious development of the European territory.

Annex 2 – Cross-Border Governance Analysis (Institutional performance)

Ulysses Task 2.3 – Institutional Performance

Tobias Chilla, Sofie Jaeger, University of Luxembourg

Executive Summary Task 2.3

Territorial Governance and institutional performance in cross-border regions

Cross-border governance in contemporary Europe mostly means cooperation on the *regional* level (in particular Euregios), in many cases complemented by partners on the local level (city networks etc.).

The interregional cooperation is embedded within the multi-level governance of the European political system where nation states and the EU are major players. Against this background, the analysis of cross-border governance has to take two dimensions into account:

- Firstly, the regional partners are not completely free to develop political activities within cross-border cooperation, but they have to cope with national regulations and frameworks that are hardly to be modified: the overall political architecture of the nation state (e.g. federal vs. central) or the planning system (e.g. land use regulation vs. comprehensive integrated approaches) do play an important role in cross-border governance, too. In some cases, the systems from either side of the border fit quite well, in other cases the differences are large and can hamper efficient cross-border cooperation. – Within Ulysses Task 2.3 we call this the **structural dimension** which means the overall framework that can hardly be influenced by the partners of inter-regional cross-border cooperation.
- Second, inter-regional cross-border cooperation in Europe is established and developed for more than four decades now, and the countless examples are differing largely in terms of activity, continuity, historicity, forms of institutionalization, efficiency etc. These differences are not only to be explained by structural frameworks but also by the success of the regional actors. – Within Ulysses Task 2.3 we call this the **activity dimension** which means the intensity and continuity of cross-border cooperation on the regional level.

Both the structural dimension and the activity dimension have been operationalized by a series of indicators that have been weighted, combined and mapped (for details on the methodology and the data behind see Annex).

The analysis is based on different sources: As the Ulysses project is an ESPON priority 2 project, existing ESPON data and findings are a primary resource. Moreover, scientific and grey literature has been consulted and information from stakeholders has been a further basis.

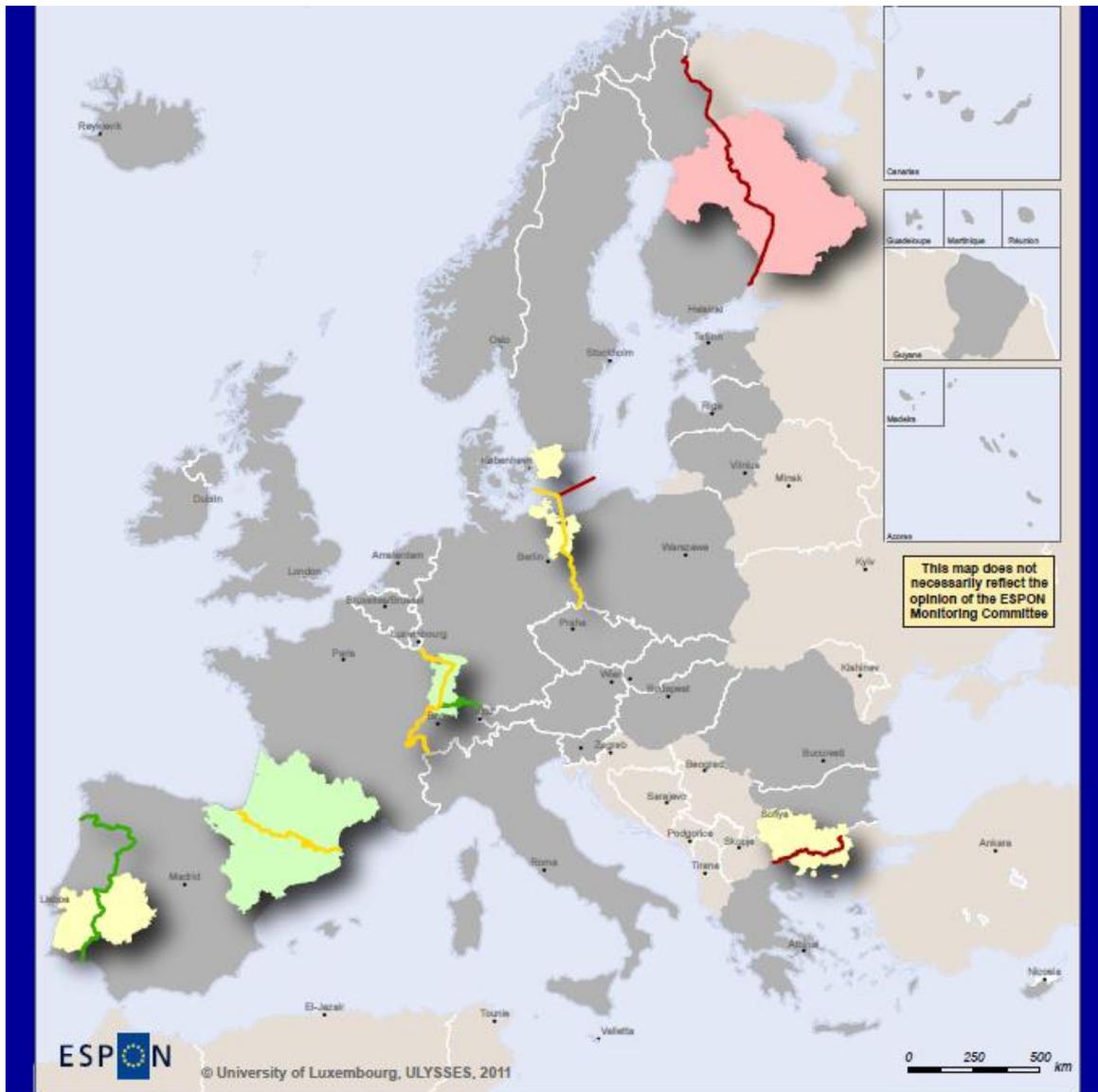
Structural Dimension		Activity Dimension	
Domain	Indicator	Domain	Indicator
Political status of the border	EU membership / historicity	Maturity of cross-border cooperation	Interreg III participation
	Schengen status	Historicity of cross-border cooperation in general	Earliest founding date of cross-border cooperation
Physical status of the border	Geomorphology	Institutional thickness in cross-border cooperation	Number of permanent institutionalisations (Euregios, citynetworks, Eurodistricts etc.)
Institutional status: Planning culture	Belonging to planning culture traditions according to different studies	Current activity	Number of EGTCs
Language barrier	Belonging to language families (linguistic distance)	Cross-border spatial development on regional level	Joint tools of territorial monitoring
			Strategic cross-border spatial development documents
		Cross-border transport projects	TEN-T corridors crossing a border in the perimeter of the region
			important cross-border projects on the regional scale in preparation or established (especially rail)

Table: Indicators for analysing the institutionalised cross-border cooperation (for details and sources see Annex)

Overall results

The map shows the overall picture for the Ulysses regions by visualising the above mentioned indicators: The border effects due to differing political *structures* are mapped, represented by the borders (*lines*) in different colours. The *activity* dimension in cross-border governance is represented by different colours of the regions themselves (*surfaces*).

One has to admit that the map can only show a very synthetic and generalised picture. The results must not be misunderstood in a way that it would *evaluate* institutional settings from a normative setting; the approach is a purely analytical one.



EUROPEAN UNION
Part-financed by the European Regional Development Fund
INVESTING IN YOUR FUTURE

Regional level: NUTS 2 and 3
Source: ULYSSES, 2011
Origin of data: ULYSSES, 2011
© EuroGeographics Association for administrative boundaries

**Character of the border
(Structural dimension)**

- Barrier
- Interface
- Link

**Character of the cross-border cooperation
(Activity dimension)**

- Neighborhood
- Cooperation
- Integration

Map: Structural Dimension and activity dimension of the Ulysses regions' institutional setting

A more detailed description is given in the later chapter on the respective border regions. However, already at this point, we can draw some conclusions with regard to the European level:

- Some patterns of the map might confirm some well-known characteristics of European borders: the internal EU 15 borders are – from a structural point of view – much more favourable for cross-border governance than – for example – external EU borders or borders with transition states. It is not surprising that the cooperation in the Upper Rhine region is closer than that one in Karelia. However, the map illustrates at the same time that the structural dimension *cannot* be seen in a *deterministic* way. Institutionalised cross-border cooperation does have a considerable *scope of action*. Just to give an example: Though the challenges in the Pyrenees region are not less important than in many other regions, the cross-border institutionalisation has been particularly intensive.
- On the basis of the six regions of the Ulysses project the map shows the *diversity* of borders and border regions in Europe also from the institutional point of view: The structural and the activity dimension have very different values. Obviously, a full equity of these spatial patterns in Europe's border regions is not a reasonable objective, in particular not in the short and medium term. Territorial diversity has to come along with different institutional settings. Taylor made institutions have to face the respective challenges *on the ground*. From the perspective of *territorial cohesion* one has to state that – following the principle of *tailor made strategies* – all regions have to develop their own ways in order to exploit their cross-border potential.
- The pattern also indicates that socio-economic development alone does not determine cross-border governance, neither. For example, both the mountainous area of the Pyrenees and the densely populated Upper Rhine area with a high degree of functional integration show similar patterns in the cooperation schemes, despite all socio-economic differences. The link between socio-economic and institutional performance will be further elaborated in the coming months for the final report of the project.

Detailed report task 2.3

Methodology

As pointed out in the summarising part of task 2.3, the institutional analysis differentiates two dimensions: On the one hand, the **structural dimension** means the overall framework that can hardly be influenced by the partners of inter-regional cross-border cooperation. The **activity dimension** addresses the intensity and continuity of institutionalised cross-border cooperation on the regional level.

Structural dimension

Political Status of the border

The political status of the border is an important context for regional cross-border development that cannot fundamentally be influenced (see table below for an overview). Firstly, the territorial governance in cross-border regions is strongly influenced by the political status of the border: The historicity and the degree of liberalization play an important role. The indicator “EU membership/historicity” allows categorising the borders into four groups: EU12/15, EU 25/others and external borders. Switzerland is considered as a category of its own as it is a non-member-state, but takes part in the Schengen agreement and is a particular active player in cross-border issues for decades now. These groups are assigned to an ordinal scale; this scale is weighted (factor 2). This categorisation is mainly based on the ESPON projects Typologies (pp. 26ff) and Geospecs (see Interim Report map 13).

Secondly, the status of the Schengen regulations within a border area is an additional framework to the overall political status. In this context, not the complete juridical matter is taken into account but only the travel zone in which border controls of *persons* are phased out. This is in particular an interesting aspect with regard to Switzerland, not being an EU member state, but participating in the Schengen system; it is also of particular relevance for the cases of Karelia and Bulgaria.

Planning system

Secondly, the political and planning system of each country can be very different to the neighbouring countries. Depending on the differences between the planning systems, the border effects are more or less stronger with regard to territorial development. The indicator for this border effect is if the countries on either side of the borders are considered to be part of the same “planning family” in the existing studies on planning systems. Depending from the perspective, some countries are always considered to be part of the same family, others only in some studies or even in none of them. The studies considered here comprise the ESPON 2006 project on Governance, Newman 1996, CEC 1997 and Nadin & Stead 2008.

These assessments are ‘translated’ into a numerical scale that, again, makes up four categories of more or less strong border effects. As this factor seems to be the most crucial one for territorial development, factor 3 in weighting stresses its influence.

Physical status

Moreover, the physical status of the border is taken into account: It is true that physical features do not *determine* political processes; but the fact that – just for example – Poland and Sweden do not share a common land border should not be ignored. This is why three categories differentiate fundamental geomorphological features (sea border, alpine border, and other borders as rivers, low mountains and green borders).

These three domains are combined in a synthesis score that allows saying if the borders function as *separation*, *interface* or even as a *link*. The categorisation is mainly based on the ESPON study from 2006 “ESPO Interact cross-border cooperation” (p. 18 of the final report).

Languages

Language barriers do not only hinder everyday life and *socio-economic* integration in border areas, but it is also for *political* processes not easy to overcome these barriers. In some regions no linguistic border exists at all, in others the barrier is very high. In this analysis, the language barrier is assessed following the categorisation of language families (see e.g. Beekes 1995; for a simplified mapping see also the English Wikipedia site for the notion ‘Indo-European languages’).

Dimension	Indicators	Quantification	Main Sources	Weighting
Political status of the border	EU membership / historicity	Ordinal scale 4 = EU 12/15 3 = CH 2 = EU 25/27 1 = external borders (NB: highest score country counts)	ESPO Typologies (pp. 26 ff.) ESPO Geospecs (Interim Report map 13)	2
	Schengen status	2 = participating in free travel zone 1 = not participating in free travel zone		1
Physical status of the border	Geomorphology	Ordinal scale 3 = other borders 2 = mountainous (dominant of the high mountains classification) 1 = sea border	ESPO Interact cross-border cooperation (18 final report)	1
Institutional status: Planning culture	Being mentioned as member of the same planning culture families in different studies	Numerical scale 0 = strong differentials 0,1-1,0 1,1-2,0 2,1-3,5 = weak differentials	ESPO 2006/2.3.2; Newman 1996; CEC 1997; Nadin/ Stead 2008	3
Language barrier	To what extent is language barriers existing in the area	Ordinal Scale 3 = Same language 2 = Similar language (semi-communication possible) 1 = Very different language	Literature, e.g. Beekes 1995	1

Tab.: Methodology to assess the territorial character of the border (structural dimension)

Activity dimension

The scheme for the activity dimension takes into account six domains (see table below). The first four domains address cross-border *cooperation in general*. The next two indicators go beyond cross-border cooperation in general and, instead, address more in detail the policy of *spatial development*. The last two indicators address then the *transport* policy (see table below).

Historicity of cross-border cooperation in general

The importance of the historicity of cross-border cooperation lies in the assumption that a joint experience facilitates to handle current challenges as the mutual trust and knowledge serves as a good basis.

It is true that cross-border cooperation has not begun only in the last years or decades, but that today's situation can only be explained by taking into account the longer history going back to medieval times. This study, however, limits the focus to the post war cooperation, as the technical and institutional setting with regard to multilateral and European regulations can be seen as the relevant era.

Thus, the earliest post-war funding date of an interregional cross-border institution is seen as evidence for the historicity of cross-border cooperation.

Maturity of cross-border cooperation

Without any doubt, cross-border cooperation has fundamentally been influenced by European politics. In particular the INTERREG (A) programmes and the pre-accession funding have played a major role. The INTERREG programme is based on both a top-down and a bottom-up approach: So even if the overall programme framework is to a large extent defined on the European and multi-national level, the involvement of (border) regions is still a clear sign for commitment and a functioning cooperation. Considering the technical and political challenges to overcome in order to ensure successful Interreg participation, the underlying capacity building is considerable.

The indicator used here is the participation in the Interreg III programme, as elaborated by the ESPON Geospecs project (Interim Report).

Institutional thickness in cross-border cooperation

'Institutional thickness' is a notion from political and economic geography and describes the presence of many institutions that are involved in a certain thematic and that are located near to one another. Institutional thickness is not only the *outcome* a high and dynamic activity. It is, at the same time, seen as a *precondition* for regional innovation capacity and dynamic development.

The relevant institutions are considered for the overall analysis on the European and regional level, and they are also mapped in a cartographic sense. Showing the respective perimeters does not only illustrate the current situation in an instructive way, but it is also an important basis for the later link to socio-economic analyses.

With regard to cross-border policy, only the cross-border cooperation on the (inter-) regional level is taken into account. This approach leaves out two other kinds of cooperation forms: On the one hand, bi- or multi-*national* cooperation (e.g. the Council of the Baltic Sea States). This form of cooperation is left out as it does not necessarily say a lot about the interregional cooperation, though it might influence the regional development intensively. On the other hand, all programme structures – like in particular ERDF eligibility areas – are not taken into account either. Though these perimeters (like PAMINA in the Upper Rhine or POCTEFA in the Pyrenees) are of high importance, they are linked to a very limited period of time and can change fundamentally. Moreover, the pure existence of eligibility perimeters does not prove automatically intensive cross-border cooperation.

Thus, the *number* of non-temporary cross-border institutions on the regional level is taken as the quantitative indicator for the institutional analysis.

Current activity (EGTC)

With the indicator for “current activity” this analysis takes into account that cross-border cooperation depends to a large extent on personal engagements and particular constellations in the border areas which can change due to political dynamic etc.

As the indicator for current activity, the number of EGTCs (European Groupings of Territorial Cooperation) is taken. EGTCs have been developed as a governance tool by the European Commission in 2006 (European regulation 1082/2006): After implementation of the respective framework on the national levels (art. 16/17), a series of border-regions have implemented this tool for a large variety of contexts. The EGTCs are high on the European agenda and their adaptation in the different regions demands a considerable effort with regard to juridical clarification and political coordination.

It is true that also before the EGTC regulation a series of Governance tools on the European as on the multi-lateral level has supported cross-border cooperation in many ways (e.g. the Council of Europe’s *European Outline Convention on Transfrontier Co-operation* from 1980/95, the *Convention of Karlsruhe* from 1996 between Germany, Luxembourg, Switzerland and France).

The particular features of an EGTC is that it

- is applicable in the same way in all European member states
- is open to all public bodies (local and regional authorities as well as member states)
- can have a strong mandate if assigned by the respective superior levels
- has a legal personality (i.e. can employ their own staff, can lead a European programme, launch public procurement procedures or conclude conventions with private actors).

As the EGTC tool can only be applied to EU member states, this indicator seems problematic with regard to the Karelia region where it cannot be implemented for juridical reasons. This is why any alternative major institutional project would be taken into account alternatively.

The number of EGTCs that are enacted or under preparation is taken as the quantified indicator.

Cross-border spatial development on regional level

As the Ulysses project is focussing on territorial development, the *spatial planning* policy is of most relevance here. In particular in border regions, territorial development can hardly be driven by economic processes alone, but has to be framed and supported by planning support. Within the

structural dimension, we have already taken into account the differences of the national planning *systems*. In this context, the focus lies on the concrete *activities* on the (inter-)regional level. Here, the study takes into account two indicators:

Firstly, the existence joint *tools* for spatial analyses and monitoring – e.g. cross-border GIS projects – is captured. Given the large difficulties with data availability and harmonisation, there is no complete and perfect cross-border GIS, yet. However, some projects have already brought together an interesting basis. These projects are not only a potential tool for later planning procedures, but they also bring together the relevant people on the technical and political level. The existence of tools is captured by a binary quantification (yes/no).

Secondly, the existence of a joint territorial development strategy is taken into account. All cross-border institutions do have some kind of general agreement and in parallel, a series of programming documents for European funding has been elaborated. Some regions, however, go a step beyond the general will for ‘balanced’ and ‘sustainable’ development and have more concrete visions for the spatial allocation of future developments.

Here, both the existence and the age of the documents are taken into account.

Cross-border transport projects

Border studies have shown for many cases that the bottlenecks in transport infrastructure are the most pressing problems. This is true for regions with specific geographical characteristics, but also for regions with high economic development and for border crossing the former ‘iron curtain’. In this study, we take into account two indicators:

Firstly, the number of TEN corridors is a good indicator for the dynamic of the cross-border transport policy. Concretely, the top-30-priorities of the TEN-T policy are taken into account.

It is true that TEN corridors are negotiated on the European level mostly between representatives of the member states and also with the Commission. At the same time, TEN priorities are a certain evidence of the capacity to set a certain region on the European agenda. In general, this goes along with a certain support of representatives from the respective regions, so it is a speaking indicator in this context.

Still, the involvement in the TEN networks does not give the whole picture, as TEN connections can also just link metropolises that are outside the cross-border region. This is why, secondly, major transport projects (namely train infrastructure) is taken into account on the regional level if it has an explicit cross-border dimension. Also for reasons of practicability, local and regional transport projects are not considered if they do not cross the border. In some cases, the cross-border effect still might be considerable, but this study does not give the scope to go into depths of many individual projects.

Dimension	Indicators	Quantification	Main Sources
Maturity of cross-border cooperation	Interreg III participation	4 = Long-standing cooperation with a very high or high level of maturity 3 = Long-standing or experienced co-operation with a medium-high level of maturity 2 = Experienced or more recent co-operation with a medium-low level of maturity 1 = More recent co-operation with a low level of maturity	ESPON Geospecs Interim report
Historicity of cross-border cooperation in general	Earliest founding date of cross-border cooperation	4 = 1960-1990 3 = 1991-2000 2 = 2001- today 1 = none	div.
Institutional thickness in cross-border cooperation	Number of permanent institutionalisations (Euregions, city networks, Eurodistricts etc.)	4 = > 3 institutionalisations 3 = 2 institutionalisations 2 = 1 institutionalisation 1 = none	div.
Current activity	EGTC	3 = existing EGTC(s) 2 = EGTC(s) in preparation 1 = no EGTC activity	Committee of the Regions; national and regional sources
Cross-border spatial development on regional level	Joint tools	2 = yes 1 = no	Diverse regional sources
	Joint spatial development document	3 = yes, younger than 2005 2 = yes, from 2000-2005 1 = no, or older than 2000	div. regional sources
Cross-border transport projects	TEN-T corridors crossing a border in the perimeter of the regions	Number	EU DG Transport, TEN-T Executive Agency
	important cross-border projects on the regional scale in preparation or established (esp. rail)	Number	div. regional sources

Tab. 2 Indicator for the dimension “activity” in cross-border cooperation

Quantifying the qualitative data and representing the results

As the explanations above have already indicated, the indicators taken into account are combined for a synthesis analysis and for visualisation and mapping.

With regard to the structural dimension, the different aspects have been weighted in order to keep the focus on institutional issues for territorial development. The physical barriers and the linguistic

challenges play an important role for every-day cooperation, but they do not determinate institutional choices and settings.

In order to allow a visual and comparable analyses, for each dimension a categorisation has been made either using existing categories from previous studies or making up new ones. The categories are all given a numeric values according to the level of integration in cross-border cooperation.

For each case study a data is collected and a numeric value is given for all the dimensions.

The synthesis of the axes is made by summing all the scores for each case study.

On basic of the synthesis scores a thematic map has been produced which integrates the two axes. The activity axis represented on the area/territory of the case study (polygon) and the structural axis represented on the national borders (lines) within the case-study region.

It is worth noting that this methodology can only give a general idea of the territorial governance of the respective regions. Cooperation and its success does not exclusively depend on formal institutions but also on informal, often personal connections. These cannot be assessed in the framework of this ESPON priority 2 project. Similarly, a serious of potentially relevant indicators could not have been considered for various reasons; still, the overall framework does lead to a relevant analysis: The main objective of this task 2.3 is to bring together the ESPON information and building the basis for the overall analysis when being linked to the socio-economic in a next step.

Results

Mapping the European perspective

In the main report, the overall results have already been represented in form of a European map. The figure below shows the described patterns as 2-D-grapic, again differentiating the structural dimension and the regional status.

The following chapters explain the underlying regional situations within the different Ulysses regions.

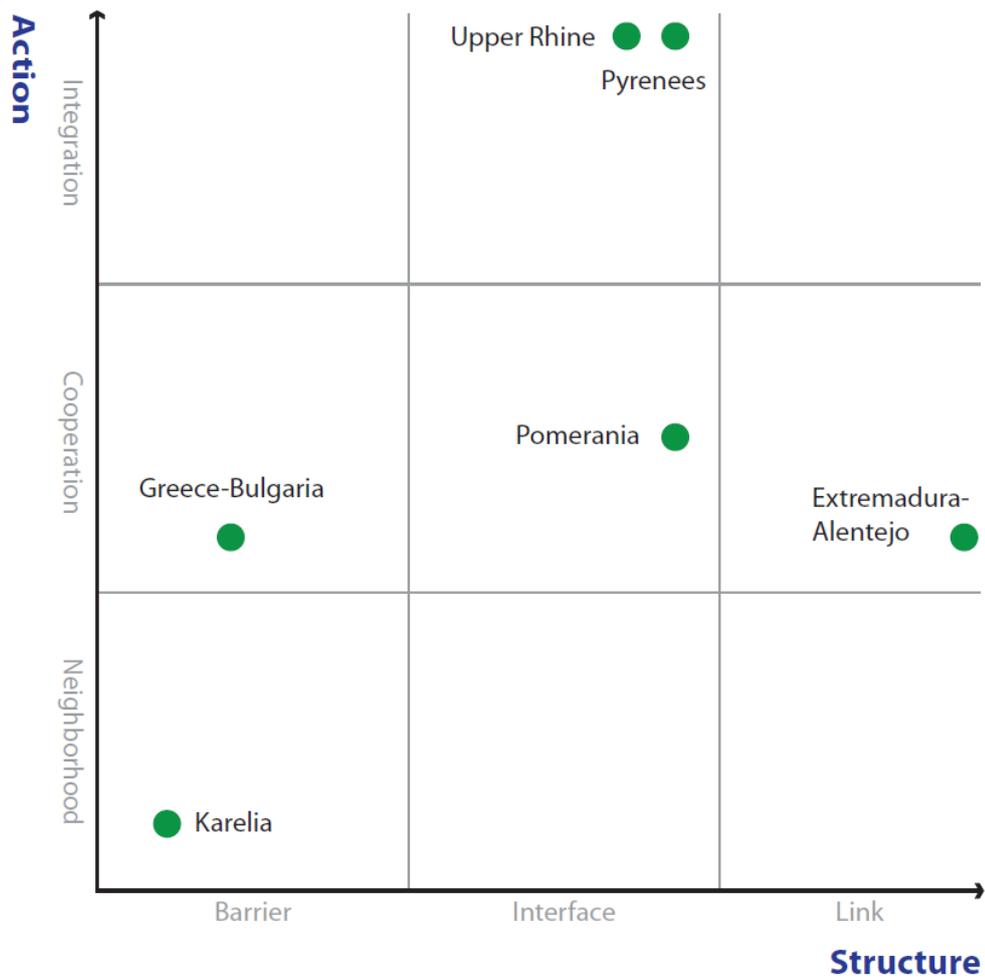
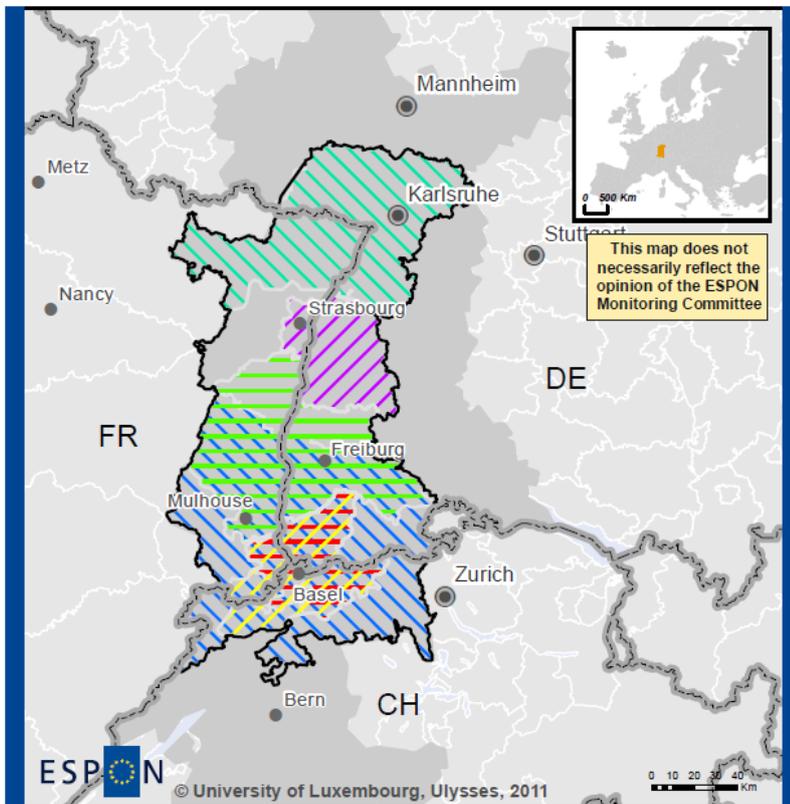


Fig. 1: Visualisation of the results on the European level in a 2-D-graphic

Results for the regional level

Upper Rhine




 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Local level: LAU2
 Source: ULYSSES, 2011
 Origin of data: ULYSSES, 2011
 © EuroGeographics Association for administrative boundaries

Cross Border Cooperation in the Upper Rhine

- | | |
|--|---|
|  Upper Rhine Conference |  Trinationaler Eurodistrict Basel |
|  Metrobasel |  Eurodistrict Freiburg /Centre et Sud Alsace |
|  Eurodistrict Strasbourg-Ortenau (EGTC) |  Regio TriRhena |
|  Eurodistrict Region Pamina |  Ulysses Study Area NUTS 2 |
| |  National borders |

Institutional Mapping of the Upper Rhine region

Structural Dimension

The reputation of the Upper Rhine as one of the pioneers of cross-border cooperation must not conceal that the structural dimension of the Upper Rhine does bear considerable challenges. The political situation has to take into account that three countries – one of them being a non-EU member state – are involved, and being divided by a language barrier. Even if Switzerland is a country with several languages, the Swiss border region near Basel belongs to the German speaking part.

The planning systems of the three involved countries bring together the centralized French tradition, the federal German system and the Swiss culture of considerable competences on the local and canton level. The border between Germany and France is – according to the quantifying

analysis – are stricter barrier mainly due to the different planning traditions and due to the language barrier.

The Rhine River is – on the one hand – a common symbol of this border region which helps to establish a common identity. On the other hand, bridging the large river and organizing the transport infrastructure within the limited scope of the Rhine valley between considerable hill ranges is an ongoing challenge.

Activity dimension

The Upper Rhine area is – from the institutional point of view – an extraordinary case. In 1963, the European wide first cross-border institution of the post-war period on the interregional level was founded here (*Regio Basiliensis*). Today, the density of cross-border institutions is extremely high as the map reveals. This ‘institutional thickness’ comprises the *Upper Rhine conference* with its multiple activities, the privately initiated *Metrobasel*, a series of *Eurodistricts* and most recently also initiatives for *EGTCs*. Also the current dynamic is large; notably the *leitmotif* of the *Tri-national Metropolitan Region* is currently discussed in the framework of the *Upper Rhine Conference*.

Even beyond the institutions shown on the map, a large variety of cross-border activities can be named: The already mentioned *Regio Basiliensis* is not shown as it is not only based on territories but also on individual and corporate membership. Moreover, from the European perspective, the Interreg space PAMINA might be one of the most prominent cases of active programme involvement (here not shown as it has just been a temporary programme structure). From the scientific perspective, the *Euro-Institute* in Kehl is an inspiring institution for cross-border development. The high degree of institutionalised cross-border activity can also be illustrated by means of the four *Infobest* along the border that aim to inform and help the civil society with regard to cross-border issues.

On the one hand, this ‘institutional thickness’ is witness of the long-standing cooperation and can be inspiration for younger cross-border cooperation. On the other hand, the overlapping institutions are sometimes seen as a challenge for political coordination and efficiency.

Spatial development

The Upper Rhine region has shown remarkable efforts with regard to the territorial development, even if the institutional territory is extremely large and morphologically challenging.

Firstly, the common GIS (GISOR/SIGRS) is developing towards a European benchmark for cross-border territorial monitoring. This is true with regard to data harmonisation and stable institutionalisation of the project. Even if the data basis has to further develop, the currently available output also for planning processes is remarkable.

Also with regard to joint spatial development projects, the Upper Rhine can look back on a series of comprehensive strategic documents – some more general (in particular the spatial vision from 2002), others more specific (e.g. with regard to cross-border commercial areas). Also the more recent strategy for the *Trinational Metropolitan Region* does reflect territorial implications and seems to be a promising input.

Transport

Reflecting on the transport situation in the Upper Rhine region recalls automatically the international Airport of Mulhouse/Basel literally *on* the border between two countries, opened just

after World War II: This airport is one of the European symbols for cross-border integrations – even if the airport is not embedded into the rail-network, yet.

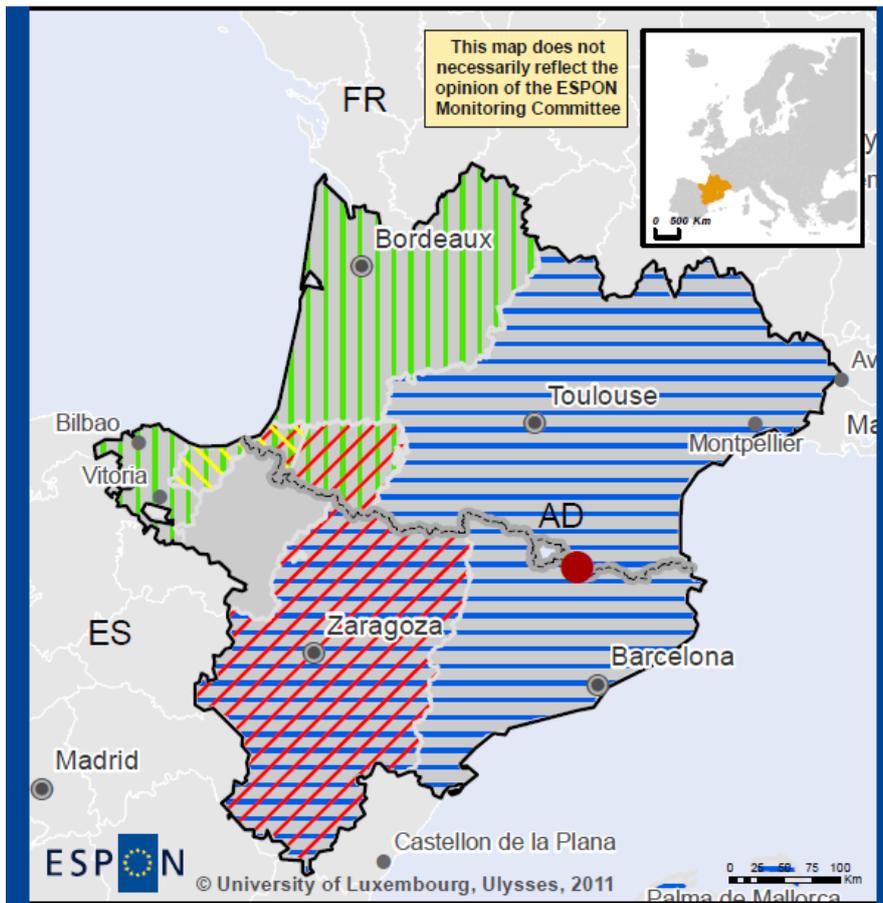
The integration of the region into the network of the TENs priorities is considerable (priorities 24 and 28).

On the regional level, the following projects have to be mentioned: In Strasbourg, the extension of the Tram net across the border is an important project. Moreover, the *New Rhine Bridge* in Strasbourg now allows much higher train speed than before.

Near Basel, the Tram line to *Weil am Rhein* is being extended, and also the connection of the airport into the rail net is being discussed.

However, the activity in the transport sector seems to slightly lack behind the ambitious efforts with regard to territorial development strategies. For example, there is neither a comprehensive transport development scheme, nor has a comprehensive cross-border tariff system in public transport yet been established.

Pyrenees



EUROPEAN UNION
Part-financed by the European Regional Development Fund
INVESTING IN YOUR FUTURE

Local level: LAU2
Source: ULYSSES, 2011
Origin of data: ULYSSES, 2011

© EuroGeographics Association for administrative boundaries

Cross Border Cooperation in the Pyrenees

- Working Community of the Pyrenees
- Euroregion Aquitaine Euskadi
- Espacio Portalet (EGTC)
- Euroregio Pyrénées-Méditerranée (EGTC)
- Hospital de Cerdagne (EGTC)
- Eurocité Basque (EGTC in preparation)
- Ulysses Study Area (NUTS 3)
- National borders

Institutional Mapping Pyrenees

Structural Dimension

The cross-border cooperation in the Pyrenees is very much characterized by the presence of the mountainous barrier. The situation can be regarded as the most exemplary case of a 'natural' border. The dominant languages of this large border region – Spanish and French – do both belong to the Romantic languages, but still they make up a serious language barrier (which is being complemented by regional languages such as Basque and Catalan).

From a political point of view, the border along the Pyrenees is an 'old' (EU15) border, even if the status of the small state Andorra is a particular one.

With regard to territorial development and spatial planning, the two systems of France and Spain are quite different. From an institutional point of view, France has a much more centralised system

even if the local level does have considerable influence. Spain is much more focussed on the autonomous communities.

On the content side, France traditionally has focussed on the comprehensive approach of *aménagement du territoire* whilst Spain is following to some extent a land use regulation approach without an excessive degree of regulation. So though the region as a whole is often seen as belonging to a Romanistic tradition, the differences should not be underestimated.

Activity dimension

In this region, the earliest cross-border cooperation institution in the modern sense has been funded in 1983 – the *Communauté de Travail des Pyrénées* which is until today a key institution. The importance of this institution is in particular underlined as it is commissioned to carry out the current ERDF programme of territorial cooperation. In this function, the perimeter is not linked to the *Comunauté de Travail* itself but to the programme perimeter POCTEFA, which is not shown here as it currently is a pure programme structure.

Beyond the *Comunauté de Travail*, a series of cross-border institutions has been established, as shown in the map. Most remarkably, perhaps, is the high activity with regard to EGTCs. The Pyrenees have very early explored this new instrument and still new EGTCs are being established. As on all the institutional mappings, also in this case the programme structures are not shown, also the *Euroinstitut Catalan* is not mapped, that is linked to the current ERDF funding. Amongst other objectives, the objective of this institution is to offer courses on the administrative details of ‘the other side of the border’, one of the most pressing concerns in many cross-border regions.

Spatial development

With regard to spatial development, two tools should be mentioned: Firstly, the statistical atlas for the Pyrenees offers some interactive cartography for the border area in a stricter sense. Even if not all kind of data is available, the tool is a good starting point for the territorial understanding in the region.

Moreover, some years ago, the *Observatoire des Trafics à travers les Pyrénées* (OTP) has started to publish the development of the Pyrenees traffic, but in recent years, not many publications have been released.

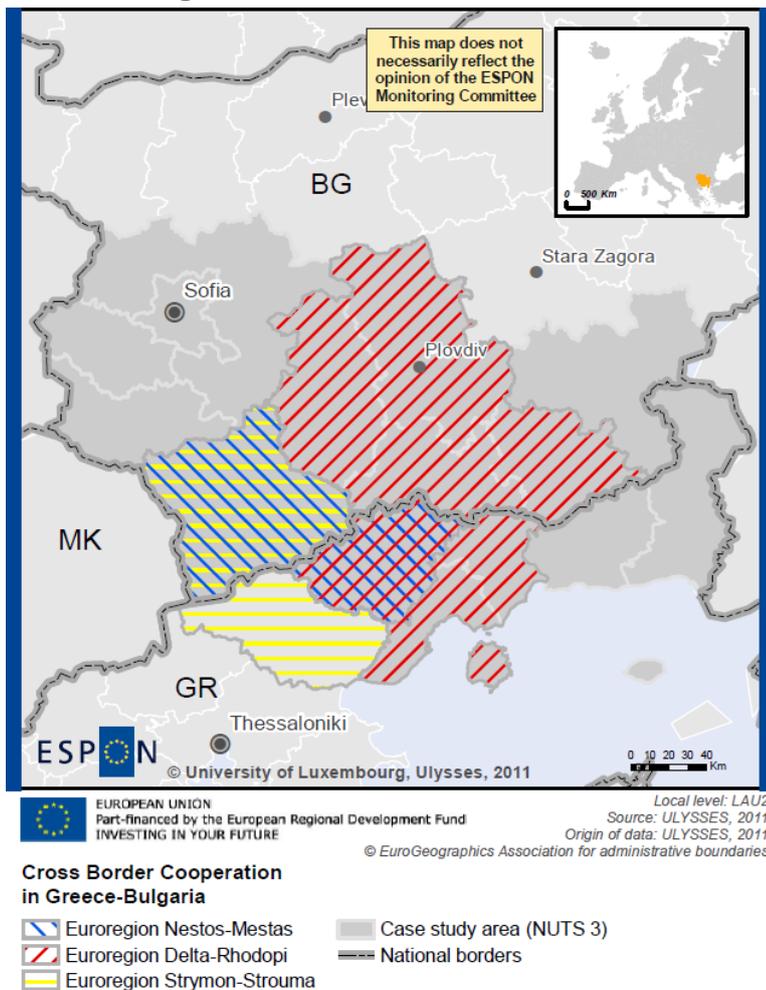
With regard to strategic *territorial development* documents, most available documents are linked to the European programmes. In programming and evaluation documents, the territorial dimension is very present. With regard to a joint territorial vision on the interregional level, in 2005 the study “*l’avenir des Pyrénées dans le context européen*” has built the basis for a political spatial development concept.

Transport

Because of the high barrier effect of the Pyrenees mountain range, the transport policy is of crucial importance within this region. In recent years, the efforts have been very high in order to make progress in this respect. These endeavours have been successful in particular with regard to the TEN priorities (priorities no. 3 and 16): Not less the three TEN corridors cross the Pyrenees’ border, amongst them the Central Pyrenees Crossing that still has to be concretised.

On the regional level, a series of political meetings has taken place. Already in 2006, a joint declaration on transport in the Pyrenees Euregio has underlined the importance of this policy. Some regional projects have been started, in particular the renovation and reopening of the *Pau-Canfranc* train connection and the EU co-funded renovation of the Tunnel *Bielsa Aragounet*. Still, also in this region, a comprehensive joint cross-border development concept has yet not been detailed.

Greece-Bulgaria



Institutional mapping of the border between Bulgaria and Greece

Structural Dimension

The structural situation in this border region is challenging. Two different languages make up a serious linguistic barrier. Moreover, the differences between the political systems of Bulgaria as a transformation state on the one side and Greece as an EU member state since 1981 on the other side are considerable. This is true in general, but also with regard to planning traditions. Bulgaria, as a transition state, has a tradition of highly centralised planning procedures in socialist times. During the last two decades, the systems have been reinvented, but it takes time to make the renewed institutions and procedures powerful. It takes even more time, to establish cross-border cooperation that is adapted to the new planning systems.

In physical terms, the border between both regions is characterised by a hilly and sometimes mountainous terrain.

Activity dimension

Despite the fact that the structural situation is challenging, cross-border cooperation on the regional level does take place, on a technical level even since the 1970s. Given the natural situation of the border region, water management is an issue of high relevance that has led to a large experience of cooperation on this issue. The notion of “Hydro-Diplomacy” (Mylopoulos et al. 2008; Darakas 2002) illustrates, that this technical cooperation is of high importance for the overall political setting.

With regard to institutionalised cross-border cooperation, three Euroregions have been established during the 1990s. Two of them are currently active, whilst in recent years the Euregion Strymon-Strouma has not been very visible.

The region has been involved in a series of INTERREG (and Phare) projects and promotes the deepening of cross-border interaction. Despite a series of projects, the cooperation in this region is still in a phase of trust building (Godfried 2009).

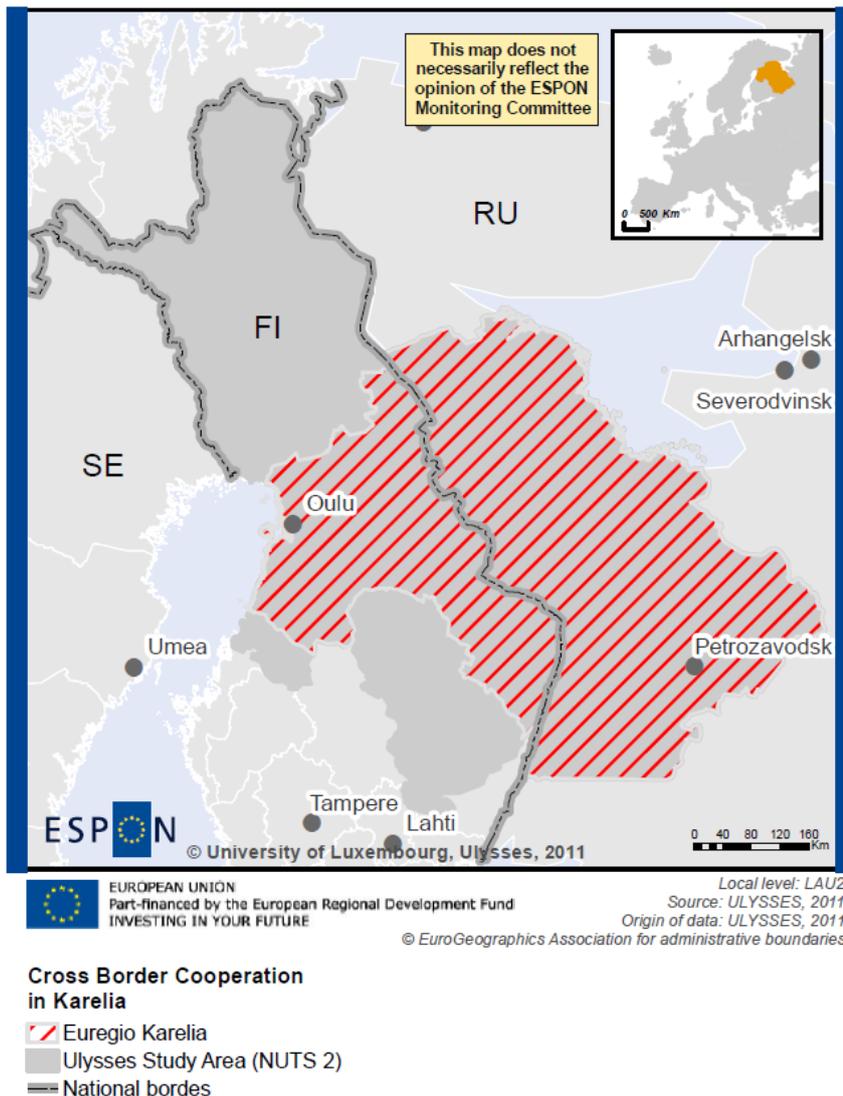
On a larger scale, the cross-border cooperation is much reflected in the framework of the Black Sea Economic Cooperation (BSEC) and the Southeast European Cooperative Initiative (SECI). As these institutions are not part of the interregional cooperation, they are not mapped on the institutional mapping above.

Spatial development and Transport

Spatial planning has not been a systematic object to cross-border cooperation, yet. This is due also to the fact, that the institutions have not yet reached a level of institutional power to exercise such a long term task. This has to be seen against the background, that the decentralisation of the planning systems is still going on and very much linked to European incentives (see Godfried 2009).

With regard to transport, two aspects have to be mentioned: First, a TEN-T priority has already been realised on the axis Sofia – Athens, crossing the border here. Secondly, a series of EU funded projects for regional transport projects has been established. However, a comprehensive regional transport scheme has not yet been developed.

Karelia



Institutional Mapping Karelia

Structural Dimension

The structural dimension in Karelia is particular. Firstly, the low density of population, settlements and infrastructure has immediate implications also for cross-border cooperation. Secondly, the border is an external EU border with Visa obligations, along which high socio-economic differences have developed; the political systems are hardly to compare; the language barrier is high.

Within the framework of an ESPON project, one has to stress the fact that cooperation across the Finnish-Russian border is not to compare with internal EU cooperation schemes – the political, juridical and functional framework is very different. Still, and despite all barriers, cooperation across external borders is of high political and territorial relevance.

Activity dimension

The cross-border cooperation in the region is based on the Euregio Karelia, being established in 2000. This institution is not only the inter-regional cooperation platform, but in particular the basis for the EU neighbourhood projects (supported by ERDF, TACIS, and currently the ENPI CBC). The activity in this framework has been and is high – several hundreds of projects have been conducted with regard to economic and cultural cooperation, tourism, environment etc. (see *Neighbourhood Programme Karelia n.y.*).

Beyond the interregional cooperation, the political cooperation on the multinational level must be considered, notably the Barents Euro-Arctic Council (BEAC), and the Council of the Baltic Sea States (CBSS). These institutions are not visualized in the map as they do not fit the regional focus of the methodological framework (see above).

Summarizing the institutional setting, one can state that – despite the relatively difficult structural context, cross-border cooperation does take place in multi-faceted and increasing way. Still, the difference to internal EU cooperation is – not surprisingly – very obvious.

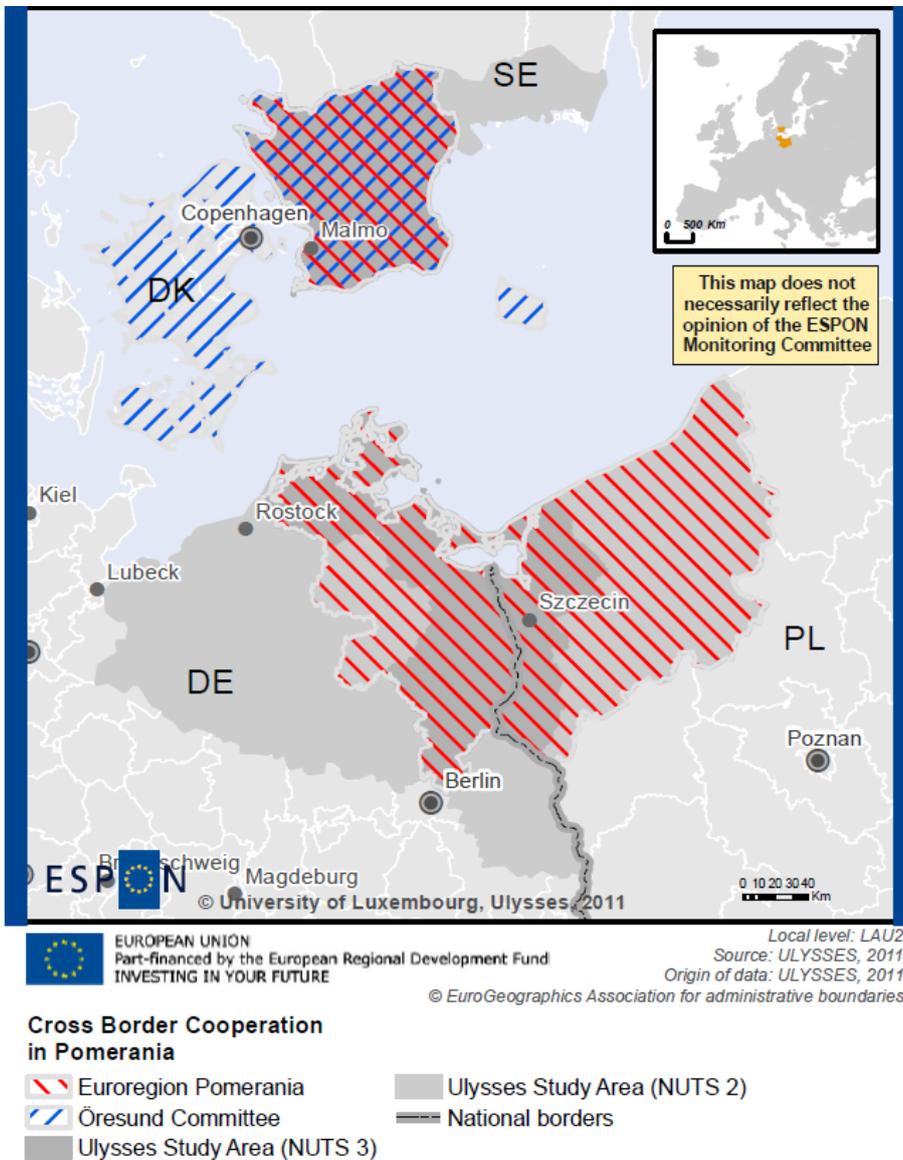
Spatial development and Transport

With regard to transport policy, the overall limited activity is due to the very limited population density in this region: The TEN-T priorities do not touch the Karelia perimeter – the TEN-T priority 12 (Nordic triangle) passes south of the perimeter.

On a bilateral level, the *Barentslink* initiative has been very active in order to promote better large scale accessibility. On the regional level, a series of punctual improvements has been achieved in the framework of neighbourhood programme: The Karelia cooperation aims explicitly at improving the transport situation, in particular with regard to border crossing.

Neither a spatial planning nor the transport policy has been institutionalised on a cross-border level, yet. However, in particular two documents have so far developed a strategic framework for cross-border cooperation, considering systematically the territorial dimension (Röpelinen 2000 and 2005).

Pomerania



Institutional mapping Pomerania

Structural Dimension

The particular situation in this region brings together a land border and a sea border that separate three national states with very different institutional settings and traditions. The language barrier between Sweden and Germany is less high than the Polish-German one, but so called semi-communication also is not possible in this case, either (understanding the other language without having learned it). From a political point of view, three different traditions meet here – the Scandinavian, the transformation and the Germanic tradition come together. Against this background one must state that the structural dimension is challenging.

Activity dimension

Also with regard to the cross-border activity, the cross-border cooperation is a particular one as the cooperation is not only characterised by the trinational platform of the Euroregion of Pomerania, but also by further bi- and multi-lateral cooperation.

Firstly, and although not part of the Pomerania cooperation, the Öresund committee has to be mentioned in this context: The cooperation between Sweden and Denmark (Malmö and Copenhagen) has become one of the most famous cooperation.

Secondly, the cooperation between Poland and Germany as well as between Germany and Sweden is very much organised in a bilateral way on different levels. In particular the Polish-German cooperation is a prominent part of the Euroregion Pomerania activities in recent years.

Thirdly, and on a larger scale, much activity can be seen on the multilateral level: in particular the Baltic Sea States Subregional Co-operation (BSSSC), the Council of the Baltic Sea States (CBSS), Union of the Baltic Cities (UBC), the Baltic Development Forum and, most recently, the Baltic Sea Macro region process have to be mentioned in this context (all of them are not included in the map as they are not fitting the interregional methodological scope of this work).

This enumeration illustrates that the number of institutions on this level that is far higher than the interregional cooperation. This is mainly due to the multi-national character of the Baltic sea as a political object. The political setting in this region makes multi-national cooperation even more important, as EU and non EU member states and very different political traditions are meeting here.

Spatial development and Transport

The tri-lateral aspect of the cooperation is most visible within the transport policy: The sea is linking all the three partner regions, that are involved in the TEN-T priority 'Motorways of the Sea'. Linked to this are a large variety of seaway projects (clean shipping, technical harmonization etc.). Moreover, the *Central European Transport Corridor ("Route 65")* has mobilised considerable activity in recent years.

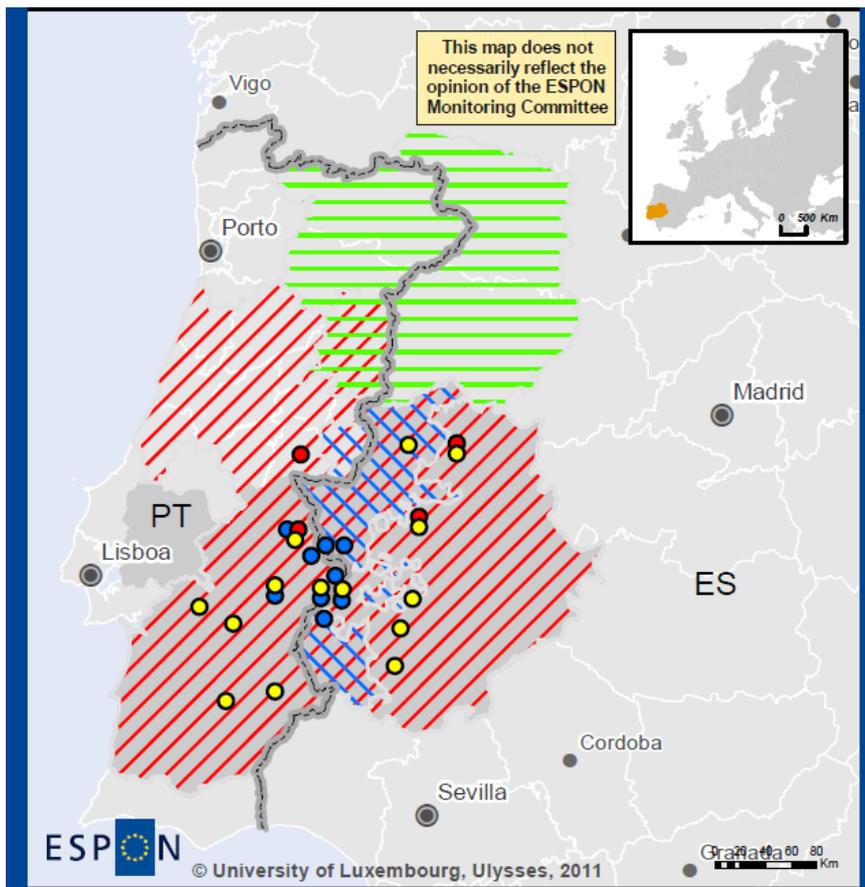
On the bilateral level between Germany and Poland, a series of projects has been initiated in recent years, in particular linking Berlin and Szczecin.

On a more local level, the agglomeration of Szczecin is currently developing its cross-border linkages in the direction of Berlin: the Szczecin Cross-border Development Plan (the concept) is being developed.

Moreover, the Pomerania region is influenced by two major cross-border transport projects that are not in the core of the Pomerania perimeter: The *Öresund Crossing* between Sweden and Germany – combining bridge and tunnel and opened in 2000 – is one of the symbols for European cross-border development. Moreover, the preparation for the so called *Fehmarn Belt* between Denmark and Germany is maybe the most spectacular current cross-border project that without a doubt will have direct consequences also for the Pomerania region.

With regard to spatial development, in 1995 the German – Polish concept for spatial development was a starting point for spatial development. The 2006 development and activity concept of the Euroregion consequently formulates principles of cross-border German development even if it remains quite abstract with regard to spatial consequences.

Extremadura / Alentejo



EUROPEAN UNION
Part-financed by the European Regional Development Fund
INVESTING IN YOUR FUTURE

Local level: LAU2
Source: ULYSSES, 2011
Origin of data: ULYSSES, 2011
© EuroGeographics Association for administrative boundaries

Cross Border Cooperation in Extremadura-Alentejo

- Euroace
- Duero Duero (EGTC)
- Raya a Raia
- Citynetwork Agrupación 7X7
- Citynetwork Triurbir
- Euroregión Extremalentejo
- Ulysses Study Area
- National borders

Institutional Mapping of the region Extremadura / Alentejo

Structural Dimension

The Extremadura/Alentejo border separates two Iberian countries that share some important characteristics. The overall political and the planning systems show some similarities, and the languages allow to a certain extent semi-communication (reciprocal understanding without being fluent in the respective language). Also from a morphological point of view, the border does not represent a major barrier.

Activity dimension

The cross-border cooperation in the region can look back to a large experience of EU programme based projects, currently in particular as the INTERREG platform POCTEP.

Only recently, in 2009, the involved regions have founded the joint institution of “Eurace” that is comparable to the ‘classical’ Euroregion we know from other parts in Europe. Nevertheless, the concentration of cross-border cooperation on different levels is high as the map reveals (city-networks and interregional cooperation). Currently, the dynamic is high as not only the foundation of Eurace but also the presence of new EGTCs show.

Spatial development and Transport

An interactive cartographic tool does exist and is accessible online.

The recent strategic document *Eurace 2020* not only gives a comprehensive territorial analysis of the cross-border setting but also defines strategic guidelines and objectives that are ambitious. One has to admit that this document is the outcome of an outsourced study and has to be concretised and implemented in a political way. The step towards a joint transport and territorial development strategy would be the next logic step.

Bibliography

General sources

Beekes, R. (1995). *Comparative Indo-European Linguistics*.

CEC = Commission of the European Communities (1997): The EU Compendium of Spatial Planning Systems and Policies. Regional Development Studies. Luxembourg, Office for Official Publications of the European Communities.

DG REGIO (2011): EGTC Projects.

(<http://portal.cor.europa.eu/egtc/en-US/Projects/already/Pages/welcome.aspx>)

ESPON (2007a) Governance of territorial and urban policies 2.3.2. Final Report. Luxembourg, ESPON.

(http://www.espon.eu/export/sites/default/Documents/Projects/ESPON2006Projects/PolicyImpactProjects/Governance/fr-2.3.2_final_feb2007.pdf)

ESPON (2007b): INTERACT-ESPON. Synthesis Report. Luxembourg, ESPON.

(http://www.espon.eu/export/sites/default/Documents/Publications/ESPON2006Publications/SynthesisReportESPONINTERact/Territorial_evidence_web.pdf)

ESPON (2009): Typology Compilation. Interim Report. Luxembourg, ESPON.

(<http://www.espon.eu/export/sites/default/Documents/Projects/ScientificPlatform/TypologyCompilation/fir-090615.pdf>)

ESPON (2010): METROBORDER. Final Report. Luxembourg, ESPON.

(http://www.espon.eu/export/sites/default/Documents/Projects/TargetedAnalyses/METROBORDER/METROBORDER_-_Final_Report_-_29_DEC_2010.pdf)

ESPON (2011a): GEOSPECS. Interim Report. Luxembourg, ESPON.

(http://www.espon.eu/export/sites/default/Documents/Projects/AppliedResearch/GEOSPECS/GEOSPECS_Interim-Report_16-03-2011.pdf)

ESPON (2011b): SGPTD. Interim Report. Luxembourg, ESPON.

(http://www.espon.eu/export/sites/default/Documents/Projects/AppliedResearch/SGPTD/SGPTD-Interim-Report_28-02-2011_xrevx.pdf)

EU (2010): Trans-European Transport Network Progress on Priority Axes May 2010. Brussels, TEN-T EA.

EU (n.y.): TEN-T Projects in FIGURES. Brussels, TEN-T EA. (http://tentea.ec.europa.eu/en/tent_projects/)

KNIELING, J.; OTHENGRAFEN, F. (2009): Planning cultures in Europe: decoding cultural phenomena in urban and regional planning. Ashgate.

LANGHAGEN-ROHRBACH, C. (2010): Raumordnung und Raumplanung. Wissenschaftliche Buchgesellschaft.

MOT (2007): Atlas de la coopération transfrontalière. Paris

NADIN, V.; STEAD, D. (2008): European Spatial Planning Systems, Social Models and Learning. *disP – The Planning Review* 172(1), p. 35-47.

NEWMAN, P.; THORNLY, A. (1996): Urban Planning in Europe: International Competition, National Systems, and Planning Projects. London, Routledge.

NEWMAN, D. (2006): The lines that continue to separate us: borders in our 'borderless' world. *Progress in Human Geography* 30(2): 143-161.

- PERKMANN, M. (2007): Policy entrepreneurship and multilevel governance: a comparative study of European cross-border regions. *Environment and Planning C: Government and Policy* 25(6): 861-879.
- REITEL, B. (2006): Governance in cross-border agglomerations in Europe – the examples of Basel and Strasbourg. *Europa Regional* 14(1): 9-21.

Upper Rhine

- BAK Basel Economics (2008): Regionalprofil Oberrhein. Im Auftrag von EURES-Transfrontalier Oberrhein. Basel, Schiltigheim.
- ESPON (2010): METROBORDER. Final Report. Luxembourg, ESPON.
(<http://www.espon.eu/export/sites/default/Documents/Projects/TargetedAnalyses/METROBORDER/METROBORDER - Final Report - 29 DEC 2010.pdf>)
- GISOR (2010): Geographisches Informationssystem des Oberrhein. GISOR-SIGRS.
(http://sigrs-gisor.org/Pre_index_DE.html)
- Jakob, Eric (2010): Der Oberrhein – Ein Governance-Modell für andere Grenzregionen?, in: Joachim Beck/Birte Wassenberg (Ed.), *Grenzüberschreitende Zusammenarbeit leben und erforschen*, Band 2: Grenzregionen in Europa, Stuttgart.
- UPPER RHINE CONFERENCE (2002): Raumordnerisches Leitbild für das Mandatsgebiet der Oberrheinkonferenz“. German-French-Swiss Upper Rhine Conference.
(<http://www.oberrheinkonferenz.org/de/themen-und-projekte/raumordnung/projekte/raumordnerisches-leitbild/>)
- UPPER RHINE CONFERENCE (2005): Grenzüberschreitende Gewerbezonen - Unterschiede zum Wohle aller nutzen“. German-French-Swiss Upper Rhine Conference.
(<http://www.oberrheinkonferenz.org/de/themen-und-projekte/raumordnung/projekte/gewerbezonen/>)
- UPPER RHINE CONFERENCE (2010) : Eine Strategie für die Trinationale Metropolregion Oberrhein 2020.
- Schneider-Sliwa, R. (2008): Enjeux et transformations des régions métropolitaines du sud du Rhin supérieur, *Revue Géographique de l'Est*, 48 (3-4), mis en ligne le 02 mars 2010. URL: <http://rge.revues.org/1718> (14.10.2010).

Pyrenees

- ATLAS DE STATISTIQUE DES PYRENEES (2011).
http://atlas.ctp.org/site_fr/p1_present_fr.php
- EUROREGION PYRENEES-MEDITERRANEAN (2011). L'Euroregion Pyrénées-Méditerranée.
<http://www.euroregio.eu/eu/AppJava/fr/>
- CTP; GENERALITAT DE CATALUNYA (2006): L'avenir des Pyrénées dans les contextes européen, Fondements d'une stratégie participative. URBAN T.C.
- CTP (2011). La Communauté de Travail des Pyrénées. <http://www.ctp.org/>
- EUROINSTITUT CATALAN (2011). L'Euroinstitut Catalan Transfrontalier (EICT).
<http://www.euroinstitut-cat.eu/>
- EUROCITÉ BASQUE (2011). Eurocité Basque Bayonne – San-Sebastián.
<http://www.eurocite.org>

- EUROREGION PYRENEES-MEDITERRANEAN (2006): Les transports dans l'Eurorégion, Déclaration commune. http://www.euroregio.eu/eu/Images/decl_transport_tcm331-51182.pdf
- EUROPRESS (2011): Creado el 'Espacio Portalet'. Spain. <http://www.europapress.es/aragon/noticia-gobierno-aragon-departamento-frances-pirineos-atlanticos-crean-espacio-portalet-20110519133937.html>
- HOSPITAL DE CERDAGNE (2011): <http://www.hcerdanya.eu>
- GECT TUNEL DE BIELSA (2011). Consortium Tunnel Bielsa – Aragnouet. <http://www.bielsa-aragnouet.org>
- Herederro de Pablos, Maria Isabel ; Blanca Olmedillas Blanco (2009) : Las fronteras españolas en Europa: de INTERREG a la cooperación territorial europea. Investigaciones Regionales. 16 : 191 - 215
- LE JOURNAL DU PAYS BASQUE (2011): L'Eurorégion Aquitaine-Euskadi sur les rails. <http://www.leipb.com/paperezkoa/20110608/271262/fr/L%E2%80%99Euroregion-Aquitaine-Euskadi-sur-les-rail>
- L'OBSERVATOIRE DES TRAFICS AU TRAVERS DES PYRÉNÉES (2011). (http://www.midi-pyrenees.equipement.gouv.fr/82/action_regionale/pyrenees/pyrenees.htm)
- Morata, Francesc (2010): Euroregions i integració europea. Doc. Anàl. Geogr. 56 (1) : 41-56
Secretaria de Estado de Cooperacion Territorial / Direccion General de Cooperacion Autonómica (2010) : Las Agrupaciones Europeas de Cooperacion Territorial (AECT)

Greece-Bulgaria

- AEBR (n.y.): Factsheet Euroregion Rodopi. http://www.aebr.eu/files/filemanager_files//Regionen/R/Rodopi_GR_BG_Fact_Sheet_Euroregion_Rodopi.pdf
- AEBR (n.y.): Factsheet Euroregion Nestos-Mesta. http://www.aebr.eu/files/filemanager_files//Regionen/N/Nestos-Mesta/Fact_sheet_Nestos-Mesta.pdf
- AEBR (2011): Cross-Border Cooperation Areas/Structures 2011 map. http://www.aebr.eu/files/publications/AEBR_map_2011.pdf
- ANASTASAKIS, O.; BECHEV D.; VROUSALIS, N. (ed.) (2009): Greece in the Balkans: Memory, Conflict and Exchange. Cambridge Scholars Publishing.
- AYDIN, M. (2005): Regional Cooperation in the Black Sea and the Role of Institutions. Perceptions, Journal of International Affairs vol. X.
- BOYADJIEVA, M. (2001): Greek-Bulgarian Trade and Cross Border Cooperation: Future Perspectives. International Conference: Restructuring, Stability and Development in Southeastern Europe. Volos, Greece.
- CAD., S. S.; YALISI, M. F. P.; TERSANE, E. (2010): Report of the Meeting of BSEC Working Group on Cooperation in Emergency Assistance and Liaison Officers of the BSEC Network on Emergency Assistance. Organization of the Black Sea Economic Cooperation, Istanbul.
- GODTFRIED, S. (2009): On Track with Thrace: Exploring Cross-Border Cooperation in the EU's South-Eastern External Borders. Master Thesis, Universiteit Twente and Westfälische Wilhelms-Universität Münster.
- JALOV, A.; STAMENOVA, M.; ZOUPIS, K. (2005): Historical Review of the Cooperation between Bulgarian and Greece Cavers. Contribution to the History of Greek and Bulgarian Speleology.
- MANOLI, P. (n.y.): Greece's Engagement with the Black Sea Economic Cooperation. Xenophon paper no 2. Unfolding the Black Sea Economic Cooperation, Views from the region.

- MINISTRY OF ECONOMY AND FINANCE (2007a): European Territorial Cooperation Programme, Greece-Bulgaria 2007-2013, Final version. Hellenic Republic.
- MINISTRY OF ECONOMY AND FINANCE (2007b): European Territorial Cooperation Programme, Greece-Bulgaria 2007-2013, Final version (incorporating EC's comments). Hellenic Republic.
- MYLOPOULOS, Y.; KOLOKYTHA, E.; VAGIONA, D. (2004): Transboundary Water Management in Nestos River, the European "Iron Curtain" Project. Protection and Restoration of the Environment VII, Surface, Waterflow and Quality. Aristotle University of Thessaloniki, Greece.
- MYLOPOULOS, M. et al (2008): Hydrodiplomacy in Practice: Transboundary water Management in Northern Greece. *Global NEST Journal*, 10 (3), pp 287-294, Greece.
- PAPACHRISTOU, E.; DARAKAS, E.; BELLOU, A. (2001): Experience of the Cross Border Cooperation between Greece and Bulgaria: The Case of Nestos River. International Conference: Restructuring, Stability and Development in Southeastern Europe. Volos, Greece.
- Darakas, Efthymios (2002): The transboundary River Nestos and its water quality assessment: cross-border cooperation between Greece and Bulgaria. *The environmentalist* 22: 367–375
- PSYLOLIGNOU, A. (1998): Greece-Bulgaria, Bilateral Relations and Prospects. In Baourakis G. (ed.) *The Common Agricultural Policy of the European Union: New market trends* . p. 231-235. CIHEAM-IAMC, Chania, Greece.

Karelia

- EUROREGIO KARELIA (2011): Euroregio Karelia. <http://www.euregiokarelia.com/en/euregio-karelia/yleisesittely/>
- Neighbourhood Programme Karelia (n.y.) : Neighbourhood Programme projects 2001–2008. http://www.euregiokarelia.fi/attachments/Projects_ENG.pdf
- Röpelinen, A. (2005): Euregio Karelia, aluerakenne 2000+, rajat, kulttuuriympäristö ja kehittyvät liikenneyhteydet (= Euregio Karelia, Spatial structure 2000+, borders, cultural environment and the developing transport infrastructure). Pohjois-Pohjanmaan liitto
- Röpelinen, A. (2000): Euregio Karelia, aluerakenne, Euregio Karelia -alueen alueidenkäytön suunnittelun edistäminen (=Euregio Karelia: spatial structure: Promoting spatial planning in Euregio Karelia). Pohjois-Pohjanmaan liitto
- Liikanen, I., Zimin, D., Ruusuvoori, J., Eskelinen, H. (2007): Karelia - a cross-border region? The EU and cross-border region-building on the Finnish-Russian border . *Publications of the Karelian Institute*, 146
- EXLINEA (2006): Lines of Exclusion as Arenas of Co-operation: Reconfiguring the External Boundaries of Europe – Policies, Practices, Perceptions. Final project report.

Pomerania

- EUROREGION POMERANIA (2011). Euroregion Pomerania. www.euregiokarelia.com
- EUROREGION POMERANIA (2006): Grenzüberschreitendes Entwicklungs- & Handlungskonzept der Euroregion Pomerania. Euroregion Pomerania. <http://www.pomerania.net/main.cfm?l=de&rubrik=2&th=5&newsid=561>
- Kaczmarek, T.; T. Strykiewicz (2006): Grenzüberschreitende Entwicklung und Kooperation im deutsch-polnischen Grenzraum aus polnischer Sicht. *Europa Regional* 14 (2): 61-70
- Öresunds Committee (2011): Om oss. The Öresunds Committee. <http://www.oresundskomiteen.dk/>

Zschiedrich, Harald (Hg., 2010): Wirtschaftliche Zusammenarbeit in Grenzregionen: Erwartungen - Bedingungen – Erfahrungen. Berlin

Extremadura- Alentejo

DUERO-DUERO (2011): Agrupación Europea de Cooperación Territorial DUERO-DOURO. www.duero-douro.com/index2.php?pagina=articulo&cod=8&lang=es&tema=aect

EUROACE (2010): EUROACE 2020, Una Estrategia para la Euroregión Alentejo-Centro-Extremadura. Euroregion EUROACE. www.euro-ace.eu/sites/default/files/estrategia_euroace_2020_esp.pdf

EUROACE (2011a). Euroregion EUROACE. <http://www.euro-ace.eu/en/cross-border-cooperation/history>

EUROACE (2011b): Other cross-border cooperations. Euroregion EUROACE. www.euro-ace.eu/en/cross-border-cooperation/other-cross-border-cooperation-organisations-in-euroace

EUROACE (2011c): Observatorio EUROACE. Euroregion EUROACE. <http://observatorio.euro-ace.eu>

LA RAYA - A RAIA (2011). Association La Raya- A Raia. www.laraya-araia.org

Medeiros, Eduardo (2010): Old vs recent cross-border cooperation: Portugal–Spain and Norway–Sweden. *Area* 42 (4) : 434–443

Medeiros, Eduardo (n.y.): Euro-Meso-Macro: The new regions in Iberian and European space. Working paper.

Morata, Francesc (2010): Euroregions i integració europea. *Doc. Anàl. Geogr.* 56 (1) : 41-56

Secretaria de Estado de Cooperación Territorial / Dirección General de Cooperación Autonómica (2010) : Las Agrupaciones Europeas de Cooperación Territorial (AECT)

TRIURBIR (2011). Triángulo Urbano Ibérico Rayano. 7x7. Rede Transfronteiriça 7 X 7.

Annex 3 – SWOT analysis

SWOT analysis for Euroregion Pomerania

1. Objectives and methodology

The SWOT analysis performed in the Ulysses project included two phases, a status-analysis phase and an action-decision phase. All information in the analysis was based on research results achieved in the multi-thematic and institutional analyses. A traditional SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) was the framework to analyse the territory's current status based on two axes, present/future factor (or internal/external), and positive/negative influence, to decide what action should be taken. Strengths and weaknesses (combination of present factor and positive/negative influence) show the current status of the CBA.

Research results that were initially marked as strengths, weaknesses, opportunities and threats underwent an analysis, in which they were viewed from the perspective of three possible scenarios (Baseline (trend) scenario, Competitiveness oriented scenario and Cohesion oriented scenario produced by ESPON 3.2. project). Final opportunities and threats were formulated based on the scenario exercise.

The second phase of the SWOT analysis was the Action-Decision Phase. In this phase the strengths, weaknesses, opportunities and threats were translated into possible strategies and policy options. There were four types of strategies, so called SO-, ST-, WO- and WT-strategies. SO- strategies were strategies to maximize strength under the opportunity. ST-Strategies were strategies to avoid threats by taking advantage of strengths. WO-Strategies were strategies to take advantage of the opportunity by complementing the weaknesses. Finally WT-Strategies were strategies to face present problems in the face of foreseeable downturns. Based on the strategies policy options were then formulated for Euroregion Pomerania.

2. Status-analysis phase

2.1. Initial strengths, weaknesses, opportunities and threats

	Strengths	Weaknesses	Opportunities	Threats
Demography	<p>Population and population density growing in Skåne län, Barnim, Podregion Szczeciński.</p> <p>Euroregion Pomerania has shown positive population growth between 2005 and 2009.</p>	<p>Unbalanced dependency ratios. A small share of 0-14 olds and a large share of population over 65 years.</p> <p>Population change negative with the exception of 3 regions.</p> <p>Negative net migration in the most German and Polish regions.</p> <p>Total fertility rate under the replacement level in all the regions.</p>	<p>Positive population growth of the second half of 2010s continues.</p> <p>Border is attracting population in the Polish-German border area and possibly also in Skåne län.</p>	<p>Population migrates to urban areas and rural areas depopulate.</p> <p>Total fertility stays low and age structure gets skewed. In the future there will be a small share of working age population taking care of the growing elderly population.</p>
Polycentricity	<p>Polycentric urban structure when considering population.</p>	<p>FUAs with the exception of 3 losing population.</p> <p>Monocentric urban structure when considering GDP (Malmö as the leading city). Large differences in GDP per inhabitant.</p>	<p>Maintain the polycentric urban structure and even distribution of services to population.</p> <p>Cross-border cooperation in the distribution of services.</p>	<p>Differences in GDP continue to grow and population concentrates in certain FUAs.</p> <p>Population decline in most of the FUAs continues and the CBA grows more monocentric in terms of both the amount of population and GDP.</p>
Urban-rural relationship	<p>Agricultural areas occupy large areas of the CBA.</p> <p>There are both large rural areas and densely populated urban areas in Euroregion Pomerania.</p>	<p>The share of agricultural areas has been decreasing in all the regions.</p> <p>Gradual decrease in the share of GVA in agriculture and fishing decrease in employment in the field.</p>	<p>Urban and rural areas can have complementary functions, where rural regions develop recreational services, organic farming and production of bio-fuels.</p>	<p>Agriculture and fishing continue to show negative growth and rural areas lose population because of the lack of employment opportunities.</p>

Accessibility and connectivity	<p>Index change of potential accessibility (multimodal) has been positive in almost all the regions.</p> <p>Swedish part (Skåne län), where accessibility by road and rail is low, has high accessibility by air and high share of households with broadband internet connection.</p>	<p>Multimodal accessibility is below the European average with the exception of two regions (Barnim and Skåne län).</p> <p>Index change in potential accessibility by rail has been positive in the German regions but negative in Sweden and in Poland.</p> <p>Relatively low share of households with broadband internet connection (below 60 % in 2009).</p>	<p>Accessibility both within and in and out of the CBA is continues to grow with investments in road, rail and air infrastructure.</p> <p>Special attention is paid to the availability of (broadband) internet connections to improve connectivity within the CBA and with other parts of the EU.</p>	<p>Uneven accessibility of different regions in the CBA remains.</p> <p>Martime and inland waterway (passenger and cargo) traffic decreases.</p>
Lisbon / Europe 2020 objectives	<p>Disparities in GDP per capita have been increasing, but have now settled on the average European level.</p>	<p>Diverse economic development; most Polish regions slowly catching-up, German and Swedish regions diverging.</p> <p>Only four middle income regions. Podregion Stargardzki classified as a very laggard region.</p> <p>Low R&D expenditure with the exception of Skåne län. High unemployment.</p>	<p>Cross-border cooperation in order to boost economic development of the CBA and manage more balanced development of different regions.</p> <p>Creation of new jobs by supporting entrepreneurship and SMEs.</p>	<p>Disparities in GDP continue to grow and the CBA suffers from uneven distribution of wealth.</p>
Gothenburg objectives	<p>Ozone concentration exceedances below national and EU averages. High share of Natura 2000 areas.</p> <p>High wind energy potential.</p>	<p>Soil sealing has been particularly high in the city regions of Euroregion Pomerania.</p>	<p>Production of renewable wind energy.</p> <p>Low pollution levels and high share of protected natural and green areas potential for the development of tourism.</p>	<p>Coastal areas are more sensitive to environmental risks and risks related to climate change.</p> <p>Low priority given to environmental protection.</p>
Cross-border governance	<p>Active cross-border cooperation and a presence in many multinational cooperation bodies.</p>	<p>Structural dimension is challenging, because of the land and sea borders and three national states with very different institutional settings and traditions.</p> <p>Multiple actors and bodies in the Baltic Sea region.</p>	<p>Collaboration on spatial planning is continued. Common efforts are taken to improve cross-border governance in spatial planning.</p>	<p>Lobbying and supervision of the interests of Euroregion Pomerania is impossible in the large network of bi- and multilateral programmes.</p> <p>Collaboration between the Polish, German and Swedish partners on spatial planning does not exist. A common vision is not found.</p>

2.2. Scenario exercise

ESPON project 3.2 “Spatial Scenarios and Orientations in relation to the ESDP and Cohesion Policy” (2006) was a project that studied future evolutions of European regions. It elaborated three roll-forward scenarios - one baseline and two prospective policy scenarios. These scenarios provide a general vision of the evolution of the European territory as a result of specific policy choices. They don’t take into account other possible events that might influence the territory, e.g. possible financial crises or natural catastrophes.

2.2.1. Integrated baseline (trend) scenario

This scenario is based on the continuation of trends and on the principle that no major changes occur in mainstream and ongoing EU policies.

- Most EU sectoral policies largely continued
- Renewed efforts from Lisbon strategy: extra investments in R&D and education
- Regional policy continued with vigour
- Investments in new infrastructure to improve accessibility between old and new member states
- No major changes to immigration policy
- Cutbacks in Agricultural policy

We have collected in the following table main ideas from the scenario and organised these ideas by the themes of Ulysses project.

Demography	<i>General EU trends</i>	<p>Reduced population ageing and stable European population.</p> <p>Large groups of people are retiring from working life. Demand for highly skilled people is growing in Europe and competition between regions for attracting young skilled people is increasing.</p> <p>Immigration from outside Europe is contained by public policies, but not really stopped.</p> <p>Socio-economic dualisation and socio-spatial segregation is progressing in cities.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>The south coast of the Baltic, Poland and the German part of the Baltic Sea Region (BSR) area see the reverse, with urban decline and rural growth in population terms although, at least in Poland, this may be attributed to urban sprawl around city hinterlands).</p> <p>Population ageing increases across the area. By 2030 median age significantly higher than in the early 2000s.</p> <p>Outward migration continues to affect the Baltic States and Poland, and remains targeted to the EU15 countries, particularly Western Germany, Ireland, and the UK.</p>

Polycentric development	<i>General EU trends</i>	<p>Settlement systems in terms of polycentricity have not changed fundamentally in the EU, even if there has been concentration of flows activities in metropolitan areas and major cities.</p> <p>Accelerating globalisation has affected FUAs with low or intermediate technologies and activities have declined.</p>
	<i>General EU trends</i>	<p>Strong differentiation can be observed within and between rural areas. Some become rather wealthy on the basis of residential and tourist functions, especially related to the attraction of retired people, or of intensive agricultural production. Others become subject to depopulation and marginalisation.</p> <p>European agriculture follows a triple tendency: bulk production, niche-market development for high value products (taking advantage of high productivity know-how, such as is required for organic farming) and extensive management of semi-natural areas (principally through grazing).</p> <p>Rural areas are significantly affected by the new energy paradigm, both in positive and negative terms. As a consequence of high-energy input; agricultural production methods (for heating, treating and fertilizing) with increasing energy prices lead to higher consumer prices for food produced in the EU. High potentials exist for the production of bio-fuels.</p>
Urban/rural relationship	<i>Northern Europe and Baltic Sea Region</i>	<p>Regional disparities increase across the board, with the urban rural divide, or more precisely, the MEGA-rural divide, being particularly important here as economic development is generally concentrated to urban growth poles.</p>
	<i>General EU trends</i>	<p>The area of high accessibility broadly covering the pentagon is widening in almost all directions. By 2030, disparities in accessibility between centre and peripheries remain significant.</p> <p>Transport flows continue to grow under the influence of progressing European integration and of accelerating globalisation.</p> <p>ERDF and the Cohesion Fund support significantly the development of transport infrastructure in the less developed countries and regions.</p> <p>Population ageing and the increasing number of retirees generate new forms of mobility, very different from the classical home-work relations, more linked to recreation, cultural activities, travelling, health care etc.</p>
Accessibility and connectivity	<i>General EU trends</i>	<p>Technology is progressing in a variety of fields. Biotechnologies are producing a true breakthrough with a wide diversity of applications.</p> <p>Although new technologies are further transforming life and production in Europe, only a modest number of them are generated in Europe.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>Increasing energy prices affect more strongly the countries and regions with traditional industries, both in Western and Eastern Europe. At European-wide scale, peripheral regions whose economies are more dependent upon transport, are losing a part of their competitiveness because no major substitution possibilities to road and air transportation are possible.</p> <p>The BSR area, while hosting many of the EU's wealthiest regions, also included 56% of the 100 poorest EU regions. Moreover, subregional polarisation remains sharp in the German BSR and Poland.</p>
Lisbon Strategy	<i>General EU trends</i>	<p>Technology is progressing in a variety of fields. Biotechnologies are producing a true breakthrough with a wide diversity of applications.</p> <p>Although new technologies are further transforming life and production in Europe, only a modest number of them are generated in Europe.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>Increasing energy prices affect more strongly the countries and regions with traditional industries, both in Western and Eastern Europe. At European-wide scale, peripheral regions whose economies are more dependent upon transport, are losing a part of their competitiveness because no major substitution possibilities to road and air transportation are possible.</p> <p>The BSR area, while hosting many of the EU's wealthiest regions, also included 56% of the 100 poorest EU regions. Moreover, subregional polarisation remains sharp in the German BSR and Poland.</p>

Gothenburg strategy	<i>General EU trends</i>	<p>Water shortage is an increasing problem in Southern Europe because of alarming drought trends calling for a number of new strategies.</p> <p>Continued road traffic growth, despite higher energy prices, driven by economic development and infrastructure investments means more potential emissions.</p> <p>Environmental legislation fosters technological developments.</p> <p>The impacts of climate change have been becoming significant up to 2030, as in the increased occurrence of natural hazards (floods, droughts and heat waves) and shifting climate zones. Floods have caused much damage, more so in countries which had not invested in preventive measures.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>Increasing heavy rain falls in Northern and Central Europe, but also in Southern Europe, where they may reach extreme intensity, cause more damaging river floods and hazards.</p> <p>The energy dependency of the NSR increased significantly and impressive renewable energy projects were initiated. Offshore and onshore wind parks were developed, taking advantage of the huge wind energy potential of the region, but sometimes creating conflicts with respect to the protection of landscapes and natural coastal sites.</p> <p>Global climate change continues to have a potentially fundamental impact on the fragile and vulnerable ecosystems of the far north.</p>
Cross-border governance	<i>General EU trends</i>	<p>Contrary to the internal borders, the quality and intensity of cross-border co-operation along external borders is still significantly lower, since strict border-control-procedures set limitations for cross-border mobility. Whereas many internal border regions tend to become spaces of integration and co-operation, the majority of regions along external borders remain “spaces of division”.</p>

Picture emerging from the baseline scenario in Euroregion Pomerania

Demographic patterns in Euroregion Pomerania continue relatively unchanged. Population growth remains slightly positive. Rural areas keep losing their inhabitants. Urban areas are not the only gainers, but rural areas close to major cities benefit from suburbanisation (Barnim of Berlin, Podregion Szczeciński of Szczecin and Skåne län of Malmö). There is a growing demand of skilled labour to take care of the aging population and create recreational services for the retiring population. Polycentricity of the CBA in terms of DGP is declining as globalisation is affecting smaller FUAs and population is concentrating in major cities. Regional disparities between urban and rural regions are increasing. Even if regional disparities in accessibility remain significant, less developed regions are able to develop transport infrastructure due to support from ERDF and the Cohesion fund. R&D expenditure in the German and Polish regions of Euroregion Pomerania remains below European average, and they lose their attractiveness and competitiveness. Environmental issues continue to play an important role in the CBA because of its location by the Baltic Sea. Environmental legislation fosters technological developments and the CBA is participating in the development and implementation of new technologies in the field of renewable energy production and environment protection.

SWOT analysis on the opportunities and threats that emerged from the baseline scenario in Euroregion Pomerania

	Opportunities	Threats
Demography	Population growth remains slightly positive.	Old age dependency ratio increases and there is a lack of young and skilled people to take care of the elderly.
Polycentricity	Settlement systems have not changed fundamentally in the CBA even if population has been concentrating in major cities.	Polycentricity of the CBA in terms of GDP is declining as globalisation is affecting smaller FUAs and population is concentrating in major cities.
Urban-rural relationship	While employment in agriculture and fishing has been decreasing, rural areas have a possibility to develop tourist or recreational functions, production of bio-fuels or organic farming etc.	Economic development continues to concentrate to urban growth poles and thus regional disparities between urban and rural regions increase.
Accessibility and connectivity	Less developed regions are able to develop transport infrastructure due to support from ERDF and the Cohesion fund. This improves accessibility in particular of the Polish regions of the CBA.	Disparities in accessibility remain significant and no investments are made on improving transport infrastructure.
Lisbon / Europe 2020 objectives	Trade and service sector in the border areas benefit from the disparities in GDP, because differences in prices boost trade in the border areas.	R&D expenditure in the German and Polish regions remains low reducing their competitiveness in the development of new technologies and knowledge economy.
Göteborg objectives	Environmental legislation fosters technological developments and the CBA is participating in the development and implementation of new technologies in the field of renewable energy production and environmental protection.	Climate change continues to have a potentially fundamental impact on the ecosystem in the Baltic Sea area (floods, shifting climate zones).
Cross-border governance	Regional policy offers possibilities for the CBA to continue cross-border functions.	Cross-border collaboration concentrates in urban areas.

2.2.2. Rhine-Rhone Europe: competitiveness-oriented scenario

This is a prospective, policy-oriented scenario. It is based on the assumption of a significant reshaping of EU policies originating in the disappointing results of the implementation of the Lisbon Strategy during the period 2002-2005.

- Emphasis on expanding and improving the common market
- EU enlargements is part of the strategy

- Neighbourhood policy is being strengthened. Importance of the third pillar of EU policies (foreign policy, justice, security etc.)
- Funds from regional and agricultural policies to R&D, education and training and ICT infrastructure
- Strongest regions and links between them supported
- A selective immigration policy
- Environmental protection, social cohesion and integration viewed as secondary

The following table includes main ideas from the scenario organised by the themes of Ulysses project.

Demography	<i>General EU trends</i>	<p>Population ageing is stronger in a number of peripheral regions.</p> <p>Opening of external EU borders to (selected) immigration. To plug the gap caused by the expanding support ratio, a vigorous ‘labour replacement’ immigration policy is being co-ordinated across the EU, targeting young and/or highly skilled labour from across the world.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>Northern Periphery area and the southern shore of the Baltic both see continuing population decline, as economic opportunities aggregate towards urban centres.</p> <p>On the southern Baltic shore, western emigration continues, but at a lower level, as internal economic development proceeds, while, after further EU enlargement in the 2020s, countries like Poland themselves become the recipients of a significant influx of new labour from the east.</p>
Polycentric development	<i>General EU trends</i>	<p>Development concentrated in the pentagon. Very few metropolitan areas outside of this area generate significant attraction and polarisation effects.</p> <p>At regional and local scale, European citizens adapt their behaviour to increasing transport costs and organise their mobility, as far as possible, in a more rational way (car sharing, public transport, change of residential location).</p> <p>While younger generations and immigrants concentrate in and around metropolitan areas, retirees move towards attractive rural areas, small and medium-sized towns and develop new patterns of mobility more related to recreation, cultural activities, health care, leisure travelling etc.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>This propensity towards ‘urban crowding’ has potentially quite significant environmental and transport-related impacts in the areas concerned, as transport and housing endowments are put under significant strain in the Nordic capital regions, while the northern periphery area and certain parts of Poland suffer in that that essential basic services are no longer automatically provided in certain areas due to population decline.</p>

Urban/rural relationship	<i>General EU trends</i>	<p>Regions with metropolitan areas and large cities are clearly favoured, both in the pentagon and outside. Compared with the baseline scenario, the least favoured regions are rural areas, both in the centre and in the peripheries.</p> <p>Economic opportunities aggregate towards urban centres and, in Poland and the Baltic States, rural areas continue to shed population as the agricultural sector is comprehensively restructured.</p> <p>The impact on the agricultural sector is also significant, as the weakening of the CAP, combined with global agricultural 'liberalisation' in the WTO context, severely impacts the 'marginal' agricultural areas in central Sweden and Finland and the unreformed agricultural areas of eastern Poland.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>Significant migration into the largest agglomerations and urban centres on the southern shore of the Baltic, such as for example the tri-city area (Gdansk, Gdynia, Sopot – an agglomeration with close to 1m people), Tallinn, Riga and possibly also Szczecin and Rostock, continues.</p> <p>Resorts on the southern and eastern shores of the Baltic benefit from changes in the choice of tourist destinations, which now attract an increasing number of guests and provide significant employment opportunities for people leaving the rural areas of Pomerania etc, thus reducing westward migration trends and facilitating economic restructuring.</p> <p>Regional disparities therefore dramatically increase in comparison with the baseline scenario.</p>
Accessibility and connectivity	<i>General EU trends</i>	<p>Improvement of the external accessibility of Europe and the transport links with neighbouring countries.</p> <p>The networking of metropolitan areas progresses significantly, driven by the private economy and especially by large companies.</p> <p>Broadband networks are developed mainly between metropolitan areas and large cities throughout Europe.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>Many border regions gain only little benefit from the reconstruction and modernisation of Trans-European road and rail networks. They remain more or less transport corridors, whereas the agglomerations in the hinterland are capable of reinforcing their position.</p>

Lisbon Strategy	<i>General EU trends</i>	<p>Technological development is the cornerstone of the new policies, the objective being to reduce the gap between Europe and other advanced economies.</p> <p>Resources are diverted towards R&D, technological development, ICT, education and training.</p> <p>The sectors in which Europe performs with high competitiveness are especially biotechnologies, energy and transport.</p> <p>Generous pension schemes are abandoned as life expectancy in many occupational groups continues to rise.</p> <p>Social friction as it arises is met with strong restraint and there are perceptible increases in surveillance and security, which have become a major business in their own right.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>Economically, the 'competitiveness drive' privileges urban over rural areas, as the 'equalisation' ethos of the cohesion scenario is replaced by a focus on emphasising 'indigenous potentials', which effectively reinforces already strong economic areas at the expense of weaker ones. Similarly, high-tech sectors and their ancillary service partners are stressed at the expense of traditional industrial production.</p> <p>Economic growth remains above the EU average for both the Nordic capital areas and the countries on the southern shore of the Baltic, though the latter continue to suffer from historical problems relating to undevelopment and inadequate indigenous investment, with FDI taking up the slack.</p>
Gothenburg strategy	<i>General EU trends</i>	<p>Emissions related to inter-urban traffic are globally higher than in the baseline scenario. This results from stronger investments in the road and motorway networks.</p> <p>Global energy consumption is not being reduced, at least in the short term; because growth implies, despite further progress in the energy intensity of the economy, stronger energy consumption.</p> <p>New generations of nuclear power plants are developed and widespread. Energy supply diversification is being promoted, however not only renewable energy sources.</p> <p>The new energy supply strategies have both positive and negative impacts on the environment and on citizens' security.</p>

	<i>Northern Europe and Baltic Sea Region</i>	<p>The weakness of structural and rural development policies does not make the full exploitation of the renewable energy potential of less developed regions possible.</p> <p>Climate change is recognized as a major problem, but measures to adapt to its consequences are principally taken at the global/international level.</p> <p>Environmentally, emission levels rise as motor vehicle ownership continues to rise, while the pressure on water levels and land for housing construction increases in the Nordic capital areas and in the largest agglomeration on the southern and eastern shores of the Baltic.</p> <p>For the southern shore of the Baltic, nuclear energy is again stressed, though the new 'eastern' candidates have very significant problems with their antiquated nuclear facilities, which require a major overhaul and massive environmental 'clean-up'.</p>
Cross-border governance	<i>General EU trends</i>	<p>Border regions are no longer able to rely on European assistance schemes which, until 2013, provided specific support for overcoming border specific hindrances.</p>

Picture emerging from the competitiveness -oriented scenario in Euroregion Pomerania

The opening of EU external borders to (selected) immigration has improved demographic performance and labour replacement in the CBA. Also the regions that have been losing population have become recipients of labour migrants from the east. Population ageing is very strong in peripheral rural regions as young people continue to migrate to urban areas with better economic opportunities. Investments in R&D, education and training and ICT infrastructure have positive impacts on FUAs with universities and high tech industry. They attract young people and skilled workers. Weaker FUAs, on the contrary are losing basic services. Large multinational energy companies have invested in the CBA in order to produce of bio- and wind energy. This has positive effects on employment in the CBA, but negative impacts for the environment, since environmental and landscape values have not been respected. Euroregion Pomerania has remained a transport corridor as EU has been improving its external accessibility. The CBA now has to find local solutions of how to benefit from the traffic and how to tackle the environmental problems and risks the traffic poses. Economic development in the CBA is very diverse. University cities in Euroregion Pomerania benefit from the resources that EU diverts into R&D, technological development, ICT, education and training. Rural areas are performing worse as population is declining and ageing and many basic services are no longer available in rural regions. The CBA is also no longer able to rely on European assistance schemes, but has to tackle alone problems related to spatial, social and environmental issues.

SWOT analysis on the opportunities and threats that emerged from the competitiveness-oriented scenario in Euroregion Pomerania

	Opportunities	Threats
Demography	The opening of EU external borders to (selected) immigration improves demographic performance and labour replacement in the CBA. Also the regions that have been losing population become recipients of labour migrants from the east.	Population ageing is very strong in peripheral rural regions as young people continue to migrate to urban areas with better economic opportunities.
Polycentricity	Investments in R&D, education and training and ICT infrastructure have positive impacts on FUAs with universities and high tech industry. They attract young people and skilled workers.	Development is concentrated in the Pentagon and very few metropolitan areas. Euroregion Pomerania, located outside these development poles is losing basic services from many of the regions.
Urban-rural relationship	Large energy companies invest in the CBA in order to produce of bio- and wind energy. This has positive effects on employment in the CBA. Alternatively rural regions develop businesses such as recreational services, organic farming and production of bio-fuels. Rural regions surrounding FUAs develop tourist and recreational services for retirees.	The weakening of the agricultural policy and agricultural liberalisation in WTO context has negative impacts on agricultural areas in Euroregion Pomerania.
Accessibility and connectivity	Many internal border regions remain more or less transport corridors as EU improves its external accessibility. Euroregion Pomerania has to find local solutions of how to benefit from the traffic.	Only external transport links are improved together with broadband networks between metropolitan areas and large cities. Accessibility of Euroregion Pomerania suffers widely.
Lisbon / Europe 2020 objectives	University cities in Euroregion Pomerania benefit from the resources that EU diverts into R&D, technological development, ICT, education and training.	Very diverse economic development in the CBA. The ageing population faces social problems, because generous pension schemes are abandoned and many basic services are no longer available in rural regions.
Gothenburg objectives	Euroregion Pomerania has large areas with low human influence. As urban concentration continues these areas become strong natural assets for the CBA in terms of nature protection and sustainable tourism.	Low priority is given to environmental protection. This increases the risk of environmental problems.
Cross-border governance	Parties of Euroregion Pomerania take a step towards an active, more structured / institutionalised form of cooperation in spatial planning.	The CBA is no longer able to rely on European assistance schemes, but has to tackle alone problems related to spatial, social and environmental effects of competitiveness oriented policies.

2.2.3. Danubian Europe: Integrated cohesion-oriented scenario

This is a prospective, policy-oriented scenario. In this scenario, the main priorities of public policies at EU level, in a context of growing globalisation, are focused on economic, social and territorial cohesion and not on global competitiveness.

- 2004 EU enlargement and economic disparities called for a full integration of various parts of the EU
- Territorial cohesion as a matter of principle
- Regional policy as the main vehicle: structural funds, investments in infrastructure
- Only minor reforms to agricultural policy
- Adaptation to climate change
- Proactive social policy: childcare support, tax incentives
- Strict immigration controls for non-EU countries

The following table includes main ideas from the scenario organised by the themes of Ulysses project.

Demography	<i>General EU trends</i>	<p>Revival of fertility rates in many European countries. Amplified by the support of public policies in favour of families. Flexibility in child-care arrangements and pension ages are becoming the norm. Confronting institutional forms of ageism and removing compulsory retirement ages.</p> <p>External migration becomes more restrictive. Migration policies within the EU are better coordinated and adapted to fulfil the goals of 'replacement'. Specific controls are also being introduced with socio-cultural integration in mind.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>Falling total population is also continuing to impact many eastern areas of Europe.</p> <p>The southern shore of the Baltic Sea has become both a dynamic demographic and a dynamic economic area.</p>
Polycentric development	<i>General EU trends</i>	<p>Less concentrated, but more widespread pattern regarding attraction and polarization potential of metropolitan areas in 2030. Urban settlements are characterized by more polycentricity. Emergence of several peripheral integrated zones.</p> <p>Regional disparities are still important by 2030, although less significant than in the baseline scenario. Global European growth and competitiveness are however lower.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>The already polycentric nature of the Polish and Lithuanian urban networks benefit from the attempt to promote economic development in areas beyond the capital regions.</p>

Urban/rural relationship	<i>General EU trends</i>	<p>Metropolitan areas and other large agglomerations are significantly supported, but also small and medium-sized towns in less developed regions are more strongly supported, especially as far as services of general interest are concerned.</p> <p>Rural areas benefit from stronger support through the cohesion policies and from stable support of the agricultural policy. The strong promotion of renewable energy sources creates wealth in rural areas and counterbalances the decline of a number of traditional weakly competitive agricultural activities.</p> <p>The structural funds are concentrated on improving the socio-economic viability of marginalised rural areas in all member countries. Improving landscape and nature is also an important priority. The process of economic diversification of rural areas is much stronger than in the case of the baseline scenario.</p> <p>Consumers become more and more aware of the possibility of steering production in the direction of organic farming and regional and other quality products through their spending behaviour.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>In Western as well as in Eastern Europe there is a decreasing number of rural areas experiencing marginalisation and abandonment. These are rural areas where the demographic situation (high level of population ageing), the production conditions (low level of soil fertility, increasing drought) and the attractiveness are very unfavourable.</p> <p>Problems regarding the urban-rural balance remain, however, since little can be done to counteract the continuing historic move away from the land in countries like Poland, despite efforts made to develop rural areas.</p> <p>Cohesion policy slows the pace of agricultural restructuring, as CAP subsidies have enabled many people to remain on their small farms postponing a general restructuring of these countries' (Poland in particular) economies.</p> <p>Cohesion scenario has a positive impact (when combined with long-term patterns of rural-urban movements etc.) on the southern shore of the Baltic, particularly and for rural areas in the short term.</p>
Accessibility and connectivity	<i>General EU trends</i>	<p>A difference with the baseline scenario is that, in addition to major corridors, support is also given to a number of strategic regional transport axes in the context of rural development plans, so as to connect as many medium-sized and small towns as possible to the trunk networks. The cohesive scenario pays also greater attention to a better balance of transport modes and promotes significantly efficient railway and waterway systems.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>In the southern Baltic the continuing process of long-term urbanisation necessitates further transport infrastructure construction – fuelled by EU support.</p>

Lisbon Strategy	<i>General EU trends</i>	<p>EU supports the attraction of external investments and to enhance the development of regions own firms. Priority is given to the development of transport links between supported regions and the core nodes of their countries, and also on strengthening the networks of business and research cooperation with the stronger regions.</p> <p>Unconditional assistance to territories concerns mainly support to the improvement of the environment and of some basic facilities.</p> <p>Concerning technological evolution differences to Baseline scenario exist in the regional patterns of innovation. In addition, various EU regulations are enacted to guide technological developments and their impacts more efficiently.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>The strengthening of the EUs territorial cohesion policy has a positive impact in Poland and the Baltic States. Continuing higher than EU-average growth rates, the impact of the drive towards ‘catch up’ and the positive demographic trends already alluded to above, stimulate economic improvements over the baseline scenario.</p> <p>Energy price rises continually. The mix of nuclear power and alternative energy strategies remains dominant in the Nordic countries. Poland and the Baltic States, despite continuing investment in energy alternatives however remain largely dependent on the Russian gas distribution network, though even here, alternative approaches – such as the use of biomass – are utilised.</p>
Gothenburg strategy	<i>General EU trends</i>	<p>In the cohesion scenario, the environment is viewed as one of the main pillars of European solidarity. Environmental targets are set at a higher level than in the baseline scenario.</p> <p>Stronger attention paid to environmentally-friendly transport modes and related investments, especially in railways, tend to reduce the environmental footprint of the transport sector and to contribute to the improvement of air quality. Kyoto implementation is also taken very seriously by the EU.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>Significant amount of resources from the Structural Funds and Rural Development Policy is allocated to environmental improvement and protection in less favoured areas.</p>
Cross-border governance	<i>General EU trends</i>	<p>Regional disparities are still important by 2030, although less significant than in the baseline scenario. Global European growth and competitiveness are however lower.</p>
	<i>Northern Europe and Baltic Sea Region</i>	<p>The significant reduction in regional economic disparities makes it possible to start a long-term economic partnership based on co-operation between the two halves of the wider region, founded mainly on an exploitation of profitable knowledge and service industries.</p>

Picture emerging from the cohesion-oriented scenario in Euroregion Pomerania

In the cohesion scenario population and wealth is distributed more evenly in the CBA than in the baseline scenario. Proactive social policy is put into place at EU level in order to stimulate domestic fertility rates. Special attention is paid at childcare support and tax incentives. In Euroregion Pomerania total fertility rate continues to increase and rural regions are better able to keep their inhabitants. External migration has, however, become more restrictive and many regions lose their positive population growth and are not able to answer for the demand of labour force in the market. The accessibility of smaller urban areas and sparsely populated areas is significantly higher than in the baseline scenario, because of investments in local transport infrastructure. The process of economic diversification has positive effects on rural areas that benefit from strong promotion of renewable energy and organic farming. Economy of the CBA has been developed with support from the EU by strengthening networks of business and research cooperation. Investments have been made in environmental-friendly transport modes. Collaboration in spatial planning and knowledge change has been continued.

SWOT analysis on the opportunities and threats that emerged from the cohesion-oriented scenario in Euroregion Pomerania

	Opportunities	Threats
Demography	A proactive social policy is put into place at EU level in order to stimulate domestic fertility rates. Special attention is paid at childcare support and tax incentives. Total fertility rate increases and rural regions are better able to keep their inhabitants.	With the external migration becoming more restrictive many regions lose their positive population growth and are not able to answer for the demand of labour force in the market.
Polycentricity	Population and welfare in the EU spreads widely outside the pentagon and other metropolitan areas. This benefits also Euroregion Pomerania that is able to maintain its polycentric structure. Regional disparities are less significant than in the baseline scenario.	High regional disparities remain despite of support and EU financing.
Urban-rural relationship	The process of economic diversification has positive effects on rural areas that benefit from strong promotion of renewable energy and organic farming. External energy dependency is reduced and energy production is a new source of income for farmers and rural areas in general. New technologies are developed and cross-border collaboration in decentralized renewable energy production is processing.	Energy production in rural areas increases with negative impacts on the environment, because environmental, landscape and cultural values have not been considered when initializing energy production.

Accessibility and connectivity	The EU supports the building of strategic regional transport axes in the context of rural development plans. Railway and waterway connections are preferred. This improves accessibility of Euroregion Pomerania both within its regions and in the European context.	Building of transport corridors in Euroregion Pomerania is not prioritized and financed by the EU.
Lisbon / Europe 2020 objectives	Economy of the CBA is developed with support from the EU by strengthening networks of business and research cooperation.	No cross-border cooperation exists in order to boost economic development of the CBA and manage more balanced development of different regions.
Gothenburg objectives	Environment is viewed as one of the main pillars of European solidarity. Investments in environmental-friendly transport are made with other investments.	Lack of cross-border cooperation in environmental issues and the governance of natural resources.
Cross-border governance	Cross-border cooperation is supported by the EU and collaboration in spatial planning and knowledge change is continued.	Lack of funding and mutual understanding decrease the level of cross-border cooperation in spatial planning.

2.3. Final opportunities and threats

	Opportunities	Threats
Demography	Overall less negative population change continues and relatively uncontrolled migration policy for non-EU citizens prevails. To attract more young population and families, incl. migrants, childcare support and tax incentives for families are maintained.	Population ageing is very strong in peripheral rural regions.
Polycentricity	Polycentric urban structure is maintained by supporting economic development all the FUAs. Even distribution of services in the CBA is developed by cross-border cooperation.	Economic disparities between FUAs continue to grow.
Urban-rural relationship	Rural areas develop complementary functions, such as recreational services for city inhabitants, organic farming and tourism.	Agricultural areas continue to decrease and local actors in rural areas are not able to develop complementary functions.
Accessibility and connectivity	Potential accessibility of the CBA increases as transport infrastructure is developed in different regions of Euroregion Pomerania.	Disparities in accessibility between regions of the CBA grow as investments are made only in improving transport infrastructure to European main transport axes. Sea connections are ignored.

Lisbon / Europe 2020 objectives	<p>Disparities in GDP between the regions of the CBA decrease.</p> <p>Targeted cross-border cooperation aims at boosting entrepreneurship and improving cross-border trade and networking of businesses across the border.</p>	<p>Regional economic disparities increase and weakest regions are not able to develop employment possibilities for the population.</p>
Gothenburg objectives	<p>Wind energy potential is exploited and more renewable sources utilized for energy production.</p> <p>Sustainable development of urban areas include improvements in waste water treatment capacity and water quality and the development of environmental-friendly transport.</p> <p>Reductions in energy consumption are introduced.</p>	<p>Low priority of cross-border cooperation in environmental issues have negative impacts on urban and rural areas and water basins of Euroregion Pomerania.</p>
Cross-border governance	<p>Cooperation in spatial planning is continued and all parties commit themselves to the same goals and values.</p> <p>Regular knowledge exchange continues concerning territorial development and spatial planning.</p>	<p>Collaboration in spatial planning is discontinued.</p>

3. Action-decision phase

3.1. Action-decision table

	SO-strategy Strategies to maximize strengths under opportunities	WO-strategy Strategies to take advantage of opportunities by complementing weaknesses	ST-strategy Strategies to avoid threats by taking advantage of strengths	WT-strategy Strategies to face present problems in the face of foreseeable downturns
Demographic change	> Develop and support public policies in favour of families; childcare support and tax incentives for families to foster fertility rates and to attract more young migrants and families.	> Enhance the widening of economic activities and foundation of new firms in all the regions of the CBA to create new jobs and keep a balanced population structure.	> Support the foundation of new businesses and creation of jobs in rural areas, and mobility of labour between urban and rural regions.	> Develop services and technologies for the elderly. > Coordinate the development of transport infrastructure and services in regions with a considerable population decline. > Develop sufficient and affordable social services (health, education, child care facilities, facilities for the elderly etc.) and innovative solutions for the provision of such services in the sparsely populated areas.
Polycentric development	> Support R&D activities, the development of new technologies, service sector and creative industries towards a more knowledge based economy. > Support the existing polycentric structure of urban settlements.	> Support widening of economic activities and entrepreneurship in FUAs. > Enhance cross-border cooperation between FUAs.	> Support the specialization of FUAs based on existing strengths and potentials. > Enhance the development of certain technology clusters in FUAs.	> Study regularly the development of FUAs and support the weaker FUAs in widening economic activities.
Urban/rural relationship	> Support the advancement and production of renewable energy, organic farming and ecotourism in rural areas.	> Develop innovative tailored solutions for rural regions to diversify economic activities and to take advantage of existing potentials.	> Encourage local actors in rural areas to engage in energy production. It can function as a new source of income contributing to stabilise rural	> Enhance sustainable development of natural and agricultural areas.

	<ul style="list-style-type: none"> > Enhance cross-border collaboration of rural areas and their small cities. 	<ul style="list-style-type: none"> > Promote urban-rural partnerships in territorial governance. 	<p>economies in a competitive context.</p> <ul style="list-style-type: none"> > Enhance environmental, cultural and social quality of tourism to support rural development and protect social and cultural identities and physical environment. 	
Accessibility and connectivity	<ul style="list-style-type: none"> > Develop accessibility of the CBA by investing in transport infrastructure and communication networks. > Develop public transport connections across the borders. 	<ul style="list-style-type: none"> > Develop external and internal accessibility of the CBA. > Encourage “intelligent” solutions for providing transport services in disperse settlements areas. 	<ul style="list-style-type: none"> > Support a number of strategic regional transport axes and the interlinking of these with the primary, long-distance network (in national and cross-border context). 	<ul style="list-style-type: none"> > Enhance the development and implementation of environmentally friendly transport modes and vehicles.
Lisbon Strategy	<ul style="list-style-type: none"> > Enhance the foundation of new firms and start-ups by creating a culture of entrepreneurship and by fostering a business-friendly environment in the CBA. 	<ul style="list-style-type: none"> > Enhance cross-border cooperation in the field of new technologies and innovations. > Fight discriminations in the labour market and enhance employment opportunities for foreign employees (education, language training etc.). 	<ul style="list-style-type: none"> > Enhance entrepreneurship and support new and existing businesses in the border area. 	<ul style="list-style-type: none"> > Support the development of transport infrastructure to allow larger cross-border flows. > Create new tools for enhancing clusters and SME cooperation across the border.
Gothenburg strategy	<ul style="list-style-type: none"> > Support the move towards a more intangible economy to reduce energy consumption. > Enhance sustainable urban development. 	<ul style="list-style-type: none"> > Enhance proactive environmental protection and corporate responsibility in environmental issues. > Further network and interlink natural sites and protected areas of regional, national and transnational importance. 	<ul style="list-style-type: none"> > Support the development of new energy technologies and use of alternative energy systems such as wind energy and geothermal energy. Enhance cross-border collaboration in these fields. 	<ul style="list-style-type: none"> > Support active policies to face impacts of climate change and climate hazards, such as forest fires, floods, loss of biodiversity. > Enhance improvement of waste water treatment capacity and management of water basins. > Support technological

				development in the protection of water and water efficiency.
Cross-border governance	<ul style="list-style-type: none"> > Continue and advance cross-border cooperation in spatial planning. > Support cross-border cooperation in all fields including innovation, education, employment, trade, tourism, preservation of cultural and environmental assets. 	<ul style="list-style-type: none"> > Advance the use of EU regional and structural funds for the development of the CBA and the advancement of cross-border cooperation. > Consider cross-border aspect in local and regional plans. 	<ul style="list-style-type: none"> > Lobby the importance of cross-border cooperation and governance on national and EU-level. > Enhance cross-border collaboration in the fields of safety and security. > Support cross-border cooperation programmes based on knowledge exchange. 	<ul style="list-style-type: none"> > Advance proactive measures in securing positive social climate and safe living environment in border areas.

3.2. Most relevant challenges for Euroregion Pomerania

We have found two thematically cross-cutting challenges that in our view have a great influence on the future developments of Euroregion Pomerania. The first one is the development of economy and creation of new jobs in the CBA. Unemployment, in particular youth unemployment is high in the CBA and employment in traditional sectors of economy (agriculture and industry) has been decreasing. Decrease in the share of production and employment has been especially high in the agricultural sector, and since Euroregion Pomerania is occupied by large agricultural areas, creation of new jobs in the rural areas is extremely important. GDP has been growing in all the regions of the Euroregion, but the growth has been low compared to the leading European regions. Polish and German parts of Euroregion Pomerania are facing a demographic challenge and it is necessary to influence demographic patterns; to attract new inhabitants and to prevent young people from leaving the area by creating new attractive work opportunities. In Skåne län, where demographic patterns have been positive, economic growth is important to ensure competitiveness of the region. Removal of EU restrictions on the movement of labour in 2011 now allows a creation of a cross-border labour market in the entire Euroregion. Cross-border cooperation offers possibilities for change of knowledge and experiences in the development of a knowledge based economy.

The second key element that will affect territorial development of Euroregion Pomerania is accessibility. The CBA is an important logistics hub with several ports by the Baltic Sea and a connection to the European inland waterways. Maritime passenger traffic has been decreasing after 2006 in all the ports of the Euroregion and cargo traffic experienced a radical decrease in 2008 because of the global economic crises. Besides maritime and inland waterway connections, the development of road and railroad connections to main European transport corridors is essential for the economic development of the CBA. Multimodal accessibility of Euroregion Pomerania is below the European average, except for two regions; Skåne län in Sweden that has good air connections and Barnim Germany is that located next to Berlin and thus close to the main European road and rail connections. The development of connecting infrastructure within the CBA is equally important, because it enables cross-border commuting and leisure travel.

3.3. Suggested strategies for Euroregion Pomerania

3.3.1. Strategies to tackle the territorial challenges and opportunities

Euroregion of entrepreneurship -strategy

This strategy is based on the idea that entrepreneurship and education are taken as the key concepts for developing Euroregion Pomerania into an active and creative cross-border area. Entrepreneurship is seen as a lifelong learning process and training for entrepreneurship starts already in the schools. Special attention is paid at quality and contents of education and vocational training to meet the actual market needs. Entrepreneurs get high-quality training and support. Inhabitants are encouraged to start new businesses. This strategy aims at creating new jobs in the CBA. New employment opportunities attract new (and returning) inhabitants, and offer perspective for life strategies for young people and families. Entrepreneurship is a true choice for people that are no longer employed by traditional fields of economy, such as industry. Cross-border cooperation is essential for this strategy, in order to change information of

experiences and best practices, and to create businesses that serve the cross-border area and its needs. Cross-border incubation centres are an essential part of this work.

- > Enhance the widening of economic activities and foundation of new firms in all the regions of the CBA to create new jobs and to keep a balanced population structure.
- > Support the foundation of new businesses and creation of jobs in rural areas, and mobility of labour between urban and rural regions.
- > Support widening of economic activities and entrepreneurship in FUAs.
- > Enhance the development of certain technology clusters in FUAs.
- > Enhance the foundation of new firms and start-ups by creating a culture of entrepreneurship and by fostering a business-friendly environment in the CBA.
- > Enhance cross-border cooperation in the field of new technologies and innovations
- > Create new tools for enhancing clusters and SME cooperation across the border.
- > Promote entrepreneurship as a lifelong learning process and support entrepreneurship training in schools and other educational institutions.

Investing in tourism

This strategy is based on the idea that tourism is a 'hard, serious business' and a real choice for boosting economic development. Euroregion Pomerania is occupied by large agricultural and green areas and it has an ideal location by the Baltic Sea. In this strategy tourism is considered a true option for the creation of new jobs in the CBA. Investments are made in tourism infrastructure and traffic infrastructure. The development of tourism is consistent and has a long-term perspective. Ecotourism is developed in the rural, agricultural areas. Health and leisure tourism flourishes among the population. Tourism development is based on local assets and joint Pomeranian heritage and a special attention is paid to environmental values and sustainability. Pomeranian tourism offers attractive niche products (e.g. historic trails, culinary trails, wreckage trails etc.). Possibilities offered by the cross-border connections are utilized and cross-border euroregional tourism brand is created.

- > Support investments in tourism development.
- > Support the advancement of tourism and ecotourism in rural areas.
- > Develop innovative tailored solutions for rural regions to diversify economic activities and to take advantage of the existing potentials.
- > Coordinate the development of transport infrastructure and services in regions with a considerable population decline.
- > Enhance sustainable development of natural and agricultural areas.
- > Enhance cross-border collaboration of rural areas and their small cities.

- > Enhance environmental, cultural and social quality of tourism to support rural development and protect social and cultural identities and physical environment.
- > Further network and interlink natural sites and protected areas of regional, national and transnational importance.

All roads lead to Pomerania

This is a strategy to boost transport infrastructure development (incl. waterways, roads, rail) and thus accessibility of the CBA. Good level of accessibility serves economic development of the CBA and enables the tourism sector to grow. Attention is paid at cross-border connections between the national parts of the CBA. Commuting across the borders is easy and growing interaction between the inhabitants serves the creation of a cross-border social space. Public transport network is well-functioning and vehicles environmentally friendly. 'Low emissions' is the key concept.

- > Develop external and internal accessibility of the CBA.
- > Develop accessibility of the CBA by investing in transport infrastructure and communication networks.
- > Develop public transport connections across the borders.
- > Encourage "intelligent" solutions for providing transport services in disperse settlements areas.
- > Support a number of strategic regional transport axes and the interlinking of these with the primary, long-distance network (in national and cross-border context).
- > Enhance the development and implementation of environmentally friendly transport modes and vehicles.

3.3.2. General strategies for Euroregion Pomerania

Ulysses study shows that Euroregion Pomerania has great territorial assets that it should value and foster and, on the other hand, it has challenges that it should tackle across the border. All of the above-mentioned strategies necessitate cross-border collaboration; information exchange, change of experience and best practices, common plans. As this study shows, the influence of the border on territorial development in Euroregion Pomerania is increasing. It is therefore important to continue collaboration and formulate a common development strategy for the Euroregion that would create a synergy effect among the partners. Euroregion Pomerania should serve as a 'cross-border competence' institution or structure that would participate in spatial planning activities in the CBA and possess up-to-date data on the territorial development of its national parts. A creation of a common database as e.g. Ørestat (Statistical database containing information about cross-border developments in Øresund region) is a worthy possibility.

www.espon.eu

The ESPON 2013 Programme is part-financed by the European Regional Development Fund, the EU Member States and the Partner States Iceland, Liechtenstein, Norway and Switzerland. It shall support policy development in relation to the aim of territorial cohesion and a harmonious development of the European territory.