Competitiveness or Cohesion?
A Phase Strategy of European Spatial Development

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Abstract

The European Union is committed to three overarching political objectives: competitiveness (economic growth), cohesion (equity) and environmental sustainability. The three goals are in conflict. The paper looks into the spatial implications of this goal conflict for European policy making using the enlargement of the European Union and European transport policy as example. Based on results of project 1.1.3 of the European Spatial Planning Observation Network ESPON, a phase strategy of spatial development is proposed in which in early stages of economic development of a country the promotion of growth poles is appropriate, in later stages, however, the development of a polycentric spatial structure.

Keywords: European Union, spatial policy, competitiveness, cohesion

Introduction

The European Union is committed to three overarching political objectives: competitiveness (economic growth), cohesion (equity) and environmental sustainability. The competitiveness objective was prioritised at the meeting of the European Council in Lisbon in 2000. The sustainability objective was confirmed at the Council meeting in Gothenburg in 2001. The three goals are in conflict. In the face of growing global competition and under the dominant neoliberal economic doctrine, the goal conflict is obscured by political rhetoric ("equitable and sustainable growth").

This paper looks into the spatial implications of this goal conflict for national and European policy making, using the enlargement of the European Union and European transport policy as example. Competitiveness is interpreted as growth in gross domestic product (GDP) despite its obvious limitations as indicator of human well-being. Cohesion is represented by two concepts, *territorial cohesion*, i.e. the reduction of disparities in GDP per capita between regions, and *polycentricity*, i.e. the reduction of disparities between cities at different levels in the urban hierarchy both at the national and European scale.

The paper starts by presenting past and current trends in regional economic development in the old and new EU member states and their likely continuation in different scenarios of transport infrastructure improvements and their impacts on cohesion and polycentricity both at the national and European level. It shows that over time territorial cohesion improves in relative terms but declines in absolute terms, whereas polycentricity declines at the national and improves at the European level. Based on these findings, a phase strategy of spatial development is proposed in which in early stages of economic development of a country the promotion of growth poles is appropriate, in later stages, however, the development of a polycentric spatial structure.

EU Enlargement and Cohesion

The term cohesion stands for a wide range of concepts including social justice and solidarity and co-operation between the countries and regions in Europe. The objectives of economic and social cohesion date back to the Treaty of Rome (1957) and became official goals of the European Union in the Maastricht Treaty (1992). The Treaty of Lisbon of 2007 added territorial cohesion to the objectives of economic and social cohesion. Territorial cohesion addresses the spatial dimension of cohesion. It aims at reducing disparities between the regions and a balanced and polycentric spatial structure of the Union's territory. With the enlargement of the European Union by twelve new member states in 2004 and 2007, territorial cohesion has obtained a new dimension: The population of the European Union has increased by 28% but its wealth by only 7%. Regional disparities have doubled; the gap in wealth between the poorest and the richest regions has grown from 1:10 to 1:20; and even the poorest regions in Europe are affluent compared to the poorest regions in the world.

This dramatic increase in disparities presents a new challenge to European policy making. How much inequality in wealth, accessibility and quality of live between the regions in the European Union is acceptable? Perfect equality in living conditions in all parts of the Union's territory would be an illusive goal. Peripheral regions will remain peripheral because of their geographical location, and no government will be able to change this. But how much inequality is politically feasible? The new member states point to their disadvantage after sixty years of planned economies and demand continued transfers to catch up with the prosperity of the old member states. But how much equality would be sustainable? For the new member states, merely replicating the growth path of the old member states would have severe ecological implications. Should the wasteful life styles of the old member states be the model for all countries, just at a time when these become under pressure to reduce their energy consumption and greenhouse gas emissions? And finally, how much inequality is desirable? According to the Lisbon strategy, global competition requires the promotion of the most innovative and efficient central regions, and these may for some time to come continue to be the metropolitan regions in western Europe.

There are no easy answers to these questions. They involve values, interests and different beliefs about the likely effects of available policy options. While the followers of the neo-liberal economic doctrine hold that in the face of growing global competition only the promotion of the economically strongest metropolitan regions will create the wealth needed to generate the spill-over effects for the economic recovery of the new member states, critics fear that such a strategy would deepen the existing gap in affluence between

the old and new member states and would run counter to the stated environmental objectives of the Community. Obscuring the goal conflicts between competitiveness, cohesion and sustainability by political rhetoric using oxymoron terms such as "equitable and sustainable growth" is, of course, no way out. What is needed is a rational discourse based on the best available scientific evidence which explores the likely impacts of available policies in terms of economic growth, territorial cohesion and environmental sustainability.

To contribute to such a rational discourse about European spatial policy after the enlargement of the EU by twelve new member states in 2004 and 2007 was the aim of the research project 1.1.3 "Enlargement of the European Union and the Wider European Perspective as Regards its Polycentric Structure" of the European Spatial Planning Observation Network ESPON. Established in 2006, the ESPON programme conducts applied research and studies on spatial development and planning seen from a European perspective in support of policy development in trans-national research groups part-financed by the European Regional Development Fund (ESPON 2008, Faludi 2008).

In ESPON 1.1.3 (ESPON 1.1.3 2006) simulation models were used to forecast the impacts of different scenarios of employment, migration and transport policies in conjunction with and after the EU enlargement. The SASI model was used to model the impacts of the EU enlargement as such and of related transport infrastructure investments.

The SASI model is a recursive simulation model of socio-economic development of regions in Europe subject to exogenous assumptions about the economic and demographic development of the European Union as a whole and transport infrastructure investments, in particular of the trans-European transport networks, and other transport policies. The SASI model differs from other regional economic models by modelling not only production (the demand side of regional labour markets) but also population (the supply side of regional labour markets). The impacts of transport infrastructure investments and transport system improvements on regional production and other transport policies is modelled by regional production functions in which, besides non-transport regional endowment factors, spatially disaggregate accessibility indicators are included. The model does not only represent spatial redistribution effects of transport policies but also generative effects on the European economy as a whole. The study area of the model are 1,330 NUTS-3 or equivalent regions in the 27 countries of the European Union plus Norway and Switzerland and the Western Balkan countries (see Figure 1). The remaining European countries, including the European part of Russia, are used as additional destinations when calculating accessibility indicators. Descriptions of the SASI model are contained in Wegener and Bökemann (1998), Bröcker et al. (2004), Wegener et al. (2005) and Wegener (2008).

In ESPON 1.1.3 the SASI model was used to forecast the spatial impacts of one reference scenario and six policy scenarios (ESPON 1.1.3 2006, 200-201):

00   Reference Scenario: no EU enlargement, no projects in new member states
A1   EU enlargement, no projects in new member states
B1   A1 + all TEN priority projects
B2   A1 + B1 + TEN/TINA projects in new member states
B3   A1 + all TEN/TINA projects
B4   A1 + B3 + additional TINA projects in new member states
B5   A1 + B3 + maximum TINA projects in new member states
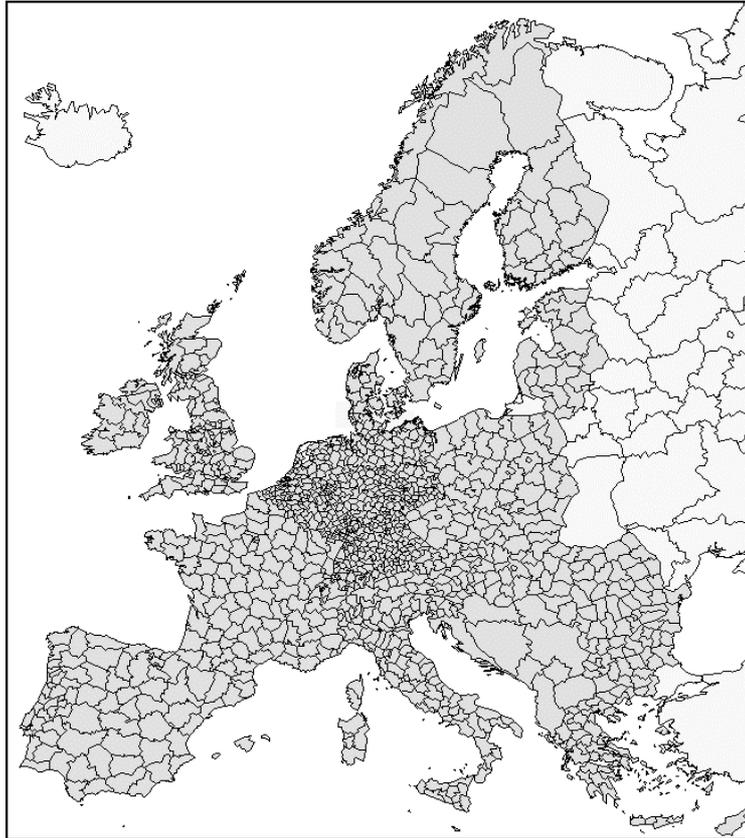
Figure 1. The SASI system of regions

The Reference Scenario (Scenario 00) is defined as the fictitious development that would have taken place if there had been no EU enlargement and only the transport projects of the "old" (Essen) priority list of TEN projects, which included only projects in the old member states, would be implemented. The Reference Scenario serves as the benchmark against which all policy scenarios are evaluated.

Scenario A1 is a scenario to examine the impacts of the EU enlargement itself on transport and hence accessibility and economic development. In the enlargement scenario no transport infrastructure projects beyond the projects already contained in the Reference Scenario are implemented. However, it is assumed that the process of enlargement started in 2004 gradually reduces the barriers to economic exchange and travel as well as waiting times and costs at border crossings between the old and new member states and between the new member states themselves.

All remaining policy scenarios include Scenario A1, i.e. assume the same integration effects as Scenario A1. Scenario B1 to B3 assume different combinations of the transport infrastructure projects of the "new" TEN priority list (HLG 2003) and the Transport Infrastructure Needs Assessment (TINA) projects in the new member states (European Union 2004, TINA 2002). Scenario B4 and B5 assume that, in addition to the projects included in Scenario B3, further transport infrastructure projects in the new member states defined for the EU 5th Framework project IASON (Bröcker et al. 2004, Wegener et al. 2005) will be implemented.

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The results of the simulation of the six policy scenarios until 2031 and their policy implications are discussed in the Final Report of ESPON 1.1.3 (2006, 201-218). Here only one aspect relevant for the topic of this paper will be highlighted: the difference between relative and absolute growth.

Figure 2 shows the impacts of Scenario B3 (EU enlargement + all TEN/TINA projects) on GDP per capita as the difference between GDP per capita in the policy scenario and in the Scenario 00 (no EU enlargement, no projects in the new member states) in the year 2031. Both maps show only winners: Because of reduced waiting times at borders and the reduction of other barriers to travel and trade and because of the substantial reductions in travel time and cost through the TEN and TINA transport infrastructure investments, all regions are better off.

However, there are significant differences in degree. The left-hand map shows relative differences in percent. It appears as if the regions in the new member states, in particular the Baltic states, Slovakia, Slovenia, Hungary, Romania and Bulgaria gain most, but also the Western Balkan countries, because they benefit from the improved accessibility of their EU neighbours. A look at the right-hand map, however, gives a different picture. The map shows absolute differences in GDP per capita in Euro (of 2005 to exclude inflation). Now it becomes clear that the higher percentage gains of the new member states are in absolute terms much smaller than the gains of the old member states because of their still much lower income levels.

The distinction between relative and absolute growth has implications for the debate about cohesion. Is Scenario B3 successful in terms of territorial cohesion? At first sight it seems so because in relative terms the differences in regional income between the rich and the poor member states decrease. But can this be called convergence if in absolute terms the gap in income between the rich and poor regions becomes larger?

The SASI model calculates a range of cohesion indicators to measure the convergence or divergence effects of different scenarios. It was demonstrated in the IASON project (Bröcker et al. 2004, Wegener et al. 2005, 36-38) and in ESPON 2.1.1 (2005, 96-100) that different cohesion indicators give different results. The most important distinction is whether the indicator measures relative or absolute convergence or divergence. If, for instance, all regions gain in relative terms by the same percentage, the richer regions gain more in absolute terms as shown above. Some commonly used indicators, such as the coefficient of variation or the Gini coefficient, may indicate relative convergence where in absolute terms divergence may occur.

Figure 3 illustrates this by two scatter diagrams showing the correlation between change and level of GDP per capita in Scenario B3. The left-hand diagram shows relative, the right-hand one absolute change plotted against the level of GDP per capita. In the left-hand diagram the regression line points downward, indicating that in relative terms the gains in GDP per capita are larger in the poorer regions. However, in the right-hand diagram the regression line points upward, indicating that the richer regions gain more in absolute terms. Whether one calls this convergence or divergence is a matter of political preference, but it is important to clearly state which type of indicator is used.
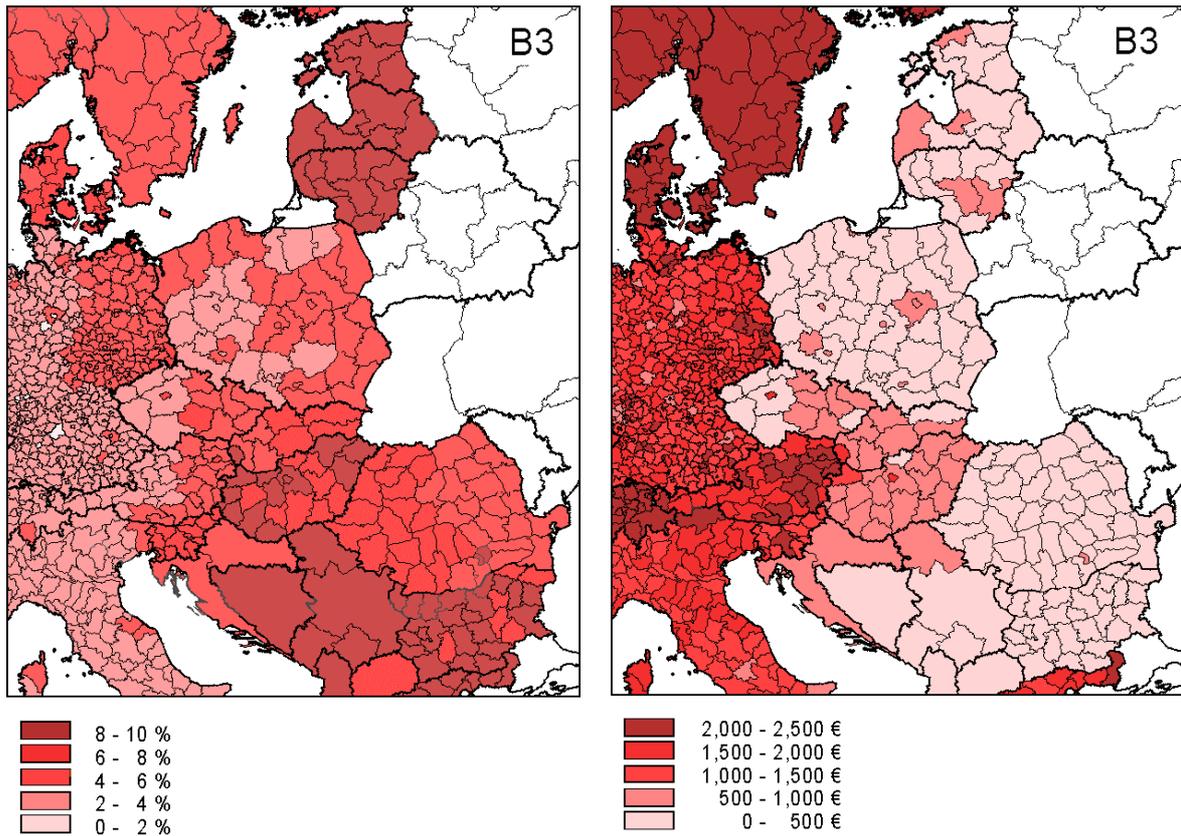
Figure 2. Scenario B3 (EU enlargement + all TEN/TINA projects): relative (left) and absolute (right) difference in GDP per capita to Reference Scenario 00 in 2031
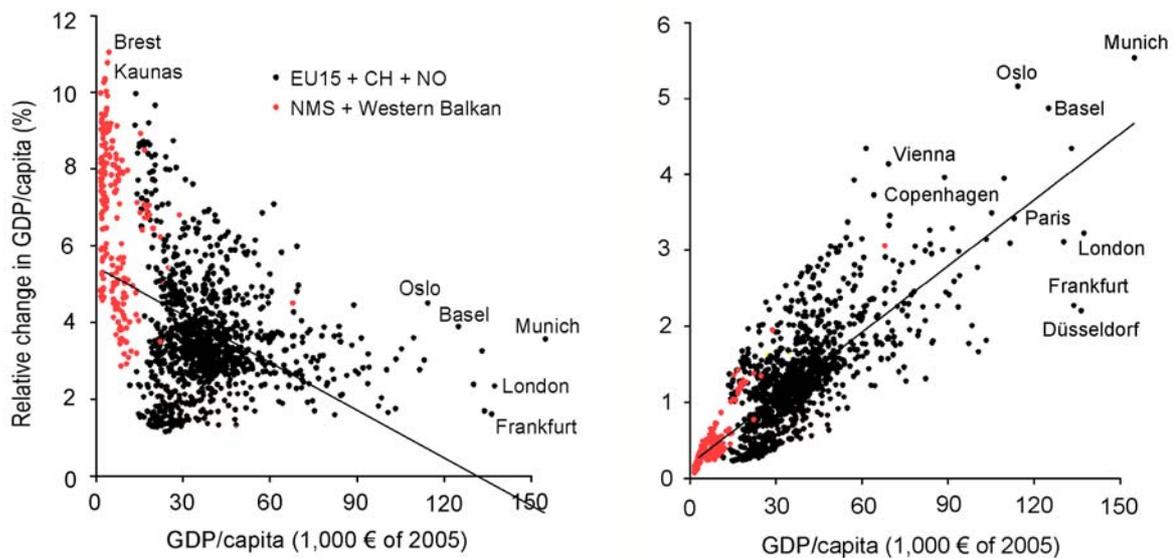

Figure 3. Scenario B3 (EU enlargement + all TEN/TINA projects): relative (left) and absolute (right) difference in GDP per capita to Reference Scenario 00 in 2031 v. level of GDP per capita in 2031.

EU Enlargement and Polycentricity

The objective of balanced polycentric urban systems was first introduced by the European Spatial Development Perspective (ESDP) (European Union 1999). The interest in polycentric development was fuelled by the hypothesis put forward in the ESDP that polycentric urban systems are more efficient, more sustainable and more equitable than both monocentric urban systems and dispersed small settlements.

Until today the concept of polycentricity has remained largely at the level of rhetoric without a precise operational definition (which puts it into a class with similarly vague concepts such as "city networks" or "industrial clusters"). There exist no generally accepted methods to identify or measure polycentricity at different spatial scales or to assess the impacts of polycentricity (or the lack of it) with respect to policy goals such as efficiency (competitiveness), equity (cohesion) and sustainability. It is therefore impossible to determine an optimum degree of polycentricity between centralisation and decentralisation or, in other words, between the extremes of monocentricity and dispersal. How much polycentricity is most efficient? Large centres offer economies of scale but risk negative effects of over-agglomeration. Dispersed settlements are too small to support major infrastructure facilities. Furthermore, how much polycentricity is equitable? Spatial polarisation may lead to social and spatial segregation. Spatial dispersal is egalitarian but denies the opportunities for social mobility. And finally, how much polycentricity is sustainable? Large cities use less energy for transport but more for high-rise buildings and heating, whereas dispersed settlements are wasteful in terms of energy for transport. These open questions make it difficult to formulate well-founded policy recommendations as to which cities should be developed with priority.

It is therefore necessary to develop an operational concept of polycentricity and operational methods for identifying and measuring the polycentricity of European urban systems. The methodology should allow

- to measure the degree of polycentricity of the urban system of a region, a country or Europe at large,

- to evaluate it with respect to policy objectives, such as competitiveness, cohesion and environmental sustainability

- to forecast the impacts of European policies on the degree of polycentricity and its impacts on major policy goals.

With this in mind, ESPON 1.1.1 (2004, 60-84 and 329-346) developed an index of polycentricity consisting of three components and seven sub-indicators (Table 1):

- The *size* indicator measures the distribution of population and GDP based on the notion that a flat rank-size distribution is more polycentric than an urban system dominated by one large city.

- The *location* indicator measures the spatial distribution of cities assuming that a uniform distribution of cities across a territory is better for a polycentric urban system than one where all cities are clustered in one part of the territory.

- The *connectivity* indicator measures the distribution of accessibility across cities assuming that an urban system with good connections between lower-level cities is more polycentric than one in which all connections are concentrated on the largest city.

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Table 1. The index of polycentricity

Index	Sub-index	Indicator
Polycentricity	Size (33%)	Slope of regression line of population (10%) Primacy rate of population (40%) Slope of regression line of GDP (10%) Primacy rate of GDP (40%)
	Location (33%)	Gini coefficient of service areas
	Connectivity (33%)	Slope of regression line of accessibility (50%) Gini coefficient of accessibility (50%)

The index of polycentricity was calculated for all countries of the European Union and Norway and Switzerland for the Functional Urban Areas (FUAs) identified in ESPON 1.1.1. Figure 4 shows the sub-indicators using Poland as an example.
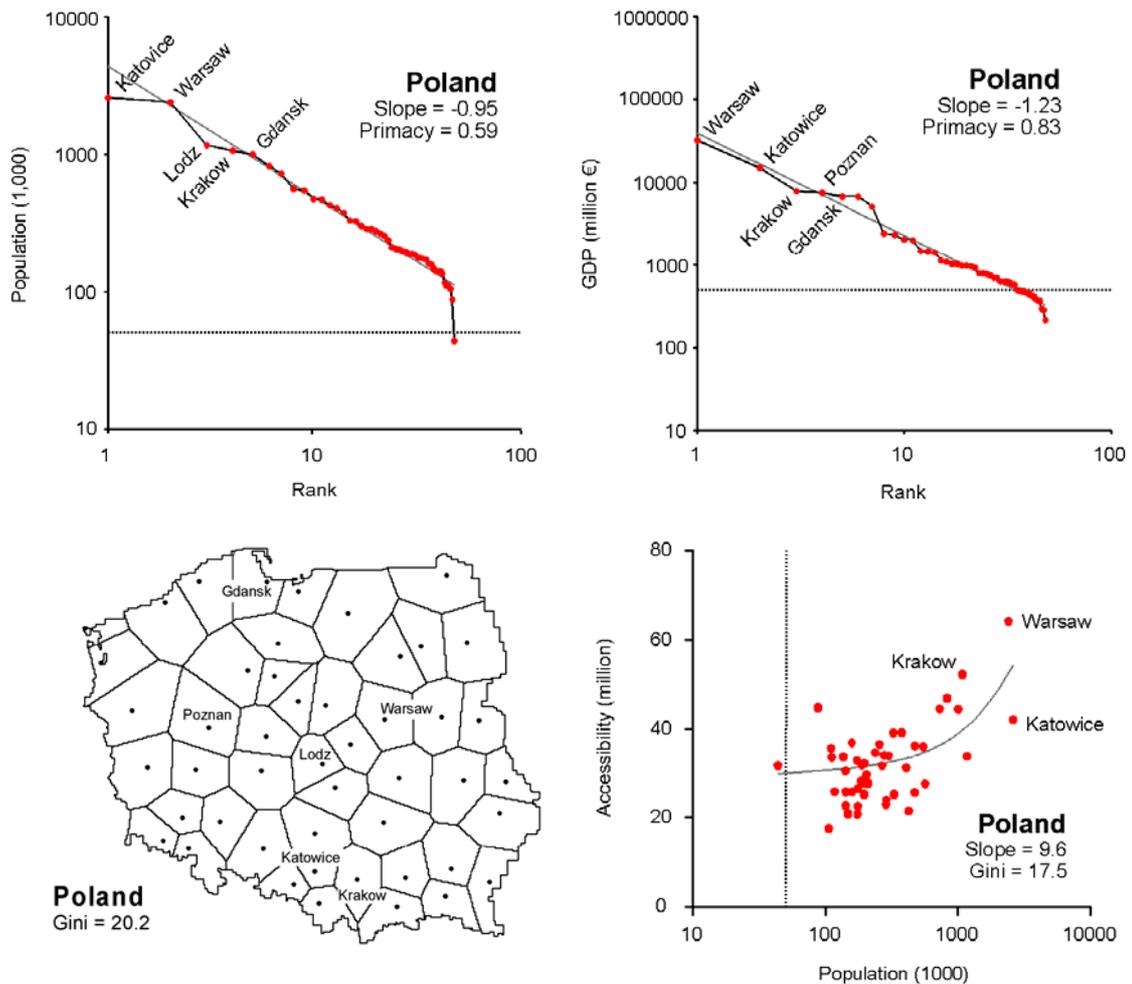

Figure 4. Components of polycentricity of Poland: size index population (top left), size index GDP (top right) , location index (bottom left), connectivity index (bottom right)

The index of polycentricity was calculated in ESPON 1.1.3 (2006, 157-173) for the FUAs defined in ESPON 1.1.1 in the new member states. Table 2 shows the results of the evaluation for the three component indices and the index of polycentricity for the new member states on a 0-100 scale. The last two rows of the table show the weighted average scores of the new member states (NMS) and, for comparison, the weighted average scores of the old member states (EU15).

Table 2. Component indices and polycentricity index

Country	FUAs	Size	Location	Connectivity	Polycentricity
Bulgaria	31	77.1	80.2	52.6	68.8
Cyprus	4	75.7	100.0	89.1	87.7
Czech Republic	25	79.2	51.7	63.5	63.8
Estonia	10	64.7	94.8	26.4	54.5
Hungary	77	61.6	57.7	50.4	56.3
Lithuania	8	76.5	83.5	18.5	49.0
Latvia	8	35.5	97.0	52.4	56.5
Poland	48	84.1	83.1	58.7	74.3
Romania	59	78.3	80.9	46.6	66.6
Slovenia	6	76.0	91.6	72.0	79.4
Slovakia	27	83.5	77.0	41.6	64.4
NMS average	303	77.5	77.1	52.7	67.3
EU15 average	1,200	77.7	57.2	68.1	66.1

Table 2 shows that the new member states on average have urban systems that are more polycentric than those of the old member states. This is mainly because their cities are more evenly distributed over space. With respect to connectivity, however, they are on average more polarised. Except for the special case of Cyprus, the most polycentric countries are Slovenia and Poland. Slovenia has high scores in all three polycentricity dimensions. Poland scores high in the size index and the location index but is weak in the connectivity index because all transport lines are oriented towards Warsaw. The Baltic states and Hungary are the least polycentric of the new member states. Estonia and Lithuania suffer from the poor accessibility of their peripheral areas, Latvia from the dominance of Riga, and Hungary is weak in all three dimensions.

A similar analysis was performed for the whole of Europe for the 76 Metropolitan Growth Areas (MEGAs) defined by ESPON 1.1.1. (ESPON 1.1.3 2006, 169-172). The system of MEGAs is even more balanced than if all FUAs were considered. The MEGAs in the new member states are in the lower ranks of the urban hierarchy in Europe. In the rank-size distribution of GDP of MEGAs in Europe, medium-sized economic centres, such as Stuttgart, Frankfurt and Hamburg score higher than their population size would indicate. Even more than in the rank-size distribution of population, the MEGAs in the new member states find themselves at the tail end of the distribution.

The location of MEGAs is, however, highly clustered in the curved shape between southwest England, the Benelux countries, the Rhine-Ruhr and Rhine-Main regions, Switzerland and northern Italy – the "Blue Banana" and not the "Pentagon". At the outer periphery, however, there are large areas served only by one MEGA.

Accessibility is relatively equally spread over large and small cities as it should be in a polycentric urban system. The MEGAs with the highest accessibility are all in the old EU member states, whereas those in the new member states are still less well linked to the major centres in western Europe.

The polycentricity index can be used to forecast polycentricity trends and the impacts of EU policies on polycentricity. In ESPON 1.1.3 this was done with the SASI model for the six policy scenarios described above (ESPON 1.1.3 2006, 214-217). A methodological difficulty in forecasting polycentricity is that the SASI model deals with NUTS-3 regions and not cities. It was therefore assumed that population, GDP and accessibility of cities change like those of the NUTS-3 region in which they are located.

Figure 5 (left) shows the development of the polycentricity index between 1981 and 2031 for the old (EU15) and new (NMS) member states. The diagram confirms that the urban systems of the new member states are on average more polycentric than those of the old member states. They were even more polycentric in the past because of their history as planned economies in which there was no market-driven spatial development. However, after the opening of the Iron Curtain in the early 1990s, their capital cities and major agglomerations attracted formerly suppressed rural-to-urban migration with the effect that these cities grew at the expense of smaller urban centres.

Moreover, if the forecasts of the model are correct, polycentricity in the new member states will further decline due to market forces and even become lower than that of the old member states. Polycentricity in the old member states declines, too, but much more slowly than in the new member states because of their longer experience with market-driven spatial development. This is possibly also the reason why the infrastructure improvements in Scenarios B1 to B5 have only little effect on polycentricity in the old member states. Another reason may be that the transport networks in the old member states are already highly developed and can only marginally be improved. However, in the new member states there is still a great demand for transport infrastructure and so infrastructure improvements have much larger effects.

Figure 5 (right) shows the development of the global index of polycentricity based on MEGAs between 1981 and 2031 in the Reference Scenarios and the six policy scenarios. Unlike the forecasts of national polycentricity, polycentricity at the highest level of the urban hierarchy in Europe has increased in the past and is likely to increase in the medium-term future. This is mainly due to the fast economic growth of the capital cities and other large cities in the new member states. Already the opening of the Iron Curtain in the early 1990s and the integration effects of the EU enlargements in 2004 and 2007 (Scenario A1) have moved these cities up in the urban hierarchy.

The comparison of the two diagrams in Figure 5 confirms that the goals of European polycentricity and national polycentricity are in conflict and that the price for gains in polycentricity at the European level are more polarised national urban systems.
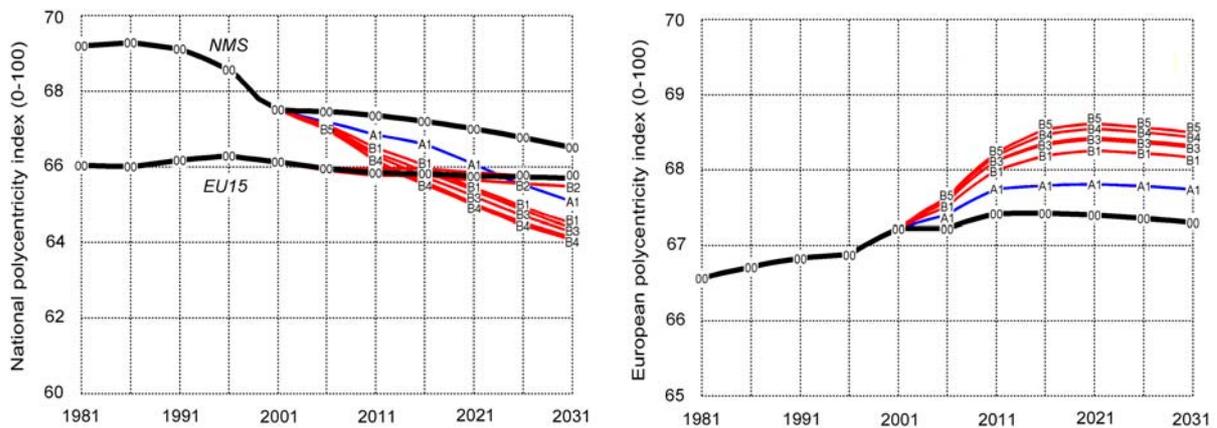
Figure 5. Development of polycentricity in the old and new member states (left) and development of polycentricity of MEGAs in Europe (right) 1981-2031

A Phase Strategy of Spatial Development

Polycentricity is associated with major policy objectives of the European Union. Countries with a polycentric urban system are in general economically more successful and environmentally more sustainable than countries with a dominant capital city, but not necessarily spatially more equitable if also rural regions are included (ESPON 1.1.1 2004, 80-82). However, the polarisation of the urban systems in the new member states has increased since their transition from planned to market economies in the 1990s and is likely to further increase in the future.

This creates serious goal conflicts for future EU spatial policy oriented at a balanced polycentric territorial structure of Europe (see Table 3).

Table 3. Goal conflicts of polycentricity (ARL 2004)

Goal	Policy	Goal conflict
Competitiveness ("Lisbon")	Strengthen global cities	Polarisation between old and new member states
European cohesion	Strengthen major cities in new member states	Polarisation between cities in new member states
National cohesion	Strengthen medium-sized cities in new member states	Competitiveness of new member states may decrease.
Sustainability ("Gothenburg")	Strengthen small cities in new member states	Competitiveness of new member states may decrease.

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If, for instance, the goal is to strengthen major urban centres outside the "Pentagon", this will increase spatial disparities between the already too dominant capital cities and other large cities in countries such as the Baltic states, Hungary or the Czech Republic. However, if the promotion of balanced urban systems in these countries is a common goal, more Structural Funds and transport infrastructure would have to go into the peripheral regions of the new member states, and this would go at the expense of their capitals.

It is the responsibility of the future spatial policy of the European Union to find a rational solution to these goal conflicts. This solution cannot be the one-sided pursuit of one of the conflicting goals at the expense of the others. Rather, the task is to develop a balanced strategy which is differentiated in both space and time and takes the specific needs of different regions into account.

Such a strategy starts from a phase model of spatial development according to which in early stages of economic development of a country the promotion of growth poles is appropriate, in later stages, however, the development of a polycentric spatial structure. This allows to set different priorities in the old and the new member states: In the old member states decentralised, polycentric spatial structures are promoted. In the new member states for a limited transition period the capital cities and other major cities are be strengthened until later also in these countries balanced polycentric spatial structures can be developed. The rationale behind this is that scientific and technical innovations are not restricted to large agglomerations but can also, or even better, be achieved in well connected cities of medium size. Such a strategy is not in conflict with the competitiveness goal but achieves it in a more sophisticated way than by the one-sided promotion of large agglomerations.

From such a spatial strategy differentiated in space and time new challenges for European spatial policy arise: In a multi-level approach to policy formulation policies at the EU level (macro), at the national level (meso) and at the regional-local level (micro) need to be co-ordinated (vertical co-ordination). In a cross-sectional approach to policy making the stated EU goals competitiveness, cohesion and sustainability need to be reconciled (horizontal co-ordination). This requires co-ordinated multi-level and cross-sectoral policy combinations or integrated strategies (ESPON 1.1.3 2006, 219-233):

- Structural policy: In a transition phase subsidies from the Structural Funds should focus on major city regions in new member states to facilitate convergence at the European level. In the following phase they should focus on second-tier cities and rural areas.

- Infrastructure policy: In a transition phase priority should be given to fast and efficient transport between the main cities in the new member states and with the economic centres in the old member states. Later the focus should shift to improving the accessibility of medium-sized cities and rural areas.

- Financial integration: In the near future the centralising effects of liberalisation should be accepted as condition for rapid economic growth. In the long run, however, decentralisation at the national and regional level should be supported to ensure that equity is not overshadowed by competition.

- Border region integration: In the short term successful forerunner regions should be promoted, but in the medium and long term the focus should be on the integration of disadvantaged and lagging regions.

It is interesting to note that one of the new member states, Poland, has already adopted a phasing strategy of spatial policy (Korcelli 2005). The National Concept of Spatial Development of 2001 in a first stage gives priority to offering advantages to private investors and accepts interregional and interurban disparities as a price to be paid for rapid economic growth, but for a later phase foresees spatial equalisation policies, after the development gap between Poland and the west European countries has become smaller.

Conclusions

The European Spatial Development Perspective (ESDP) of 1999 is still waiting to be updated to take account of the enlargement of the EU. Instead the ministers of the EU member states responsible for spatial planning, at the Leipzig meeting of 25 May 2007, agreed on the Territorial Agenda of the EU, a declaration of intent that is to be reviewed in future negotiations (European Union 2007). The Territorial Agenda of the EU confirms the objectives of the ESDP, polycentric spatial development, equitable access to infrastructure and knowledge and protection of nature and cultural heritage, but it ignores the special needs of the new member states, which differ from those of the old member states, and it suggests that growth, cohesion and sustainability are not in conflict.

It is necessary to raise the awareness that Europe needs a common spatial policy to cope with the challenges of globalisation, climate change and energy scarcity. This requires a renewed European Spatial Development Perspective for the enlarged EU territory. The new ESDP must differentiate between different types of member states, regions and cities taking account of their different stages of development and hence their different development needs.

The new ESDP must set different priorities in the old and new member states: In the old member states decentralised, polycentric spatial structures should be promoted. In the new member states for a limited transition period the capital cities and other major cities should be strengthened. Later also in these countries balanced polycentric spatial structures are to be developed.

Acknowledgement

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