

## A DISCUSSION ON COMPETITIVE GROUPS OF COUNTRIES WITHIN THE EUROPEAN AREA OF INTEGRATION

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### Abstract

This paper seeks to provide a representation of European economic integration that would discriminate between the random effect of regional clustering by geographical vicinity (as the conventional area definitions suggest) and the hypothesized effect of competitive developments underpinned by homogeneous areas of integration. The investigation is based on a simple but comprehensive statistical analysis of the competitive position of thirty-three European countries, for which data were collected targeting five determinants of competitive similarity and twenty-seven corresponding indicators. The results confirm the fact that countries tend to cluster into larger groups the more general their denominator is, say, political legacy, historical circumstances or shared ideology. At the same time, a set of group behavioral patterns suggests that a better understanding of regional effects of integration strongly relates to a similarly better representation of regional groupings based on comparable competitive evolutions.

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## Introduction

Open competition represents a central tenet of the gains from trade approach and hence a basic explanation for the dynamic effects of integration. There is however a missing element in this classical view: the conditions under which various regions or countries within the integrating area absorb those effects remain indeterminate. One may plausibly assume that a disaggregated examination of the integration effects would reveal a rugged regional landscape of competitive growth dependent on such diverse factors as levels of development, cultural stereotypes, political attitudes or infrastructure connections. It is for this reason that a careful consideration of the integration process would consider the conjecture of an optimum competitive area, whose definition was elsewhere (Cojanu, 2006) tentatively referred to as a certain pattern of spatially-defined areas conducive to competitive development for industries or firms in such a way that benefits from competition are maximized.

This paper attempts to provide further evidence on the debatable issue of competitive development conditions within the regional context of the European integration area. The “debatable” character should in fact hardly be expected given the precise nature of the gravity models of trade. These models are constructed on the belief that the potential of economic activity at any location is a function of its proximity to other economic centres. In this view, geography, more precisely, geographic proximity, matters in the most inexorable way: a country would benefit from its mere positioning close to advanced regions. Here is an account of this presumed impact with regard to the Balkan region: “The examination of the geographic characteristics of the transition countries shows that some of them enjoy more favourable conditions than others, being closer to, and having common borders with the developed countries of Western Europe. This provides them with a possible strategic advantage, which, in the long run, is expected to lead to a more intense interaction and integration with the western centres of development.” (Petrakos, 2003)

Those arguments’ appeal notwithstanding, this material rests on the assumption that proximity alone cannot stand as a valid argument for explaining development in a regional context. It is the possibility and not the inevitability of benefiting from conditions of liberal economic activity that lies at the very core of the open competition message. The spatial vision on integration, that is its geographic premise, should be supplemented with the condition of a similar competitive environment in order to make open competition a genuine source for development. Although conventional analysis includes similarity of economic structures among the conditions for increased positive effects of integration,<sup>1</sup> the “similarity issue” is usually taken

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1. For example, Drabek surveys the current literature on regional integration and notes that “the proximity to markets and the likely similarities in the way neighbors organize their societies is conducive to more trade and other economic relations.” (Z. Drabek, 2005, “Regionalism and Trade Discipline”, in Z. Drabek, (ed.), *Can Regional Integration Arrangements Enforce Trade Discipline?* London: Palgrave MacMillan, 19-68.)

for granted as an investigative question in the light of, say, political legacy, historical circumstances or shared ideology. It is for that reason that most of the studies dedicated to the integration of former communist European countries (e.g. Petkoski, 1999; Sachs *et al.*, 2000a and 2000b; Petrakos, 2003; Babanassis, 2003; Traistaru and von Hagen, 2003; Broadman, 2005) target the issue of similarity to enlist conditions of growth in order to achieve a systematic understanding of the various paths these countries have taken over the transition period.

This article proposes a twofold perspective on that debate, which is discussed in the next two sections. Section 2 reviews several works which offer a simultaneous approach to regional groupings and similarity of economic conditions. Section 3 presents the results of a statistical investigation of similarity conditions and geographical proximity. The findings are based on a clustering analysis of several socio-economic indicators of thirty-three European countries, which are full members of, acceding or candidate countries to the European Union (EU). Groups of countries are distinguished according to various dimensions of their competitive foundations for development. The results confirm much of the existing information on regional groupings, but also reveal noteworthy details on the European economic landscape. The final section 4 concludes with some comments on the circumstances surrounding the potential for competitive advance in the larger European space of economic integration.

### **A survey of evidence on regional conditions for competitive development**

The emphasis of the research focusing on the competitive premises for the development of European regions generally follows two directions of research: one general, panoramic perspective complementing a more detailed, analytical view of the economic functioning. The former approach concentrates on specific paths of economic and social developments, whereas the latter brings to the fore particular traits of economic structures mainly revealed by reciprocal commercial exchanges.

#### ***The general perspective***

The insights provided by the first line of research are especially important for outlining the regional economic and business environment against the background of EU developments. The observer gets a comparative picture *per se* and usually a hierarchy of performers or underachievers in the whole integrating area. Amidst complex and at times convoluted evolutions, of normal occurrence in an economic space characterized by variations of levels of Gross Domestic Product (GDP) per capita from over €40,000 to under €4,000, there are however at least two distinctive points of interest. They refer, first, to the conditions of economic growth and, second, to the prospect of economic convergence.

First, the European regions are apt to attract an analyst's attention because of the heterogeneous conditions for economic growth. Institutional observers like the European Bank for Reconstruction and Development (EBRD, 2004), the United Nations Economic Commission for Europe (UNECE, 2005), or the World Bank Group (Broadman, 2005) follow country taxonomies from which the reader infers that economic progress by implication is conditional upon regional conditions of development, even if definitions of what a region is supposed to be match more easily with political rather than economic circumstances of integration processes.<sup>2</sup>

In general, the attempt to provide empirical evidence for regions of competitive development as they are confined within either national borders, i.e. countries, or trans-national areas seems to lack a substantive anchor in the theoretical domain. Comparative studies usually distinguish regional performance at country level through a broad set of indicators like macroeconomic equilibriums, political stability, effective government, quality of regulations or indicators of institutional quality. Trăistaru and von Hagen (2003), for instance, set aside the South-East European countries (SEEC) on a range of indicators (e.g. trade dependence on the EU market, current account deficits, degree of reform of financial markets) that reveal fragile foundations for development. From a different angle, a World Bank-designed program singles out the SEEC yet again on grounds of insufficiency of their civic constituencies in formulating a proper "vision of the future and competitiveness" and accordingly calls upon the region's governments, business leaders, and civic society to "devise a common language that speaks for all segments of society."<sup>3</sup> While it remains unclear how the SEEC were selected as a group in the first place, one could hardly miss the initiators' conviction that it is the regional milieu – as possibly characterized in this view by a feeble grasp of the conceptual workings of competitiveness – and not necessarily proximity that should play a central role in development policy. In their words, "it is important for policymakers to understand that the development of a single country is dependent not only on what they do domestically, but on overall trends in the region."<sup>4</sup>

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2. The usual classification of European intra-regional trade blocs includes, besides the European Union (EU) group, and, possibly, the other Western European countries, the 27 "transition" countries of Eastern Europe and the Former Soviet Union which are distinctly described by three groups: the new EU member countries, the Commonwealth of Independent States (CIS), and the countries of South Eastern Europe (SEEC).

3. G. Petkoski, 1999, *A Vision of the Future and Country Competitiveness. An Integrated Approach* Washington D.C.: The World Bank Institute, 1.

4. G. Petkoski, 1999, *A Vision of the Future and Country Competitiveness. An Integrated Approach* Washington D.C.: The World Bank Institute, 22.

Sachs *et al.* (2000a) take a closer look at regional conditions of development and examine the underlying patterns of transition through inter- and intra-cluster differences. In this view, a cluster is described by the situation in which a country finds itself at the start of the process with the help of a mixture of geographically set characteristics, hard-to-change institutional and economic conditions, and relatively easy-to-change policy conditions. Coincidentally or not, regional groupings which exhibit similar levels of performance indicators form around closely defined geographical areas.<sup>5</sup> This typology is further extended by measures of the level of international competitiveness of transition countries and other determinants of transition (Sachs *et al.*, 2000a, b) to explain the economic transformations in time. There are thus top cluster performers like the Baltic and the EU-border states, just as there are clusters with performers of their own, like for example Kazakhstan and the Kyrgyz Republic of the Central Asian group.

In this general perspective, a second path of research looks at how different countries and regions fare in respect of their capability to bridge the developmental gaps on the assumption that the integration process acts as a catalyst in levelling the competitive capabilities across the European economic space. However, the evidence presents inconclusive results as regards the beneficial effects of integration on convergence.

For Kaitila (2004), who examines the EU-15 in-between 1960-2001 and the post-1990 developments of seven accession countries,<sup>6</sup> the convergence is neither automatic, nor continuous; local economic conditions are also important in supporting positive economic developments. It is the identification of these particular circumstances of integration which produces the most divisive results among researchers. Much interest, for instance, is attached to the inflow of foreign direct investments (FDI) as a major factor in regionally balanced growth. Several studies which consider the catching-up process at within-country level (e.g. Tondl and Vuksic, 2003), country level (e.g. Damijan and Mrak, 2005), or regional level (e.g. Trăistaru and von Hagen, 2003; Sohinger, 2005) agree in pointing to FDI as the main determinant of regional economic and trade growth. That conclusion is however severely qualified by findings of other studies like that of Gabrisch and Segnana (2003), who conclude that there should be less enthusiasm as to the role that FDI plays in the productivity catching-up between the Central and Eastern European Countries (CEEC) and the

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5. The EU-border states (Croatia, the Czech Republic, Hungary, Poland, Slovakia, Slovenia); the Balkans (Bulgaria, Macedonia, Romania), the Baltic states (Estonia, Latvia, Lithuania); Albania; the Western Former Soviet Union (FSU) states (Belarus, Moldova, Russia, the Ukraine); Caucasus (Armenia, Azerbaijan, Georgia); and Central Asia (Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan).

6. The Czech Republic, Hungary, Poland, Slovakia, Estonia, Latvia and Lithuania.

EU. Their main finding is that FDI seem to have a stronger positive influence on vertical intra-industry trade (VIIT) (i.e. exchange of similar goods of different quality) rather than on horizontal intra-industry trade (HIIT) (i.e. exchange of differentiated goods of comparable quality), and, by implication, to be more influential in preserving rather than diminishing the existing competitive disadvantages within the European area.

What seems to remain uncontroversial (see also Trăistaru, 2004) is the revealed correlation between convergence and increasing trade intensity, although one cannot say for sure what the right causation is. A suggestion is advanced by UNCTAD (2004a), whose insightful study looks at trade among several interrelated factors shaping integration. In this view, the punctuated path of convergence is largely contingent on the presence of dynamic forces (i.e. specialization, learning and innovation, scale economies, or capital formation) that do not respond in a simple or predictable way to the incentives generated from rapid opening up. Thus, it would be more realistic to consider a sizeable diversity in the pattern of integration, even among countries at similar levels of economic development.

### *The analytical perspective*

In addition to general analyses, some papers focus on the specific links established between various indicators of structural patterns and economic development. Positive evidence points to a strong correspondence between similarities of economic conditions and favourable conditions for competitive advance.

As argued by Gabrisch and Segnana (2003), trade liberalization widens the productivity gap when countries' endowments differ significantly and fosters productivity convergence in the opposite case. The underlying link between trade and productivity acknowledges that countries with unequal factor endowments as well as household income distribution tend to have different productivities (i.e. high capital-labour ratio associates with high labour productivity) and, in this logic, trade liberalisation may deepen productivity gaps via VIIT, as the production of lower quality goods tends to move to poorer countries, while higher quality goods crowd together in richer countries. Correspondingly, if countries are similar in their factor endowments, trade liberalisation triggers HIIT followed by productivity and income convergence.

On the basis of that argument, the convergence hypothesis should be further qualified by considering smaller and more homogeneous integration areas that are better prepared to engage in commercial exchanges of similar value. Convincing evidence is put forth by Aturupane *et al.* (1997) who investigate the scope and the determinants of intra-industry trade (IIT) between the EU and eight CEEC<sup>7</sup> during the 1990-1995

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7. Bulgaria, the Czech Republic, Hungary, Moldova, Poland, Romania, Slovakia, and Slovenia.

period. According to their findings, the share of VIIT rises to 80-90% of the total IIT with the EU, which may be suggestive of the arduous catching-up process ahead on the larger scale of the European area. Moreover, this last study is important because it further discriminates IIT along country-specific (i.e. endowments, income levels, distance) and industry-specific (i.e. market structure, scale, product differentiation) factors. Had a greater part of the VIIT been accounted for by country-specific factors, the presumed correspondence between openness, proximity and development would then have been based on firmer grounds. Instead, country-specific factors explain up to 85% of HIIT in contrast with only 15% of VIIT. If, together with Aturupane *et al.* (1997), one assimilates the degree of convergence with the index of HIIT and correlates it with their findings, it becomes clear that the classical beneficial effects of open competition are specific to trade between competitive groups of countries rather than in some indeterminate way.

Researchers arrive at the same conclusions when they deal with monetary instead of trade integration. Such evidence is provided by Trăistaru (2004) who looks into structural and cyclical convergence in the enlarging EU from 1990 to 2003. Envisaging the costs and benefits of the future enlargement of the European and Monetary Union (EMU), the paper investigates the role that the similarity of economic structures and bilateral trade intensity between ten EMU members<sup>8</sup> and eight CEEC<sup>9</sup> plays in the correlation of business cycles across countries. It shows that the relevant indices reach their highest levels between the EMU members while the lowest values correspond to the flows between the acceding countries and the EMU members. Using econometric analysis, the study further reveals that both similarity of economic structures and bilateral trade intensity are positively and significantly associated with business cycle correlations, leading to the suggestion that monetary integration might indeed accommodate growth within areas of homogeneous development.

In the sense which one may finally infer from this exposition, competitiveness plays the role of an input rather than that of an output of the production process. For example, against the fact of overlapping comparative advantages of the SEEC, Trăistaru and von Hagen (2003) conclude that given that those countries also compete in the same external markets, "development strategies should focus on better production structures and differentiated products."<sup>10</sup> What this literature overview suggests however is a somewhat different idea, namely that theoretical arguments and empirical data convincingly support a *separate* treatment of countries and regions according to their different capabilities to take advantage of the integrating area. This material attempts to add to the statistical evidence on trade between European countries by emphasizing distinctively homogeneous regions of trade and development.

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8. The author excludes Ireland and Luxembourg from the analysis due to data limitations.

9. The Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland, Slovakia, and Slovenia.

10. I. Trăistaru and J. von Hagen, 2003, "South-East Europe: Economic Performance, Perspectives and Policy Challenges." Working Paper B-16, Center for European Integration Studies, University of Bonn, May, p. 13.



## Statistical evidence on competitive groups of countries

### *Methodology and findings*

This section aims at providing *prima facie* evidence toward a representation of regional economic integration that would be more suggestive of conditions of similar competitive development. It thus limits its investigative questions to research based on a simple yet comprehensive statistical analysis of the competitive position of thirty-three European countries, which are initially broken down into three major, conventional regional groupings, i.e. the EU-15,<sup>11</sup> the new EU member states (NMS-10),<sup>12</sup> and eight South-Eastern European countries (SEEC).<sup>13</sup>

**Table 1.** Measures of competitive similarity

<i>Determinants</i>	<i>Indicators</i>
<b>Human Development</b>	5 indices <sup>a</sup> : Index of education, Human development index, Urban population (percentage), Health expenses per capita, and GINI index
<b>Economic Performance</b>	6 indices <sup>b</sup> : GDP per capita (PPP value), High tech exports as percentage of total exports of manufactured goods in 2001, 2002, and 2003, Exports per capita, Inward Foreign Direct Investments (FDI) Stock as percentage of GDP
<b>Competition</b>	6 indices <sup>c</sup> : Index of local competition, Index of the cost of corruption, Index of Institutional Investor Country Credit Rating, Average interest rate differential, Index of marketing expertise, and Growth Competitiveness Index (GCI)
<b>Institutions</b>	5 indices <sup>d</sup> : Index of public institutions, Index of governmental efficiency, Index of regulatory quality, Index of the control of corruption, and Index of the state of law
<b>Research and Development (R&amp;D)</b>	5 indices <sup>e</sup> : Number of patents per capita, Index of Corporate R&D, Index of Corporate collaborations, Index of Degree of innovations, Average for the three indices

a. Source: UNDP (2004)

b. Sources: UNCTAD (2004b); World Bank (2004)

c. Source: WEF (2004)

d. Sources: WEF (2004); Kaufmann et al. (2003)

e. Source: WEF (2004)

*Notes:* No data have been found in the following cases: Serbia and Montenegro – no data for Human Development and Economic Performance; Albania – no data for Competition and R&D; Bosnia and Herzegovina – no data for Economic Performance. Therefore, as commonly used in the cluster analysis, the lacking data are replaced by a null variable, forcing that country to be part of a single-country cluster.

11. Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, the United Kingdom.

12. The Czech Republic, Cyprus, Estonia, Hungary, Malta, Latvia, Lithuania, Poland, Slovakia, Slovenia.

13. Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Macedonia, Romania, Serbia-Montenegro, Turkey.



Data are collected for five determinants of competitive similarity and twenty-seven corresponding indicators as shown in Table 1 below. This interpretation summarizes the usual approach in the literature towards the range of relevant indicators as is suggested, for example, by the study of Sachs *et al.* (2000b). They include in their analysis seven determinants – openness, good government, infrastructure, technology, financial sector, labour markets, and institutions – which largely share characteristics of this proposed approach in the way they use a comparable range of indices for measurement.

A similarity analysis is needed in order to provide a degree of differentiation among European countries and regions. To this end, a cluster analysis has been used to process the data with the help of dedicated software (SPSS). The classification uses polythetic, agglomerative clustering methods to arrange the set of observations across the selected characteristics in a way that minimizes within-cluster country differences and maximizes across-cluster country differences.

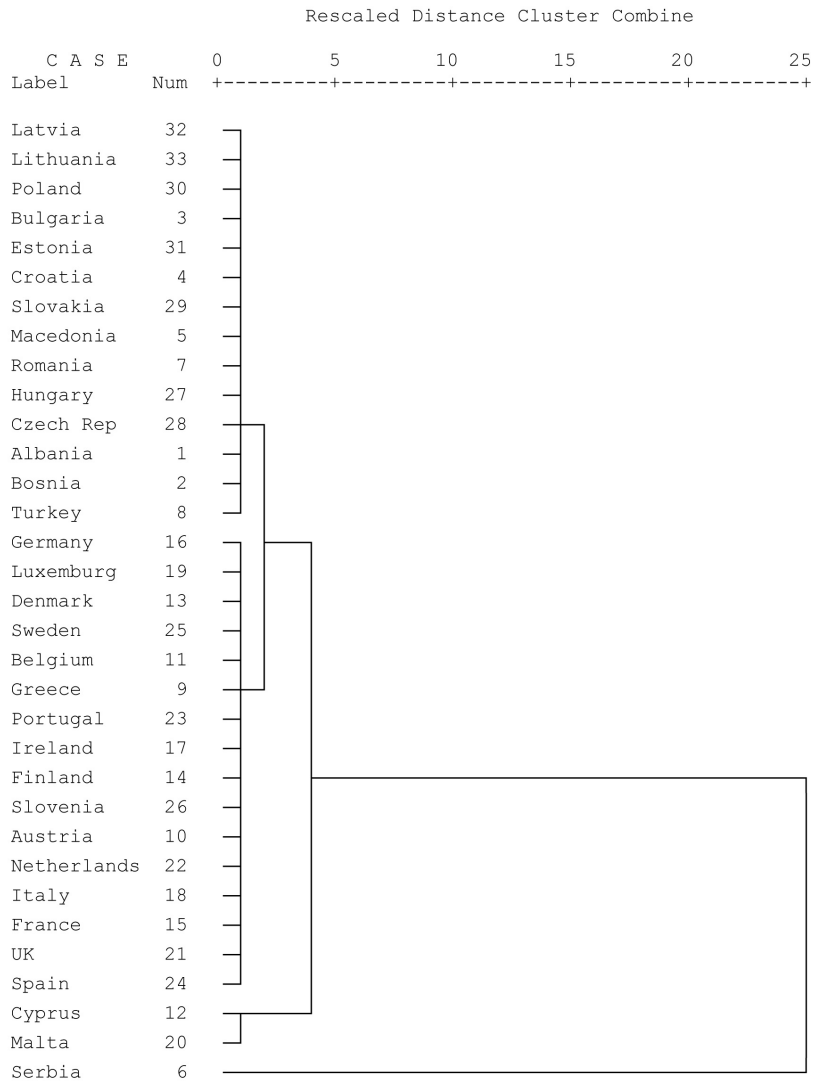
The statistical analysis results in a chain of reunions, each reunion corresponding with a level that is the minimum value of the distance. The results are presented in dendrograms in Figures 1 through 6 discussed in the following section as they have been produced with successive iterations for the values of each determinant and finally for the values of the whole data set.

### *Interpretation of the results*

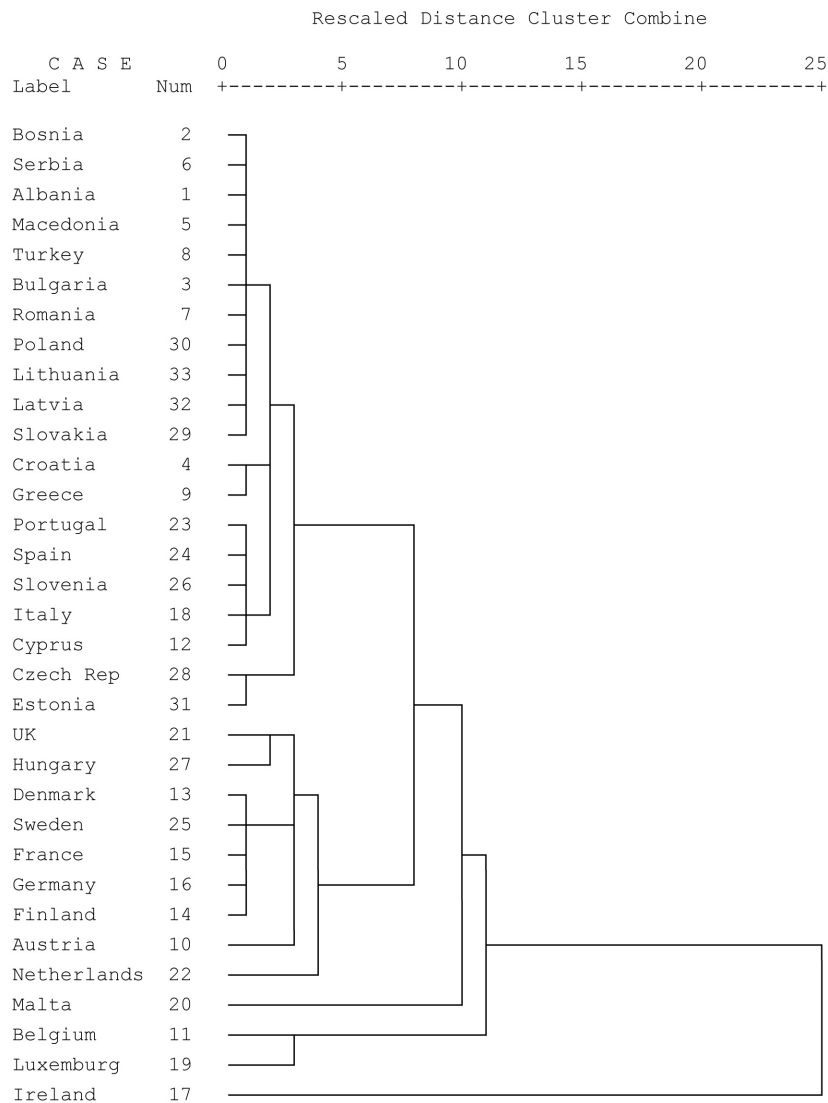
Successive rounds of clustering both at each category level and at all (five) category levels have been used to highlight regional links among thirty-three European countries. The data set can be realistically interpreted on the first iteration of the clustering algorithm, and it appears useful only in certain cases to go beyond this level. The interpretation is based on complementary observations relative to the strength of similarities in instances that weigh most on a country's competitive development. The use of a large series of statistical indicators helps the analysis better discriminate between the random effect of regional clustering by geographical vicinity (as the conventional area definitions suggest) and the hypothesized effect of competitive developments underpinned by homogeneous areas of integration. The following paragraphs describe how that dichotomy emerges at the level of each determinant and prove that geography in itself is simply not a meaningful criterion for competitive similarity of regional groupings. The next section concludes with several remarks on the observed patterns of competitive group formation.

*Human Development* (Figure 1): The first iteration produces four clusters, one of these being the cluster formed exclusively of Serbia because of empty data. The initial three clusters show a strong polarization broadly based on the geography of Europe, between East and West plus a focal Mediterranean point (Cyprus and Malta), but more meaningfully explained by the political frontiers of the Cold War. The positioning of Slovenia with the Western countries is the only exception, that leaves the whole picture unchanged however because of this country's particular location and size. The results are in line with any historical account and reflect the way in which people in the two parts of Europe have grown different under opposed ideologies.

**Figure 1.** Cluster Results on Human Development Dimension for European Countries



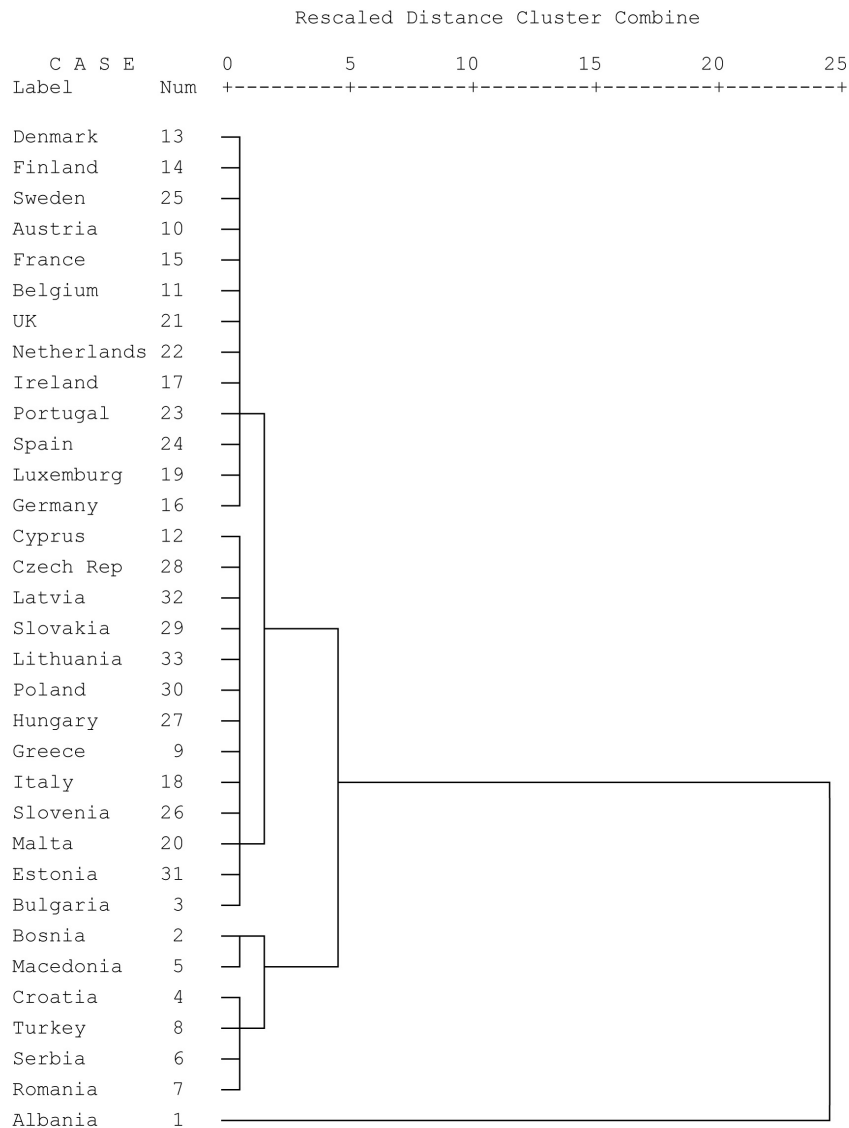
*Economic Performance* (Figure 2): At first the situation appears extremely scattered along small clusters, except for the SEEC which form a single group with several NMS-10. It is interesting to note how in the second iteration that group is joined by the groups of Greece and Croatia plus Slovenia, Portugal, Spain, Italy and Cyprus, followed next by the Czech Republic and Estonia. Most Western countries show similarities no sooner than the third and the fourth iterations, but they include at the core an initial formation of the Nordic countries (Sweden, Denmark, Finland) joined by France and Germany. Hungary and the UK share strong similarities with them, while the rest (Austria, the Netherlands, Malta and Ireland) remain separated.

**Figure 2.** Cluster Results on Economic Performance Dimension for European Countries

*Competition* (Figure 3): Large groups of countries cluster along this dimension and basically delineate the three European areas which were initially considered. The result comes as no surprise given the importance of legislative traditions and business practices in this dimension of competitiveness, which have become manifest over long periods of time and so affected European areas along political divisions as well. From this perspective, the two-tiered eastward enlargement of the EU appears justified yet again by singling out the candidate countries according to their progress during negotiations.

However, two particular aspects stand out amidst those familiar evolutions. For one thing, two successive iterations reveal a strong distinctiveness of the SEEC, which, except for Bulgaria, do not share characteristics with other European groups. For another, the NMS-10 group is, on the contrary, rather heterogeneous: it also includes Greece, Cyprus, Malta and Italy from the EU, and Bulgaria, from the SEEC. This time, no NMS-10 may be found in other clusters.

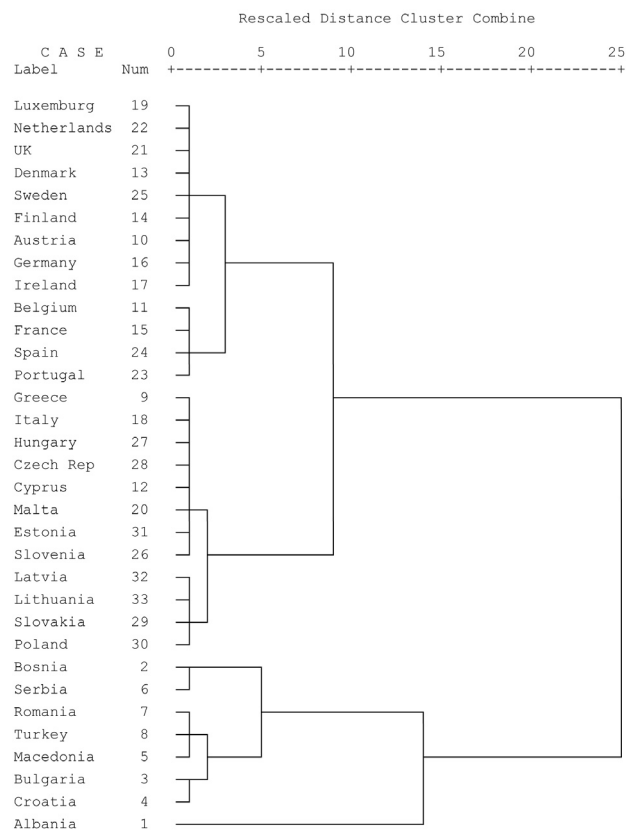
**Figure 3.** Cluster Results on Competition Dimension for European Countries



*Institutions* (Figure 4): The cluster results on the institutional dimension show a less polarized perspective on regional groupings. Even if, by and large, they leave the emerging picture unchanged, it is noteworthy that this dimension adds new insights. The SEEC remarkably stay all in the same group after all four iterations prior to the last, all-encompassing round, which is by no means indicative of the strong distinctiveness of this group. The NMS-10 group again is composed of the original members plus Cyprus, Malta and Italy, which leaves the EU countries in a compact grouping.

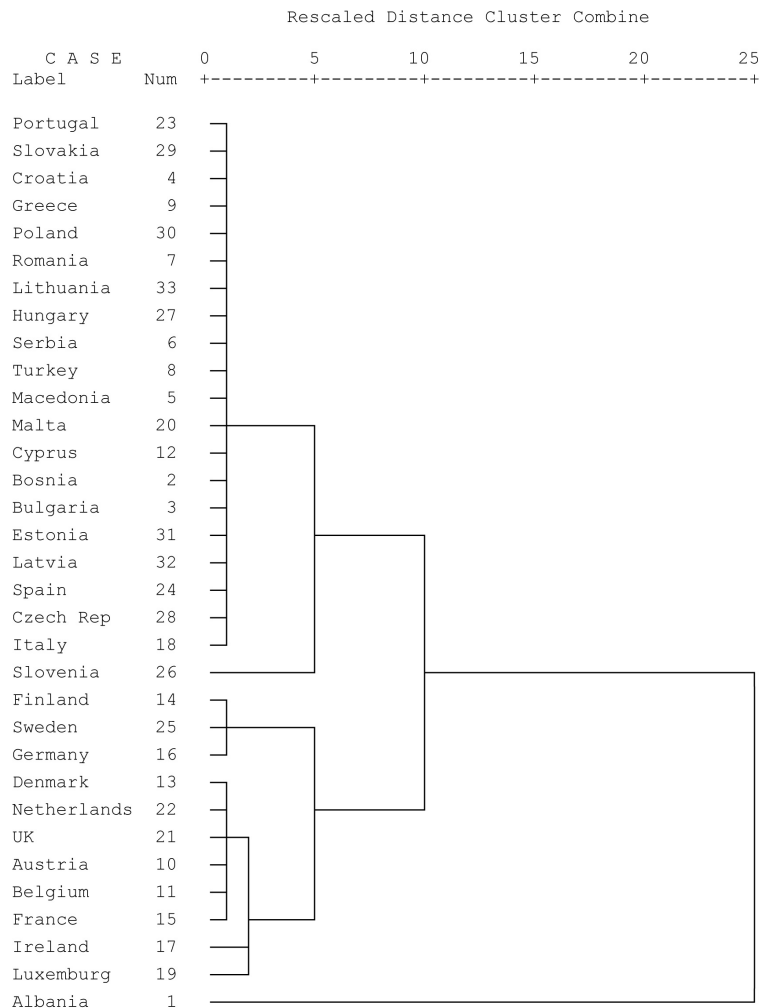
The first iteration also reveals interesting formations of small clusters around countries that share some characteristics beyond geographic proximity. One may only surmise that this is the case as to Latin cultural elements for Belgium, France, Spain and Portugal, the Baltic area specificity for Poland, Slovakia, Lithuania and Latvia, or the Balkan political and economic legacy for all SEEC. Moreover, up to the last iteration, the EU and NMS-10 groups do not mix with the SEEC, which in fact speaks again for at least two areas of development within the larger European integration zone.

**Figure 4.** Cluster Results on Institutional Dimension for European Countries



*Research and development* (Figure 5): This dimension produces probably the more divisive regional groupings. Again, this result is somewhat expected, but the justification comes this time from the borderless character of research. As a large group, the former communist countries prove less dissimilar against each other on this dimension, and even include a great number of EU countries (i.e. Portugal, Spain, Greece, Italy, Cyprus and Malta). Once again, the results that were obtained under the other dimensions somewhat foreshadowed this particular inclusion or suggested its likelihood at least.

**Figure 5.** Cluster Results on Research and Development Dimension for European Countries



## Conclusions

This discussion has been designed to stress conditions of competitive similarity for broad regional groupings at the European level and does not include any suggestion as regards comparable evolutions at a smaller scale. This limitation notwithstanding, the analysis reveals a set of three behavioral patterns, which individually highlight a different facet of regional developments within the European space. The evidence is discussed next along these overall findings.

(1) *There is a core of SEEC, as well as EU countries that form more homogeneous groupings in whatever iteration. In contrast, the NMS-10 group features weaker connections and, correspondingly, a hardly identifiable distinctiveness.* Most visibly, this conclusion is inferred from the joint analysis across all categories and is illustrated in Figure 6. There appear to emerge relatively small groupings, up to a maximum of five countries, whose compositions overlap consistently with the area definition their members belong to, with the notable exception of the NMS-10 group. The SEEC area is represented by Romania, Turkey and Croatia in one group and Bosnia & Herzegovina and Macedonia in a second one, which later fuse into one bigger area and stay together at a significant distance from other groupings. Similarly, the EU brings together four small groups in a uniformly competitive space, namely the Scandinavian countries joined by Germany and the other clusters which are formed of only two countries (Austria and France, the UK and the Netherlands, Belgium and Luxembourg). As for the other countries, and with the exception of Albania and Serbia which were statistically marginalized because of empty data, no clear pattern emerges. Bulgaria and Greece join the NMS-10 and the EU member countries, respectively, while Spain, Portugal, and Italy show strong affinities with the NMS-10 group.

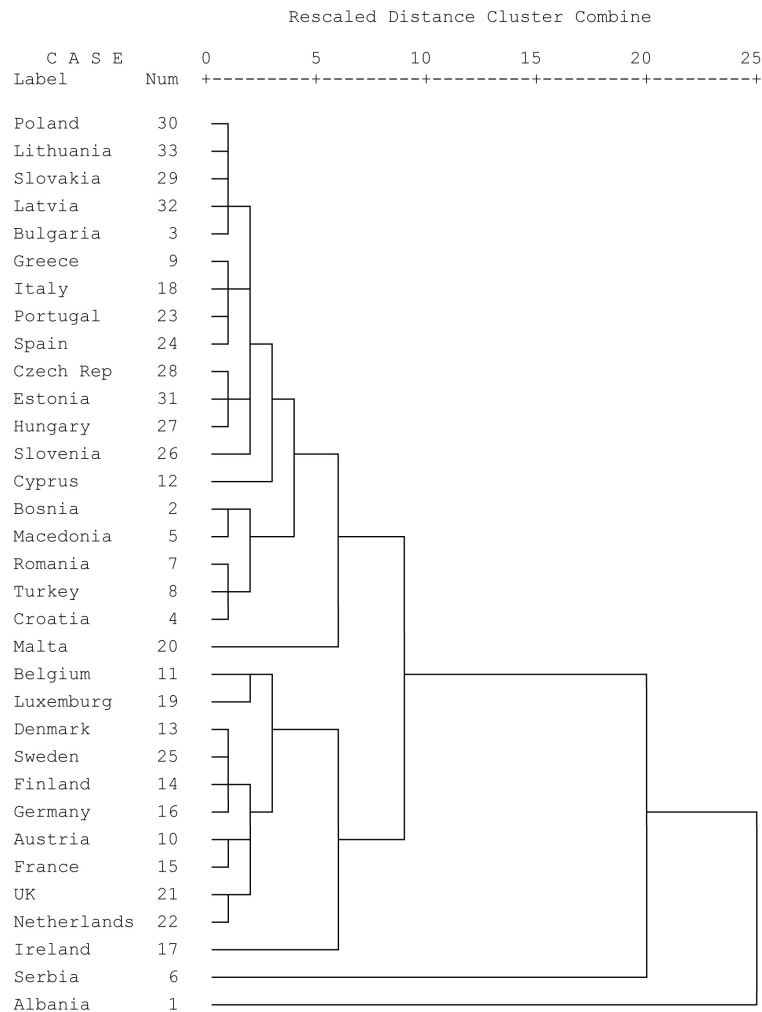
(2) *The observed homogeneous areas of competitive development remain unaltered for iterations performed separately with respect to each of the five economic dimensions.* If there are exceptions, these rather strengthen the case of homogeneous competitive areas: Croatia leaves the group only to join the other SEEC countries in just two instances ("Economic performance" and "Institutions"); Spain, Portugal, and Italy, joined occasionally by Cyprus and Malta move back and forth between the NMS-10 and the EU countries, while Bulgaria and Greece show a similar instability but relative to the NMS-10 and SEEC areas. In stark contrast with this idiosyncratic behaviour, the SEEC and EU regions prove remarkably distinct by means of pronounced intra-regional similarities.

(3) *A third major conclusion emerges when considering the number of clusters: the narrower the economic significance of the category dimensions along which the groupings cluster, the smaller is the area that forms at the first iteration.* If one-country clusters are left aside, one gets 3 clusters for both "Human development" and "Research & development", 4 for "Competition", 5 for "Economic performance", 7 for "Institutions", and 8 for joint analysis.



The results confirm what appears to be common sense, namely the fact that countries tend to cluster into larger groups the more general their denominator is, say, political legacy, historical circumstances or shared ideology. At the same time, taking into account the indicators' meaningfulness for the economic environment in which industries evolve, as suggested by the ascending order of the above sequence, it thus appears reasonable to think that a better understanding of regional effects of integration strongly relates to a similarly better representation of regional groupings based on comparable competitive evolutions.

**Figure 6.** Cluster Results on the Whole Set of Determinants of Competitive Similarity for European Countries



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