

## **CHAPTER 4: THE ENLARGEMENT OF THE EUROPEAN UNION AND THE SPATIAL DISTRIBUTION OF ECONOMIC ACTIVITY.**

### **1. Introduction and main objectives**

The European Union is one of the world's most prosperous economic areas, but there are large economic disparities between its Member States. Indeed, these disparities are even larger if we look at the EU at regional level: among the Union's 250 regions, GDP is almost three times higher in the ten most dynamic locations than in the ten at the bottom of the scale. The aim of regional policy is to reduce these disparities. Apart from the efforts of local, regional and national authorities, article 158 of the Treaty of Amsterdam states that "... the Community shall aim at reducing disparities between the levels of development of the various regions and the backwardness of the least favoured regions or islands, including rural areas".

One of the challenges facing the European Union's regional policy is the accession of new countries to the Single Market and to Economic and Monetary Union. Conditions in many of these Eastern European countries are worse than in the least developed regions of the 15 existing Member States. Moreover, the accession of these countries is likely to have a marked effect on the geographical distribution of economic activity in the rest of the European Union (EU) regions.

In recent years, as a consequence of the enlargement of the Union and the emergence of the New Economic Geography (Krugman 1991a, b), interest in the location of economic activity and, more specifically, in its concentration, has grown. The earliest models developed in New Economic Geography offered an endogenous explanation for the agglomeration of activity in a territory. Following the seminal papers of Krugman, models of this kind have explained the regional distribution of industry as the result of the tug-of-war between centripetal forces (forces that tend to promote geographical concentration) and centrifugal forces (those that tend to oppose it: see Ottaviano and Puga 1997; Krugman 1998; and Martin 1999 for a survey). Among the forces that contribute to agglomeration are the three traditional Marshallian sources of external economies: backward and forward linkages between firms (consequence of input-output linkages), the existence of an immobile local labour market (under the assumption of inter-regional mobility) and the presence of external economies via information spillovers. In contrast, the presence of immobile factors (certain land and natural resources and even, in an international context, people as well), the high land rents in places characterised by a notable concentration of economic activity, and external diseconomies (such as congestion) are the main centrifugal forces working against industrial concentration.

Economic integration may have an impact on the eventual spatial location of economic activities, given that it affects the equilibrium between the forces of dispersion and agglomeration. Thus, in the first stages of integration (characterised by high trade costs),

the need to supply markets locally encourages firms to locate in different regions, leading to a stable, symmetric equilibrium. However, as the integration processes advance (leading to intermediate values of trade costs) and under the hypothesis of increasing returns, the incentives for self-sufficiency weaken, leading to the concentration of industry in the region with the largest market-size. Pecuniary externalities then take over; firms and workers cluster together, and the cumulative causation process begins, leading regions to differentiate endogenously into an industrialised core and a deindustrialised periphery. Interestingly, many of the theoretical models support the existence of an inverted-U shape relationship between the degree of integration and the level of concentration of activity. The identification of this relationship has led several empirical studies to analyse the effects of the process of European integration on the location of the activity.

The spatial distribution of activity that we see today may be about to change. The enlargement of the European Union to include Central and Eastern Economies (CEEC) may bring with it a new scenario. The economies of the Candidate countries are characterised by a predominance of primary and secondary activities, with high levels of industrial concentration in specific locations, insufficient human capital and infrastructure endowments, and a low level of participation of small firms.

Taking it into account, this paper aims to discuss the lessons that we have learnt from the latest adhesions to the EU, in order to be able to predict the scenarios that will arise from the enlargement scheduled for mid-2004. The experience gained from the past may aid our analysis of potential effects of the fifth enlargement. In particular, three questions are considered in this paper:

- What effects have previous enlargements had on both the spatial distribution of economic activity and the evolution of inequalities?
- Could the experience of the traditional periphery regions in Greece, Portugal or Spain during integration shed light on the potential consequences of integration for the central and eastern regions of Europe?
- What policy actions should be implemented in the future?

To attempt to answer these questions, we computed specialisation and concentration indexes in order to highlight the effects of enlargement on the spatial distribution of activity in the EU. We also calculated inequality measures to describe the evolution of regional disparities before and after enlargement. Both sets of results may allow us to determine whether there is a relationship between regional wealth measured in terms of GDP per capita (GDPpc) and sectorial specialisation. With this aim in mind, we compiled a regional<sup>1</sup> and national database for EU-15 and for Candidate countries with a high degree of

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<sup>1</sup> The database covers a set of 185 regions incorporating the entire EU-15 territory as well as regions from candidate countries. The regions were classified as follows: NUTS II, Portugal (5 regions), Spain (17), France (21), Italy (29), Greece (13), Sweden (8), Finland (6), Austria (3), Bulgaria (6), Czech Republic (8), Hungary (7), Poland (16), Romania (8), Slovak Republic (4), Denmark, Ireland, Estonia, Lithuania, Latvia, Slovenia, Cyprus and Malta; and NUTS I: the UK (11), Belgium (3), Holland (4) and Germany (16) and Luxembourg.

sectorial<sup>2</sup> detail, from 1985 to 2001<sup>3</sup>. Our main source was the EUROSTAT REGIO Database, complemented with data from National Statistical Offices.

The paper is structured as follows. Section 4.2 will study the evolution of activity distribution in EU-15 from 1985 to 1999. This analysis includes two main topics: a consideration of the evolution of disparities in terms of GDPpc, and an appraisal of the development of concentration and specialisation patterns. Section 4.3 focuses on experiences from previous enlargements in the eighties (Greece, Spain and Portugal), analysing both the evolution of disparities between regions of these countries and their main structural characteristics. In Section 4.4 an analogous study is applied to candidate regions in order to define their current situation. Section 4.5 concludes and makes recommendations for regional policy on the basis of our empirical evidence. In addition, some questions are put forward in order to define a structural framework of regional support.

## **2. Evidence from integration**

### **2.1. Evolution of disparities**

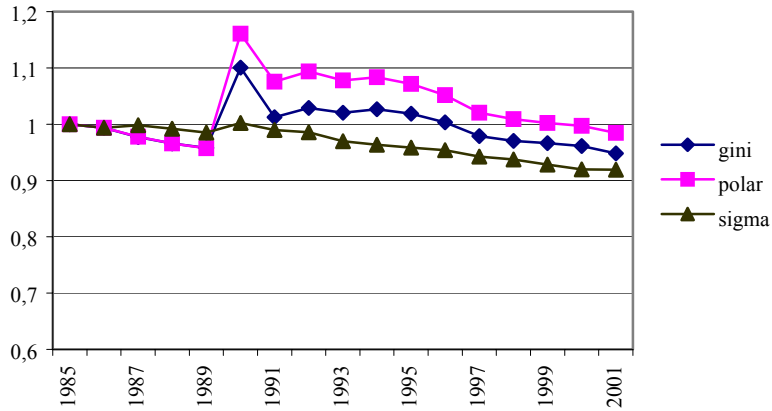
To analyse the evolution of disparities in terms of GDP per capita we applied a range of measures of inequality:  $\sigma$ -convergence, Gini index, polarisation index and estimating kernel density functions. From this analysis we observe that income differences between member states have fallen over the period considered (1985-2001) as figure 1 illustrates. However, figure 2 shows that inequality between regions persisted during the last decade, in spite of considerable efforts from the EU to increase funds and to eliminate divergences between regions. The European budget for 2000-2006 has risen by nearly 30%. The Second report on economic and social cohesion of the European Commission (EC, 2001) notes that in 1998 the top 10% richest regions still had an average GDP per capita 60% above the EU average, while the poorest 10% had a level nearly 40% below.

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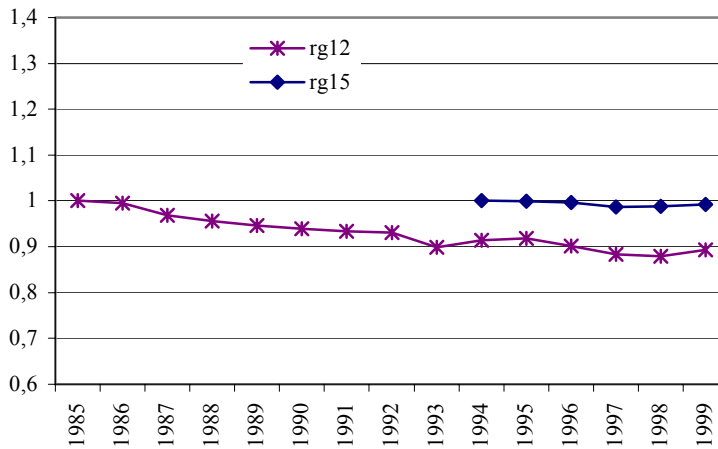
<sup>2</sup> We have considered the 17 branches that were available. However, in the case of candidate regions, only 9 branches were available.

<sup>3</sup> The sample varies depending on variable or territorial level considered.

**Figure 1 Evolution of disparities: EU12 countries (1985-2001)**



**Figure 2 Evolution of regional disparities (1985-1999): Gini coefficient**



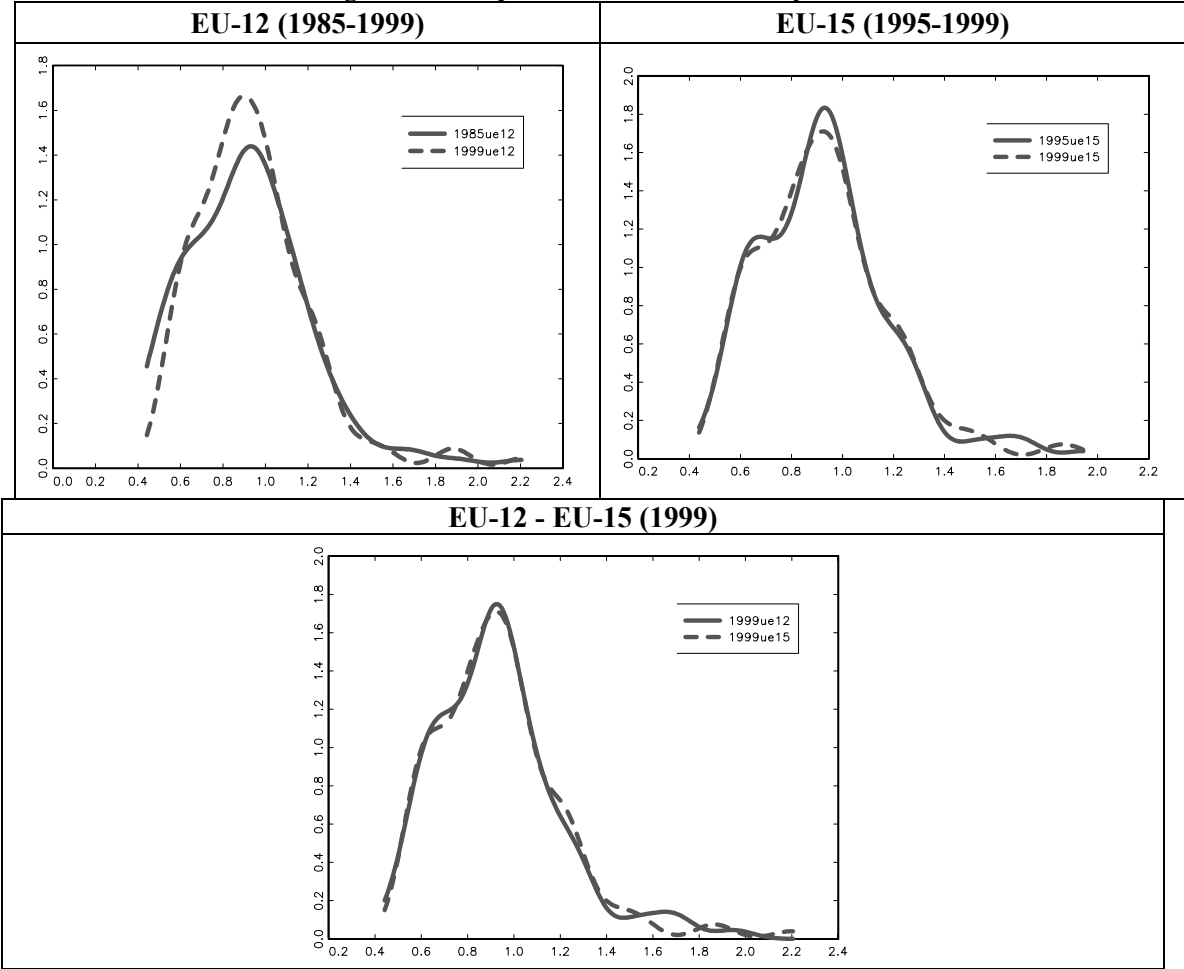
Note. rg12 refers to EU-12 regions and rg15 to EU-15 regions.

The next issue is the estimation of kernel density functions for all the cases analysed (see Quah, 1996). The results in figure 3 correspond to distributions in the initial and final period. An estimation of this kind illustrates the performance of GDP per capita distribution, which allows us to identify the regions in which inequality magnitudes have worsened and those in which they have not (enhancing lower or upper cues). The figures show probability measures related to an average value (unity) that is also provided by the REGIO Database. EU-12 regions (1985-1999) show a clear tendency towards concentration (moving towards the average level). Nonetheless, the higher probability mass increases,

leading to greater concentration, but richer regions reach values above the average, which may cause stagnation in the polarization index.

If Swedish, Finnish and Austrian regions are included (EU-15 for period 1995-1999), two main findings should be reported. First, comparing the initial and end period we see that the density function moves towards a higher concentration around the mean, even though a considerable probability mass remains around 65% of the mean. There are also increases in probability masses at higher levels (125%, 145% and 185% above the mean value). Second, when EU-12 and EU-15 are compared, regional distribution of GDP per capita in EU-15 shows small but significant differences in probability masses for both lower and higher levels in relation to the average value. Moreover, the inequality results show higher stagnation for EU-15 than for EU-12, confirming the dissimilarities visible in the shape of the distributions. Nonetheless, the shape of the distributions is similar at intermediate level for the end period considered.

**Figure 3. Comparison of kernel density functions**



## 2.2. Concentration and specialisation patterns

To analyse the evolution of the spatial distribution of activity during the integration process, we calculated three different indexes. The first is a sectorial location coefficient ( $L_j$ ), which informs us whether one sector  $j$  is highly concentrated in few regions ( $L_j \rightarrow 1$ ) or if, on the contrary, its distribution is more equilibrated ( $L_j \rightarrow 0$ ).

$$L_j = 1/2 \sum_{i=1}^N \left( \frac{x_{ij} - x_i}{x_j - x} \right) \quad i = 1, \dots, N; j = 1, \dots, R$$

where  $x_{ij}$  is the GVA in the region  $i$  in the sector  $j$ ;  $x_i$  ( $x_j$ ) the total GVA in the region  $i$  (sector  $j$ );  $x$  is the total GVA. We also computed a regional specialisation coefficient ( $L_i$ ), usually known as a Krugman specialisation index, in order to determine whether a region  $i$  is extremely specialised in certain sectors ( $L_i \rightarrow 1$ ) or if the distribution of its GVA is diversified ( $L_i \rightarrow 0$ ). The sectorial concentration coefficient is:

$$L_i = 1/2 \sum_{j=1}^R \left( \frac{x_{ij} - x_j}{x_i - x} \right) \quad i = 1, \dots, N; j = 1, \dots, R$$

This last index is a regional-sectorial concentration coefficient,  $L_{ij}$ . It informs us if one sector  $j$  is highly concentrated in region  $i$  in comparison with the overall EU value ( $L_{ij} > 1$ ) or if, on the contrary, a small proportion of the GVA of  $j$  is located in this region,  $L_{ij} < 1$ , in relation to the EU average. Therefore, specialisation patterns are compared with an average value for the EU. The regional-sectorial concentration coefficient is defined as follows, in which its elements have the same meaning as before.

$$L_{ij} = \frac{x_{ji}/x_i}{x_j/x} \quad i = 1, \dots, N; j = 1, \dots, R$$

These indexes have been computed for EU-12 regions, for 17 branches of activity and for 1985 and 1995. From this analysis some conclusions can be drawn<sup>5</sup>.

First, regarding sectorial concentration at a regional<sup>6</sup> level for EU-12<sup>7</sup> (see table 1), we found that two traditional industrial sectors were the most concentrated in 1985: Textiles

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<sup>5</sup> More results are available upon request.

<sup>6</sup> The lack of regional data prevents us for the moment from including German regions and three UK regions in our EU-12 sample.

<sup>7</sup> Almost all the branches were more concentrated than at country level.

and clothing<sup>8</sup> and Ferrous and non-ferrous ores and metals sectors. Both sectors are considered by OECD as low-tech industries. The third most concentrated sector is Agricultural, forestry and fishery products<sup>9</sup>, followed by two medium and high-tech industries: Chemical products<sup>10</sup> and Transport equipment. Regarding the sectorial distribution of services (typical sectors of "non traded goods"), the concentration showed lower values than the ones computed for industrial sectors. After repeating the study for 1995, we concluded that ten years after the integration process, the Agricultural, forestry and fishery products sector remained one of the most geographically concentrated. At industrial level, and in line with the New Economic Geography, most sectors had slightly increased their degree of concentration, especially Paper and Printing products, Chemical products and Food, beverage and tobacco. Services sectors they had also increased their concentration level. No outstanding changes were found when the sample was widened to include Finnish, Swedish and Austrian regions.

**Table 1.  $L_j$  indexes for 17 selected sectors. Regional level**

	<b>EU-12-1985</b>	<b>EU-12-1995</b>	<b>EU-15-1995</b>
Agricultural, fishing and forestry products	0.292	0.303	0.306
Fuel and power products	0.244	0.204	0.213
Ferrous and non-ferrous ores and metals, other than radioactive	0.347	0.376	0.386
Non-metallic minerals and mineral products	0.202	0.215	0.220
Chemical products	0.216	0.283	0.284
Metal products, machinery, equipment and electrical goods	0.185	0.217	0.214
Transport equipment	0.219	0.214	0.217
Food, beverages, tobacco	0.191	0.240	0.242
Textiles and clothing, leather and footwear	0.358	0.353	0.360
Paper and printing products	0.166	0.226	0.231
Products of various industries	0.219	0.206	0.209
Building and construction	0.079	0.096	0.098
Recovery, repair, trade, lodging and catering services	0.072	0.087	0.089
Transport and communication services	0.109	0.106	0.105
Services of credit and insurance institutions	0.158	0.165	0.170
Other market services	0.105	0.160	0.164
Non-market services	0.059	0.108	0.114

Second, when the specialisation index was computed (figures 4 and 5), we observed that the most specialised regions were some Portuguese regions (not Lisbon), Greek regions and

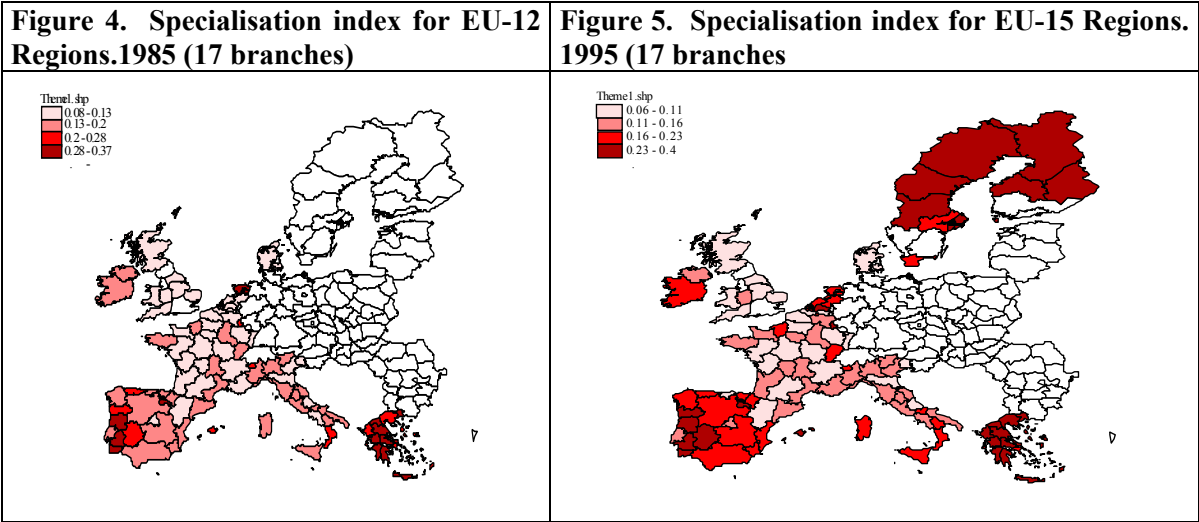
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<sup>8</sup> In 1985, some Greek regions, some northern Italian regions (Marche, Toscana and Veneto) and the northern Portuguese regions of Norte and Centro became the most specialised in this mature industry. A similar situation is found in 1995, when Lombardy was also the most specialised region.

<sup>9</sup> Alentejo and most of the Greek regions were clearly more specialised in this sector than the whole of Europe in 1985. A similar situation was found in the case of some regions in western Spain and southern Italy. Similar results are obtained at the end of the period, the Greek, most of the Portuguese, southern Italian and northern Finnish regions being the highest specialised in this sector compared to the whole sample. It is worth noting that in 1995 most Portuguese and Greek regions showed a marked increase in their level of specialisation in the Agricultural sector.

<sup>10</sup> In 1985 only a few regions were relatively highly specialised in chemicals – Catalonia, Cantabria, Lombardy and a spatial cluster composed by Vlaams Gewest, West-Nederland and Zuid-Nederland and at the end of the period, only Dutch regions (with the exception of Nord Nederland) were highly specialised in this sector.

some Finnish and Swedish regions (Småland med oarna, Stockholm, Norra Mellansverige, Övre Norrland and Etela Suomi), a fact that made them more sensitive to asymmetrical shocks. The opposite was found in the case of most British, French and some Italian regions and Ostösterreich. Comparing the two periods under consideration (1985 and 1995), there was no general trend towards greater or lesser specialisation among EU-12 regions during the integration process.



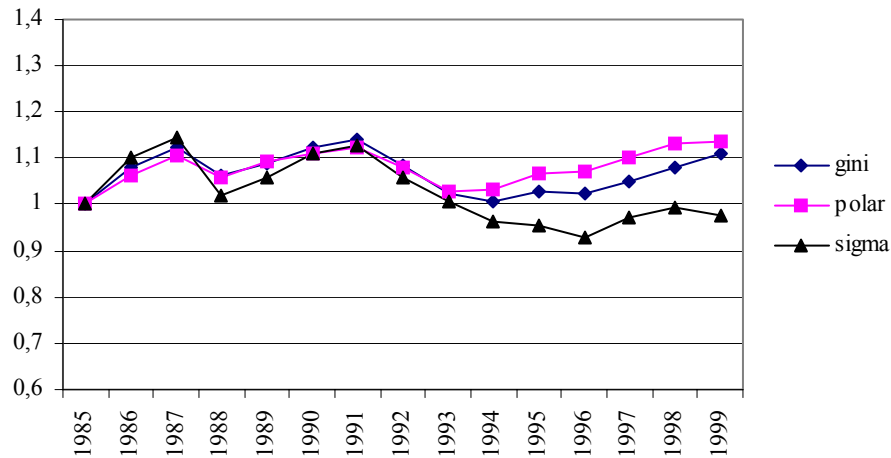
**3. Lessons from enlargements in the eighties**

Next, in order to assess the effects of the enlargements in the eighties, this section focuses on the characterisation of Greek, Spanish and Portuguese regions.

Regarding the evolution of disparities only for regions in countries that joined the EU in the eighties (Greece, Spain, Portugal), the analysis shows that regions in these countries tended to increase their differences and to polarise their behaviour towards their own group's average value (see figure 6). So, in spite of the stagnation of disparities between EU-15 regions during the nineties, if we consider these regions alone we find an increase in the degree of polarisation (especially, since 1993).

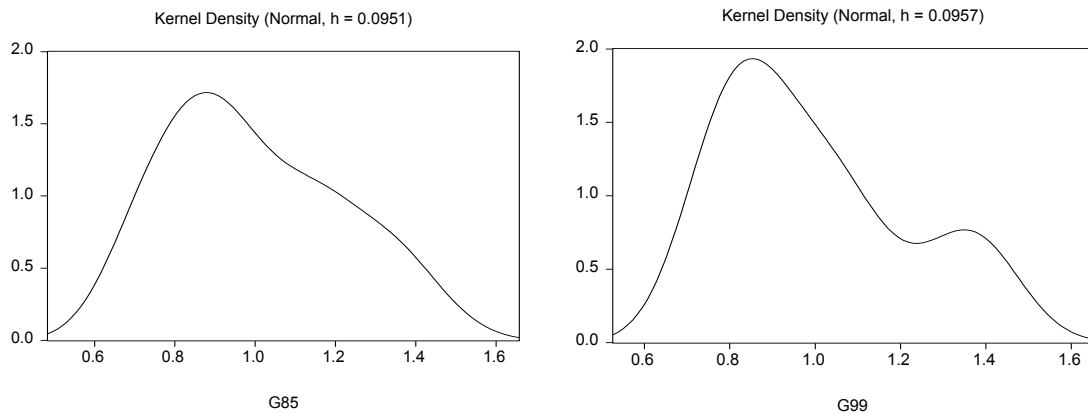


**Figure 6 Evolution disparities: Greek, Portuguese and Spanish regions**



This is the result of the behaviour of the better-positioned regions in the selected countries, which moved far from the average levels for their own average sample (see figure 7), while the relative positions of the poorest regions in those countries did not improve. This has created a development trap.

**Figure 7 Kernel density functions: Greek, Portuguese and Spanish regions**

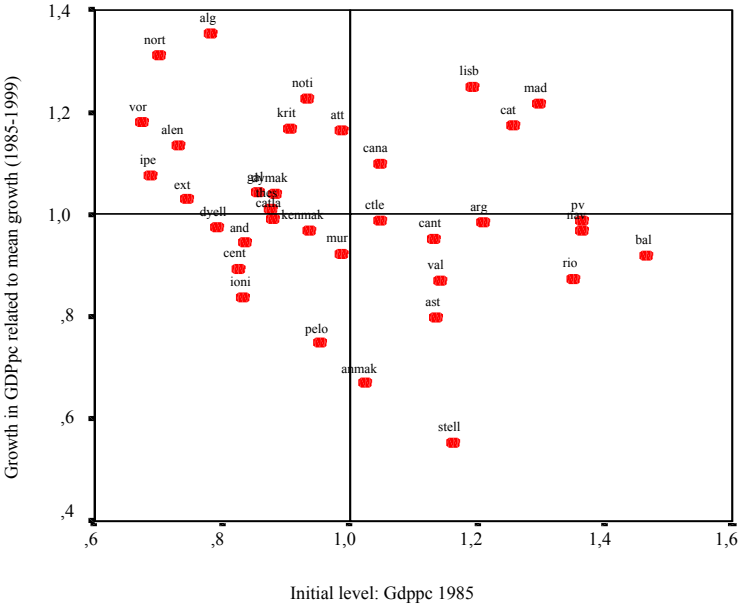


Therefore, during the integration process, inequality among countries in the EU-12 has decreased, but differences between regions in the poorest countries have increased, in spite of the existence of structural funds.

The best positioned regions at the beginning of the period were the Spanish regions of Balearics, Navarre, the Basque Country, La Rioja, Madrid, Catalonia and Aragon, and Lisbon in Portugal. The worst placed were the Greek regions of Voreio Aigaio, Dytiki Ellada and Ipeiros, the Spanish region of Extremadura and most Portuguese regions (with the exception of Lisbon). At the end of the period the situation had not changed; the initial gaps persisted. Nonetheless, during the period analysed (1985-1999), a degree of convergence between regions is observed. In general terms, some of the poorest regions in 1985 such as Kritiki, Voreio Aigaio, Atikki, and particularly Notio Aigaio, Norte and

Algarve, grew more than the average. The reverse was the case with some of the best positioned regions in 1985. However, some of richest (poorest) regions at the beginning of the period grew more (less) than the average, leading to an increase in the degree of polarisation (see figure 8). For instance, Madrid, Lisbon, Catalonia showed notable growth rates (higher than the average), while Ionia Nisia, Dityki Ellada, Peloponnisos and Centro grew less than the average (despite their gap in 1985). In addition, Anatolikki Makedonia and Sterea Ellada, regions with very low growth rates, fell several places in the rankings by the end of the period, showing a below average level of GDP per capita (GDPpc) in 1999, whereas in 1985 their GDPpc had been above average.

**Figure 8. GDPpc growth versus initial position in 1985**



A question that arises from the above section is this: what characterises the regions that have improved so markedly in comparison with other regions in the same countries during the integration process? In order to identify the main characteristics of regions that improved (deteriorated) more than expected in terms of GDPpc, we studied the relation between relative GDPpc at the end of period (and growth) and certain structural variables for this group of regions, such as R&D expenditure as a percentage of GDP, a market potential index<sup>11</sup>, wages per employee, degree of overall specialisation (the  $L_i$  index), sectorial structure (the  $L_{ij}$  index), human capital dotation<sup>12</sup> and distance from the European Core (see table 2). The main conclusions can be summarised as follows. There seems to be

<sup>11</sup> Market potential for region  $i$  is defined as the sum of GDP of the rest of regions weighted by the inverse of the distance between  $i$  and each region ( $d_{ij}$ ).  $d_{ij}$  is the great circle distance between regions  $i$  and  $j$ , computed by using ARC-VIEW from coordinates in the digital map of EU regions by EUROSTAT.

<sup>12</sup> This variable have been proxied by means of the percentage of education (persons aged 25-59), with a high level in 2000.

a marked negative correlation between the relative GDPpc in 1999 and the level of sectorial specialisation in 1985<sup>13</sup> and the level of relative specialisation in the Agricultural products sector<sup>14</sup> and in mature industries such as Textiles and clothing<sup>15</sup> (also in 1985). This is the case of some Greek regions (Ionia Nisia, Peloponnisos, Atikki, Kritti, Ipeiros, Anatoliki Makedonia and Dityki Makedonia) and the Portuguese regions of Algarve or Alentejo. It should also be said that in regions that deteriorated over time, such as Alentejo, Ionia Nisia, Peloponnisos and Sterea Ellada, the relative degree of specialisation increased between 1985 and 1995.

**Table 2. Correlation levels between GDPpc in 1999 and instrumental variables**

Regional specialisation index (Li)-1985	<b>-0.431</b>
R&D expenditures as percentage of GDP-1990	<b>0.597</b>
L <sub>ij</sub> (1985) at Agricultural, forestry and fishery products	<b>-0.678</b>
L <sub>ij</sub> (1985) at Fuel and power products	-0.011
L <sub>ij</sub> (1985) at Ferrous and non-ferrous ores and metals, other than radioactive	0.138
L <sub>ij</sub> (1985) at Non-metallic minerals and mineral products	-0.002
L <sub>ij</sub> (1985) at Chemical products	0.348
L <sub>ij</sub> (1985) at Metal products, machinery, equipment and electrical goods	<b>0.549</b>
L <sub>ij</sub> (1985) at Transport equipment	0.352
L <sub>ij</sub> (1985) at Food, beverages, tobacco	0.252
L <sub>ij</sub> (1985) at Textiles and clothing, leather and footwear	-0.321
L <sub>ij</sub> (1985) at Paper and printing products	-0.142
L <sub>ij</sub> (1985) at Products of various industries	<b>0.463</b>
L <sub>ij</sub> (1985) at Building and construction	-0.156
L <sub>ij</sub> (1985) at Recovery, repair, trade, lodging and catering services	0.158
L <sub>ij</sub> (1985) at Transport and communication services	0.200
L <sub>ij</sub> (1985) at Services of credit and insurance institutions	<b>0.706</b>
L <sub>ij</sub> (1985) at Other market services	<b>0.527</b>
L <sub>ij</sub> (1985) at Non-market services	-0.133
Peripheral index-1985	0.210
Wages by employed-1991	<b>0.717</b>
Distance from the core	<b>-0.541</b>
Education-persons aged 25-59 (% of total), with high level-2000	<b>0.679</b>

On the other hand, there was a notable positive correlation between the relative GDPpc in 1999 and the R&D expenditure as a percentage of GDP, the degree of specialisation in medium and high tech industries (such as Chemical products<sup>16</sup>, Transport equipment and, especially, in Metal machinery, equipment and electrical goods<sup>17</sup>) and, in particular, the degree of specialisation in knowledge intensive services such as Services of credit and

<sup>13</sup> However, when agricultural sector is not considered in the specialisation index (L<sub>i</sub> in 1985), there is not a strong negative correlation between GDP pc at the end of the period and the mentioned index.

<sup>14</sup> Peloponnisos, Kritti, Thessalia, Dytiki Ellada, Anatoliki Makedonia and Alentejo show the highest levels of specialisation in 1985.

<sup>15</sup> Norte, Centro, Anatolikki Makedonia, Sterea Ellada and Dityki Makedonia show the highest levels of specialisation.

<sup>16</sup> Catalonia, Madrid, Cantabria, Lisbon and Alentejo show the highest levels of specialisation in 1985.

<sup>17</sup> The Basque Country, Navarre and Catalonia show the highest levels of specialisation in 1985.

insurance institutions.<sup>18</sup> In addition, regions with higher wages per employee in 1990 presented high levels of GDPpc at the end of the period<sup>19</sup>. A possible explanation would be that this variable may reflect the presence of a better qualified labour force in the richer regions. Also, there seems to be a clear negative link between the relative level of GDPpc and the distance from the European Core throughout the period (despite the improvements in infrastructures, which reduced the importance of physical distance<sup>20</sup>). Finally, there is a positive correlation between human capital endowment in final period with level of GDPpc in 1999. So, again, at ending period, regions with highest levels of GDPpc show best positions in variables that condition future growth.

So it seems that regions with a diversified sectorial structure, in which high tech industries and knowledge intensive services (especially credit and insurance services) played important roles, close to the European core, with substantial R&D expenditure and with relatively qualified labour force were able to benefit from the integration process and to improve their initial relative positions. In contrast, regions with a low degree of diversification in their sectorial structures (and thus a greater sensitivity to asymmetric shocks), relatively high levels of specialisation in the Agricultural sector and mature low tech industries (such as Textiles and Clothing, Paper and printing or Non-metallic minerals and mineral products) in the initial period, far from the European core, with low investment in R&D and with a preponderance of low-skilled labour showed the worst relative positions in terms of GDP pc after 15 years of integration, being caught in a certain poverty trap. This was so despite changes in their sectorial structures (such as reducing the weight of the Agricultural sector in the GDP) and the existence of structural funds during this period. Figure 9 shows some of these results.

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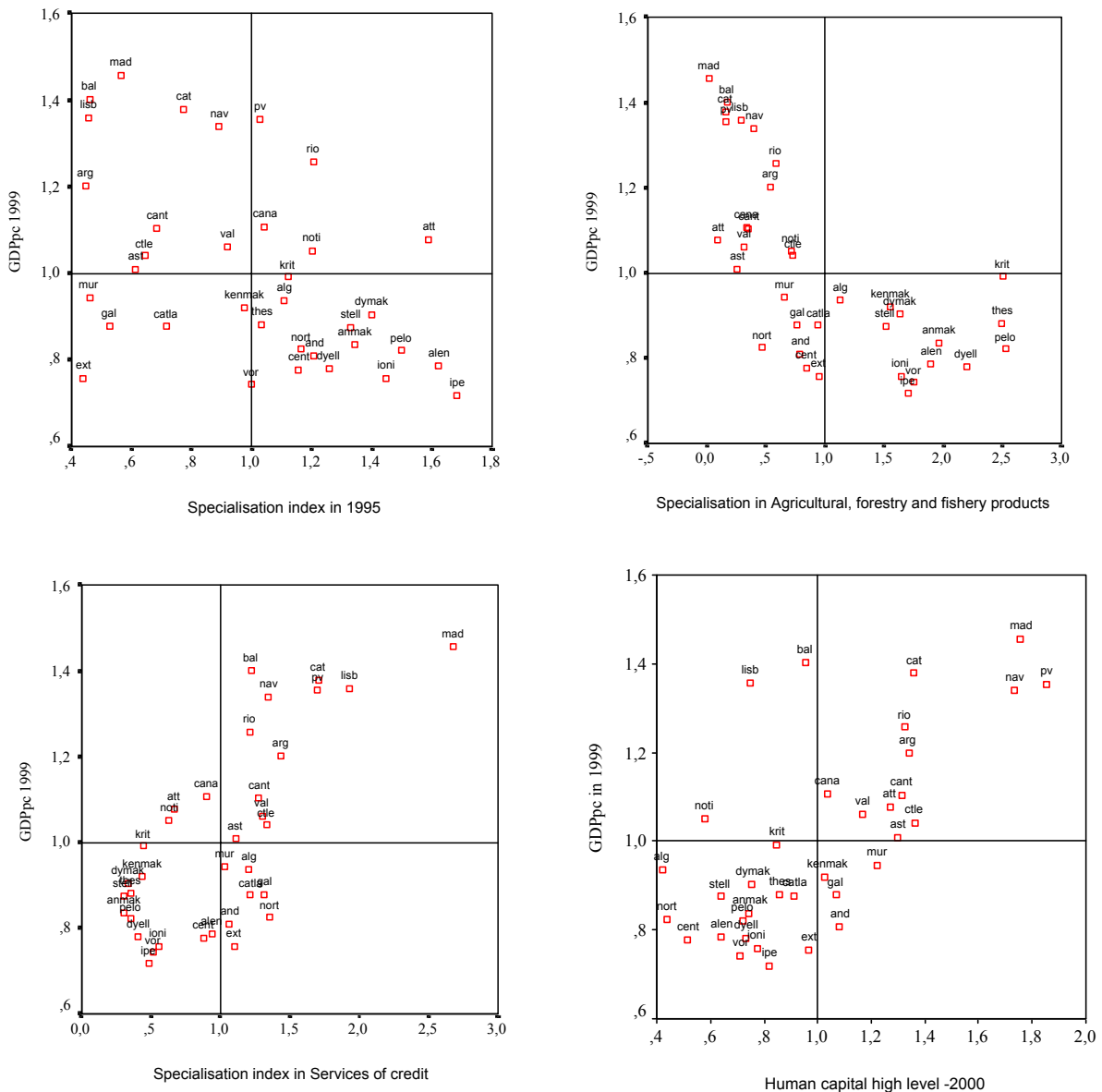
<sup>18</sup> Madrid, Lisbon, Catalonia and the Basque Country show the highest levels of specialisation in 1985.

<sup>19</sup> Madrid, Catalonia, the Basque Country and Navarre show the highest levels of specialisation in 1990.

<sup>20</sup> In fact, the correlation between GDPpc and distance from the core decreased during the period.

<sup>22</sup> Computing inequality indexes for eastern regions in period 1995-1999,  $\sigma$ -convergence shows a slight increase for the first two years, while the Gini and polarisation indexes rise during the overall period.

**Figure 9 GDPpc in 1999 versus overall specialisation index, specialisation in Agriculture, specialisation in Services of credit and human capital endowment**



### 3. Evidence for Candidate countries

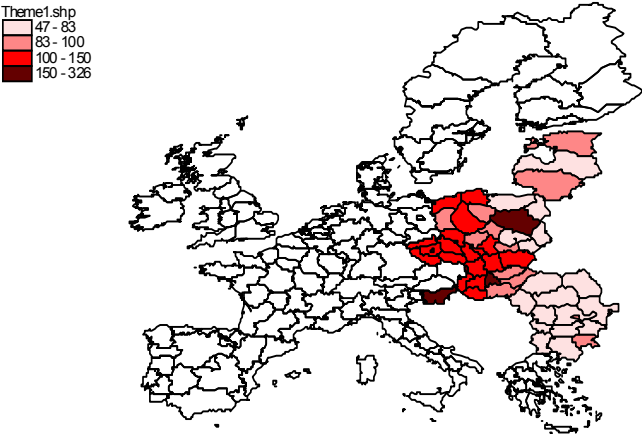
GDP per capita growth for eastern countries reached an average figure of 7.49% over 1995-2001 (as against 6.14% in EU-15). Accession to the EU is expected to provide a solid basis for accelerated economic growth, with greater trade integration playing a leading role. This would enable these countries to bridge the considerable income gap with the European Union, as GDP per capita averages only 46% of the EU-15 level, with substantial disparities between Bulgaria (21.14%) and the Czech Republic (75.87%). Taking all these

facts into account, what will happen at regional level in Candidate countries? To answer this question, an analogous analysis to ones in previous sections has been applied.

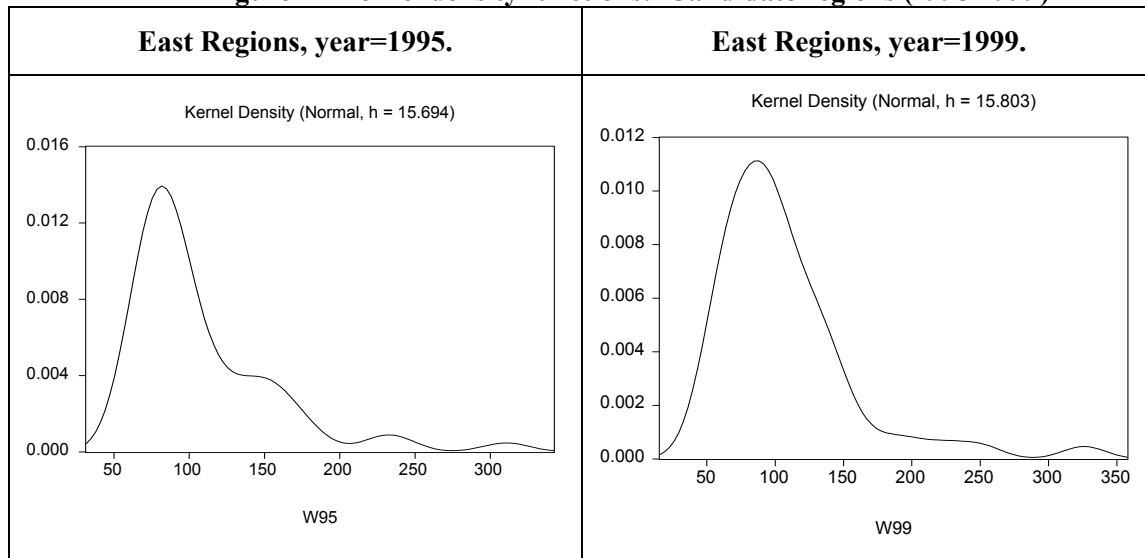
As regards the spatial distribution of GDP per capita, a heterogeneous regional pattern is detected (see figure 10). There are marked differences between two groups: one comprising Lithuania, Latvia, some regions of Bulgaria, Poland and Romania, and a second one made up by regions of the Czech Republic, Slovak Republic, Slovenia and Cyprus. Analysing GDP per capita distribution (the regional sample period corresponds to 1995-1999) and comparing the initial and ending period, we detect an increase of heterogeneity at the same time as the average level has moved closer to unity (see figure 11).

Therefore, growth appears to have increased inequality among regions, confirming the results of the inequality measures, especially the rising polarisation index<sup>22</sup>. In addition, heterogeneity appears due to a significant increase of probability around 130% above the mean, decreasing from an initial mass around 145%. At the same time, the higher probability mass widens its range, and decreases in terms of probability. Comparison of GDP per capita distribution between 1995 and 1999 reveals an increase in inequality and polarisation at a regional level, even though the allocation of Funds to these candidate regions increased over the period.

**Figure 10. GDP per inhabitant, Candidate regions; 1999**



**Figure 11 Kernel density functions: Candidate regions (1995-1999)**



As for concentration (see table 3), analysis of the candidate regions for 1995 showed that Agricultural, fishing and forestry products, Fuel and power products and Services of credit and insurance institutions were the most concentrated sectors, while the reverse was the case for Manufactured products. As far as specialisation was concerned, Romanian regions (among the poorest regions of the Candidate countries), together with Prague and Ostravosko presented the highest levels; the least specialised were certain regions of Poland and Slovakia, and Lithuania, Latvia and Estonia.

**Table 3  $L_j$  index for 9 branches. Candidate Regions**

	<b>Candidates</b>
Agricultural, fishing and forestry products	<b>0.304</b>
Fuel and power products	<b>0.232</b>
Manufactured products	0.095
Building and construction	0.100
Recovery, repair, trade, lodging and catering services	0.136
Transport and communication services	0.084
Services of credit and insurance institutions	<b>0.253</b>
Other market services	0.153
Non-market services	0.101

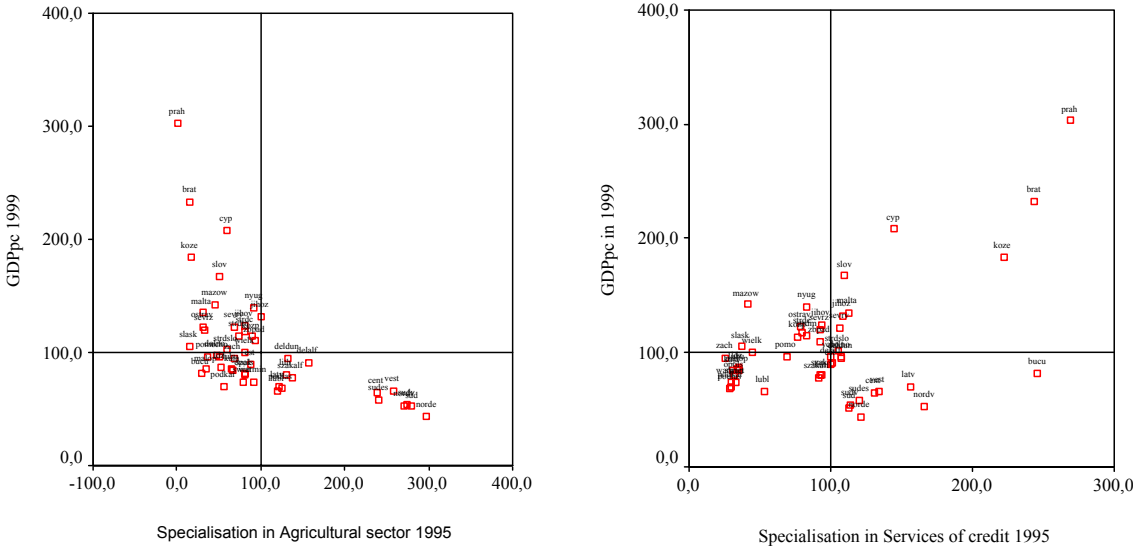
To define the main characteristics of better (worse) positioned regions in terms of GDPpc (1999), we studied the relation between relative GDPpc at the end of the period and certain structural variables such as a peripheral index (or market potential index), degree of global specialisation, sectorial structure, human capital dotation and distance from the European Core. This analysis suggests that the regions that are closer to the big European markets and the European Core (especially the border regions) and highly specialised in knowledge intensive services (in particular, Services of credit and insurance) are clearly better positioned than the others in terms of GDPpc, and are more likely to benefit from integration. The opposite is found in those candidate regions far from the European Core

and highly specialised in Agricultural products show the lowest GDPpc levels in their group. Finally, we should note that regions far from the EU core, with a low level of sectorial diversification and a high level of specialisation in Agricultural products, showed the lowest growth rates (1995-1999).

**Table 4. Correlation levels between GDPpc in 1999 and instrumental variables for candidate regions**

	<b>Correlations</b>
Peripheral index-1995	<b>0.484</b>
Distance from Core	-0.348
Specialisation index in 1995	0.112
L <sub>ij</sub> (1995) at Agricultural, forestry and fishery products	<b>-0.583</b>
L <sub>ij</sub> (1995) at Fuel and power products	-0.152
L <sub>ij</sub> (1995) at Manufactured products	-0.331
L <sub>ij</sub> (1995) at Building and construction	0.075
L <sub>ij</sub> (1995) at Recovery, repair, trade, lodging and catering services	0.200
L <sub>ij</sub> (1995) at Transport and communication services	0.167
L <sub>ij</sub> (1995) at Services of credit and insurance institutions	<b>0.506</b>
L <sub>ij</sub> (1995) at Other market services	<b>0.759</b>
L <sub>ij</sub> (1995) at Non-market services	0.200
Education-persons aged 25-59 (% of total), with high level-2000	0.359

**Figure 12 GDPpc in 1999 versus specialisation index in Agriculture and in Services of Credit for candidate regions**



Then, arrived at this point, a question arises: What have we learned from the above results? First, in spite of the stagnation of disparities among EU-15 regions during the nineties when we considered only regions from countries that joined in the eighties (Greece, Spain and Portugal), the results point to an increase in the degree of polarization. This was due to the



behaviour of better-positioned regions in these countries, which moved towards EU-15 average level, while the poorest regions in those countries have maintained their worse relative positions, thus creating a development trap. In this sense, the remarkable differences detected during the integration process in some structural variables (R&D expenditures, human capital dotation, sectorial structure, "accesibility to the core" and degree of diversification of their structures) led to an increase in the internal disparities between these regions in terms of GDP pc at the end of the period (despite the presence of Structural funds).

And second, and regarding to candidate regions, it has been detected big internal differences in terms of GDP pc between them during the last years (1995-1999). In this sense, and taking into account the results of the previous study for the EU-12, it could be possible that the polarisation between Candidate regions increases after some years of integration. So, those candidate regions with better accesibility to the EU core and to the bigger markets, with a high dotation of human capital and more specialised in sectors with high value added (knowledge intensive services as Credit and Institutions and high-tech industries) are the potential winners of new enlargements.

#### **4. Policy guidelines and reflections before enlargement**

The dismantling of trade barriers reduces transactions costs between regions and leads to the spatial agglomeration of productive activities in the richest and most densely populated areas. According to Illeris (1993), the regions that will perform well are those with economies characterised by expanding sectors. In contrast, regions in which the economy is dominated by declining industries – either activities closely linked to the exploitation of local natural resources (typically agriculture) or non-tradable production such as services – are likely to develop poorly. Structural Funds and the Cohesion Fund aim to counteract the “natural” trends of productive localisation by trying to achieve near regional uniformity of income factor endowments. Structural Funds are widely used to finance investment projects for public infrastructures in backward regions. Institutional choices, which affect regional development gaps, are left to single Member States. Regional and structural policy at the European level is no substitution for the activities of states; it should be remembered that only 0.5% of European GDP is available for support. In order to define the EU’s concerns, we should first consider a fragment of a European Parliament resolution (1999):

*“Recalls that the EU must respond appropriately to an enlargement which will increase considerably the number of disadvantaged regions; draws attention to the risk of uneven growth in the various regions of the candidate countries in the wake of both certain candidate countries' internal policies and the effects of the market and of investment by the Member States and, therefore, calls on the Commission to revise the criteria governing the award of structural aid with the aim of ensuring that both the candidate countries and the current Member States receive appropriate support for their disadvantaged regions; calls on the European Union to retain the cohesion criteria as they apply to the EU 15, regardless of any statistical changes in average income in the EU brought about by the enlargement”.*

Therefore, to support enlargement, regions in candidate countries will now receive aid previously allocated to EU-15 regions. In this regard, INTERREG, ISPA, PHARE and

MEDA cooperation programmes have contributed to regional development in candidate countries.

The results presented here shows that large regional disparities persist, especially between regions in countries that joined the EU during the eighties. In addition, the poorest regions are still highly specialised in sectors such as Agriculture<sup>23</sup> which, far from generating rapid development, create poverty traps.<sup>24</sup> So, the allocation of Structural funds does not seem to have provided a final solution to eliminate regional disparities (Martin, 1999, Cappelen *et al*, 2001, Potratz, 2002)<sup>25</sup>, although backward regions could have worsened their relative position without these Funds<sup>26</sup>.

At the present time the EU is preparing for the entry of new candidate regions with large internal disparities which have actually increased in recent years, in spite of cooperation programs. In this regard, enlargement conditions the future policy options open to the less developed regions in EU-15. Direct foreign investment in Central and Eastern regions (especially in the border regions), and the presence in these regions of lower wages in those sectors where the periphery of the EU-15 is more specialised may cause the current situation of the European periphery to deteriorate. In addition, many regions which at present benefit from Objective 1 funds will be excluded when candidate regions are admitted, not as a result of any real improvement in their situation but for solely statistical reasons.

In the light of past experience, the maintenance of the current policy could mean that internal regional disparities in candidate countries will continue or even rise after enlargement. But the main worry is the persistence of polarisation. Reform would be undoubtedly needed, though any reform of the Structural Funds in 2006 must consider the European Spatial Development Perspective. The Aid framework should guarantee flexible reaction to new developments, supporting innovative and flexible economic policies. So a great deal of work remains to be done in order to create a new regional policy within an enlarged EU. However, prior to defining a structural framework for regional support, the EU would need to decide on its main social, political and economic goals. In this sense, a relevant question arises: should the prime objective of regional policy move towards economic efficiency and competitiveness or does a valid rationale also lie in providing support for regions which will always be disadvantaged by geography or economics? Then, regional policy faces a trade-off between equity and efficiency.

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<sup>23</sup> In any case, it is must to be said that there are strong differences in the Agricultural sector between European regions in terms of the type of products, machinery used or level of production and yields, etc, that prevent us to do general assessments about the consequences of being highly specialised in this sector.

<sup>24</sup> A long-standing criticism of European institutions is that the European budget has concentrated merely on redistribution. The CAP does not strengthen the chances of promoting other sectorial policies and the industrial policy lacks drive.

<sup>25</sup> A criticism of previous regional support is that macro-economic indicators alone define the goals of development and cohesion in the EU, indicating a belief that social and political cohesion can only be attained through economic convergence.

<sup>26</sup> The fifth periodic report of the European Commission (1994) pointed out that the existence of the Structural Funds had increased a 0,5% the GDP growth of the four Cohesion countries (Ireland, Greece, Portugal and Spain).

Priority focused on achieving equity would imply policy measures addressed to backward regions. In this sense, results obtained from this paper suggest some possible measures that could contribute to reduce the regional disparities: specific measures designed to speed up the adjustment of industrial structures and to encourage the development of new undertakings; exploiting the export potential of the candidate countries; promoting product differentiation and competitiveness in sectors such as Agricultural and traditional areas (Textiles, Food, Paper among others) and thus to combat their lower value added; increasing investment in inter-regional infrastructures in order to improve the accessibility of the poorest regions; increasing R&D spending in order to promote the innovation and its diffusion; and implementing effective human capital policies in backward regions. Additionally, in line with Guersent (2001), measures addressed to these less developed regions would also benefit to the most prosperous regions (for instance, in the form of imports). Nevertheless, private agents jointly with policy makers should have to take sides in promoting development in poorest regions, being also necessary a coordination of policies between different public administrations (local, regional, national and communitarian).

On the contrary, if efficiency would be the main goal, promoting growth at the most prosperous regions would be the key point. In this case, a spillover effect on less favoured regions development would be expected, favouring the equity at a long run (Martin, 1999).

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