

**Regional growth, national membership and  
European structural funds: an empirical appraisal**

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## **Regional growth, national membership and European structural funds: an empirical appraisal**

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In a recent study, the French *Commissariat général au plan (CGP, 1999)* presents evolving factors of European economic geography using recent theoretical investigations. Its findings are more qualified than in previous works:

– In the single market, soaring intra-industry trade (bilateral trade of similar products) is balanced with an increase in vertical differentiation. The diversification of national economies, combined with the extension of intra-branch trade, can go along with a vertical specialization reflecting economic discrepancies along the quality spectrum and through differentiated technological developments. A hierarchy among European economies remains following that vertical specialization.

– However, those specialization schemes are questioned by both the EMU and agglomeration forces linked to increasing scale economies, trade and technological externalities and lesser transaction costs. New patterns in vertical specialization could emerge from a geographical cluster of high knowledge activities.

Actually, interaction between specialization and concentration dynamics draws a new European geography both diversified and hierarchical. The EMU may influence that process: comparable prices and lower transaction costs mean a full trade integration. Thus, the EMU more clearly reveals spatial heterogeneity in Europe. For that matter, the EU presents some specificity compared to the United States: activities are less geographically concentrated than in the United States, but regional growth inequalities measured by the income per capita are stronger (Puga, 1999). The relationship between geographical concentration and regional growth is not simple. If the agglomeration process goes with workers mobility, it entails an increase in wages which tends to level out incomes. By contrary, a geographical partitioning may slowdown concentration but also perpetuate income disparities. Geographical concentration does not create territorial inequalities in the social field by itself, but only if productivity gains and wages increases do not spread over the considered space. Here is the

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problematic European specificity: the EMU can release agglomeration forces without modifying labor mobility, except for very limited groups of workers.

Thus, determining factors in geographical partition of activities appear sufficiently complex to give rise, by their combination, to very different trajectories. This irresolution – homogenization versus a center/periphery pattern – depends also on the scale of the considered territory. Whereas diversification tends to predominate at a national level, specialization clearly characterizes the regional scale. The more are the regions able to fit into geographical, technological and trade networks, the better is that specialization. To go into this analysis more closely might be possible by searching for relevant territories, that is to say economic and geographical entities with common and identifiable resources (social capabilities and comparative advantages) that can be used to take part efficiently in the European and world economic networks.

Referring to the theoretical opposition between convergence-diversification forces and agglomeration-specialization ones, the *CGP* report defines two opposite elementary scenarios. A synthesis scenario derives from the nation/region duality, with predominant specialization forces at the regional level and diversification forces at the nation-State level. This emphasis on the nation/region duality is particularly relevant to the European integration process, even more with the monetary union. Paradoxically, the existing nation-States may have to cope with a new internal heterogeneity created under EMU. The *CGP* report finds that paradox might have some implications in terms of thinking structural and redistribution policies:

- 1- In the case that regional differentiation reflects development dynamics at work, corrective policies favoring diversification could be inefficient in terms of European global growth, at the expense of dynamic metropolis.
- 2- In the line with the subsidiarity principle, territorial income inequalities should be tackled as infra-national issues. So why does it remain an essential community problem? The report suggests to distinguish between cohesion policies which are the matter of nation-States and structural policies (as technology policy) which would aim at promoting an efficient spatial scheme for collective growth and which would be defined at the European level.

There are good reasons for questioning that approach. One is that regional path in a nation-State depends on the insertion of each region in the European geography. Geographical imbalances are very imperfectly corrected by national institutions.

This paper comes within the scope of that debate by measuring relative growth performances of European regions over the period 1986-96. The correlation between these performances and the national membership of regions is investigated as well as the link with their access to the European structural funds. Examination of the features of the growth process within the European regions is delimited by the particular period 1986-96. On the one hand, this is a complex transition period owing to the combination of the course towards single market and monetary union with deflationary policies. On the other hand, over that ten-years period, the structural funds were soaring in the hope of helping backward or threatened regions. The pluri-annual programming of the community budget dates back to 1988. This paper considers the EU structural funds transferred over the two first programming periods (1989-93 and 1994-99). Although the considered period allows a detailed appraisal of the efficiency of the structural funds, it would not be advisable to provide too comprehensive results: the effects of macro-economic policies implemented for the period 1986-96 have interfered with the efficiency of the European structural funds. Finally, if the starting point is the couple of years 1986-87, at the eve of the first budget period, the analysis ends with the year 1996, the last one with available regional macro-economic data, which does not correspond to the end of the second programming period<sup>1</sup>. Obviously, the structural funds incurred for that second period are not yet completely spent in 1996. Nevertheless, the observed features in the nature of regional development remain probably valuable after 1996, even within an European economic recovery. Moreover, an early analysis can urge to modify perfectible instruments...

### **Regional catching up paths conditioned by national membership**

A first approach consists in investigating European and national catch-up paths of backward regions over the period 1986-96. Figures 1 to 12 plot the base-year per capita GDP (in 1986-87) of each country or region at purchasing power parity, relatively to the community average, against the growth of that country or region between 1986-87 and 1996 compared with the average community growth. These figures refer to the **b**-convergence concept as defined by the economic literature<sup>2</sup>. Per capita GDPs (denoted by  $y$ ) of  $N$  countries

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<sup>1</sup> GDP Data for 1996 are based upon Eurostat regional statistics (*News Release n° 11/99. Feb.99*) and for 1986-87 upon statistical annexes of the fourth European Commission report (regional policy DG) on the evolution of regions. Structural funds data come from publications by the commission: for 1989-93 see coordination of structural policies DG ("*Community structural interventions*", *Statistical report n° 3 and 4, July and Dec.1992*) and for 1994-99, see the statistical annexes from the 9<sup>th</sup> annual report on the structural funds.

<sup>2</sup> For a survey of the literature, see Fuss (1999).

or regions (indexed by  $i$ ) comply with this  $\mathbf{b}$ -convergence if their variation between a base year  $0$  and the terminal year  $T$  follows, with a positive coefficient  $\mathbf{b}$ , the relationship:

$$\text{Log}(y_{it}) - \text{Log}(y_{i0}) = \mathbf{a} - \mathbf{b}\text{Log}(y_{i0}) \quad i = 1 \dots N \quad (1.1)$$

Considering GDP relatively to average per capita GDP  $\bar{y}$  of the considered set ( $y_{it}^r = y_{it} / \bar{y}_t$ ), the  $\mathbf{b}$ -convergence relationship is even simpler, if all elements in the geographical set are said to obey that same relationship:

$$\text{Log}(y_{it}^r) - \text{Log}(y_{i0}^r) = -\mathbf{b}\text{Log}(y_{i0}^r) \quad i=1 \dots N \quad (1.2)$$

If this absolute  $\mathbf{b}$ -convergence prevails, the more the countries or regions are initially depressed, the faster is their growth process. The  $\mathbf{b}$ -coefficient reflects the catching up intensity. A coefficient equal to 1 indicates a full catching up over the considered time period.  $\mathbf{b}/T$  gives the annual catching up rate.

Figures 1 to 12 show the relevance of the relationship (1.2): the horizontal axis measures the log of the relative base-year GDP per capita and the vertical axis measures the log of the relative growth<sup>3</sup>. This relationship would be confirmed by a linear negative correlation between the considered variables. The catch-up intensity  $\mathbf{b}$  is provided by the slope in absolute value. The effectiveness of a  $\mathbf{b}$ -convergence process appears through the shape of those figures.

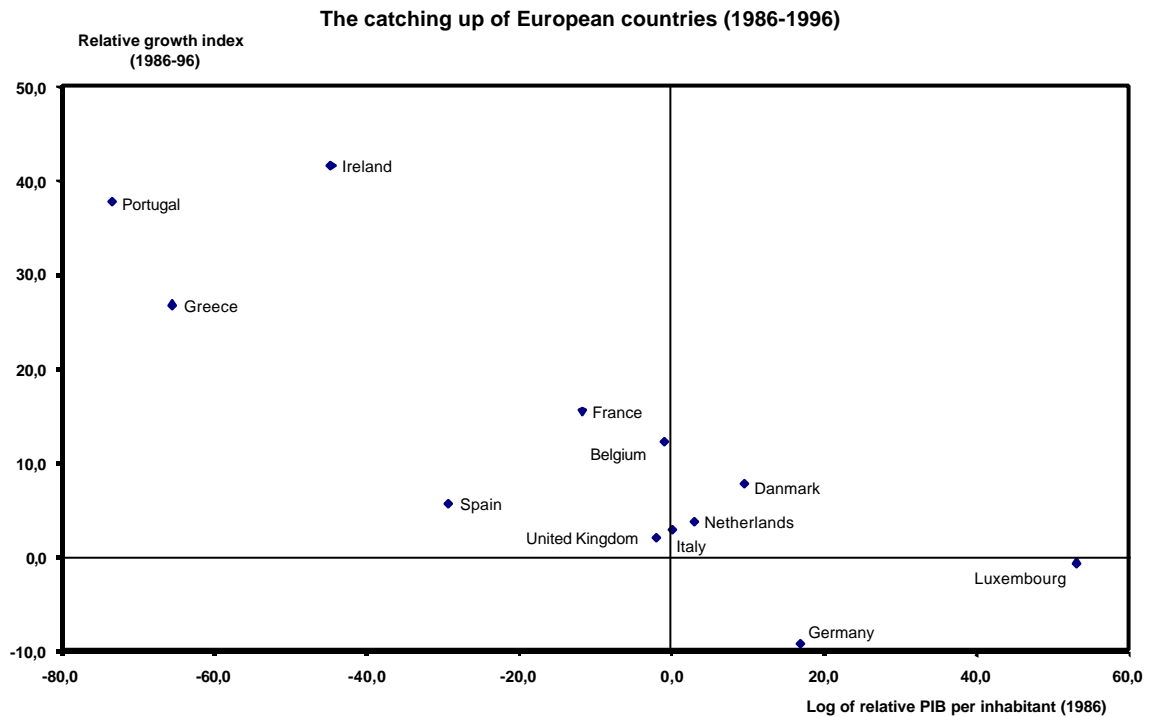
Graph 1 shows this relationship within twelve EC countries over the ten-years period. It suggests that a process of  $\mathbf{b}$ -convergence may exist between European nations. Nevertheless, its relevance depends largely on relative performances achieved by three small-size countries, Greece, Portugal and Ireland, and on a relative German slowdown as well. The same statement is possible when replacing the national data set by data for the corresponding 131 regions<sup>4</sup> (graph 2), although the slope seems to be damped down with the initially richer regions: they do not have much declined in relative terms. However, this statement is no more valuable by eliminating from the data set the Irish, Greek, Portuguese regions as well as the French overseas departments (Guadeloupe, Réunion, Martinique, Guyane), the Spanish enclave in Morocco, Ceuta y Melilla, all regions initially very depressed, and finally the rich

<sup>3</sup> The axis scales measure respectively – logarithmic approximation apart – the percentage deviations of the national or regional base-year GDP per capita from the community average on the one hand, of their cumulated growth over 86-96 from the average European growth on the other hand.

<sup>4</sup> This spatial breakdown coincides with the level II of the Nomenclature of Territorial Statistical Units (NUTSII) except for the United Kingdom and Germany (NUTSI) according to the information available. In the case of Ireland, Luxembourg and Denmark, the whole country is treated as a single region. Finally, the community average corresponds to the former EC12, except east-German Länder and the latest Member States (Austria, Finland, Sweden).

Groningen region in the Netherlands, which endured a dramatic slump. The observed set of points is much more confuse and does not reveal a clear *b*-convergence (graph 3). On the whole, this set is centered on the axis origin – moderately rich regions have a moderate growth –. But, no further correlation between the base-year prosperity and the relative growth performance can be drawn. This points how much catching up performances are conditioned by regional ones achieved by three particular small countries and by those of specific peripheral regions, such as French overseas regions.

**Graph 1**



This vulnerability of the apparent regional catching up to the sample incites to a country by country approach, relatively to the community average (graphs 4 to 12). The nature of the national relation and the location of national regions have to be taken into account for an accurate comprehension of these close-ups. Then it is obvious that regional convergence depends closely on the national membership. Catching up paths differ according to the country considered. Short national comments emphasize these discrepancies:

– Greece (graph 4) and Portugal (graph 5) present an effective though unachieved regional catching up. In Greece, relative growth is relatively higher for the most depressed regions. But this seems to fade too fast: it does not nearly exist for the most developed regions (Pelopponesis, Sterea Ellada) although backward compared to the community average. All Portuguese regions clearly catch up the EC average. However, the catching up intensity is very imperfectly correlated to the scope of the initial backwardness. This is particularly valuable for the two insular regions: the Azores and Madeira.

– Spain (graph 6) and Italy (graph 7) are the main counter-examples against an effective regional catching up. In Spain, Ceuta y Melilla (the Moroccan enclave) and the Balears apart, no clear link is provided between the scope of backwardness and that of catching up. Whatever the initial position, the catching up is delimited in a narrow space. The two relatively prosperous regions of Madrid and Catalonia record a satisfactory relative growth performance. In Italy, the feature is clear: Mezzogiorno, except for Basilicata, catches up neither the EC average nor the northern developed regions of Italy which are largely upon the community average. Among these regions, the industrialized Piemonte and Lombardia are likely to move back, while the dynamic area shifts towards north-eastern regions (Emilia Romagna, Friuli, Trentino, Veneto)<sup>5</sup>.

– France (graphs 8a and 8b) seems to comply with a convergence relationship thanks to the overseas regions and Corsica. These regions apart, the French feature reveals some strong specificity: almost all regions, even the most initially backward, move noticeably back relatively to the community average. But, the region Ile de France is maintaining its strong lead over all the other French regions.

– Germany (graph 9), the Netherlands (graph 10) and Belgium (graph 11) witness the ability of rich regions to maintain, and even to improve, their relative position. This is not inconsistent with some catching up of less favored regions. In the Netherlands, Groningen's decline remains an exception.

– In the United Kingdom (graph 12), all the regions move back without any relationship to the year-base backwardness. This is a national rather than a regional feature.

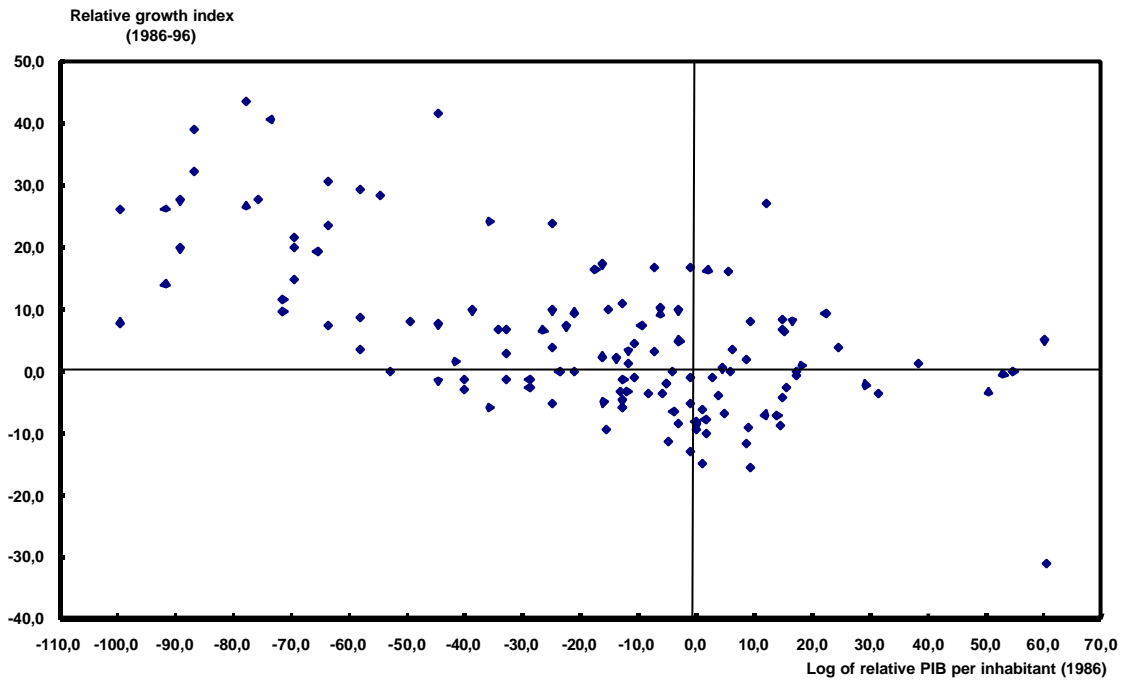
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<sup>5</sup> Italian characteristics are confirmed, for the sample period, by Quarella and Tullio (1998).



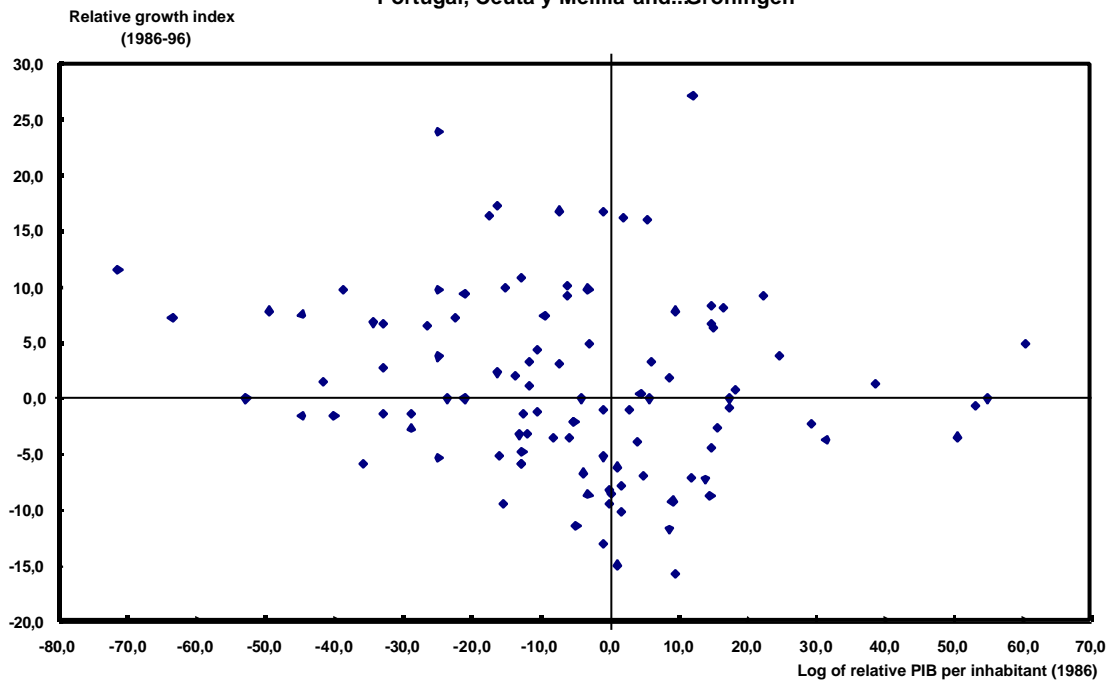
## Graph 2

The catching up of European regions (1986-1996)



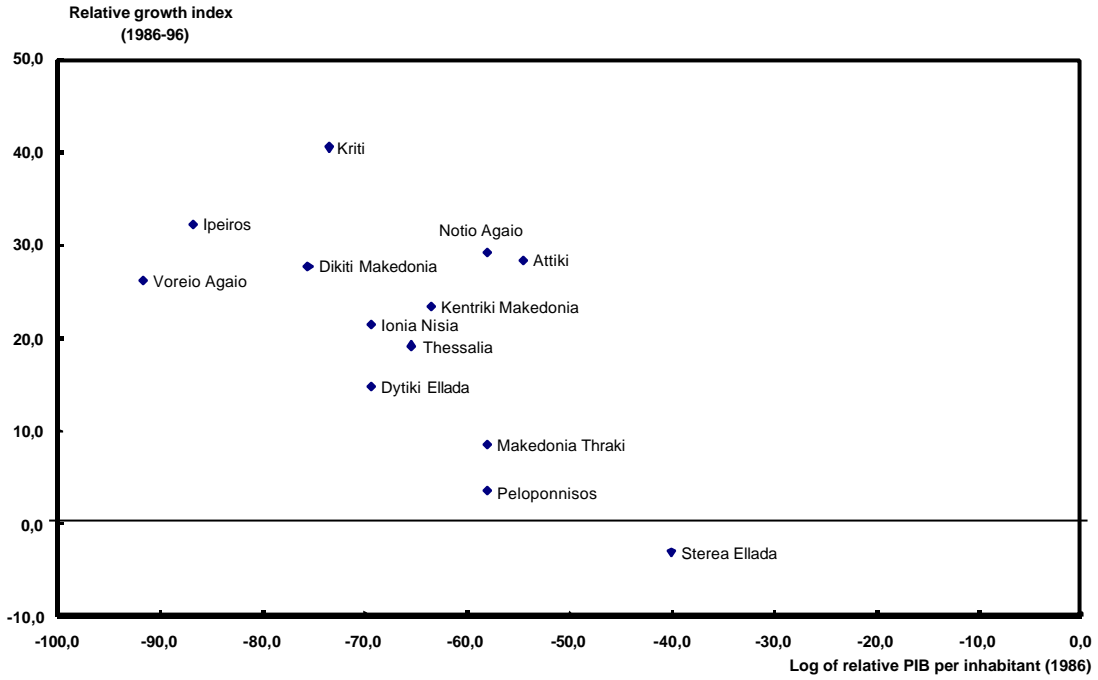
## Graph 3

The catching up of European regions (1986-1996) except French overseas districts, Greece, Ireland, Portugal, Ceuta y Melilla and...Groningen



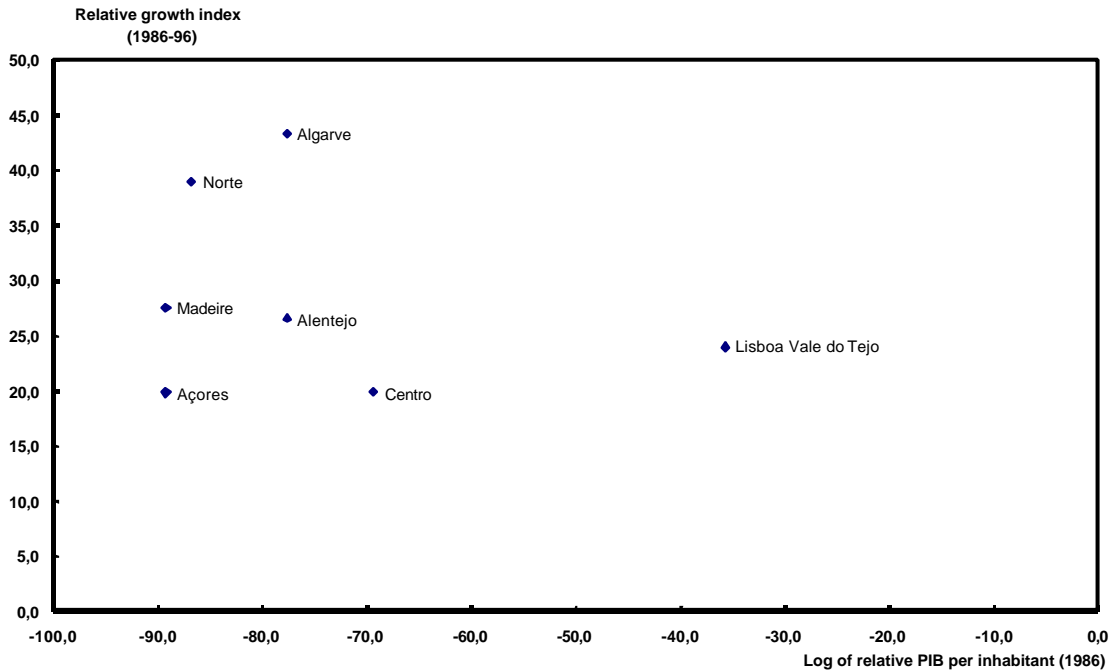
### Graph 4

The catching up of European regions (1986-1996) : Greece



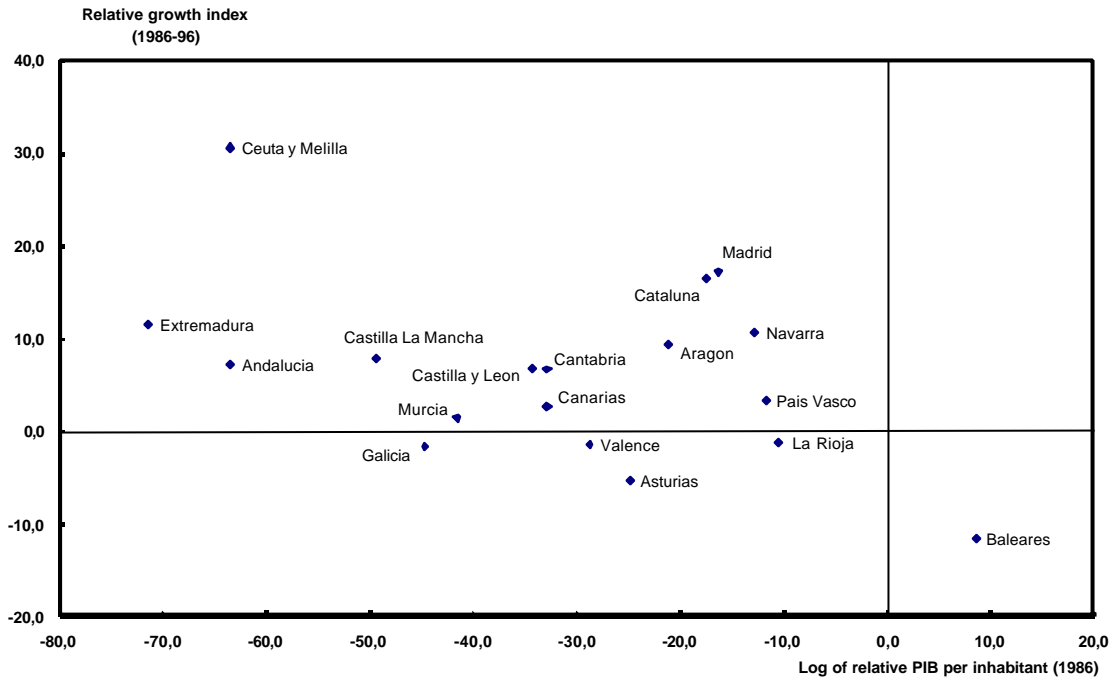
### Graph 5

The catching up of European regions (1986-1996): Portugal



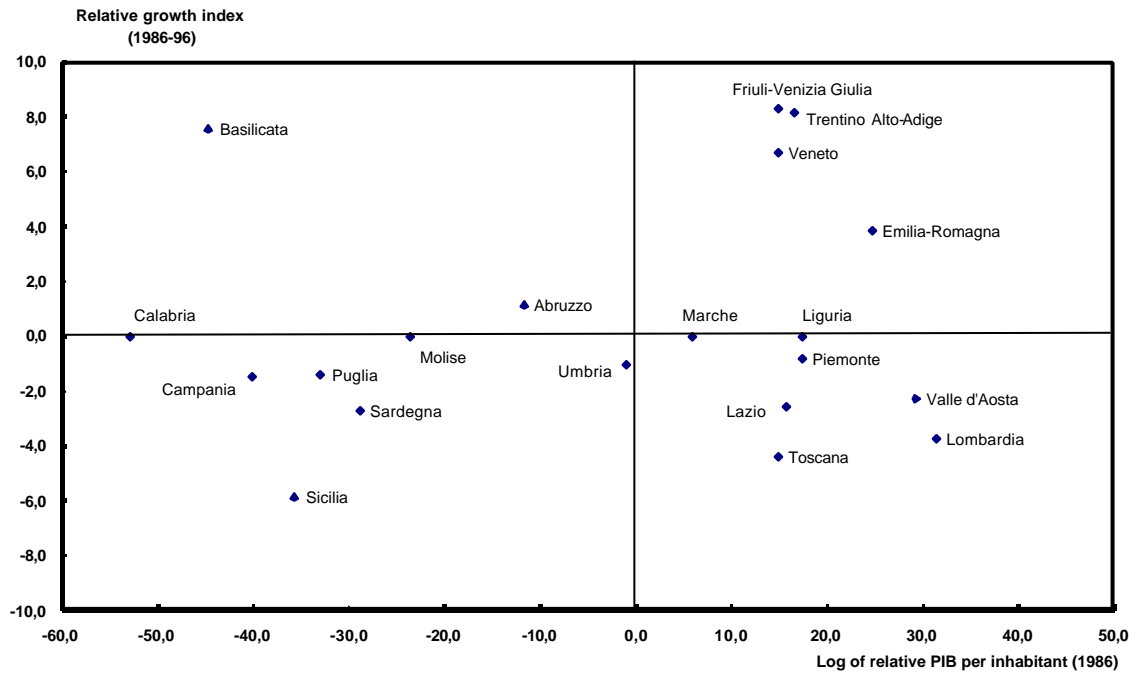
### Graph 6

The catching up of European regions (1986-1996): Spain



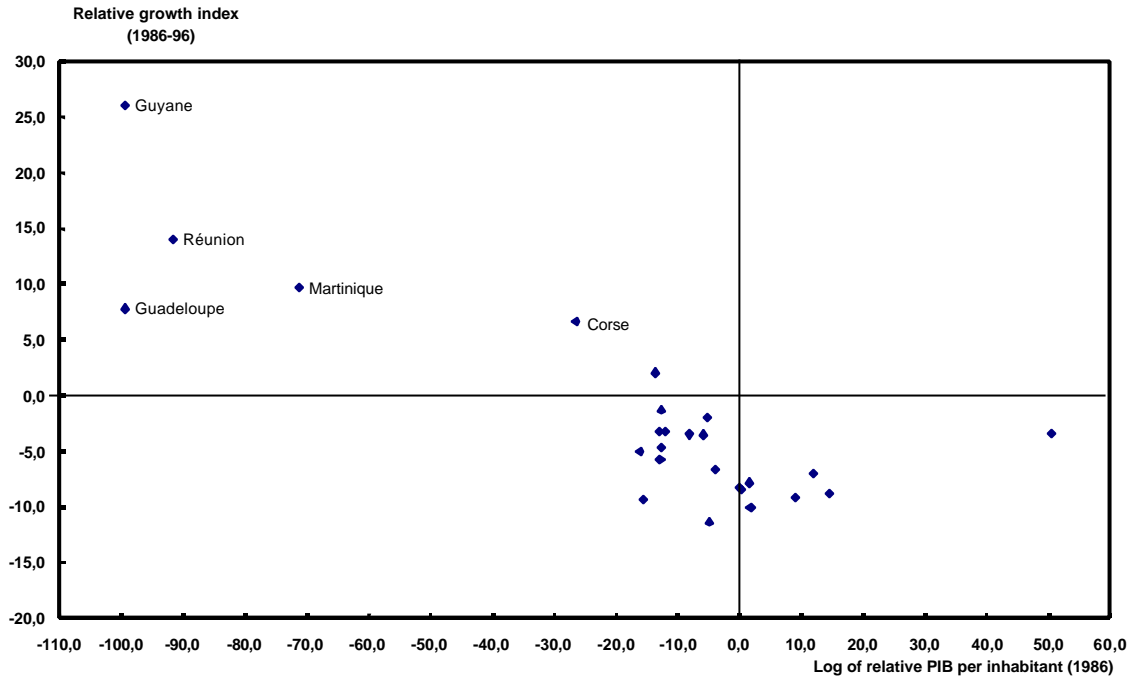
### Graph 7

The catching up of European regions (1986-1996): Italy



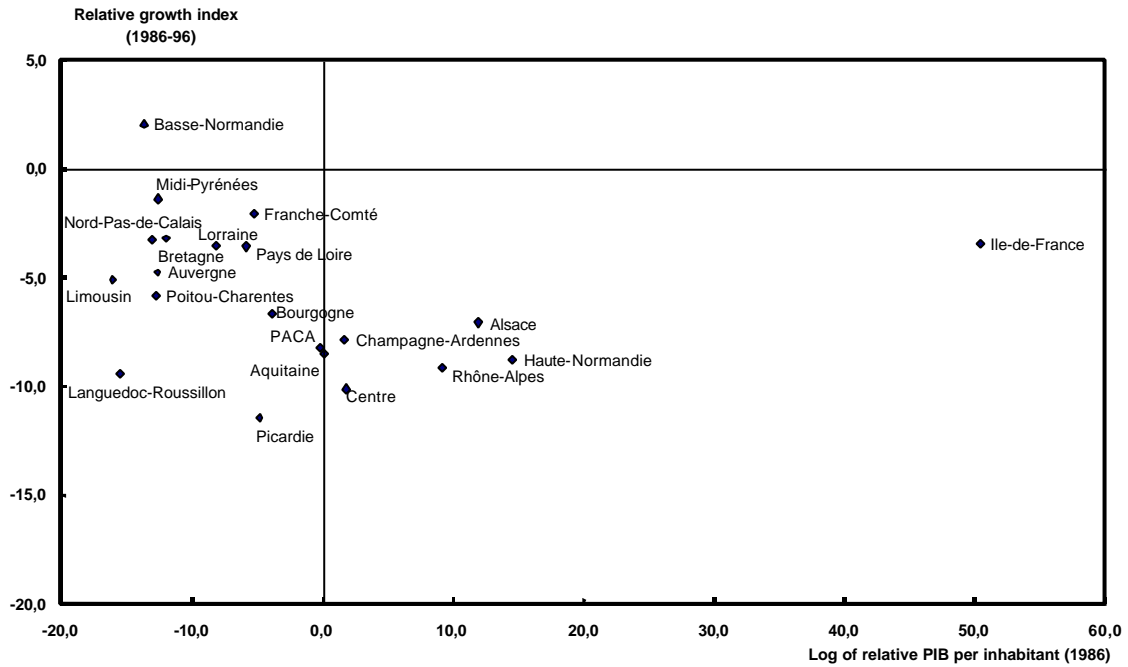
### Graph 8a

The catching up of European regions (1986-1996): France



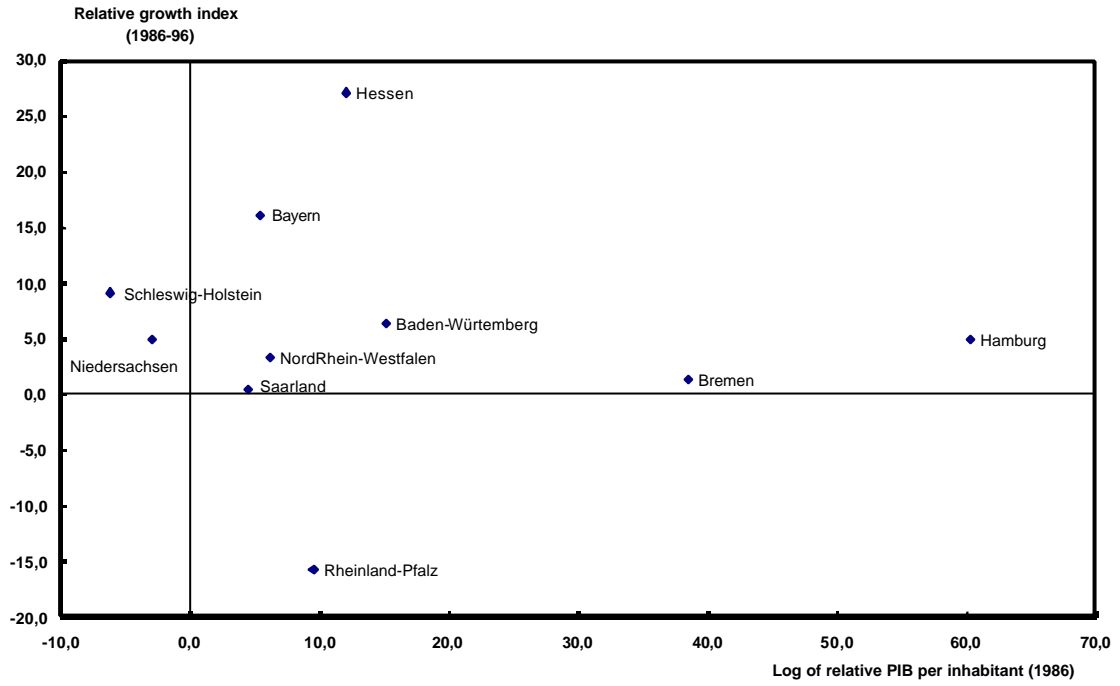
### Graph 8b

The catching up of European regions (1986-1996): France (except overseas districts and Corse)



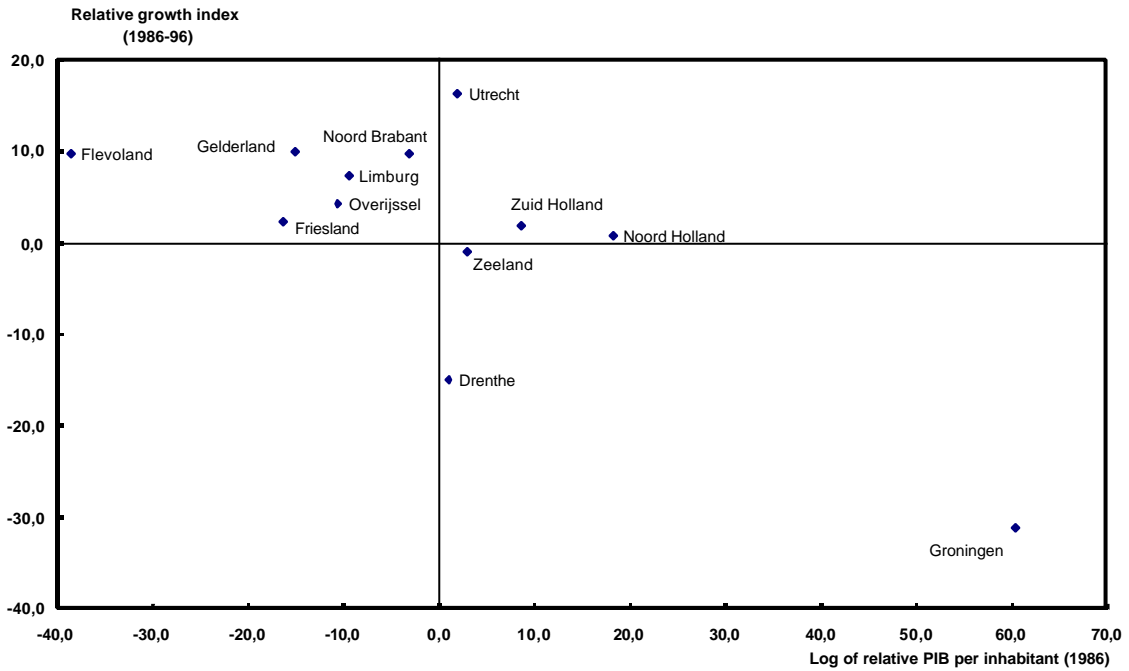
### Graph 9

The catching up of European regions (1986-1996): Germany



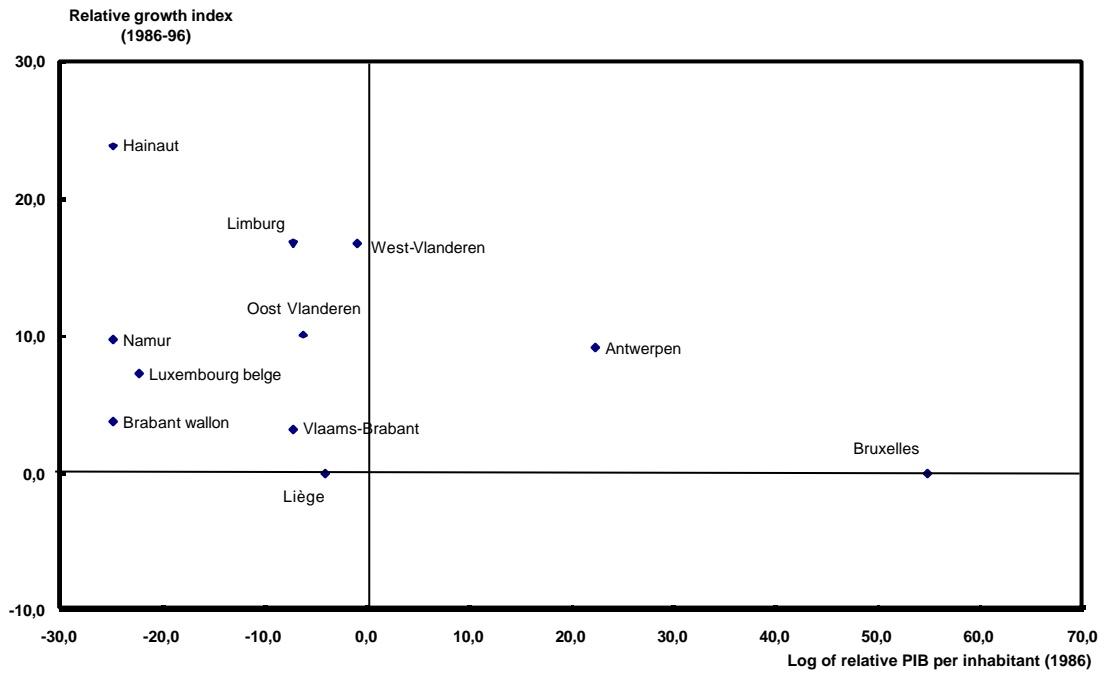
### Graph 10

The catching up of European regions (1986-1996): Netherlands



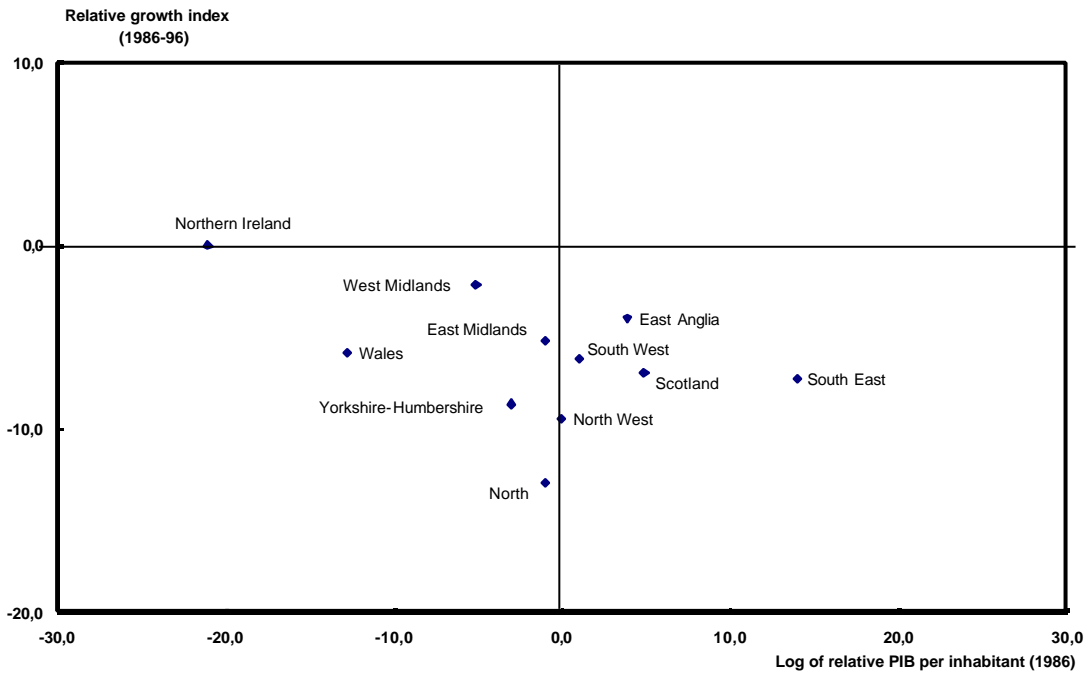
### Graph 11

The catching up of European regions (1986-1996): Belgium



### Graph 12

The catching up of European regions (1986-1996): United Kingdom



## **The efficiency of the structural funds conditioned by the national membership**

The emphasis on the efficiency of the structural funds as to regional development raises methodological problems. Suppose an allocation of structural funds proportionate to the initial regional backwardness measured by the GDP per capita and a *b*-convergence process showing an effective catching up of backward regions for the considered sample: to what extent the structural funds, by themselves, other factors apart, tend to narrow regional disparities ? The catching up would appear correlated to the allocation of structural funds without any possible assertion about their explaining role. On the contrary, the game of windfall effects in favor of catching up regions could not be excluded.

Fortunately, neither the catching up path – as precedently described – nor the allocation of structural funds are so simple. Differentiated performances of initially similar regions might indicate any form of interaction between structural funds and real convergence.

Indeed, the allocation of structural funds obeys a range of well known criteria and effective practices not reducible to the measure of GDP per capita. Witness graph 13. The relative regional per capita GDP in 1986 is compared with the cumulated structural funds over the two budget periods in favor of each region. This total is measured in ECU 1997 per inhabitant and compared to the EC average (the level 100 corresponds to regions which benefited from an allocation of structural funds per inhabitant equal to the European average, that is to say to the ratio total structural funds / EC12 population). If an important backwardness pays well in terms of structural funds, there is far from an evidence of a nearly proportionate relationship. Some backward regions received amounts of structural funds per inhabitant quite similar to less depressed regions. The financial redistribution through the structural funds remains very imperfect. This can be explained by two series of factors:

- On the one hand, the financial redistribution is not the single goal of the European structural funds. Over the two first budget periods, the support of the structural funds fell into several objectives. Only the objective 1, concerning regions with GDP per capita strictly inferior to 75% of the community GDP per capita, is devoted to promote the catching up of less developed regions. However, most of the structural transfers are under this objective (more than two third over the two budget periods). The objective 2 aims at converting initially rich regions seriously affected by industrial decline. The allocation of structural funds under the objective 2 has apparently nothing to do with the base-year GDP per capita (graph 14).

- On the other hand, even when considering only the first objective devoted to backward regions, the allocation of structural funds is very imperfectly correlated to the scope

of backwardness (graph 15). Obviously, other criteria than per capita GDP are included for determining this allocation, and institutional bargaining implying the national, regional and community authorities play also a decisive role. Large prerogatives for shaping the distribution of structural funds remain to the nation-States.

Finally, another factor which noticeably alters the final redistributive impact of the European structural funds has to be added. In the line with the additionality principle, the European structural funds used to support specific programs have to be completed by national and regional funding. This rule conditions the effectiveness of the institutional partnership. But, the estimated co-funding rate – the total funds, private or public, European and local, incurred over the sample period relative to the only European structural funds – is merely correlated to the base-year regional wealth (graph 16). The co-funding rarely doubles the European support to poor regions, although they nearly triple or quadruple it in richer regions. Even some lead regions are exceptionnally supported. This statement is not surprising: the ability of richer regions to go along with the structural funds is obviously greater. Nevertheless, the nation-States' endeavor to tackle this anti-redistributive slant is questionable, all the more since it remains some difficulties in checking the implementation of the additionality principle<sup>6</sup>.

Once all these factors considered, a very approximate relationship between the allocation of structural funds and the catching up of backward regions is conceivable. Figures 17 to 21 illustrate this relationship: some details have been progressively incorporated. The cumulated transfers of structural funds incurred per inhabitant, in percentage of the EC average, are compared to a regional catching up indicator referred to the lead region (Hambourg in 1986 and in 1996). The indicator is defined by the following equation:

$$\text{Catching up indicator between } 0 \text{ and } T = -100 \times \frac{\text{Log}(y_{it}^r) - \text{Log}(y_{i0}^r)}{\text{Log}(y_{i0}^r)} \quad (1.3)$$

where  $y_{it}^r$  is now the GDP per capita in the region in relation with that of the Hamburg region in the year  $t$  ( $y_{it}^r = y_{it} / y_{hambourg,t}$ ).

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<sup>6</sup> Those remarks have to be considered cautiously. The co-funding rates, in absolute or relative terms, may be altered by some display effects relying on institutional practices and on difficulties of choice among priorities. The displayed co-funding credits will not be equally spent and a comparison with the execution credits may lead to a quite different statement.



If the region  $i$  catches up the lead region, the indicator is positive, negative otherwise. The indicator value measures the catch-up or move-back intensity in percentage of the initial backwardness against the leader. With respect to the  $b$ -convergence process, this indicator should be the coefficient  $b$  itself (in percentage), similar for all regions. The graph 17, embracing all regions and objectives, does not show this similarity. Some regions catch up the lead region, the indicator is positive ; others move back, but the relationship with the allocation of structural funds does not clearly appear. The same statement is valuable when considering only the objective 1, although regional catching up prevails more clearly (graph 18). It can only be suggested that the large structural funds transferred to the regions which appear on the extreme right side of the graph favor their catch-up, though not in a spectacular way: peripheral and insular regions are concerned. Having a closer look at these regions (graph19 detailing graph18) suggests that large structural transfers can be efficient. But this is not automatic, witness the French West Indies or Corsica compared with the Irish catching up.

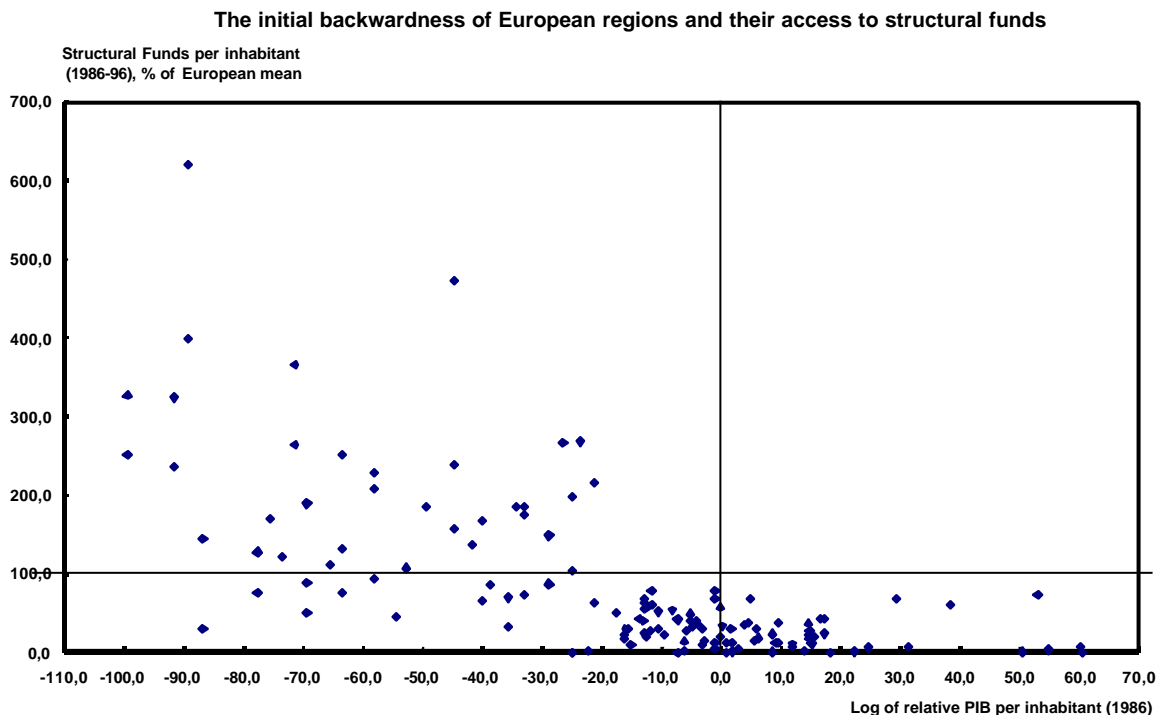
Those outermost regions apart, no particular feature can be derived from the set of regions characterized by both their endowment with structural funds under the objective 1 and their catching up indicator (graph 20). However, the national membership of each region is particularly relevant. Regions within the same member State are figured more or less nearby in the plane. National ellipses can be drawn by gathering most of a Member State regions. When moving in the plane clockwise – midday as a starting point – four countries are clearly differentiated. First the Portuguese regions with a moderate support of the structural funds performed a clear catching up. Then comes Greece whose regions, although rather dispersed, are well endowed with the European structural funds and honorably catch up. The Spanish regions are also well endowed but the catching up performance is low or negative. Outside the ellipse, the Asturias region excessively witnesses this deceiving performance (obviously all Spanish regions are not eligible to the objective 1 and only the eligible regions appear on the graph). Finally, the Italian Mezzogiorno regions, more endowed than the average, are not catching up: they move back relatively to the European lead region.

This national hierarchy extends the typology provided by the single examination of catching up performances. If that does not allow any conclusions about the own efficiency of structural funds, this efficiency is clearly conditioned by the national membership. For instance, Portuguese regions and Italian Mezzogiorno are quite similarly endowed with structural funds under the first objective, but the structural funds appear much more efficient within the Portuguese regions.

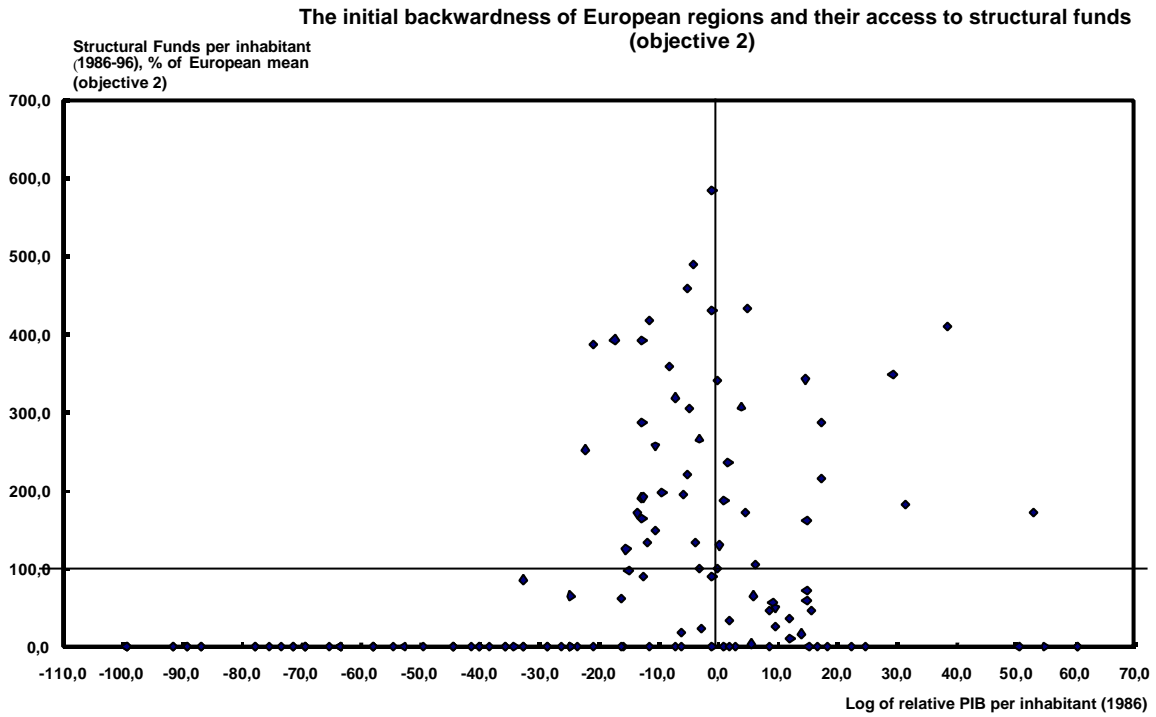
The analysis of regions eligible to the objective 2 tends to reinforce this conclusion: the efficiency of European structural funds is conditioned by the national membership. Graph 21 highlights difficulties for regions, even largely endowed with objective 2 structural funds, in maintaining their rank. However, this time the Spanish regions record a moderate catching up. Regarding such a configuration, we may assume that the EU accession encouraged in Spain relatively prosperous regions, rather close to the Pyrenean border, at the expense of the most backward regions. Though often largely endowed with structural funds, the British regions under the objective 2 do not succeed in restraining their decline. The same can be said about numerous French or Italian regions eligible to that objective and gathered in a same ellipse.

The efficiency of the structural funds for the catching up of backward regions (objective 1) or for the threatened regions' up-hold (objective 2) can not be dissociated from the economic and social background in each country, which conditions the allocation of structural funds, their execution and implementation.

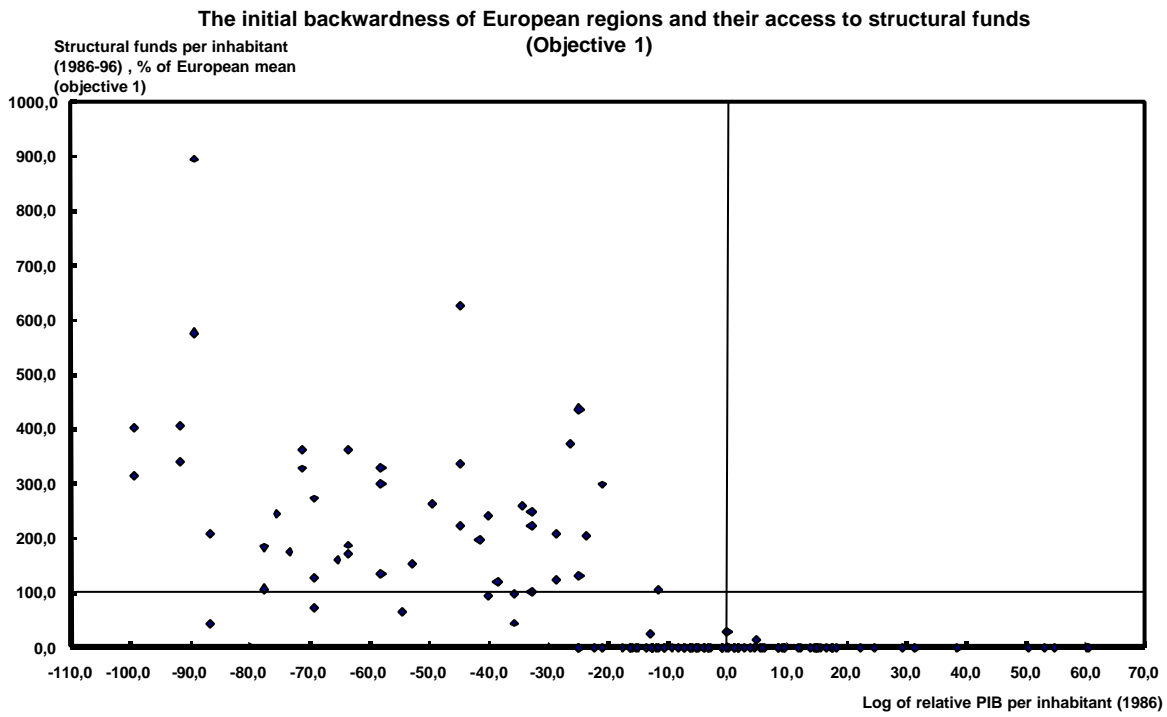
**Graph 13**



### Graph 14

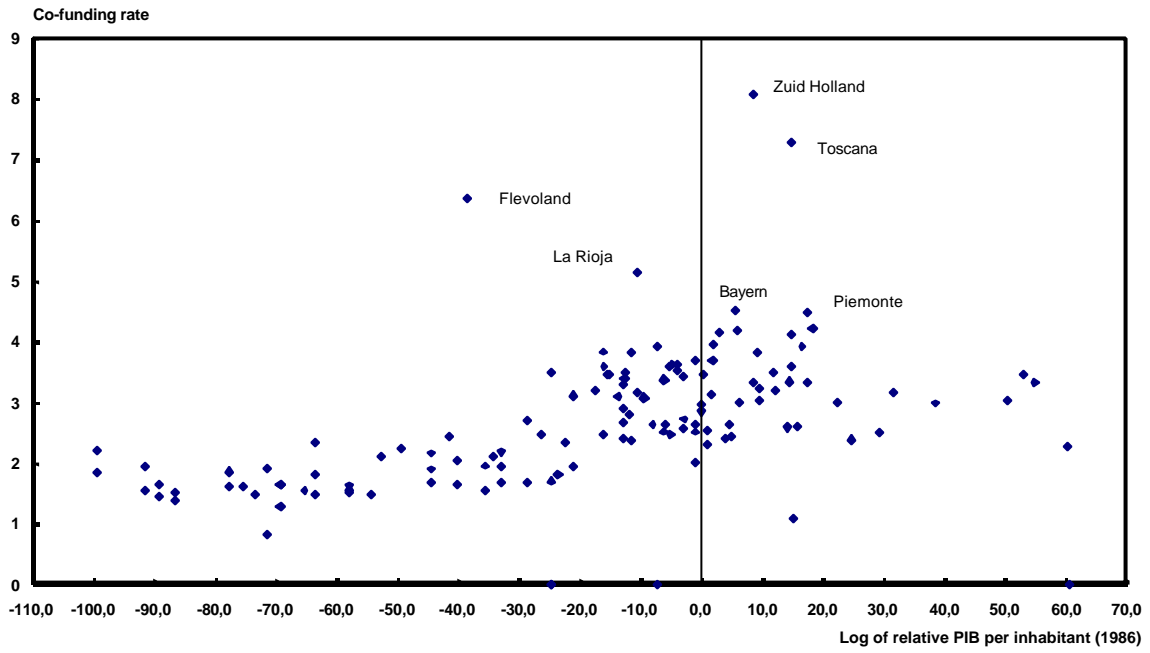


### Graph 15



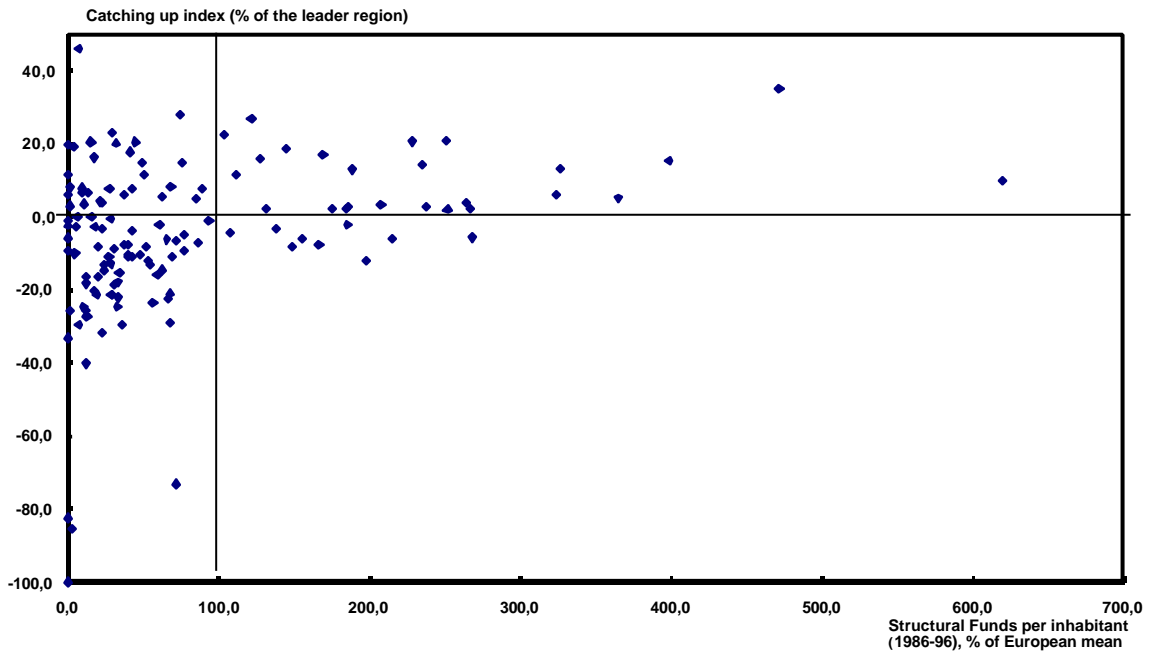
### Graph 16

The initial backwardness of European regions and the co-funding rate of structural funds



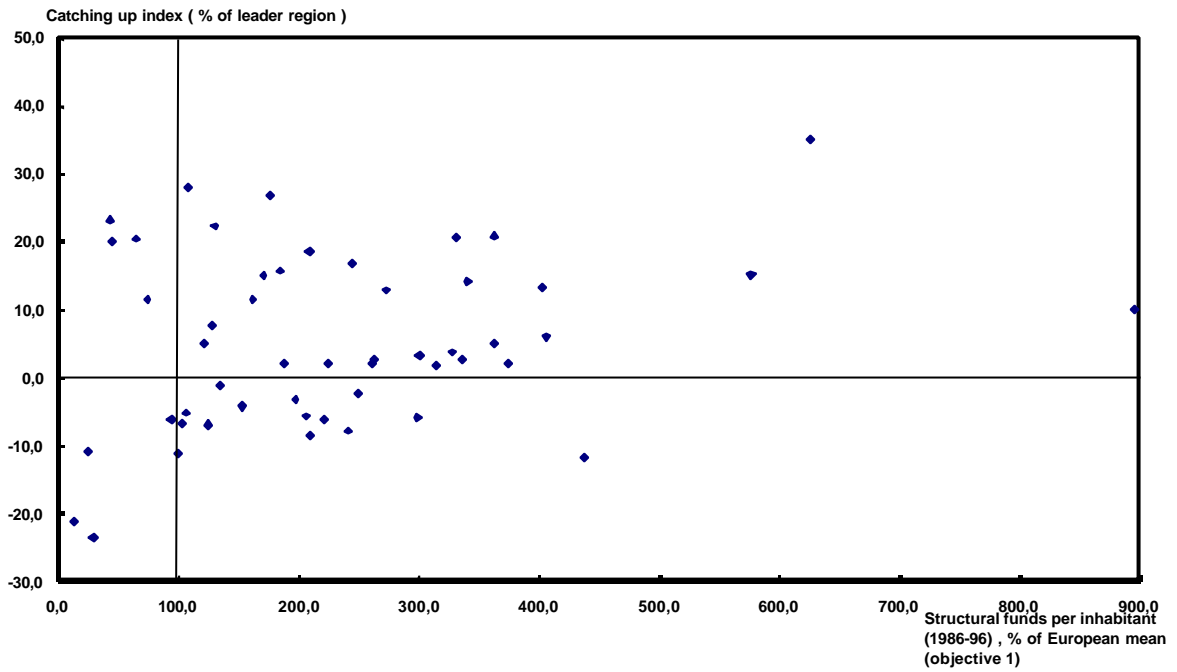
### Graph 17

The catching up of European regions and their access to structural funds



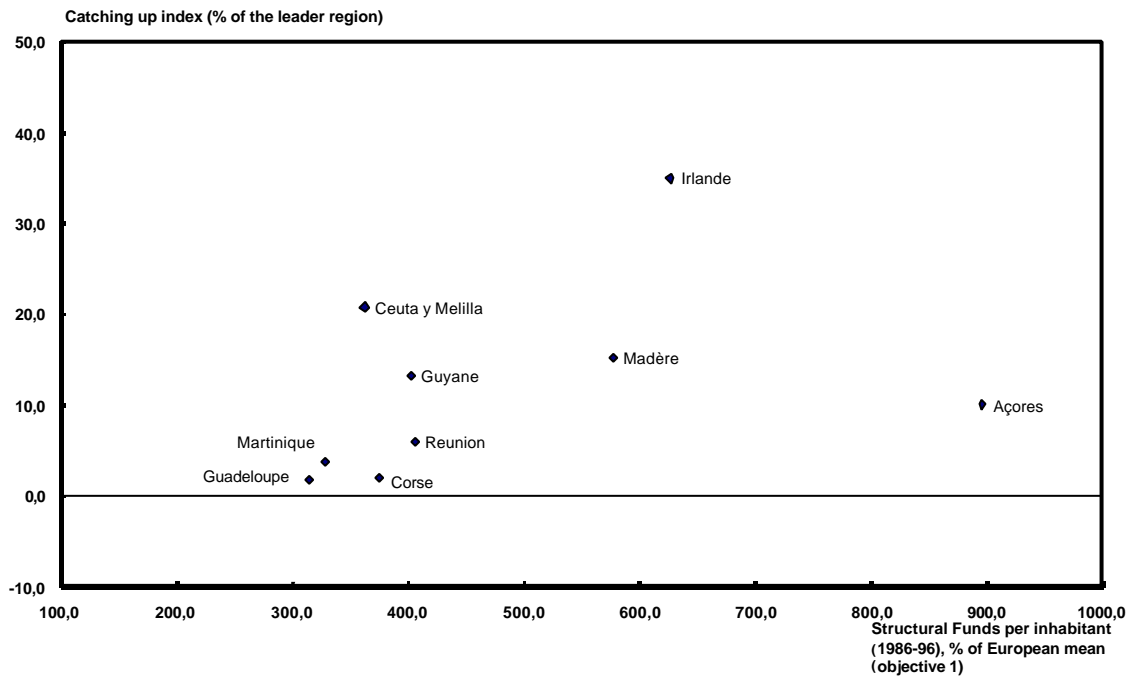
### Graph 18

The catching up of European regions and their access to structural funds (Objective 1)



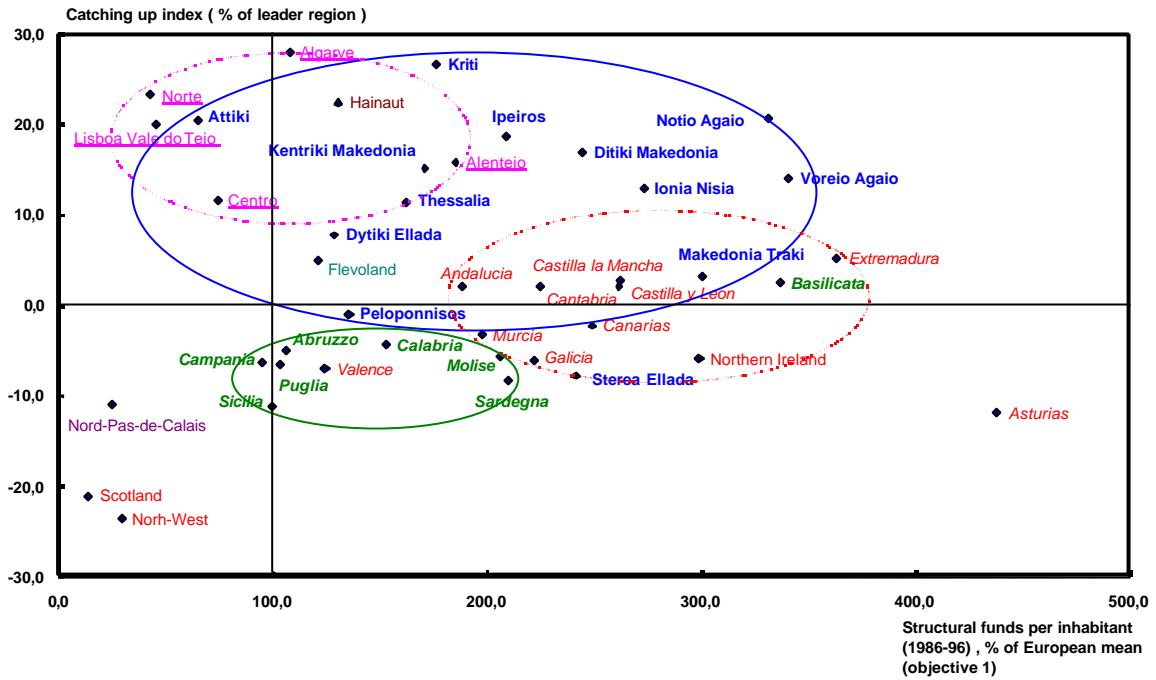
### Graph 19

The catching up of "insular" European regions and their access to structural funds (Objective 1)



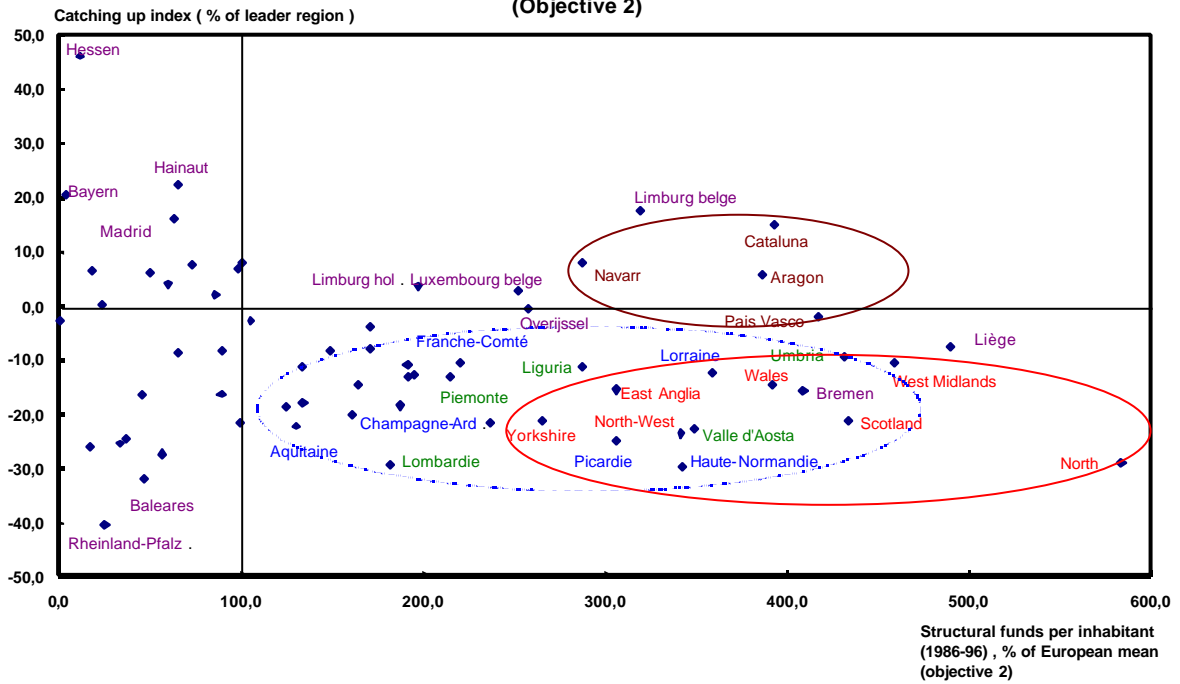
### Graph 20

The catching up of European regions (except "insular" regions) and their access to structural funds (Objective 1)



### Graph 21

The catching up of European regions and their access to structural funds (Objective 2)



## **A preliminary econometric approach of the regional efficiency of the structural funds**

In the *sixth report on the social and economic situation and development of regions* (1999), the European Commission surveys the predictions of four macro-economic models concerning the impact of structural funds on EU growth. The results lead to the conclusion that this impact has been significant over the two budget periods 1989-93 and 1994-99. Within the so-called cohesion countries (Spain, Portugal, Greece and Ireland), the estimated impact on growth is nearly equal to one growth yearly point in the case of Greece and Portugal. But, as noticed in the Commission report, according to the data available, the models are only valuable at a national level and not at a regional one within each Member State. Then, this analysis is strongly limited since the micro or macro-economic impact of structural funds does not guarantee an effective support to regional development. A program implemented in a depressed region might be more profitable finally to the most wealthy regions in the same country ; those regions' producers may satisfy the demand derived from the structural funds and compete with local producers if the infrastructure improvement conveys their products ; productivity gains triggered by the program may finance income increases outside the beneficiary region. The Commission report sets out that numerous regions eligible to the objective 1 record a productivity catching up more significant than the per capita GDP one. Moreover, these regions do not succeed in turning the recorded productive modernization into jobs. While the European structural funds have probably supported the catching up of less advanced countries, the impact on regional development – a larger concept than the productive modernization – is more uncertain.

The purpose here is only to indicate some preview and suggestive tests about factors of regional catching up in Europe. In other words, the estimation aims at introducing some guidelines for a comprehensive evaluation of the regional efficiency of the structural funds rather than concluding with a definite diagnosis.

With respect to the **b**-convergence concept already removed in this paper, two ways can capture factors of differentiated regional catching up results:

1– The first consists in considering that the regional **b**-convergence is not absolute but conditional: other things being equal, each region grows all the faster since they are initially backward and the **b**-coefficient still indicates that catching up intensity common to different regions. But, this factor common to regional catch-ups does not exhaust their own dynamics: each region moves towards its own « stationary state » reflecting its underlying features.

Thus, the national membership and the allocation of structural funds are likely to condition regional convergence thanks to their determining impact on regional infrastructure and human capital.

The relationship to test is measured by means of:

$$\text{Log}(y_{iT}^r) - \text{Log}(y_{i0}^r) = a - b \text{Log}(y_{i0}^r) + \sum_j \dot{a}_j X_{ij} \quad i = 1 \dots N \quad (1.4)$$

where  $X_{ij}$  is the value taken by the factor  $j$  which conditions the regional convergence for the region  $i$ .

Unfortunately, the results of the estimation of this completed version of the equation (1.2) are not relevant to our purpose. Although the national membership appears as a determining variable of regional convergence, all significant impact of the endowment with structural funds is eliminated while incorporating this variable. We can assume that the disclosure of the «stationary state» as a final fate of each region is not evident over such a short and specific ten-years period (1986-1996).

We shall just indicate that the relationship (1.4), with a constant but without the  $X_{ij}$  variables, reveals over the sample period a very significant  $b$ -coefficient equal to 0.23 (estimated with the entire sample of 131 regions but also with a smaller sample without the french overseas regions, Corsica, Ceuta y Melilla, Groningen, the Azores, Madeira, and the three mono-regional countries, Denmark, Luxembourg and Ireland). The value of this coefficient nearly corresponds in annual terms to the 2 per cent convergence yearly rate estimated in several reference econometric investigations...In that way, the 1986-96 period is not especially outlying.

2- Without judging what the «final stationary state» of each region might be, the influence of some factors on the observed convergence speed over 1986-96 can be estimated. The previous figures and comments show that speed measured by the catching up indicator (1.3) was dispersed among regions, without any clear relationship with the structural funds endowment. But the national membership plays apparently a decisive role for the efficiency of this support.

The estimated relationship aims at explaining directly the catching up indicator (still measured in relation with the lead region of Hamburg):

$$\text{Catchingupindicatorbetween } 0 \text{ et } T = -100 \times \frac{\text{Log}(y_{iT}^r) - \text{Log}(y_{i0}^r)}{\text{Log}(y_{i0}^r)} = b_0 + \sum_j b_j X_{ij} \quad i = 1 \dots N \quad (1.5)$$



The factors  $j$  successfully inserted into this relationship are the following:

- The endowment with structural funds over the two budget periods in ECU 1997 per inhabitant compared with the community average of this ratio (SF variable). If equal to 1, the considered region has been granted like the community average.

- In the same way, the relative endowment with structural funds under the objective 1 (SF1) and objective 2 (SF2).

- The co-funding rates besides the structural funds. This variable CF is equal to zero in the theoretical case that no co-funding is incurred (and obviously if there is no European structural support) and is equal to 1 when co-funding adds 100% to structural funds, that is to say if they double the European grant.

- The national membership. There are as much membership factors  $j$  as nations. The membership variable  $X_{ij}$  is equal to 1 if the region  $i$  belongs to the country  $j$ , and to zero otherwise. Each membership variable will be mentioned by the name of the corresponding country.

Table 1 replicates the results of some interesting regressions. Each regression uses least squares with the complete sample of 131 regions (the results from the smaller sample excluding insular regions and mono-regional countries are not significantly different except for some cases mentioned below). Within these four regressions, the relative endowment with structural funds has a significant and positive impact on the catching up performance, whatever variables incorporated otherwise. The coefficient of the SF variable does not vary much: between 4 and 6.5. If that variable SF goes from 1 to 2, in other words if the endowment shifts from the community average to twice this support, the ten-years catching up indicator increases by 5 points (the yearly increase of the convergence rate is approximately 0.5%). Equation (2) suggests this result is only due to objective 1 structural funds. Equation (4) indicates the own impact of the structural funds is probably expanded by co-funding, although its return can decrease relatively to the structural funds they complete. Nevertheless, this weak influence of co-funding confirms display practices inflating credits incurred not effectively implemented.

The variables of national membership are not equally significant but some seem to hinder deeply the regional catching up. This is obvious for the French, Italian, British regions and less significant in the Spanish case. The moving back of Groningen particularizes the Netherlands. Once this region removed from the sample, the Netherlands like Germany and Belgium are archetypes of the neutrality of national membership for the regional development. The case of Luxembourg, a mono-regional country, is very particular: this

wealthy region was initially close to the lead region of Hamburg, but then levels off while Hamburg still goes forward. In such a case, the catching up estimator is very sensitive to a moving back however not disastrous. If Luxembourg is eliminated from the sample, the coefficients of the other variables of national membership do not vary much. Finally, the French unsatisfactory performance remains after deleting the overseas regions and Corsica from the sample.

**Table 1. Some regressions explaining the speed of regional catching up (equation 1.5)**

Equation	1	2	3	4
Variables				
Constant	-10.1 (4.6)	-7.0 (2.6)		
FS	6.5 (3.9)		4.0 (2.2)	4.8 (2.5)
FS1		4.2 (3.4)		
FS2		-1.6 (1.2)		
CF				2.3 (1.4)
Germany			0.2 (0.0)	-4.1 (0.6)
Belgium			-1.5 (0.3)	-5.5 (0.9)
Denmark			4.5 (0.3)	-0.5 (0.0)
Spain			-4.9 (1.0)	-9.5 (1.6)
France			-18.5 (5.0)	-23.8 (4.4)
Greece			6.4 (1.2)	4.0 (0.7)
Ireland			16.2 (0.8)	9.8 (0.5)
Italy			-10.9 (2.6)	-15.9 (2.9)
Luxembourg			-76.1 (4.3)	-82.3 (4.5)
Netherlands			-10.6 (2.1)	-17.4 (2.4)
Portugal			10.1 (1.3)	7.3 (0.9)
United Kingdom			-20.5 (3.8)	-27.4 (4.1)
R <sup>2</sup>	0.10	0.13	0.37	0.38

*Legend:*

- The numbers between brackets are the t Student.
- When the national membership variables are present in the equation, it is not possible to insert a constant, as the constant is a linear combination of these twelve variables. In fact, their introduction differentiates the constant according to the country.

The regressions in Table 1 just point some indicative issues. Obviously, the determinants of regional convergence are far from being exhausted: the dynamic impact of regional advantages and handicaps should be clarified through relevant variables. But, these regressions suggest that the efficiency of the structural funds as for regional growth interferes with the national membership of eligible regions. The national idiosyncrasies influence the regional catching up, rather in a negative way in the case of France, Italy, the United Kingdom and Spain. The reasons for such an handicap are various: the industrial decline

hinders all British regions ; in Italy the relative decline of northern former industrialized regions comes with a new moving back of Mezzogiorno so that the dynamic area moves towards the north-eastern regions ; in France, the region Ile-de-France still remains a pole of attraction at the expense of too many regions ; in Spain, the benefits of EU accession have been first concentrated on relatively prosperous regions. When the national membership is neutral, indeed positive without being really significant in the case of Greece and Portugal, the efficiency of the structural funds is not thwarted.

## **Conclusion**

In the *sixth report on the social and economic situation and development of regions*, the European Commission is pleased with “the surprisingly rapid rhythm of convergence in an historical or international prospect over the period 1986-96”. This assertion can rely on an overall estimation of convergence, even though the convergence process, as previously emphasized, is not exceptional. This is also amended, in the same report, when noticing the prosperity of the richest and poorest regions increases whereas numerous average regions level off. Nevertheless, the Commission is unaware of the features, which hinder the catching up of numerous moderately or poorly developed regions. In particular, the role of the national « imprint » over regions is not much taken into account, especially as to the expected efficiency of the structural funds. It is all the more surprising since the report theorizes about the programming, management and evaluation of the operations having recourse to structural funds. No doubt that the compared evaluation of national practices as to regional development has to progress !

Combined with the results of other investigations, the conclusions we draw from this study can highlight a range of propositions which sums up the nation / region interaction within the European integration process. Those propositions would deserve to be ascertained as regards their normative implications.

1– The regional growth performances are naturally influenced by the national membership. On the one hand, each region benefits from the performance of the nation to which it belongs, other things being equal ; on the other hand, what is less trivial, the inequality of regional development varies from a country to another. The catching up of backward regions is much more significant in Portugal or Greece than in Spain or Italy. The dynamics of regional inequalities have a strong national « imprint ».

If some studies prove inter-regional convergence in Europe, it largely relies on prevailing inter-national convergence beyond economic fluctuations ; and the regions within a catching-up country take part in this evolution. For the most backward regions, this is all the more profitable when the national level successfully gives the impetus to the inter-regional catching up, but all European countries do not have this feature in common. Finally, shifts in inter-national convergence condition the inter-regional convergence: if rather strong in the period 1950-70, this inter-regional convergence has probably been much slower since 1970 although the European structural funds were soaring<sup>7</sup>.

2– The advantages of a given region are revealed by its location inside the moving geography of European networks. The resulting regional imbalances form an integral part of the overall European growth process. The development of a region balances the impact of both its own advantages, compared with the other European territories, and the national membership. The factors strictly territorial (geographical location, proximity to dynamic centers, externalities between bordering regions) take part in these advantages<sup>8</sup>. The interaction between European and national dynamics does not guarantee an equality of opportunities between regions.

3– The European structural funds are not sufficiently efficient in order to remedy these regional discrepancies, although this is clearly their main goal. Indeed, the aim of the structural funds is not only to redistribute financial resources but also to strengthen the factors determinant to regional development. Neither the micro-economic efficiency of programs financed by structural funds, nor their macro-economic efficiency is challenged by this statement. On the contrary, several recent investigations set out the significant impact of the structural funds on the catching up of the less developed countries in Europe<sup>9</sup>. However, the possible macro or micro-economic success is not equivalent to an automatic benefit in favor of the development of the least favored regions. When a project financed by structural funds triggers local productivity gains, their allocation may not benefit to the target territory.

4– As an explanation to this unsatisfactory efficiency of the structural funds as to regional development, comes the nature of the institutional and economic relationships between the community level, each nation and its regions:

- The primary redistribution associated to the structural funds can be limited by some efficiency considerations. Some regions close to the community average in terms of per

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<sup>7</sup> See Armstrong and Vickerman (1995) ; Fagerberg and Verspagen (1996).

<sup>8</sup> See Quah (1995)

<sup>9</sup> See Cour and Nayman (1999) ; De la Fuente and Domenech (1999)

capita GDP are well endowed with structural funds since the national growth and the development of backward regions are expected to derive from that support. A more redistributive allocation of the structural funds would cushion regional inequalities but could also slowdown the collective growth<sup>10</sup>. Besides, a component of structural funds aims to hinder rich regions' decline (especially the objective 2 over the two last programming periods, dedicated to promote the conversion of regions facing an industrial decline). This action is fully legitimate (although its efficiency is doubtful): indeed, it should be not convenient to base the intra-european redistribution on an excessive egalitarianism confirming the decline of rural and industrialized regions formerly prosperous. On the contrary, the co-funding practice, in the line with the additionality principle, is more questionable since it seems to soften largely the redistributive effects of the structural funds. This regional or national co-funding is all the more significant since the region is initially rich.

- The funds allocated to poor or declining regions are likely to benefit to wealthy regions within the same country, since the supply of these regions complies with the demand derived from European funds, or the producers of the most favored regions convey their products thanks to new infrastructures in poor regions.

- The programming of the structural projects and the distribution between the structural funds sometimes imply some devious interactions between the regional, national and community institutions. The programming, implementation and evaluation are often centralized at the nation-State level. A decentralized management of the operations of the structural funds would better take regional dynamics into account. Although they provide co-funding, the regional communities do not have a decisive role for thinking or managing the European programs. Officially regions are said community subjects in accordance with the rules of partnership and additionality. However, in practice national devices remain dominant. They hardly perceive the geographical dynamics at work, because this dynamics depends largely on European determinant factors. The coordination between the national, territorial community authorities conditions the efficiency of the structural funds.

Since the nation does not satisfactorily correct its internal imbalances, we could assume the necessity of more integrated territorial and redistributive policies at the European level. A spatially unified and heterogeneous Europe is a durable feature and the eastern enlargement will increase this heterogeneity. Without any appropriate procedure at the European level, controlling the heterogeneity process remains difficult for it takes form at this

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<sup>10</sup> See, in the Spanish case, De la Fuente and Vives (1995)

level. The inequality of opportunities prevails among European regions, disclosing not only their intrinsic advantages and handicaps but also their location in a modifiable European geography. Consequently, there are reasons for thinking of more ambitious redistributive rules among European territories, indeed among European individuals themselves, in the line with progress towards fiscal federalism. It is also reasonable to shift towards more integrated territorial policy at the community level (referring for instance to the cross border programs Interreg), which would take geographical imbalances into account for the allocation of structural funds. Today, the community support framework has too many similarities to a juxtaposition of negotiated sector interventions. Better transnational cooperation of territorial policies could reinforce the efficiency of the community policies as to regional convergence.

The implications of the increased concentration, both spatial and thematic, of the structural funds, confirmed by the European Council in Berlin in March 1999 for the programming period 2000-2006, are conditioned by these institutional aspects. The number of objectives are reduced from five to three: catching up of backward regions (whose GDP per inhabitant is inferior to 75% of the community average), economic and social conversion of areas facing structural difficulties and adapting policies of education, training and employment. These objectives should concern one third of the EU population, instead of 50%, even if the European Council introduced some transitional measures. If this concentration goes along with a better efficiency, it will be profitable to the whole Europe and not only to eligible areas. A more decentralized management of the structural funds next to an integrated territorial policy could favor such an evolution by balancing efficiency and solidarity worries. Only reinforcement of the concentration of the structural funds, by hardening the eligibility criteria, risks to trigger a zoning policy, i.e. an accurate split in eligible areas (down to urban districts !) which can elude the concerns of global efficiency, without being an especially democratic procedure. If the subsidiarity principle is necessary to definition and implementation of regional and structural policies, we are wondering whether the European Union can do without an integrated territorial policy – perhaps initiated by the European Spatial Development Perspective (European commission, 1997) – so that the rules of partnership and additionality give rise to a balanced control of the European geography. Marrying integration to decentralization is a requirement which tackles deep-rooted habits of the nation-States.

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European Structural Funds are only invested in eligible regions, so are spent in weaker regional economies to a greater extent than Horizon 2020 funds. The current ERDF 2014-2020 programme is expected to provide research and innovation income to regions in each of the UK's four nations. England accounts for the largest share of the £1.5bn pot, with around £816 million of the total (about 55%), with Wales expected to be awarded around £388m (26%), Scotland £158m (11%) and Northern Ireland accounting for around £113 million (8%). This paper evaluates the impact of structural funds on the convergence process between 145 European regions over 1989-1999. The presence of spillover effects is investigated with spatial econometric methods, which assess the impact of the funds on the targeted region and its neighbours. We also control the potential endogeneity problem in the estimation of their impact. Our estimation results indicate that significant convergence takes place, but that the funds have no impact on it.Â

Fayolle,J.; Lecuyer,A.: Regional growth, national membership and European structural funds : an empirical appraisal; 9). E. Kenneth Grant; John Vanderkamp: The Effects of Migration on Income: A Micro Study with Canadian Data, 1965-71. The Structural Funds are directed towards different aims: physical and human capital accumulation, development of transport infrastructures, aid to the unemployed, support to declining sectors, etc. The overall goal is to promote the competitiveness of European regions (Articles 130(f)-130(p), Single European Act, 1987) and, at the same time, to reduce: "disparities between the levels of development of various regions, and the backwardness of the less-favoured regions" (Article 130(a), Single European Act, 1987). The effectiveness of EU funds has been mostly evaluated by analyses of growth and con... Download Citation | Regional growth, national membership and European structural funds : an empirical appraisal | This paper comes within the scope of that debate by measuring relative growth performances of European regions over the period 1986-96. The | Find, read and cite all the research you need on ResearchGate.Â However, only 11 articles performed a formal econometric estimation of the impact of structural funds on growth, and the first contribution, by Fayolle and Lecuyer (2000) is only 9 years old. Structural funds are still the most important tool of regional policies. ...