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**European Integration and the Case for
Compensatory Regional Policy**

by

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European Integration and the Case for Compensatory Regional Policy *

Abstract:

The ongoing process of European integration is likely to increase trade and factor mobility thereby increasing interregional competition and affecting the interregional division of labor. From a theoretical standpoint, rising specialization and polarization of European regions may result from this process, and may entail a growing core-periphery-divide of regional income. Such a supposition evokes questions on the need of an accompanying compensatory regional policy and its adequate design. I find that a case for regional policy cannot be denied, but that the EU largely overstates the need for such a policy at EU level, and should abstain from direct structural interventions into regional economies.

Keywords: Integration, regional policy, regional specialization, regional polarization, EU structural policy

JEL classification: F12, F15, N11, R12, R58

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1. Introduction

The ongoing process of European integration is likely to increase trade and factor mobility thereby increasing interregional competition and affecting the interregional division of labor. From this, worries arise that cohesion between countries and regions within the EU might deteriorate. In response, the EU institutions try to compensate for this suspected deterioration by raising structural funds, including regional funds, and by targeting structural policies, including regional policy, towards cohesion. This evokes questions whether there is a case for such compensatory regional policy (i) on theoretical grounds, i.e. whether integration hurts regional efficiency and/or influences interregional distribution; (ii) on empirical grounds, i.e. whether integration leads to an adverse specialization and severe polarization of European regions. Also, questions arise as to the adequate design of such compensatory regional policy.

The paper starts by reviewing the case for regional policy in Europe on theoretical and empirical grounds. It then discusses some options for an efficient European regional policy, and compares it to the actual EU regional policy.

2. The case for regional policy in the process of European integration

2.1. Reasons for regional policy intervention

There are many worries that progressing integration in the EU, be it by a deepening or a widening of the union, would deteriorate the cohesion of countries and regions within this union. The EU Commission, the EU Parliament, and the EU Committee of the Regions, among others, repeatedly stressed the need for cohesion of countries and regions in the process of integration and targeted the EU structural policies, including regional policy, towards this end.

Yet, there is no clear-cut definition of cohesion; rather, there coexist a number of differing concepts. According to the EU Commission's "Second Report on Economic and Social Cohesion" (2001), economic cohesion focuses on income prospects of regions, whereas social cohesion focuses on employment opportunities. More recently, the term "territorial cohesion" entered the agenda. An enumerating definition of territorial cohesion is to be found in the EU Commission's "Second Report on Economic and Social Cohesion".¹ Accordingly, it seems to be the enclosing term to the concepts of economic and social cohesion, including further items of political concern. It would thus imply another extension of cases calling forth for financial support by the EU.

From an economic point of view, regional policy can be regarded as a policy intervention into the economic process in favor of certain regions. Quite generally, policy interventions are justified by allocation, distribution or stabilization oriented problems. We may concentrate on the former two problems the latter being less relevant at the regional level. The *allocative problem* consists of achieving an efficient allocation of economic resources within and between the regions. Foremost, it requires defining a frame for economic activity such that all costs and benefits connected to economic decisions are internalized in the market process. Only in specific, well-founded cases without efficient market solutions direct interventions into the market process are required that could be viewed as ameliorating the economic cohesion in the sense of the EU Commission. The *distributive problem* consists of changing the outcome of the market process according to concomitant perceptions of a just intra- and interregional income distribution and this could be viewed as mending a perhaps detracted social cohesion in the sense of the EU Commission. The distributive problem may be treated ex post via redistributive measures such as taxes and transfers or ex ante via trying to influence the market process such that the intended outcome arises.

Accordingly, for the process of European integration, we can set up a case for compensatory regional policy if

1 Six priorities with an "important territorial dimension for Europe's cohesion policy" are enumerated: (i) support of least developed regions, (ii) pursuit of a strategy for cohesion and sustainable development in urban areas, (iii) diversification of rural areas, (iv) cross-border, transnational and interregional cooperation, (v) support of areas undergoing industrial restructuring, and (vi) support of areas with severe geographical or natural disadvantages (EU Commission 2001).

- integration produces market failures such as lock-ins or poverty traps for regions out of which they cannot escape on their own, or severe inter- or intraregional externalities that require allocative corrections;
- integration produces an increase of the regional income differential, a severe polarization of regional incomes, that is regarded as being socially unacceptable, and that requires distributive corrections.

The question remains whether there is any danger for market failure to occur and for polarization to increase, hence for regional cohesion to deteriorate, in the process of integration, justifying EU regional and structural policy.

2.2. Theoretical considerations on polarization

The theoretical background to integration is trade theory. Integration means a reduction of barriers to trade. Thus, it not only influences trade, but also changes the location of industries, and the division of labor between regions. Any such change requires adjustments on the side of workers, be it by sectoral or regional mobility. Also, any such change affects the income opportunities of regions, since these income opportunities are closely linked to the industry mix realized within the regions. Accordingly, integration touches issues of allocation and distribution thereby possibly affecting regional cohesion.

2.2.1. Basic theories

Still, for long, integration in trade theory was not perceived to be much of a problem for regional cohesion. The usual textbook framework of neoclassical trade theory assumes a comparative-static model with a 2-factors-2-goods-2-regions setting, with perfectly competitive markets, with sectorally mobile, but regionally immobile factors, and with slightly differing factor endowments of regions. Within this framework, an increase of integration, i.e., by liberalization of trade, is found to result in an increase of regional specialization where industries relocate according to comparative advantages (cf. table 1, *hypothesis H1*). This raises the overall welfare as well as the welfare of each region involved in the process, and equalizes factor prices. Hence, income convergence

Table 1— Integration effects for regional specialization and industrial concentration: Hypotheses from trade theories with various assumptions ^a

	Assumptions	Specialization pattern	Localization pattern	Regional income pattern
<i>Neoclassical trade theory</i>				
H1	usual assumptions	Specialization of regions	Dispersion of economic activity	Equalization of factor income
H2	with a highly localized factor	Complete specialization for some regions	Dispersion of economic activity	Differentials of factor income
H3	with factor mobility	Diversification of regions	Dispersion of economic activity	Equalization of factor income
<i>New economic geography</i>				
H4	usual assumptions / intermediate stage	High specialization of regions	High concentration of IRS industries in a core	Sharp core-periphery-divide of income
	usual assumptions / final stage			
H5a	– level of industrial aggregates	Diversification of regions	Dispersion of the IRS sector	Equalization of income
H5b	– level of deeply disaggregated industries	High specialization of regions	Clusters of single industries	Equalization of income
	without labor mobility (firm or capital mobility instead)			
H6a	– intermediate stage	Low specialization of regions	Low concentration at the core	Moderate core-periphery-divide
H6b	– final stage	Pronounced diversification of regions	Dispersion of industrial aggregates and clusters of single industries	Equalization of income

^a For details see text.

Source: Own compilation.

of countries and regions, and an even dispersion of economic activities across space is to be expected from integration.²

No doubt, there exist corner solutions with less favorable results regarding regional cohesion. There may be a case where a factor is highly localized in a region and hence in such scarce supply in another region that it becomes a bottle-neck to specialization within this latter region. The region will specialize completely on the industry that is less dependent on the bottle-neck factor, and it will produce with sub-optimal factor intensities, hence distorting the interregional equalization of factor prices (*hypothesis H2*). A similar result occurs, if a region produces with inferior technologies since it lacks access to advanced technologies. This case can be interpreted in an analogous way as the case of the scarce production factor. Accordingly, in this case, too, the region will specialize completely in an industry, in the one that is less technology-prone, and an interregional factor equalization will not take place.

If the conventional assumption of regionally immobile factors is released the case of complete specialization of a region is no longer a stable solution. On the one hand, the bottle-neck factor, being relatively well-paid in the respective region, will tend to flow into it, be it by a movement of persons or assets or by a spillover of ideas or technologies. On the other hand, the abundant factor, being relatively ill-paid in this region, will tend to flow off from it. Accordingly, factors will tend to be allocated more evenly across space, and this will reduce the specialization of regions (*hypothesis H3*).

Since the 1980s, emerging new theories, particularly the new economic geography (NEG), have put the opportunities and risks associated with the integration process in a new perspective (for a comprehensive presentation see Fujita, Krugman and Venables 1999; see also the survey by Ottaviano and Puga 1997). In this theory, usually, a sector with increasing returns to scale (IRS) and a great number of inhomogenous product varieties is considered as well as a sector with constant returns to scale and a homogenous product, and a mobile factor (workers) is considered as well as an immobile factor. Hence, factor endowments of regions become endogenous. IRS industries create incentives for

² Of course, apart from integration processes, specialization of a region may decrease (increase) as the significance of a certain comparative advantage erodes (intensifies), e.g., by a change of preferences towards products that require ubiquitous factors instead of localized factors (localized factors instead of ubiquitous factors).

concentrating the production of a certain variety at one location, and for supplying all other locations from there. Due to the non-competitiveness of such IRS industries, producers retain rents in regions with a high share of such industries. Hence, mobile factors flow in, and become the engine of a circular cumulative process that drives agglomeration. The core of this agglomeration gets specialized in IRS industries and the periphery in what is left, industries with constant returns, perfect competition, and a low income potential. This overrules the even dispersion of economic activities in space as well as the equalization of factor prices; the emergence of an explicit and highly specialized core and periphery becomes a likely outcome of the model (*hypothesis H4*; Krugman 1991).

However, along with these centripetal forces, there also exist centrifugal forces, and the balance between both changes as the degree of integration increases, i.e., as transaction and transportation costs decrease. Hence, the core-periphery system (like in hypothesis H4) results from an intermediate stage of integration, i.e., after the transition from high to medium transportation costs. But, with transportation costs having declined further, at the final stage of integration, agglomeration is no longer advantageous as scale economies can be exploited from any place in space. Within the core region, product competition dampens real wages and drives workers out of the core towards the peripheral region. Hence, according to this view of NEG, increasing integration may be characterized by an U-shaped evolution path, leading from dispersion of IRS industries to concentration and back to dispersion, and accompanied by an initial increase then decrease of regional specialization and of the core-periphery divide of income (*hypothesis H5a*; Fujita, Krugman, Venables 1999).

The theory does not offer any proof that a degree of integration sufficient to enter the dispersion stage can be achieved. There are barriers to integration that may persist in spite of institutional and technical progress in reducing them: e.g., geographic distances (relevant in particular for the movement of goods and persons), language, cultural, and institutional differences. If integration comes to a standstill at an intermediate stage of integration, high regional disparities will persist (like in hypothesis H4).

Assuming a reasonably deep product break-down of the IRS industry, there will be no return toward a dispersion of all product varieties. Instead, regions get specialized in one product variety of the IRS industry in order to take advantage

of scale economies internal to the product variety, while at the same time easing external diseconomies of scale such as competition for immobile factors (*hypothesis 5b*). Put in other words, one may observe decentralized clusters that will be the more explicit the lower transportation costs are. Hence, with increasing integration, the degree of regional specialization may increase, too, while all regions will host at least some varieties of IRS industry and will be able to take advantage of their potential for retaining rents (Ottaviano and Puga 1997, Puga 1999).

A sharp regional polarization even in the intermediate stage does not occur if one assumes other engines of agglomeration rather than worker mobility, e.g., migration of firms, or vertical linkages, as some NEG models do (*hypothesis H6a and H6b*; Krugman and Venables 1995, Venables 1996, Markusen and Venables 1999). Such assumption seems much more appropriate for the European case. In these models, the centripetal forces are restrained, as there is no accumulation of consumers like in models with worker mobility. Competition for workers will strongly raise wages in the central region, and this will force industries with a lower potential for scale economies to move toward the periphery, thereby easing the competitive pressure in the central region. A lack of interregional labor mobility can thus “sustain non-extreme equilibria in which all regions have industry, even if in different proportions.” (Puga 2001:17; cf. also Braunerhjelm et al. 2000:28f).

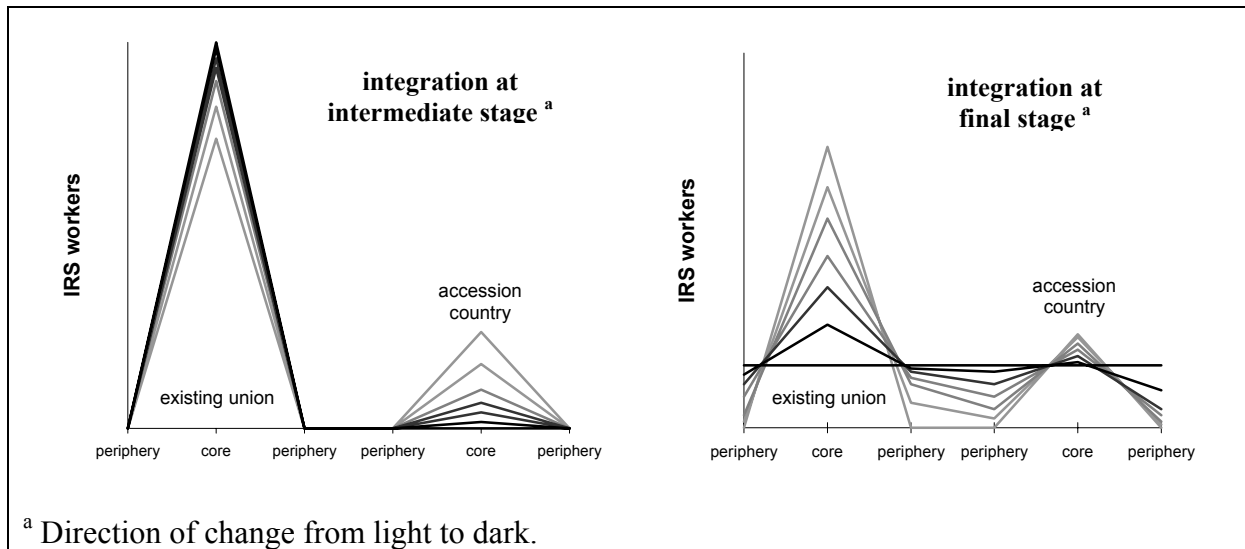
2.2.2. *The geography of enlargement*

Some remarks apply to the situation of enlargement when one country enters a large union of several countries that are already internally integrated. Again, the effects of opening up the border depend on the stage of overall integration — whether it is at the intermediate or final stage. If integration is still at the intermediate stage the centripetal home market effect will dominate: The large market potential of the union’s core will attract workers from the accession country’s core, and IRS activities will be concentrated in the union’s core (in a way sketched out at the left side of figure 1)³ — even though this process might not end up with a complete expatriation of the IRS sector out of the accession country due to remaining trade barriers connected to the border. Moreover, because of the hysteretic nature of agglomeration, this concentration would

3 One may think of the accession countries as being spokes in the integration process and the existing EU as being the hub in a way suggested by Puga and Venables (1997).

occur in the union's core — even though this core would no longer be central to the enlarged union.

Figure 1— Agglomeration / deglomeration effects in the case of integration by enlargement



Source: Own illustration.

In the case of already low transaction costs, when overall integration is at its final stage, the opening of the border may have different effects. Again the accession country's core may lose workers in IRS industries but this time due to the dispersion of the IRS sector to the periphery. This dispersion will initially favor those peripheral regions that are situated between the two cores, due to the higher market potential of these regions (as sketched out at the right side of figure 1). The dispersion will then extend to those peripheral regions that are situated beyond the two cores and these regions will be the last to catch up.

2.2.3. Policy effects

In view of this wide range of possible outcomes of the integration process, it is difficult to decide upon whether we need compensatory interventions or just further steps of integration and further reductions of transaction costs in order to avoid polarization. Moreover, NEG raises doubts as to the efficacy of policy measures in correcting polarization — they may even aggravate the situation of disfavored regions.

If policy measures aim at containing the process of concentration, this may have adverse effects on overall growth and likewise on the growth of peripheral regions (Puga 2001). The increase of competition of goods and factors associated with integration and concentration works towards a reduction of goods prices and an increase of consumer income, at the core as well as at the periphery. Hence, depending on the measures applied, regional policy may even act to the detriment of peripheral regions.

In particular, policy measures that aim at expanding the regional infrastructure, e.g., traffic networks, may reduce transportation costs thereby reducing the protection of remote regions. Only from these measures, the emergence of a core-periphery-divide is enabled. Or, policy measures that aim at ameliorating the educational infrastructure may increase the qualification of labor thereby increasing labor mobility. From these measures, a brain drain may result. In these cases, the peripheral regions would be better off without regional policy (Martin 1998).

Moreover, it is assumed that in the stage of increasing agglomeration the self-reinforcing forces would be so strong that any policy measures aimed at stopping or reversing this trend would have to be extremely strong, too. Hence, such a policy would be very costly and any connected adverse effects would also be very strong (Martin 1998).

To resume, a basic message of NEG is hence that economic integration may ultimately bring about convergence of income per capita levels. Yet, if integration comes to a standstill at an intermediate stage of integration, the persistence of high regional disparities remains a possibility that needs to be taken seriously. From this, one could infer a *distribution oriented case* for policy measures such as interregional transfers in order to share the aggregate gains from integration across all countries and regions. Also, there may be an *allocation oriented case* in favour of regional policy: Like the traditional neoclassical theory from which it is derived, NEG deduces equilibrium market solutions where the economy at any stage of integration is in overall optimum. However, in contrast to traditional neoclassical theory, such an overall optimum need not be an optimum for any region involved. By specific measures in favour of IRS industries regions can attain a strategic edge over other regions, and this

constitutes a strategic argument for an active regional policy.⁴ The arbitrariness of the concentration process and the existence of hysteresis in cumulative causation strongly support this argument. Yet, this argument depends on circumstances and is flawed by several objections, reservations, and restraints. These have to be observed when designing regional policy measures. Moreover, of course, any suggestion derived from theory depends on the empirical relevance of the theory.

2.3. Empirical evidence for the likeliness of polarization in Europe

On empirical grounds, the question whether there is a case for compensatory regional policy transforms into the question whether integration leads to a change of the interregional division of labor, to an adverse specialization and severe polarization of European regions. There are investigations on the evolution of specialization in the course of the West European integration process so far. This process of European integration may be accounted for as an economic experiment without precedent in modern economic history. It offers an outstanding field for empirical research on the effects of integration. In the last two decades, three major integration steps have been taken: the south enlargement in 1981/1986, the completion of the Single Market in 1992, and the north enlargement in 1995 (the creation of the European Monetary Union in 1999/2002 still being too recent for analysis). It is thus much worthwhile to look what has happened to the division of labor between countries and regions during this period.

2.3.1. Review of existing literature

Rather roughly, we may sum up the most important results of the existing empirical evidence so far:

- Any change of specialisation seems to occur at a very slow pace, and as the result of quite divergent processes, some acting toward concentration others toward dispersion of industries (Middelfart-Knarvig, Overman, Redding, and Venables 2000).

⁴ Ottaviano (2001), therefore, deduces a need for state aid that is not only region-specific but also sector-specific.

- Overall specialisation of *EU member states* seems to have increased in the 1970s and 1980s, and for a bare majority of countries also in the 1990s (Hufbauer and Chilas 1974, Molle and Boeckhout 1995, Amiti 1999, Brülhart 1998, Walz 1999, Dohse et al 2002). Moreover, the localisation of IRS industries seems to have increased, i.e., industrial clusters seem to have emerged (Brülhart 1998).
- On a *regional level*, some studies show localisation of the manufacturing sector as a whole to have increased throughout the 1970s and 1980s (Molle 1980, Brülhart 1998, Walz 1999; no studies for the 1990s exist).
- Within the manufacturing sector, observed at a flat sectoral breakdown, the specialisation of European regions seems to have been decreasing since the 1980s (Hallett 2002, Paluzie, Pons and Tirado 2001).
- The literature on *income convergence* of EU countries and regions finds progress towards more regional equality though this progress has slowed down significantly in the late 1980s and 1990s (e.g., Neven, Gouyette 1995, Hallett, Garnier, Davies 2000, de la Fuente 2000, Boldrin, Canova 2001).

What is still lacking is an analysis of regional specialisation on a deep sectoral breakdown to see in how far results on increasing /decreasing specialisation really depend on the degree of disaggregation (as suggested by hypotheses H5b /H6b). This lack is mainly due to the non-availability of sufficiently prepared regional data.

2.3.2. *Own research results for French and Spanish regions*

To analyze the spatial division of labor and the location of industries in deep sectoral disaggregation requires to take recourse to nationally available data for EU member states, since no such data set at the European regional level exists that is internationally comparable. In building such a data set, we started collecting employment figures for *France* for some selected years from 1973 to 1996 broken down into 21 regions and 35 manufacturing branches and for *Spain* for years from 1981 to 1992 broken down into 18 regions and almost 80 manufacturing branches. For these data, we provide some descriptive statistics. For convenience, the two major integration events of the observation period are highlighted, the south enlargement when Spain entered the EU and France

gained a new intra-EU neighbor, and the completion of the single market when all intra-EU borders became less relevant.

For both French and Spanish regions, Herfindahl indices have been calculated which compare the observed regional structure to a situation where all industries have equal shares (figure 2).⁵ Quite in line with other empirical studies on specialization we find most regions, particularly such with a low degree of specialization, to reveal only slow variation, even over a period of more than 20 years as in the case of France. The bare majority of all regions in France and Spain experienced a moderate overall *increase* in specialization. For several of these regions, particularly those situated at the south of France, this overall increase was the result of a first-decrease-then-increase evolution, a *U-type* evolution. Less than one half of all regions in France and Spain experienced a *decrease* of specialization, most remarkably those that had been highly specialized in the past like the mining and steel regions (Lorraine, Nord-Pas de Calais and Asturias).⁶ No obvious influence of the south enlargement or the single market program can be detected. Accordingly, the evolution of regional specialization does not exhibit any simple and uniform path.

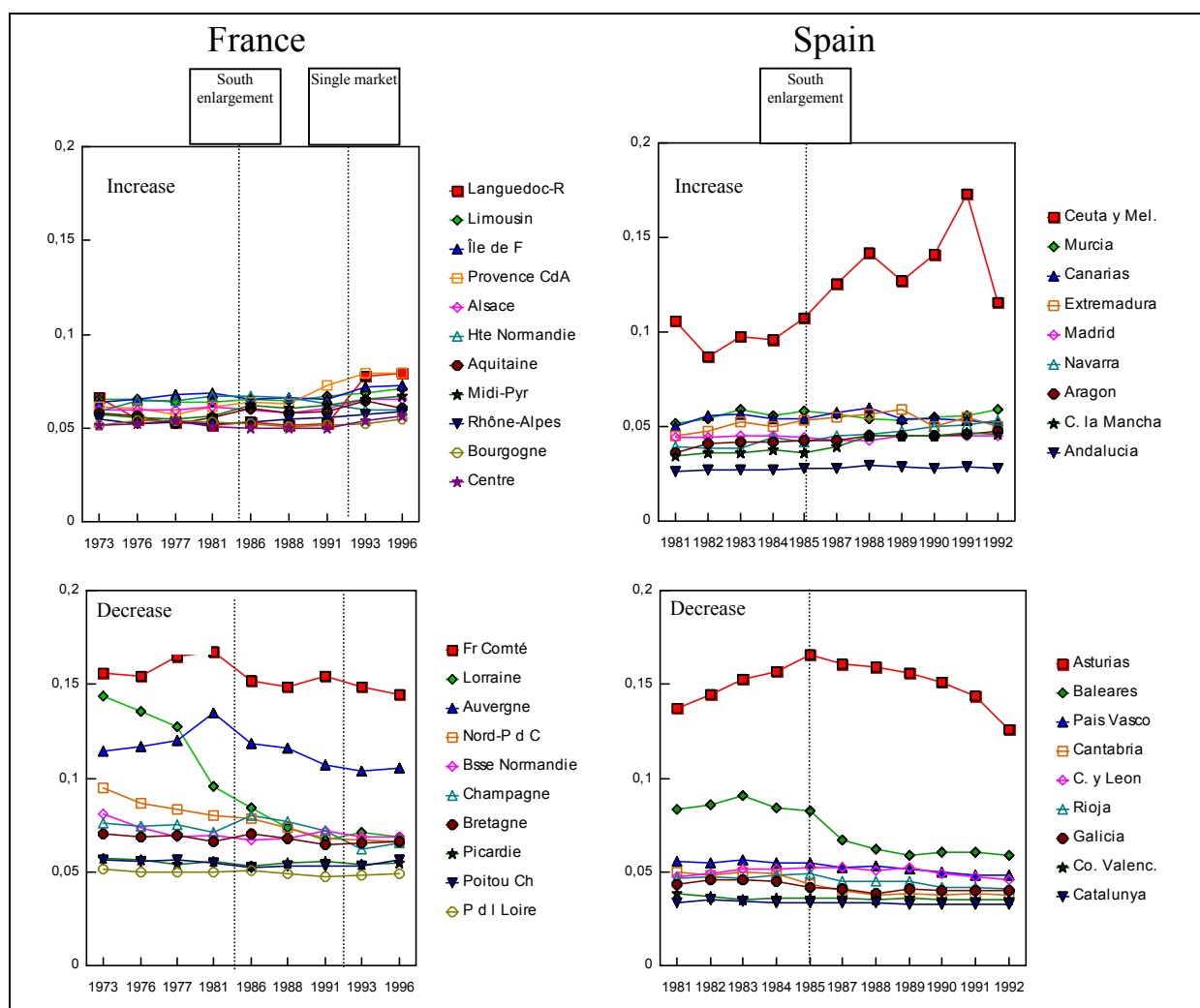
The mere observation of increasing or decreasing specialization does not by itself answer the question of an advancing or deteriorating regional cohesion. To this end, it is useful to look at the location of IRS industries across regions since these industries are most relevant with respect to income perspectives of regions. Figure 3 illustrates the significance of IRS industries in French and Spanish regions and its evolution. The IRS industries are defined according to a classification by Pratten (1988).⁷ In this illustration, a divergence of the IRS shares between regions would signify a concentration process of these industries and a polarization of income perspectives. By contrast, a convergence of these shares would signify a dispersion process of IRS industries across regions, and a convergence of regional income perspectives.

5 $h = \sum_i^n (a_i)^2$, where a_i is the share of the i^{th} industry in a given region, $\frac{1}{n} \leq h \leq 1$. A region is the more specialized the higher the indicator is. For an overview on different measures of specialization and their specific properties, see Amiti (1999) and Krieger-Boden (1999).

6 For a few regions the overall decrease was the result of a first-increase-then-decrease evolution, which may be taken as an inverted U-curve (e.g., Franche-Comté, Auvergne, Asturias).

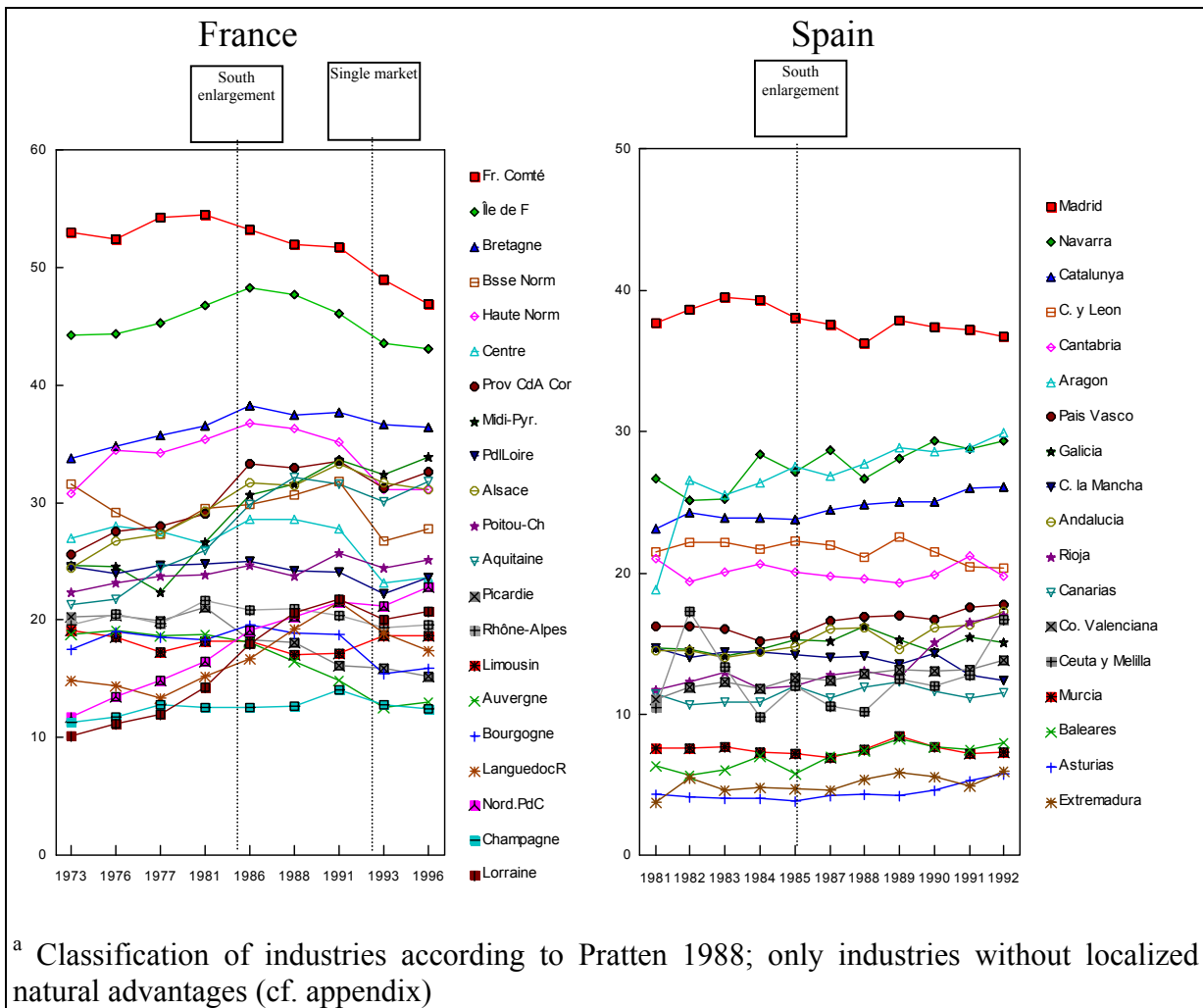
7 Cf. annex A1. We address here only typical IRS industries in the sense of NEG, i.e., excluding industries with natural advantages like mining and the iron and steel industry.

Figure 2 —Regional specialization in France and Spain, Herfindahl indices



Source: SESSI. — INE, TEMPUS Bancos de Datos. — Own calculations.

By figure 3, above all, the observation is again that any change of specialization is slow and due to opposite evolutions: we find in most cases only slight variation over time regarding the shares of IRS industries within the regions. In the French case, we find an obvious tendency toward convergence of the IRS sector's share in regional economies. Particularly, in the core region Île de France (and in Franche-Comté known for its high specialization on precision instruments manufacturing) the relatively high significance of the IRS sector is decreasing. At the same time, the IRS sector's significance is increasing in regions like Midi-Pyrénées, Provence-Côte d'Azur-Corse, Aquitaine and Languedoc-Roussillon in the French south, commonly known as having undergone a remarkable catching-up process in this very period. Also, it is increasing in regions like Nord-Pas de Calais, Lorraine and Alsace that qualify as being old industrialized, perhaps indicating a renewal of these regions.

Figure 3 — Shares of typical IRS industries in French and Spanish regions^a

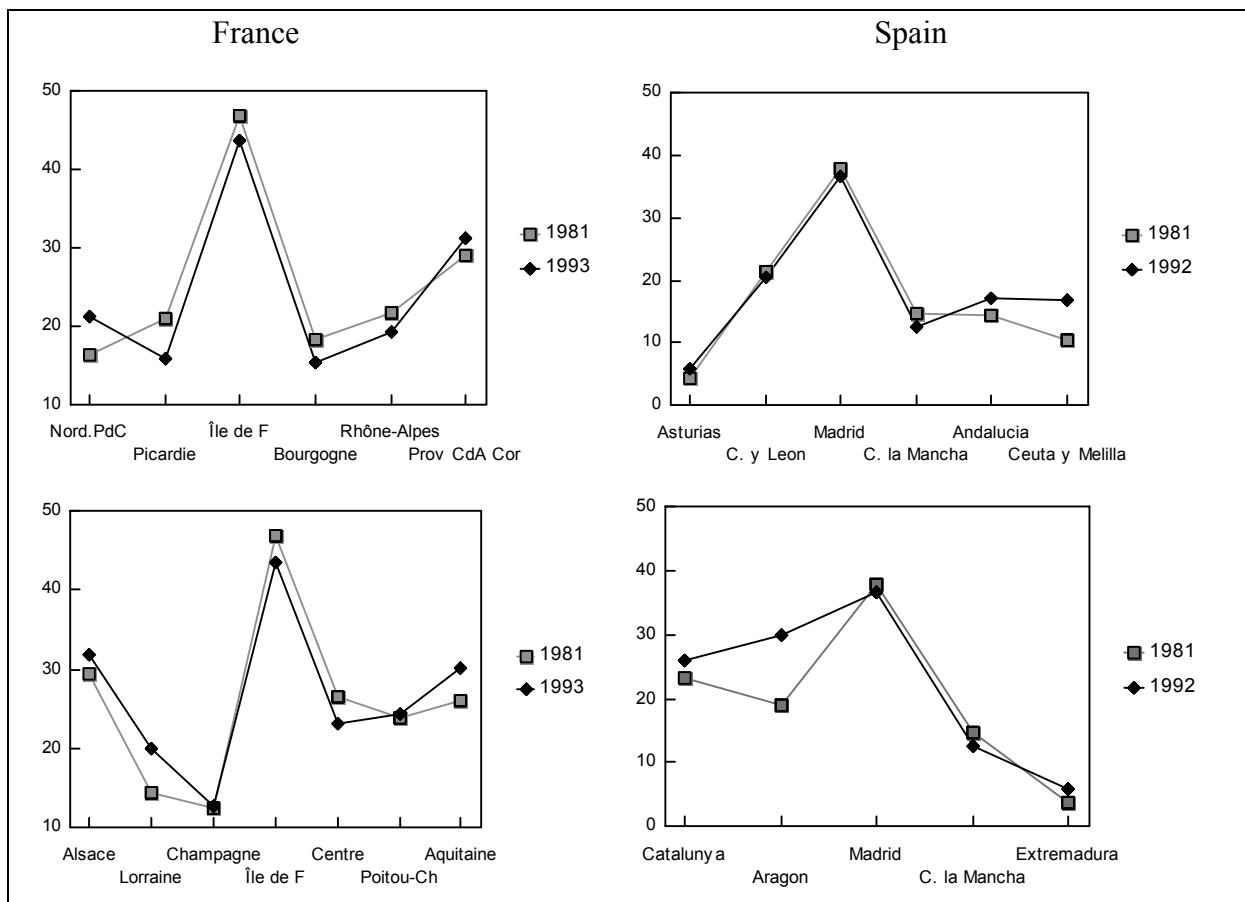
Source: SESSI. — INE; TEMPUS Bancos de Datos. — Own calculations.

A similar picture may be drawn for the Spanish case: here, too, we find convergence of the IRS sector's share though a bit less pronounced — of course, the observation period is also much shorter. Convergence results from a slight loss of significance in the Madrid region and a slight increase in most other regions. Hence we may draw the conclusion that the IRS sector taken as a whole seemingly tended to disperse over the regions during the respective periods, i.e., during major periods of the European integration process.

Dispersion of the overall IRS sector from the core regions toward the peripheries can also be observed by drawing profiles of the economic landscape regarding IRS shares. In figure 4, we find the IRS shares along a line of regions reaching from north to south of the respective country (upper row), and from north-east to south-west (lower row). These profiles seem to confirm the suggestions from section 2.2.2. for the final stage of integration (right-hand sketch of figure 1):

During the 1980s when Spain entered the EU, both in France and Spain, IRS industries' shares decreased in the respective center and its surroundings, and increased at the respective far-off peripheries, particularly at the peripheries situated between the two cores. Also, we find that the decrease of IRS industries is more pronounced in the traditional EU core Île de France than in the accession country's core Madrid. These figures may give us thus some hints that south enlargement may have acted in a way as suggested by theoretical considerations.

Figure 4 — Profiles of IRS dispersion in France and Spain (shares of typical IRS industries)



Source: SESSI. — INE; TEMPUS Bancos de Datos. — Own calculations.

To resume, the empirical results so far do not exactly support the imputation of ever-growing polarization resulting from integration. Rather, we observe a very slight tendency towards dispersing IRS industries across regions, which may indicate a conversion of regional income perspectives. Much uncertainty regarding the relation between integration and regional specialization, however, remains and requires much more empirical research. Also, there is as yet no

clear empirical evidence that regional income and growth are indeed linked to the degree of regional specialization and the degree of dispersion of IRS industries, as described.

2.4. Challenge from European integration for regional policy

European integration so far does not seem to have deteriorated regional cohesion to a very disturbing degree. But what are the challenges we can expect to result from the new steps of integration on the agenda, the very recent formation of the European Monetary Union (EMU) and the envisaged east enlargement of the EU?

Both events are once more likely to influence the division of labor between European countries and regions. The *formation of EMU* marks an important step in the process of European integration. It eliminates the possibility of adjusting national nominal exchange rates and it reduces transaction costs connected to the existence of different currencies (i.e., costs of information, conversion and hedging) thereby reducing transaction costs. As a result, EMU reduces price flexibility putting strain on regional labor markets, influences labor market flexibility, increases trade links, and changes regional centrality. What will result from EMU to the stability, as well as to the employment, income and growth of European regions is ambiguous, and it is equivocal *ex ante* which regions are likely to be winners or losers of the process. At the core of this ambiguity is the question of how the industrial specialization of regions changes in the process of integration. Changes in regional specialization, in turn, affect the susceptibility of regions to asymmetric shocks, and the core-periphery divide of regional incomes, and may thus be taken as key determinants for integration effects on regions (Krieger-Boden 2002).

The envisaged *east enlargement* at any rate will increase the variety of regions tremendously, with respect to their economic and social development level as well as to their legislative and administrative settings and their factor endowments. The bandwidth, e.g., of regional per capita income will widen tremendously in a community of the 25 member states as compared to the existing community of the 12. Also, unemployment rates will vary quite more. Legislation, administration and promotion of regions differ significantly between old and new member states. Also, factor endowments differ remarkably

with respect to human and physical capital, and to infrastructure such as traffic routes, education opportunities, and health care. Hence, the enlargement produces an initial deterioration of the level of regional cohesion. Moreover, the enlargement inhibits a change of transaction costs between incumbent and accession countries. According to Lejour, de Mooij, and Nahuis (2001) this initial enlargement shock has three dimensions: (i) the formation of a customs union (which is more or less achieved already) with less trade barriers towards EU member states (but in some cases more trade barriers towards external states); (ii) the accession to the internal market with mutual recognition of different technical regulations, minimum requirements and harmonization of regulations; and (iii) the free movement of labor.⁸ As a result, a new equilibrium of the division of labor is called forth. This process could be accompanied by severe perturbations such as a brain drain of high-qualified workers from accession countries, out-migration of low-qualified jobs from incumbent members to accession countries and of high-qualified jobs in opposite direction. Again, changes in the division of labor and in regional specialization may be seen as major determinants of integration effects.

However, it is difficult to estimate how far-reaching the adjustment procedures will turn out to be. If we consider the empirical results on earlier integration steps, we would not expect the effects of these new steps to be very disturbing. Even the south enlargement, an integration step that compares quite good to the east enlargement, appears to have had only little immediate impact on the specialization of, e.g., Spain and France, areas that were most heavily affected. A possible explanation may be that intra-EU labor mobility is continuously declining in spite of huge regional differentials particularly with respect to unemployment (Braunerhjelm et al. 2000). This low labor mobility in Europe may prevent from extreme polarization in the future, too. Still, it is difficult to guess for effects of the east enlargement, since it represents a wider integration step than any other before due to the heterogeneity of development levels between incumbents and accession countries.

⁸ On the basis of a CGE model for the world economy, Lejour, de Mooij and Nahuis (2001) estimate sectoral effects. Overall, they estimate large gains of accession for the accession countries and modest welfare improvements for incumbent members.

3. Compensatory EU regional policy — requirements and reality

3.1. Requirements for an efficient regional policy in the process of integration

The findings so far on theoretical and empirical grounds are ambiguous: While they do not directly sustain fears of severe market failures and regional polarization to emerge from integration, they cannot definitively rule out such fears either. Hence, while there seems to be no obvious need for compensatory regional policy to accompany integration, such a need cannot definitively be excluded either. But even, if we accept that there should be regional policy to compensate for unforeseeable risks potentially associated with integration, there remain questions. Is the EU level the right level to implement such policy? And what would be the optimal design of such policy?

3.1.1. Efficient level of administration for regional policy measures

On which administration level should any policies toward regional cohesion be implemented — at EU level, level of national, or even regional or local authorities? Some major principles for an optimal division of policy prerogatives between different layers of administration may be derived from public choice theory, particularly from fiscal federalism (Buchanan 1950, Oates 1972, 1999, Bickenbach 2000, Stehn 2002).

According to the theory of fiscal federalism, each policy prerogative should be attributed to that level of administration that comes closest to representing the consumers of this policy. This principle complies with the well-known principle of *subsidiarity*. The lower the level of administration the larger is the potential of the people concerned to influence this policy according to their specific preferences and to assume the responsibility for this policy. People who do not share the preferences of the majority are able to move at low migration cost to

another nearby location that is more convenient to them. Also, at a decentralized level, more specific information is available for region-specific problems.⁹

Closely connected is another principle postulating that the prerogative of deciding on policy measures must be linked to the prerogative of spending funds for these measures as well as to the prerogative of raising these funds (principle of *correspondence*, the link between the latter two prerogatives being known also as principle of equivalence). This is necessary in order to guarantee all benefits and costs of the measures being checked, and any financial illusion being avoided (Olson 1969). Weingast (1995) concludes from this principle that decentralized administrations should face hard budget constraints and that the central government should not bail out.

In the case of spillovers of a certain policy from a location to neighboring locations, or in the case of economies of scale, it may, however, be useful either to negotiate on this policy in order to internalize such externalities, or to decide on this policy at a more centralized level of administration (principle of *coordination*).¹⁰ Coordination by bilateral or multilateral negotiation would be preferable as long as the externalities are such that can be internalized by negotiation, and as long as the number of regions concerned is not too large. In all other cases, coordination by centralization would be preferable. Obviously hence, the principle of coordination is in a tension to the principle of subsidiarity. Accordingly, “policies, where economies of scale and / or externalities are predominant should be allocated at the union level, or even at the world level. Instead, policy areas where heterogeneity of preferences are high relative to externalities should be allocated to a national or sub national level.” (Alesina, Angeloni, Schuknecht 2001:1).

Moreover, the principle of coordination is in a tension to another principle, the principle of *competition* in the sense of von Hayek: The existence of a variety of

9 The new institutional economics points out, that local actors may feel induced to hold back specific information from central administration as they may not be convinced that this information is used in a way enhancing local welfare.

10 Such economies of scale could result from the similarity of problems consistently appearing in different regions, and from an easier access to expert knowledge at the central level. Also, from the new institutional economics the argument is put forward, that in a world of asymmetric information and incomplete contracts central government dispositions may guarantee for a higher degree of credibility than interjurisdictional agreements on a decentralised level.

policy measures in different locations induces increases of efficiency, productivity and innovation of such policies. Oates (1999) speaks of a “laboratory federalism” in which small jurisdictional entities can experiment in order to find superior policy alternatives. Centralization includes a restriction of competition that is the more detrimental the more doubts concern the authenticity of the externalities and their extent (Klodt 1999).

Hence, policy measures at the EU level should be restricted to cases with very explicit union-wide externalities, with low heterogeneity of preferences, with a clear assignment of accountability in order to avoid a rise of financial illusion, and with scope left for locational competition. From this view, an EU regional policy aiming at *allocative objectives* may be justified in order to offset adverse integration effects, as far as it exhibits a union-wide dimension. By contrast, an EU regional policy aiming at *redistributive objectives* is more difficult to justify: A preference for equalization of income is likely to be orientated much more towards a national or even regional yardstick than towards a union-wide. People usually are much more interested in comparing their standard of living to that of neighbors or fellow citizens in the same country than to that of citizens in far-off countries under quite different conditions of living. Hence, redistribution can be regarded as a policy field with small externalities and large heterogeneity of preferences (Alesina, Angeloni and Schuknecht 2001), and it should thus be attributed to national authorities rather than to the EU.

3.1.2. Efficient instruments for regional policy at EU level

It is not easy to imagine an EU regional policy aiming at *allocative objectives* that could answer the required union-wide dimension; certainly all measures that further lower transaction costs and drive integration toward the stage of dispersion and cohesion. Some often mentioned yet arguable examples are: projects eliminating trade barriers within the union, ameliorating the trans-European transport and communication infrastructure (as far as it produces non-pecuniary externalities), projects promoting trans-European networks of research, administration and commerce, projects tearing down administrative overregulation, and projects helping to facilitate bureaucratic procedures. Less arguable, a control of state aid granted by member states may be helpful to

reduce non-tariff barriers and to prevent a race on subsidies. Further, barriers to labor mobility could be removed.¹¹

Moreover, in order to enable regions to escape lock-in situations an unconditional intergovernmental grant may be useful, promoting retarded or otherwise problematic regions. Oates (1999) points out that unconditional grants from central government to poorer decentralized jurisdictions may be justified (i) to ensure the provision of certain local public services even in low-income areas, (ii) to allow such jurisdictions to compete effectively with fiscally stronger ones in the promotion of self-sustaining growth, and (iii) to share revenues from an efficient central tax system with the central government as tax-collecting agent. Meanwhile, Oates stresses that conditional intergovernmental grants (without limits!) would be useful only to offset well-defined spillovers from one jurisdiction to another.

By contrast, it is not useful for the EU administration to intervene directly into the economies of such regions. An interventionist regional policy usually takes the form of development programs and project oriented state aid targeted either at private firms or at regional or local administrations. Such policy works in a selective way and its effects are questionable as far as it requires a superior knowledge concerning the right way to economic success.¹² If this right way is missed, the intended effect is accompanied and perhaps even superimposed by a number of further adverse effects (Krieger-Boden und Lammers 1996): (i) Waste effects may emerge in the case of windfall gains where the intended effect would have occurred anyway. (ii) Incidence effects may occur in the presence of backward and forward linkages where the aids may become effective in other industries and regions than is intended. (iii) Substitution effects may be induced that lead to a change of allocation (e.g., an increase of capital intensity of productions) that is neither intended nor desirable. (iv) Financial effects may result from the need to finance any state aid at the expense of other purposes. (v) Negative dynamic effects may arise because state aids favor moral hazard and lobbyism, and because they are often targeted toward selected industries and thus promote a development path that may turn

¹¹ Yet, at an earlier stage of integration, one could argue in favor of keeping these barriers to labor mobility in order to avoid a severe polarization, thereby enabling peripheral regions to exploit a lower wage level as a locational advantage (cf. hypotheses H6a and H6b; Lammers and Stiller 2000).

¹² It has been proven within the new institutional economies, that such superior knowledge is not at any account required to attain efficiency (Greenwald and Stiglitz 1986).

out to be unfavorable. These latter dynamic effects are most critical in that they may lead to a complete reversion of the intended objective of stepping up economic activity. The lack of knowledge required to efficiently direct such programs makes them highly problematic measures at the policy agenda, particularly at EU level.

From an EU regional policy aiming at *redistributive objectives*, the EU should largely abstain — apart from perhaps some limited and, at any rate, unconditional transfers. Rather, the EU should allow for such redistributive regional policy at the national, regional or even local level. This will permit to differentiate between regions within a country, and will enable the incumbent member states to continue in dealing with their internal regional problems, such as east Germany or the Italian Mezzogiorno. When regional policy is decentralized each nation and region could choose its own strategy and even experiment with different strategies in order to find the one that suits best its specific requirements. The EU could take the obligation of accompanying this procedure of discovery by protecting it against a race on subsidies, and by monitoring the diverse measures and their economic effects. Such a monitoring process could provide a platform for overcoming informational asymmetries with respect to efficient policy initiatives, help sharpening regional profiles, foster the recognition of the complex feedback relationships connected to policy measures, and induce institution-building particularly in accession countries (Soltwedel 2002).

To resume, in order to pursue an efficient EU regional policy taking into account both potential allocative as well as redistributive objectives, it is argued here for a triple strategy:

- Lowering transaction costs by further reducing remaining trade barriers;
- organizing limited and, at any rate, unconditional financial transfers between countries and regions;
- allowing for locational competition of regions, i.e., allowing for a great variety of regional institutions and policies, combined with a control against a race on subsidies, and with a monitoring process of policy measures and their economic effects.

To this end, it may also be useful to link the EU policies towards regions with those of the national and regional authorities (e.g., by the guidelines of the

Directorate-General Competition for the legitimacy of regional state aid). However, this triple strategy for EU regional policy would not cover a co-financing of policy measures with unclear accountability, nor any direct, project-related interventions into the regional economies.

3.2. Actual EU regional policy

The actual EU regional policy is based on two major pillars: the structural funds which are at least partially targeted at regional policy objectives, and the competition policy of the EU Commission which also aims at influencing regional policy via supervision of national regional aid. A short review will clarify in how far they meet the above requirements.

3.2.1. The structural funds

The evolution of the EU financial instruments aimed at pursuing cohesion within the EU have always been closely linked to the progress of integration. Since the start of the structural funds in 1960 (with the constitution of the European Social Fund, ESF) every step of integration was accompanied by the *establishment* of new funds, or an *expansion* of the resources dedicated to these funds with the aim to offset expected undesirable effects of integration: In 1975, in response to the first EU enlargement by Great Britain, Ireland and Denmark, the European Regional Development Fund (ERDF) was created. With the south enlargement of the EU in 1981/1986, and the completion of the single market programme in 1993, the ERDF was extended (table 1). The recent formation of EMU gave reason to set up another structural policy instrument in 1993, the cohesion fund.¹³ In preparing for the east enlargement, the EU Commission submitted the Agenda 2000 that for the first time is aiming at the tightening of EU structural policy. Thus, it provides for a ceiling for total resources. This new

13 The cohesion fund is aimed at strengthening the cohesion of the EU by supporting projects of trans-European significance in the fields of environmental protection and provision of traffic infrastructure. However, in effect, the distribution of the resources is oriented solely on the economic performance of the member states, and is hence restricted to Greece, Portugal and Ireland.

Table 1 — On the evolution of the EU structural funds and the EU cohesion funds 1985–1999^a

	Agricultural fund EAGGF ^b	Fishery fund FIFG	Regional fund ERDF	Social fund ESF	Community initiative ^c	Structural funds total	Cohesion fund
<i>Millions €</i>							
1985	937	—	2 524	2 224	—	5 685	—
1986	995	—	3 339	2 554	—	6 888	—
1987	1 044	—	3 693	3 150	—	7 887	—
1988	1 203	—	3 838	2 899	—	7 940	—
1989	1 465	—	4 710	3 520	—	9 695	—
1990	1 976	—	5 342	4 100	—	11 419	—
1991	2 427	53	6 725	4 530	—	13 734	—
1992	2 897	81	8 394	5 683	—	17 055	—
1993	3 101	76	10 074	5 955	—	19 205	1 565
1994	3 302	380	9 769	5 841	1 949	21 547	1 853
1995	3 374	451	10 684	6 711	2 916	24 408	2 152
1996	3 772	450	11 834	7 150	2 989	26 587	2 444
1997	4 026	491	12 990	7 639	3 173	28 625	2 749
1998	4 183	464	14 148	8 733	2 781	30 624	2 871
1999	5 233	695	15 869	9 520	4 480	36 039	3 118
<i>Annual average rate of change in percent</i>							
1985–1990	16,1	—	16,2	13,0	—	15,0	—
1990–1995	11,3	70,8 ^d	14,9	10,4	. ^e	16,4	15,5 ^f
1995–1999	11,6	11,4	10,4	8,4	11,3	10,2	9,7

^a “Verfügbare Verpflichtungsermächtigungen”. — ^b Guidance Section of the European Agricultural Guidance and Guarantee Fund. — ^c Such as INTERREG, URBAN, EQUAL, and LEADER; amounts included in the structural funds before 1994. — ^d1991–1995. — ^f1993–1995. — ^e1994–1995.

Source: EU Commission (1989), Manual on the Reform of the EU Structural Funds; — EU Commission (various issues), Annual Report on the Execution of the Structural Funds. — Own calculations.

ceiling is tantamount to reducing the resources directed to the incumbent members to the benefit of the accession countries. In fact, if the criteria for eligibility remain unchanged as envisaged, most of those regions supported by the EU so far may lose their eligibility after the accession.¹⁴

After successive expansions, the pure amount of resources dedicated to the cohesion of countries and regions does not look much. In total, the structural funds account for about 0,5 per cent of EU GDP (in 1999). However, for countries like Ireland, Portugal and Greece these funds are more than a “quantité négligeable” (table 2). Moreover, the resources have been quintupled within the decade of 1985 to 1995 and have been increased since at an annual average rate of change of 10 per cent (table 1). At the same time, the proportion of the union’s budget allocated to structural operations increased from just 18 percent in 1987 to over one-third by 1999.

Even more important, the *approach* to regional policy within the EU has shifted from a relatively passive stance towards an active cohesion policy, and from an entitlement to reduce within-country regional disparities towards the claim to smooth disparities in living standards across as well as within member states. In the 1970s, the EU simply co-financed policy measures designed by member state governments. As a result of successive reforms, particularly after passing the European Single Act in 1986, the EU structural policy became more and more interventionist. Currently, all structural funds are to achieve three economic objectives two of which can be regarded as being oriented toward regional policy:

- Objective 1: promoting the development and structural adjustment of retarded regions (with a per capita income below 75 percent of EU average);
- Objective 2: promoting economic and social conversion in regions with severe structural difficulties (with a level of unemployment above EU average);
- Objective 3: promoting the adaptation and modernization of educational, vocational and employment systems.

14 For the accession countries, since 2000, a new programme has been issued, the Instrument for Structural Policy for Pre-Accession (ISPA), as a transition to the cohesion fund. This programme adds to the programme PHARE issued in 1989 to support the East European transition process, and to the agricultural programme SAPARD issued in 2000.

Table 2 — On the distribution of EU structural funds on EU member states, 1990-1999^a

	Millions €			€ per capita			per cent		
	1990	1995	1999	1990	1995	1999	1990	1995	1999
Sweden	—	277	439	—	31,4	49,6	—	1,4	1,3
Finland	—	304	499	—	59,5	96,6	—	1,6	1,5
Denmark	77	95	203	15,0	18,2	38,2	0,7	0,5	0,6
Germany	511	2 422	4120	6,4	29,7	50,2	4,8	12,5	12,0
Austria	—	301	449	—	37,4	55,6	—	1,5	1,3
Netherlands	143	184	740	9,6	11,9	47,0	1,3	0,9	2,2
Belgium	155	86	519	15,6	8,5	50,8	1,5	0,4	1,5
Luxemburg	10	10	18	26,2	24,6	42,2	0,1	0,1	0,1
Un. Kingdom	1 108	1 331	2316	19,2	22,8	39,1	10,4	6,8	6,8
Ireland	730	954	729	208,4	266,3	195,2	6,8	4,9	2,1
France	1 282	1 327	4201	21,7	22,8	71,2	11,6	6,8	12,2
Italy	1 625	2 283	6619	28,2	39,9	114,9	15,2	11,7	19,3
Spain	2 836	5 837	7654	72,8	148,9	194,3	26,6	30,0	22,3
Portugal	1 067	1 380	2833	107,8	127,8	283,9	10,0	7,1	8,3
Greece	1 172	2 653	2963	115,3	253,7	281,6	11,0	13,6	8,6
Total	10 666	19 445	34301	30,2	52,2	91,4	100,0	100,0	100,0

^a “Verpflichtungen”. This variable is not identical to the “Verpflichtungsermächtigungen” of table 1.

Source: EU Commission (1989), Manual on the Reform of the EU Structural Funds; — EU Commission (various issues), Annual Report on the Execution of the Structural Funds. — Own calculations.

Each region eligible for support must establish a regional development plan, which has to be updated every year, containing inter alia information on the economic prospects of the regions, on the coordination with national structural policy, and on financial resources. After negotiations with and permission by the commission, these plans are transformed into Common Support Frameworks (CSF).¹⁵ From these, operational programmes are derived and submitted to the EU Commission that contain the projects selected for support. The support

¹⁵ Or, in the case of a minor support budget, into Single Programme Documents (SPD) that are established in a somewhat facilitated procedure.

granted by the EU structural funds follows strictly the principle of additionality thus directing national resources into EU regional policy, too. The EU Commission disposes of even larger scope for intervention via the so-called Community Initiatives (CIs) and the Innovative Measures. The CIs cover 15 percent of the budget of all structural funds, and they are distributed in the context of own programmes of the Commission, outside the CSFs, dedicated to problems that are assumed to exist all over the union. Since 1994, the so-called Innovative Measures, accounting for 0,4 percent of the ERDF, have been introduced that are not subjected to explicit structural policy objectives. With these Innovative Measures, the EU Commission tries to ameliorate the competitiveness of regional economies particularly by supporting the new economy and technological innovations as well as sustainable development.

Again, with the Agenda 2000, the EU for the first time aimed at substantively reforming its structural policy. Thus the Agenda provides for shaping the administration of the structural policies more efficient, and their execution more flexible and more decentralized. However, it also provides for defining the priorities of the structural policy more selective and more precise, which is in obvious tension to the former provision. In fact, the Council Regulation No 1260/1999 “laying down general provisions on the Structural Funds” for the period 2000-2006 as well as the supplementing guide-lines, submitted by the Commission, rebut the presumption EU structural policy might have been reversed genuinely. Rather, these regulations comply with the tradition of continuously refining objectives and procedures, thereby further strengthening the influence of the EU on regions.

Hence, the review of EU structural policy yields that this policy violates several of the requirements for an efficient regional policy as derived above: It violates the principle of subsidiarity as it takes prerogatives with hardly any noticeable regional externalities. It violates the principle of correspondence particularly by its additionality concept and also by the joint formulation of policy measures, by which any accountability is blurred. It violates the principle of competition by overstating the principle of coordination, as it seeks to include national structural policy in an all-embracing concept angled at union-wide objectives.

Moreover, the effectiveness of the structural funds is very much at doubt. In spite of huge efforts that are spent in substantiating the alleged objectives, the resources are distributed primarily according to national quota that correspond to

the per capita income of the EU members (Stehn 1994). Accordingly, the highest amounts per capita go to Ireland, Greece, Spain und Portugal, the lowest to Germany (before re-unification), the Netherlands, Belgium, and Denmark (table 2). A recent study by Boldrin and Canova (2001) finds neither statistical evidence that the structural funds fostered a convergence process between the recipients and the non-recipients, nor any noteworthy effects on productivity growth of the recipients.¹⁶

All in all, the actual structural policy of the EU does not meet the requirements for an optimal division of policy prerogatives and does not satisfy expectations for an improvement of regional cohesion. As Jackman (1995) puts it: “The Structural and Cohesion Funds, and the CAP, for that matter, should all be abolished. This would bring direct and substantial benefits to the people of Western Europe ...” Moreover, there is “no way that the accession of the CEE countries can be contemplated without a substantial scaling down of annual expenditures under these programmes.” The reforms of the Agenda 2000 and the ensuing half-hearted efforts of amending it during various summits of the EU Council are not sufficient to cope with the challenges of accession.

3.2.2. Control of national state aid for regions

The control of national state aid for regions by the Directorate-General Competition can be regarded as the second pillar of EU regional policy. Like the structural funds, the control of national state aid for regions has increasingly been used to shape regional policy at all levels of administration according to intentions of the EU administration.

The control of national state aid is one of the prior prerogatives of the EU Commission constituted in the EU treaty in order to provide for a common market with an undistorted competition. Article 92 (3), however, provides for that regional state aid promoting the economic development of areas with an “abnormally low standard of living” or “serious underemployment”, in contrast to national state aid to sectors, is considered to be compatible with the common market. In 1971, the Commission passed the first “Guidelines on national

16 By contrast, a new study on the economic impact of EU objective 1 interventions commissioned by the EU Commission and quoted frequently in recent newspapers, comes up with a large positive impact of these interventions (Beutel 2002). However, this is no wonder as this study misses most of the important and critical effects accompanying any subsidies (cf. p 23).

regional aid” constituting rules for the derogation of national regional aid from the general prohibition of state aid. These guidelines have been supplemented, refined and updated continuously since. Upper limits for aid rates have been imposed, expressed as a maximum net grant equivalent, and graduated in accordance with four different development levels of regions. Rules for achieving transparency of national regional aid have been set up. Also, the Commission developed criteria for the eligibility of regions to national regional aid in relation to Community as well as national average of GDP per capita, and in relation to Community as well as national average of the unemployment rate.¹⁷ At the same time, national ceilings for the population covered by national regional aid must be observed; for the period from 2000-2006, for instance, they reach from a ceiling of 15 percent coverage for the Netherlands up to a ceiling of 100 percent coverage for Ireland, Greece, and Portugal (EU Commission 1999). Moreover, since 1985, the national regional aid is to be granted only in the context of a coordinated regional development program that includes also the resources from the EU structural funds.

Hence, more and more, the control of national regional aid as an instrument to defend competition in the union moved to the background; instead it became an instrument of integrating national regional aid into an all-embracing European regional policy. To be sure, the success of this integration does not seem to be very high by now — according to Martin’s (1998) estimations, national support schemes seem to step in where EU support is missing; as a result, at least all problem regions, even the relatively rich objective-1-regions, receive more or less equivalent support. But according to the above considerations on an optimal design of regional policy, it is not even desirable to attempt to further coordinate these different levels of regional policy. Such further coordination would destroy the accountability for regional policy and would disregard the differing functions regional policy has to fulfill at the EU level as compared to the

17 The threshold for eligibility of regions as compared to the national average is linked to the EU average according to the formula:

$$Threshold = \frac{1}{2} \left(Basic\ threshold + \frac{Basic\ threshold}{\frac{National\ average}{EU\ average}} \cdot 100 \right)$$

where the basic threshold is established uniquely at 85 percent for GDP per capita and at 115 percent for the unemployment rate. Accordingly, the lower the national development level is compared to EU average, the higher the development level of the respective region may be compared to the national average — it may even surmount the national average (EU Commission 1998).

national, regional or local level: to serve the needs of an allocative compensation for possible disadvantages from integration and to serve the but small distributive preference for union-wide equality.

4. Conclusion

In view of the actual EU regional policy and the challenges it faces due to the on-going integration process, we analyzed whether a case for regional policy arises, and what role the EU should play to this respect. Three major conclusions may be drawn:

(i) As the findings both on theoretical and empirical grounds are ambiguous, it cannot definitively be excluded that there could be a case for an allocative as well as a distributive regional policy. However, in view of the large amount of taxpayer's money affected, and in view of the doubts concerning the extent of the cohesion problem as well as concerning the efficacy of regional policy to solve it, careful empirical investigation is further required.

(ii) The considerations on an optimal design of regional policy at the EU level lead to recommending a triple strategy:

- Lowering transaction costs by further reducing remaining trade barriers;
- organizing limited and, at any rate, unconditional financial transfers between countries and regions;
- allowing for locational competition of regions, i.e., allowing for a great variety of regional institutions and policies, combined with a certain control against a race on subsidies, and with a monitoring process of policy measures and their economic effects.

(iii) The EU regional policy, the structural funds as well as the control of national state aid for regions, in spite of recent reform efforts, does not comply with this strategy, and is not apt to cope with the challenges of east enlargement. The EU structural policy violates the principle of subsidiarity, the principle of correspondence (by its additionality concept), and the principle of competition (by overstating the principle of coordination). The control of national regional aid has become an instrument of integrating this aid into an all-embracing

European regional policy thereby destroying the accountability for policy measures and disregarding the differing functions regional policy has to fulfill at the EU level as compared to the national, regional or local level.

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Appendix

Table A1: Internal increasing returns to scale (IRS) for 3-digit-industries ^a

High IRS	Intermediate IRS	Low IRS	
11 Solid fuels ^b	14 Refineries	17 Water supply	424 Alcohol distilling
12 Coke ovens ^b	16 Electricity & gas	223 Drawg., cold rollg.	425 Wine
13 Petroleum, natural gas ^b	224 Non-ferrous metals	231 Building materials	427 Brewing & malting
15 Nuclear fuels ^b	247 Glass	232 Potassium, phosphate	428 Soft drinks
21 Metal ores ^b	248 Ceramic products	243 Concrete	429 Tobacco prod.
221 Iron and steel ind. ^b	255 Paint, varnish & ink	244 Asbestos	431 Wool industry
222 Steel tubes ^b	257 Pharmaceuticals	245 Non-met. minerals	432 Cotton
241 Clay prod. for constr.	258 Soap & cleaning prod.	246 Grindstone	433 Silk
242 Cement	311 Foundries	259 Other. chem. prod.	434 Flax, hemp & ramie
251 Basic industr. chemic.	312 Forging	313 Transf. of steel	435 Jute
256 Ind. & agric. chem.	321 Agricult. machinery	314 Struct. metal prod.	436 Knitting industry
26 Man-made fibres	322 Machine tools	315 Boilers & tanks	437 Textile finishing
326 Transmission equipm.	323 Textiles machinery	316 Metal tools	439 Misc. textile ind.
33 Office & comp. mach.	324 Food & chem. mach.	319 Metal nec.	441 Leather tanning
342 Electrical machinery	325 Mach. f. mine, constr.	341 Wires & cables	442 Leather products
344 Communic. equipm.	327 Mach. for spec. use	347 Lamps & lightings	451 Footwear
345 Radio & Tv	328 Mach. & equipment	348 Electr. installation	453 Clothing
351 Motor vehicles	343 Electr. app. & appl.	352 Bodies f. vehicles	455 Household textiles
364 Aircraft	346 Dom. electric. appl.	374 Clocks & watches	456 Furs
371 Profess. instruments	361 Shipbuilding	411 Vegetable	461 Sawing
372 Medical equipment	362 Railway equipment	412 Meat	462 Semi-fin. wood prod.
373 Optical instruments	363 Cycles & motorcycles	413 Dairy prod.	463 Carpentry & parquet
421 Cocoa & chocolate	416 Grain milling	414 Preserving fruits	464 Wooden containers
473 Printing	438 Carpets & coverings	415 Preserving fish	465 Other wood prod.
474 Publishing	471 Pulp & paper	417 Spaghetti etc.	466 Cork, straw etc.
	481 Rubber products	418 Starch	467 Furniture
	483 Plastic products	419 Bread	482 Repair of tyres
	494 Toys, sporting goods	420 Sugar refining	491 Jewellery
	495 Misc. manufact	422 Animal foods	492 Musical instruments
		423 Other food	493 Photograph. lab.

^a Technical IRS measured by engineering cost functions on the base of estimates by managers, engineers, economists, and accountants; NACE classification. There exists a number of studies applying various methods to characterize industries according to the relevance of scale economies. For another study measuring scale economies, see Oliveira Martins, Scarpetta and Pilat 1996. Other studies conclude on scale economies from the degree of localization of industries (e.g., Ellison and Glaeser 1997, particularly for France see Maurel and Sédillot 1999). See also OECD (1987) distinguishing five categories of industries: scale-intensive industries, science-based industries, industries producing differentiated goods, intensive-intensive industries, and resource-intensive industries. For an overview see Junius 1999. — ^bLocation also influenced by localized natural advantages.

Source: Pratten (1988) Table 5.3.(a). — Own interpretation.