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Income convergence and regional policies in Europe: results and future challenges

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INCOME CONVERGENCE AND REGIONAL POLICIES IN EUROPE: RESULTS AND FUTURE CHALLENGES

by Martin Hallet¹

forthcoming in Papeles de Economía Española

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Abstract

A frequently expressed criticism on regional policies in Europe is that they seem to have hardly any effect in view of the little progress in regional convergence over the last two decades. The paper criticises this view for being overly simplistic for several reasons. First, it does not differentiate between the developments in different types of countries. Second, it attributes the income performance of regions exclusively to regional policy expenditure, although several other factors need to be in place in order to have a visible effect in terms of income convergence. Third, concluding from the income performance on the success or failure of policies fails to take into account the counterfactual situation, i.e. it does not properly analyse what would have happened in the absence of these policies. The paper elaborates on these arguments on the basis of stylised facts of regional disparities in Europe, main determinants of income convergence and the role of EU cohesion policies. It concludes by discussing some of the main future challenges for regional policies in Europe.

JEL Classification: R11, R15, R58

Keywords: regional policy, evaluation, EU enlargement

1. Introduction

Based on different measures of regional convergence applied to data of 211 EU regions, Boldrin and Canova (2001) find “that strong phenomena of either divergence or convergence were not taking place in the 1980s and the first half of the 1990s” (p.242). They conclude from these results “that regional and structural policies mostly serve a redistributive purpose, motivated by the political equilibria upon which the EU is built, but have little effect in fostering economic growth at the EU level” (p.211).

This paper argues that, while the statistical results that Boldrin and Canova tend to be confirmed by other authors, they do not support their strong conclusions for several reasons. First, they do not differentiate between the developments in different types of countries. Second, they attribute the income performance of regions exclusively to

¹ Views expressed in the paper are exclusively those of the author and do not necessarily correspond to those of the European Commission, for whose Directorate-General for Economic and Financial Affairs the author is working.

regional policy expenditure, although several other factors need to be in place in order for regional policies to have a visible effect in terms of income convergence. Third, concluding from the income performance on the success or failure of policies fails to take into account the counterfactual situation, i.e. it does not properly analyse what would have happened in the absence of these policies.

The structure of this paper follows these criticism and proceeds by presenting some stylised facts of regional disparities in Europe (section 1), main determinants of income convergence (section 2) and the role of EU cohesion policies (section 3). It concludes from these elements on some of the main future challenges for regional policies in Europe (section 4).

2. Regional disparities in Europe: some stylised facts

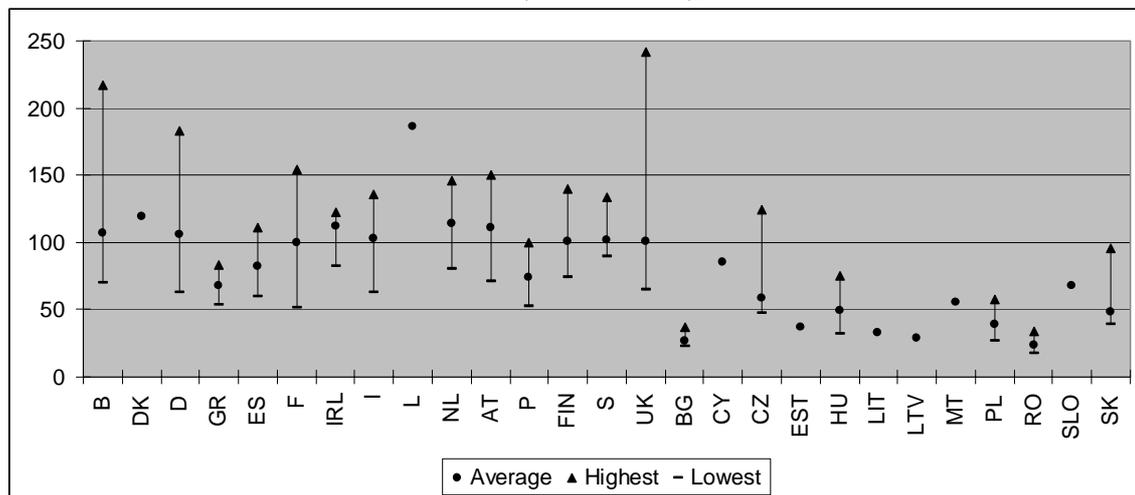
Regional disparities are a significant feature of the EU and its Member States and this is recognised in the EU treaty which defines economic and social cohesion as one of the main objectives of the EU. Among other sources, the European Commission's recent reports on economic and social cohesion, published at the beginning of 2001 and 2002 respectively, give a detailed description of the situation and trends of income and unemployment disparities. The main findings of the literature can be summarised as follows:

1. *Income disparities are decreasing between Member States, but persisting across regions:* In terms of GDP per capita in purchasing power standards (PPS), the four cohesion countries have progressed considerably over the last decade. This is in particular the case for Ireland whose level is now above the EU average. However, closing the income gap with the EU average still remains a challenge for Greece, Spain and Portugal. Although the comparability of data over time is limited due to changes in the classification of regions in several Member States and the methodological changes in economic accounts from ESA79 to ESA95, most indicators confirm the findings of Boldrin/Canova (2001) that income disparities across regions in the EU have remained stable or even increased slightly over the 1990s. Disparities within cohesion countries have increased more significantly during their process of catching-up. In many of the more prosperous Member States there is no clear trend on regional disparities. In the specific case of south Italy, the income situation relative to the national average has changed only little since the early 1970s, and the same holds for east Germany since the mid-1990s.
2. *Regional differences in unemployment persist at an overall lower level:* In terms of unemployment, disparities remain significant in spite of the progress of recent years in reducing overall unemployment. While in some parts of the EU labour shortages for certain skills have emerged, unemployment remains a major problem in others. Of the 211 NUTS 2 regions observed in the Community Labour Force Survey in April 2000, 50 had a rate equal or lower than 4.2%, i.e. half the EU average, whereas 65 regions had double-digit rates of unemployment. The share of Germany, Spain and Italy taken together in total unemployment in the EU has increased from about 50% in 1991, when it roughly matched their population share, to some 57% in 2000. Within these countries, unemployment is

concentrated in the poorer Objective 1 regions, i.e. east Germany, the South, centre and West of Spain as well as southern Italy.² In mid-2001, the ratio of unemployed per job vacancy ranged from 5 (in west Germany) to 18 (in east Germany), and at the level of labour market districts it varied between the extremes of 1 for Freising (Bayern) and 30 for Neubrandenburg (Mecklenburg-Vorpommern). Unemployment was also high in some regions of Belgium, Greece, France and Finland. Looking at the two maps of GDP per capita and unemployment together, these coincide in many regions, in particular in regions of Germany, Spain, Greece, Italy and Finland, where low employment is a main source of low income and these regions at the bottom of the EU-wide economic scale tend to be the same over the last one or two decades. Only in some cases, notably in regions of Portugal and the United Kingdom, low income goes along with low unemployment which points to problems of low activity rates and/or low labour productivity.

3. *There will be a considerable statistical effect of enlargement on income disparities in the EU:* Income in the 12 candidate countries in 1999 was less than 40% of the EU-15 average; the EU-27 average income in 1999 was 87% of the EU-15 average. As can be seen in Figure 1, the average income of most candidate countries is below the income of the poorest regions of most of the current Member States. At least two conclusions can be derived from this observation: First, given limited EU budgetary resources, political and financial priorities of EU cohesion policies need to be shifted towards the candidate countries. Second, the catching-up of countries as a whole should become a much more important objective of EU intervention than reducing regional disparities within countries.

Figure 1: Highest, lowest and average GDP per capita in NUTS 2 regions of EU Member States and candidate countries (EU-15=100), 1999



Source: European Commission 2002

This rather mixed picture of regional disparities in Europe may become clearer if a distinction is made between Member States in a process of catching-up and other countries. Catching-up countries enjoying a high national growth rate often see a widening of interregional disparities, as national growth tends to be driven by growth-

² See Davies/Hallet (2001) for an analysis of regional unemployment in these three countries.

pole effects which emerge in capital cities and other major agglomerations that benefit from agglomeration economies in the form of knowledge spill-overs and economies of scale. Private capital and skilled workers are attracted by the new opportunities proliferating in the growth pole regions, leading to cumulative rises in productivity and growth. These patterns could be observed in Spain and Ireland, and more recently in Portugal and Greece.³ However, in the richer Member States, diseconomies of agglomeration, such as congestion and high factor costs, tend to increasingly create problems in the growth pole regions. Capital is therefore likely to spread to other regions where marginal returns are higher, assuming that their factor costs are lower. Similarly, the spatial concentration of knowledge spill-overs may fall due to technological diffusion, particularly if there are improvements in country-wide communications. Empirically, these tendencies in the richer Member States are more difficult to observe since they may take place at smaller regional levels where people and activities move towards suburbs surrounding the growth poles. Depending on the spatial perspective, this may appear to be a persistence or a reinforcement of agglomeration.

3. Main determinants of income convergence in Europe

Many economists have carried out empirical research in the 1990s to find out whether income convergence of countries and regions takes place through market forces alone or whether policy interventions are needed. Most of the studies find that income convergence is conditional upon a number of determinants which can be summarised in three groups: market access and factor endowments (section 3.1), sound economic policies (section 3.2) and institutions (section 3.3).⁴ While the first group of determinants indicates why regional disparities emerge at all, an inadequate economic policy framework and inefficient institutions often explain why disparities persist even when the situation of market access and factor endowments is improving.

3.1 Market access and factor endowments

The access of a location to product and factor markets is a crucial determinant for its economic success. Good access to large markets allows a firm to gain from economies of scale and to easily get all necessary inputs, including information and skilled labour. Market access depends to some extent on geographic distance and the transport costs to overcome this distance. It is therefore no coincidence that many of the low-income regions are located at the periphery of the EU, thus confirming that peripherality is both a geographic and an economic concept. For certain regions, such as islands or mountain regions, there are inherent limitations on attempts to significantly improve their relative income position through public investment given the high transport costs they face.

³ See for further reading on this issue European Commission 2000, pp. 186ff., and Davies/Hallet 2002.

⁴ See for example a similar list of factors in Collier/Dollar 2001.

The reduction of barriers to market access is the main objective of European integration projects such as the Single Market and EMU as well as of transport infrastructure projects financed by EU cohesion policies. The spatial impact of economic integration has received renewed interest in academic literature through the development of the “New Economic Geography” in the 1990s. One central hypothesis is that “while complete elimination of obstacles to trade always raises the competitiveness of the peripheral regions, partial elimination may in principle have a perverse effect”⁵. Some of these models generate in graphical terms a U-shaped curve of the periphery’s relative income with increasing integration and have been developed on the basis of only a few crucial variables such as market size, increasing returns to scale and factor prices. When transport costs are extremely high, manufactured goods are essentially not traded, and firms have to locate their production in the region that they ultimately serve so that each region produces according to local demand. As transport costs are reduced, the larger core region becomes more attractive, as firms located in the core have larger sales and, because of increasing returns, experience increasing profits. The higher profits attract more firms and production into the core which then becomes a net exporter of manufactured goods towards the periphery. At the same time, demand and prices for immobile local factors in the core rise relative to the periphery and, as transport costs fall further, this offsets the attraction of locating in the core. At the extreme, where there are no transport costs, relative factor prices dictate the distribution of economic activity.

Improved market access is thus a two-edged knife in that it not only opens up markets elsewhere, but also opens up the local market to external competitors. The combination with endowments of production factors at competitive prices, in particular labour, is therefore necessary to make regions attractive as locations for economic activities. The outcome of this interaction between improved market access through integration and factor endowments is theoretically open and has to be assessed on the basis of the empirical evidence. Several studies have been carried out for the Commission over recent years to shed some light on the question of whether there has been more geographic concentration and/or regional specialisation in the EU.⁶ The results of these studies suggest, first, that location and relocation of production are long-term processes with a high degree of sluggishness, possibly due to “lock-in” effects once a certain pattern of specialisation and concentration has developed. Significant changes are therefore difficult to identify over 20 or 30 years, although some concentration of low-productivity activities in the periphery can be observed. However, in small open economies with a high pace of catching-up or structural change, such as Finland, Ireland and Portugal, patterns of specialisation have changed considerably. Secondly, the general process of structural change from manufacturing into services tends to make regions more similar in terms of their specialisation. While further concentration in some traded goods sectors cannot be excluded in the medium to long run, the overall effect will always be limited by the increasing importance of non-traded goods whose production follows the spatial pattern of purchasing power and – given the absence of significant geographic labour mobility in the EU - counteracts possible agglomeration forces across the EU. Thirdly, among the main determinants of location, the importance of market access

⁵ Krugman/Venables 1990, p.58.

⁶ Cf. European Commission 2000, pp.191ff.

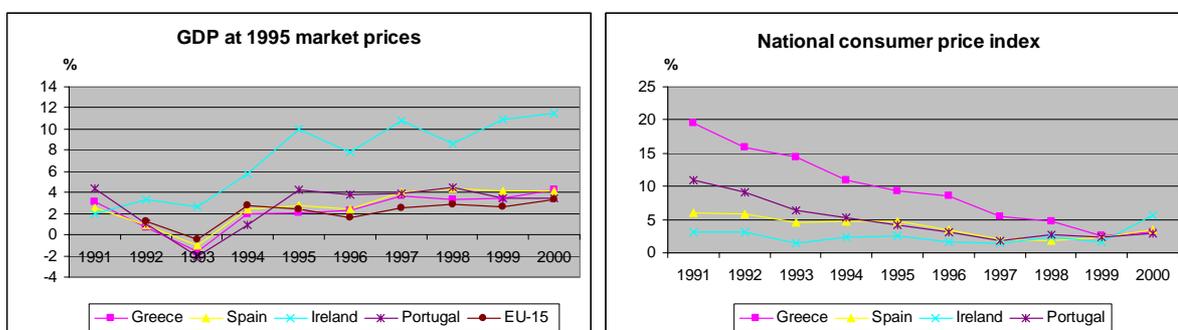
and human capital endowments has been confirmed, whereas the concentrating effect of economies of scale seems to be diminishing.

3.2 Sound economic policies: macroeconomic stability and functioning markets

In addition to the failure to substantially reduce the importance of the above mentioned factors contributing to the emergence of disparities, past experience has shown that macroeconomic instabilities, badly regulated markets and institutional features of the labour market tend to be the main reasons why income disparities persist.

Macroeconomic instability imposes inflation and exchange rate risks on private investors, in particular to the detriment of lagging countries and regions which require private investment to fuel catching-up. While the level of inflation is not a risk in itself, there is strong evidence that higher inflation rates bring about greater volatility of inflation and real exchange rates, thus imposing additional risks for private investment. There is thus consensus among most economists that price stability is a necessary condition for long-term growth and employment. As can be seen in Figure 2, the four Member States whose GDP per capita was below EU average in the 1990s have successfully stabilised their economies in terms of consumer price inflation and this has improved the conditions for private investment and contributed to their above EU average GDP growth rates.

Figure 2: Growth and inflation in annual percentage change, 1991-2000



Source: European Commission

Furthermore are badly regulated markets contributing to market inefficiencies which do not allow prices to give the right signals on scarcities. On the one hand, heavy regulations on product, capital and labour markets tend to reduce the efficiency and flexibility of these markets in adjusting prices and quantities to new conditions. This is particularly important for adjusting to region-specific shocks whose effects will otherwise persist. On the other hand, non-market externalities in the form of pollution, congestion or criminality are often insufficiently internalised through regulation or taxation. This is particularly relevant with regard to agglomerations where full internalisation of negative externalities would divert some of the activities to other regions in the long run.

In many countries, regional differences in income and unemployment persist because the wage bargaining system fails to respond adequately to labour market conditions

prevailing at the regional and local level. In view of the regional differences in market access and factor endowments, labour productivity varies across regions even when the same technologies are applied. As a consequence, jobs in low-productivity regions are not competitive due to overly high unit labour costs within a given sector with a nation-wide wage floor. In spite of persisting regional disparities, there is often only little geographic labour mobility to regions of lower unemployment and higher income. The explanation is that migration depends mainly on the expected difference in real disposable income less the transaction (and social) costs of migration. Hence, people migrate only if they expect an increase in purchasing power taking into account the costs of moving, local prices, taxation, social transfers etc. The design of the tax-benefit system and the functioning of the housing market therefore strongly affect the propensity to move.

3.3 *Efficient institutions*

Less empirical evidence is available on the relevance of institutions, which cover a variety of aspects such as social values, the rule of law or the quality of public services. In a wider sense – as in the New Institutional Economics – institutions can be understood as mechanisms for the allocation of property rights.⁷ Considering goods and production factors as bundles of property rights, the three different categories of ownership are crucial to understand the differences in the efficiency of institutions:

1. If there is *common property*, everybody belonging to a club or society has the right to use a resource, i.e. nobody can be excluded. In the case of rivalry in consumption, mechanisms such as time (“first come, first served”) or physical strength (e.g. arms, noise) prevail. This leads systematically to inefficient uses in the sense that resources are not allocated to where they have the highest value. Therefore, existing resources are over-used (“the tragedy of the commons”) or goods are not produced at all given the uncertain benefit for the producer.
2. If there is *state property*, political and administrative decision-makers define general criteria on the basis of which rights may be used (regulation, charges, etc.). A transfer of state property into private property may create costs in the form of administrative costs and of inefficiencies due to problems of information and incentives of decision-makers to allocate rights to where they have the highest value.
3. If there is *private property*, the owner alone decides on the use of a right. In the absence of trade costs, the right will become the property of the person who values it most in terms of his willingness to pay. This is why markets – depending on the size of trade costs – have a tendency to allocate goods to their most valuable use through price mechanisms which reveal the value of a property right.

Efficient institutions are those which ensure the allocation of property rights to their highest values of use, taking into account transaction costs. Different institutions create transaction costs in various forms. The transition from common property to

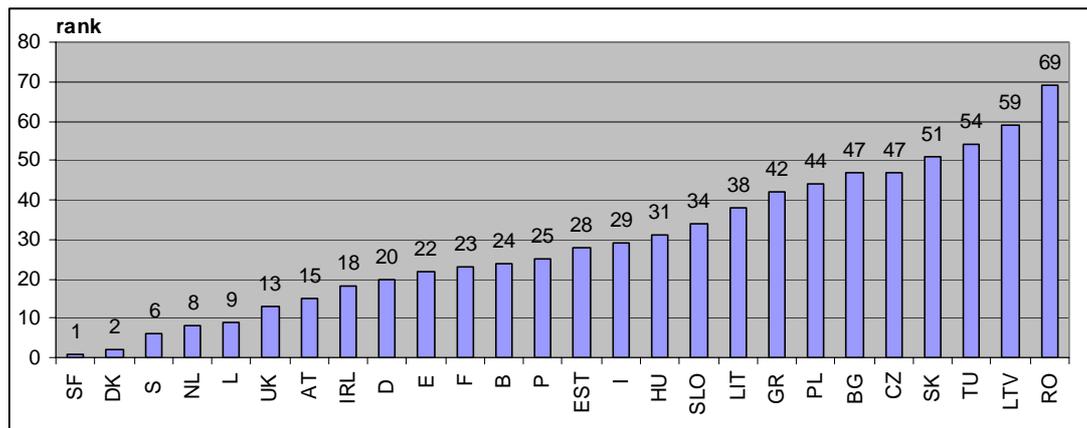
⁷ Cf. Coase 1960 and Demsetz 1964 and 1967.

state or private property requires costs of excluding, in particular by enforcing the state monopoly of force and the rule of law. Allocating state property rights requires administrative costs. Exchanging private property rights requires trade costs in the form of information costs, transport costs, regulatory costs and insurance costs. This does not give a priori a preference to private property rights, but in most cases it can be expected that costs of excluding and trade costs are lower than the additional value of selling a right to the user who gives it the highest value.

Policies aiming at efficient institutions should thus ensure the rule of law, in order to avoid common property, provide a well-functioning administration and integrate markets by reducing trade costs. Hence, the public sector has a crucial role to play in providing the conditions for a functioning market economy by guaranteeing the exclusivity of private property rights, in particular by fighting crime and corruption, and by reducing the costs of trading them, in particular through the provision of macroeconomic stability, infrastructure, efficient procedures for the enforcement of contracts etc. Efficient institutions are essential for economic development since they provide incentives for private agents to fully benefit from the investment and production of goods and to trade them with those who value them most. Furthermore, without well-defined private property rights, financial intermediation of savings and investment does not function smoothly due to a lack of collateral.

While this concept is theoretically very helpful, it is difficult to apply empirically for assessing the efficiency of institutions. The keyword under which these issues are currently being discussed is “good governance”. An example for the importance of a functioning public sector can be given by the ranking of European countries in the “Corruption Perceptions Index 2001” published by Transparency International, which reflects the degree to which business people, academics and risk analysts perceive corruption to exist among public officials and politicians (see Figure 3). There seems to be a tendency for higher-income countries to rank higher, i.e. being perceived less corrupt, and for lower-income countries to rank lower, i.e. being perceived more corrupt. However, the suggested causality that a less efficient public sector hampers economic development may be less clear in reality. It is also likely that public servants and politicians in low-income countries are less well paid relative to the private sector and are therefore more tempted to make use of additional sources of income. Moreover, due to a less developed system of control and justice, the risk of being discovered may be lower.

Figure 3: Ranking of EU and candidate countries in the Corruption Perceptions Index 2001



Note: The Corruption Perceptions Index 2001 ranks 91 countries with the 1st (Finland) being perceived highly clean and the 91st (Bangladesh) being perceived highly corrupt.

Source: Transparency International (www.transparency.org)

4. The role of EU cohesion policies

Having recognised that the reduction of the gaps in physical and human capital is essential for the catching-up of their economies, all cohesion countries and other lagging regions have made major efforts in that direction in the 1990s. However, closing these gaps requires a continuously high level of public and private investment over a longer period than one decade. These efforts benefit from considerable contributions from the EU cohesion policies in the form of the Structural Funds and – to a lesser extent in financial terms - the Cohesion Fund. These benefits are not only in the form of financing but also through an institutional framework which, although also implying some administrative burden, helps to enhance the efficiency of public spending by reinforcing elements such as programming, evaluation, monitoring and financial control. In the less developed regions of the EU (“Objective 1”), the Structural Funds co-finance programmes in the fields of physical infrastructure, education and training as well as support for the private sector. In the cohesion countries, the Cohesion Fund finances projects on the environment and trans-European transport networks.

Evaluating the contribution of EU cohesion policies to the process of income convergence is a difficult exercise. A more qualitative approach tries to identify the main value added (section 4.1) while a quantification of the macroeconomic impact has been undertaken for some Member States on the basis of macroeconomic modelling (section 4.2).

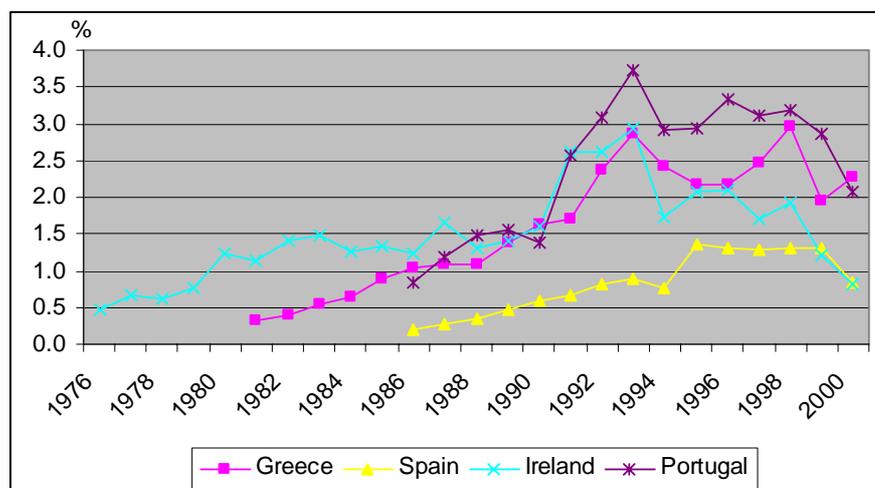
4.1 The Community value added of Structural Funds

In order to identify the value added of regional policies at Community level, they need to be compared to similar action at national or regional level. While in principle

it could be imagined that many of these benefits could also be achieved on a direct bilateral or multilateral basis between Member States and regions involved, organising these at Community level may bring out considerable reductions in transaction costs. There are at least four aspects of Community value added of Structural Funds:

1. Redistribution between Member States: While the total annual budget of EU Structural Policies is less than 0.5% of the EU GNP, funding is concentrated on the most lagging regions and Member States. Structural Funds and Cohesion Fund taken together have a certain macroeconomic importance in some Member States, reaching levels of about 3% of GDP in Greece and Portugal and of about 1% in Ireland and Spain (see Figure 4). In the perspective of enlargement, following a decision of the European Council in Berlin in 1999, the potential volume of redistribution in assistance from Structural Funds and Cohesion Fund taken together shall not exceed 4% of GDP for any Member State.⁸ In combination with the progressivity of the increasingly important GNP own resource for Member States' contributions to the EU budget, this implies a significant degree of redistribution from wealthier to poorer Member States.

Figure 4: Structural Funds and Cohesion Fund in cohesion countries in % of GDP, 1976-2000



Note: The downturn in 1999/2000 is mostly due to the programming cycle in Structural Funds, which is also observable in 1994, and not necessarily a continuing trend.

Source: Own calculations based on data from European Commission and Court of Auditors

2. Cross-border externalities: Some aspects of Structural Funds and the Cohesion Fund, in particular the Community Initiative INTERREG and the trans-European networks (“TENs”), have the objective of reducing negative - or enhancing positive - cross-border externalities through cross-border co-operation. Given the limited budget available for INTERREG, evaluation reports usually point out that the impact at the institutional level, i.e. bringing

⁸ Cf. Article 7, §8, of Council regulation (EC) No 1260/1999 of 21 June 1999 laying down general provision on the Structural Funds.

the different parties together, has brought about more benefits in terms of future co-operation than the projects alone.

3. Exchange of best practice and peer pressure: Information flows tend to be much better within a country and are usually more sparse across borders due to cultural and linguistic barriers. Many programmes at EU level benefit from the exchange of good and bad experiences of other Member States and, where there are common interests, from peer pressure to comply with certain standards. In the area of the Structural Funds, this could most be felt with regard to evaluation of public expenditure where attitudes varied between Member States a decade ago and have gone a long way to converge since then.
4. Visibility of the EU for the citizen: Many projects of European integration, such as the euro or the Single Market, tend to suffer from the fact that the absence of border controls or of different currencies is something rather normal so that their benefits are quickly forgotten. Structural Funds and Cohesion Fund projects are therefore more concrete and tangible EU actions for citizens. This is also the reason why the respective regulations oblige Member States to regularly inform the general public on the Community assistance.

While the current system of Structural Funds responds to some of these aspects, it has often been questioned whether the EU is the most efficient administrative level to achieve these objectives.⁹ For example, redistribution could also take place in an unconditioned way through an automatic system of fiscal equalisation through the EU budget, although this would involve the risk of transfers without termination if the funds were used for public consumption only without any effects in terms of catching-up. Doubts have been particularly expressed on the Community value added of Structural Funds in the prosperous Member States where the EU's visibility is seen as basically the only relevant argument, and this could possibly be organised in much cheaper ways by reducing their contribution to the EU budget and financing only few projects with a high visibility.

Various of these aspects of Community value added are also mentioned in the conclusions of evaluations of Structural Funds programmes. However, they also mention weaknesses in the implementation which reduce the value added of Structural Funds. A frequently expressed criticism is that the objectives of a programme are not sufficiently clearly defined in the programming documents, so that there is no benchmark against which the intervention can be assessed. Evaluators often recommend to strengthen elements for monitoring, control and evaluation towards more than only the rate of financial execution and to ensure a better comparability between different programmes. Moreover, the process of project selection is often seen to be too little transparent in order to provide a sufficient number of applications which allow to select the most efficient project. Finally, many evaluation reports emphasise the need to further enhance the co-operation of different national and regional ministries and the four different Structural Funds.

⁹ See for example Weise 2001.

4.2 Results from the macroeconomic evaluation of the impact of EU cohesion policies

Several studies have been carried out to gain an insight into the contribution of the Structural Funds to income convergence. More recently, two different models have been used to generate simulations for the evaluation of the macroeconomic impact of EU cohesion policies in the four cohesion countries and in eastern Germany.¹⁰ The results of the HERMIN simulations, on the one hand, and the QUEST II simulations, on the other hand, are however, difficult to compare directly and need to be interpreted in terms of the channels of impact that the models emphasise or neglect.

The HERMIN models for Greece, Spain, Ireland and Portugal were developed in the 1990s in order to gain comparable results for the macroeconomic impact of the Structural Funds. Each national model consists of three broad sub-components (a supply side, an absorption side and an income distribution side) which function as an integrated system of equations. While conventional Keynesian mechanisms are at the core of the model, the supply sub-component also determines output in manufacturing via price and cost competitiveness. Interest and exchange rates are exogenous to the model. HERMIN identifies three channels through which the Structural Funds affect an economy's long-run supply potential: through increased investment in physical infrastructure, through increases in human capital and through direct assistance to the private productive sector. These channels are introduced into the models in the standard way (through expenditure and income shocks) and also via two types of policy externalities. The first externality arises through increased total factor productivity likely to be associated with improved infrastructure or a higher level of human capital. The second type is associated with the role of improved infrastructure and training in attracting productive activities through FDI and in enhancing the ability of endogenous industries to compete in the international market.

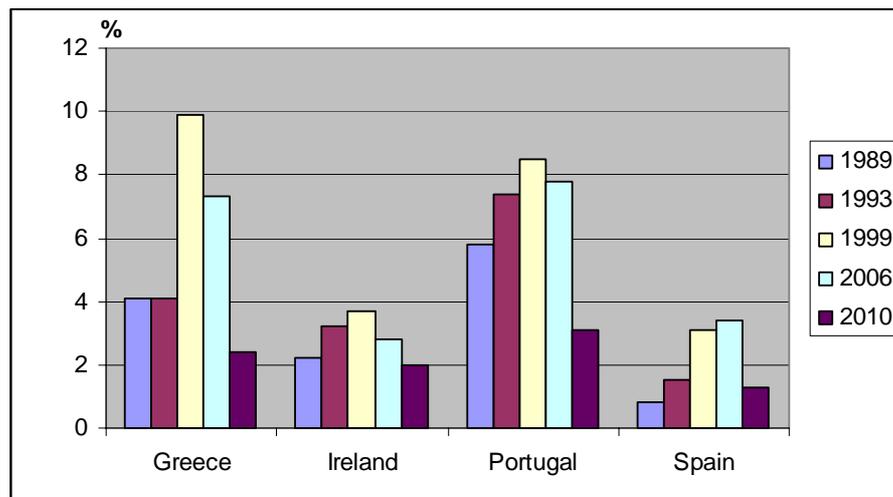
The ESRI Institute, Dublin, carried out various HERMIN simulations for the European Commission, but we here present only those examining the impact of the EU Structural Funds and national public co-financing expenditure of the Objective 1 Community Support Frameworks (CSFs) accumulated from 1989 to 2010. The values chosen for the externalities are based on estimates available in the relevant literature and are at the lower end of the range of estimates. Figure 5 gives the results for the demand-side and supply-side effects taken together, expressed as the percentage deviation of real GDP from the baseline level.

Compared to the results for Greece and Portugal, those for Ireland and Spain may seem rather low, although this is due to the differing importance of Structural Funds relative to GDP. In the case of Spain, the main explanation is that – unlike the other countries – not the whole territory is eligible for Objective 1 assistance, yet the evaluation of the macroeconomic impact focuses on the Spanish economy as a whole. For Ireland, apart from increased GDP, the explanation is similar, in that Objective 1 assistance in 2000-06 will be “phased out” for a major part of the country, the South and the East, so that the importance of the Structural Funds for Ireland as a whole will

¹⁰ More detailed results of these simulations are published in each of the Objective 1 Community Support Frameworks 2000-06 (“CSF”) for the programming of Structural Funds in these four countries. See also European Commission 2000 for a similar overview.

decrease. The results for Greece and Portugal are comparable, implying that in these countries the level of GDP would have been up to 10% lower without the Structural Funds. Since funding is assumed to terminate after the year 2006, the results for 2010 allow for a better identification of the continuing supply-side effects in the order of 2 to 3% of GDP. Other variables tend to follow these patterns of GDP, i.e. there are increases in consumption, investment and employment while prices, public deficit and trade deficit tend to increase until 2006 as a consequence of higher demand, and to decrease afterwards due to an improved competitiveness.

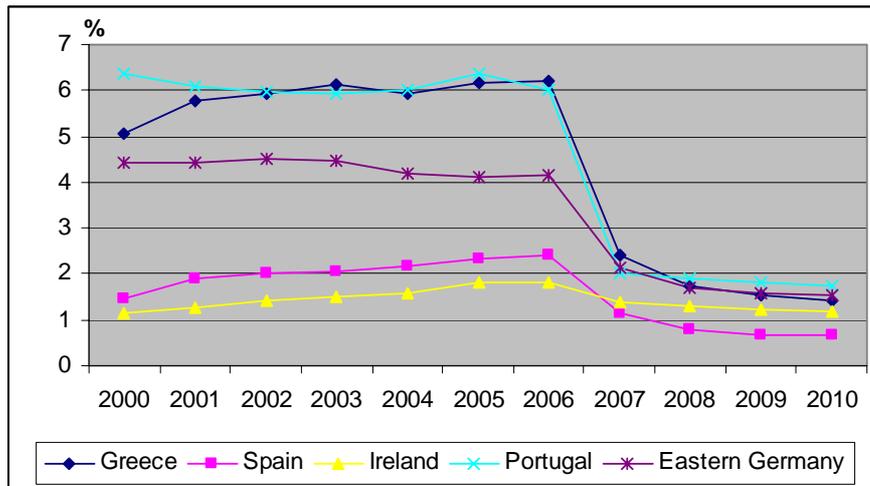
Figure 5: HERMIN simulation results on the impact of Objective 1 Community Support Frameworks 1989-93, 1994-99 and 2000-06 on the level of real GDP in % deviation from baseline, 1989-2010



Source: Bradley 2000; reproduced in European Commission 2001

In addition, a HERMIN model for eastern Germany has been developed and applied to simulate ex ante the macroeconomic impact of the CSF 2000-2006 (Bradley et al. 2001). Given the specific circumstances of eastern Germany, in particular the short time series available and the strong dependence on the western German economy, the HERMIN model for eastern Germany is innovative and differs from other HERMIN models in several respects. As for other existing HERMIN models for transition economies such as the Czech Republic, Slovenia, Romania, Estonia and Latvia, the relatively short history of the transition process provides limited time series data. Many model parameters could only be estimated by applying calibration techniques on the basis of regressions on six annual data observations and checking the reliability of the outcome in comparison with the observed data and the parameters used for the models for Greece, Ireland and Portugal. Where this proved to be impossible, the behavioural equations of the model were simplified. Because of a lack of data, eastern Berlin was not taken into account in the model. The results are presented in Figure 6 relative to the cohesion countries where comparable exercises for the ex ante evaluation of the macroeconomic impact of CSFs 2000-2006 in isolation from previous CSFs have been undertaken. Again, funding is assumed to terminate after the year 2006 in order to allow for a better identification of the continuing supply-side effects. In eastern Germany, the impact on the level of real GDP is estimated to be above 4 per cent during the programming period and to drop to about 1.5 per cent in the form of continuing supply-side effects after 2006.

Figure 6: HERMIN simulation results on the isolated impact of Objective 1 Community Support Frameworks 2000-2006 on the level of real GDP in % deviation from baseline, 2000-2010



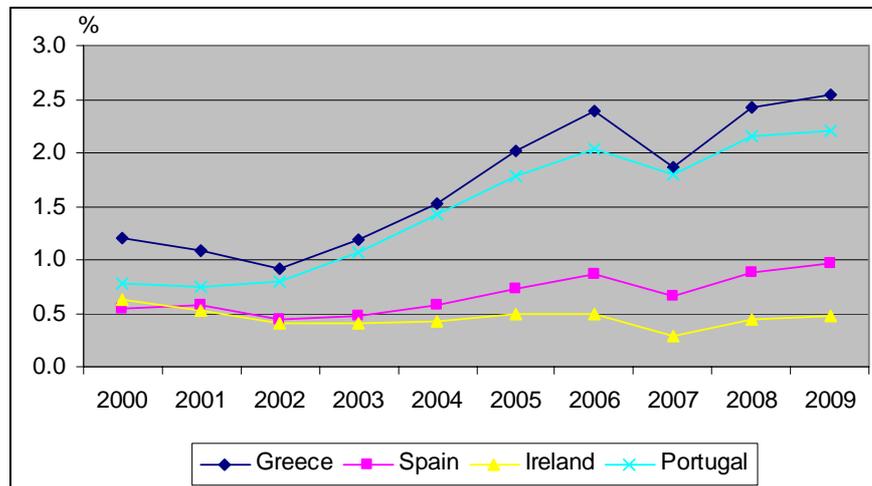
Source: Objective 1 Community Support Frameworks 2000-2006

QUEST II is the Commission services' multi-country business cycle and growth model designed to analyse the economies of the Member States of the European Union and their interactions with the rest of the world. The QUEST II model is forward-looking in basing its behavioural equations on the intertemporal optimisation of households and firms. About 40 per cent of households' consumption depends on current disposable income and about 60 per cent on the life-cycle hypothesis, and households foresee future tax payments arising from higher public expenditure. In contrast to most other macro-models, real interest and exchange rates are determined endogenously, so that possible crowding-out effects can be taken into account. The supply-side of the economy is modelled explicitly with a neo-classical production function. The macroeconomic impact of the Structural Funds programme is modelled in terms of an increase in the public capital stock, whose marginal product is assumed to be 50 per cent higher than that of private capital and which is assumed to have positive externalities. Results are presented as a deviation from the baseline scenario i.e. the change in performance compared to a situation without EU Structural Funds or national public co-financing expenditure. Payments are simulated to stop after 2006 so that only the supply-side effects continue.

The results of the QUEST II simulations for the CSFs 2000-2006 in Greece, Spain, Ireland and Portugal for real GDP (see Figure 7) are low compared to the HERMIN simulations, essentially because of the assumption of forward-looking expectations and the endogenous determination of real interest and exchange rates. In the longer run (after about 5 years), the increase in GDP turns out to be higher than the induced short-term demand effect due to positive supply-side effects, which are of a more permanent nature and continue beyond the period of CSF payments. Once more, the GDP effects are similar for Greece and Portugal on the one hand, and for Spain and Ireland on the other. The long-term employment effects are modest due to the downward effect of productivity improvements on prices, which drive up real wages. The relatively strong openness of the cohesion countries is reflected in the deterioration of the trade balance in the initial years and in the reduction of private investment, which is crowded out instead of being complementary to public investment. The mechanism generating these effects is the appreciation of the real

exchange rate – due to the effects on the price level – which squeezes profits and reduces private investment.

Figure 7: QUEST II simulation results on the impact of Objective 1 Community Support Frameworks 2000-2006 on the level of real GDP in % deviation from baseline, 2000-2009



Source: Objective 1 Community Support Frameworks 2000-2006

Comparing the results, the HERMIN simulations focus not only on the standard demand-side effects, but also on supply-side effects due to gains in productivity and competitiveness arising from the increased stocks of infrastructure and human capital. The QUEST II simulations confirm that these long-term effects, which improve the production structure of an economy and are the main objective of the EU Structural Funds, continue to induce a higher level of GDP even when payments are assumed to stop. However, the QUEST II simulations also suggest that some of the initial positive effects of the CSF may be reduced by a deterioration of the trade balance and a certain crowding-out of private investment as a consequence of an appreciation of the real exchange rate and an increase in real interest rates.

Relative to other possible methods to evaluate the aggregate impact of EU Structural Funds, macroeconomic models have the important advantages of identifying the counterfactual situation (i.e. the situation without Structural Funds) and of simulating the interplay of macroeconomic variables. Looking at the use of macro-modelling for the evaluation of EU Structural Funds in general, there has been considerable progress during the 1990s on several aspects:¹¹

- The general focus has shifted from standard Keynesian models to models which also include the long-term supply-side effects of Structural Funds, given that these are the main objective of EU assistance under Objective 1. Simulations with models like QUEST II and HERMIN which include supply-side effects are thus less subject to the often expressed “Lucas critique” meaning that predictions for the future can not be based on observations in the past due to policy-induced

¹¹ For the following cf. Hallet/Untiedt 2001.

structural change. To emphasise this point the models are explicitly designed in a way that policy-induced structural changes are taken into consideration that lead to an evolving system of equations.

- The HERMIN model series has widened the geographical coverage from the four cohesion countries to several transition economies, including the specific case of East Germany as a large region which is part of a bigger economy. If this were to continue and a complete set of models were developed for present and future main beneficiaries of Structural Funds, such as the Mezzogiorno and the remaining candidate countries, the possibility of sufficiently comparable and, possibly, aggregated results for several or all countries would open up.
- In dealing with the specific data problems of transition economies, the methodology of estimating model parameters in the HERMIN models has shifted from only “pure” econometrics to a combination of curve fitting with calibration techniques. This seems to be an interesting approach for analysing any catching-up economy in view of the rapid structural change which is usually not captured by econometric estimations that are based on long time series.

A critical assessment of the use of macroeconomic modelling should be done in the light of the general objectives of the evaluation of public expenditure. Firstly, it should assess the relative efficiency of expenditure-based policies to achieve certain objectives compared to alternative policies such as, for example, lower taxes or structural reforms. Secondly, it should provide guidance to decision-makers on the most efficient ways of spending public money with regard to the objectives being pursued. Thirdly, it should provide accountability to taxpayers and show that their money is being used in the best way. If we compare the three objectives of evaluation mentioned at the beginning of this article with the state of the art of macroeconomic modelling for EU Structural Funds as described above, the following observations can be made:

1. Until now, macroeconomic models have provided little to assess the relative efficiency of Structural Funds to achieve the objective of reducing income disparities compared to alternative policies such as different wage policies, lower taxes or structural reforms. Although in principle desirable, it remains doubtful whether models can be sufficiently precise to carry out such an exercise. But it should nevertheless be possible to simulate different policy scenarios through variations in the baseline scenario which would demonstrate the importance of the economic policy framework for the impact of Structural Funds.
2. The situation is still unsatisfactory with regard to guidance for decision-makers on how to spend Structural Funds in the most efficient way. In order to do so, macroeconomic models would have to be able to indicate the optimum structure of spending between categories such as infrastructure, human resources and business environment, and even within each of these categories, i.e. for example training or R&D. However, given the state of the art of the rather recent endogenous growth theory, empirical results on the growth effects of public expenditure are still rather uncertain and vary considerably. Until research in this area has not advanced further, using macroeconomic models in this way could contribute to misleading decisions on public expenditure.

3. Finally, macroeconomic models can indeed give account to taxpayers that Structural Funds have positively contributed to the sustained growth of the main beneficiaries. Although the magnitude of effects varies for different models, this variation should be seen as an asset since it provides some certainty about the range of effects under different assumptions and illustrates the different channels of impact. However, when comparing the results between countries, in particular between those countries where Structural Funds are similar in size, conclusions on the institutional efficiency of spending can not be drawn. Differences are mostly due to different features of the economies, reflected in the model parameters as for example the openness to trade, and not to the organisation of spending which models implicitly assume to be perfect.

5. Future challenges for regional policies in Europe

To sum up, income disparities between Member States have decreased in the 1990s, but have persisted across regions due to different growth patterns of catching-up and prosperous Member States. The statistical effect of enlargement on income disparities in the EU will shift the focus from reducing regional disparities within countries towards the catching-up of countries as a whole. Among the main determinants of income convergence, the role of EU Structural Funds is to contribute to improving market access and factor endowments, although these have little effect if economic policies and institutions are inappropriate. The Community value added of Structural Funds is mainly in the redistribution between Member States, the reduction of cross-border externalities, the exchange of best practice and peer pressure as well as the visibility of Europe for the citizen. These aspects are mostly met by Objective 1 programmes and the Cohesion Fund as well as INTERREG programmes, but some doubts have been expressed on other Structural Funds programmes in the more prosperous Member States and, more general, if there are weaknesses in implementation. Quantified results of the impact of Structural Funds are available from the macroeconomic evaluation of the impact of Structural Funds which show an overall positive contribution to the income convergence of cohesion countries.

The evaluation of past experience and the perspective of enlargement give rise to further reflections on the design of EU cohesion policies after 2006. The previous sections of this article suggest in particular to focus these reflections on three aspects:

1. *Disentangling the responsibilities of national and regional development policy:* With enlargement, the main cohesion problem from an EU perspective will be income disparities between countries. Although there are also considerable regional disparities within the accession countries, these are relatively less important and almost inevitable at their stage of economic development. This suggests to focus EU cohesion policies stronger on national development and to put regional development policies back into the hands of Member States. In addition, this would take better account of one of the objectives of the discussion on the reform of the EU which is to put stronger emphasis on the principle of subsidiarity, i.e. to identify which tasks can be fulfilled most efficiently at EU, national and regional level. Merging the most valuable features of Structural Funds Objective 1 and the Cohesion Fund with this orientation should be further reflected on.

2. *Conditioning regional policy funding on sound economic policies and efficient institutions:* Given that the success of improvements in market access and factor endowments through regional policy funding in terms of income convergence depends strongly on a good framework of economic policies and efficient institutions, there should be stronger conditions of funding on sound policies. Such elements are already present with the performance reserve in the EU Structural Funds and the excessive deficit conditionality in the Cohesion Fund. However, these elements are rather vague or basic and could be strengthened, although operational indicators of sound economic policies and efficient institutions are certainly difficult to identify. A stronger link with procedures of economic policy co-ordination in the EU could be thought of, but a merely formal and bureaucratic exercise with little incentives should be avoided.

3. *Improving the efficiency of regional policy management and instruments:* The main control mechanisms for improving the efficiency of public spending in general are monitoring, financial control, audit and evaluation. A lot of progress has been achieved in these areas since the creation of the Structural Funds in 1988/89, although these often imply increased administrative costs which can be disproportionate to the amounts spent. On evaluations there is still a considerable margin for improvements since they are mainly carried out at programme level and focus on rather “soft” aspects such as the coherence of the development strategy, financial implementation and – not always - physical implementation. More rigid cost-benefit analyses are basically only carried out ex ante for large Structural Funds projects and Cohesion Fund projects, as well as ex post for some EIB-co-financed Structural funds projects. What could thus be improved is a more systematic monitoring and ex post evaluation of the economic efficiency of samples of projects. Among the main spending categories of Objective 1 programmes, economists are unanimous on the positive growth effects of investment in infrastructure and human capital – although the exact quantification is more controversial – but there is little evidence on the growth effects of regional state aid to firms given the probably non-negligible size of dead-weight effects and the problem of “subsidy auctions” between different regions to attract investors.

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