Evaluation Methods of European Regional Policy and Reasons for Different Outcomes

Zsuzsanna Trón

It is a very generally accepted view that financial support received from the European Union generates a large growth surplus. The potential effects of the structural funds calculated in model simulations carried out by the European Commission support these positive expectations. However empirical studies of the real effects of the funds are few and far between measuring the growth surpluses attributed to the process of catching up with richer EU economies. The aim of the present paper is to remedy this contradiction, on the following logical basis. First of all the paper examines the processes and types of evaluation that have developed in the EU; it then examines some of the lessons to be drawn concerning the methods of analysis through a closer look of case studies, model simulations and econometric analyses employed. We can state that examinations based on computable general equilibrium models and input-output analyses predict greater growth effects than studies using regression analysis. This is primarily due to the fact that while the results of the model simulations estimate an upper limit for the expected effects – the result that is to be expected if the funds are used appropriately and efficiently –, the results of the econometric analyses reflect the imperfections of real events. The estimates from the first type of study are expected to be higher than the estimates of the second. The differences are not necessarily inconsistent. Rather, the various results are complementary: the potential impact can be set against the actual impact. To bridge the gap is of course the challenge of future reforms of cohesion policy. The conclusion that emerges is that the regional policy intentions are only partly realised, for various reasons, including the crowding out effect of the financial aid, rentseeking behaviour and the moral hazard of

One of the major aims of the regional policy[1] of the European Union is to help reduce the existing income gap between the richer and poorer regions (in other words to reduce the economic and territorial disparities). The other major objective of this policy is to reinforce employment and to deal with the problem of social exclusion (i.e. to reduce social disparities). In order to achieve these aims the Union spends significant sums on programmes designed to realise these objectives.

An examination of the almost twenty year experience of this policy at community level leads us to ask to what extent the objectives have been reached, and how effectively and appropriately European taxpayers' money has been spent. A well-founded answer to these types of questions can be given after an analysis of the policy, and the answers can help to formulate future policy.

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[1] In this paper the regional policy of the EU, the cohesion policy of the EU, and the structural policy of the EU are used as synonymous conceptions, which refer to the working of the European Union Structural Funds and the Cohesion Fund. These are the main tools which the Union uses to help the economic and social cohesion of member states and regions. In the period examined in this paper – before 2006 – four structural funds were in operation: the European Regional Development Fund, the European Social Fund, the orientation section of the European Agriculture Guidance and Guarantee Fund, and the Financial Instrument for Fisheries Guidence. The Cohesion Fund provides financial support for larger programmes to develop environmental and transport infrastructure. The financial supports of the structural funds are provided on the basis of the regions laid down as the 'target areas' or 'Objectives', or within the framework of the so-called Community Initiatives. The Cohesion Fund can be applied for by the least developed member states, which before 2006 were Greece, Portugal, Spain and the new member states. For details of the new system which came into operation in 2007, see the following internet page: http://ec.europa.eu/regional_policy/policy/object/index_en.htm.

The concept and development of evaluation in EU practice

Evaluation of regional policy is relatively recent in the history of the Union; at the beginning, (1975-1988) for various reasons[1], appropriate systems of evaluation were not employed (Bachtler – Michie 1995). In 1988 however, when the European Commission received a large role in the distribution of Union funds, conflict between the Commission and member states became more intense. In this way the most important and longest established aim of evaluation was to ensure accountability (Batterbury 2006). From this time on, the Commission nominated the regions which were to receive financial aid, approved the development plans, and exercised oversight on development expenditure. The fact that these were the most significant items of the Union's budgetary expenditure further strengthened the demand for accountability[2]. As a result of these developments, the evaluation system, monitoring, financial management and auditing became stricter and more widely established in the EU, together with the attendant legal responsibilities. The situation is complicated even further by the fact that during the process of evaluation a large number of organisations must be included, from the programme managers and partners, through the regional and national authorities, right up to the various Union institutions, but in terms of the results achieved through Union expenditure and the achievement of the programme, *each organisation has different interests.* (Bachtler – Wren 2006)

Constructing an evaluation system for the programmes in the member states is not at all simple, since there is no monitoring regulatory system at the community level. The need for monitoring is evident in the

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[1] Bachtler and Michie (1995) list three reasons in their paper; (1) before 1988 community aid and money devoted to regional development in member states were mixed together, (2) the division of duties between administrative bodies was badly co-ordinated, and (3) the evaluation methods were very different throughout Europe, particularly in that they lacked community guidelines.
[2] The increasing interest in the evaluation of the EU cohesion policy can be described as an international trend, driven worldwide by the demand for a legitimisation of and justification for governmental intervention. (Bachtler – Wren 2006).

Council regulations concerning the common budget, but nothing is said about how to create it in practice. For the 2007-2013 budgetary period the European Union only issued working papers and guidance documents to assist the evaluation process, and did not deal with the establishment of a regulatory system for programmes which affect the common budget[1].

In the EU the basic *aim* of evaluation (or monitoring) is not to provide an ex post analysis of the flow of funds, but "to provide support for the background examination of the execution of the development programmes" (Forman 2001:211). The *task* of monitoring, according to Rechniczer – Lados (2004:257) is "to account for the developments leading to regional development and the advancement of programmes, and in this way to their evaluation." Like Forman (2001) they also point out that monitoring is not simply a financial and administrative control, but much more: following the course of development programmes, continually evaluating them, providing feedback on the achievement of goals as well as an evaluating and systemizing the regional effects of development. Although the terms 'evaluation' and 'monitoring' have distinct meanings, in international and Hungarian literature they are regularly used as synonyms. For the reader, the difference can perhaps be felt in the difference between the micro and the macro level, since evaluation refers to macro-, while monitoring to micro level evaluation (Bradley 2006:190).

How do we evaluate? How can the existence of a policy be justified; how can we prove that the money spent in the framework of regional policy has been spent well? According to Molle (2006:2) two things must be measured. First, we must show that the policy has reached its objectives, in other words that it has been *effective*. Secondly, we must demonstrate that no money has been wasted, in other words that the policy has been *efficient*. The demonstration of effectiveness and efficiency help us in the process of evaluation.

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[1] See http://ec.europa.eu/regional_policy/sources/docoffic/working/sf2000_en.htm for details.

The first step of every evaluation is that we must understand the logic of the intervention, which obviously implies understanding what we wish to achieve, and how we wish to achieve it (see EC 2001:5 and EC 2006:4). The key elements of the logic of intervention are inputs, project (or activities), outputs, results (short term or initial impacts) and outcomes (or longer term impacts). See Figure 1. Often a SWOT analysis is associated to this structure.[1]

Figure 1. The key elements examined during the evaluation of EU regional policy.
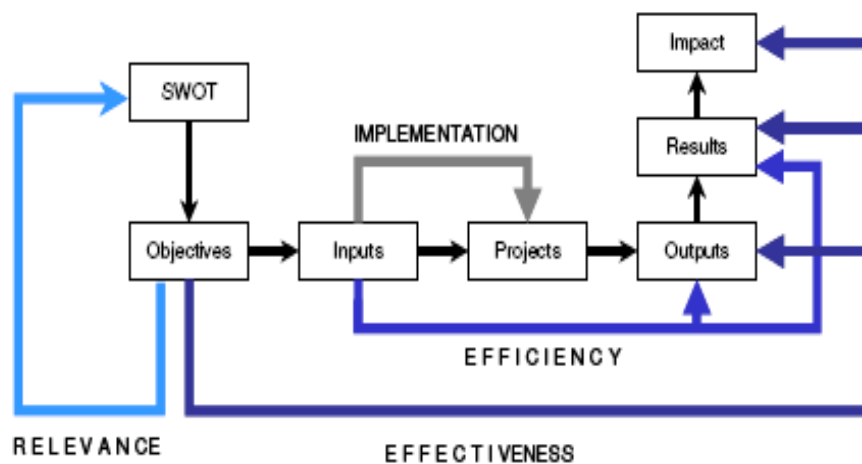
Source: Molle 2006:5.

By completing the evaluation we are able to answer not only the research question's accountability criterium (referring to the appropriacy of the expenditure of tax payer's money); with the help of the evaluation we are also able to improve the results of a certain phase of the development policy, that is planning, programming and implementation – in other words we can improve performance (effectiveness and

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[1] We will return to this diagram in the last chapter.

efficiency). Taking all this into consideration we can refer to this process as *learning* (Molle 2006:2).

Types of Evaluation

The complexity of evaluation mentioned above (arising mainly from the divergent interests involved) is deepened by the fact that it can appear in many forms. The guidelines and working documents that act as regulations only create the framework, while the national and regional environment, the institutional system and the nature of the execution are all different. The culture of evaluation and the administrative capacity for such tasks also differs between member states. While there is a strong tradition of evaluating regional development in the northern European states, in southern states, such as Greece and Italy, the specialised evaluation has not yet become an integral part of the administrative system (Bachtler –Wren 2006:149).

Evaluation also differs from programme to programme. A programme can include many areas of intervention (its aims can be related to physical or economic infrastructure development, human resources, research, technological development and innovation environmental goals, support for small and medium-sized business etc.), and a selection of financial instruments can help its implementation, which can bring improvements for many beneficiaries. In addition to this the co-financing of the programmes stipulates state- or private capital contributions, which further complicates the picture.

Thanks to the great interest shown towards evaluation, the EU cohesion policy and its accompanying *methodology* have also moved to the centre of attention and have become *disputed* areas. This is not surprising considering the sums devoted to the policy[1] and the policy's role,

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[1] On the basis of the financial plan referring to 2007-2013, the goals of the EU cohesion policy can make use of 35.7% of the full union budget, which translates to 347.41 billion Euros.

but we must be aware that there are many different types of analyses and methodologies.

The origin of most disagreements concerning evaluations is that they are based on differing philosophical foundations. The modern practice of evaluation can be traced back to three philosophical traditions; positivism, constructivism and realism. *Positivism* is based on the idea that it is possible to obtain objective knowledge if we make observations (Tavistock Institute – GHK – IRS, 2003:21). Separate individuals should, if they employ the same tools of observation and analyse their results with objective techniques, arrive at the same results. The positivist tradition searches for regularity and laws (just as in natural science) and the description of regularity arises from the aggregation of individual elements. However there are many limits to the pure form of positivism, for example it is difficult to observe reality, it is difficult to observe it totally and the observer is part of reality and can therefore change the environment etc.

The limits of positivism led to the formation of the so-called post-positivist schools. The most radical development, and the one which rejects most of positivism's assumptions, is *constructivism*, which rejects the existence of 'objective' knowledge. *Realism*, concentrates on the various interconnections, the elements, or the framework assumptions, in order to help the interpretation of explanations. This approach attempts to reveal the individual elements of the programmes and policy background mechanisms (Armstrong – Wells 2006:263-266, Tavistock Institute – GHK – IRS, 2003:22).

Different *evaluation methods* are used for the different philosophical approaches. Positivism remains the dominant philosophical tradition in the analysis of the effects of the structural funds. This involves mainly top-down evaluations with the help of statistical techniques. Top-down analysis means the collection of aggregated macro-level secondary data (such as regional unemployment time series or industrial location cross-sectional data), which are analyzed with different statisti-

cal methods for example time series regression analysis or full econometric models, but input-output analysis and computable general equilibrium (CGE) models are also used (Armstrong – Wells 2006:264). Bottom-up approaches are used in the positivist model inasmuch as micro-level data are collected and an attempt is made to aggregate them and generalise them to the whole.

The realist approach tends to prepare studies based on large sample-size surveys of beneficiaries, similarly to postal or telephone questionnaires, or more in-depth and narrower-focused interviews. In other words this approach concentrates on particularities and on peculiarities, as opposed to the positivist approach which searches for generalisations, empirical regularities (Armstrong – Wells 2006:265).

The content of the evaluation can change as the programme progresses, and can include evaluation before (ex-ante), during (mid-term) and after (ex-post) the programme. Different evaluation methods can be applied to individual *stages* or levels (see Table 1). A comprehensive description of individual evaluation methods can be found on the Union's evaluation homepage[1].

Table 1: Methods and levels of evaluation

Methods of evaluation	Levels of evaluation		
	Before (ex-ante)	Ongoing (mid term)	After (ex-post)
Sociology type methods			
1. SWOT analysis	++	+	

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[1] This can reached at http://ec.europa.eu/regional_policy/ sources/ docgener/ evaluation/ eval-sed/ sourcebooks/ method_ techniques/ index_en.htm.

2 Document analysis	++	+	+
3 Personal interview		+	++
4. Focus group	+		++
5. Case study			+
6. Personal observation		+	
7. Expert panel	++		+
8. Questionnaire survey			+
9. Delphi method	+		
10. Comparison (bench-marking)	+		
Parameterizable, exact methods			
11. Geographical Information System (GIS)	+	+	++
12. Cost benefit analysis	++	+	+
13. Shift-share analysis		+	++
14. Regression analysis		+	++
15. Factor analysis	+	+	++
16. Input-output model		+	++
17. Econometric model		+	++

Note: ++ refers to the most frequent evaluation level for methods used at more than one level
Source: Rechnitzer – Lados 2004:267

It can be seen from the table that micro (bottom-up) and macro (top-down) approaches can be found among the various methods. For the *micro-level analyses*, such as the cost benefit analysis there is a familiar

and well-established research background (Mishan 1988), but the literature examining the *macroeconomic effects* of the community's interventions also enjoys a solid research base (see e.g. Romp – De Haan 2005). The two approaches have radically different methodologies, as can be seen in Table 2, although recently attempts have been made to integrate the two approaches (see Bradley et al 2005).

For the rest of this paper we will examine the effectiveness of the Union's regional policy, and for this examination the best methods are mostly case studies, model simulations and econometric analysis. In these fields the literature is extremely rich; this paper only intends to draw attention to the differences between evaluation types and is in no way designed to present a comprehensive summary. In the last chapter of the paper, despite the differing methods, we will try to draw some kind of conclusion regarding the efficiency of the operation of the structural funds and to establish some criteria on the basis of which a more efficient use of aid may be achieved.

Table 2: Trade-off between micro- and macro-approaches

	Micro (bottom-up)	Macro (top-down)
General structure	Informal , flexible, use of subjective elements	Formal, complex, objective, based on behavioural theory
Level of disaggregation	High (individual projects)	Low (aggregated, whole economy)
Use of theories	Weak (judgemental)	Strong (macroeconomics)
Model calibration	Judgemental, informal	Scientific, econometrics
Policy impacts	Implicit/ranking	Explicit/quantified

| **Treatment of ex-ternalities** | Usually ignored | Usually explicitly modelled |

Source: Bradley et al 2005:7

Case Studies

"The case study is a tool of measurement which, based on the collection of data, provides a detailed analysis of the examined area of a special case to add to all the data available related to the subject. The main aim is to give the fullest possible picture of a given situation." Rechnitzer – Lados (2004: 280). On the basis of this definition we can assert that the case study is not at all appropriate for an evaluation of the Union's regional policy, and although it can give us an exact picture of a given project (Evalsed 2003), it can only be *used with reservations* to draw conclusions on an aggregated national or regional level. It is precisely for this reason that the Hungarian National Bank (MNB 2006) examination does not take into account the conclusions that can be drawn from case studies when analysing the effects of funds spent. There are those however, who argue that it is worthwhile to examine the conclusions that can be drawn from case studies (see pl. Ederveen et al 2003, Tavistock Institute – GHK – IRS, 2003).

Numberless case studies appear continuously in the evaluation literature. Some concentrate on the way funds are spent, while others examine what lessons can be drawn from the control of the project in local practice, while others again attempt to draw macro-level conclusions related to the various subjects involved. These latter examine the effects on, for example, the levels of occupation (CSES 2006), partnerships (Tavistock Institute – Ecotec 1999), technology (Ade – Enterprise – Zenit 1999), and the small and medium sized businesses (Ernst & Young 1999). We will demonstrate in the following, supported by the work of Ederveen et al (2003) on the basis of the conclusions drawn from case studies, how efficient the EU's cohesion policy is.

We can agree with the MNB (2006) study's claim that if case studies only provide us with statistics detailing the 'motorway kilometres' completed, or the number of workplaces created, we cannot really draw far-reaching conclusions concerning the results of European policy. However, in very general terms, case studies are carried out in just this spirit. They show the social and economic situation in a given region and the way Union funds are used, and sometimes, what difficulties were encountered (Stéclebout 2002). In some cases they point out in conclusion that the evaluation process must be developed in order to draw appropriate conclusions from it.

Ederveen et al (2003) discuss a research project which investigated the effects of support financed from the structural funds, mainly employing case studies and in-depth interviews. The project studied those regions which received support on the basis of Objective 2; in other words mainly attempting to solve employment problems in those branches of industry suffering from the consequences of structural changes. The effect could thus indeed be measured by the number of workplaces created. The researches estimated that the 6 billion Euros devoted to Objective 2 money created approximately 850,000 'gross' and 450,000 'net' workplaces. The difference can be explained by the *crowding out effect* of the national supports for regions and non-supported companies and employees. In other words the EU aid crowded out these non-supported companies (Ederveen et al 2003:26). However it was not possible to conclude from the case studies how the employment rate would have developed in the absence of supports. What also emerged was the *damage done to the principle of additionality*, since the national governments tended to withhold their own aid in those areas where payments were received from Brussels.

In conclusion Ederveen et al (2003) established from the *case studies* that the *efficiency of the cohesion aid is very rarely calculable* and in most cases is modest and only mildly positive. The case studies did however show that local authority practices were affected by the EU support, mainly in the spheres of co-operation, partnership and strategic planning.

However several studies also showed the tendency to *rent seeking* behaviour. In particular, regional plans are often designed to receive the structural funds' money rather than to help efficient allocation expenditure.

Model simulations

The second method of examination to be examined is the use of modelling. This method can complement the theoretical deficiencies of case studies in many respects. On the one hand, with the help of models it is easy to establish the *extent* to which cohesion funds on the macro level have contributed to increased employment or GDP growth. On the other hand a model is able to describe the situation *which would have occurred* if there had been no EU support. This latter function is important because slow growth and the simultaneous presence of structural support does not necessarily signify the ineffectiveness of the aid because it can happen that in a given area the situation would have been much worse without support.

The examination of the effects and effectiveness of structural funds, as has already been mentioned, can occur on various levels. If we examine an individual project (e.g. a motorway construction) then using a traditional cost benefit analysis[1] we can establish an appropriate ranking order for competing projects according to their rate of return. This kind of analysis however cannot calculate the *spillover effects,* or the positive and *negative externalities* which must be included in the effects of the whole EU programme. Considering the extent of the expenditure of the structural funds (including the pressure caused by difficulties brought about on domestic fiscal policy) it is important that we examine the effects in such a context that includes the feedback effects, relationships, spillovers and external effects over the whole

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[1] For more details of the advantages and disadvantages of the Cost Benefit Analysis, CBA see http:// ec.europa.eu/ regional_policy/ sources/ docgener/ evaluation/ evalsed/ downloads/ sb2_ cost_ benefit_ analysis. doc.

economy. In these cases good use can be made of national and regional economic models, such as the *input-output models (I-O), econometric models, computable general equilibrium models (CGE) and dynamic growth models*. These models are able to focus on the changes occurring in a given country, and indeed, can analyse the geographical situation pertaining in the country[1].

Model simulations are particularly suitable in that they are not only limited to *short term demand effects*, but are also able to describe the *long term supply side consequences*, which are much more difficult to numerise. These consequences are just assumptions, since they only appear later, and only if the programme is successful (Gács – Halpern 2006). In practice many models exist; some emphasise the demand side effects, while others changes on the supply side. Some models deal with entire countries, while others examine the effects of supports region-by-region.

In *regional models* development aid and investments also appear as external factors. Unlike in national models these models include the mobility of the labour force, the division of investments by sector and the special effects of transport projects. Difficulties however can be caused by the fact that certain data are difficult to measure, or are simply unavailable on a regional level. These include the links between sectors and firms, or commercial data for trade between regions. Forman's (2001) book mentions three such models[2], the regional VAR (Vector Autoregressive) model, the structural VAR model and the regional CGE (computable general equilibrium) model. The investigation of the effects of Hungary's 2nd national development plan, however, prepared a complex macro-regional model recently, the so called

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[1] In the 1980s the returning popularity of growth theory also led to an increasing interest in measuring the effects of interventions, but empirical growth studies remained predominantly aggregate and cross-county, rather than disaggregated and country-specific (Bradley 2006). The revival of economic geography brought spatial approach into the models (Krugman 1991).
[2] Forman (2001:232-241) introduces the models on the basis of *The socio-economic impact of the projects financed by the Cohesion Fund. A modelling approach. Vol. 1-3.* published by the European Commission in 1999.

EcoRET model, which can also be used at county level (Varga 2007). This model simulates the effects of the EU funds arriving in Hungary over the 2007-2013 period right up to 2017[1]. On this basis, on a national level the following effects can be expected: an average GDP growth of 7 per cent; the growth rate will jump to 1.87 per cent following the initial demand shock, but will reduce as the cycle progresses and become negative in 2014, while the model predicts an employment effect of approximately 3.5 per cent (Varga 2007:78, 80-82).

The so-called *macro-models, which deal with whole countries*, treat the whole country as one unit (or point) and do not take into account the regional differences or internal migration. The basis for these models is provided by theoretically consistent, general equilibrium models whose parameters are partly calibrated on the results of earlier empirical studies, and partly on assumptions. The funds are considered as state-led capital-increasing investments in various sectors of the economy, and assumptions are made about their productivity and effectiveness on this basis. In this way the simulations show the potential effects of the EU structural funds, in other words, they answer the question of how the economy would develop in the short and long term if the distribution mechanism, co-ordination and realisation of the project were completed in the best possible way (MNB 2006).

The best-known *demand side model* measuring the effects of the transfer of structural funds (according to Forman 2001) is the *Beutel model*, which details the growth in demand caused by the transfers in a simple national economy input-output table. Using the above-mentioned model in an ex-ante examination in 2002 the conclusion was reached that community interventions during the 2002-2006[2] period brought the greatest growth to Portugal and Greece, and in these countries GDP grew by 3.5 and 2.2 per cent thanks to these interventions (Beutel 2002:13). Significant effects were predicted for the eastern part of

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[1] An other modelsimulation has been used for Hungary, the so called ECO-Trend modell, developed by the institute of ECOSTAT. For further information see EcoStat (2007:47-70).
[2] Given that the model was created in 2002, it gives a prediction rather than an ex post analysis.

Germany (1.6%) and Spain (1.1%). According to the study none of the examined countries would have been able to achieve growth above the EU average by relying exclusively on its own resources.

S*upply side model*s offer another approach to the effects of community transfers. These models start from the assumption that the effect of external transfers cannot be explained by a simple quantitative adaptation of the unchanged economic structures, but that the active decisionmaking process of economic actors and their adaptive behaviour also influence the final effect of the aid. The basic aspect of the supply side approach is that it examines the spillover effects between different sectors and regions, and it is also able to estimate the structural funds' short term crowding out effect on private investments. Supply side models include the Quest[1] and Pereira models. Quest is generally adopted in the Union to evaluate any type of community policy, while *Pereira* deals specifically with Portugal and was not designed for the request of the European Union (Forman 2001).

The ex-post simulations conducted using the *Quest model* to examine the 2000 to 2006 financial planning period support the Beutel model in their conclusion that the effects of structural funds on a GDP level were positive. In the Quest model however, these effects were weaker (1) because of the deteriorating external balance cosed by long run real currency appreciation and by growing real interest rate and (2) because EU supports crowd out private investments (MNB 2006). The results in figures for the period 2000-2006 were an additional growth of 0.5-1.4% in GDP (for Spain, Greece, Ireland and Portugal). The crowding

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[1] The Community originally commissioned the QUEST model to model the effects of monetary union. It is a supply model which analyses the effects of the asymmetric economic shocks affecting those countries taking part in monetary union. In QUEST whole sectors are introduced in lesser detail, but in geographical terms a much greater territory is encompassed since the model covers all the economies of the EU. QUEST is the only model which has managed to successfully integrate all those countries giving net contribution to the structural funds, and so thus integrate the effects of the regional policy on the whole European Union. This model is also the one that covers most comprehensively the mechanisms that bring about so-called crowding out effects (Forman 2001:229, Veld 2007:4-5).

out and real appreciation effects came into effect relatively quickly in the model, already being present in the third or fourth year of the seven-year cycle.

The Quest model was used more recently (Veld 2007) to examine the effects of EU transfers in the member states between 2007 and 2013. The conclusions were similar to those mentioned above. In the cohesion countries, the take off in demand (following the expenditures resulting from the structural funds) was less than expected (Figure 2) On the other hand a slow improvement on the supply side was observed. In the long term the growth in public sector investments brought positive external effects which in turn brought a significant benefit in output, particularly in productivity improvements. In the short term however, this growth can be accompanied by crowding out of private sector investments.

Figure 2: The effect of cohesion policy in the EU, according to the Quest model (2007-2015)
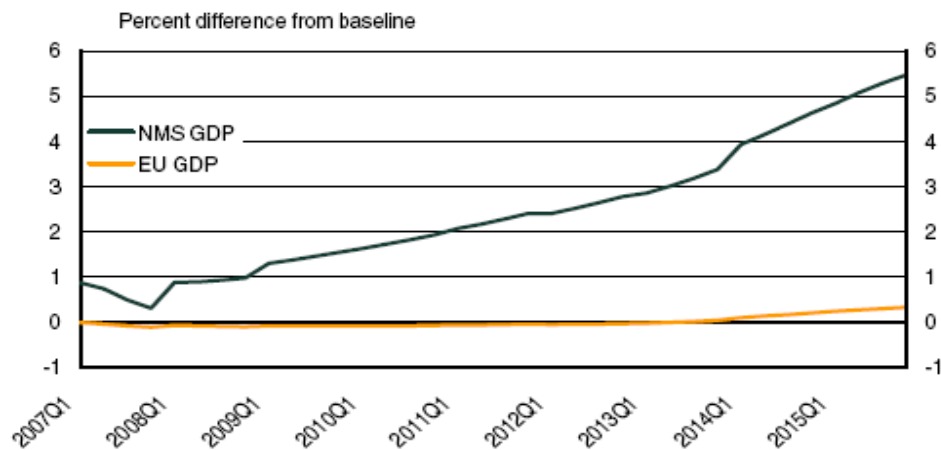
Note: NMS = new member states
Source: Veld (2007:15)

The first attempts to evaluate cohesion aid with model simulations were carried out with the help of the *Hermes model*. This model was

originally designed to analyse the demand shocks of the 1970s and 80s, but in its entirety was only used for Ireland (see Ederveen et al 2003:28). A little later the Hermin model filled the geographical deficiency[1].

The *Hermin model* is a good example of the combination of the demand and supply side models. It takes into account the fact that the support of structural funds increases demand and can also apply to the supply side, because basically it is "a neo-Keynesian model with some neo-classical features in the supply side" (EC 2004:90), and, since it is designed explicitly to measure the effects of cohesion policy, one of the special features of the model is that it is capable of analysing in a refined system the different types of support offered by the whole cohesion programme.

According to the Hermin model during the 1994-1999 financial period, the effects of the structural supports on Spain, Greece and Ireland were positive, but relatively modest. They increased GDP by approximately 1-1.5 per cent over the period, and 0.5-1 per cent in the longer term, in other words on a permanent basis. For Portugal however, the effects were much greater, 3-3.5 per cent and 2 per cent respectively (Bradley et al 1995).

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[1] The origins of the HERMIN model can be traced back to the complex, multi-sector HERMES model developed by the European Commission from the beginning of the 1980s. It was intended to learn from HERMES, incorporate many of its structural features, but be of more modest scale. In other words it was a minimal version (HERmes MINimal) (Bradley 2006:198).

Table 3a: Hermin: The effects of cohesion policy 2000-2006 on national GDP and employment in 2006

Country	GDP gain (% above baseline)	Employ-ment gain (% above baseline)	Employ-ment gain (1000s above baseline)
Bulgaria	-	-	-
Czech Rep.	1.6	0.8	39.4
Estonia	1.8	1.3	7.9
Ireland	0.9	0.7	12.9
Greece	2.8	2.0	85.2
Spain	1.0	0.7	133.5
Cyprus	0.1	0.1	0.4
Latvia	1.6	1.2	11.7
Lithuania	1.2	0.9	12.4

Table 3b: Hermin: The effects of cohesion policy 2007-2013 on national GDP and employment in 2015

Country	GDP gain (% above baseline)	Employ-ment gain (% above baseline)	Employ-ment gain (1000s above baseline)
Bulgaria	5.9	3.2	90.4
Czech Rep.	9.1	7.1	327.8
Estonia	8.6	5.4	31.0
Ireland	0.6	0.4	8.2
Greece	3.5	2.3	95.0
Spain	1.2	0.8	156.7
Cyprus	1.1	0.9	3.1
Latvia	9.3	6.0	55.4
Lithuania	8.3	4.8	67.7

Hungary	0.6	0.6	22.1	Hungary	5.4	3.7	147.3
Malta	0.4	0.4	0.6	Malta	4.5	4.0	6.9
Poland	0.5	0.4	50.3	Poland	5.4	2.8	384.2
Portugal	2.0	1.4	70.6	Portugal	3.1	2.1	104.8
Romania	-	-	-	Romania	7.6	3.2	267.5
Slovakia	0.7	0.5	11.3	Slovakia	6.1	4.0	87.9
Slovenia	0.3	0.3	2.3	Slovenia	2.5	1.7	15.7
East. Germ.	0.9	0.7	53.0	East. Germ.	1.1	0.9	60.0
Mezziog-iorno (It-aly)	1.1	0.8	55.7	Mezziog-iorno (It-aly)	1.5	0.9	60.1
Total			569.3	Total			1,969.7

Source: EC (2007:96)

In their most recent work, Bradley and co-researchers (2007) have estimated the effects occurring after the 2000-2006 and after the 2007-2013 financial periods. Their analysis is based on the cohesion programme's total real expenditure devoted to special areas in Ireland, Greece, Spain, Portugal, the eastern German 'Ländern' and those regions in Italy in the Objective 1 area. This model also shows the initial positive effect of the cohesion policy: in most member states the absolute GDP is 5-10 per cent higher than without intervention. According to projections, in terms of employment an extra 2 million net workplaces will have been created (Table 3a and 3b).

Aid from the European Union can be expected to have different effects in different member states, which can be explained partly by the widely differing levels of financial support available, and partly by the different economic structure of the different countries. The *factors* appearing in the Hermin model, and those *most influencing growth* are the following: the structure of the economic sectors, their indicators, how able the industrial sector is to adjust to the productivity growth caused by technological development, openness to the world trade network, and wage flexibility.

The fourth cohesion report (EC 2007) introduces another macro model which analyses the effects on the 2007-2013 budget period. This is the *EcoMod model*, which is a multi-sector 'recursive-dynamic' computable general equilibrium model. It has a detailed representation of the structure of the economy, notably the behaviour and interaction of different sectors, different types of economic agent (households, firms, etc) and different types of economic behaviour (consumption, production, investment, etc). The model is therefore well-designed to capture structural shifts, trade effects and dynamic supply-side gains – a key aim of cohesion policy – but is not suitable for measuring short-term, year-on-year changes (EC 2007:97).

According to the EcoMod investigation (EcoMod 2007) political intervention in all of the member states – particularly in the new member states which enjoy greater financial support – has a markedly positive effect. In Slovakia, Lithuania, Latvia and Bulgaria GDP will be approximately 15 per cent higher by 2020 as a result of intervention than it would be without it. The projections indicate that the effect of

policy will be slightly larger after 2015 than before due to higher productivity, a better-trained workforce and better infrastructure. Thus intervention will reinforce the supply side of the economy and put its growth on a higher and more sustainable path.

However, two factors must also be taken into consideration. The first is that the continuous increase in growth rate, and its further improvement after the financial period, depends on the execution of other policies designed to improve the supply side. Secondly, the extent of the effects is sensitive to the assumptions made about the elasticity of productivity growth to increases in the capital stock, which are relatively uncertain. In other words, these effects will vary from country to country, partly due to the differences in the funds involved, and partly due to the structure of the economy in the given country: countries with a significant agricultural sector and other industrial sectors will enjoy a lesser effect than those with a more developed service and high technology sector (EC 2007).

The main engine of growth is investment conducted in the physical and human resource areas. Despite the fact that all sectors will feel the effects of higher growth, benefits will be highest in the construction industry, thanks to the infrastructure projects, and in the high technology industry, thanks to the better-educated and trained workforce (EcoMod 2007).

Following these *model simulations* we can draw the conclusion that the *Union's structural supports contribute significantly to economic growth and employment* in the targeted countries. However we should also bear in mind the criticisms of Ederveen et al (2003). In their opinion the simulations' estimates are not accurate, and are much more affected by the models basic assumptions than by what really happens in the support scheemes. This criticism is indeed important because the models are often produced to orders from the Commission, and this introduces the problem of subjectivity (Ederveen et al 2003:29). Thus the model simulations only show one possible effect, which can be re-

duced by the processes really occurring, by the crowding out effect, the inefficient allocation of resources and the phenomenon of rent seeking.

Econometric studies

Two basic types of econometric study can be identified. One type searches for indirect evidence of the effects relating to cohesion policy, while the other examines directly in what proportion EU supports contribute to regional growth. In this way the ex-post econometric studies are an excellent complement to the evaluations carried out by the previously prepared, ex-ante model simulations. There are several works available which give us a comprehensive picture of econometric studies, such as Eckey – Türck (2006) and Rodokanakis (2003).

Among the studies accounting for *indirect effects* that of Angel de la Fuente and Xavier Vives (1995), which paints a positive picture of the effects of regional policy, is worthy of note. They estimate a growth model that includes public and human capital. They conclude that infrastructure and education largely determine the location of mobile production factors. De la Fuente and Vives use their estimates to simulate the effect of cohesion support on growth, thereby taking crowding out into account. Since the extent to which crowding out occurs is unknown however, they assume exogenous lower and upper bounds in their model. Their simulations show that public investments in infrastructure and education may indeed help to reduce regional disparities in income and growth of GDP per capita.

In particular, the ERDF, because of its redistributive nature, has helped to achieve more equality across regions in Spain. They show that although the role of regional funds in reducing regional differences in Spain was small (during the 1980s it was responsible for a mere 1 per cent reduction in inequality), the supply side regional policy (such as infrastructural investments) was, however, very effective. In their opinion the transfer effect was positive and the reason why the

results were not yet visible was that distribution was on too small a scale.

However de la Fuente and Vives (1995) also touch upon the efficiency-equity trade off of regional policy. If all regional funds were distributed according to the same redistributive principles as the ERDF, then the dispersion of labour productivity would have been reduced. At the same time, however, Spanish national output would have been down due to a less efficient allocation of capital.

Most of the studies examining the *direct effects* deal with regional growth, in other words whether there is any convergence on a European level. Some finds support for convergence, others yield either mixed results, or are less positive on the growth effect of cohesion support, of which more anon. Studies use different theoretical approaches, for example the neo-classical growth theory (Sala-i-Martin et al 2004), the endogenous growth theory (Romer 1990), or the new economic geography approach (Midelfart-Knarvik – Overman 2002). They take into account the effects of *infrastructure* development, and according to Rodokanakis (2003) do not claim that regional policy itself helps the process of convergence, but that it can facilitate it through infrastructure development. Martin (1998) studied whether, in the period from 1978 to 1992, there would have been faster convergence and greater growth if infrastructure investment had been higher. The study showed that the central, rich regions of the poor countries benefited much more than their poorer regions. These conclusions agree with those of the new economic geography approach (Krugman 1991). Differences between regions cannot be reduced by state infrastructure development, since these only favour richer regions (Martin 1999). However they should stimulate inter-regional trade and make the country more attractive.

Midelfart-Knarvik and Overman (2002) also use the new economic geography model, and reach the conclusion that the regional supports should strengthen the comparative advantage of the country and the

region, since those regions with a highly trained workforce should attract incoming R+D intensive industries. They stress the importance of expenditure on *education*. Rodriges-Pose and Fratesi (2004) also emphasise the importance of education in their examination of those regions in the Objective 1 category. According to their research, funds devoted to infrastructure and, to a lesser extent, on business support, the returnes to commitments on these areas are not significant. Support for agriculture only has a short term positive effect on growth (and wane quickly); however, investment in education and human capital (which make up one-eight of the total commitments) has a medium-term positive and significant returns. Their examination shows that the convergence processcan not be captured unambiguous. When national growth rates are built into their model no regional convergence is experienced, and an analysis of the Objective 1 regions also shows a meagre rate of convergence.

In Beugelsdijk and Eijffinger's (2005) study the concept of *moral hazard* appears, which can occur if member states do not accomplish investments in certain regions, and keep these regions' standard of living at a low level, and thus ensure their legal entitlement to supports. The authors built an index into the regression balance which indicates the level of corruption in the country. The results do not support the assumption that the more corrupt countries use the structural funds less efficiently. In other words their results show that the less 'clean' countries (or as they term them: more corrupt countries) do not gain less economic growth from the structural funds. Their model does however show the phenomenon of regional convergence.

Ederveen et al (2006) in their widely cited work[1] address the evaluation of the effectiveness of cohesion policy using the single equation, panel dataset approach. The results support a serious critique of cohesion policy, asserting that its effectiveness is conditional on country characteristics that may be in short supply in

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[1] And recently widely critisised work, as well. See Bradley – Untiedt (2008).

many poorer member states (e.g., the quality of public institutions), and that cohesion policies should not be implemented in the new member states unless the institutional capacities are installed.

According to the study carried out by Boldrin and Canova (2001) structural funds *do not contribute to economic growth at all.* In essence the funds are subordinated to goals which are rather functions of a general European political balance, and of which only a few are designed to achieve economic growth. The authors therefore call for the drastic restructuring of the structural supports and express their doubts relating to the financing of the new accession states. They believe that economic growth and convergence is best incentivised in a 'traditional' way with economic policy tools that are *as market-oriented as possible.*

Fagerberg and Verspagen (1996) also take a negative view of the role of cohesion supports. They tend to disadvantage certain factors in the cohesion process, such as the direction of R+D investment (as is also the case in Midelfart-Knarvik – Overman's (2002) study). Their results do not support the existence of the convergence process.

As we have seen, the *econometric models paint a generally more pessimistic picture of the effects of development funds.* They attempt to estimate the real effects of the supports (as opposed to the potential figures produced by the model simulations) and they do not assume the productivity of investment, the lack of a crowding out effect or the adequate realization of the principle of additionality. However critical assessment of econometric studies is needed as well. Most importantly, necessary data for the construction of the models may be lacking, or may not be reliable, the data series available may not cover the appropriate long time periods, and thus describing the long term effects of the structural funds in figures becomes more difficult. These are serious problems which can completely outweigh the advantages of econometric studies, but the nature of the question itself makes a proportional statistical assessment difficult (EcoStat 2007).

So, what is the real result? Concluding remarks

In order to follow through the most important elements of the evaluation methods it is worth returning to ill. 1. Now we can ask our questions again; (1) *is the EU cohesion policy appropriate (is it relevant, reasonable)?* We can answer this question if we see that the policy set up and the measures it uses are relevant to the solution of the problem. At the level of the cohesion policy as a whole the problems have been defined in the following way: the economic, social and territorial disparities have existed for a long period, and we would like to reduce them with the help of the structural funds and the cohesion fund. In practice the lion's share of the supports (to simplify the situation) has been devoted to infrastructure and human resource development, and the policy has become more concentrated on certain regions (Molle 2006). Bearing all this in mind there is no reason to argue with the appropriateness of the regional policy.

The second question that we must answer is (2) *is the community's regional policy effective?* We can describe the interventions as effective if they obtained the ex ante expected effects and that objectives have been achieved. The effectiveness of interventions is not easy to establish. In practice one has started by answering the following questions: Did the structural funds' supports reach the *appropriate regional target groups?* and Have the supports been spent on the kind of *programmes and projects* which do help the policy's objectives to be achieved? However these questions, according to Molle (2006:6), do not reach the hart of the matter. We have seen that the main objective of the cohesion policy is to reduce disparities, and so the real question to which research needs to give an answer is *Weather the structural funds have contributed to a reduction of these disparities.* Or would the observed reduction have occurred anyway? The answer to this question was helped by considering methodological issues, and as we have seen, the answer is not at all unequivocal.

The informal methods based case studies, the model simulations and the econometric estimates do not provide a consistent picture. The methods produce differing evaluation results as well, since the various methodologies have strengths and weaknesses in different areas, and so the concrete questions they can answer are not the same either. To a certain extent these differences are to be expected. The *case studies* give an accurate picture of the characteristics of a given project, the nature of the environment and the process of implementation, but they are not always appropriate for calculating the effect of the funds or for drawing macro level conclusions. The *model simulations* give the possible extent of the effects in an optimal political situation (measure the potential impact), while the *econometric studies* seek to match the already existing effects to some trend, detail the causes and reasons and attempt to estimate the actual effects of the supports. The results of these latter are the most pessimistic, and many of them assert the ineffectiveness, or even the negative effects of the funds (Fagerberg and Verspagen 1996).

Why does the policy not achieve the intended effects and why is it only effective to a limited extent? The lessons drawn from the evaluations suggest that various factors may play a role:

• Compared to national development funds EU supports have a crowding out effect (Ederveen et al 2003, Veld 2007). Even though the principle of additionality or co-funding is exist in the Union's regional policy, according to the study carried out by Ederveen et al (2003:61), on average, a region forgoes 0.17 Euros of national regional aid for each Euro cohesion support by the EU.

• EU funds replaces other convergence mechanisms; for example the growth of labour mobility will be reduced by the Union supports given to backward regions (Boldrin – Canova 2001), alternatively, cohesion support may crowd out private investment if it is spent on projects that are close substitutes for private capital.

- Various methodological approaches showed the existence of rent seeking and moral hazard (Váradi 2006, Beugelsdijk and Eijffinger 2005), as did the case studies (see e.g. Stéclebout 2002). Regional and national authorities may use funds for relatively low-productive projects on purpose.

- The European policy to promote regional growth is only conditionally effective (Ederveen et al 2006): European support enhances growth in countries with the 'right' institutions; the funds are to be allocated toward institution building in the first instance. Once the institutions are of a sufficient quality, the funds may be effective in stimulating (catching-up) growth.

- The effects of Union intervention counterbalanced national policy (Midelfart-Knarvik – Overman 2002).

- It is important to mention the literature on the new economic geography, even though it was not presented in detail in this analysis. With the process of economic integration (or the reduction in trade costs) economic activity is more likely to be concentrated in central, and also richer regions, and this is particularly true for industrial sectors with higher added value. For this reason the periphery will tend to specialise in those manufacturing activity, which requires less qualified labour force (see the studies by Krugman 1991, Martin 1999, Puga 2002, Midelfart-Knarvik – Overman 2002 or Rodriguez-Pose – Fratesi 2004).

- The consequence of this previous factor may also causes that most of the supports flow into relatively rich regions (Ederveen et al 2003).

- The question also arises of whether the money devoted to regional development was not spent on the most appropriate objectives. Many studies reject the current practice, which is focused on infrastructure and small and medium size enterprises, and call instead for support for education and human resources. (Martin 1999, Eckey – Türck 2006, Veld 2007, Rodriges-Pose – Fratesi 2004 and EcoMod 2007)

● Several studies (just like Armstrong 2002, ESPON 2005:5) have suggested that it is possible that there has not yet been enough time to see the results and that the sums involved are too small to bring spectacular results.

Of course the regional development programmes should not only be considered successful if they reduce regional differences. According to the political science approach (Allen 2005, Keating 1997) the agreements reached on regional programmes and on the division of funds bring a positive benefit in that individual states are forced to work closer together and this in the long run helps the process of integration.

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Zsuzsanna TRÓN, Ph.D. candidate at the Faculty of Economics and Business Studies, University of Debrecen, Hungary. Her field of research is the European Union, the cohesion policy of the EU and the redistribution system of the economic integration. She held lectures and courses in the fields of her research topics at the World Economy and International Relations Department of the Faculty, where she is employed as assistant lecturer since 2004. Zsuzsanna Trón has an MSc

in Economics, she graduated on the international business specialisation.

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